NEW JERSEY TRANSIT CORPORATION

NOTICE TO BIDDERS

HOBOKEN SIGNAL AND YARD POWER REPAIRS PROJECTS, HOBOKEN, NJ

INVITATION FOR BIDS NO. 21-004X

Notice is hereby given that this is an electronic bid submission. Electronic bids shall be received by NJ TRANSIT via the Internet until **2:00 pm, on Thursday, July 8, 2021** ("Bid Due Date") for the Hoboken Signal and Yard Power Repairs Projects located at Hoboken, Hudson County, New Jersey.

Bids for the project will be downloaded from the Bid Express website, **www.bidexpress.com,** at 2:00 p.m. on the scheduled Bid Due Date (subject to change by Addenda). The Bidder must upload its bid prior to the hour specified so that it is included in the project download. Late bids cannot be accepted. This is the only way to submit a bid for this project; paper bids will not be accepted.

The apparent bid results for this Invitation for Bids ("IFB") will be made available for viewing electronically on Bid Express (www.bidexpress.com) and on NJ TRANSIT's Procurement Calendar (https://www.njtransit.com).

The work under this IFB generally consists of, but is not limited to, making the entire Signal Power Distribution System resilient. All work must be in strict conformance with the drawings and technical specifications provided in the Bid Documents.

In order to obtain all pertinent bid documents, interested firms must register with Bid Express at **www.bidexpress.com**. To subscribe, follow instructions on the website. The fee schedule is available on the website. In order to submit a bid, NJ TRANSIT recommends that Bidders apply for a digital ID at least seven (7) business days prior to the Bid Due Date. All fees are directly payable to Bid Express. General navigation (registering, setting up to bid electronically, and solicitation review) of www.bidexpress.com prior to actual selection of a solicitation for bidding is free.

All bidders must be prequalified by NJ TRANSIT prior to submitting a bid. Bidders must be prequalified for "HR" Heavy Construction (Operating Railroad Environment) in a classification of "GC" General Contractor, for an amount of work that is equal to or greater than their bid amount. NJ TRANSIT suggests a minimum rating of "R" over $25,000,000.00. Prequalification questionnaires are available for download from the Bid Express website, www.bidexpress.com. Bidders who are not currently prequalified as required above or whose prequalification has expired must submit completed prequalification forms to **Faith Blair** at fblair@njtransit.com no later than the submittal date identified in the Special Provisions. Late prequalification request submissions will not be considered for this solicitation, and will disqualify a firm from submitting a bid.

A pre-bid conference will be held utilizing a telephone and video conference, via Microsoft Teams, and is scheduled for **Wednesday, May 12, 2021**. For access information, participants should contact Faith Blair, by e-mailing fblair@njtransit.com by or before **Tuesday, May 11, 2021.** Interested parties are urged to participate. Attendance at both the pre-bid conference is strongly recommended.

Bidders will be required to download Microsoft Teams https://teams.microsoft.com/, prior to the pre-bid conference, in order to access the web video conference and view the presentation. Upon confirmation of your firm's RSVP, NJ TRANSIT will forward an invitation for the video conference.

All inquiries and requests for clarifications regarding this IFB shall be submitted in the space provided

for Questions and Answers (Q & A) in Bid Express no later than **5:00 p.m.** on **Thursday, May 27, 2021**. Any response NJ TRANSIT may choose to make, will be by a written Addendum to the IFB. All such Addenda will be posted on Bid Express prior to the Bid Due Date.

This project is subject to the requirements of the Public Works Contractor Registration Act (N.J.S.A. 34:11-56.48 et seq.). Contractors and subcontractors must also comply with the State of New Jersey Division of Revenue and Enterprise Services Business Registration Certificate requirements (N.J.S.A. 52:32-44).

Bidders are required to comply with the requirements of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27, regarding Equal Employment Opportunity and Affirmative Action rules and regulations. Disadvantaged Business Enterprises, in accordance with U.S. Department of Transportation (DOT) regulations, 49 C.F.R. Part 26, shall have the maximum opportunity to participate in the performance of this project. A **twenty-three percent (23%) Race Conscious** DBE goal has been assigned to this project.

In accordance with N.J.S.A. 27:25-11(b)(3) and N.J.A.C. 16:72-2.2, bidders are notified that a bid bond in the amount of ten percent (10%) of the bid price is required with their bids.

New Jersey Transit Corporation
Instructions To Bidders For Construction

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INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION

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A. ABBREVIATIONS AND DEFINITIONS

A.1 ABBREVIATIONS

See Article 1.1.1 of the General Provisions for Construction.

A.2 DEFINITIONS

See Article 1.1.2 of the General Provisions for Construction.

B. COMMUNICATIONS

B.1 OBTAINING BID DOCUMENTS

This Project is being bid by use of an electronic bidding process. Electronic bidding information is available on NJ TRANSIT's electronic bidding website: www.bidexpress.com. General navigation (registering, setting up to bid electronically, and solicitation review) of www.bidexpress.com prior to actual selection of a solicitation for bidding is free. The Bidder shall download all bid documents from the website. NJ TRANSIT assumes no responsibility for errors or omissions in the downloaded documents except as specifically provided for in the Contract Documents. The Bidder shall address questions or problems with downloading or using the electronic bidding files, not the requirements of the Contract, to:

Bid Express Customer Support
Tel: (888) 352-2439
FAX: (888)971-4191
E-Mail: support@bidexpress.com

To be able to bid online users must have a digital ID. Bidder digital IDs can take up to seven (7) calendar days to obtain. There are also associated costs for submitting a bid. Please plan accordingly. You may submit bids as early as possible as bids are held at BidExpress.com until the bid opening. You may resubmit bids as many times as you need to, however only your latest bid is valid.

B.2 INQUIRIES AND REQUESTS FOR CLARIFICATION

All inquiries and requests for clarifications regarding the Contract Documents shall be submitted by e-mail to the Contract Specialist identified in the Special Provisions. Such requests shall state the Invitation for Bid (IFB) number and name of Project. Any response that NJ TRANSIT may choose to make will be by a written Addendum to the IFB. NJ TRANSIT will not be bound by any informal explanation, clarification, or interpretation,

oral or written, by whosoever made, that is not incorporated into an Addendum to the IFB. All such Addenda will be posted on the electronic bidding website prior to the opening of Bids. It is the obligation of the Bidder to check the website for Addenda. Certain Addenda will contain amendments to the IFB. The Bidder shall ensure that the "Schedule of Items" as identified on the electronic bidding website and in the electronic bidding file contains an acknowledgement of all applicable Addenda. The Bidder shall ensure that the Bidder acknowledges and affirms the he/she has obtained, reviewed and applied all Addenda issued during the bidding period by selecting Yes or No and input the number of Addenda it has received. NJ TRANSIT has the right to reject Bids that do not contain a completed Addenda Acknowledgement. No response may be made by NJ TRANSIT to inquiries received later than the submittal date identified in the Special Provisions.

B.3 ACKNOWLEDGMENT OF RECEIPT OF ADDENDA

Bidders must acknowledge receipt of all Addenda on the Bid Form in the space provided. Failure to acknowledge receipt of all Addenda may be grounds for the rejection of a Bid as non-responsive.

B.4 IMPROPER COMMUNICATIONS

In accordance with N.J.S.A. 52:34-10.1, Bidders are advised that communications with NJ TRANSIT that in any way relate to this IFB shall only be conducted with the Contract Specialist, the authorized representative of the Contracting Officer in NJ TRANSIT's Procurement Department. All other contacts, with the exception of contacting NJ TRANSIT's Office of Business Development for matters related to Disadvantage Business Enterprise (DBE) requirements, are strictly prohibited and are considered improper.

Bidders are advised that violation of this prohibition, as required by N.J.S.A. 52:34-10.1, may result in the rejection of a Bid or the removal of the Bidder from consideration for award of this Contract.

B.5 PRE-BID CONFERENCE

A pre-bid conference may be held with prospective Bidders to review the IFB, Contract Documents and generally discuss the Project. The time and place will be specified in the Advertisement. Prospective Bidders are strongly encouraged to attend.

C. REGISTRATIONS, PREQUALIFICATION AND DBE CERTIFICATION

C.1 CORPORATE REGISTRATION

In accordance with N.J.S.A. 14A:13-3, a foreign corporation (i.e., a corporation for profit organized under the laws of a jurisdiction other than New Jersey) that contracts to do business with NJ TRANSIT must have a certificate of authority to do business in the State of New Jersey. To obtain a certificate of authority, a foreign corporation should contact the New Jersey Business Registration and Commercial Recording Services Line at (609) 292-9292, or go to the State of New Jersey's Business Gateway Registry Services (NJBGS) website at www.state.nj.us/njbgs. The relevant documents, contained in the New Jersey Complete Business Registration Package (NJ-REG), instructions and customer service assistance are available from the above locations. No contract will be entered into by NJ TRANSIT with a Bidder unless the successful Bidder has obtained a certificate of authority to do business in New Jersey. In addition, all foreign companies must have a registered agent in the State of New Jersey upon whom process may be served and such information must be provided to NJ TRANSIT.

C.2 PREQUALIFICATION OF BIDDERS

In accordance with N.J.A.C. 16:72-2.4, prospective Bidders, prior to bidding on capital improvement projects, must be prequalified as to the character and amount of work for which they are permitted to submit Bids. Such prequalification shall be assigned to prospective Bidders based on all factors related to Bidder responsibility as set forth in N.J.A.C. 16:72-1.4, and any pertinent information relating to the qualification of prospective Bidders ("Prequalification Classification and Rating").

A Prequalification Classification and Rating will be assigned to prospective Bidders based on information submitted in the Prequalification Questionnaire available through NJ TRANSIT's electronic bidding website. A fully completed Prequalification Questionnaire must be received by NJ TRANSIT no later than the submittal date identified in the Special Provisions. Failure of a prospective Bidder to submit its fully completed Prequalification Questionnaire by that date may result in a denial of Prequalification for the IFB.

The required prequalification classification for the type of work and suggested minimum rating amount will be identified in the Special Provisions for the IFB. Prospective Bidders are advised that a key consideration in the evaluation, classification and rating of the prospective Bidder is its past experience with work similar both in nature and in magnitude to the prequalification classification and rating requested by the prospective Bidder. Failure, either in the Prequalification Questionnaire or in any subsequent

information discovered by NJ TRANSIT based on information provided by the prospective Bidder, to demonstrate responsible experience with work of the nature and magnitude of the classification and rating requested, may result in NJ TRANSIT assigning a different classification, lower rating, or both, or a rejection of the Prequalification request pending the submission of evidence of prior responsible experience. The Prequalification Classification and Rating shall be valid for thirty-six (36) months from the date of the Notice of Classification letter.

Please note that the prequalification classification will only be conducted for those Bidders who have subscribed to NJ TRANSIT's electronic bidding service and have downloaded the relevant Bid Documents from NJ TRANSIT's electronic bidding website www.bidexpress.com, who intend to bid as a prime Contractor or as a member of a joint venture, and have submitted a completed Prequalification Questionnaire.

Prospective Bidders seeking to submit Bids as Joint Ventures are advised that each prospective Bidder must submit an independent Prequalification Questionnaire, in addition to a Statement of Joint Venture form executed by both prospective Bidders. A rating and classification will be assigned to each prospective Bidder and a determination will be made as to the Joint Venture's eligibility to submit a Bid in response only to this IFB.

Two or more prospective Bidders that maintain an ongoing Joint Venture relationship may request Prequalification as a single entity provided they can demonstrate a past history of responsible performance as a single entity. In such event, the Prequalification Classification and Rating assigned to the entity shall be valid for thirty-six (36) months.

NJ TRANSIT may reject any Bid at any time prior to the actual award of a Contract where there have been developments subsequent to qualification and classification which, in the opinion of NJ TRANSIT would affect the responsibility of the Bidder. Before taking such action, NJ TRANSIT will notify the Bidder and give such Bidder an opportunity to present additional information.

C.3. DISADVANTAGED BUSINESS ENTERPRISES ("DBE") GOAL ASSIGNMENT

As an aid in meeting the commitment of its Disadvantaged Business Enterprise Program, NJ TRANSIT has assigned a DBE goal on the gross sum amount of the Bid or Contract for DBE subcontracting utilization which is identified in the Special Provisions. All NJ Unified Certification Program (NJUCP) certified DBE firms, including suppliers, are eligible to

participate in this Contract. NJ TRANSIT's DBE Program is accorded the same priority as compliance with all other legal obligations required by the United States Department of Transportation (USDOT). Contractors shall comply with the DBE Program requirements in the award and administration of NJ TRANSIT contracts. Failure by the Contractor to carry out these requirements shall constitute a breach of the contract, which may result in the termination of the Contract or other such remedy, as NJ TRANSIT deems appropriate.

C.4 PUBLIC WORKS CONTRACTOR REGISTRATION

Pursuant to the Public Works Contractor Registration Act, N.J.S.A. 34:11-56.48, et seq., Bidders are advised that Bidders shall not Bid on any contract for public work unless the Bidder is registered in accordance with N.J.S.A. 34:11-56.51. Public work is defined in N.J.S.A. 34:11-56.26(5). A Bidder can only list Subcontractor(s) in its Bid proposal if the Subcontractor(s) is registered in accordance with N.J.S.A. 34:11-56.48, et seq. Contractors or Subcontractors, including a Subcontractor not listed in the Bid, shall not engage in the performance of any public work subject to the Contract, unless the Contractor or Subcontractor is registered pursuant to the Act.

The Bidder shall possess a valid Public Works Contractor Registration Certificate at time of Bid submission. The Bidder is requested to provide its Public Works Registration Certificate number with its Bid submission. If requested, the Bidder shall submit a valid Public Works Contractor Registration Certificate to NJ TRANSIT, in care of the Contract Specialist, within seven (7) calendar days of NJ TRANSIT’s request.

The Bidder shall, after the Bid is made and prior to the awarding of the contract, submit to NJ TRANSIT the Public Works Contractor Registration Certificate for all Subcontractors listed in the Bid in accordance with N.J.S.A. 34:11-56.55. Applications for registration from either the Bidder or any Subcontractor shall not be accepted as a substitute for a certificate of registration.

Registration forms, copies of the Act and other relevant information may be obtained by contacting:

New Jersey Department of Labor and Workforce Development
Division of Wage & Hour Compliance
P.O. Box 389
Trenton, New Jersey 08625-0389
Telephone: (609) 292-9464
Fax: (609) 633-8591

Companies not listed in the Bid that quote successfully as Subcontractors at any tier will be required to submit evidence of registration with the Department of Labor and Workforce Development as part of the post-award Subcontractor approval process as detailed in General Provisions 1.9.2.

C.5 OWNERSHIP DISCLOSURE

Pursuant to N.J.S.A. 52:25-24.2, in the event the Bidder is a corporation, partnership or limited liability company, the Bidder must complete a current, Ownership Disclosure Form prior to the receipt of the Bid or accompanying the Bid. The Ownership Disclosure Form must set forth the names and addresses of all stockholders in a corporation who own ten percent (10%) or more of its stock, or of all the individual partners in the partnership who own a ten percent (10%) or greater interest, or of all the members in the limited liability company who own a 10 percent or greater interest. If one or more stockholders, partners, or members is itself a corporation, partnership, or limited liability company, the stockholders holding ten percent (10%) or more of that corporation's stock, or the individual partners owning ten percent (10%) or greater interest in that partnership, or the members owning ten percent (10%) of greater interest in the limited liability company, shall also be listed.

To comply with this requirement, a Bidder with any direct or indirect parent entity which is publicly traded may submit the name and address of each publicly traded entity and the name and address of each person that holds a ten percent (10%) or greater beneficial interest in the publicly traded entity as of the last annual filing with the Securities and Exchange Commission, and, if there is any person that holds a ten percent (10%) or greater beneficial interest, also shall submit links to the websites containing the last annual filings with the federal Securities and Exchange Commission or the foreign equivalent and the relevant page numbers of the filings that contain the information on each person that holds a ten percent (10%) or greater beneficial interest.

Failure to submit the form prior to, or with the Bid, will result in the rejection of the Bid.

C.6 DISCLOSURE OF POLITICAL CONTRIBUTIONS (N.J.S.A. 19:44A-20.27)

The Bidder is advised of its responsibility to file an annual disclosure statement of any political contributions with the New Jersey Election Law Enforcement Commission (ELEC), pursuant to N.J.S.A. 19:44A-20.27 if the Bidder receives $50,000 or more in the aggregate through agreements or contracts with a public entity in a calendar year. It is the Bidder's responsibility to determine if filing is necessary. Failure to so file can result in the imposition of financial penalties by ELEC. Additional information about this requirement is available from ELEC at 888-313-3532 or at www.elec.state.nj.us.

C.7 BUSINESS REGISTRATION CERTIFICATE

Pursuant to N.J.S.A. 52:32-44, NJ TRANSIT ("Contracting Agency") is prohibited from entering into a contract with an entity unless the Bidder and each subcontractor that is required by law to be named in the Bid has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of the Treasury.

Prior to Contract award or authorization, the Contractor shall provide the Contracting Agency with its proof of Business Registration and that of any named subcontractor(s).

Subcontractors named in the Bid shall provide proof of Business Registration to the Bidder, who in turn, shall provide it to the Contracting Agency prior to the time a contract, purchase order, or other contracting document is awarded or authorized.

During the course of contract performance:

(1) the Contractor shall not enter into a Contract with a Subcontractor unless the Subcontractor first provides the Contractor with a valid proof of Business Registration.

(2) the Contractor shall maintain and submit to the Contracting Agency a list of Subcontractors and their addresses that may be updated from time to time.

(3) the Contractor and any Subcontractor providing goods or performing services under the Contract, and each of their affiliates, shall collect and remit to the Director of the Division of Taxation in the Department of the Treasury, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered into the State. Any questions in this regard can be directed to the Division of Taxation at (609)292-6400. Form NJ-REG can be filed online at http://www.state.nj.us/treasury/revenue/busregcert.shtml.

Before final payment is made under the Contract, the Contractor shall submit to the Contracting Agency a complete and accurate list of all subcontractors used and their addresses.

Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a Business Registration as required, or that provides false Business Registration information, shall be liable for a penalty of $25 for each day of violation, not to exceed $50,000, for each proof of Business Registration not properly provided under a contract with a contracting agency.

C.8 EQUAL PAY ACT (Diane B. Allen Equal Pay Act)

Pursuant to N.J.S.A. 34:11-56.14(b), any employer, regardless of the location of the employer, who enters into a contract with a public body to perform any public work for the public body shall provide to the Commissioner of the New Jersey Department of Labor and Workforce Development, through certified payroll records required pursuant to N.J.S.A. 34:11-56.25 et seq., information regarding the gender, race, job title, occupational category, and rate of total compensation of every employee of the employer employed in the State in connection with the contract. The employer shall provide the Commissioner, throughout the duration of the contract or contracts, with an update to the information whenever payroll records are required to be submitted pursuant to N.J.S.A. 34:11-56.25 et seq.

Information regarding the Diane B. Allen Equal Pay Act and its requirements may be obtained from the New Jersey Department of Labor and Workforce Development (LWD) web site at: https://nj.gov/labor/equalpay/equalpay.html
LWD forms may be obtained from the online web site at: https://nj.gov/labor/forms_pdfs/equalpayact/MW-562withoutfein.pdf

C.9 BUY AMERICA (CONSTRUCTION OVER $150,000)

This contract is funded in whole or in part by the United States Government and is subject to all Federal laws and regulations governing Federally funded projects. The Contractor agrees to comply with 49 U.S.C. 5323(j) and 49 C.F.R. Part 661, which provide that Federal funds may not be obligated unless all steel, iron, and manufactured products used in FTA funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. For Bid submissions over $150,000, the Bidder must submit a signed "Buy America" certificate with the Bid

submission or the Bid will be deemed "non-responsive" and will be rejected. Bidders must only sign one of the available signature lines. Bidders who sign both signature lines, indicating both complying with and not complying with "Buy America", will have their Bids deemed non-responsive and the Bids will be rejected. Note that Buy America certificates cannot be changed after the Bid opening date except in very specific instances in which a clerical error has been identified as described in current Buy America Regulations, 49 C.F.R. Part 661. Questions regarding Buy America compliance requirements should be submitted in writing to the authorized representative of the Contracting Officer in NJ TRANSIT's Division of Procurement.

D. ETHICAL REQUIREMENTS FOR BIDDERS

D.1 CODE OF ETHICS FOR BIDDERS

Bidders are informed that it is NJ TRANSIT policy that Bidders who do or may do business with NJ TRANSIT must avoid all situations where proprietary or financial interest, or the opportunity for financial gain, could lead a NJ TRANSIT officer or employee to secure favored treatment for any organization or individual.

Bidders must also avoid circumstances and conduct which may not constitute actual wrongdoing, or conflict of interest, but might nevertheless constitute the appearance of questionable behavior to the general public, thus compromising the integrity of NJ TRANSIT. All Bidders must comply with NJ TRANSIT's Code of Ethics as set forth in Article 10.4 of the General Provisions for Construction.

D.2 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION – LOWER TIER COVERED TRANSACTION.

This section is governed by the requirements set forth in 2 C.F.R. Parts 180 and 1200. By signing and submitting a Bid the prospective lower tier participant, defined as the Contractor and its Subcontractors, is providing the certification set out below. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, NJ TRANSIT may pursue available remedies, including suspension and/or debarment.

The prospective lower tier participant shall provide immediate written notice to NJ TRANSIT if at any time the prospective lower tier participant learns that its certification

was erroneous when submitted or has become erroneous by reason of changed circumstances.

The prospective lower tier participant agrees by submitting a Bid that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized in writing by NJ TRANSIT.

The prospective lower tier participant further agrees by submitting a Bid that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – Lower Tier Covered Transaction", without modification, in all lower tier covered transactions (valued at $25,000 or more) and in all solicitations for lower tier covered transactions.

A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. Each participant shall check the U.S. Government System for Award Management (SAM) database.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

Except for transactions authorized under the fourth paragraph above, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to all remedies available to the Federal Government, NJ TRANSIT may pursue available remedies including suspension and/or debarment.

The prospective lower tier participant certifies by submission of this Bid that neither it nor its principals (as defined at 2 C.F.R. Part 180.995) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. A participant may decide the method and frequency by which it determines the eligibility of its principals.

When the prospective lower tier participant is unable to certify to the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The prospective lower tier participant shall have no exclusion on the U.S. Government System for Award Management (SAM) database.

D.3 BIDDER'S CERTIFICATION OF ELIGIBILITY

The Bidder shall certify that neither it nor its principals are included on the State of New Jersey, Department of the Treasury, Consolidated Debarment Report or on the State of New Jersey, Department of Labor and Workforce Development, Division of Wage and Hour Compliance, Prevailing Wage Debarment List.

The Bidder must also certify that it has no exclusions with the System for Award Management (S.A.M). If the Bidder is included on such report, the Bidder may not be eligible for award of Contract.

D.4 LIMITATIONS ON LOBBYING

(APPLICABLE FOR FEDERALLY FUNDED PROJECTS VALUED OVER $100,000)

By signing and submitting the Lobbying certification, the prospective lower tier participant, defined as a Contractor or Subcontractor, is providing the signed certification set out below. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file or amend a declaration required to be filed or amended under 31 U.S.C. 1352 shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Bidder certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal Contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal Contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal Contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) At the end of each calendar quarter in which there occurs any event that materially affects the accuracy of the information contained in any declaration previously filed in accordance with D.4.1 or D.4.2 above, Bidders shall file an updated certification or declaration, as appropriate, in accordance with 31 U.S.C. 1352.

(4) The Bidder shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

D.5 DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

Pursuant to N.J.S.A. 52:32-55 et seq., a Bidder that, prior to the time of contract award or renewal, is identified on a list created pursuant to such law by the New Jersey Department of the Treasury as a person or entity engaging in investment activities in Iran as described in such law, shall be ineligible to, and shall not, enter into a contract with NJ TRANSIT. As required by such law, the Bidder must complete the certification prior to contract award to attest under penalty of perjury, that neither the person or entity nor any of its parents, subsidiaries or affiliates is identified on the Department of Treasury's Chapter 25 list as a person or entity engaging in investment activities in Iran. Failure to complete the certification will preclude the Bidder from contract award.

D.6 CERTIFICATION OF NO TAX LIABILITY OR FELONY CONVICTION

As a condition of any contract award, a private corporation, partnership, trust, joint-stock company, sole proprietorship, or any other business association, including each participant in a joint venture, must certify, under penalty of perjury, that it has no unpaid federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

As a condition of any contract award, any such entity must also certify that it has not been convicted of any felony criminal violation under any federal law within the 24 months preceding the date of contract award.

Furthermore, any such entity awarded a contract by NJ TRANSIT is responsible for flowing down the requirements of the above two paragraphs to all lower tier subcontractors or subconsultants (including sub-subcontractors and sub-subconsultants, etc.), without regard to the value of any such subagreement (or sub-subagreement, etc.), and must verify that those sub-vendors satisfy the conditions stated in those paragraphs.

The Certification required hereunder is within the Bid Express e-bidding file and the conditions and obligations stated therein are continuing through and until the date of any contract award. If any of the conditions stated in the Certification change prior to the date of contract award, for the prospective awardee or for any subcontractor or subconsultant (or sub-subcontractor or sub-subconsultant, etc.), the prospective awardee shall immediately notify the NJ TRANSIT contracting officer.

E. BID PREPARATION AND SUBMISSION PROCEDURES

E.1 EXAMINATION OF CONTRACT DOCUMENTS

The Bidder shall examine carefully the Contract Documents, project site and conditions affecting the procurement. By submitting a Bid, the Bidder acknowledges that it has carefully examined the Contract Documents and project site, and has satisfied itself as to the conditions affecting the procurement. NJ TRANSIT assumes no responsibility for any conclusions or interpretations made by the Bidder on the basis of the information made available by NJ TRANSIT.

E.2 BID FORM QUANTITIES

E.2.1 The quantities stipulated are approximate and are given only as a basis for the comparison of Bids. NJ TRANSIT does not expressly, or by implication, represent that the actual amount of work will correspond to the estimated quantities stipulated in the Bid Form.

NJ TRANSIT reserves the right to increase or decrease the amount of any class or portion of the Work or omit portions of the Work.

E.2.2 The Bid Form may include Pay Items that have been designated as Allowances. Such items may or may not be shown on the Contract Drawings. NJ TRANSIT, in its sole discretion, may or may not incorporate Allowances into the Project.

E.3 PREPARATION OF THE BID

E.3.1 The Bidder shall ensure that all Addenda, including Amendments to the Bid Form, are applied to the Bid in the electronic bidding file and properly acknowledged. The Bidder shall insert the price for each Pay Item in the appropriate box provided under the column designated "Unit Price". The only entries permitted in the Bid Form will be the lump sum prices or unit prices for items that shall be bid. The software will perform all extensions of the unit prices and calculate the total Bid amounts.

E.3.2 Prices shall be provided for all items called for on the Bid Form. All prices must be quoted in numeric form. When the Bidder intends to bid zero dollars ($0.00) for a Pay Item, the Bidder shall insert a "0" in the appropriate box under the "Unit Price" column. Where no figure is provided by the Bidder in the "Unit Price" column for one or more Contract Items, the Bid will be considered to be nonconforming and shall be rejected.

E.3.3 Alternate Bids for any item will not be considered unless specifically requested in the Bid.

E.3.4 The Bidder shall check the Bid before submission using the software. The Bidder shall select "check bid" and ensure there are no errors prior to submitting the electronic bid. For Bids submitted by Joint Ventures and mark the electronic bid as "Joint Bid." The Bidder may print a completed Bidder's Proposal for their records after completing the Bid. Bidders are advised that the "check bid" function does not determine responsiveness of the Bid.

E.4 DBE PROGRAM COMPLIANCE REQUIREMENTS

E.4.1 The Bidder shall refer to NJ TRANSIT's "DBE Requirements for Federal Procurement Activities" available for download with the electronic bidding documents, forinstructions, guidance, and explanations for DBE Program obligations for construction contracts and subcontracts.

For this Contract, the apparent low Bidder and the second low Bidder shall identify all DBE and non-DBE Subcontractors, Subconsultants, and suppliers proposed to participate in and those solicited for this Contract, and shall complete and submit to NJ TRANSIT, in care of the Contract Specialist the mandatory DBE Forms A-First Tier DBE Utilization, DBE Form A1-Bidder Solicitation & Contractor Information, DBE From A2-Non-DBE Subcontractor Utilization and DBE Form B-Intent to Perform as a First Tier DBE. The apparent low Bidder and the second low Bidder shall submit the DBE firm's current Certified Profile with commodity codes from the NJUCP DBE Business Directory at njucp.dbesystem.com. Additionally, the apparent low Bidder and the second low Bidder shall submit any applicable supplemental forms for Second-Tier DBE and Non-DBE firms (AA, AA1, AA2, BB, and D). All required DBE forms and NJUCP DBE Certification Profile with Commodity Codes shall be submitted to NJ TRANSIT, in care of the Contract Specialist with the Bid or within five (5) calendar days after the bid opening date. However, Bidders are strongly encouraged to submit all mandatory documents with the Bid to prevent delay of the Contract Award. Bidders are requested to review carefully and complete the forms entirely, with no blank fields.

Notwithstanding the date of submission of the mandatory DBE forms, all negotiations between a Bidder and any potential DBE subcontractor, subconsultant, or supplier shall be completed prior to the bid opening date. All DBE forms are included in the "DBE Requirements for Race Conscious Federal Procurement Activities" available for download with the electronic bidding documents.

Failure to submit any and all mandatory DBE documentation within five (5) calendar days after the Bid Opening date shall result in a rejection of a Bid as non-responsible.

Any questions regarding the DBE requirements or the mandatory required forms for this contract should be directed to the Office of Business Development Specialist identified in the Special Provisions.

E.5 BID GUARANTEE

E.5.1 Bids shall be accompanied by Bid Security, as defined in N.J.A.C. 16:72-1.2, in the form of a Bid Bond, Cashier's Check, Certified Check or irrevocable Letter of Credit drawn to the order of NJ TRANSIT, to serve as a guarantee that the Bidder will, upon NJ TRANSIT's acceptance of its Bid, execute contractual documents as may be required. Cash is not considered an acceptable form of security.

E.5.2 Whenever the Bid Security accompanying the Bid is a Bid Bond in electronic form, the Bidder shall complete the electronic bond form. The Bidder shall ensure that the Bid Bond is properly completed and furnished by a corporation or corporations authorized to issue surety bonds in the State of New Jersey and listed in the current U.S. Treasury Department Circular 570 as of the date for the receipt of Bids and made payable to the New Jersey Transit Corporation.

If the Bid Security accompanying the Bid is an electronic Bid Bond, the Bidder shall choose one of the two (2) sureties available on the website. Bidders shall ensure its company and its bonding agent's company registers with one (1) of the following electronic Bid Bond agencies affiliated with Bid Express. Bidder must complete the electronic bid bond form from the surety's website and enter the electronic bid bond number in the Electronic Bid Bond section in the space provided in the electronic bidding file.

Surety 2000
Telephone: (800) 660-3263
Email: help@surety2000.com
http://www.surety2000.com/

SuretyWave
Telephone: (800) 989-6417
Email: support@suretywave.com
https://suretywave.com/

Whenever the Bid Security accompanying the Bid is a Bid Bond in non-electronic form, the Bidder shall ensure that the Bid Bond is properly completed and furnished by a corporation or corporations authorized to issue surety bonds in the State of New Jersey and listed in the current U.S. Treasury Department Circular 570 as of the date for the receipt of Bids and made payable to the New Jersey Transit Corporation. The Bid Bond shall be delivered to NJ TRANSIT's Bid Desk located at One Penn Plaza East, 6th Floor,

Newark, New Jersey, prior to the time and date set for the opening of Bids. Failure to deliver such Bid Bond to NJ TRANSIT's Bid Desk prior to the time set for the opening of Bids shall result in rejection of the Bid as non-responsive.

E.5.3 Pursuant to N.J.A.C. 16:72-2.2, whenever the Bid Security is a Letter of Credit, it shall be issued by a Federally insured financial institution, within the meaning of the Act creating the Federal Deposit Insurance Corporation (12 U.S.C. 1811). When the Bid Security accompanying the Bid is a Cashier's Check or a Certified Check, it shall also be drawn on an account with an "insured bank" within the meaning of the Act creating the Federal Deposit Insurance Corporation (12 U.S.C. 1811).

The Letter of Credit, Cashier's Check or Certified Check shall be delivered to NJ TRANSIT's Bid Desk located at One Penn Plaza East, 6th Floor, Newark, New Jersey prior to the time and date set for the opening of Bids. Failure to deliver such Cashier's Check, Certified Check or irrevocable Letter of Credit to NJ TRANSIT's Bid Desk prior to the time set for the opening of Bids shall result in rejection of the Bid as non-responsive.

Cashier's Checks, Certified Checks or irrevocable Letters of Credit based on accounts with or guaranteed by persons, corporations or institutions other than those identified in the preceding paragraph shall not be considered acceptable Bid Security and the Bid shall be declared non-responsive and will result in a rejection of the Bid.

E.5.4 The amount of the Bid Security shall equal ten percent (10%) of the total amount Bid. A Bid shall be rejected as non-responsive if it is not accompanied by satisfactory Bid Security.

E.6 BID VALIDITY

NJ TRANSIT reserves the right to issue a Notice of Award to the successful Bidder, as determined by NJ TRANSIT, at any time for a period of one hundred-eighty (180) calendar days following the date of Bid opening. If necessary, requests for extensions of the date for issuance of the notice of award or Contract execution may be made by NJ TRANSIT by written request to Bidders.

E.7 WITHDRAWAL OF BIDS

Bids may be withdrawn at any time prior to the time specified for the opening of Bids by, selecting "View Submitted Bids" and then selecting "Withdraw Bid." The withdrawal of a

Bid does not prejudice the right of the Bidder to file a new Bid. Withdrawals received after the time specified for the opening of Bids are subject to N.J.A.C. 16:72-2.19.

E.8 SUBMISSION OF MULTIPLE BIDS

Submission of more than one Bid from an individual, firm, partnership, corporation or combination thereof under the same or different names shall be cause for disqualification of the Bids submitted by such entities. Reasonable grounds for believing that any individual, firm, partnership, corporation, or combination thereof, is interested as a principal in more than one Bid for the procurement contemplated may cause the rejection of all Bids submitted by such individual, firm, partnership, corporation, or combination thereof.

E.9 SUBMISSION OF BIDS

E.9.1 Once the Bidder has completed its Bid, the Bidder shall submit the electronically signed Bid via the Bid Express website www.bidexpress.com. The Bidder shall ensure delivery of its Bid with all required components and attachments.

E.9.2 The Bidder is solely responsible for any and all errors and for timely submission of the Bid, all components thereof, and all attachments thereto, through the electronic bidding system; NJ TRANSIT assumes no responsibility for any claim arising from the failure of any Bidder or of the electronic delivery system to cause any Bid, Bid component, or attachment to not be delivered to NJ TRANSIT on or before the time set for Bid opening.

F. BID OPENING

F.1 PUBLIC OPENING OF BIDS

Bids will be publicly opened and read aloud at the advertised time and place set for such Bid opening, unless NJ TRANSIT extends the time for opening of Bids. NJ TRANSIT reserves the right at its sole discretion to extend the time for opening of Bids at any time prior to the opening of the Bids. Their contents will be made public for the information of Bidders and other interested parties.

F.2 UNOPENED BIDS

NJ TRANSIT may reject a Bid, if the Bidder has not been prequalified in accordance with Paragraph C.2, above, or for other material violations of NJ TRANSIT's bidding requirements.

F.3 CONDITIONALLY ACCEPTED

All Bids opened by NJ TRANSIT shall be considered conditionally accepted pending NJ TRANSIT's detailed review and examination of the Bids.

G. IRREGULAR BIDS

G.1 IRREGULARITIES AND NON-CONFORMANCES

A. Bids will be considered irregular and shall be rejected for the following reasons:

1. If the Bid materially fails to conform to the requirements of the Invitation for Bids.
2. If the Bid is received from a firm which is not adequately prequalified or is otherwise determined to be not responsible.
3. If the Bid is not received by the specified date and time.
4. If the Bidder fails to furnish Bid Security in accordance with Paragraph E.5.
5. If the Bidder takes material exception to any of the Bid requirements.
6. If the Bid is not digitally signed by the authorized representative of the Bidder.
7. If the Bidder fails to deliver before receipt of the Bid or with the Bid, the Ownership Disclosure Form as required by N.J.S.A. 52:25-24.2.
8. If the Bidder or any named Subcontractor is not registered pursuant to the Public Works Contractor Registration Act, N.J.S.A. 34:11-56.48 et seq., at the time the bid is made.
9. If the Bidder fails to comply with all mandatory DBE requirements.
10. If the Bidder fails to execute the "Buy America" Certification (construction over $150,000).

B. Bids will be considered irregular and may be rejected for the following reasons:

1. Subject to Paragraph G.2, if the Bid is not properly completed.
2. If all Addenda are not properly acknowledged by the Bidder.
3. If the Bid contains prices that are materially unbalanced.
4. For other reasons, if NJ TRANSIT deems it advisable to reject all Bids in the public interest.

G.2 RIGHT TO REJECT OR WAIVE

NJ TRANSIT, in its sole discretion, reserves the right to reject any and all Bids and to waive minor informalities and irregularities in Bids received, notwithstanding other provisions of the Contract Documents.

H. AWARD AND EXECUTION OF CONTRACT

H.1 CALCULATION OF BIDS

H.1.1 After the Bids are opened and read, they will be compared on the basis of the correctly determined summation of the correctly determined products of all the quantities for Contract Items shown in the Bid multiplied by the unit prices Bid. The results of such comparisons will be made available to the public. Award to the lowest Bidder pursuant to H.3 will be made on the basis of the total Contract price.

H.1.2 In the event an error is encountered with the software and a discrepancy exists between the unit price Bid for any Contract Item and the extension shown for that item under the column of the Bid designated "Extension," the unit price shall govern.

H.2 SINGLE BIDS

If only one Bid is received in response to the Invitation for Bids, a detailed cost proposal may be requested of the single Bidder. A cost/price analysis and evaluation and/or audit may be performed of the cost proposal in order to determine if the price is fair and reasonable.

H.3 DETERMINATION OF LOW BID

The award of the firm-fixed-price Contract, if it is awarded, will be to that responsible Bidder whose Bid, conforming to the Invitation for Bids, is lowest in price.

H.4 AWARD PROCESS

The Award of a Contract is initiated when NJ TRANSIT issues a Notice of Award. The Award process includes the period when the Contractor executes and returns the Contract, and is completed when NJ TRANSIT executes the Contract.

H.5 CANCELLATION OF AWARD

NJ TRANSIT reserves the right to cancel the Award of any Contract before execution of the Contract by NJ TRANSIT, even if it has been executed by the Contractor, if NJ TRANSIT deems such cancellation to be in its best interests. In no event will NJ TRANSIT have any liability for the cancellation of such award. The Contractor assumes sole risk and responsibility for any expenses incurred prior to execution of the Contract and shall not commence work until receipt of the written Notice to Proceed.

H.6 CONTRACT BONDS

Pursuant to N.J.S.A. 2A:44-143 to 147, as amended, and N.J.A.C. 16:72-2.3 the Bidder to whom the Contract is awarded shall furnish the following bonds in a form substantially similar to that provided by NJ TRANSIT.

H.6.1 A Performance Bond equal to one-hundred percent (100%) of the Contract price to secure fulfillment of the Contractor's obligations specified in the Contract.

H.6.2 A Payment Bond equal to one-hundred percent (100%) of the Contract price to protect firms or persons supplying labor or materials to the Contractor for the performance of work provided for in the Contract.

H.6.3 Performance and Payment Bonds must be executed by surety companies licensed to do business in the State of New Jersey and listed in the U.S. Treasury Department Circular 570 as of the date for receipt of Bids.

H.6.4 Provisions of the Performance and Payment Bonds shall not limit any liability of the Contractor to NJ TRANSIT.

H.6.5 The Performance and Payment Bonds shall continue in full force and effect until receipt by NJ TRANSIT of Contractor affidavits of payments, debts, claims and until final Acceptance of the Work.

H.6.6 All alterations, extensions of time, extra and additional work, and other changes authorized by the Contract Documents may be made without securing the consent of the Surety or Sureties on the Performance Bond and Payment Bond.

H.6.7 The Performance and Payment Bonds will be paid for at the lump sum price bid therefore or at the actual cost of the Bonds to the Contractor, whichever price may be lower. Payment for the Bonds will be made only upon delivery to the Engineer of a receipted bill for the Bonds.

H.6.8 If any Surety upon any Bond furnished in connection with this Contract becomes unacceptable to NJ TRANSIT, the Contractor shall promptly furnish such additional security as may be required from time to time to protect the interests of NJ TRANSIT and of persons supplying labor or materials in the prosecution of the Work contemplated by the Contract.

H.7 EXECUTION OF CONTRACT

Within ten (10) calendar days of receipt of a Notice of Award, the successful Bidder shall deliver to NJ TRANSIT the bonds, specified certificates and policies of insurance, and other specified documents required herein by NJ TRANSIT and shall properly execute two (2) copies of the Contract by signing the Contract Execution Form, as shown in Appendix C of the General Provisions. NJ TRANSIT will execute both copies of the Contract and will return one (1) copy to the Contractor.

H.7.1 This contract is subject to the provisions of N.J.S.A. 10:2-1 to 4 and N.J.S.A. 10:5-31 et seq., and in accordance with the rules and regulations promulgated pursuant thereto, the Bidder agrees to comply with the following:

At the time the signed contract is returned to NJ TRANSIT, the Bidder that has been awarded the Contract shall submit to NJ TRANSIT and the New Jersey Department of Labor and Workforce Development, Construction EEO Compliance Monitoring Program and Initial Project Workforce Report Construction (Form AA-201) consisting of forms provided by NJ TRANSIT and completed by the Contractor in accordance with the regulations promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq., Contractors shall comply with NJ TRANSIT's General Provisions for Construction, Article 11.2 entitled "Equal Opportunity."

H.8 FAILURE TO EXECUTE CONTRACT

Failure of a Bidder to whom the Contract is awarded to execute the Contract or to file acceptable bonds or certificates and policies of insurance, as provided herein, shall be just cause for the annulment of the award and the forfeiture of such Bidder's Bid Security.

H.9 RELIEF OF BIDDERS

No Bidder shall be relieved of his Bid, nor shall any change be made in his Bid, because of a mistake, except as provided under applicable New Jersey Statutes and Administrative Codes.

H.10 RELEASE OF BID GUARANTEES

Within thirty (30) calendar days of Bid opening, NJ TRANSIT will release or return, as appropriate, the Bid Security of all but the two lowest responsible Bidders. The Bid Security of the two lowest Bidders shall be released or returned upon execution and delivery of the Contract and Performance and Payment Bonds by the Bidder to whom the Contract has been awarded as required by H.6.

I. PROTEST PROCEDURE

I.1 PURPOSE

This section describes the policies and procedures governing the receipt and resolution of bid protests in connection with an Invitation for Bid (IFB).

I.2 DEFINITIONS

Definitions applicable to Instructions to Bidders, Section I, entitled "Protest Procedure"

a. "File" and "Submit" mean date of receipt by NJ TRANSIT's Contracting Officer.

b. "Federal Law or Regulation" means any valid requirement imposed by Federal statue or regulation governing contracts awarded pursuant to a grant agreement between NJ TRANSIT and the FTA. This includes the requirements as stated in FTA Circular 4220.1F.

c. "Contracting Officer" means the Chief of Procurement & Support Services or his designee as indicated in the solicitation document.

d. "Interested Party" means an actual or prospective bidder, an offeror or party whose direct economic interest would be affected by the award or failure to award the contract at issue.

I.3 PROCEDURE

I.3.1 Parties

Only an Interested Party may file a protest.

I.3.2 Types of Protests/Time Limits

a. Protests based upon a challenge to the specifications or alleged improprieties in NJ TRANSIT's procurement process must be filed no later than fourteen (14) calendar days prior to the Bid opening date.

b. Protests based upon alleged improprieties of a Bid submission, or alleged non-responsiveness or non-responsibility of a Bid submission, shall be filed no later than five (5) business days after the apparent Bid results are posted to the Bid Express website.

c. Protests based upon the rejection of a Bid shall be filed no later than five (5) business days after the protestor receives notification of rejection from NJ TRANSIT.

d. Protests by the two lowest bidders, based upon a determination of non-responsibility on the DBE goal, shall be filed no later than five (5) business days after receipt of NJ TRANSIT's rejection of the bid.

e. All protests must be filed in writing. Oral protests will not be accepted.

I.3.3 Where To File

Protests must be filed directly with NJ TRANSIT's Contracting Officer at the address below and identify the IFB Number.

Contracting Officer
NJ TRANSIT
One Penn Plaza East, Sixth Floor
Newark, NJ 07105

IFB NO.:_____

I.3.4 The Protest

a. The protest must contain the following information:
   (i) The name, address and telephone number of the protestor.
   (ii) Identity of the IFB (by number and description).
   (iii) A statement of the specific grounds for protest and any supporting documentation. Additional materials in support of the protest will only be considered if filed within the time limits set in Paragraph I.3.2.
   (iv) An indication of the ruling or relief desired from NJ TRANSIT.

I.3.5 Confidentiality of Protest

Material submitted by a protestor will not be withheld from any interested party, except to the extent that the withholding of information is permitted or required by law or regulation. If the protestor considers that the protest contains proprietary material which should be withheld, a statement advising of this fact must be affixed to the front page of the protest documents and the alleged proprietary information must be so identified wherever it appears. In the event that a public request is made for materials that the protestor has identified as confidential, NJ TRANSIT shall have the sole discretion and final authority to determine whether the materials are exempt from public disclosure and shall take action as required by applicable law.

I.3.6 Protest Procedures for I.3.2a: Challenges to a Specification

(a) An Interested Party finding cause to challenge a specification contained within the IFB may submit a written protest to NJ TRANSIT's Contracting Officer setting forth in detail the grounds for such protest.

(b) A written protest may be submitted by an Interested Party only after NJ TRANSIT has formally responded to any questions raised by Bidders and must be submitted at least fourteen (14) calendar days prior to the Bid opening date to permit a review of the merits

of the protest and to take appropriate action, as may be necessary, prior to the scheduled deadline for proposal submission.

(c) A protest of a specification of any advertised IFB shall contain the following:

(i) Identification of the IFB number; and

(ii) The specification(s) at issue and the specific grounds for challenging the cited specification(s), including all arguments, materials, or other documentation in support of the protestor's position.

(d) NJ TRANSIT's Contracting Officer may disregard a protest not containing all of the items set forth in (c) above.

(e) NJ TRANSIT's Contracting Officer may, upon timely receipt of a protest of a specification, issue a final written decision on the protest prior to the Bid opening date. Where a decision is issued, such determination shall be a final agency decision. NJ TRANSIT's Contracting Officer has the sole discretion to determine if an in-person presentation by the protestor is necessary to reach an informed decision on the protest.

(f) NJ TRANSIT's Contracting Officer may resolve a protest of a specification by amending the IFB and extending the deadline for proposal submission, by canceling the procurement, or by any other appropriate means.

I.3.7 Protest Procedures for I.3.2 (b), (c), and (d): Challenges to a Bid Submission, Bid Rejection or Contract Award.

(a) An Interested Party who finds cause to protest in accordance with Section I.3.2 (b), (c), or (d), as set forth above, may submit a written protest to NJ TRANSIT's Contracting Officer setting forth in detail the grounds for such protest. All written protests must conform to the time requirements as set forth above. Failure to timely submit a protest may result in the disregard of a protest.

(b) The written protest shall contain the following information:

(i) Identification of the IFB number;

(ii) The specific grounds for the protest, including all arguments materials and/or other documentation that may support the protestor's position;

(iii) A statement as to whether the protestor requests an opportunity for an in-person presentation and the reason(s) for the request. The opportunity for in-person presentation is at the sole discretion of the NJ TRANSIT Contracting Officer and subject to the terms of I.3.6(c)(i) set forth below.

(iv) Failure by a protestor to include all required information may result in disregard of the protest.

(c) Protests accepted by NJ TRANSIT shall be resolved in writing on the basis of NJ TRANSIT's review of the record, including, but not limited to, the written protest, the terms, conditions and requirements of the IFB, pertinent administrative rules, statutes, and case law, and any associated documentation NJ TRANSIT deems appropriate. In cases where no in-person hearing is held, the written record shall, in and of itself, constitute a hearing. The determination by NJ TRANSIT shall be a final agency decision.

(i) NJ TRANSIT has the sole discretion to determine if an in-person presentation by the protestor is necessary to reach an informed decision on the matter(s) of the protest. In-person presentations are for the benefit of NJ TRANSIT. NJ TRANSIT also has the discretion to limit attendance at an in-person presentation, when granted.

(ii) NJ TRANSIT's decision will address only the issues raised originally by the protestor.

I.3.8 Request for Additional Information

(a) NJ TRANSIT's Contracting Officer, or designee, is entitled to request, receive, and review copies of any and all records and documents deemed appropriate and relevant to the issues and arguments set forth in the protest. Upon receipt of a request by NJ TRANSIT's Contracting Officer, or designee, the protestor shall promptly provide the requested records and documents free of charge within the time frame specified by NJ TRANSIT.

(b) If the protestor fails to comply with the provisions of this section, such failure may constitute a reasonable basis for NJ TRANSIT to resolve the protest against the protestor. Failure of a protestor to comply expeditiously with a request for information as specified by NJ TRANSIT's Contracting Officer, or designee, may also result in determination of the protest without consideration of the additional information.

(c) NJ TRANSIT's Contracting Officer, or designee, may also consider relevant information requested and received from other parties deemed appropriate by NJ TRANSIT.

I.3.9 Procurement Process Status

Upon timely receipt of a protest, NJ TRANSIT will delay the opening of Bids until after resolution of the protest for protests filed prior to the Bid opening, or withhold award until after resolution of the protest for protests filed after Bid opening. However, NJ TRANSIT may open Bids or award a contract whenever NJ TRANSIT, at its sole discretion, determines that:

a. The items or work to be procured are urgently required; or

b. Delivery or performance will be unduly delayed by failure to make the award promptly or;

c. Failure to make prompt award will otherwise cause undue harm to NJ TRANSIT or the Federal Government.

I.3.10 Federal Transit Administration (FTA) Involvement

Where procurements are funded by the FTA, the protestor may protest to the FTA only where the protest alleges that NJ TRANSIT failed to have or to adhere to its protest procedures, failed to review a complaint or protest, or violated a Federal law or regulation. Any protest to the FTA must be filed in accordance with the requirements set forth in FTA Circular 4220.1F.

SECTION III

NEW JERSEY TRANSIT CORPORATION

INVITATION FOR BID (IFB) NO. 21-004X

SPECIAL PROVISIONS

FOR THE

HURRICANE SANDY RECOVERY PROGRAM

SIGNAL POWER SYSTEM and YARD-WAYSIDE POWER REPAIR

HOBOKEN, HUDSON COUNTY, NEW JERSEY

NEW JERSEY TRANSIT CORPORATION
INVITATION FOR BID (IFB) NO. 21-004X
SPECIAL PROVISIONS

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ATTACHMENT C: OVERALL SITE PLAN

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ATTACHMENT E: SITE PLAN 2 OF 3

ATTACHMENT F: SITE PLAN 3 OF 3

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NEW JERSEY TRANSIT CORPORATION
SPECIAL PROVISIONS
FOR THE HOBOKEN TRAIN WASHER
REPLACEMENT PROJECT
HOBOKEN, HUDSON COUNTY, NEW JERSEY
INVITATION FOR BID (IFB) NO. 21-004X

NOTE: References shown in () refer to Article numbers in the New Jersey Transit Corporation Instructions to Bidders for Construction and General Provisions for Construction.

SP. 1 INQUIRIES AND REQUESTS FOR CLARIFICATION (B.2)

In Section II, Instructions To Bidders For Construction, Article B "Communications", Sub-Article B.2 "Inquires And Requests For Clarification", add the following after the last sentence:

All inquiries and requests for clarifications regarding the Contract Documents shall be submitted in the space provided for Questions and Answers (Q & A) in Bid Express no later than **5:00 p.m.** on **Thursday, May 27, 2021.** Any response NJ TRANSIT may choose to make, will be by a written Addendum to the IFB. All such Addenda will be posted on Bid Express prior to the Bid Due Date.

SP. 2 PREQUALIFICATION OF BIDDERS (C.2)

In Section II, Instructions To Bidders For Construction, Article C "Registrations, Prequalification and DBE Certification", Sub-Article C.2 "Prequalification of Bidders", add the following to the end of the second paragraph:

All firms must be prequalified by NJ TRANSIT prior to submitting a Bid. Bidders must be prequalified for "HR" Heavy Construction (Operating Railroad Environment) in a classification of "GC" General Contractor and for an amount of work that is equal to or greater than their bid amount. NJ TRANSIT suggests a minimum rating amount of "R" over $25,000,000.00.

Prequalification questionnaires are available for download from the Bid Express website, www.bidexpress.com. Completed prequalification questionnaires must be received by NJ TRANSIT no later than **5:00 p.m.** on **Thursday, May 27, 2021.**

The completed Prequalification Questionnaire and supporting documents shall be submitted electronically to **Faith Blair** at fblair@njtransit.com.

SP. 3 DISADVANTAGED BUSINESS ENTERPRISES (DBE) PROGRAM (C.3)

In Section II, Instructions To Bidders For Construction, Article C "Registrations, Prequalification and DBE Certification", Replace the first paragraph of Sub-Article C.3 "Disadvantaged Business Enterprises (DBE) Program" with the following:

As an aid in meeting the commitment of its Disadvantaged Business Enterprise Program, NJ TRANSIT has assigned a **twenty-three percent (23%) Race Conscious DBE goal** on the gross sum amount of the bid or contract for DBE subcontracting participation. All NJ Unified Certification Program (NJUCP) certified DBE firms, including suppliers, are eligible to participate in this contract.

NJ TRANSIT's DBE Program is accorded the same priority as compliance with all other legal obligations required by the United States Department of Transportation (USDOT).

Contractors shall comply with the DBE Program requirements in the award and administration of NJ TRANSIT contracts. Failure by the contractor to carry out these requirements shall constitute a breach of the contract, which may result in the termination of the Contract or other such remedy, as NJ TRANSIT deems appropriate.

Any questions regarding the DBE requirements or the mandatory required forms for this Contract should be directed to:

Jacquelin Rush-Gilbert
Senior Contract Compliance Specialist
973-491-8061
jrush-gilbert@njtransit.com

Should the actual Contract amount increase or decrease, through approved Change Order(s), the Office of Business Development (OBD) must be informed. OBD will determine if this will result in an adjustment to DBE participation to reflect the assigned DBE goal.

Failure to submit any and all mandatory DBE documentation within five (5) calendar days of the bid opening date shall result in a rejection of a Bid as non-responsive.

SP. 4 DESCRIPTION OF BID FORM UNIT PRICE PAY ITEMS (E.2)

In Section II, Instructions To Bidders For Construction, Article E "Bid Preparation and Submission Procedures, Sub-Article E.2 "Bid Form Quantities", add Sub-Articles E.2.3 through E.2.77.

E.2.3 Bid Form Unit Price Pay Item No. C02-011-001.0 – Micropiles (02499) – Permanent casing portion of micropile seated into the top of bedrock shall include all work associated with the construction of the casing portion of the micropile measured from the top of bedrock to the top of the pile casing installed or top of grade (whichever comes first) including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02499, 02710, 03210, 03300, 03460, 03470, 03600, and 16170.

E.2.4 Bid Form Unit Price Pay Item No. C02-011-002.0 – Micropiles (02499) – Bond length portion of in bedrock shall include all work associated with the construction of the bond length portion of the micropile measured from the top of bedrock to bottom of the rock anchor including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02499, 02710, 03210, 03300, 03460, 03470, and 03600.

E.2.5 Bid Form Unit Price Pay Item No. C02-011-003.0 – Micropiles (02499) – Verification Test shall include all work associated with the construction of the verification test pile, performance of the verification load and lateral tests, and the associated engineering including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02499, 02710, 03210, 03300, 03460, 03470, and 03600.

E.2.6 Bid Form Unit Price Pay Item No. C02-011-004.0 – Micropiles (02499) – Proof Tests shall include all work associated with the performance of the proof load tests, and the associated engineering including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, and 02499.

E.2.7 Bid Form Unit Price Pay Item No. C03-005-001.0 – Monopole Pile Cap PC-4A (6'x6') shall include all work associated with the construction of monopole pile caps including, but not limited to, test pits and the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 03600, 05125, and 16170.

E.2.8 Bid Form Unit Price Pay Item No. C03-005-002.0 – Monopole Pile Cap PC-4B (10'-6"x10'-6") shall include all work associated with the construction of monopole pile caps including, but not limited to, test pits and the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 03600, 05125, and 16170.

E.2.9 Bid Form Unit Price Pay Item No. C03-005-003.0 – Monopole Pile Cap PC-4B (10'-6"x46'-6") shall include all work associated with the construction of monopole pile caps including, but not limited to, test pits and the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 03600, 05125, and 16170.

E.2.10 Bid Form Unit Price Pay Item No. C03-006-001.0 – Days Yard Wayside Power Platform Foundation Type F4.0 & Pedestal P1 shall include all work associated with the construction of the Days Yard Wayside Power Platform foundation and concrete pier including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 03600, and 16170.

E.2.11 Bid Form Unit Price Pay Item No. C03-006-002.0 – Days Yard Wayside Power Platform Foundation Type F4.5 & Pedestal P1 shall include all work associated with the construction of the Days Yard Wayside Power Platform foundation and concrete pier including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 03600, and 16170.

E.2.12 Bid Form Unit Price Pay Item No. C03-006-003.0 – Days Yard Wayside Power Platform Foundation Type F6.0 & Pedestal P1 shall include all work associated with the construction of the Days Yard Wayside Power Platform foundation and concrete pier including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 03600, and 16170.

E.2.13 Bid Form Unit Price Pay Item No. C03-006-004.0 – Days Yard Wayside Power Platform Foundation Type F7.5 & Pedestal P1 shall include all work associated with the construction of the Days Yard Wayside Power Platform foundation and concrete pier including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 03600, and 16170.

E.2.14 Bid Form Unit Price Pay Item No. C03-006-005.0 – Days Yard Wayside Power Platform Stair Concrete Pad shall include all work associated with the construction of the Days Yard Wayside Power Platform stair concrete pads including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 03600, and 16170.

E.2.15 Bid Form Unit Price Pay Item No. C03-006-006.0 – Days Yard Wayside Power Outlet Concrete Pad shall include all work associated with the construction of the Days Yard Wayside Power Outlet concrete pads including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 03600, and 16170.

E.2.16 Bid Form Unit Price Pay Item No. C03-006-007.0 – Days Yard Wayside Power Control Station Concrete Pad shall include all work associated with the construction of the Days Yard Wayside Power Control Station concrete pads including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 03600, and 16170.

E.2.17 Bid Form Unit Price Pay Item No. C05-011-001.0 – Structural Steel Monopoles (05125) – 20”X20” shall include all work associated with the construction of the monopoles including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03210, 03300, 03460, 03470, 03600, 05120, 05125, and 16170.

E.2.18 Bid Form Unit Price Pay Item No. C05-011-002.0 – Structural Steel Monopoles (05125) – 24”X24” shall include all work associated with the construction of the monopoles including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03210, 03300, 03460, 03470, 03600, 05120, 05125, and 16170.

E.2.19 Bid Form Unit Price Pay Item No. C05-011-003.0 – Structural Steel Monopoles (05125) – 26”X26” shall include all work associated with the construction of the monopoles including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03210, 03300, 03460, 03470, 03600, 05120, 05125, and 16170.

E.2.20 Bid Form Unit Price Pay Item No. C05-011-004.0 – Structural Steel Monopoles (05125) – 28”X28” shall include all work associated with the construction of the monopoles including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03210,

03300, 03460, 03470, 03600, 05120, 05125, and 16170.

E.2.21 Bid Form Unit Price Pay Item No. C05-011-005.0 – Structural Steel Monopoles (05125) – 30”X30” shall include all work associated with the construction of the monopoles including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03210, 03300, 03460, 03470, 03600, 05120, 05125, and 16170.

E.2.22 Bid Form Unit Price Pay Item No. C05-011-006.0 – Structural Steel Monopoles (05125) – 34”X34” shall include all work associated with the construction of the monopoles including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03210, 03300, 03460, 03470, 03600, 05120, 05125, and 16170.

E.2.23 Bid Form Unit Price Pay Item No. C05-011-007.0 – Structural Steel Monopoles (05125) – 44”X44” shall include all work associated with the construction of the monopoles including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03210, 03300, 03460, 03470, 03600, 05120, 05125, and 16170.

E.2.24 Bid Form Unit Price Pay Item No. C05-012.001.0 – SE3 Pole Extension shall include all work associated with the construction of the existing catenary light pole extension including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, and 05500.

E.2.25 Bid Form Unit Price Pay Item No. C05-013.001.0 – Signal 0 Location Steel Platform (SP-3) shall include all work associated with the construction of the Signal 0 Location Steel Platform (SP-3) including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, 05500, 05521, 05531, and 16170.

E.2.26 Bid Form Unit Price Pay Item No. C05-013.002.0 – Roof Termination Steel Structure (Steel Rack SR-1) shall include all work associated with the construction of the Roof Termination Structure including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, 05500, 05521, 05531, 07560, and 16170.

E.2.27 Bid Form Unit Price Pay Item No. C05-014.001.0 – Monopole Hardware – SC-5 (E4.305) Secondary Power Support Assembly shall include all work associated with the construction of the monopole assembly hardware including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, 05125, and 05500.

E.2.28 Bid Form Unit Price Pay Item No. C05-014.002.0 – Monopole Hardware –

SC-5 (E4.306 Detail 1) Secondary Power Support Assembly shall include all work associated with the construction of the monopole assembly hardware including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, 05125, and 05500.

E.2.29 Bid Form Unit Price Pay Item No. C05-014.003.0 – Monopole Hardware – SC-7 (E4.306 Detail 2 Location SS2) Secondary Power Support Assembly shall include all work associated with the construction of the monopole assembly hardware including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, 05125, and 05500.

E.2.30 Bid Form Unit Price Pay Item No. C05-014.004.0 – Monopole Hardware – SC-7 (E4.306 Detail 2 Location SS7) Secondary Power Support Assembly shall include all work associated with the construction of the monopole assembly hardware including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, 05125, and 05500.

E.2.31 Bid Form Unit Price Pay Item No. C05-014.005.0 – Monopole Hardware – FC-1 (E4.309 Detail 3) Signal Power Fuse Cutout Assembly shall include all work associated with the construction of the monopole assembly hardware including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, 05125, and 05500.

E.2.32 Bid Form Unit Price Pay Item No. C05-014.006.0 – Monopole Hardware – GR-2/FE-1 (E4.314 Detail 1) Static Wire/Feeder Support Assembly shall include all work associated with the construction of the monopole assembly hardware including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, 05125, and 05500.

E.2.33 Bid Form Unit Price Pay Item No. C05-014.007.0 – Monopole Hardware – GR-3/GR-4/FE-2/FE-3 (E4.315 Detail 1) Static Wire/Feeder Support Assembly – Deadend shall include all work associated with the construction of the monopole assembly hardware including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, 05125, and 05500.

E.2.34 Bid Form Unit Price Pay Item No. C05-014.008.0 – Monopole Hardware – RTP-1 (E4.317 Detail 1) Roof Termination Post Connection Assemblies shall include all work associated with the construction of the monopole assembly hardware including, but not limited to, the work associated with

Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, 05125, and 05500.

E.2.35 Bid Form Unit Price Pay Item No. C05-014.009.0 – Monopole Hardware – TC-1 (E4.317 Detail 1) Truss Connection Assemblies shall include all work associated with the construction of the monopole assembly hardware including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, 05125, and 05500.

E.2.36 Bid Form Unit Price Pay Item No. C05-014.010.0 – Monopole Hardware – GRB-1 (E4.316 Detail 2) Feeder Guide Bracket shall include all work associated with the construction of the monopole assembly hardware including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, 05125, and 05500.

E.2.37 Bid Form Unit Price Pay Item No. C05-014.011.0 – Monopole Hardware – CC-1 (E4.317) Pole Clamp Assembly shall include all work associated with the construction of the monopole assembly hardware including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, 05125, and 05500.

E.2.38 Bid Form Unit Price Pay Item No. C05-014.012.0 – Monopole Hardware – CC-2 (E4.317) Pole Clamp Assembly shall include all work associated with the construction of the monopole assembly hardware including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 05120, 05125, and 05500.

E.2.39 Bid Form Unit Price Pay Item No. C05-014.013.0 – Days Yard Wayside Power Platform (SP-2) shall include all work associated with the construction of the Days Yard Wayside Power platform, stairs, ladders, railings, and perimeter fence enclosure including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 03460, 03470, 03600, 05120, 05500, 05511, 05521, 05531, and 16170.

E.2.40 Bid Form Unit Price Pay Item No. C09-004.005.0 – Micropile Casing Coatings (09877) shall include all work associated with coating the upper 20 feet of the micropile casing below the cut-off elevation including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, and 02499.

E.2.41 Bid Form Unit Price Pay Item No.C16-005-001.0 – Raceways on Catenary Truss D8+39 shall include all work associated with the construction of the raceways including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 16110, 16130, 16170, 16190, and 16195.

E.2.42 Bid Form Unit Price Pay Item No.C16-005-002.0 – Raceways on Catenary Truss D10+37 shall include all work associated with the construction of the raceways including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 16110, 16130, 16170, 16190, and 16195.

E.2.43 Bid Form Unit Price Pay Item No.C16-005-003.0 – Raceways on Catenary Truss D13+21 shall include all work associated with the construction of the raceways including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 16110, 16130, 16170, 16190, and 16195.

E.2.44 Bid Form Unit Price Pay Item No.C16-005-004.0 – Raceways on Catenary Truss D14+93 shall include all work associated with the construction of the raceways including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 16110, 16130, 16170, 16190, and 16195.

E.2.45 Bid Form Unit Price Pay Item No.C16-005-005.0 – Raceways on Catenary Truss D17+69.15 shall include all work associated with the construction of the raceways including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 16110, 16130, 16170, 16190, and 16195.

E.2.46 Bid Form Unit Price Pay Item No.C16-005-006.0 – Raceways on Catenary Truss D18+66.5 shall include all work associated with the construction of the raceways including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 16110, 16130, 16170, 16190, and 16195.

E.2.47 Bid Form Unit Price Pay Item No.C16-005-007.0 – Raceways on Trainshed Roof shall include all work associated with the construction of the raceways including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 07560, 16110, 16130, 16170, 16190, and 16195.

E.2.48 Bid Form Unit Price Pay Item No.C16-006-001.0 – Underground Ductbank “12-12” shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.49 Bid Form Unit Price Pay Item No.C16-006-002.0 – Underground Ductbank

"13-13" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.50 Bid Form Unit Price Pay Item No.C16-006-003.0 – Underground Ductbank "0-0" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.51 Bid Form Unit Price Pay Item No.C16-006-004.0 – Underground Ductbank "1-1" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.52 Bid Form Unit Price Pay Item No.C16-006-005.0 – Underground Ductbank "1A-1A" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.53 Bid Form Unit Price Pay Item No.C16-006-006.0 – Underground Ductbank "2-2" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.54 Bid Form Unit Price Pay Item No.C16-006-007.0 – Underground Ductbank "2A-2A" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.55 Bid Form Unit Price Pay Item No.C16-006-008.0 – Underground Ductbank "3-3" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160,

02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.56 Bid Form Unit Price Pay Item No.C16-006-009.0 – Underground Ductbank "3A-3A" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.57 Bid Form Unit Price Pay Item No.C16-006-010.0 – Underground Ductbank "4-4" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.58 Bid Form Unit Price Pay Item No.C16-006-011.0 – Underground Ductbank "5-5" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.59 Bid Form Unit Price Pay Item No.C16-006-012.0 – Underground Ductbank "6-6" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.60 Bid Form Unit Price Pay Item No.C16-006-013.0 – Underground Ductbank "7A-7A" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.61 Bid Form Unit Price Pay Item No.C16-006-014.0 – Underground Ductbank "7B-7B" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.62 Bid Form Unit Price Pay Item No.C16-006-015.0 – Underground Ductbank "8-8" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.63 Bid Form Unit Price Pay Item No.C16-006-016.0 – Underground Ductbank "9-9" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.64 Bid Form Unit Price Pay Item No.C16-006-017.0 – Underground Ductbank "3V-3V" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.65 Bid Form Unit Price Pay Item No.C16-006-018.0 – Underground Ductbank "4V-4V" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.66 Bid Form Unit Price Pay Item No.C16-006-019.0 – Underground Ductbank "4H-4H" shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.67 Bid Form Unit Price Pay Item No.C16-006-020.0 – Underground Ductbank "FG1-FG1" (Conduits Extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14) shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.68 Bid Form Unit Price Pay Item No.C16-006-021.0 – Underground Ductbank "FG2-FG2" (Conduits Extending Ductbanks "F-F" & "G-G" into Manholes

HMH-11, HMH-12, HMH-13, & HMH-14) shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.69 Bid Form Unit Price Pay Item No.C16-006-022.0 – Underground Direct Buried Conduit (Wayside Power Outlet to Control Station – 2C 1" at Locations 7L, 9L, Paper, and 3 Exp East) shall include all work associated with the construction of the underground ductbank including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 16110, 16118, 16130, 16170, 16190, and 16195.

E2.70 Bid Form Unit Price Pay Item No.C16-007-001.0 – Handhole at Signal Transformer 23-T1 (36"L x 24"W x 30"D) shall include all work associated with the construction of the handhole including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.71 Bid Form Unit Price Pay Item No.C16-007-002.0 – Days Yard Wayside Power Manholes (10'L x 8'W x 8'D) shall include all work associated with the construction of the manhole including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.72 Bid Form Unit Price Pay Item No.C16-007-003.0 – 15KV Power Manholes (10'L x 10'W x 8'D) shall include all work associated with the construction of the manhole including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 02113, 02140, 02160, 02200, 02210, 02225, 02710, 03210, 03300, 03460, 03470, 16110, 16118, 16130, 16170, 16190, and 16195.

E.2.73 Bid Form Unit Price Pay Item No.C16-008-001.0 – Transition Pole Pull Boxes (60"H x 42"W x 18"D) shall include all work associated with the construction of the pullbox including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 16110, 16130, 16170, 16190, and 16195.

E.2.74 Bid Form Unit Price Pay Item No.C16-009-001.0 – Days Yard Wayside Power Substation shall include all work associated with the construction of the Days Yard Wayside Power Substation including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351,

16110, 16130, 16170, 16180, 16190, 16195, 16321, and 16617.

E.2.75 Bid Form Unit Price Pay Item No.C16-009-002.0 – Days Yard Wayside Power Outlets & Control Stations shall include all work associated with the construction of the Days Yard Wayside Power Outlets and Control Stations including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 16110, 16130, 16170, 16180, 16190, 16195, and 16617.

E.2.76 Bid Form Unit Price Pay Item No. C16-009-003.0 – Temporary Power for Days Yard Wayside Power Substation Switchboard Space Heaters shall include all work associated with providing temporary power until NJ TRANSIT can provide a temporary power feeder for the space heaters including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 16170, 16180, 16190, 16195, and 16617.

E.2.77 Bid Form Unit Price Pay Item No.C16-010-001.0 – Overcurrent Protective Device Short-Circuit Study & Arc Flash Study (16011) shall include all work associated with the construction of the Days Yard Wayside Power Outlets and Control Stations including, but not limited to, the work associated with Technical Provisions Sections 01112, 01351, 16011, 16170, 16180, 16195, 16321, and 16617.

SP.5 PUBLIC OPENING OF BIDS (F.1)

In Section II, Instructions To Bidders For Construction, Article F "Bid Opening", Replace Sub-Article F.1 "Public Opening of Bids" with the following:

Consistent with Governor Murphy's Executive Orders 103, 104 and 107, included as Attachment G, on COVID 19, NJ TRANSIT is committed to continue procurement operations to the maximum extent practicable.

Accordingly, in consideration of the health, safety, and welfare of the agency employees and the bidding community alike, NJ TRANSIT will not hold an in-person Bid Opening for this IFB. The Bid Opening Scheduled for **2:00 pm, Thursday, July 8, 2021** will be conducted by Conference Call Only.

The bids will be read aloud on the conference call. Conference call details are as follows:

- Dial-in Number: 1-862-294-4371
- Conference ID: 771 881 178#

The Bidder must upload its bid prior to the hour named so that it is included in the project download. Late bids cannot be accepted. This is the only way to submit a bid for this project; paper bids will not be accepted.

The apparent bid results for this IFB will be made available for viewing electronically on Bid Express (https://www.bidexpress.com) and on NJ TRANSIT's Procurement Calendar (https://www.njtransit.com).

SP. 6 REFERENCED STANDARDS (1.3)

In Section IV, General Provisions For Construction, Article 1. "General Requirements", Sub-Article 1.3 "Referenced Standards", Supplement Sub-Article 1.3.2 by adding the following standards:

7) NJ TRANSIT Rail Operations - General Requirements for Working Within The Right-Of-Way, Current Edition.

8) NJ TRANSIT Rail Operations – EP-2 Specifications For Pipeline Occupancy on NJ TRANSIT Property, Current Edition.

9) NJ TRANSIT Rail Operations – Engineering Data Required for Erection Demolition or Other Hoisting Operations Over NJ TRANSIT Rail Operations, Current Edition.

10) NJ TRANSIT Rail Operations – Guidelines For Temporary Shoring of NJ TRANSIT Rail Property, Current Edition.

11) NJ TRANSIT Rail Operations – ET-2 Specifications For Wire, Conduit, And Cable Occupancy of NJ TRANSIT Rail Property, Current Edition.

12) NJ TRANSIT Rail Operations – Third Party Contractor Vehicle Use On NJ TRANSIT Rail Property, Current Edition.

13) NJ TRANSIT Rail Operations – TRO-3 Electrical Operating Instructions, Current Edition.

14) NJ TRANSIT Rail Operations – Minimum Roadway Clearances Diagram, Current Edition.

15) NJ TRANSIT Flood Elevation Design Criteria, Current Edition.

In addition to the Standards named herein, there are other standards referenced in each Division of the Technical Provisions, and they too shall have the full force and effect as if they are specifically listed here.

SP. 7 PERMITS, LAWS AND REGULATIONS (1.6)

In Section IV, General Provisions For Construction, Article 1. "General Requirements", Sub-Article 1.6 "Permits, Laws and Regulations", delete Article 1.6.3, and replace with the following:

Prepare and submit all permit application documentation to obtain the Soil Erosion and Sediment Control Certification and Hudson, Essex, and Passaic Soil Conservation District (HEPSCD).

The Contractor acknowledges that the governmental agencies are bodies such as the Department of Environmental Protection (DEP), the Hudson Essex Passaic Soil Conversation District (HEPSCD), and the State Historic Preservation Office (SHPO) require significant amount of time to review, process and approve submittals, permits and applications. Consequently, the Contractor realizes that sizeable allowances in the Project Schedule may be required because of same and even then, adjustments to the Contractor's work plans may be needed due to the aforementioned lead times. NJ TRANSIT has no authority or control over the DEP, HEPSCD, SHPO, or any other reviewing agency.

SP. 8 DESCRIPTION OF WORK (1.18)

In Section IV, General Provisions For Construction, Article 1. "General Requirements", add the following new Sub-Articles 1.18 entitled "Description of Work", and 1.19 entitled "Special Precaution":

1.18 Description of Work

This Contract consists of work that is separated into two (2) projects: the Signal Power Distribution System Repairs (Signal Power Project) and the Yard-Wayside Power System Repairs (Yard Power Project).

Due to funding limitations and other constraints, these projects will be constructed in phases and not all of the project elements that have been designed will be constructed at this time. The Contract Documents include all of the elements that have been designed and the items that will be constructed in the future are indicated as "Not in Contract" or "NIC" and are provided in the Contract Documents as reference information. The Contractor shall construct the work of this Contract in a manner that will accommodate and not preclude or inhibit the construction of these "Not in Contract" elements in the future.

The Contract Documents also identify some elements as "Future/existing", which are elements that will be constructed as part of a separate construction

contract that has either already been awarded or will be awarded in the near future. As it is unknown when these elements will be constructed, it is not possible to know if these elements will have already been constructed and be existing elements when this Contract is awarded or if these elements will be constructed at some point after this Contract has been awarded. The Contractor shall coordinate the work in this Contract with the construction of these “future/existing” elements and ensure that the work of this Contract is constructed in a manner to accommodate and not preclude or inhibit the construction of the elements identified as “future/existing”.

The Hoboken Signal Power Distribution System consists of two (2) independent power feeders, a normal and an auxiliary, that provide power to each signal control point (sometimes referred to as signal house, signal bungalow, or signal cabinet). These two (2) feeders allow NJ Transit the ability to shut down one (1) of the power sources for maintenance while keeping the other line active so the Signal System power is not interrupted during maintenance events.

Currently, these feeders run underground in a manhole and conduit duct bank system, which provides power to pad mounted transformers located on the ground. During Superstorm Sandy the Hoboken Yard was inundated with storm surge waters that damaged underground cables and pad mounted transformers throughout the yard.

The ultimate goal is to make the entire Signal Power Distribution System resilient by converting the underground feeders to an overhead aerial distribution system mounted on utility poles (sometimes called monopoles). When the entire conversion is complete, one of the 2.4kV Signal Power primary feeder will be installed on the north side of the yard and the second 2.4kV Signal Power primary feeder will be installed on the south side of the yard, and the 120V Signal Power secondary feeders will cross the yard to distribute the power to the signal control points.

The Work of this Contract will construct the aerial distribution system for the Signal Power Systems on the north side of the yard that will include a transition point (from underground to aerial), primary power feeders, primary feeder disconnect/sectionalizing switches, transformers, secondary power feeders, secondary feeder disconnect switches and connection to the signal control equipment. While the north side pole line will be constructed as part of this Contract, there are a few poles on the south side of the yard that are constructed as part of this Contract as they are necessary to distribute the Signal Power secondary power feeders to signal control points located on the south side of the yard.

The Contractor shall be responsible for all work unless otherwise noted. As

defined in the Division of Work (Specification 01100), all Signal Power Distribution System electrical components and equipment (wire, switches, transformers, disconnects, fuse cutouts, etc.) will be furnished and installed by NJ TRANSIT. The Contractor shall be responsible for furnishing and installing all of the infrastructure necessary for NJ TRANSIT to install the electrical components and equipment, including but not limited to the foundations, utility poles, raceways, and ductbanks as defined in the Division of Work and required to install the system as designed. Utility poles shall be provided with all attachment points and hardware as indicated in the Contract Documents that is required to facilitate installation of the present and future electrical components shown in the design.

The Hoboken Yard-Wayside Power System consists of the repairs, restoration and resiliency work for 15kV power distribution systems and equipment located in the Hoboken Rail Yard that were damaged due to being submerged in salt water from the storm surge inundation caused by Superstorm Sandy. The project includes new utility poles (monopoles), feeder cables and the associated hardware to distribute 13.2 kV power feeders from the Henderson St substation to the Depot Terminal substation, the Grove St Auto Signal Power substation and load center equipment for the Yard B Fueling & Sanding facility including Yard B Wayside Power System, the Hill Yard Train Washer facility, the Wheel True Building, the Days Yard Wayside Power System, and the future Depot Wayside Power System. The project also includes repairs and restoration of the Yard B and Days Yard Wayside Power Systems infrastructure and equipment, which includes modifications to or replacement of load centers (including transformers, main distribution boards, and contactors), replacement of the wayside power outlets and control stations along the yard storage tracks, either the modification of existing or the construction of new duct banks and manholes, and the replacement of all interconnecting cabling between the load centers, wayside power outlets, and control stations.

The Work of this Contract will construct the aerial distribution of the 15kV Yard Power feeders from the new Henderson Street Substation to the Days Yard Wayside Power Substation and the Depot Substation via the north pole line including the underground ductbanks and manholes required to transition all 15kV feeders from underground to the aerial transition poles. In addition, the Work of this Contract will also construct the Days Yard Wayside Power system including the Substation, ductbanks, manholes, Wayside Power Outlets and Control Stations.

The Contractor shall be responsible for all work unless otherwise noted. As defined in the Division of Work (Specification 01100), all wires will be furnished and installed by NJ TRANSIT. The Contractor shall be responsible for furnishing and installing all of the infrastructure necessary for NJ TRANSIT

to install the wiring including but not limited to the foundations, utility poles, raceways, ductbanks, manholes, Wayside Power Substations, Wayside Power Outlets and Wayside Power Control stations as defined in the Division of Work and required to install the system as designed. Utility poles shall be provided with all attachment points and hardware indicated in the Contract Documents that is required to facilitate installation of the present and future electrical components shown in the design.

The work of this Contract shall include all supervision, labor, material, equipment, tools, supplies, removal, restoration and incidentals required to complete the infrastructure required for the Hoboken Signal Power Distribution System and the Yard-Wayside Power System Repairs as shown on the Drawings and detailed in the Technical Provisions.

Since the work takes place across the entire site, and the site plans provided in the Contract drawings needed to be separated into multiple sheets to be readable, the following attachments are provided with these Special Provisions to assist the Contractor by providing an overall site plan and partial site plans that are separated into a fewer number of sheets than as depicted in the Contract Drawings. These attachments are provided for INFORMATION ONLY and to provide an overall perspective of the yard in its compiled form. These attachments hold no contractual weight and it should be noted that they may NOT accurately delineate NOT IN CONTACT work as delineated in the Contract Drawings.

ATTACHMENT C: OVERALL SITE PLAN

ATTACHMENT D: SITE PLAN 1 OF 3

ATTACHMENT E: SITE PLAN 2 OF 3

ATTACHMENT F: SITE PLAN 3 OF 3

Hoboken Yard is listed on the State and National Registers of Historic Places and as such requires the preservation of the site features and buildings that are meaningful. The Contractor is to be responsible for taking all necessary precautions to protect elements of the yard and buildings that are not scheduled for removal as part of this contract.

The Contractor shall develop and submit, for SHPO review and approval, a Construction Monitoring Plan that identifies and delineates the material selection process and construction methods developed to avoid and minimize adverse effects to historic resources and maximize the quality of the rehabilitation and new construction. The Construction Monitoring Plan shall also identify and locate all proposed construction material and equipment

staging areas with the goal of ensuring that construction activity does not adversely affect historic properties. The Contractor shall submit, to the Construction Manager, the Construction Monitoring Plan prior to initiation of construction. The Construction Monitoring Plan shall detail the equipment, process, and methods that will be utilized to provide vibration monitoring of historic structures including, but not limited to the Records Building, Engine House, Catenary Trusses, Trainshed, and the Hoboken Terminal. Vibration monitoring shall be provided when performing work near historic structures and the Contractor shall plan construction activities/methods to minimize and eliminate (if possible) impacts to historic structures.

1.19 Special Precaution

Hazardous materials may be encountered during construction operations including contaminated soils, ground water, and lead paint; and the contractor shall comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

Excavated soils will generally consist of historic fill material which may consist of elevated concentrations of heavy metals (e.g., arsenic, cadmium, chromium, lead, etc.), polycyclic aromatic hydrocarbons (PAHs), coal and ash. Due to operations and site constraints, stock piling of soil will not be permitted unless specifically approved in writing by NJ Transit prior to performing the work. Accordingly, all soil and materials shall be containerized and removed from the site for off-site management, decontamination, and disposal in accordance with Federal, State, and Local regulation and the approved Soils Management Plan (SMP).

SP. 9 TIME OF COMPLETION - DELAY - LIQUIDATED DAMAGES (2.1)

In Section IV, General Provisions For Construction, Article 2. "Contract Time, Suspension and Termination", Sub-Article 2.1 "Time of Completion – Delay – Liquidated Damages", add Sub-Articles 2.1.1a, 2.1.2a, 2.1.14 and 2.1.15.

2.1.1a The Contractor shall pay NJ TRANSIT the amount of $**5,786.70** per day as liquidated damages for each calendar day delay in completing all work beyond the number of days specified in this contract.

2.1.2a The Contractor shall complete all Work within **1,460** calendar days from the effective date of the Notice to Proceed.

2.1.14 An extension of time will not be granted for delay caused by a shortage of materials, unless the Contractor furnishes to NJ TRANSIT documentary proof that he has diligently made every effort to obtain such materials from all known sources. The Contractor shall also submit proof, in the form of the Project Schedule required by Article 6.2 of the General Provisions for Construction, showing that the inability to obtain such materials when originally planned did, in fact cause a delay in Substantial Completion of the Work that could not be compensated for by revising the sequence of his operations. Only the physical shortage of material will be considered under these provisions as a cause for extension of time. No consideration will be given to any claim that material could not be obtained at a reasonable, practical or economic cost.

2.1.15 Monetary Reimbursement and Time Extension for Non-Availability and/or Track/Catenary Outage.

NJ TRANSIT and the Contractor acknowledge that, even when all planning and approvals for track/catenary outages have been accomplished as required, the operating requirements of NJ TRANSIT may dictate that track/catenary outages cannot be provided to the Contractor when requested. NJ TRANSIT has established the following procedure to provide the Contractor with an extension of Contract time and/or payment for costs for delays resulting from delay or cancellation of an approved outage or Railroad Protective Labor after the **third (3rd)** such occurrence.

Monetary reimbursement will be granted only when all of the following have occurred:

1. Track/catenary outage was requested in a timely fashion and was expressly approved by NJ TRANSIT.
2. A Site/Job Specific Safety Work Plan (SSSWP) for the specific Work was approved.
3. The specific work activity was scheduled on the latest approved bi-weekly update of the approved construction progress schedule.
4. Confirmation was received that the specific track/catenary outage had been previously scheduled by NJ TRANSIT in the weekly outage meeting.
5. The time period the Contractor was scheduled to work within a specific track/catenary outage was delayed, interrupted, and/or shortened by NJ TRANSIT without prior notice for 25% or more of its planned duration; or canceled in its entirety without prior notice. Payment will not be made for delays or interruptions that amount to less than 25%

of the planned work period within a specific track/catenary outage, or in the case of an outage cancellation, labor and equipment that did not show up at the construction site on-time and fully capable of working. For the purposes of this Provision alone, the phrase “prior notice” shall mean notification by NJ TRANSIT or its Construction Manager to the Contractor no later than 24 hours prior to the start of the scheduled work period.

6. The Contractor has productively used all prior granted track/catenary outages. “Productively used” means the Contractor diligently performed the work scheduled for the subject outage.

7. The reason for the cancellation/delay of the outage was solely for the benefit of NJ TRANSIT and not attributable in whole or in part to weather or any act, error, or omission on the part of the Contractor. NJ TRANSIT reserves the right to cancel outages without notice due to the Contractor’s failure to abide by the rules of NJ TRANSIT Rail Operation, the terms of the Contract or the instructions of NJ TRANSIT or the Construction Manager. In such a situation, the Contractor shall not be entitled to any monetary or time compensation.

   Monetary reimbursement will be limited to the following:

   1. Hourly labor specifically assigned to the work activity that necessitated the track outage.

   2. Equipment and plant rentals specifically assigned to the work activity that necessitated the track outage.

   3. Overhead markup of 10% calculated on items 1 and 2 above. Payment will only be made for major pieces of construction related equipment such as backhoes, loaders, tractors, dump trucks, cranes and boom trucks. Major equipment shall mean electric, pneumatic, gasoline, diesel driven/powered equipment that produces/requires at least 30 horsepower to function properly. Hand and power tools, pick-up trucks, passenger vehicles, and incidental materials, equipment, and supplies will be considered part of overhead.

   4. Payment for delayed or canceled outages or Railroad Protective Labor will only be made for labor and equipment operating in Work areas affected by and scheduled to be active during the specific approved outage or Railroad Protective Labor. Payment will not be made for idle labor and equipment that is not, and was not scheduled to be, operating in the Work areas affected by the cancelled or delayed outage or Railroad Protective Labor. Payment will not be made for labor and

equipment that could be employed elsewhere or that was not affected by the specific outage or Railroad Protective Labor delay/cancellation. Payment will not be made for any costs related to moving equipment to/from the site. Payment will not be made for labor and equipment that is employed elsewhere. Payment will not be made for labor and equipment that is not present on the site during the affected hours.

5. Profit or other costs that are not specifically stated above will not be allowed under this provision.

A time extension will be granted to the Contractor only for time actually lost on work activities that are on the critical path as evidenced by the latest monthly construction progress schedule and that are delayed as in (b) above.

No profit will be allowed under this provision.

Payment will be made from the allowances established under Bid Item entitled "Track Time Allowance", listed in the Bidders Proposal, as part of the monthly progress payment.

Payment for canceled or delayed track outages will only be made for labor and equipment operating in work zones scheduled to be active during that specific track outage. Payment will not be made for idle labor and equipment that is not, and was not scheduled to be, operating in the active work zone.

The Contractor hereby agrees that the terms of compensation set forth herein for non-availability of outages are fair and reasonable and shall compensate the Contractor in full for any and all costs whatsoever incurred as a result of the lack of availability of outages.

SP. 10 RESPONSIBILITY FOR WORK (4.1)

In Section IV, General Provisions For Construction, Article 4. "Protection and Control of Premises", Sub-Article 4.1 "Responsibility For Work", supplement Sub-Article 4.1.3 by adding Sub-Articles 4.1.3.1 through 4.1.3.5 :

4.1.3.1 The Contractor shall, within twenty (20) days of Notice to Proceed and before any demolition work, present for review by the Construction Manager, a comprehensive Safety Plan. This Plan shall be specific to this Project and shall include subsections covering all key subcontract work, such as demolition, abatement, roofing, drainage, excavation, site

utility and concrete/masonry work. It shall have emergency phone numbers and 24-hour emergency contact information for Contractor and key subcontractor supervisory personnel. Work may not proceed until the Safety Plan has been accepted by NJ TRANSIT. The Safety Plan shall conform to Federal Workplace and Worker Safety Regulations that are applicable to construction workers and construction sites.

4.1.3.2 Contractor shall have a designated Safety Supervisor on site. This person shall be a competent person, responsible for assuring compliance with requirements of the Safety Plan and all other safety regulations. At a minimum, this person shall have taken the 30-hour Occupational Safety and Health Administration (OSHA) safety course, within the last two (2) years and have the authority to enforce the Safety Plan. The designated Safety Supervisor does not have to be a full time dedicated safety person. However, at least one full time Contractor representative must have the OSHA training and qualifications required.

4.1.3.3 Material Safety Data Sheet (MSDS) records will be maintained on site for all materials to which construction or NJ TRANSIT personnel may be exposed during the course of the work.

4.1.3.4 Contractor must have all excavation support designed by a Professional Engineer (as indicated in the latest version of the General Requirements for Working Within The Right-Of-Way document), licensed in the New Jersey. Detailed plans and design calculations, signed/sealed by this Professional Engineer, must be submitted for review and approval by the Construction Manager, and NJ TRANSIT ROW Engineering prior to proceeding. Where any temporary system impacts NJ TRANSIT operations, its design is subject to modification, without additional cost, to mitigate that operational impact.

4.1.3.5 Contractor shall, with the applicable subcontractor, perform a detailed Job Safety Analysis (JSA) of the demolition, roofing, drainage, deep excavation, site utility, concrete and electrical, trades. The JSA will include a cooperative study by Contractor's Safety Supervisor, trade supervisor and Construction Manager of steps involved in performance of the work, identification of all potential hazards and establishment of a plan for mitigating those hazards. A pre-construction safety meeting will be held for these trades, and any others that Construction Manager or Contractor believes merit it. Contractor shall hold weekly "tool box" safety meetings for all on site trades, with an organized program, such as is provided by the Building Contractors Association (BCA). Construction Manager may elect to attend.

SP. 11 USE OF PREMISES (4.2)

In Section IV, General Provisions For Construction, Article 4. "Protection and Control of Premises", Sub-Article 4.2 "Use of Premises", supplement Sub-Article 4.2 by adding Sub-Articles 4.2.10.1 through 4.2.10.18 :

4.2.10.1 The Contractor shall notify the Construction Manager in writing at least seven (7) days prior to shutdowns that will affect operations in the owner occupied areas. The Contractor shall confirm in writing that shutdowns are still required forty-eight (48) hours prior to the shutdown. These shutdowns are subject to NJ TRANSIT approval and operational requirements. Such shutdowns may require scheduling Contractor's work during off-peak hours to minimize disruptions; all costs associated with off-peak work are the responsibility of the Contractor. In the event of an operational conflict, these may be rescheduled at the discretion of the Construction Manager.

4.2.10.2 The Contractor fully acknowledges that the Work is within the confines of a very active and congested rail yard vital to the operations of NJ TRANSIT, and that the Contractor's access to and use of the premises may be restricted by NJ TRANSIT without advance notice to ensure continued operations or the security/safety of said yard and maintenance facilities. Furthermore, the Contractor acknowledges the Work must be done to accommodate NJ TRANSIT's operations at all times and that all construction activities in all areas must be completed in such a manner to minimize or eliminate all disruptions, interferences or hindrances to NJ TRANSIT's operations. If the Contractor's access to or use of the Project site is severely restricted, the Contractor shall be given additional time only, in accordance with Article 2.2-No Damages for Delay of the General Provisions.

4.2.10.3 The Contractor shall not interfere with or hinder daily operations in the yard or maintenance facilities and shall coordinate and schedule construction operations with the supervisory personnel of the yard and terminal and maintenance facilities through the Construction Manager.

4.2.10.4 The Contractor shall notify the Construction Manager in writing seventy-two (72) hours prior to any required routine utility shutdowns that may affect NJ TRANSIT's operations and obtain the Construction Manager's express approval before proceeding with a utility shutdown. NJ TRANSIT reserves the right to require such shutdowns be done only during stipulated hours to minimize any impacts to its operations.

Track and Catenary power outages shall be scheduled and approved by NJ TRANSIT at least twenty-one (21) days in advance of the work.

4.2.10.5 The Contract Drawings show the approximate locations of various overhead and underground lines, utilities, and structures. They shall be used only as guidelines and are not guaranteed as to their accuracy or completeness. Due to the high density of tracks and equipment in the yard, and the above ground and underground utilities associated with the same, the Contractor shall exercise extreme caution and a high level of diligence during his construction activities especially during demolition, excavation, drilling and lifting operations.

All trenching for underground utility work inside and outside the work area shall be covered at the end of each work day as indicated in the General Shoring Requirements of the General Requirements for Working Within the Right-Of-Way document (latest version).

The Contractor shall locate and field mark the location of all monopoles and provide NJ Transit thirty (30) calendar days to mark out any known utilities in the area. The Contractor shall also call for utility mark outs by the NJ One Call Services.

The Contractor shall perform test pits by hand digging for the first 5 feet to determine if there are any unidentified utilities found in the installation location. The Contractor shall notify the Construction Manager, NJ Transit, and the Engineer immediately of any unforeseen conditions encountered. All test pits shall be performed as Phase I of construction.

4.2.10.6 The Contractor shall not traverse the site, park vehicles or equipment or unload materials at any areas other than designated areas without the expressed written approval of the Construction Manager.

4.2.10.6.1 The Contractor may store railbound or hi-rail equipment on Track 1 Express East in the area indicated on Contract Drawings E1.07, E1.09, E2.07, and E2.09 throughout the duration of the project. Track 1 Express East may require the Contractor to dig out the rail flangeways to be suitable for equipment storage.

4.2.10.6.2 The Contractor may store railbound or hi-rail equipment on the Tail Track indicated on Contract Drawing E1.01, E1.02, and E2.02 throughout the

duration of the project.

4.2.10.6.3 Equipment storage requests shall be submitted in writing and approved by the Construction Manager prior to any equipment storage.

4.2.10.6.4 The Contractor shall be responsible for the security of all equipment stored onsite.

4.2.10.7 The Construction Manager shall designate specific areas for parking of Contractor vehicles and loading and unloading of materials and equipment. Areas for parking and storage will depend on availability. This area is very limited and not guaranteed. The Contractor shall not park or unload vehicles in any location other than the designated locations without written approval from the Construction Manager.

4.2.10.8 Many portions of the Work Area are only accessible via foot traffic, rail bound vehicles/equipment or hi-rail vehicles/equipment. The Contractor shall coordinate movement of rail bound or hi-rail vehicles/equipment to/from the worksite with the Construction Manager and NJ TRANSIT. No vehicles or equipment shall be permitted to travel on the roadway north of Long Slip Canal due to the partial bulkhead collapse. Access to the work site on foot by the contractor's employees is allowable only under the protection of the qualified NJT flagman. Contractor employees must assemble at the designated location clear of all tracks and remain there until given permission by and escorted to the site by the NJT Flagman.

4.2.10.9 The Contractor may be allowed space to store materials, at the discretion of the Construction Manager based on availability. The designated areas shall be coordinated with the Construction Manager during the Pre-Construction Meeting and presented for approval via the SSWPS. NJ TRANSIT cannot guarantee potential storage space will be available for the contract duration. The Contractor shall include off-site storage. Should site limitations restrict onsite storage areas, the failure or inability of NJ TRANSIT to provide previously approved storage areas will not entitle the contractor to additional compensation, damages or time.

4.2.10.9.1 The Records Building will be demolished by others. The Contractor may use the footprint of the Records Building, indicated on Contract Drawings E1.09 and E2.09, as a material storage and laydown area throughout the duration of the project. The Contractor shall be responsible for the security of all materials stored onsite.

4.2.10.10 All vehicular access to the Project Site shall be restricted at the discretion of the Construction Manager and/or New Jersey Transit Police. In order to maintain security on the property, the Contractor's access to the site will be restricted. All vehicles may be searched and may be delayed or prohibited from entering NJ TRANSIT property. On-site parking and access for vehicles will also be limited to designated and identified vehicles. Designated vehicles shall have a NJ TRANSIT approved identification hangtag visible at all times. NJ TRANSIT reserves the right to deny or severely limit the parking or access of the Contractor's vehicles onto the project site at any time.

4.2.10.11 During the entire term of the project, NJ TRANSIT will continue to use major portions of the existing tracks, yard and maintenance facilities, including all areas adjacent to the construction, storage, and staging areas. The usage will fall within the Contract limits. Temporary, short term interruptions to this access may be scheduled through the Construction Manager with written notice, given at least 72 hours in advance and subject to NJ TRANSIT approval. The Contractor may be required to schedule those interruptions outside of regular working hours, at no additional cost to NJ TRANSIT.

4.2.10.12 The Contractor shall prohibit entry to the project site by unauthorized personnel during working hours as well as non-working hours. The Contractor shall be held liable for all theft and damage. The Contractor shall not rely upon existing security measures in place by NJ TRANSIT for the protection of its equipment, materials and personnel since they are for the sole protection of NJ TRANSIT's employees, equipment and existing facilities. The Contractor shall coordinate all of its security measures with the supervisory personnel of the yard and maintenance facilities through the Construction Manager.

4.2.10.13 Should the Contractor's forces fail to comply with any requirements of NJ TRANSIT regarding vehicular access, movements, and parking, they will be removed from the site and denied future access into Hoboken Yard.

4.2.10.14 Any hazardous substances not addressed by the Specifications or unforeseen conditions exposed during the Work shall be immediately reported to the Construction Manager.

4.2.10.15 All employees of the Contractor and subcontractors shall wear Contractor-provided and NJ Transit-approved identification badges at all times while they are on the project site. The Contractor shall

issue everyone working on-site for this Project a specific ID card with unique employee number. All ID information shall be maintained on a website-accessible database (Excel or equal) and updated on a daily basis. Costs associated with ID cards are the responsibility of the Contractor.

4.2.10.16 The Contractor shall comply with NJ TRANSIT security requirements, which are subject to change based on ongoing threat levels established by the Federal or State Homeland Security Director. These requirements include, but are not limited to:

4.2.10.17 The Contractor shall provide advance notice to the Construction Manager of all vehicles and personnel scheduled to enter the construction area.

4.2.10.18 All vehicles and employees will be checked by NJ Transit security forces prior to being granted the right to enter or leave the site.

SP. 12 MAINTENANCE AND CLEANING OF PREMISES (4.3)

In Section IV, General Provisions For Construction, Article 4. "Protection and Control of Premises" Sub-Article 4.3 "Maintenance and Cleaning of Premises", add new Sub-Articles 4.3.8:

4.3.8 NJ TRANSIT is dedicated to a culture where safety and health are fundamental values, adopted and practiced throughout the agency. Accordingly, in consideration of the health, safety, and welfare of the agency employees and the general public, NJ TRANSIT requires that Contractors and their Subcontractors abide by any and all Executive Order(s), included as Attachment G, pertaining to safety precautions required as a result of Coronavirus disease 2019 ("COVID-19) and all guidance and/or best practices regarding COVID-19 that were established by the Centers for Disease Control and Prevention (CDC).

SP. 13 PROTECTION OF PUBLIC UTILITIES (4.7)

In Section IV, General Provisions For Construction, Article 4. "Protection and Control of Premises", Sub-Article 4.7 "Protection of Public Utilities", delete the last paragraph of Article 4.7.3 and add Sub-Articles 4.7.3.1 through 4.7.3.3:

4.7.3.1 In addition to removals indicated in the Contract Documents, all inactive utilities, including but not limited to, electrical, heating and plumbing, that interfere with work covered by this Contract are to be removed by the Contractor as part of the Work. The Contractor shall identify on as built drawings all such existing utilities (active and inactive) that interfere with the Work and submit them at least sixty (60) days prior to scheduled start of removal work. This submittal shall

include the Contractor's identification, to the extent possible by external examination in the field, of the different type and size utility.

4.7.3.2 The Contractor will provide as-builts identifying utilities upon completion of the work. New Jersey Transit will review this submittal with regards to railroad utilities only. The Contractor must verify all other private utilities and protect same.

4.7.3.3 NJ TRANSIT will relocate active NJ TRANSIT owned utilities only away from the area of Work wherever possible. The General Contractor is responsible for all other utilities. In some cases, such as for power, telephone and data cable, relocation may be impractical and NJ TRANSIT may detach the utility from the area of work and temporarily support it. In such cases, the Contractor shall protect the utility from construction damage and instruct workers in proper conduct.

SP. 14 MAINTENANCE OF RAILROAD TRAFFIC (4.11)

In Section IV, General Provisions For Construction, Article 4. "Protection and Control of Premises", Sub-Article 4.11 "Maintenance of Railroad Traffic", supplement Sub-Article 4.11.1 by adding Sub-Articles 4.11.1.1 through 4.11.1.4:

4.11.1.1 The Contractor shall notify the Construction Manager, in writing, three weeks prior to any requested catenary outage, track outage, track removal or fouling and obtain the Construction Manager's express written approval before proceeding with the work. In addition, the request(s) for flagmen and A-Men shall be submitted forty-eight (48) hours and seventy-two (72) hours in advance, respectively. All requests for track and catenary outrages along with those for the Flagmen and A-Men shall be accompanied by a detailed work plan. The plan shall indicate specific work to be performed.

4.11.1.2 The Hoboken Terminal operates 24 hrs/day, 7 days/wk, year round including all legal and union holidays, inside and outside the buildings with and without the catenary system and with vehicles throughout the complex. It is mandatory that the Contractor avoids compromising NJ TRANSIT's train and force account movements to and from, in and out of the buildings, Depot, and yards at the Terminal.

4.11.1.3 Whenever equipment or personnel are working closer than 15 feet from the nearest rail or 18 feet from the centerline of the nearest track or over the top of a track, that track is considered "fouled". Refer to Appendix D in the General Provisions for NJ TRANSIT's "Governing Rules for Working within the Railroad Right for Way".

4.11.1.4 NJ Transit will permit track and/or catenary power outage time in accordance with the Track Outage Times that follow. Outages are given at the discretion of NJ Transit and may vary seasonally.

Weekday: Foul shots only permitted.

Weekend:

Saturday: 7AM to 7PM

Saturday Outages that are concurrent with an evening event at MetLife stadium that NJ TRANSIT will provide train service to, the Outage will end three (3) hours prior to the start of the event.

Sunday: 7AM to 7PM

Sunday Outages will NOT be permitted when there is a football game scheduled at MetLife Stadium.

Sunday Outages that are concurrent with an evening event a MetLife stadium that NJ TRANSIT will provide train service to, the Outage will end three (3) hours prior to the start of an event.

The Contractor may NOT leave its equipment in the outage area from 7 PM Saturday until 7 AM Sunday, unless expressly permitted by NJ TRANSIT or the Construction Manager in writing. There is no guarantee that the Contractor will be permitted to leave equipment in the outage area from 7PM Saturday until 7AM Sunday.

The Contractor may request extended weekend Outage periods, but there is no guarantee that NJ TRANSIT will approve or grant extension of the weekend Outage periods.

The Contractor may request continuous weekend Outages when it can be demonstrated that an element of the work cannot be performed within the allowable 12-hour Outage windows identified above. Continuous Weekend Outage requests shall be submitted in writing, a minimum of six (6) weeks in advance, and shall be accompanied by documentation detailing the justification for the requested Outage, and the requested start and end times for the continuous weekend Outage. The maximum continuous weekend Outage window that will be considered is a 54-hour outage from 11PM Friday until 5AM Monday

There is no guarantee that NJ TRANSIT will approve, or grant requested continuous weekend Outages.

All outages require NJ TRANSIT prior approval and are not guaranteed. The contractor shall plan all work to maximize productivity during the approved outages.

NJ TRANSIT requires the first and last hour of all Outage periods to process the track outage request and to de-energize or energize the catenary. During each of these 1- hour periods, the Contractor is not permitted to work in the work zone that requires the outage.

In Section IV, General Provisions For Construction, Article 4. Protection and Control of Premises, Sub-Article 4.11 "Maintenance of Railroad Traffic", Sub-Article 4.11.5, paragraph B.6, add the following:

All Contractor personnel shall attend a Site Specific Orientation Class. The class shall be a supplement to the Railroad's Safety Training Certification class. The class shall be run by the Contractor Safety Representative in conjunction with NJ TRANSIT Rail Operations and shall deal specifically with construction activities and restrictions in Hoboken Yard. The Contractor shall submit an outline of the class content for prior approval by NJ TRANSIT. Class topics shall include the following:

1. General Project Work Scope
2. Hoboken Yard Transportation and Maintenance Operations
3. Procedures for Site Access by Contractor Personnel
4. Contractor Work Sites
5. Restricted Areas
6. Working within an Active Yard and Building
7. Contractor Parking and Storage Areas
8. Construction Traffic ways
9. Material Deliveries
10. On Site Handling of Materials
11. Site Cleanliness
12. Worker Conduct
13. Coordination of Work Activities and Work Hours
14. Railroad Safety
15. Weekly Outage Meetings

NJ TRANSIT will provide assistance to the Contractor in the development of items 2, 6 and 14 above. All attendees shall be issued a suitable badge or ID at the completion of the class. No Contractor personnel will be permitted to enter the site without such ID or badge.

SP. 15 WORK FURNISHED BY OTHERS (4.12)

In Section IV, General Provisions For Construction, Article 4. "Protection and Control of Premises", Sub-Article 4.12 "Work Furnished by Others", add Sub-Articles 4.12.6 through 4.12.8:

4.12.6 The Contractor fully understands that NJ TRANSIT forces will complete certain important aspects of the project and the Contractor's full cooperation is required in order to properly coordinate this effort and make it successful.

4.12.7 The Contractor shall include in his Critical Path Method (CPM) Schedule all tasks to be performed by NJ TRANSIT, which are required either in order for the Contractor to perform a succeeding task or involve tasks that the Contractor must perform prior to an NJ TRANSIT task. In addition, the Contractor shall issue a written notice to the Construction Manager of all such interface tasks, at least 4 weeks in advance of the anticipated start dates of same. The Contractor shall adjust his project schedule and work plans, at no additional cost to NJ TRANSIT, to address delays caused by NJ TRANSIT's forces failure to start, progress, or complete its work per the project schedule due to operational priorities.

4.12.8 The Contractor may construct the Days Yard Wayside Substation before NJ TRANSIT installs the permanent aerial power feeder for the Days Yard Wayside Power System. Each vertical section of the Days Yard Wayside Power Substation Switchboard has a 120V powered space heater. The Contractor shall provide temporary power to the space heaters until NJ Transit can provide a temporary 120V power feeder for the space heaters. The Contractor shall notify NJ TRANSIT a minimum of six weeks in advance of the anticipated date that the temporary power feeder for the space heaters will be needed and the load that the temporary power feeder will need to serve.

SP. 16 FIELD OFFICE AND SANITARY FACILITIES (5.2)

In Section IV, General Provisions For Construction, Article 5. "Mobilization and Temporary Facilities", Sub-Article 5.2 "Field Office And Sanitary Facilities", Supplement Item 4 under Article 5.2.7 to add the following:

For clarity, the Contractor shall be responsible for the cost of providing a functioning flushing water closet in the CM trailer. The Contractor's cost shall include the weekly service of emptying the sanitary storage tank and the

weekly service to fill the water storage tank. Storage tanks are required if the Contractor is unable to provide plumbing hook-ups to existing water and sanitary lines.

SP. 17 CONSTRUCTION PROJECT SCHEDULE (6.2)

In Section IV, General Provisions For Construction, Article 6. "Project Administration and Document Control", Sub-Article 6.2 "Construction Project Schedule", modify Sub-Article 6.2.4 by inserting the following at the end of the first sentence:

6.2.4 for the first one hundred and fifty (150) work days of the Contract Duration.

The Contractor shall then submit the total Detailed Project Schedule no later than forty-five (45) days after the Notice to Proceed.

The format, content and inter-relationship of the two documents will be complementary and will adhere to the requirements of Article 6.2. Once the total Baseline Detailed Project Schedule (DPS) is approved, all payments will be processed with the consolidated DPS.

In Section IV, General Provisions For Construction, Article 6. "Project Administration and Document Control", Sub-Article 6.2 "Construction Project Schedule", add Sub-Article 6.2.4.1:

6.2.4.1 The Contractor's DPS shall be submitted with cost data that can be correlated back to the contractor's approved Schedule of Values, as per GP.12.3.1.

In Section IV, General Provisions For Construction, Article 6. "Project Administration and Document Control", Sub-Article 6.2 "Construction Project Schedule", delete the first sentence of Sub-Article 6.2.7 and replace with the following:

6.2.7 The DPS shall be a CPM schedule prepared with the software "Primavera Project Planner" (P6), latest version, using the precedence diagram method, or scheduling software that is fully compatible with P6 as approved by the Construction Manager.

In Section IV, General Provisions For Construction, Article 6. "Project Administration and Document Control", Sub-Article 6.2 "Construction Project Schedule", add the following after the third sentence of Sub-Article 6.2.12:

6.2.12 The updated Project Schedule shall include the actual start date, percent complete, and remaining duration or actual finish date for each activity in progress, as well as any proposed Schedule revisions, such as the addition of new activities or changes to the logic and/or duration of the existing activities.

In Section IV, General Provisions For Construction, Article 6. "Project Administration and Document Control", Sub-Article 6.2 "Construction Project Schedule", add Sub-Article 6.2.12.1:

6.2.12.1 Failure to submit Project Schedules in accordance with this Provision or failure of the Contractor to attend and participate in scheduled update meetings shall be sufficient cause for NJ TRANSIT to withhold payment of any application in full until such failure is remedied to the satisfaction of the Construction Manager.

In Section IV, General Provisions For Construction, Article 6. "Project Administration and Document Control", Sub-Article 6.2 "Construction Project Schedule", add Article 6.2.16:

6.2.16 Contractor's DPS shall include a period of three (3) week's duration, immediately prior to Substantial Completion, for Construction Manager to perform a final inspection of the Work and to prepare the List of Remaining Work incorporated into the Certificate of Substantial Completion (Sub-Article 13.2.2 in the General Provisions For Construction). The Work must be sufficiently complete, prior to this activity, for the Construction Manager to perform this inspection.

SP. 18 CONTRACT DRAWINGS AND SPECIFICATIONS (6.3)

In Section IV, General Provisions For Construction, Article 6. "Project Administration and Document Control", Modify Sub-Article 6.3 "Contract Drawings and Specifications" by deleting Sub-Articles 6.3.1 and 6.3.3 in their entirety and adding the following new Sub-Articles 6.3.1 and 6.3.3:

6.3.1 Unless otherwise provided in the Contract, NJ TRANSIT will furnish to the Contractor, free of charge, a maximum of two (2) full size print copies of Conformed Drawings and Specifications and any subsequent Bulletins for the execution of the work. The Contractor shall at all times keep one copy of all Contract Documents up to date and in good order, available to the Engineer, the Engineer's Representative and the Construction Manager. The Contractor shall keep its prints of the Contract Drawings up to date at all times by marking on them the final location of any changes in the Work. Prior to final payment, the

Contractor shall submit a copy of the marked-up drawings of all contract Drawings whether altered or not to the Construction Manager. These marked up As-Built Drawings shall become the property of NJ TRANSIT.

6.3.3 The Contractor acknowledges that it must give NJ TRANSIT thirty (30) days to address requests for information or clarifications when same deal with apparent ambiguities, errors, or omissions in the Contract Documents which require the Engineer to provide supplemental technical information or drawings; or rewrite or modify the Specifications, and/or Contract Drawings.

SP. 19 SHOP AND WORKING DRAWING SUBMITTALS (6.5)

In Section IV, General Provisions for Construction, Article 6. "Project Administration and Document Control", Sub-Article 6.5 "Shop and Working Drawing Submittals", modify Sub-Article 6.5.1 by replacing the first sentence with the following:

The Contractor shall submit, with promptness as to cause no delay in the work, a reproducible and five (5) legible copies and one electronic PDF of all completed and detailed shop, setting or working drawings, details and schedules as are necessary to adequately perform the Work to the Construction Manager for review as to conformance to the design.

SP. 20 AS-BUILT DRAWINGS AND QUANTITIES SUBMITTAL (6.11)

In Section IV, General Provisions for Construction, Article 6. "Project Administration and Document Control", Sub-Article 6.11 "As-Built Drawings and Quantities Submittal", add Sub-Article 6.11.1:

The Contractor's monthly requisitions will not be processed until the Construction Manager has reviewed the "Marked-Up Drawings" and updated transparencies in the Contractor's field office and determined that they are accurate and up to date.

SP. 21 MATERIALS-WORKMANSHIP-LABOR (7.2)

In Section IV, General Provisions for Construction, Article 7. "Quality Assurance and Quality Control", Sub-Article 7.2 "Materials-Workmanship-Labor", add Sub-Articles 7.2.10 through 7.2.13 :

7.2.10 The Contractor assumes all the responsibility and liability associated with the ensuring that all workers in its employment or that of its subcontractor have the capacity to fully understand all

verbal and written training, instructions and commands given to them by NJ TRANSIT safety, security and supervisory personnel. The Contractor shall immediately remove and replace all workmen who fail to strictly, completely and immediately comply with all NJ TRANSIT training, instructions and commands; except that the permanent dismissal and replacement of any workers employed by a Disadvantaged Business Enterprise (DBE) Subcontractor or organization also requires the prior review of the NJ TRANSIT Office of Business Development in accordance with NJ Transit's DBE Program Requirements.

7.2.11 As a condition of the Contract award, the apparent low Bidder shall submit to NJ TRANSIT, within ten (10) days of the bid opening, detailed resumes citing the name, training and experience of the Project Manager/Project Superintendent designated for assignment on this Contract.

The Project Manager/Project Superintendent shall be a highly competent, well experienced, reasonably cooperative and responsive individual(s) employed full time and will be present on the work site to direct and supervise the Work each and every workday that Work is being performed, from the start of the Work to the acceptance of the same. They shall be empowered by the Contractor to make binding decisions in a timely manner. They shall be an individual(s) with a minimum of ten years of supervisory experience on construction projects of a similar type and complexity. A list of three (3) references from past (recent) projects shall be furnished. The proposed Project Manager/Project Superintendent must have a demonstrated record of successfully supervising and been cooperative and responsive (in the opinion of the client reference) on at least three (3) projects of similar type and complexity.

7.2.12 If the successful Bidder fails to submit the required personal information or fails to propose a Project Manager/Project Superintendent that meets the aforementioned minimum qualifications (in the sole opinion of NJ TRANSIT), then the Bidder may be declared not responsive, and thus ineligible to receive the Contract award.

7.2.13 The Contractor shall not change the Project Manager/Project Superintendent until their replacement(s) are submitted and approved by NJ TRANSIT.

SP. 22 INSPECTION OF WORK (7.3)

In Section IV, General Provisions for Construction, Article 7. "Quality Assurance and Quality Control", Sub-Article 7.3 "Inspection of Work", add Sub-Article 7.3.8:

7.3.8 The Contractor recognizes the necessity to schedule regulatory and code enforcement inspections well in advance and make all reasonable accommodations necessary to facilitate said inspections so as to avoid delay in progressing or completing the Work. Furthermore, the Contractor realizes that even scheduled inspections may be cancelled by the regulatory and code enforcement agencies without warning.

The Contractor shall receive neither additional time nor compensation for the untimely responsiveness (delay) by a regulatory or code enforcement agency (such as DCA, DEP, Soil Conservation District, etc.) unless said delay exceeds that which is normally and customarily experienced by others when interfacing with said agency, at which point the Contractor shall be granted additional time only for that portion of the delay that exceeds the response time ordinarily and typically experienced with the specific agency under similar circumstances.

SP. 23 ARCHEOLOGICAL FINDINGS (GP 8.5)

In Section IV, General Provisions for Construction, Article 8. "Excavation And Differing Site Conditions", supplement Sub-Article 8.5 "Archeological Findings", by adding the following:

Based upon investigations performed for the project under the requirements of the National Historic Preservation Act it was determined that the eastern 100 feet of the proposed power run north of Pole N37 may approach and intersect the location of a mid-nineteenth century subsurface structure that was not subsequently built upon. Therefore, in accordance with NJ State Historic Preservation Office review of the project, archaeological monitoring is required during installation of the duct bank within that area of sensitivity.

The Contractor is advised that all activities associated with this contract within the area of sensitivity must be planned and undertaken to incorporate awareness and protection of potential archaeological resources in this area. The Contractor shall facilitate access to this area by archaeological consultant personnel as designated by NJ TRANSIT to monitor all excavation activity in the noted area for the potential uncovering of subsurface historic artifacts. The Contractor shall also adhere to the provisions of the archaeological monitoring plan that is to be prepared by NJ TRANSIT's

archaeological consultant and approved by the NJ State Historic Preservation Office. The monitoring plan will be provided to the Contractor prior to the commencement of construction.

The Contractor shall also be aware that, in the event that any subsurface structures or other artifacts are discovered during excavation in the area of sensitivity, work at that location shall cease at the direction of NJ TRANSIT's archaeological consultant. Work stoppages shall be of such duration as to permit full documentation of the excavation conditions and any identified cultural feature(s); to determine whether or not the feature(s), if historically significant, can be avoided through alteration of the planned construction; and to undertake consultation with the NJ State Historic Preservation Office. The stoppage shall also be of such duration as to permit formal determination regarding the historic nature of the discovery and either full documentation of the structure/artifact(s) or recovery of such resources. It should be noted that, during any required stoppage within the area of archaeological sensitivity, normal work activities within the remainder of the overall project area may continue.

SP. 24 LABORATORY TESTING AND INSPECTION (7.6)

In Section IV, General Provisions for Construction, Article 7. "Quality Assurance and Quality Control", Sub-Article 7.6 "Laboratory Testing and Inspections", add Sub-Article 7.6.7:

7.6.7 All independent testing is covered under Bid Line Items C01-002-003.0 Laboratory Testing allowance for the Signal Power Project and the Yard Power Project, except for any testing done outside the United States.

SP. 25 INDEMNIFICATION; RISKS ASSUMED BY THE CONTRACTOR (9.1)

In Section IV, General Provisions for Construction, Article 9. "Insurance and Liability", delete Sub-Article 9.1.1 and replace with new Sub-Article 9.1.1. below:

9.1.1. The Contractor shall defend, indemnify and save harmless the State of New Jersey, NJ TRANSIT, USDOT (if the Contract is in whole or part federally funded), FTA, and their officers, employees, servants and agents from all suits, actions, or claims of any character including, but not limited to, personal injury, death, or occupational disease of any person, including any of Contractor's or Subcontractors' employees or agents, expenditures and costs of investigations, hiring of witnesses, court costs, counsel fees, settlements, judgments or otherwise, brought

because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of said Contractor or its Subcontractors in the performance of the Work specified in this Contract; or on account of or in consequence of any neglect in safeguarding the Work as specified in this Contract; or because of any act or omission, neglect, or misconduct of said Contractor or its Subcontractors in the performance of the Work specified in this Contract; or from any claims or amounts arising or recovered under the Worker's Compensation Act, or any other law, ordinance, order, or decree. So much of the money due the said Contractor under and by virtue of this Contract as may be considered necessary by NJ TRANSIT for such purpose may be retained for the use of NJ TRANSIT; except that money due to the Contractor will not be withheld when the Contractor produces satisfactory evidence that it is adequately protected by public liability and property damage insurance. NJ TRANSIT will, as soon as practicable after a claim has been made against it, give written notice thereof to the Contractor along with full and complete particulars of the claim. If the suit is brought against NJ TRANSIT, NJ TRANSIT will immediately forward to the Contractor every claim, demand, complaint, notice, summons, pleading or other.

SP. 26 <u>INSURANCE (9.2)</u>

In Section IV, General Provisions for Construction, Article 9. "Insurance and Liability", delete Sub-Article 9.2 and replace with new Sub-Article 9.2. below:

The Contractor shall and shall require its Subcontractor(s) to procure and maintain until the issuance of the Final Certificate of Payment, the types of insurance specified below:

9.2.1 <u>Fire Insurance and Extended Coverage (Builder's Risk)</u>: The Contractor shall procure and maintain "All Risk" Builder's Risk insurance coverage, including terrorism coverage, for one hundred percent (100%) of the Construction value upon the facility or facilities on which the Work is to be executed or which is to be constructed, and shall also cover materials, equipment, and supplies of all kinds incident to the construction of said facility or facilities, in temporary structures, or on vehicles, or in the open.

9.2.2 <u>Workers' Compensation Insurance</u>: The Contractor shall procure and shall maintain during the life of this Contract, Workers' Compensation Insurance, as required by applicable State law, for all of its employees to be engaged in Work at the site of the Project under this Contract and, in case any such Work is subcontracted, the Contractor shall require

the Subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees to be engaged in such Work unless such employees are covered by the protection afforded by the Contractor's Workers' Compensation Insurance. In case any class of employees on the Project under this Contract is not protected under the Workers' Compensation Statute, the Contractor shall provide and shall cause each Subcontractor to provide employer's liability insurance for the protection of such of its employees as are not otherwise protected. Limits of Employer Liability are as follows:

Bodily Injury by Accident - $1,000,000 each accident

Bodily Injury by Disease - $1,000,000 each employee disease

Bodily Injury by Disease - $1,000,000 policy limit – disease

9.2.3 Commercial General Liability Insurance:

The Contractor shall and shall require its Subcontractor(s) to procure and shall maintain during the life of this Contract, Commercial General Liability Insurance using ISO Occurrence Form CG0001 10/93 or equivalent. The policy shall provide a minimum amount of $2,000,000 each occurrence, $2,000,000 personal and advertising injury, $4,000,000 per project general aggregate and $4,000,000 products completed operations aggregate.

Coverage provided under this liability policy shall be on an occurrence basis and shall include, but not be limited to, bodily injury and property damage coverage including products liability/completed operations coverage, premises operations liability, blanket contractual liability, personal injury liability, independent contractors liability, mobile equipment, damage from explosion collapse and underground hazards, cross liability and severability of interest clause. Additional insured endorsement CG2026 11/85 or CG 2010 11/85 or CG 2010 10/93 (but only if modified to include both ongoing and completed operations) naming NJ TRANSIT, the State of New Jersey and the Indemnified Parties and coverage must apply on a primary and non-contributory basis. The policy shall allow Contractor to waive its and its insurer's rights of subrogation; there shall be no coverage exceptions for property containing or adjacent to railroad facilities or other transportation facilities, and the policies shall be endorsed evidencing the contractual exclusion related to construction activity, or any access whatsoever, within fifty (50) feet of the railroad has been deleted.

The Contractor shall furnish completed operations insurance written to the limits stipulated herein for Commercial General Liability Insurance. Coverage shall be required and maintained in force for two years following acceptance of the overall Contract, regardless of any beneficial occupancy by NJ TRANSIT during the Contract term.

9.2.4 Umbrella Liability Insurance

With limits of at least $8,000,000 per occurrence and in the per project aggregate; coverage must follow from over the above underlying Commercial General Liability, Commercial Automobile Liability and Employers Liability policies

9.2.5 Commercial Automobile Liability Insurance

The Contractor shall and shall require its Subcontractor(s) to procure and maintain during the life of this Contract, Commercial Automobile Liability Insurance applicable to all owned, non-owned, hired or leased vehicles with a minimum of $5,000,000 combined single limit per accident for bodily injury and property damage liability. This policy shall name NJ TRANSIT and the State of New Jersey as a stipulated additional insured.

9.2.6 Asbestos Abatement Liability – If applicable, the Contractor {or whoever is performing the removal of any Asbestos Containing Material {ACM} shall maintain throughout the entire period of their performance under this Contract Asbestos Abatement Liability Insurance in the amount of $2,000,000 per loss and $2,000,000 in the aggregate. The Contractor {or whoever is responsible for transporting and disposing of the {ACM} shall maintain throughout the entire period of their performance under this Contract Transportation Pollution Coverage {Form MCS90} in the amount of $2,000,000 or statutory minimum whichever is greater.

9.2.7 Contractor's Pollution Liability Insurance

The Contractor and any Subcontractor performing construction and/or environmental remediation Work must procure and maintain through the life of the Contract, Contractor's Pollution Liability Insurance, including lead abatement if required, covering the liability arising out of any sudden and non-sudden pollution or impairment of the environment, including bodily injury, property damage, clean-up costs and defense that arise from the Work performed by the Contractor or

its Sub- Contractor(s). Coverage under this policy shall have limits of liability with a minimum of $5,000,000 per occurrence and shall be on an occurrence basis. The policy shall name NJ TRANSIT and the State of New Jersey as an additional insured. Transport of any hazardous waste generated under this Contract shall require Hazardous Waste Haulers Insurance (MCS90) in an amount of $5,000,000 per occurrence or statutory minimum, whichever is greater.

9.2.8 The Contractor and its Subcontractor(s) shall, at its own expense, carry all insurance which may be required to provide the necessary protection against loss or damage to any property of the Contractor or to any property of Subcontractors, suppliers, workmen, and others performing the Work and to lessors, which insurance policies shall be endorsed to contain a waiver of any right of subrogation against NJ TRANSIT.

9.2.9 The insurance required herein shall provide adequate protection for the Contractor and its Subcontractors, respectively, against damage claims which may arise from operations under this Contract, whether such operations be by the insured or by anyone directly or indirectly employed by the Contractor and, also against any of the special hazards which may be encountered in the performance of this Contract.

9.2.10 Insurance policies shall be written by good and solvent insurance companies authorized to do business in New Jersey with an A.M. BEST Insurance Rating of “A-“or better or by such other companies acceptable to NJ TRANSIT in its sole discretion.

9.2.11 The Contractor shall furnish NJ TRANSIT with two (2) copies of all Certificates showing the types, amount, class of operations covered, effective dates, and dates of expiration of policies. The policies evidencing required insurance shall contain an endorsement to the effect that cancellation or any material change in the policies adversely affecting the interests of NJ TRANSIT in such insurance shall not be effective for less than thirty (30) Calendar Days after written notice thereof to NJ TRANSIT. Evidence of such endorsement must be contained in the certificate of insurance. If requested by NJ TRANSIT, the Contractor shall also provide copies of the insurance policies covered by the certificate. The Contractor shall not commence Work under this Contract until it has obtained the insurance required under this Paragraph and such insurance has been approved by the

Contracting Officer, nor shall the Contractor allow any Subcontractor to commence Work on its subcontract until the insurance required of the Subcontractor has been so obtained and approved.

If the insurance provided by the Contractor or any of its Subcontractors fails to comply with the requirements listed herein, or if the Contractor or its Subcontractor(s) fails to maintain such insurance, then NJ TRANSIT maintains the right to stop Work until proper evidence is provided.

9.2.12 The cost of providing the required insurance shall be included under the Bid Item "Mobilization" whenever such a Bid item is listed in the Contractor's Bid Proposal. If no such item is listed then the cost shall be considered included under the total lump sum Bid amount or allocated within the unit prices that sum to the total Bid price.

9.2.13 Railroad Protective Comprehensive General Liability Insurance

The Contractor shall furnish evidence in the form of one signed copy and one certified copy of the Railroad Protective Public Liability Insurance Policy that, with respect to the operations it, its contractors, or any of its subcontractors perform, it has provided Railroad Protective Public Liability Insurance (AAR- AASHO form) in the name of NJ TRANSIT, NJ TRANSIT Rail Operations, and other Operating Railroad providing for a limit of not less than $3,000,000 single limit bodily injury and/or property damage combined, for damages arising out of bodily injuries to or death of all persons in any one occurrence and for damage to or destruction of property, including the loss of use thereof, in any one occurrence. Such insurance shall be furnished with an aggregate of not less than $6,000,000 for all damages as a result of more than one occurrence. (Reference: "Standard Provisions for General Liability Policies" as contained in U.S. Department of Transportation, Federal Highway Administration, Federal Aid Highway Program Manual, Volume 6, Chapter 6, Section 2, Subsection 2, Attachment l, as amended).

SP. 27 NEW JERSEY PREVAILING WAGE ACT (11.1)

In Section IV, General Provisions for Construction, Article 11. "Social and Economic Requirements", Sub-Article 11.1 "New Jersey Prevailing Wage Act", add the following:

Attached is the New Jersey Department of Labor Prevailing Wage Rate Determination (Attachment A to the IFB).

SP. 28 EMPLOYEE PROTECTIONS – CONSTRUCTION ACTIVITIES (14.1)

In Section IV, General Provisions for Construction, Article 14. "Federal Provisions", Sub-Article 14.1, add the following:

Attached is the General Wage Determination (Attachment B to the IFB).

SP. 29 NOTICE OF EXECUTIVE ORDER 125 REQUIREMENTS FOR POSTING WINNING PROPOSAL AND CONTRACT DOCUMENTS

Pursuant to Executive Order No. 125, signed by Governor Christie on February 8, 2013, the Office of the State Comptroller ("OSC") is required to make all approved State contracts for the allocation and expenditure of federal reconstruction resources available to the public by posting such contracts on an appropriate State website. Such contracts are posted on the New Jersey Sandy Transparency website located at: http://nj.gov/comptroller/sandytransparency/contracts/sandy/

The Contract resulting from this IFB is subject to the requirements of Executive Order No. 125. Accordingly, the OSC will post a copy of the Contract, including the IFB, the winning Bidder's proposal and other related contract documents for the above contract on the Sandy Transparency website.

In submitting its proposal, a Bidder may designate specific information as not subject to disclosure. However, such Bidder must have a good faith legal and/ or factual basis to assert that such designated portions of its proposal (i) are proprietary and confidential financial or commercial information or trade secrets or (ii) must not be disclosed to protect the personal privacy of an identified individual. The location in the proposal of any such designation should be clearly stated in a cover letter, and a redacted copy of the proposal should be provided.

The State reserves the right to make the determination as to what is proprietary

or confidential and will advise the winning Bidder accordingly. The State will not honor any attempt by a winning Bidder to designate its entire proposal as proprietary, confidential and/or to claim copyright protection for its entire proposal. In the event of any challenge to the winning Bidder's assertion of confidentiality with which the State does not concur, the Bidder shall be solely responsible for defending its designation.

End of Special Provisions



STATE OF NEW JERSEY
Department of Labor and Workforce Development
Division of Wage and Hour Compliance - Public Contracts Section
PO Box 389
Trenton, NJ 08625-0389

PREVAILING WAGE RATE DETERMINATION

The New Jersey Prevailing Wage Act (N.J.S.A. 34:11-56.25 et seq.) requires that the Department of Labor and Workforce Development establish and enforce a prevailing wage level for workers engaged in public works in order to safeguard their efficiency and general well being and to protect them as well as their employers from the effects of serious and unfair competition.

Prevailing wage rates are wage and fringe benefit rates based on the collective bargaining agreements established for a particular craft or trade in the locality in which the public work is performed. In New Jersey, these rates vary by county and by the type of work performed.

Applicable prevailing wage rates are those wages and fringe benefits in effect on the date the contract is awarded. All pre-determined rate increases listed at the time the contract is awarded must also be paid, beginning on the dates specified. Rates that have expired will remain in effect until new rates are posted.

Prevailing Wage Rate

The prevailing wage rate for each craft will list the effective date of the rate and the following information:

W = Wage Rate per Hour **B** = Fringe Benefit Rate per Hour* **T** = Total Rate per Hour

* Fringe benefits are an integral part of the prevailing wage rate. Employers not providing such benefits must pay the fringe benefit amount directly to the employee each payday. Employers providing benefits worth less than the fringe benefit amount must pay the balance directly to the employee each payday.

Unless otherwise stated in the Prevailing Wage Rate Determination, the fringe benefit rate for overtime hours remains at the straight time rate.

When the Overtime Notes in the Prevailing Wage Rate Determination state that the overtime rates are "inclusive of benefits," the benefit rate is increased by the same factor as the wage rate (i.e. multiplied by 1.5 for time and one-half, multiplied by 2 for double time, etc.).

Apprentice Rate Schedule

An “apprentice” is an individual who is registered with the United States Department of Labor - Office of Apprenticeship and enrolled in a certified apprenticeship program during the period in which they are working on the public works project.

The apprentice wage rate is a percentage of the journeyman wage rate, unless otherwise indicated. The apprentice benefit rate is the full journeyman benefit rate, unless otherwise indicated.

If there is no apprentice rate schedule listed, the individual must be paid at least the journeyman rate even if that individual is in a certified apprentice program for that trade.

If there is no ratio of apprentices to journeymen listed for a particular craft, then the ratio shall be one (1) apprentice to every four (4) journeymen.

Comments/Notes

For each craft listed there will be comments/notes that cover the definition of the regular workday, shift differentials, overtime, recognized holidays, and any other relevant information.

Public Works Contractor Registration

The Public Works Contractor Registration Act (N.J.S.A. 34:11-56.48, et seq.) requires that **all** contractors, subcontractors, or lower tier subcontractors who are working on or who bid on public works projects register with the Department of Labor and Workforce Development. Applications are available at *www.nj.gov/labor* (click on Wage & Hour and then go to Registration & Permits).

Pursuant to N.J.S.A. 34:11-56.51:

No contractor shall bid on any contract for public work as defined in section 2 of P.L.1963, c. 150 (C.34:11-56.26) unless the contractor is registered pursuant to this act. No contractor shall list a subcontractor in a bid proposal for the contract unless the subcontractor is registered pursuant to P.L.1999, c.238 (C.34:11-56.48 et seq.) at the time the bid is made. No contractor or subcontractor, including a subcontractor not listed in the bid proposal, shall engage in the performance of any public work subject to the contract, unless the contractor or subcontractor is registered pursuant to that act.

Snow Plowing

Snow plowing contracts are <u>not</u> subject to the New Jersey Prevailing Wage Act or the Public Works Contractor Registration Act.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Air Conditioning & Refrigeration - Service and Repair **PREVAILING WAGE RATE**

	03/03/21
Journeyman (Mechanic)	W41.48 B26.57 T68.05

Craft: Air Conditioning & Refrigeration - Service and Repair **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
As Shown	1st Year	2nd Year	3rd Year	4th Year	5th Year	Wage = %	of Jnymn	Wage		
Wage and Bene	40%	50%	60%	70%	80%	Bene = %	of Jnymn	Bene		

Ratio of Apprentices to Journeymen - 1:4

Craft: Air Conditioning & Refrigeration - Service and Repair **COMMENTS/NOTES**

THESE RATES MAY BE USED FOR THE FOLLOWING:
- Service/Repair/Maintenance Work to EXISTING facilities.
- Replacement or Installation of air conditioning and refrigeration equipment when the combined tonnage does not exceed 15 tons for refrigeration, or 25 tons for air conditioning.
- Replacement or Installation of "packaged" or "unitary" rooftop-type units when the combined tonnage of the units does not exceed 75 tons.

NOTE: These rates may NOT be used for any work in new construction (including work on new additions).

The regular workday shall consist of 8 hours, starting between 6:00 AM and 10:00 AM, Monday through Friday.

SHIFT DIFFERENTIALS:
- The second and third shifts shall be paid an additional 15% of the hourly rate.
- All shifts must run for a minimum of 5 consecutive days.

OVERTIME:
Hours worked in excess of 8 per day or before or after the regular workday, that are not shift work, and all hours on Saturday shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Boilermaker **PREVAILING WAGE RATE**

	01/01/21
Foreman	W52.51 B45.60 T98.11
General Foreman	W54.51 B46.63 T101.14
Journeyman	W47.51 B43.91 T91.42

Craft: Boilermaker **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
1000 Hours	65%	70%	75%	80%	85%	90%	95%			
Benefit =	37.08	37.99	39.49	39.84	40.78	41.70	42.61			

Ratio of Apprentices to Journeymen - *

* 1 apprentice will be allowed for the first 5 journeymen, 1 apprentice for the next 10 journeymen and 1 apprentice for each succeeding 20 journeymen up to a maximum of 5 apprentices per contractor on any one job.

Craft: Boilermaker **COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE AS OF 1-1-21:

INTERVAL	PERIOD AND RATES						
1000 Hours	65%	70%	75%	80%	85%	90%	95%
Benefits	37.72	38.20	39.20	40.14	41.09	42.03	42.96

HIGH WORK: All apprentices working on the erection, repair, or dismantling of smoke stacks, standpipes, or water towers shall be paid the Journeyman rate.

The regular workday shall consist of 8 hours, between 8:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall work 7½ hours and receive 8 hours pay, at a rate equal to the regular hourly rate plus 10%.
- The third shift shall work 7 hours and receive 8 hours pay, at a rate equal to the regular hourly rate plus 20%.
- For "Municipal Water Works" projects only, the following shall apply: Two, four day, 10 hour shifts may be worked at straight time Monday through Thursday. The day shift shall work four days, at 10 hours, for 10 hours pay. The second shift shall work four days, at nine and a half hours, for 10 hours pay, plus 10% the hourly rate for new work and .25 cents on repair work. Friday may be used as a make-up day at straight time, due to weather conditions, hoilday or any other circumstances beyond the employer's control.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays (except Labor Day) shall be paid at double the hourly rate. All hours on Labor Day shall be paid at four times the hourly rate.

- If any other craft employed by the same contractor, or a subcontractor thereof, receives double time in lieu of time and one-half, then the Boilermaker shall receive double time in lieu of time and one-half.
- For "Municipal Water Works" projects only, the following shall apply: Four 10 hour days may be worked Monday through Thursday at straight time. Friday may be used as a make-up day for a day lost to inclement weather, holiday or other conditions beyond the control of the employer. Overtime shall be paid for any hours that exceed 10 hours per day or 40 hours per week.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Boilermaker - Minor Repairs **PREVAILING WAGE RATE**

	01/01/21
Foreman	W34.62 B17.57 T52.19
General Foreman	W35.25 B17.57 T52.82
Mechanic	W33.25 B17.57 T50.82

Craft: Boilermaker - Minor Repairs **COMMENTS/NOTES**

NOTE: These rates apply to MINOR REPAIR WORK ONLY (repair work in the field for which the contract amount does not exceed $125,000.00), for boilers that do not produce electric or are not used in the heating of petroleum products.

OVERTIME:
Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays (except Labor Day) shall be paid at double the hourly rate. All hours on Labor Day shall be paid at four times the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Thanksgiving Day, day after Thanksgiving, Christmas Day. Saturday holidays observed the preceding Friday, Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Bricklayer, Stone Mason **PREVAILING WAGE RATE**

	10/01/20
Deputy Foreman	W47.45 B33.73 T81.18
Foreman	W50.45 B33.73 T84.18
Journeyman	W44.45 B33.73 T78.18

Craft: Bricklayer, Stone Mason **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	40%	50%	55%	60%	65%	70%	75%	80%		
Benefits	4.00	5.00	5.50	6.00	22.17	23.66	25.14	26.62		

Ratio of Apprentices to Journeymen - 1:5

Craft: Bricklayer, Stone Mason **COMMENTS/NOTES**

The regular workday shall consist of 8 hours, between 6:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:
- When a 2 shift schedule (including a day shift) is established, the first, or day shift, shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 10%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 10%, inclusive of benefits, and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 10%, inclusive of benefits, and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When an irregular shift must be established, this shift shall receive the regular rate plus 10%, inclusive of benefits.

OVERTIME:
- The first 2 hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, shall be paid at time and one-half the regular rate, inclusive of benefits. Any additional overtime shall be paid at double the regular rate, inclusive of benefits. The first 10 hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. Any additional overtime shall be paid at double the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Saturday may be used as a make-up day for hours lost to inclement weather.
- When Bricklayers/Stone Masons work on Saturday with Laborers, and no other crafts are working on the project for the day, benefits may be paid at straight time. If other crafts are present, the applicable overtime rate for benefits shall be paid.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Carpenter **PREVAILING WAGE RATE**

	05/07/20
Foreman	W59.06 B34.29 T93.35
Journeyman	W51.36 B29.90 T81.26

Craft: Carpenter **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
Yearly	40%	55%	65%	80%	90%					
Benefit	57% of	Appren	tice	Wage Rate	for all	intervals	+ $0.63			

Ratio of Apprentices to Journeymen - 1:3

Craft: Carpenter **COMMENTS/NOTES**

FOREMAN REQUIREMENTS:
- When there are 2 or more Carpenters on a job, 1 shall be designated as a Foreman.
- When there are 21 or more Carpenters on a job, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours, starting between 6:00 AM and 9:00 AM.

SHIFT DIFFERENTIALS:
- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 10%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 10% and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 10% and the third shift shall receive the regular rate plus 15%, inclusive of benefits.
- When an irregular shift must be established, this shift shall receive the regular rate plus 15%, inclusive of benefits.

OVERTIME:
- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans' Day may be substituted for the day after Thanksgiving.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Carpenter - Resilient Flooring **PREVAILING WAGE RATE**

	05/05/20
Foreman	W59.06 B34.20 T93.26
Journeyman	W51.36 B29.81 T81.17

Craft: Carpenter - Resilient Flooring **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	40%	55%	65%	80%	90%					
Benefit	57%	of	Appren	tice	Wage Rate	for all	intervals	+ $0.54		

Ratio of Apprentices to Journeymen - *

* 1 apprentice shall be allowed to every 2 journeymen or major fraction thereof. No more than 3 apprentices on any one job or project.

Craft: Carpenter - Resilient Flooring **COMMENTS/NOTES**

FOREMAN REQUIREMENTS:
- On any job where there are 4 or more Carpenters of Resilient Flooring, 1 must be designated a Foreman.

FOR SYNTHETIC TURF INSTALLATION ONLY:
- The rate shall be 90% of the wage and benefit rate.

The regular workday consists of 8 hours, starting between 6:00 AM and 9:00 AM.

SHIFT DIFFERENTIALS:
- When a 2 shift schedule (including a day shift) is established, the day shift, shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular wage rate plus 10%.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular wage rate, the second shift shall receive the regular wage rate plus 10% and the third shift shall receive the regular wage rate plus 15%.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular wage rate plus 10% and the third shift shall receive the regular wage rate plus 15%.
- When an irregular shift must be established, this shift shall receive the regular rate plus 15%, inclusive of benefits.

OVERTIME:
- Hours in excess of 8 per day or 40 per week, or before or after the regular workday, Monday through Friday, shall be paid at time and one-half the wage rate. Saturday may be used as a make-up day, at straight time, up to 8 hours, for hours lost to reasons beyond the control of the employer, up to a total of 40 hours per week; hours in excess of 8 on Saturday shall then be paid at time and one-half the wage rate. If Saturday is not a make-up day, all hours on Saturday shall be paid at time and one-half the wage rate. All hours on Sundays and holidays shall be paid at double the wage rate.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for hours lost to reasons beyond the control of the employer. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the wage rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. Veterans' Day may be substituted for the day after Thanksgiving.

County - HUDSON

Craft: Cement Mason **PREVAILING WAGE RATE**

	05/01/20
Foreman	W51.80 B28.20 T80.00
General Foreman	W53.80 B28.20 T82.00
Journeyman	W48.80 B28.20 T77.00

Craft: Cement Mason **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	40%	50%	60%	70%	80%	90%				
Benefits	6.90	7.00	17.04	19.83	22.62	25.41				

Ratio of Apprentices to Journeymen - 1:4

Craft: Cement Mason **COMMENTS/NOTES**

These rates also apply to PLASTERERS.

NOTE: Cement Masons working on a suspended staging, not supported from the ground, and over twenty (20) feet above the ground, shall receive an additional $.50 per hour.

FOREMAN REQUIREMENTS:
If there are 2 or more Cement Masons/Plasterers on the job, one must be designated a Foreman.
If there are 11 or more Cement Masons/Plasterers on the job, one must be designated a General Foreman.

The regular workday shall be 8 hours, between 7:00 AM and 4:30 PM.

OVERTIME:
All hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, shall be paid at time and one-half the regular rate for the first two hours, inclusive of benefits, and thereafter, at double the regular rate, inclusive of benefits. The first 10 hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits, and thereafter, at double the regular rate inclusive of benefits. Sunday and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS:
New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays shall be observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Commercial Painter- New Construction **PREVAILING WAGE RATE**

	09/24/20
Foreman	W45.05 B27.06 T72.11
General Foreman	W49.14 B27.55 T76.69
Journeyman	W40.95 B26.56 T67.51

Craft: Commercial Painter- New Construction **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	40%	45%	55%	65%	70%	75%	80%	80%		
Benefits	8.05	8.05	10.05	10.05	11.05	11.05	14.05	14.05		

Ratio of Apprentices to Journeymen - 1:4

Craft: Commercial Painter- New Construction **COMMENTS/NOTES**

* Commercial Painters perform work on all commercial structures such as offices, schools, hotels, shopping malls, restaurants, condominiums, etc.

Spraying, sandblasting, lead abatement work on commercial buildings, work performed above 3 stories or 30 feet in height, or using swing scaffolds requires an additional 10% of the wage rate.

FOREMEN REQUIREMENTS:
- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:
- Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day,

Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Commercial Painter- Repainting **PREVAILING WAGE RATE**

	09/24/20
Foreman	W33.11 B20.66 T53.77
General Foreman	W34.61 B20.66 T55.27
Journeyman	W30.10 B20.66 T50.76

Craft: Commercial Painter- Repainting **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
	SEE	COMMER	CIAL	PAINTER	NEW	CONSTRUC	TION			

Ratio of Apprentices to Journeymen - 1:4

Craft: Commercial Painter- Repainting **COMMENTS/NOTES**

* Commercial Painters perform work on all commercial structures such as offices, schools, hotels, shopping malls, restaurants, condominiums, etc.

NOTE: These rates may only be used on jobs where no major alterations (only doing painting and carpeting with nothing else being changed in the commercial building) occur, and where not more than 3 other trades are present on the job, but may NOT, under any circumstances, be used for work on bridges, stacks, tanks, or generating stations.

Spraying, sandblasting, lead abatement work on commercial buildings, work performed above 3 stories or 30 feet in height, or using swing scaffolds requires an additional 10% of the wage rate.

FOREMEN REQUIREMENTS:
- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

OVERTIME:
- Hours in excess of 8 per day and 40 per week shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.
- Four 10-hour days may be worked, at straight time, Monday through Sunday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Diver **PREVAILING WAGE RATE**

	05/05/20
Diver	W60.24 B48.47 T108.71
Tender	W48.50 B48.47 T96.97

Craft: Diver **COMMENTS/NOTES**

NOTE: All dive crews must consist of a Tender, a Diver, and a standby Diver (standby Diver is the same rate as a Diver).

DEPTH & PENETRATION RATES: Divers shall be paid the following depth and penetration rates, in addition to the regular hourly rate, when applicable:

AIR DIVES:
0-59 feet: No additional wage
60-74 feet: + $0.25 per foot
75-125 feet: + $0.78 per foot

MIXED GAS DIVES:
0-74 feet: No additional wage
75-125 feet: + $1.00 per foot
126-200 feet: + $2.00 per foot

PENETRATION DIVES:
126-200 feet: + $1.50 per foot
201-275 feet: + $1.75 per foot
276-350 feet: + $2.00 per foot
351-425 feet: + $2.50 per foot

OVERTIME:
Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day, Christmas Day. Veterans' Day may be switched with the day after Thanksgiving.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Dockbuilder **PREVAILING WAGE RATE**

	05/05/20
Foreman	W55.78 B48.47 T104.25
Foreman (Concrete Form Work)	W54.97 B35.36 T90.33
Journeyman	W48.50 B48.47 T96.97
Journeyman (Concrete Form Work)	W47.80 B35.36 T83.16

Craft: Dockbuilder **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
Yearly	19.40	24.25	31.53	38.80						
Benefit	32.07	for all	intervals				.			

Ratio of Apprentices to Journeymen - *

* When there are 4 or fewer Dockbuilders on a job, no more than 1 may be an apprentice. When there are 5 or more Dockbuilders, there may be 1 apprentice for every 5 Dockbuilders.

Craft: Dockbuilder **COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR CONCRETE FORM WORK ONLY:

INTERVAL PERIOD AND RATES
Yearly 19.12 23.90 31.07 38.24
Benefits 24.16 for all intervals

CREOSOTE HANDLING:
When handling creosote products on land piledriving, floating marine construction, and construction of wharves, the worker shall receive an additional $0.25 per hour.

HAZARDOUS WASTE WORK:
- Hazardous waste removal work on a state or federally designated hazardous waste site where Level A, B, or C personal protection is required: an additional 20% of the hourly rate, per hour.
- Hazardous waste removal work in Level D, or where personal protection is not required: an additional $1.00 per hour.

CERTIFIED WELDER: When required on the job by the project owner, a Certified Welder shall receive an additional $1.00 per hour.

FOREMAN REQUIREMENTS:
The first Dockbuilder on the job shall be designated a Foreman.

OVERTIME:
Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day, Christmas Day. Veterans' Day may be switched with the day after Thanksgiving.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Drywall Finisher **PREVAILING WAGE RATE**

	09/24/20
Foreman	W44.43 B27.06 T71.49
General Foreman	W46.45 B27.06 T73.51
Journeyman	W40.39 B27.06 T67.45

Craft: Drywall Finisher **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
6 Months	40%	50%		60%	70%		80%	90%		
Benefits	Intervals	1 to 2 =	10.65	Intervals	3 to 4 =	13.41	Intervals	5 to 6 =	16.63	

Ratio of Apprentices to Journeymen - 1:4

Craft: Drywall Finisher **COMMENTS/NOTES**

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, and the third shift shall receive 8 hours pay for 7 hours of work.
- Shift work must run for a minimum of 5 consecutive workdays.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Electrician **PREVAILING WAGE RATE**

	06/01/20
Assistant General Foreman	W69.32 B42.63 T111.95
Foreman	W66.48 B40.89 T107.37
General Foreman (150 + Journeyman workers on job site)	W76.71 B47.18 T123.89
General Foreman (23-149 Journeyman workers on job site)	W71.59 B44.03 T115.62
Journeyman as Crane Operator, as Welder, as Cable Splicer	W66.48 B40.89 T107.37
Journeyman on Radio Tower Work	W69.32 B42.63 T111.95
Journeyman Wireman	W56.82 B34.94 T91.76
Layout Man	W61.93 B38.09 T100.02

Craft: Electrician **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
6 Months	35%	40%		Yearly	50%	60%	70%	80%		
Benefits =	61.5% of	Appren	tice	Wage	Rate					

Ratio of Apprentices to Journeymen - 2:3

Craft: Electrician **COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM ON OR AFTER 6-4-12:
INTERVAL PERIOD AND RATES
Yearly 30% 40% 50% 60% 70%
Benefits 61.5% of Apprentice Wage Rate

THESE RATES ALSO APPLY TO THE FOLLOWING TYPES OF WORK:
- All fire and burglar alarm work.
- All fiber optic work.
- Teledata work in new construction or involving 16 instruments or more.
- All residential construction (single family homes and apartments) of 5 units or more. Note: fire walls alone are not a determining criteria.

HIGH WORK:
- 40 feet above ground/floor: +22% of the Total Rate
- Transmission towers, and Smokestacks: +22% of the Total Rate

FOREMAN REQUIREMENTS:
- On any job where there is only 1 Journeyman electrician, who lays out his or her own job from plans, that electrician shall receive the Foreman rate.
- On any job where there are 2 or more electricians, 1 shall be a Foreman.
- On all jobs, every 10 electricians shall have 1 designated a Foreman.
- On any job where there are 23 or more electricians, 1 shall be a General Foreman.
- On any job where there are 50 or more electricians, 1 shall be an Assistant General Foreman, and 1 shall be a General Foreman.

The regular workday is 8 hours, between 8:00 AM and 4:30 PM.

SHIFT DIFFERENTIAL:
- Shift work must run for a minimum of 5 consecutive workdays.
- 1st Shift (between 8:00 AM and 4:30 PM)
- 2nd Shift (between 4:30 PM and 12:30 AM) shall receive 8 hours pay for 7.5 hours of work, plus an additional 10% of the hourly rate, per hour, inclusive of benefits.
- 3rd Shift: (between 12:30 AM and 8:00 AM) shall receive 8 hours pay for 7 hours of work, plus an additional 15% of the hourly rate, per hour, inclusive of benefits.

OVERTIME:
- Hours before or after the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, between 7:00 AM and 6:30 PM, at straight time.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Electrician - Teledata (15 Instruments and Less) **PREVAILING WAGE RATE**

	03/03/21
Master Tech./Gen. Foreman (31+ workers on job)	W57.23 B31.77 T89.00
Senior Tech./Asst. Gen. Foreman (21-30 workers on job)	W52.38 B29.09 T81.47
Technician A/Foreman ((11-20 workers on job)	W50.18 B27.86 T78.04
Technician B/Working Foreman (4-10 workers on job)	W47.98 B26.64 T74.62
Technician C/Journeyman (1-3 workers on job)	W44.02 B24.44 T68.46

Craft: Electrician - Teledata (15 Instruments and Less) **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months								86%		
Benefit			55% of	Tech.	"C"/Journ	wage	rate			

Ratio of Apprentices to Journeymen - 2:3

Craft: Electrician - Teledata (15 Instruments and Less) **COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AFTER 10-29-17:

INTERVAL PERIOD AND RATES
6 Months 35% 35% 40% 43% 48% 54% 61% 67% 74% 81%
Benefits 55% of Technician "C"/Journeyman wage rate

NOTES:
1) These rates are for service, maintenance, moves and/or changes affecting 15 instruments or less. These rates may NOT be used for any new construction or any fiber optic work.
2) The number of workers on the jobsite is the determining factor for which Foreman category applies.

The regular workday is 8 hours, between 8:00 AM and 5:30 PM.

SHIFT DIFFERENTIAL:
- Shift work must run for a minimum of 5 consecutive workdays.
- 1st Shift (between 8:00 AM and 4:30 PM)
- 2nd Shift (between 4:30 PM and 12:30 AM) shall receive 8 hours pay for 7.5 hours of work, plus an additional 10% of the

regular rate, per hour, inclusive of benefits.
- 3rd Shift: (between 12:30 AM and 8:00 AM) shall receive 8 hours pay for 7 hours of work, plus an additional 15% of the regular rate, per hour, inclusive of benefits.

OVERTIME:
Hours before outside the regular workday, Monday through Friday, that are not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. Hours in excess of 8 on Saturday and all hours worked on Sunday and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked between Monday and Friday, between the hours of 7:00 AM and 5:30 PM. A make-up day may be used for the day not being worked during the four 10-hour day schedule if a holiday occurs during the week or for any other conditions that prevent an employee from working during the four 10-hour day schedule.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. Saturday holidays will be observed the preceding Friday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Electrician - Teledata (16 Instruments & More) **PREVAILING WAGE RATE**

See "Electrician" Rates

Craft: Electrician - Teledata (16 Instruments & More) **COMMENTS/NOTES**

See ELECTRICIAN Rates

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Electrician- Outside Commercial **PREVAILING WAGE RATE**

	06/01/20
Assistant General Foreman	W68.99 B42.95 T111.94
Equipment Repairman	W56.55 B35.21 T91.76
Equipment Serviceman	W56.55 B35.21 T91.76
Foreman	W66.16 B41.19 T107.35
General Foreman (150 + Journeyman workers on job site)	W76.34 B47.52 T123.86
General Foreman (23-149 Journeyman workers on job site)	W71.25 B44.35 T115.60
Groundsman (performs empty conduit installations on roadways)	W37.89 B23.59 T61.48
Journeyman as a Crane Operator, as a Welder, as a Cable Splicer	W66.16 B41.19 T107.35
Journeyman as a Lineman, as a Wireman	W56.55 B35.21 T91.76
Journeyman- Layout Man	W61.64 B38.37 T100.01
X-Ray Journeyman Technician	W56.55 B35.21 T91.76

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Electrician- Outside Commercial **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	32.49	35.20	37.91	40.61	43.32	46.03	48.74			
Benefits	20.23	21.91	23.60	25.28	26.97	28.65	30.34			

Craft: Electrician- Outside Commercial **COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE AS OF 6-3-19:

INTERVAL	PERIOD AND RATES						
6 Months	33.23	36.00	38.77	41.54	44.30	47.07	49.84
Benefits	20.69	22.41	24.13	25.86	27.58	29.30	31.03

APPRENTICE RATE SCHEDULE AS OF 6-1-20:

INTERVAL	PERIOD AND RATES						
6 Months	33.93	36.76	39.59	42.41	45.24	48.07	50.90
Benefits	21.12	22.88	24.64	26.40	28.16	29.92	31.69

* FOR UTILITY WORK PLEASE SEE STATEWIDE RATES

The regular workday is 8 hours, between 8:00 AM and 4:30 PM.

HIGH WORK:
40 FEET ABOVE GROUND/FLOOR: +21% OF THE Total Rate.
Radio towers, Transmission towers and Smokestacks: +21% of the Total Rate.

FOREMAN REQUIREMENTS:
On any job where there is only 1 Journeyman electrician, who lays out his or her own job from plans, that electrician shall receive the Foreman rate.
On any job where there are 2 or more electricians, 1 shall be a Foreman.
On all jobs, every 11 electricians shall have 1 designated a Foreman.
On any job where there are 23 or more electricians, 1 shall be a General Foreman.

SHIFT DIFFERENTIALS:
2nd Shift (4:30 PM to 12:30 AM): 8 hrs. pay for 7.5 hrs. work + an additional 10% of the regular rate, inclusive of benefits.
3rd Shift (12:30 AM to 8:00 AM): 8 hrs. pay for 7 hrs. work + an additional 15% of the regular rate per hour, inclusive benefits.

OVERTIME:
Hours before or after the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and Holidays shall be paid at double the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS:
New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day and Christmas Day. Sunday holidays will be observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Electrician-Utility Work (North) **PREVAILING WAGE RATE**

Rates are located in the "Statewide" rate package

Craft: Electrician-Utility Work (North) **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
* 6 Months	60%	65%	70%	75%	80%	85%	90%			
Benefits	69% of	Appren	tice	Wage	Rate	for all	intervals			

Craft: Electrician-Utility Work (North) **COMMENTS/NOTES**

Electrician-Utility Work (North) rates are located in the "Statewide" rate package.

* The apprentice wage rate is paid at the percentage of the Journeyman Lineman wage rate located in the "Statewide" rate package.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Electrician-Utility Work (South) **PREVAILING WAGE RATE**

Rates are located in the "Statewide" rate package

Craft: Electrician-Utility Work (South) **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	29.70	32.18	34.65	37.13	39.60	42.08	44.55			
Benefits	26.19	27.65	29.10	30.58	32.04	33.51	34.95			

Craft: Electrician-Utility Work (South) **COMMENTS/NOTES**

Electrician-Utility Work (South) rates are located in the "Statewide" rate package.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Elevator Constructor **PREVAILING WAGE RATE**

	03/17/21	03/17/22	03/17/23
Journeyman	W72.29 B42.92 T115.21	W75.14 B43.91 T119.05	W77.49 B45.57 T123.06

Craft: Elevator Constructor **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	29.85	36.82	43.52	50.21						
Benefits	32.71	33.51	34.80	36.09						

Ratio of Apprentices to Journeymen - 1:1

Craft: Elevator Constructor **COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE AS OF 3-17-20:
INTERVAL PERIOD AND RATES
Yearly 31.03 38.26 45.21 52.17
Benefits 33.38 34.20 35.55 36.89

APPRENTICE RATE SCHEDULE AS OF 3-17-21:
INTERVAL PERIOD AND RATES
Yearly 32.27 39.76 46.99 54.22
Benefits 34.05 34.91 36.30 37.70

APPRENTICE RATE SCHEDULE AS OF 3-17-22:
INTERVAL PERIOD AND RATES
Yearly 33.56 41.33 48.84 56.36
Benefits 34.72 35.61 37.05 38.50

APPRENTICE RATE SCHEDULE AS OF 3-17-23:
INTERVAL PERIOD AND RATES
Yearly 34.60 42.62 50.37 58.12
Benefits 36.02 36.94 38.50 39.95

The regular workday shall consist of either 7 or 8 hours to be established at the beginning of the project, between 7:00 AM and 4:30 PM.

OVERTIME:
For all hours worked before or after the regular workday, Monday through Friday, and for all hours on Saturday and Sunday, shall be paid at double the hourly rate. Holiday pay is one days wages (8 hours) plus double the hourly rate for all hours worked.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus

Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays shall be observed on the previous Friday and Sunday holidays shall be observed on the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Elevator Modernization & Service **PREVAILING WAGE RATE**

	03/17/21	03/17/22	03/17/23
Journeyman	W56.77 B41.82 T98.59	W59.09 B42.79 T101.88	W60.89 B44.41 T105.30

Craft: Elevator Modernization & Service **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	29.85	28.84	34.09	39.33						
Benefits	32.66	33.13	34.36	35.58						

Ratio of Apprentices to Journeymen - 1:1

Craft: Elevator Modernization & Service **COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE AS OF 3-17-20:
INTERVAL PERIOD AND RATES
Yearly 31.03 30.01 35.46 40.92
Benefits 33.33 33.82 35.09 36.36

APPRENTICE RATE SCHEDULE AS OF 3-17-21:
INTERVAL PERIOD AND RATES
Yearly 32.27 31.22 36.90 42.58
Benefits 34.00 34.50 35.83 37.15

APPRENTICE RATE SCHEDULE AS OF 3-17-22:
INTERVAL PERIOD AND RATES
Yearly 33.56 32.50 38.41 44.32
Benefits 34.67 34.20 35.20 37.94

APPRENTICE RATE SCHEDULE AS OF 3-17-23:
INTERVAL PERIOD AND RATES
Yearly 34.60 33.49 39.58 45.67
Benefits 35.97 36.53 37.95 39.38

MODERNIZATION (addition, replacement, refurbishing, relocation, or changes in design or appearance, of elevator equipment in existing buildings):

- The regular workday consists of 8 hours, between 7:00 AM and 4:30 PM.

- Overtime:
Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturday and Sunday shall be paid at time and one-half the hourly rate. Holiday pay is one days wages (8 hours) plus time and one-half the hourly rate for all hours worked.

SERVICE (repair or replacement of parts for the purpose of maintaining elevator equipment in good operating condition):

- The regular workday consists of 8 hours, between 6:00 AM and 6:00 PM.

- Overtime:
Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS (Modernization and Service): New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays shall be observed on the previous Friday and Sunday holidays shall be observed on the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Glazier **PREVAILING WAGE RATE**

	09/24/20
* Leadman	W48.80 B27.31 T76.11
Foreman	W50.80 B27.55 T78.35
General Foreman	W52.80 B27.79 T80.59
Journeyman	W46.80 B27.07 T73.87

Craft: Glazier **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
6 Months	50%	55%		60%	65%		70%	75%		
Benefits	Intervals	1 to 2 =	9.50	Intervals	3 to 4 =	12.11	Intervals	5 to 6 =	15.60	

Ratio of Apprentices to Journeymen - 1:4

Craft: Glazier **COMMENTS/NOTES**

Hazard/Height Pay: +$1.00 per hour

* When there are three (3) men working on a jobsite for three (3) days or longer, 1 Journeyman may be designated as a Leadman for the duration of the job, provided he has his OSHA certification.

FOREMAN REQUIREMENTS:
- When there are 4 or more Glaziers on a job, 1 must be designated a Foreman.
- When there are 15 or more Glaziers on a job, 1 must be designated a General Foreman.

The regular workday shall consist of 8 hours, between 7:00 AM and 5:30 PM, Monday to Friday.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, and the third shift shall receive 8 hours pay for 7 hours of work.

OVERTIME:
Hours in excess of 8 per day, or before or after the regular workday Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular

rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Heat & Frost Insulator **PREVAILING WAGE RATE**

	09/21/20
Foreman	W58.52 B33.42 T91.94
General Foreman	W60.86 B34.53 T95.39
Journeyman	W56.74 B32.86 T89.60

Craft: Heat & Frost Insulator **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	26.55	31.49	37.95	44.36						
Benefits	19.44	23.03	25.44	27.76						

Ratio of Apprentices to Journeymen - 1:3

Craft: Heat & Frost Insulator **COMMENTS/NOTES**

NOTE: These rates apply to the installing of insulation on hot and cold mechanical systems.

The regular workday shall be 8 hours between 7:00 AM and 3:30 PM. In addition, the regular workday may also be 8 hours between 6:00 AM and 2:30 PM.

SHIFT DIFFERENTIAL:
- Shift work must run for a minimum of 5 consecutive workdays.
- Second Shift shall work 7.5 hours and receive 8 hours pay, at the regular rate, plus 25% per hour.
- Third Shift shall work 7 hours and receive 8 hours pay, at the regular rate, plus 30% per hour.

OVERTIME:
The first 2 hours in excess of 8 per day, hours outside of the regular workday Monday through Friday that are not shift work, and the first 10 hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours in excess of 10 per day, and all hours on Sunday and holidays (except Labor Day) shall be paid at double the regular rate, inclusive of benefits. All hours on Labor Day shall be paid at triple the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day and Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Heat & Frost Insulator - Asbestos Worker **PREVAILING WAGE RATE**

	09/24/19
Asbestos Helper Abatement	W36.89 B24.92 T61.81

Craft: Heat & Frost Insulator - Asbestos Worker **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
	SEE	HEAT &	FROST	iNSULAT OR						

Ratio of Apprentices to Journeymen - 1:3

Craft: Heat & Frost Insulator - Asbestos Worker **COMMENTS/NOTES**

NOTE: These rates apply only to the removal of insulation materials/asbestos from mechanical systems, including containment erection and demolition, and placing material in appropriate containers.

The regular workday shall be 8 hours between 7:00 AM and 3:30 PM. In addition, the regular workday may also be 8 hours between 6:00 AM and 2:30 PM.

SHIFT DIFFERENTIALS:
- Shift work must run for a minimum of 5 consecutive workdays.
- The second shift shall work 7.5 hours and receive 8 hours pay at the regular rate, plus 25% per hour.
- The third shift shall work 7 hours and receive 8 hours pay at the regular rate, plus 30% per hour.

OVERTIME: The first 2 hours in excess of 8 per day, hours outside of the regular workday Monday through Friday that are not shift work, and the first 10 hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours in excess of 10 per day, and all hours on Sunday and holidays (except Labor Day) shall be paid at double the regular rate, inclusive of benefits. All hours on Labor Day shall be paid at triple the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Presidential Election Day, Thanksgiving Day and Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Industrial Painter- Bridges **PREVAILING WAGE RATE**

	02/11/21
Foreman	W62.18 B31.62 T93.80
General Foreman	W64.18 B31.62 T95.80
Journeyman	W57.18 B31.62 T88.80

Craft: Industrial Painter- Bridges **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	60%	70%	80%	90%						
Benefits	14.27	14.50	17.73	17.96						

Ratio of Apprentices to Journeymen - 1:4

Craft: Industrial Painter- Bridges **COMMENTS/NOTES**

* Industrial Painters perform work on all industrial structures, such as bridges, water tanks, waste water facilitites , refineries, any structural steel work, etc.

These rates apply to: All bridges that span waterways, roadways, railways and canyons. All tunnels, overpasses, viaducts and all appurtenances.

FOREMEN REQUIREMENTS:
- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday

observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Industrial Painter- Structural Steel **PREVAILING WAGE RATE**

	02/11/21
Foreman	W50.92 B29.27 T80.19
General Foreman	W52.92 B29.27 T82.19
Journeyman	W45.92 B29.27 T75.19

Craft: Industrial Painter- Structural Steel **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
	SEE	INDUST	RIAL	PAINTER	BRIDGES					

Ratio of Apprentices to Journeymen - 1:4

Craft: Industrial Painter- Structural Steel **COMMENTS/NOTES**

* Industrial Painters perform work on all industrial structures, such as bridges, water tanks, waste water facilitites , refineries, any structural steel work, etc.

These rates apply to: All work in power plants (any aspect). On steeples, on dams, on hangers, transformers, substations, on all open steel, in refineries, tank farms, water/sewerage treatment facilities and on pipelines.

FOREMEN REQUIREMENTS:
- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Industrial Painter- Water Tanks **PREVAILING WAGE RATE**

	02/11/21
Foreman	W51.97 B28.92 T80.89
General Foreman	W53.97 B28.92 T82.89
Journeyman	W46.97 B28.92 T75.89

Craft: Industrial Painter- Water Tanks **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	50%	70%	90%							
Benefits	11.77	14.50	17.96							

Ratio of Apprentices to Journeymen - 1:4

Craft: Industrial Painter- Water Tanks **COMMENTS/NOTES**

* Industrial Painters perform work on all industrial structures, such as bridges, water tanks, waste water facilitites , refineries, any structural steel work, etc.

These rates apply to: All new and repaint water tanks (interior and exterior).

FOREMEN REQUIREMENTS:
- When there are 4 or more Painters on a job, 1 shall be designated a Foreman.
- When there are 15 or more Painters on a job, 1 shall be designated a General Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays and Sundays shall be paid at time and one-half the regular rate. All hours on holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Saturday holiday observed the preceding Friday. Sunday holiday observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Industrial Painter-Containment **PREVAILING WAGE RATE**

	02/11/21
Journeyman	W38.23 B28.67 T66.90

Craft: Industrial Painter-Containment **COMMENTS/NOTES**

Note: These rates shall require no painting, but used in a supporting capacity only, such as wrapping, boxing, fencing, etc. on tanks.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, and the third shift shall receive 8 hours pay for 7 hours of work.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Ironworker **PREVAILING WAGE RATE**

	07/24/20
Rod/Fence Foreman	W46.14 B48.12 T94.26
Rod/Fence Journeyman	W43.14 B48.12 T91.26
Structural Foreman	W48.44 B48.12 T96.56
Structural Journeyman	W45.44 B48.12 T93.56

Craft: Ironworker **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	50%	60%		Yearly	70%	80%	90%			

Ratio of Apprentices to Journeymen - 1:4

Craft: Ironworker **COMMENTS/NOTES**

HAZARDOUS WASTE WORK: On hazardous waste removal work on a state or federally designated hazardous waste site where the Ironworker is required to wear Level A,B, or C personal protection: + $3.00 per hour

The regular workday consists of 8 hours between 6:00 AM and 4:30 PM.

FOREMAN REQUIREMENTS:
When there are 2 or more Ironworkers on a job, 1 shall be designated a Foreman.

SHIFT DIFFERENTIALS:
- When a 2 shift schedule is established, the first, or day shift , shall be established on an 8 hour basis .The second shift shall be established on an 8 hour basis, and receive the regular rate plus 15%.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 15%, and the third shift shall receive the regular rate plus 20%.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis.
- When an irregular shift is established for the Ironworker (Structural) classification, the rate shall be paid at time and one-half the regular rate, inclusive of benefits. When an irregular shift is established for the Rod /Fence classification, the shift shall be established on an 8 hour basis and receive the regular rate, plus 20%. .

OVERTIME:

- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturday , shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays shall be paid at double the hourly rate, inclusive of benefits. Saturday may be used as a make-up day for a day lost to inclement weather. If Saturday is not a make-up day, all hours on Saturday shall be paid at time and one-half the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Laborer - Asbestos & Hazardous Waste Removal **PREVAILING WAGE RATE**

	10/20/20
Journeyman (Handler)	W32.98 B23.66 T56.64

Craft: Laborer - Asbestos & Hazardous Waste Removal **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	19.79	23.09	26.38	29.68						
Benefits	21.51	for	all	intervals						

Ratio of Apprentices to Journeymen - *

* Ratio of apprentices to journeymen shall not be more than one apprentice for the first journeyman and no more than one (1) apprentice for eache additional three (3) journeymen.

Craft: Laborer - Asbestos & Hazardous Waste Removal **COMMENTS/NOTES**

NOTE: These rates apply to work in connection with Asbestos, Radiation, Hazardous Waste, Lead, Chemical, Biological, Mold Remediation and Abatement.

The regular workday shall be 8 hours.

OVERTIME:
- Hours in excess of 8 per day, Monday through Saturday, and all hours on Sunday and holidays shall be paid at time and one-half the regular rate.
- Benefits on ALL overtime hours shall be paid at straight time.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Easter, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. (Holidays start at 12:00 am).

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Laborer - Building **PREVAILING WAGE RATE**

	05/12/20
Class A Journeyman	W34.85 B30.27 T65.12
Class B Journeyman	W34.10 B30.27 T64.37
Class C Journeyman	W28.99 B30.27 T59.26
Foreman	W39.21 B30.27 T69.48
General Foreman	W43.56 B30.27 T73.83

Craft: Laborer - Building **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
6 Months	60%	70%	80%	90%						
Benefit	27.02	27.02	27.02	27.02						

Ratio of Apprentices to Journeymen - *

* Ratio of apprentices to journeymen shall not be more than one apprentice for the first journeyman and no more than one (1) apprentice for each additional three (3) journeymen.

Craft: Laborer - Building **COMMENTS/NOTES**

CLASS A: Specialist laborer including mason tender or concrete pour crew; scaffold builder (scaffolds up to 14 feet in height); operator of forklifts, Bobcats (or equivalent machinery), jack hammers, tampers, motorized tampers and compactors, vibrators, street cleaning machines, hydro demolition equipment, riding motor buggies, conveyors, burners; and nozzlemen on gunite work.
CLASS B: Basic laborer - includes all laborer work not listed in Class A or Class C.
CLASS C: Janitorial-type light clean-up work associated with the TURNOVER of a project, or part of a project, to the owner. All other clean-up work is Class B.

The regular workday shall be 8 hours between 6:00 AM and 6:00 PM.

SHIFT DIFFERENTIALS:
- Shift work must run for a minimum of 5 consecutive workdays.
- When a 2-shift schedule is worked, including a day shift, both shifts shall be established on the basis of 8 hours pay for 8 hours worked. The second shift shall receive the regular rate plus an additional 10%.
- When a 3-shift schedule is worked, the day shift shall be established on the basis of 8 hours pay for 8 hours worked, the second shift shall be established on the basis of 8 hours pay for 7.5 hours worked, and the third shift shall be established

on the basis of 8 hours pay for 7 hours worked. The day shift shall receive the regular rate, the second shift shall receive the regular rate plus an additional 10%, and the third shift shall receive the regular rate plus an additional 15%.
- When a second or third shift is worked with no day shift, the second or third shift shall be established on the basis of 8 hours pay for 8 hours worked. The second shift shall receive the regular rate plus an additional 10%, and the third shift shall receive the regular rate plus an additional 15%.

OVERTIME:
- Hours in excess of 8 per day, or outside the regular workday that are not shift work, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. Saturday may be used as a make-up day (paid at straight time) for a day lost to inclement weather, or for a holiday that is observed during the work week, Monday through Friday. All hours on Sundays and holidays shall be paid at double the regular rate.
- Four 10-hour days may be worked Monday to Thursday, at straight time, with Friday used a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the regular rate.
- Benefits on ALL overtime hours shall be paid at time and one-half.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Laborer - Heavy & General **PREVAILING WAGE RATE**

Rates are located in the
"Statewide" rate package

Craft: Laborer - Heavy & General **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
1000 Hours	60%	70%	80%	90%						
Benefit	22.48	for	all	intervals						

Ratio of Apprentices to Journeymen - *

* No more than 1 apprentice for the first journeyman and no more than 1 apprentice for each additional 3 journeymen.

Craft: Laborer - Heavy & General **COMMENTS/NOTES**

Heavy & General Laborer rates are located in the "Statewide" rate package.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Laborer-Residential and Modular Construction **PREVAILING WAGE RATE**

	04/01/20
* Skilled Tradesman (only applies to Modular Construction)	W26.55 B5.45 T32.00
Foreman (person directing crew, regardless of his skill classification)	W30.55 B5.45 T36.00
Laborer	W22.55 B5.45 T28.00
Laborer (for single family and stand-alone duplex owned by single owner)	W17.05 B2.95 T20.00

Craft: Laborer-Residential and Modular Construction **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
As shown	800 hours	600 hours	600 hours							
wage & benefits	70%	80%	90%							

Ratio of Apprentices to Journeymen-

One (1) apprentice shall be allowed for the first journeyman on site and no more than one (1) additional apprentice for each additional three (3) journeymen on site.

Craft: Laborer-Residential and Modular Construction **COMMENTS/NOTES**

* SKILLED TRADESMAN-
any worker doing work not typically done by a Building Laborer. Some examples are installing interior doors, sheet rock, hooking up appliances, installing light fixtures, installing railing systems, etc. Please note where local building codes require that certain work be performed under the supervision of a licensed tradesman (i.e. Plumber, Electrician, etc.) Laborers shall work under such supervision.

RESIDENTIAL CONSTRUCTION- All residential construction (not commercial), single-family, stand-alone duplex houses, townhouses and multi-family buildings of not more than four (4) floors. Each housing unit must be fully and independently functional; each housing unit must have its own kitchen and bathroom. The definition includes all incidental items such as site work, parking areas, utilities, streets and sidewalks. Please note the construction must be Residential in nature. A First Floor at or below grade may contain commercial space not to exceed 50% square footage of the floor; at least 50% of the First Floor must contain living accommodations or related nonresidential uses (e.g. laundry space, recreation/hobby rooms, and/or corridor space). Basement stories below grade used for storage, parking, mechanical systems/equipment, etc., are considered basement stories which are not used in determining the building's height. An attic is an unfinished space located immediately below the roof. Such space is not used in determining a building's height even if used for storage purposes. In addition, barracks and dormitories are not considered residential projects.

MODULAR RESIDENTIAL CONSTRUCTION- all aspects of modular residential construction (not commercial) at the site of installation of structures of no more than four (4) stories, including all excavation and site preparation, footings and

foundation systems whether poured on-site or prefabricated, all underground waterproofing, underground utilities, concrete slabs, sidewalks, driveways, paving, hardscape and landscaping. Please note the construction must be Residential as defined above. All work performed by the Set Crew (the crew of workers who set the modular boxes on the foundation), including the rigging, setting, attaching and assembly of all modules and structural members, preparation of the foundation to accept modules, such as sill plates, connection of all in-module and under-module connections including, but not limited to, plumbing, electrical, HVAC, fire suppression, CATS, telephone, television/internet, and fiber optic, the building or installation of any porches or decks regardless of material or method of construction, the on-site installation of, or completion of any roof system, doors, windows and fenestrations, including flashing, gutter and soffit systems, waterproofing, insulation and interior and exterior trim work, and painting. Please note that modular construction does not include on-site stick built construction, tip up construction or panel built construction.

The regular workday shall be 8 hours between 6:00 AM and 6:00 PM.

OVERTIME:
Hours worked in excess of 8 per day/40 per week, Monday through Saturday, and all hours worked on Sunday and holidays shall be paid at time and one-half the hourly rate.

RECOGNIZED HOILDAYS:
New Year's Day, Martin Luther King Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Millwright **PREVAILING WAGE RATE**

	05/01/20
Foreman	W59.32 B35.01 T94.33
Journeyman	W51.58 B30.52 T82.10

Craft: Millwright **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
6 Months	40%	55%	65%	80%	90%					
Benefits	58% of	Appren	tice	Wage	Rate	for all	intervals	+ $.60		

Ratio of Apprentices to Journeymen - 1:3

Craft: Millwright **COMMENTS/NOTES**

FOREMAN REQUIREMENTS:
- When there are 2 or more Millwrights on a job, 1 shall be designated as a Foreman.
- When there are 21 or more Millwrights on a job, 2 shall be designated as Foremen.

The regular workday shall consist of 8 hours, starting between 6:00 AM and 9:00 AM.

SHIFT DIFFERENTIALS:
- When a 2 shift schedule (including a day shift) is established, the day shift shall be established on an 8 hour basis. The second shift shall be established on an 8 hour basis, and receive the regular rate plus 15%, inclusive of benefits.
- When a three shift schedule is established, the first shift shall be established on an 8 hour basis, the second shift on a 7.5 hour basis, and the third shift on a 7 hour basis. The first shift shall receive the regular hourly rate, the second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.
- When there is no day shift, and a second or third shift is established, it shall be established on an 8 hour basis. The second shift shall receive the regular rate plus 15% and the third shift shall receive the regular rate plus 20%, inclusive of benefits.
- When an irregular shift must be established, this shift shall receive the regular rate plus 15%, inclusive of benefits.

OVERTIME:
- All hours in excess of 8 per day, or before or after an established shift that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a day lost due to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. Veterans' Day may be

substituted for the day after Thanksgiving.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Operating Engineer **PREVAILING WAGE RATE**

Rates are located in the
"Statewide" rate package

Craft: Operating Engineer **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	60%	70%	80%	90%						

Ratio of Apprentices to Journeymen - *

* 1 apprentice for each piece of heavy equipment. At least 10 pieces of heavy equipment or a minimum of 5 Operating Engineers must be on site.

Craft: Operating Engineer **COMMENTS/NOTES**

Operating Engineer rates are located in the "Statewide" rate package.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT
PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Operating Engineer - Field Engineer **PREVAILING WAGE RATE**

Rates are located in the
"Statewide" rate package

Craft: Operating Engineer - Field Engineer **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	70%	75%	of Rod/	Chainman	Wage					
Yearly			80%	90%	Transit/	Instrument	man	Wage		

Ratio of Apprentices to Journeymen - *

* No more than 1 Field Engineer Apprentice per Survey Crew.

Craft: Operating Engineer - Field Engineer **COMMENTS/NOTES**

Operating Engineer - Field Engineer rates are located in the "Statewide" rate package.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Painter - Line Striping **PREVAILING WAGE RATE**

	12/10/20
Apprentice (1st year)	W27.50 B12.15 T39.65
Apprentice (2nd year)	W31.50 B23.10 T54.60
Foreman (Charge Person)	W40.15 B23.88 T64.03
Journeyman 1 (at least 1 year of working exp. as a journeyman)	W35.38 B23.88 T59.26
Journeyman 2 (at least 2 years of working exp. as a journeyman)	W39.15 B23.88 T63.03

Craft: Painter - Line Striping **COMMENTS/NOTES**

OVERTIME:
Hours in excess of 8 per day, Monday through Saturday, and all hours on Sundays and holidays shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Veterans Day, Thanksgiving Day and Christmas Day. Veterans Day may be substituted for the day after Thanksgiving.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Paperhanger - New Construction **PREVAILING WAGE RATE**

	09/24/20
Foreman	W45.05 B26.56 T71.61
Journeyman	W40.95 B26.56 T67.51

Craft: Paperhanger - New Construction **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
	SEE	COMMER	CIAL	PAINTER	NEW	CONSTRUC	TION			

Ratio of Apprentices to Journeymen - 1:4

Craft: Paperhanger - New Construction **COMMENTS/NOTES**

FOREMEN REQUIREMENTS:
- When there are 4 or more Paperhangers on a job, 1 shall be designated a Foreman.

The regular workday shall consist of 8 hours between 7:00 AM and 5:30 PM.

SHIFT DIFFERENTIALS:
- The second shift shall receive an additional 10% of the hourly rate, per hour, and the third shift shall receive an additional 15% of the hourly rate, per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.
- Saturday or Sunday may be used to make up a day lost to inclement weather, at straight time.
- Four 10-hour days may be worked, at straight time, Monday through Friday.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, General Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Paperhanger - Renovation **PREVAILING WAGE RATE**

	09/24/20
Foreman	W33.94 B20.70 T54.64
Journeyman	W30.86 B20.70 T51.56

Craft: Paperhanger - Renovation **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
		SEE	COMMER	CIAL	PAINTER	NEW	CONSTRUC	TION		

Ratio of Apprentices to Journeymen - 1:4

Craft: Paperhanger - Renovation **COMMENTS/NOTES**

NOTE: These rates may only be used on jobs where no major alterations occur, and where not more than 3 other trades are present on the job, but may NOT, under any circumstances, be used for work on bridges, stacks, elevated tanks, or generating stations.

FOREMEN REQUIREMENTS:
- When there are 4 or more Paperhangers on a job, 1 shall be designated a Foreman.

OVERTIME:
- Hours in excess of 8 per day and 40 per week shall be paid at time and one-half the regular rate.
- Four 10-hour days may be worked, at straight time, Monday through Sunday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Pipefitter **PREVAILING WAGE RATE**

	05/01/20
Foreman	W59.39 B37.94 T97.33
Journeymen	W55.57 B37.94 T93.51

Craft: Pipefitter **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
Yearly	19.45	25.01	30.56	36.12	41.68					
Benefit	25.21	27.17	29.13	31.09	33.04					

Ratio of Apprentices to Journeymen - 1:5

Craft: Pipefitter **COMMENTS/NOTES**

FOREMAN REQUIREMENTS:
- The first Pipefitter on a job must be a Foreman.
- There must be a Foreman for every 6 Pipefitters on a job, not counting apprentices.

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:
- Shift work must run for a minimum of 5 consecutive workdays.
- 2nd Shift (between 4:00PM and 12:00AM) shall work 7.5 hours and receive 8 hours pay at the hourly rate, plus 25% per hour.
- 3rd Shift (between 12:00AM and 8:00AM) shall work 7 hours and receive 8 hours pay at the hourly rate, plus 30% per hour.

OVERTIME:
- The first 2 hours in excess of 8 per day or outside of the regular workday, Monday through Friday, and the first 8 hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. Hours in excess of 10 per day, Monday through Friday, in excess of 8 on Saturdays, and all hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked at straight time, Monday through Thursday, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, the first 10 hours on Friday shall be paid at time and one-half, inclusive of benefits. All remaining overtime shall be paid as stated above.

SHIFT DIFFERENTIALS - SERVICE & MAINTENANCE WORK:
- The 2nd shift shall work 7.5 hours and receive 8 hours pay at the hourly rate, plus 10% per hour.
- The 3rd shift shall work 7 hours and receive 8 hours pay at the hourly rate, plus 15% per hour.

OVERTIME - SERVICE & MAINTENANCE WORK:
- All hours outside of the regular workday, Monday through Friday, and all hours on Saturdays shall be paid at time and

one-half, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.

NOTE: Service and Maintenance work is work to repair, restore, or improve the efficiency of existing facilities. This does NOT apply to ANY new construction.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

County - HUDSON

Craft: Plasterer **PREVAILING WAGE RATE**

See "Cement Mason" Rates

Craft: Plasterer **COMMENTS/NOTES**

See CEMENT MASON Rates

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Plumber **PREVAILING WAGE RATE**

	05/01/20
Foreman	W60.69 B37.32 T98.01
General Foreman	W64.62 B37.32 T101.94
Journeyman	W56.19 B37.32 T93.51

Craft: Plumber **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
Yearly	30%	45%	55%	65%	75%					
Benefit	14.31	20.83	22.72	24.62	26.50					

Ratio of Apprentices to Journeymen - *

* Employers may employ 1 apprentice on any job where 1 or 2 journeymen are employed. Thereafter, 1 apprentice may be employed for every 4 journeymen.

Craft: Plumber **COMMENTS/NOTES**

FOREMAN REQUIREMENTS:
- On any job having 2 or more Plumbers, 1 shall be designated as a Foreman.
- On any job having 9 or more Plumbers, 2 shall be designated as Foremen.

SHIFT DIFFERENTIALS:
- Shift work must continue for a minimum of 5 consecutive workdays.
- When two shifts are worked, the second shift shall work 7.5 hours and receive 8 hours pay, at a rate equal to the regular rate plus 10%, inclusive of benefits.
- When a third shift is worked, the third shift shall work 7 hours and receive 8 hours pay, at a rate equal to the regular rate plus 15%, inclusive of benefits.

OVERTIME:
- All hours in excess of 8 per day, or before or after the regular workday that are not shift work, Monday through Friday, and all hours on Saturday, shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sunday and holidays, shall be paid at double the hourly rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday to Thursday, at straight time. Friday may be used as a make-up day for a lost day. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Roofer **PREVAILING WAGE RATE**

	07/15/20
Foreman	W45.75 B35.13 T80.88
Journeyman	W44.25 B35.13 T79.38

Craft: Roofer **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
Yearly	35%	50%	60%	75%	of Journey	man	Wage			
Benefits	3.57	17.86	21.31	26.50						

Ratio of Apprentices to Journeymen - 1:2

Craft: Roofer **COMMENTS/NOTES**

The regular workday is 8 hours, starting between 5:00 AM and 8:00 AM.

SHIFT DIFFERENTIALS:
- On shift work, the First Shift shall be 8 hours between 5:00 AM and 4:00 PM.
- Second Shift shall receive an additional 10% of the hourly rate, per hour.
- Third Shift shall receive an additional 15% of the hourly rate, per hour.
- Hours in excess of 8 per shift, shall be paid at time and one-half the hourly rate.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, or before or after the regular workday that are not shift work, and all hours on Saturdays, Sundays, and holidays shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, Christmas Day. Sunday holidays are observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Sheet Metal Sign Installation **PREVAILING WAGE RATE**

	04/05/21
Foreman	W39.79 B37.29 T77.08
Journeyman	W38.04 B37.29 T75.33

Craft: Sheet Metal Sign Installation **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
1000 hours	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%
Benefits	12.61	14.38	16.14	17.92	20.14	21.94	23.75	25.58	27.38	29.18

Ratio of Apprentices to Journeymen - 1:3

Craft: Sheet Metal Sign Installation **COMMENTS/NOTES**

FOREMAN REQUIREMENT:
When there are 6 or more Sheet Metal Sign Installers on a job, 1 shall be designated a Foreman.

The regular workday consists of 8 hours, between 7:00 AM and 3:30 PM.

OVERTIME:
Hours before or after the regular workday, Monday though Friday, and all hours worked on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

Four(4) 10 hour days may be worked, Monday through Friday, at straight time, for projects lasting at least one week in duration. The fifth day may be used as a make-up day at straight time for a day lost to inclement weather. However, if the fifth day is not a make-up day, all hours worked will be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Saturday holidays observed the preceding Friday, Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Sheet Metal Worker **PREVAILING WAGE RATE**

	06/09/20
Foreman	W53.62 B46.85 T100.47
General Foreman	W54.62 B46.85 T101.47
Journeyman	W50.12 B46.85 T96.97

Craft: Sheet Metal Worker **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
Yearly	35%	45%	55%	65%	of	Journey	man	Wage	Rate	
Benefit	35%	45%	55%	65%	of	Journey	man	Benefit	Rate	

Ratio of Apprentices to Journeymen - 1:4

Craft: Sheet Metal Worker **COMMENTS/NOTES**

FOREMAN REQUIREMENTS:
- When there are 2 or more Sheet Metal Workers on a project, 1 must be designated a Foreman.
- When there are 17 or more Sheet Metal Workers on a project, 1 must be designated a General Foreman.
- When there is only 1 Sheet Metal Worker (1 Journeyman) on a project, he/she shall receive $1.00 more than the regular Journeyman's rate.

The regular workday is 8 hours between 7:00 AM and 4:30 PM.

SHIFT DIFFERENTIAL:
- 2nd Shift (3:30 PM - 12:00 AM) : +17% of regular hourly rate
- Shift work must run for a minimum of 5 consecutive workdays.

OVERTIME:
- Hours in excess of 8 per day, or before or after the regular workday, that are not shift work, and the first 10 hours on Saturdays shall be paid at time and one-half of the regular rate, inclusive of benefits. Hours in excess of 10 per day on Saturday, and all hours on Sundays and holidays shall be at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Friday, at straight time, with hours in excess of 10 per day, and hours in excess of 40 per week paid at the overtime rates listed above.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Sprinkler Fitter **PREVAILING WAGE RATE**

	01/08/21
Foreman	W66.37 B32.65 T99.02
General Foreman	W69.57 B32.65 T102.22
Journeyman	W62.12 B32.65 T94.77

Craft: Sprinkler Fitter **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
1000 hours									80%	85%
Benefits							Intervals	9 to 10	Jourymn	Ben.

Ratio of Apprentices to Journeymen - 1:3

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES REGISTERED AS OF 7-1-13:

INTERVAL	PERIOD AND RATES									
1000 hours	25%	30%	40%	45%	55%	60%	70%	75%	85%	90%
Benefits	12.65	12.65	26.15	26.15	26.15	26.15	Intervals 7 to 10 receive Journeyman Ben.			

Craft: Sprinkler Fitter **COMMENTS/NOTES**

The regular workday consists of 8 consecutive hours between 6:00 AM and 4:30 PM.

FOREMAN REQUIREMENTS:
- The first Sprinkler Fitter on the job must be designated a Foreman.
- On any job having 12 or more Sprinkler Fitters, one must be designated a General Foreman.

SHIFT DIFFERENTIALS:
- Shift work must run for a minimum of 2 consecutive workdays.
- 2nd and 3rd shift shall receive an additional 15% of the regular rate, per hour.
- Any "off hours" shift starting at 8:00 PM or later shall receive an additional 25% of the regular rate, per hour.

OVERTIME:
The first 2 hours in excess of 8 per day, after the regular workday that are not shift work, Monday through Friday, shall be paid at time and one-half the regular rate. Hours worked in excess of 10 per day, Monday through Friday, and all hours on Saturday, Sunday and holidays, shall be paid double the regular rate.
Four 10 hour days may be worked, Monday through Friday, at straight-time.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Tile Finisher-Marble **PREVAILING WAGE RATE**

	01/04/21
Finisher	W48.27 B35.40 T83.67

Craft: Tile Finisher-Marble **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
750 Hours	40%	45%	50%	55%	60%	65%	70%	75%	85%	95%

Ratio of Apprentices to Journeymen - 1:4

Craft: Tile Finisher-Marble **COMMENTS/NOTES**

OVERTIME:
Hours in excess of 7 per day, Monday through Friday, and the first 7 hours on Saturdays shall be paid at time and one half the regular rate, inclusive of benefits. Hours in excess of 7 on Saturdays and all hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Tile Setter - Ceramic **PREVAILING WAGE RATE**

	12/07/20
Finisher	W46.69 B31.56 T78.25
Setter	W60.86 B34.74 T95.60

Craft: Tile Setter - Ceramic **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
750 Hours	35%	40%	50%	55%	60%	65%	70%	75%	80%	90%

Ratio of Apprentices to Journeymen - 1:4

Craft: Tile Setter - Ceramic **COMMENTS/NOTES**

OVERTIME:
Hours in excess of 7 per day, and the first 10 hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Saturdays after 10 hours shall be paid double the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, Christmas Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Tile Setter - Marble **PREVAILING WAGE RATE**

	01/04/21
Tile Setter	W60.89 B37.80 T98.69

Craft: Tile Setter - Marble **APPRENTICE RATE SCHEDULE**

INTERVAL	PERIOD AND RATES									
750 Hours	40%	45%	50%	55%	60%	65%	70%	75%	85%	95%

Ratio of Apprentices to Journeymen - 1:4

Craft: Tile Setter - Marble **COMMENTS/NOTES**

OVERTIME:
Hours in excess of 7 per day, Monday through Friday, and the first 7 hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. Hours in excess of 7 on Saturdays, and all hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Tile Setter - Mosaic & Terrazzo **PREVAILING WAGE RATE**

	01/01/21
Grinder or Assistant	W56.32 B37.76 T94.08
Mechanic	W57.92 B37.78 T95.70
Terrazzo Resinous Worker	W48.55 B30.40 T78.95

Craft: Tile Setter - Mosaic & Terrazzo **APPRENTICE RATE SCHEDULE**

INTERVAL	**PERIOD AND RATES**									
750 Hours	50%	55%	60%	65%	70%	75%	85%	95%	100%	

Ratio of Apprentices to Journeymen - 1:5

Craft: Tile Setter - Mosaic & Terrazzo **COMMENTS/NOTES**

APPRENTICE RATE SCHEDULE FOR THOSE APPRENTICES ENTERING PROGRAM AFTER 7-1-17:

INTERVAL PERIOD AND RATES
1500 Hours 35% 45% 60% 70% 80% 90% 100%

The regular workday consists of 7 hours, between 8:00 AM and 3:30 PM.

OVERTIME:
- Hours in excess of 7 per day, or before or after the regular workday, Monday through Friday, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Good Friday, Monday after Easter, Memorial Day, July 4th, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day and the day after, Christmas Day. Sunday holidays observed the following Monday.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Truck Driver **PREVAILING WAGE RATE**

	05/01/20
Bucket, Utility, Pick-up, Fuel Delivery trucks	W39.25 B37.93 T77.18
Dump Truck, Asphalt Distributor, Tack Spreader	W39.25 B37.93 T77.18
Euclid-type vehicles (large, off-road equipment)	W39.40 B37.93 T77.33
Helper on Asphalt Distributor	W39.25 B37.93 T77.18
Slurry Seal, Vacuum or Vac-All trucks	W39.25 B37.93 T77.18
Straight 3-axle truck	W39.30 B37.93 T77.23
Tractor Trailer (all types)	W39.40 B37.93 T77.33
Winch Trailer	W39.50 B37.93 T77.43

Craft: Truck Driver **COMMENTS/NOTES**

BLENDED RATE:
When a truck driver is performing work on the site and also serving as a material delivery driver, the driver shall be paid a "blended rate" which shall be 80% of the above-listed wage rates, plus the full benefit rate. This rate shall be used when the driver "round robins" for a minimum of 6 hours during the work day.

HAZARDOUS WASTE REMOVAL:
- On hazardous waste removal work on a State designated hazardous waste site where the driver is in direct contact with hazardous materials and when personal protective equipment is required for respiratory, skin, and eye protection, the driver shall receive an additional $3.00 per hour (with or without protective gear).
- A hazardous waste related certified worker at a designated hazardous waste site who is not working in a zone requiring level A, B or C personal protection shall receive an additional $1.00 per hour.

TRUCK FOREMAN: $.75 cents per hour above regular rate. Overtime shall be increased accordingly.

The regular workday shall be 8 hours, starting between 6:00 AM and 8:00 AM.

SHIFT DIFFERENTIALS:

- Shifts starting at 4:00 PM (2nd Shift): + $3.00 per hour.
- Shifts starting at 12:00 AM (midnight/3rd Shift)): time and one-half the hourly rate.
- Shifts starting at a time other than from 6:00 AM to 8:00 AM, when such hours are mandated by the project owner: + $3.00 per hour.

OVERTIME:
- Hours in excess of 8 per day, or before or after the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Employees may work four 10-hour days at straight time, Monday through Thursday, with Friday used as a make-up day for a lost day. If Friday is not a make-up day, then all hours on Friday shall be paid at time and one-half the hourly rate.
- Benefits on overtime shall be $36.68.
As of 5-1-20, benefits on overtime shall be $37.68.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day (Decoration Day), July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday. The day after Thanksgiving may be substituted for Veterans Day.

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

County - HUDSON

Craft: Truck Driver-Material Delivery Driver **PREVAILING WAGE RATE**

	04/01/20
Driver	W25.60 B15.71 T41.31

Craft: Truck Driver-Material Delivery Driver **COMMENTS/NOTES**

BLENDED RATE:
When a truck driver is performing work on the site and also serving as a material delivery driver, the driver shall be paid a "blended rate". See the "Truck Driver" craft for the blended rates.

The regular workday is 8 hours, starting between 5:00 AM and 8:00 AM.

SHIFT DIFFERENTIAL:
For shifts beginning between 4:00 PM and 10:00 PM, drivers shall receive an additional $0.50 per hour.

OVERTIME:
Hours in excess of 8 per day, or before of after the regular workday that are not shift work, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the hourly rate. All hours on Sunday and holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, President's Day, Memorial Day (Decoration Day), July 4th, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays will be observed the following Monday The day after Thanksgiving may be substituted for Veterans Day.

County - HUDSON

Craft: Welder **PREVAILING WAGE RATE**

Welder

Craft: Welder **COMMENTS/NOTES**

Welders rate is the same as the craft to which the welding is incidental.

STATEWIDE RATES

TERRITORY

ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

OPERATING ENGINEERS **Rates Expiration Date :**

{For apprentice rates refer to "Operating Engineers" apprentice rates in any county rate package}

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:
- Shift work must run for 5 consecutive workdays.
- When 2 shifts are worked, the second shift shall receive an additional 10% of the regular rate inclusive of benefits, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, plus an additional 10% of the regular rate inclusive of benefits, per hour. The third shift shall receive 8 hours pay for 7 hours of work, plus an additional 15% of the regular rate inclusive of benefits, per hour.
- When such hours are mandated by the project owner, a shift that starts between 8:00 PM and midnight and ends by 6:00 AM Saturday, or that starts after 8:00 PM on Sunday, provided there are consecutive hours of work within the shift, shall receive an additional 15% of the regular rate, inclusive of benefits.
- On Highway, Road, Street, and Sewer projects irregular shifts starting between 5:00 PM and 12:00 AM may be worked Monday through Friday, and shall receive an additional 15% of the regular rate, inclusive of benefits. When working with other trades that receive a higher irregular shift rate, the Operating Engineer shall also receive the higher irregular shift rate.

OVERTIME:
- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. When all trades on a particular job site agree, the day after Thanksgiving may be substituted for Veteran's Day.

On hazardous waste removal work or asbestos removal work, on a state or federally designated hazardous waste site, where the operating engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin, and eye protection, the operating engineer shall receive an additional 20% of the hourly wage, per hour.

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

	07/01/2020		**07/01/2021**	**07/01/2022**
Rate	Fringe	Total	Total	Total
53.23	34.50	87.73	90.03	92.28

CLASSIFICATIONS:

A-Frame

Backhoe (combination)

Boom Attachment on loaders (Except pipehook)

Boring & Drilling Machine

Brush Chopper, Brush Shredder, Tree Shredder, Tree Shearer

Bulldozer, finish grade

Cableway

Carryall

Concrete Pump

Concrete Pumping System (Pumpcrete & similar types)

Conveyor, 125 feet or longer

Drill Doctor (Duties include dust collector and maintenance)

Front End Loader (2 cu. yds. but less than 5 cu. yds.)

Grader, finish

Groove Cutting Machine (ride-on type)

Heater Planer

Hoist: Outside Material Tower Hoist (all types including steam, gas, diesel, electric, air
hydraulic, single and double drum, concrete, brick shaft caisson,
snorkle roof, and other similar types, Except Chicago-boom type) * receives an addtional $1.00 per hour on 100 ft. up to 199 ft. total height, and an additional $2.00 per hour on 200 ft. and over total height.

Hydraulic Crane (10 tons & under)

Hydraulic Dredge

Hydro-Axe

Hydro-Blaster

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

	07/01/2020		**07/01/2021**	**07/01/2022**
Rate	Fringe	Total	Total	Total
53.23	34.50	87.73	90.03	92.28

CLASSIFICATIONS:

Jack (screw, air hydraulic, power-operated unit, or console type, Except hand jack or pile load test type)

Log Skidder

Pan

Paver, concrete

Plate & Frame Filter Press

Pumpcrete (unit type)

Pumpcrete, Squeezecrete, or Concrete Pumping machine (regardless of size)

Scraper

Side Boom

Straddle Carrier (Ross and similar types)

Whiphammer

Winch Truck (hoisting)

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

	07/01/2020		**07/01/2021**	**07/01/2022**
Rate	Fringe	Total	Total	Total
51.32	34.50	85.82	88.12	90.37

CLASSIFICATIONS:

Asphalt Curbing Machine

Asphalt Plant Engineer

Asphalt Spreader

Autograde Curb Trimmer & Sidewalk Shoulder Slipform (CMI & similar types)

Autograde Curecrete Machine (CMI & similar types)

Autograde Tube Finisher & Texturing Machine (CMI & similar types)

Bar Bending Machines (Power)

Batcher, Batching Plant, & Crusher [On Site]

Belt Conveyor System

Boom-Type Skimmer Machine

Bridge Deck Finisher

Bulldozer (all sizes)

Captain (Power Boats)

Car Dumper (railroad)

Compressor & Blower unit for loading/unloading of concrete, cement, fly ash, or similar type materials (used independently or truck-mounted)

Compressor (2 or 3 battery)

Concrete Breaking Machine

Concrete Cleaning/Decontamination Machine

Concrete Finishing Machine

Concrete Saw or Cutter (ride-on type)

Concrete Spreader (Hetzel, Rexomatic & similar types)

Concrete Vibrator

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

	07/01/2020		**07/01/2021**	**07/01/2022**
Rate	Fringe	Total	Total	Total
51.32	34.50	85.82	88.12	90.37

CLASSIFICATIONS:

Conveyors - under 125 feet

Crane Signalman

Crushing Machine

Directional Boring Machine

Ditching Machine - Small (Ditchwitch, Vermeer or similar types)

Dope Pot - Mechanical (with or without pump)

Dumpster

Elevator

Fireman

Fork Lift (Economobile, Lull & similar types)

Front End Loader (1 cu. yd. and over but less than 2 cu. yds.)

Generator (2 or 3 battery)

Giraffe Grinder

Goldhofer/Hydraulic Jacking Trailer

Grader & Motor Patrols

Grout Pump

Gunnite Machine (Excluding nozzle)

Hammer - Vibratory (in conjunction with generator)

Heavy Equipment Robotics - Operator/Technician

Hoist (roof, tugger, aerial platform hoist, house car)

Hopper

Hopper Doors (power operated)

Ladder (motorized)

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

	07/01/2020		07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
51.32	34.50	85.82	88.12	90.37

CLASSIFICATIONS:

Laddervator

Locomotive (Dinky-type)

Maintenance Utility Man

Master Environmental Maintenance Technician

Mechanic

Mixer (Except paving mixers)

Pavement Breaker (truck-mounted or small self-propelled ride-on type)

Pavement Breaker - maintenance of compressor or hydraulic unit

Pipe Bending Machine (power)

Pitch Pump

Plaster Pump (regardless of size)

Post Hole Digger (post pounder, auger)

Rod Bending Machines

Roller (black top)

Scale (power)

Seamen Pulverizing Mixer

Shoulder Widener

Silo

Skimmmer Machine (boom type)

Steel Cutting Machine (service & maintenance)

Tamrock Drill

Tractor

Transfer Machines

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

	07/01/2020		07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
51.32	34.50	85.82	88.12	90.37

CLASSIFICATIONS:

Tug Captains

Tug Master (Power Boats)

Ultra High Pressure Waterjet Cutting Tool System - Operator/Maintenance Technician

Vacuum Blasting Machine - Operator/Maintenance Technician

Vibrating Plant (used with unloading)

Welder & Repair Mechanic

Effective Dates:

	07/01/2020		07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
47.98	34.50	82.48	84.78	87.03

CLASSIFICATIONS:

Assistant Engineer/Oiler

Driller's Helper

Field Engineer - Transit man or Instrument man

Maintenance Apprentice (Deckhand)

Maintenance Apprentice (Oiler)

Mechanic's Helper

Off Road Back Dump

Tire Repair & Maintenance

Effective Dates:

	07/01/2020		07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
45.40	34.50	79.90	82.20	84.45

CLASSIFICATIONS:

Field Engineer - Rodman or Chainman

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

	07/01/2020		**07/01/2021**	**07/01/2022**
Rate	Fringe	Total	Total	Total
55.56	34.50	90.06	92.36	94.61

CLASSIFICATIONS:

Lead Engineer, Foreman Engineer, Safety Engineer (minimum)

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

	07/01/2020		07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
54.82	34.50	89.32	91.62	93.87

CLASSIFICATIONS:

Autograde Pavement Profiler (CMI & similar types)

Autograde Pavement Profiler - Recycle Type (CMI & similar types)

Autograde Placer/Trimmer/Spreader Combination (CMI & similar types)

Autograde Slipform Paver (CMI & similar types)

Backhoe (Excavator)

Central Power Plant

Concrete Paving Machine

Cranes, Derricks, Pile Drivers (all types), under 100 tons with a boom (including jib and/or leads) under 100 ft.

Draglines

Drill, Bauer, AMI and similar types

Drillmaster, Quarrymaster

Drillmaster/Quarrymaster (down-the-hole drill), rotary drill, self-propelled hydraulic drill, self-powered drill

Elevator Grader

Field Engineer-Chief of Party

Front End Loader (5 cu. yards or larger)

Gradall

Grader, Rago

Helicoptor Co-Pilot

Helicoptor Communications Engineer

Juntann Pile Driver

Locomotive (large)

Mucking Machine

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

	07/01/2020		**07/01/2021**	**07/01/2022**
Rate	Fringe	Total	Total	Total
54.82	34.50	89.32	91.62	93.87

CLASSIFICATIONS:

Pavement & Concrete Breaker (Superhammer & Hoe Ram)

Pile Driver

Prentice Truck

Roadway Surface Grinder

Scooper (loader & shovel)

Shovel (Excavator)

Trackhoe (Excavator)

Tree Chopper with boom

Trenching Machine (cable plow)

Tunnel Boring Machine

Vacuum Truck

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

	07/01/2020		**07/01/2021**	**07/01/2022**
Rate	Fringe	Total	Total	Total
49.69	34.50	84.19	86.49	88.74

CLASSIFICATIONS:

Chipper

Compressor (single)

Concrete Spreader (small type)

Conveyor Loader (Except elevator graders)

Engines, Large Diesel (1620 HP) & Staging Pump

Farm Tractor

Fertilizing Equipment (operation & maintenance)

Fine Grade Machine (small type)

Form Line Grader (small type)

Front End Loader (under 1 cubic yard)

Generator (single)

Grease, Gas, Fuel, & Oil Supply Trucks

Heaters (Nelson or other type)

Lights - portable generating light plant

Mixer, Concrete (small)

Mulching Equipment (operation & maintenance)

Power Broom or Sweeper

Pump (diesel engine & hydraulic - regardless of power)

Pump (larger than 2 inch suction, including submersible pumps)

Road Finishing Machine (small type)

Roller - grade, fill, or stone base

Seeding Equipment (operation & maintenance)

Sprinkler & Water Pump Trucks

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

	07/01/2020		07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
49.69	34.50	84.19	86.49	88.74

CLASSIFICATIONS:

Steam Generator or Boiler

Stone Spreader

Tamping Machine (vibrating ride-on type)

Temporary Heating Plant (Nelson or other type, including proprane, natural gas, and flow-type units)

Water or Sprinkler Truck

Welding Machine (gas, diesel, or electric convertor, of any type)

Welding System - Multiple (rectifier transformer type)

Wellpoint Systems (including installation by bull gang and maintenance)

Effective Dates:

	07/01/2020		07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
56.64	34.50	91.14	93.44	95.69

CLASSIFICATIONS:

Helicoptor Pilot/Engineer

Effective Dates:

	07/01/2020		07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
61.32	34.50	95.82	98.12	100.37

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), 100 tons and over and TOWER CRANE with boom (including jib and/or leads) 140 ft. and over

Effective Dates:

	07/01/2020		07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
60.32	34.50	94.82	97.12	99.37

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), 100 tons and over and TOWER CRANE with boom (including jib and/or leads) from 100 ft. to 139 ft.

OPERATING ENGINEERS **Rates Expiration Date :**

Effective Dates:

	07/01/2020		**07/01/2021**	**07/01/2022**
Rate	Fringe	Total	Total	Total
56.82	34.50	91.32	93.62	95.87

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types) , under 100 tons with a boom (including jib and/or leads) 140 ft. and over

Effective Dates:

	07/01/2020		**07/01/2021**	**07/01/2022**
Rate	Fringe	Total	Total	Total
59.32	34.50	93.82	96.12	98.37

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), 100 tons and over and TOWER CRANE with a boom (including jib and/or leads) under 100 ft.

Effective Dates:

	07/01/2020		**07/01/2021**	**07/01/2022**
Rate	Fringe	Total	Total	Total
55.82	34.50	90.32	92.62	94.87

CLASSIFICATIONS:

Cranes, Derricks, Pile Driver (all types), under 100 tons with a boom (including jib and/or leads) from 100 ft. to 139 ft.

STRUCTURAL STEEL ERECTION **Rates Expiration Date :**

{For apprentice rates refer to "Operating Engineers" apprentice rates in any county rate package}

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:
- Shift work must run for 5 consecutive workdays.
- When 2 shifts are worked, the second shift shall receive an additional 10% of the regular rate inclusive of benefits, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, plus an additional 10% of the regular rate inclusive of benefits, per hour. The third shift shall receive 8 hours pay for 7 hours of work, plus an additional 15% of the regular rate inclusive of benefits, per hour.
- When such hours are mandated by the project owner, a shift that starts between 8:00 PM and midnight and ends by 6:00 AM Saturday, or that starts after 8:00 PM on Sunday, provided there are consecutive hours of work within the shift, shall receive an additional 15% of the regular rate, inclusive of benefits.
- On Highway, Road, Street, and Sewer projects irregular shifts starting between 5:00 PM and 12:00 AM may be worked Monday through Friday, and shall receive an additional 15% of the regular rate, inclusive of benefits. When working with other trades that receive a higher irregular shift rate, the Operating Engineer shall also receive the higher irregular shift rate.

OVERTIME:
- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. When all trades on a particular job site agree, the day after Thanksgiving may be substituted for Veteran's Day.

On hazardous waste removal work or asbestos removal work, on a state or federally designated hazardous waste site, where the operating engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin, and eye protection, the operating engineer shall receive an additional 20% of the hourly wage, per hour.

Effective Dates:

07/01/2020			**07/01/2021**	**07/01/2022**
Rate	Fringe	Total	Total	Total
58.45	34.50	92.95	95.25	97.50

CLASSIFICATIONS:

Helicopter Co-Pilot & Communications Engineer

STRUCTURAL STEEL ERECTION **Rates Expiration Date :**

Effective Dates:

07/01/2020			07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
54.39	34.50	88.89	91.19	93.44

CLASSIFICATIONS:

A-Frame

Cherry Picker -10 tons or less (Over 10 tons use crane rate)

Hoist (all types Except Chicago-boom)

Jack (screw, air hydraulic, power-operated unit or console type, Except hand jack or pile load test type)

Side Boom

Straddle Carrier

STRUCTURAL STEEL ERECTION **Rates Expiration Date :**

Effective Dates:

07/01/2020			07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
51.73	34.50	86.23	88.53	90.78

CLASSIFICATIONS:

Aerial Platform Used On Hoists

Apprentice Engineer/Oiler with Compressor or Welding Machine

Captain (Power Boats)

Compressor (2 or 3 in battery)

Concrete Cleaning/Decontamination Machine Operator

Conveyor or Tugger Hoist

Directional Boring Machine

Elevator or House Car

Fireman

Forklift

Generator (2 or 3)

Heavy Equipment Robotics, Operator/Technician

Maintenance Utility Man

Master Environmental Maintenance Technician

Tug Master (Power Boats)

Ultra High Pressure Waterjet Cutting Tool System Operator/Maintenance Technician

Vacuum Blasting Machine Operator/Maintenance Technician

Welding Machines, Gas or Electric Converters on any type-2 or 3 in battery including diesels

STRUCTURAL STEEL ERECTION **Rates Expiration Date :**

Effective Dates:

07/01/2020			07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
50.20	34.50	84.70	87.00	89.25

CLASSIFICATIONS:

Compressor (Single)

Generators

Welding Machines, Gas, Diesel, Or Electric Converters of any type-single

Welding System, Multiple (Rectifier Transformer Type)

Effective Dates:

07/01/2020			07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
48.44	34.50	82.94	85.24	87.49

CLASSIFICATIONS:

Assistant Engineer/Oiler

Drillers Helper

Field Engineer - Transit/Instrument Man

Maintenance Apprentice (Deckhand)

Maintenance Apprentice (Oiler)

Off Road Back Dump

Effective Dates:

07/01/2020			07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
56.01	34.50	90.51	92.81	95.06

CLASSIFICATIONS:

Lead Engineer, Foreman Engineer, Safety Engineer (Minimum)

Effective Dates:

07/01/2020			07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
45.40	34.50	79.90	82.20	84.45

CLASSIFICATIONS:

Field Engineer - Rodman or Chainman

STRUCTURAL STEEL ERECTION **Rates Expiration Date :**

Effective Dates:

	07/01/2020		07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
55.15	34.50	89.65	91.95	94.20

CLASSIFICATIONS:

Field Engineer-Chief of Party

Vacuum Truck

Effective Dates:

	07/01/2020		07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
63.34	34.50	97.84	100.14	102.39

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms, including jib, 140 ft. and over, above ground). Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, 140 ft. and over, above ground), and Pile Drivers (all types) 100 tons and over and Tower Cranes.

Effective Dates:

	07/01/2020		07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
61.68	34.50	96.18	98.48	100.73

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, less than 140 ft. abovr ground), Derricks (all derricks. land, floating or Chicago Boom type with booms including jib, less than 140 ft. above ground), Pile Drivers (all types), 100 tons and over and Tower Crane.

Effective Dates:

	07/01/2020		07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
58.84	34.50	93.34	95.64	97.89

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, 140 ft. and over, above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, 140 ft. and over, above ground), Pile Drivers (all types), under 100 tons.

Effective Dates:

	07/01/2020		07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
57.18	34.50	91.68	93.98	96.23

CLASSIFICATIONS:

Cranes (all cranes, land or floating with booms including jib, less than 140 ft. above ground), Derricks (all derricks, land, floating or Chicago Boom type with booms including jib, less than 140 ft. above ground), Pile Drivers (all types), under 100 tons.

STRUCTURAL STEEL ERECTION **Rates Expiration Date :**

Effective Dates:

07/01/2020			07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
58.84	34.50	93.34	95.64	97.89

CLASSIFICATIONS:

Helicopter Pilot & Engineer

TEST BORING PRELIMINARY TO CONSTRUCTION-SOUTH/WEST **Rates Expiration Date :**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:
Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Hunterdon, Mercer, Monmouth, Ocean, Salem, Sussex, Warren

The regular workday consists of 8 hours, Monday to Friday, between 6:00 AM and 4:30 PM.

SHIFT DIFFERENTIALS:
- Shift work must run for 5 consecutive workdays.
- When 2 shifts are worked, the second shift shall receive an additional 10% of the regular rate inclusive of benefits, per hour.
- When 3 shifts are worked, the second shift shall receive 8 hours pay for 7.5 hours of work, plus an additional 10% of the regular rate inclusive of benefits, per hour. The third shift shall receive 8 hours pay for 7 hours of work, plus an additional 15% of the regular rate inclusive of benefits, per hour.
- When such hours are mandated by the project owner, a shift that starts between 8:00 PM and midnight and ends by 6:00 AM Saturday, or that starts after 8:00 PM on Sunday, provided there are consecutive hours of work within the shift, shall receive an additional 15% of the regular rate, inclusive of benefits.
- On Highway, Road, Street, and Sewer projects irregular shifts starting between 5:00 PM and 12:00 AM may be worked Monday through Friday, and shall receive an additional 15% of the regular rate, inclusive of benefits. When working with other trades that receive a higher irregular shift rate, the Operating Engineer shall also receive the higher irregular shift rate.

OVERTIME:
- Hours in excess of 8 per day, or outside of the regular workday, Monday through Friday, that are not shift work, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with all hours on Friday paid at time and one-half the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. When all trades on a particular job site agree, the day after Thanksgiving may be substituted for Veteran's Day.

On hazardous waste removal work or asbestos removal work, on a state or federally designated hazardous waste site, where the operating engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin, and eye protection, the operating engineer shall receive an additional 20% of the hourly wage, per hour.

Effective Dates:

07/01/2020			07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
54.82	34.50	89.32	91.62	93.87

CLASSIFICATIONS:

Driller

Effective Dates:

07/01/2020			07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
47.98	34.50	82.48	84.78	87.03

CLASSIFICATIONS:

Driller's Helper

FREE AIR TUNNEL JOBS **Rates Expiration Date :**

{For apprentice rates refer to "Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:
- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional $3.00 per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:
-where Level A, B, or C protection is required: + $3.00/hr
-other Hazardous Waste site: + $1.00/hr

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Effective Dates:

03/03/2021			**09/01/2021**	**03/01/2022**	**03/01/2023**
Rate	Fringe	Total	Total	Total	Total
46.25	33.23	79.48	80.78	83.53	86.03

CLASSIFICATIONS:

Walking Boss & Superintendent

Effective Dates:

03/03/2021			**09/01/2021**	**03/01/2022**	**03/01/2023**
Rate	Fringe	Total	Total	Total	Total
45.95	33.23	79.18	80.48	83.23	85.73

CLASSIFICATIONS:

Heading Foreman, Shaft Foreman, Rod Foreman, Electrician Foreman, Rigging Foreman

FREE AIR TUNNEL JOBS **Rates Expiration Date :**

Effective Dates:

	03/03/2021		09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
45.45	33.23	78.68	79.98	82.73	85.23

CLASSIFICATIONS:

Iron Foreman, Caulking Foreman, Form Foreman, Cement Finishing Foreman, Concrete Foreman, Track Foreman, Cleanup Foreman, Grout Foreman

Effective Dates:

	03/03/2021		09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
47.95	33.23	81.18	82.48	85.23	87.73

CLASSIFICATIONS:

Blaster

Effective Dates:

	03/03/2021		09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
44.90	33.23	78.13	79.43	82.18	84.68

CLASSIFICATIONS:

Top Labor Foreman

Effective Dates:

	03/03/2021		09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
44.55	33.23	77.78	79.08	81.83	84.33

CLASSIFICATIONS:

Skilled Men (including Caulker, Powder Carrier, all other skilled men)

Skilled Men (including Miner, Drill Runner, Iron Man, Conveyor Man, Manitenance Man, Safety Miner, Rigger, Block Layer, Cement Finisher, Tod Man)

Effective Dates:

	03/03/2021		09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
44.40	33.23	77.63	78.93	81.68	84.18

CLASSIFICATIONS:

Semi-Skilled Men (including Bell or Signal Man Top or Bottom, Form Worker & Mover, Concrete Worker, Shaft Man, Tunnel Laborer, Caulker's Helper, all other semi-skilled)

Semi-Skilled Men (including Miner's Helper, Chuck Tender, Track Man, Nipper, Brake Man, Derail Man, Cable Man, Hose Man, Gravel Man, Form Man)

TERRITORY

ENTIRE STATE

NEW JERSEY DEPARTMENT OF LABOR AND WORKFORCE DEVELOPMENT

PREVAILING WAGE RATE DETERMINATION

FREE AIR TUNNEL JOBS **Rates Expiration Date :**

Effective Dates:

03/03/2021			**09/01/2021**	**03/01/2022**	**03/01/2023**
Rate	Fringe	Total	Total	Total	Total
44.00	33.23	77.23	78.53	81.28	83.78

CLASSIFICATIONS:

All Others (including Powder Watchman, Change House Attendant, Top Laborer)

DRILL FOR GROUND WATER SUPPLY **Rates Expiration Date :**

The well driller and/or helper may perform all work relative to the construction, finishing, and servicing of wells, pumps and borings for ground water supply. The present methods of well drilling entailing as they do, many diverse job operations calling for drilling, pump discharge, piping, and the operation of various types of related power equipment, shall all be within the job duties and functions of the well driller and/or helper. In the event that an extension of work should occur beyond water well drilling functions, into the field of general construction work, such extension of work would come under the appropriate rates listed elsewhere in this wage determination.

- For Work Hours, Shift Differentials, Overtime Rates, and Recognized Holidays see the "Operating Engineers" section of this wage determination.

Effective Dates:

07/01/2020			07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
53.57	34.50	88.07	90.37	92.62

CLASSIFICATIONS:

Driller

Effective Dates:

07/01/2020			07/01/2021	07/01/2022
Rate	Fringe	Total	Total	Total
47.33	34.50	81.83	83.53	85.78

CLASSIFICATIONS:

Driller's Helper

OPERATING ENGINEERS MARINE-DREDGING **Rates Expiration Date :**

NOTE: These wage rates only apply to dredging and other marine construction activities occurring in navigable waters and their tributaries.
Boat crews carrying explosive material (dynamite, pourfex, and other similar materials) shall be paid at 120% of the hourly wage rate for hours engaged in handling of said materials. Employees required to possess a Hazardous Material Certification as a condition of employment shall be compensated at 120% of the hourly wage rate.
OVERTIME:
Hours in excess of 40 per week, and all hours on Saturdays and Sundays, shall be paid at time and one-half the hourly rate. All hours on holidays shall be paid at double the hourly rate.
RECOGNIZED HOLIDAYS: New Year's Day, Martin Luther King Day, Good Friday, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday.

Effective Dates:

	10/01/2020	
Rate	Fringe	Total
41.42	15.29	56.71

CLASSIFICATIONS:

Lead Dredgerman, Operator, Leverman

Licensed Tug Operator (over 1000 HP)

Effective Dates:

	10/01/2020	
Rate	Fringe	Total
35.82	14.84	50.66

CLASSIFICATIONS:

Derrick Operator, Spider/Spill Barge Operator

Engineer, Electrician, Chief Welder, Chief Mate

Fill Placer, Operator II

Licensed Boat Operator

Maintenance Engineer

Effective Dates:

	10/01/2020	
Rate	Fringe	Total
33.72	14.67	48.39

CLASSIFICATIONS:

Certified Welder

OPERATING ENGINEERS MARINE-DREDGING **Rates Expiration Date :**

Effective Dates:

10/01/2020

Rate	Fringe	Total
32.80	14.30	47.10

CLASSIFICATIONS:

Mate, Drag Barge Operator, Steward, Assistant Fill Placer

Welder

Effective Dates:

10/01/2020

Rate	Fringe	Total
31.74	14.21	45.95

CLASSIFICATIONS:

Boat Operator

Effective Dates:

10/01/2020

Rate	Fringe	Total
26.37	13.48	39.85

CLASSIFICATIONS:

Shoreman, Deckhand, Rodman, Scowman

Effective Dates:

10/01/2020

Rate	Fringe	Total
36.91	14.93	51.84

CLASSIFICATIONS:

Crane Operator

MICROSURFACING/SLURRY SEAL **Rates Expiration Date :**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:
Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem
IN ALL OTHER COUNTIES use the Heavy and General Laborers - North "Slurry Seal Laborer" rates.

SHIFT DIFFERENTIALS:
Any shift starting at 3:30 PM or later shall receive an additional $0.35/hr

OVERTIME:
Hours in excess of 8 per day or 40 per week shall be paid at time and one-half the hourly rate. All hours on holidays shall be paid at double the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Washington's Birthday, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day.

Effective Dates:

03/01/2017

Rate	Fringe	Total
36.50	21.27	57.77

CLASSIFICATIONS:

Foreman

Effective Dates:

03/01/2017

Rate	Fringe	Total
33.80	21.27	55.07

CLASSIFICATIONS:

Box man

Effective Dates:

03/01/2017

Rate	Fringe	Total
31.75	21.27	53.02

CLASSIFICATIONS:

Microsurface/Slurry Preparation

Effective Dates:

03/01/2017

Rate	Fringe	Total
31.75	21.27	53.02

CLASSIFICATIONS:

Squeegee man

MICROSURFACING/SLURRY SEAL **Rates Expiration Date :**

Effective Dates:

03/01/2017

Rate	Fringe	Total
30.30	21.27	51.57

CLASSIFICATIONS:

Cleaner, Taper

ASPHALT LABORERS - SOUTH **Rates Expiration Date :**

"THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem
{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}
The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.
SHIFT DIFFERENTIALS:
- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional $3.00 per hour.
OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.
RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.
Hazardous Waste Work:
-where Level A, B, or C protection is required: + $5.00/hr
-other Hazardous Waste site: + $1.00/hr
FOR TIDE WORK (pertains to tidal water): A contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work) providing the eight (8) hour shift is completed between the hours of 5:00 AM and 6:30 PM.

Effective Dates:

03/19/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
45.75	33.23	78.98	80.28	84.03	87.53

CLASSIFICATIONS:

Paving Foreman

Effective Dates:

03/19/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
44.30	33.23	77.53	78.83	81.58	84.08

CLASSIFICATIONS:

Head Raker

Effective Dates:

03/19/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
44.45	33.23	77.68	78.98	81.73	84.23

CLASSIFICATIONS:

Screedman

ASPHALT LABORERS - SOUTH **Rates Expiration Date :**

Effective Dates:

03/19/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
43.90	33.23	77.13	78.43	81.18	83.68

CLASSIFICATIONS:

Tampers, Smoothers, Kettlemen, Painters, Shovelers, Roller Boys

Effective Dates:

03/19/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
44.00	33.23	77.23	78.53	81.28	83.78

CLASSIFICATIONS:

Milling Controller

Effective Dates:

03/19/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
44.20	33.23	77.43	78.73	81.48	83.98

CLASSIFICATIONS:

Traffic Control Coordinator

Effective Dates:

03/19/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
44.15	33.23	77.38	78.68	81.43	83.93

CLASSIFICATIONS:

Raker, Luteman

TEST BORING PRELIMINARY TO CONSTRUCTION-NORTH **Rates Expiration Date :**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:
Bergen, Essex, Hudson, Middlesex, Morris, Passaic, Somerset, Union

SHIFT DIFFERENTIAL:
Employees on a shift other than between the hours of 8:00 AM and 5:00 PM shall receive an additional $2.00 per hour.

OVERTIME:
Hours in excess of 8 per day, Monday through Friday, and all hours on Saturday shall be paid at time and one-half the regular rate. All hours on Sundays and holidays shall be paid at double the regular rate.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

Hazardous Waste Pay (for Levels A, B, and C): an additional 15% of the hourly rate, per hour.

A newly hired Helper with no experience in the industry shall be paid as follows:
1st year on the job - 70% of Helper wage rate
2nd year on the job - 80% of Helper wage rate
3rd year on the job - 90% of Helper wage rate
All helpers receive full fringe benefit rate.

Effective Dates:

	10/18/2020		**10/18/2021**	**10/18/2022**
Rate	Fringe	Total	Total	Total
32.92	29.50	62.42	64.17	65.92

CLASSIFICATIONS:

Helper (4th year helper)

Effective Dates:

	10/18/2020		**10/18/2021**	**10/18/2022**
Rate	Fringe	Total	Total	Total
41.74	29.50	71.24	73.24	75.24

CLASSIFICATIONS:

Driller

Effective Dates:

	10/18/2020		**10/18/2021**	**10/18/2022**
Rate	Fringe	Total	Total	Total
47.78	29.50	77.28	79.28	81.28

CLASSIFICATIONS:

Foreman

HEAVY & GENERAL LABORERS - NORTH **Rates Expiration Date :**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:
Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, Warren

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:
- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional $3.00 per hour.
FOR TIDE WORK (pertains to tidal water): A contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work) providing the eight (8) hour shift is completed bewteen the hours of 5:00 AM and 6:30 PM.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:
-where Level A, B, or C protection is required: + $5.00/hr
-other Hazardous Waste site: + $1.00/hr

Effective Dates:

	03/03/2021		**09/01/2021**	**03/01/2022**	**03/01/2023**
Rate	Fringe	Total	Total	Total	Total
43.50	33.23	76.73	78.03	80.78	83.28

CLASSIFICATIONS:

"D" Rate:
basic, landscape, asphalt, slurry seal, or railroad track laborer; utility meter installer; flagman; salamander tender; pitman; dumpman; rakers or tampers on cold patch work; wrappers or coaters of pipe; waterproofer; timberman; wagon drill or drill master helper; powder carrier; magazine tender; signal man; power buggy operator; tree cutter; operator of basic power tools

Effective Dates:

	03/03/2021		**09/01/2021**	**03/01/2022**	**03/01/2023**
Rate	Fringe	Total	Total	Total	Total
44.20	33.23	77.43	78.73	81.48	83.98

CLASSIFICATIONS:

"C" Rate:
pipe layer; laser man; conduit or duct line layer; operator of jack hammer, chipping hammer, pavement breaker, concrete cutter, asphalt cutter, sheet hammer, or walk-behind saw cutter; sandblaster; acetylene cutting or burning; wagon drill, directional drill, or hydraulic drill operator; drill master; core driller; traffic control coordinator; asphalt raker or lute man

HEAVY & GENERAL LABORERS - NORTH **Rates Expiration Date :**

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
44.45	33.23	77.68	78.98	81.73	84.23

CLASSIFICATIONS:

"B" Rate:
concrete finisher; setter of brick or stone pavers; stone cutter; form setter; manhole, catch basin, or inlet builder; asphalt screedman; rammer; hardscaping; gunite nozzle man

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
48.00	33.23	81.23	82.53	85.28	87.78

CLASSIFICATIONS:

"A" Rate:
blaster

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
45.75	33.23	78.98	80.28	84.03	87.53

CLASSIFICATIONS:

"FOREMAN" Rate:
labor foreman, asphalt foreman, drill foreman, pipe foreman, grade foreman, finisher foreman, concrete foreman

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
46.75	33.23	79.98	81.28	85.03	88.53

CLASSIFICATIONS:

"GENERAL FOREMAN" Rate

HEAVY & GENERAL LABORERS - SOUTH **Rates Expiration Date :**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:
Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean, Salem

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:
- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional $3.00 per hour.

FOR TIDE WORK (pertains to tidal water): A contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work) providing the eight (8) hour shift is completed between the hours of 5:00 AM and 6:30 PM.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:
-where Level A, B, or C protection is required: + $5.00/hr
-other Hazardous Waste site: + $1.00/hr

Effective Dates:

	03/10/2021		**09/01/2021**	**03/01/2022**	**03/01/2023**
Rate	Fringe	Total	Total	Total	Total
43.50	33.23	76.73	78.03	80.78	83.28

CLASSIFICATIONS:

basic, landscape, or railroad track laborer; utility meter installer; flagman; salamander tender; pitman; dumpman; rakers or tampers on cold patch work; wrappers or coaters of pipe; waterproofers; tree cutter, timberman

Effective Dates:

	03/10/2021		**09/01/2021**	**03/01/2022**	**03/01/2023**
Rate	Fringe	Total	Total	Total	Total
43.50	33.23	76.73	78.03	80.78	83.28

CLASSIFICATIONS:

wagon drill or drill master helper; powder carrier; magazine tender; signal man

HEAVY & GENERAL LABORERS - SOUTH **Rates Expiration Date :**

Effective Dates:

03/10/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
44.20	33.23	77.43	78.73	81.48	83.98

CLASSIFICATIONS:

pipe layer; laser man; conduit or duct line layer; operator of jack hammer, chipping hammer, pavement breaker, concrete cutter, asphalt cutter, sheet hammer, or walk-behind saw cutter; sandblaster; acetylene cutting or burning

Effective Dates:

03/10/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
44.20	33.23	77.43	78.73	81.48	83.98

CLASSIFICATIONS:

wagon or directional drill operator; drill master

Effective Dates:

03/10/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
48.00	33.23	81.23	82.53	85.28	87.78

CLASSIFICATIONS:

blaster

Effective Dates:

03/10/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
45.75	33.23	78.98	80.28	84.03	87.53

CLASSIFICATIONS:

labor foreman, drill foreman, pipe foreman, grade foreman, finisher foreman, concrete foreman

Effective Dates:

03/10/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
46.75	33.23	79.98	81.28	85.03	88.53

CLASSIFICATIONS:

general foreman

HEAVY & GENERAL LABORERS - SOUTH **Rates Expiration Date :**

Effective Dates:

03/10/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
44.45	33.23	77.68	78.98	81.73	84.23

CLASSIFICATIONS:

concrete finisher; setter of brick or stone pavers; stone cutter; form setter; manhole, catch basin, or inlet builder; rammer; gunite nozzle man

PIPELINE - MAINLINE TRANSMISSION **Rates Expiration Date :**

These rates apply to the following: welding on Transportation Mainline pipe lines (cross-country pipe lines, or any segments thereof, transporting coal, gas, oil, water or other transportable materials, vapors or liquids, including portions of such pipe lines within private property boundaries up to the final metering station or connection - the point where a valve, consumer connection, or town border station divides mainline transmission lines or higher pressure lateral and branch lines from lower pressure distribution systems).

PER DIEM PAYMENT:
In addition to the total wage rate paid for each craft, the following per diem (per day) amounts must also be paid - Pipeline Journeyman: $80.50; Pipeline Journeyman Welder: $140.50; and Pipeline Helper: $64.50. Note: in order to receive the per diem payment an employee must work a minimum of 8 hours in a 24 hour period.

NOTES:
- Journeymen employed as "stringer bead" welders and journeymen who are regularly employed as "hot-pass" welders shall receive $1.00 per hour more than other journeymen.
- Welders running "stringer bead" or "hot-pass" on "cutouts" or "tie-ins" on a production basis shall be paid $1.00 per hour above the journeymen rate.
- Whenever a welder helper is employed using a power buffer or power grinder immediately behind the stringer bead and/or hot-pass welders, and the pipe gang is set on a production basis, the helper shall be paid $2.00 per hour above the helper rate.
- If back welding is performed inside a pipe under either or both of the following conditions, the welder engaged in the welding will receive $3.00 per hour above the regular rate for the job only for the days on which such back welding is performed:
  - The employer elects, as a regular procedure, to back weld each line-up. This condition is not intended to apply to occasional back welding performed by the pipe gang to repair a bead, to rectify a "high-lo" condition or wall thickness, etc.
  - A welder is required to back weld a completed weld behind the firing line.
- If the welder helper is required to go inside the pipe for the purpose of brushing, buffing and grinding the weld, they shall receive a wage rate $1.00 per hour above the regular
helper rate for the days involved.
- Welders working on "hot work" shall be paid $2.00 per hour above the regular rate for each day engaged in such work. "Hot work' is defined as work on lines in service where there is the danger of fire or explosion.

The regular workday shall be 8 hours, between 8:00 AM and 4:30 PM.

OVERTIME:
Hours in excess of 8 per day, and all hours on Sundays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

Effective Dates:

06/09/2020

Rate	Fringe	Total
54.58	32.80	87.38

CLASSIFICATIONS:

Pipeline Journeyman Welder

PIPELINE - MAINLINE TRANSMISSION **Rates Expiration Date :**

Effective Dates:

06/09/2020

Rate	Fringe	Total
54.58	32.80	87.38

CLASSIFICATIONS:

Pipeline Journeyman

Effective Dates:

06/09/2020

Rate	Fringe	Total
33.27	22.42	55.69

CLASSIFICATIONS:

Pipeline Helper

PIPELINE - GAS DISTRIBUTION **Rates Expiration Date :**

These rates apply to the following: welding on gas line distribution systems (that portion of the gas distribution system placed in streets, roads, subways, tunnels, viaducts, highways and easements which serves the users of gas).

SHIFT DIFFERENTIALS:
An "irregular" shift may start any time from 5:00 PM to 12:00 AM, Monday through Friday, and shall receive an additional 15% of the regular rate per hour, inclusive of benefits.

OVERTIME:
Hours in excess of forty per week, and all hours on Saturdays shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the regular rate, inclusive of benefits.

RECOGNIZED HOLIDAYS: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. Sunday holidays observed the following Monday.

Effective Dates:

	11/02/2020		**11/01/2021**	**11/01/2022**
Rate	Fringe	Total	Total	Total
61.50	27.23	88.73	91.23	93.73

CLASSIFICATIONS:

Pipeline Journeyman Welder

Effective Dates:

	11/02/2020		**11/01/2021**	**11/01/2022**
Rate	Fringe	Total	Total	Total
61.50	27.23	88.73	91.23	93.73

CLASSIFICATIONS:

Pipeline Journeyman

Effective Dates:

	11/02/2020		**11/01/2021**	**11/01/2022**
Rate	Fringe	Total	Total	Total
39.46	19.88	59.34	61.01	62.68

CLASSIFICATIONS:

Pipeline Helper

ASPHALT LABORERS- NORTH **Rates Expiration Date :**

THESE RATES APPLY IN THE FOLLOWING COUNTIES ONLY:
Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Passaic, Somerset, Sussex, Union, Warren
{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}
The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.
SHIFT DIFFERENTIALS:
- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional $3.00 per hour.
OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.
RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.
Hazardous Waste Work:
-where Level A, B, or C protection is required: + $5.00/hr
-other Hazardous Waste site: + $1.00/hr
FOR TIDE WORK (pertains to tidal water): A contractor can start their job according to tide schedules (tide schedules are the various high and low tides related to this work) providing the eight (8) hour shift is completed between the hours of 5:00 AM and 6:30 PM.

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
45.75	33.23	78.98	80.28	84.03	87.53

CLASSIFICATIONS:

Asphalt Foreman

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
44.45	33.23	77.68	78.98	81.73	84.23

CLASSIFICATIONS:

Asphalt Screedman

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
44.20	33.23	77.43	78.73	81.48	83.98

CLASSIFICATIONS:

Asphalt Raker or Lute Man

ASPHALT LABORERS- NORTH **Rates Expiration Date :**

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
43.50	33.23	76.73	78.03	80.78	83.28

CLASSIFICATIONS:

Asphalt Laborer

ELECTRICIAN- UTILITY WORK (NORTH) **Rates Expiration Date :**

Electrician-Utility Work (North)
(For apprentice rates refer to Electrician-Utility Work (North) in any county rate package).
These rates apply to work contracted for by the following utility companies:
Public Service Electric & Gas Co. of NJ, GPU Energy, Borough of Madison Electric Department, Sussex Rural Electric Cooperative, Rockland Utilities, and Butler Municipal Electric Co.
These rates do not apply to work on substations or switching stations.
For Utility work contracted for by a utility company other than those listed above or those listed under "Electrician-Utility Work (South), see the "Outside Commercial Rates" for the county in which the jobsite is located.

* FOR OUTSIDE COMMERCIAL RATES PLEASE SEE COUNTY RATES

The regular workday is 8 hours, between 6:00 AM and 6:00 PM.
FOR EMERGENCY WORK ONLY: (emergency work is defined as work caused by storm, catastrophe, act of god, and circumstances beyond the control of the employer)-all hours of work shall be paid at double the hourly rate.
SHIFT DIFFERENTIALS:
Shift work must run for a minimum of 5 consecutive workdays.
2nd shift (between the hours of 4:30 PM and 1:00 AM): 8 hours of work + 17.3% of the regular rate, inclusive of benefits.
3rd shift (between the hours of 12:30 AM and 9:00 AM): 8 hours of work + 31.4% of the regular rate per hour, inclusive of benefits.

OVERTIME:
Hours in excess of 8 per day, or before or after the regular wokday Monday through Friday, that is not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate, inclusive of benefits. All hours on Sundays and holidays shall be paid at double the hourly rate, inclusive of benefits.
Four 10-hour days may worked, at straight time, between 7:00 AM and 6:30 PM, Monday through Thursday.

RECOGNIZED HOLIDAYS:
New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day and Christmas Day, or day on which they are legally observed.

Effective Dates:

11/29/2020

Rate	Fringe	Total
57.30	39.54	96.84

CLASSIFICATIONS:

Chief Lineman

Effective Dates:

11/29/2020

Rate	Fringe	Total
54.06	37.30	91.36

CLASSIFICATIONS:

Journeyman Lineman

ELECTRICIAN- UTILITY WORK (NORTH) **Rates Expiration Date :**

Effective Dates:

11/29/2020

Rate	Fringe	Total
54.06	37.30	91.36

CLASSIFICATIONS:

Special License Operator

Effective Dates:

11/29/2020

Rate	Fringe	Total
53.52	36.92	90.44

CLASSIFICATIONS:

Transit Man

Effective Dates:

11/29/2020

Rate	Fringe	Total
51.90	35.80	87.70

CLASSIFICATIONS:

Line Equipment Operator

Effective Dates:

11/29/2020

Rate	Fringe	Total
45.41	31.32	76.73

CLASSIFICATIONS:

Dynamite Man

Effective Dates:

11/29/2020

Rate	Fringe	Total
67.57	46.62	114.19

CLASSIFICATIONS:

General Foreman

Effective Dates:

11/29/2020

Rate	Fringe	Total
62.17	42.88	105.05

CLASSIFICATIONS:

Assistant General Foreman

ELECTRICIAN- UTILITY WORK (NORTH) **Rates Expiration Date :**

Effective Dates:

11/29/2020

Rate	Fringe	Total
60.55	41.77	102.32

CLASSIFICATIONS:

Line Foreman

Effective Dates:

11/29/2020

Rate	Fringe	Total
43.79	30.20	73.99

CLASSIFICATIONS:

Street Light Mechanical Leader

Effective Dates:

11/29/2020

Rate	Fringe	Total
41.63	28.71	70.34

CLASSIFICATIONS:

Groundman Winch Operator

Effective Dates:

11/29/2020

Rate	Fringe	Total
41.63	28.71	70.34

CLASSIFICATIONS:

Groundman Truck Operator

Effective Dates:

11/29/2020

Rate	Fringe	Total
41.08	28.35	69.43

CLASSIFICATIONS:

Street Light Mechanic

Effective Dates:

11/29/2020

Rate	Fringe	Total
41.08	28.35	69.43

CLASSIFICATIONS:

Line Equipment Mechanic

ELECTRICIAN- UTILITY WORK (NORTH) **Rates Expiration Date :**

Effective Dates:

11/29/2020

Rate	Fringe	Total
35.14	24.24	59.38

CLASSIFICATIONS:

Groundman 2nd Year

Effective Dates:

11/29/2020

Rate	Fringe	Total
32.44	22.36	54.80

CLASSIFICATIONS:

Groundman 1st Year

Effective Dates:

11/29/2020

Rate	Fringe	Total
53.52	36.92	90.44

CLASSIFICATIONS:

Line Equipment Foreman

ELECTRICIAN- UTILITY WORK (SOUTH) **Rates Expiration Date :**

Electrician-Utility Work (South)
(For apprentice rates refer to Electrician-Utility Work (South) in any county rate package).
These rates apply to work contracted for by the following utility company:
Atlantic City Electric.
These rates do not apply to work on substations or switching stations.
For utility work contracted for by a utility company other than the one listed above or those listed under "Electrician-Utility Work (North), see the "Outside Commercial Rates" for the county in which the jobsite is located.

* FOR OUTSIDE COMMERCIAL RATES PLEASE SEE COUNTY RATES

The regular workday is 8 hours, between 7:00 AM and 4:30 PM.
FOR EMERGENCY WORK ONLY: (emergency work is defined as work caused by storm, catastrophe, act of god, and circumstances beyond the control of the employer)- all hours of work shall be paid at double the hourly rate.
SHIFT DIFFERENTIALS:
Shift work must run for a minimum of 5 consecutive workdays.
When two (2) or three (3) shifts are worked the following shall apply:
1st shift (between the hours of 8:00 AM and 4:30 PM)
2nd shift (between the hours of 4:30 PM and 12:30 AM): 8 hours of work + 10% of the regular rate of pay for 7.5 hours worked.

3rd shift (between the hours of 12:30 AM and 8:00 AM): 8 hours of work + 15% of the regular rate of pay for 7 hours worked.

OVERTIME:
Hours in excess of 8 per day, or before or after the regular wokday Monday through Friday, that is not shift work, and all hours on Saturday shall be paid at time and one-half the regular rate. All hours on Sundays and Holidays shall be paid double the hourly rate.

Four 10-hour days may be worked, at straight time, between 6:00 AM and 6:00 PM, Monday through Thursday with Friday used as a make-up day.

RECOGNIZED HOLIDAYS:
New Year's Day, Memorial Day, July 4th, Labor Day, Veterans' Day, Thanksgiving Day and Christmas Day or on days celebrated.

WORKING RULES:
There shall be a Foreman in charge of each work crew. No crews are to exceed twelve (12) men, including Foremen.

There shall be a General Foreman designated for transmission work when three (3) or more crews are on the same job and for distribution work where there are are more than twenty (20) employees on site.
A small job crew shall consist of five (5) or less employees, one (1) of the Journeyman Linemen in the crew shall be designated as a Small Job Foreman.
Work performed from ladders and/or mechanical lift equipment shall be the work of Linemen and/or Apprentices.
On new construction, fitting and framing poles, towers or structures may be done by Journeymen and/or Apprentices. Groundmen may assist, but may not perform any work which would be performed by Linemen if assembled in the air.
There shall be a Journeyman Lineman in each pole setting, erection, grounding, wire and cable-pulling crew of more than three (3) men.

Effective Dates:

12/02/2020

Rate	Fringe	Total
63.56	51.00	114.56

CLASSIFICATIONS:

General Foreman

ELECTRICIAN- UTILITY WORK (SOUTH) **Rates Expiration Date :**

Effective Dates:

12/02/2020

Rate	Fringe	Total
56.43	46.88	103.31

CLASSIFICATIONS:

Foreman

Effective Dates:

12/02/2020

Rate	Fringe	Total
53.46	45.13	98.59

CLASSIFICATIONS:

Small Job Foreman

Effective Dates:

12/02/2020

Rate	Fringe	Total
49.50	42.79	92.29

CLASSIFICATIONS:

Heavy Equipment Operator

Effective Dates:

12/02/2020

Rate	Fringe	Total
49.50	42.79	92.29

CLASSIFICATIONS:

Cable Splicer

Effective Dates:

12/02/2020

Rate	Fringe	Total
49.50	42.79	92.29

CLASSIFICATIONS:

Journeyman Lineman

Effective Dates:

12/02/2020

Rate	Fringe	Total
49.50	42.79	92.29

CLASSIFICATIONS:

Journeyman Welder

ELECTRICIAN- UTILITY WORK (SOUTH) **Rates Expiration Date :**

Effective Dates:

12/02/2020

Rate	Fringe	Total
49.50	42.79	92.29

CLASSIFICATIONS:

Journeyman Painter

Effective Dates:

12/02/2020

Rate	Fringe	Total
39.60	36.94	76.54

CLASSIFICATIONS:

Light Equipment Operator

Effective Dates:

12/02/2020

Rate	Fringe	Total
34.65	34.00	68.65

CLASSIFICATIONS:

Groundman Truck Driver

Effective Dates:

12/02/2020

Rate	Fringe	Total
32.18	32.55	64.73

CLASSIFICATIONS:

Groundman 3rd Year

Effective Dates:

12/02/2020

Rate	Fringe	Total
29.70	31.09	60.79

CLASSIFICATIONS:

Groundman 2nd Year

Effective Dates:

12/02/2020

Rate	Fringe	Total
27.23	29.62	56.85

CLASSIFICATIONS:

Groundman 1st Year

ELECTRICIAN- UTILITY WORK (SOUTH) **Rates Expiration Date :**

Effective Dates:

12/02/2020

Rate	Fringe	Total
21.78	26.40	48.18

CLASSIFICATIONS:

Flagman

HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS **Rates Expiration Date :**

THESE RATES APPLY TO CONSTRUCTION ON NEW TRANS HUDSON TUNNELS ONLY

{For apprentice rates refer to "Laborer - Heavy & General" apprentice rates in any county rate package}

The regular workday consists of 8 hours, starting at 7:00 AM or 8:00 AM.

SHIFT DIFFERENTIALS:
- Shifts must start at 3:00 PM, 4:00 PM, 12:00 AM, or 1:00 AM, to be considered shift work, except when the project owner mandates special hours of work in the job specifications, in which case those hours may be considered shift work.
- When such hours are mandated by the project owner, a shift that begins before midnight on Friday and ends on Saturday morning, or that begins at or after 8:00 PM on Sunday and ends on Monday morning may be paid at the shift differential rate.
- Shifts shall receive an additional $3.00 per hour.

OVERTIME:
- Hours in excess of 8 per day, Monday through Friday, or outside of the regular workday that are not shift work, and all hours on Saturdays, shall be paid at time and one-half the hourly rate. All hours on Sundays and holidays shall be paid at double the hourly rate.
- Four 10-hour days may be worked, Monday through Thursday, at straight time, with Friday used as a make-up day for a day lost to inclement weather. If Friday is not a make-up day, all hours on Friday shall be paid at time and one-half the hourly rate.

RECOGNIZED HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, July 4th, Labor Day, Presidential Election Day, Veterans' Day, Thanksgiving Day, Christmas Day. Sunday holidays observed the following Monday. Veterans Day may be substituted for the day after Thanksgiving. However, in the trading of Veterans Day for the day after Thanksgiving, if overtime is worked on Veterans Day, it shall be paid at double the hourly rate.

Hazardous Waste Work:
-where Level A, B, or C protection is required: + $3.00/hr
-other Hazardous Waste site: + $1.00/hr

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
69.38	33.23	102.61	104.31	107.86	111.19

CLASSIFICATIONS:

Walking Boss & Superintendent

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
68.93	33.23	102.16	103.86	107.41	110.74

CLASSIFICATIONS:

Heading Foreman, Shaft Foreman, Rod Foreman, Electrical Foreman, Rigging Foreman

HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS **Rates Expiration Date :**

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
68.18	33.23	101.41	103.11	106.66	109.99

CLASSIFICATIONS:

Iron Foreman, Caulking Foreman, Form Foreman, Cement Finishing Foreman, Concrete Foreman, Track Foreman, Clean-up Foreman, Grout Foreman

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
71.93	33.23	105.16	106.86	110.41	113.74

CLASSIFICATIONS:

Blaster

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
67.35	33.23	100.58	102.28	105.83	109.16

CLASSIFICATIONS:

Top Labor Foreman

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
66.83	33.23	100.06	101.76	105.31	108.64

CLASSIFICATIONS:

Skilled Men (including Caulker, Powder Carrier, all other skilled men)
Skilled Men (including Miner, Drill Runner, Iron Man, Conveyor Man, Maintenance Man, Safety Miner, Rigger, Block Layer, Cement Finisher, Rod Man)

Effective Dates:

03/03/2021			09/01/2021	03/01/2022	03/01/2023
Rate	Fringe	Total	Total	Total	Total
66.60	33.23	99.83	101.53	105.08	108.41

CLASSIFICATIONS:

Semi-Skilled Men (including Bell or Signal Man top or bottom, Form Worker & Mover, Concrete Worker, Shaft Man, Tunnel Laborer, Caulker's Helper, all other semi-skilled)
Semi-Skilled Men (including Miner's Helper, Chuck Tender, Track Man, Nipper, Brake Man, Derail Man, Cable Man, Hose Man, Gravel Man, Form Man)

HEAVY & GENERAL LABORERS- NEW TRANS HUDSON TUNNELS **Rates Expiration Date :**

Effective Dates:

03/03/2021			**09/01/2021**	**03/01/2022**	**03/01/2023**
Rate	Fringe	Total	Total	Total	Total
66.00	33.23	99.23	100.93	104.48	107.81

CLASSIFICATIONS:

All others (including Powder Watchman, Change House Attendant, Top Laborer, Job Steward)

"General Decision Number: NJ20210033 04/02/2021

Superseded General Decision Number: NJ20200033

State: New Jersey

Construction Type: Building

County: Hudson County in New Jersey.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.95 for calendar year 2021 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.95 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/01/2021
1	04/02/2021

ASBE0032-008 09/19/2017

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (Includes the application of all insulating materials, protective coverings, coatings and finishings to all types of mechanical systems; also, the application of firestopping material to openings and penetrations in walls, floors, ceilings and curtain walls; also, all lead		

abatement).....$ 47.99 30.51

BRNJ0002-014 11/01/2019

	Rates	Fringes
BRICKLAYER (Including Caulking, Cleaning and Pointing)	$ 43.56	32.50

Work on high stacks: 22% per hour additional.

BRNJ0002-016 11/01/2019

	Rates	Fringes
MASON - STONE	$ 43.56	32.50

Work on high stacks: 22% per hour additional.

BRNJ0007-003 07/16/2018

	Rates	Fringes
Marble setter	$ 58.91	36.47

BRNJ0007-022 06/03/2018

	Rates	Fringes
Tile finisher	$ 44.46	30.16
Tile setter	$ 57.71	33.47

Tile finisher:
Work grouting all epoxy: $10.00 additional per day.

CARP0006-009 11/01/2018

	Rates	Fringes
CARPENTER (Scaffold Builder)	$ 49.51	57%

The first sixty feet at the regular rate, 10% per hour additional for each additional fifty feet thereafter.

CARP0006-010 11/01/2018

	Rates	Fringes
CARPENTER Including Acoustical Ceiling Installation, Drywall Hanging, Formwork, Batt and Blown Insulation	$ 49.51	57%

CARP0029-008 11/01/2018

	Rates	Fringes

Soft floor layer.....$ 49.51 57%

CARP0715-007 05/01/2020

	Rates	Fringes
Millwright	$ 51.58	58%+0.25

Work of erection and dismantling of elevators and towers, such as concrete conveyors and temporary material elevators, scaffolding or other structures to be used as scaffolding inside or outside of buildings: the first sixty feet at the regular rate, 10% per hour additional for each additional fifty feet thereafter.

ELEC0164-006 06/03/2019

	Rates	Fringes
ELECTRICIAN (Including Low Voltage Wiring)		
Cable splicer	$ 63.10	61.5%
Electrician	$ 55.64	61.5%

Work on line voltage of 440 or 480 volts: 10% per hour additional.

Work from trusses, scaffolds, frames, ladders and poles, 40 ft. or more above the ground or floor (does not include work from a manlift): 20% per hour additional.

Work on radio towers, transmission towers and smokestacks: 21% per hour additional.

ENGI0825-020 07/01/2018

	Rates	Fringes
Power equipment operators:		
GROUP 1	$ 51.77	30.45
GROUP 2	$ 50.18	30.45
GROUP 3	$ 48.27	30.45
GROUP 4	$ 46.64	30.45
GROUP 5	$ 44.93	30.45

Hazardous waste removal work:
Work on a state or federally designated hazardous waste site, where the worker is in direct contact with hazardous material, and when personal protective equipment is required for respiratory, skin and eye protection: 20% per hour additional.

PAID HOLIDAYS:
New Year's Day, Washington's Birthday observed, Memorial Day, Independence Day, Labor Day, Presidential Election Day, Veteran's Day, Thanksgiving Day and Christmas Day; provided

1) that the worker works three of the preceding five work days before the holiday; or, the work day before the holiday and the work day after the holiday; and, 2) that the worker works the work day before and the work day after the holiday.

DEFINITION OF GROUPS:

GROUP 1:
Backhoe, Including Backhoe Track; Boom; Concrete Paving Machine; Crane (all types, including overhead and straddle traveling type); Drill (down-the-hole drill, rotary drill, self-propelled hydraulic drill, self-powered drill); Elevating Grader; Excavator; Front End Loader (5 cu. yd. and over); Piledriver (length of boom, including length of leads, shall determine premium rate applicable); Trencher

GROUP 2:
Backhoe Loader Combo; Concrete Pumper; Grader/Blade (Finish); Hoist; Hydraulic Crane, 10 Tons and under; Front End Loader (2 cu. yd. but less than 5 cu. yd.); Scraper; Side Boom

GROUP 3:
Asphalt Spreader; Bulldozer;Compressor(2 or 3) (in Battery) (within 100 ft.); Forklift; Front End Loader (1 cu. yd. and over but less than 2 cu. yd.); Lull; Mechanic; Paver, Asphalt; Roller, Blacktop; Tractor;

GROUP 4:
Bobcat/Skid Loader; Compressor (Single); Farm Tractor; Front End Loader (under 1 cu. yd.); Hydroseeder; Roller, Grade; Pump, Hydraulic

GROUP 5:
Oiler

IRON0011-012 07/01/2020

	Rates	Fringes
Ironworkers:		
Reinforcing	$ 43.14	46.77
Structural, Ornamental	$ 45.44	46.77

LABO0008-001 05/01/2011

	Rates	Fringes
Asbestos Removal Laborer	$ 28.37	21.62

The removal, abatement, enclosure and decontamination of personal protective equipment, chemical protective clothing and machinery relating to asbestos and/or toxic and hazardous waste or materials which shall include but not necessarily be limited to: the erection, moving, servicing and dismantling of all enclosures, scaffolding and barricades; the operation of all tools and equipment

normally used in the removal or abatement of asbestos and toxic or hazardous waste or materials; the labeling, bagging, cartoning, crating, or other packaging of materials for disposal; the clean-up of the worksite; and all other work incidental to the removal, abatement, encapsulation, enclosure, and decontamination of asbestos and toxic or hazardous waste or materials; and, in addition, all work tasks involved in the maintenance and operation of energy resource recovery plants (co-generation plants)

LABO0222-006 07/01/2012

	Rates	Fringes
LABORER		
MASON TENDER:		
Brick/Cement/Concrete	$ 29.85	23.07

LABO0222-010 07/01/2012

	Rates	Fringes
Laborers:		
Asphalt Shoveler, Asphalt Spreader, Common or General Laborer, Landscape Laborer, Power Tool Operator and Screedman	$ 29.35	23.07

PAIN0711-018 05/01/2020

	Rates	Fringes
DRYWALL FINISHER/TAPER	$ 40.39	26.26

PAIN0711-019 05/01/2017

	Rates	Fringes
PAINTER (Brush & Roller)	$ 39.25	22.66
PAINTER (Spray)	$ 40.28	19.98

PAIN0711-021 05/01/2017

	Rates	Fringes
Glazier	$ 44.81	23.16

Work welding or using a cutting torch:
$1.00 per hour additional.

Work on a swing stage scaffold; on a pipe scaffold providing the working height of the platform is 30 ft. or above; and on motorized lifts provided that the height of the lift platform is above the second floor or above thirty feet:
$1.00 per hour additional.

PLAS0029-002 05/01/2020

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER	$ 48.80	27.90

PLAS0029-003 05/01/2020

	Rates	Fringes
PLASTERER	$ 48.80	27.90

PLUM0024-001 05/01/2019

	Rates	Fringes
PLUMBER (Excluding HVAC Pipe Installation)	$ 55.19	35.45

PLUM0274-001 05/01/2020

HUDSON COUNTY (City of Bayonne; Borough of East Newark; Towns of Guttenberg and Harrison; Cities of Hoboken and Jersey City; Town of Kearney; Township of North Bergen; Town of Secaucus; City of Union City; Township of Weehawken; Town of West New York)

	Rates	Fringes
PIPEFITTER (Including HVAC Pipe Installation)	$ 55.57	37.62

ROOF0004-007 06/01/2020

	Rates	Fringes
ROOFER (Includes All Types of Roofs)	$ 39.77	28.03

ROOF0008-005 07/01/2018

HUDSON COUNTY (east of the Hackensack River):

	Rates	Fringes
ROOFER (All Types)	$ 42.50	26.37

* SFNJ0696-006 01/01/2021

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers)	$ 62.12	31.75

SHEE0025-005 10/01/2018

	Rates	Fringes
SHEET METAL WORKER (Including		

HVAC Duct Installation).....$ 42.60 44.20

TEAM0560-002 05/01/2020

	Rates	Fringes
TRUCK DRIVER		
Dump Truck	$ 39.25	37.68
Off the Road Truck	$ 39.40	37.68

Hazardous waste removal work:

Work on a state or federally designated hazardous waste site, where the worker is in direct contact with hazardous material, and when personal protective equipment is required for respiratory, skin and eye protection: $3.00 per hour additional.

Work on a state or federally designated hazardous waste site, in a zone requiring Level A personal protection for any workers other than the truck driver: $3.00 per hour additional.

Work on a state or federally designated hazardous waste site, in a zone requiring Level B, C or D personal protection for any workers other than the truck driver: $1.00 per hour additional.

PAID HOLIDAYS:

New Year's Day, President's Day, Decoration Day, Independence Day, Labor Day, Presidential Election Day, Veteran's Day, Thanksgiving Day and Christmas Day; provided that the employee has been assigned to work, or, ""shapes"", one day of the calendar week during which the holiday occurs.

DEFINITION OF GROUPS:

GROUP 1:

Driver of the following types of vehicle: dump; flat; float; pick-up; container hauler; fuel; water sprinkler; road oil; stringer bead; hot pass; bus; dumpcrete; transit mixer; agitator mixer; half track; winch truck; side-o-matic; dynamite; powder; x-ray; welding; skid; jeep; station wagon; stringer; A-frame; dual-purpose truck; truck with mechanical tailgate; asphalt distributor; batch truck; seeding; mulching; fertilizing; air compressor truck (in transit); parts chaser; escort; scissor; hi-lift; telescope; concrete breaker; gin pole; stone, sand, asphalt distributor and spreader; nipper; fuel truck (driver of fuel truck including handling of hose and nozzle - entire unit); team driver; vacuum or vac-all trucks (entire unit); skid truck (debris container - entire unit); concrete mobile truck (entire unit); beltcrete truck; pumpcrete truck; line truck; reel truck; wrecker; tow truck; utility truck; tack truck; cardex person; driver on the following types of vehicle: Broyhill coal tar epoxy truck, Littleford bituminous distributor, slurry seal truck or vehicle,

thiokol track master pick-up (swamp cat pick-up); bucket loader dump truck and any rubber-tired tractor used in pulling and towing farm wagons and trailers of any description; on-site repair shop

GROUP 2:
Driver of 3-axle materials truck and float

GROUP 3:
Driver of all Euclid-type vehicles: Euclid; International Harvester; Wabco; Caterpillar; Koehring, tractor and wagon; dumpster; dump; bottom, rear and side dump; carry-all and scraper (not self-loading, loading over the top); water sprinkler trailer; water pull and similar types of vehicle; driver of tractor and trailer-type vehicle: flat, float, I-beam, low bed, water sprinkler, bituminous, transit mix, road oil, fuel, bottom dump hopper, rear dump, office, shanty, epoxy, asphalt, agitator mixer, mulching, stringing, seeding, fertilizing, pole, spread bituminous distributor, water pull (entire unit), tractor trailer, reel trailer, and similar types of vehicle

GROUP 4:
Winch trailer driver

SUNJ2004-009 01/02/2009

	Rates	Fringes
ELEVATOR MECHANIC	$ 40.21	11.22
LABORER: Pipelayer	$ 38.85	0.14

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after

award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those

classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

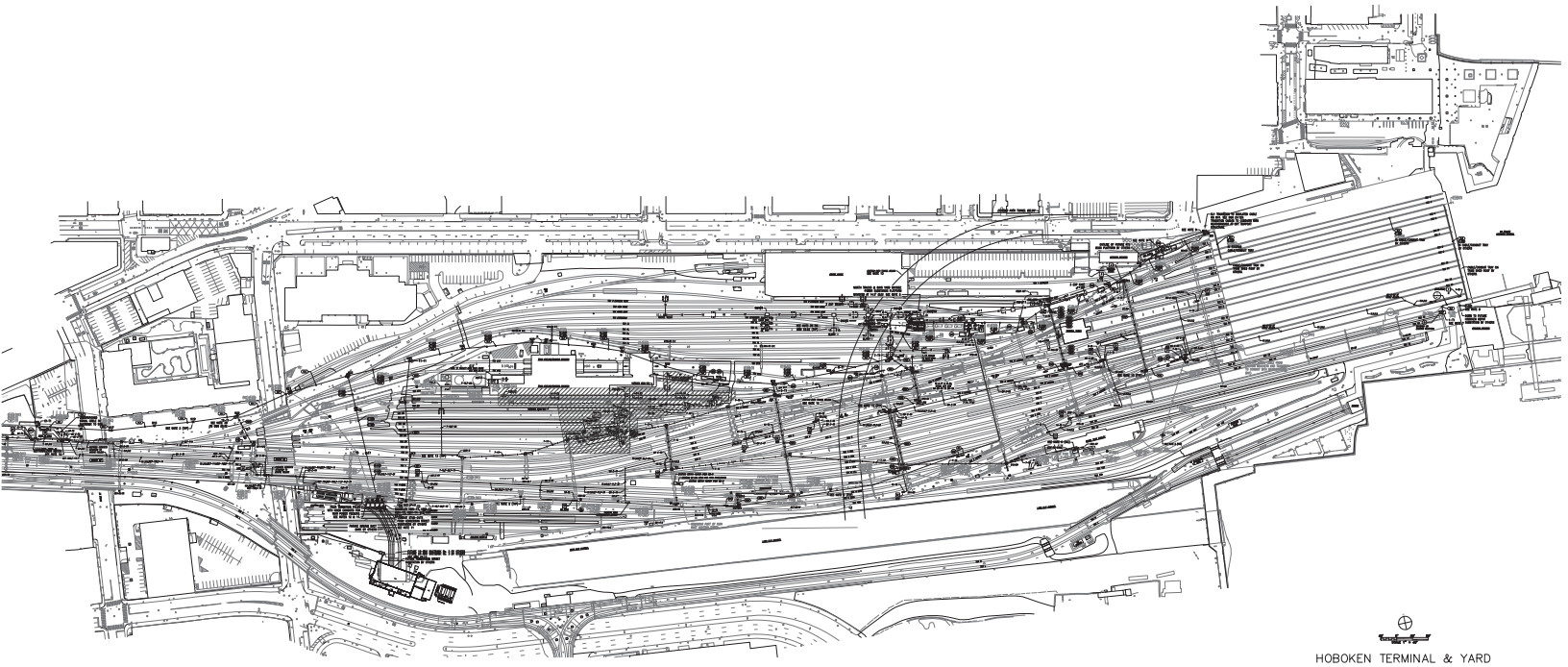
3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

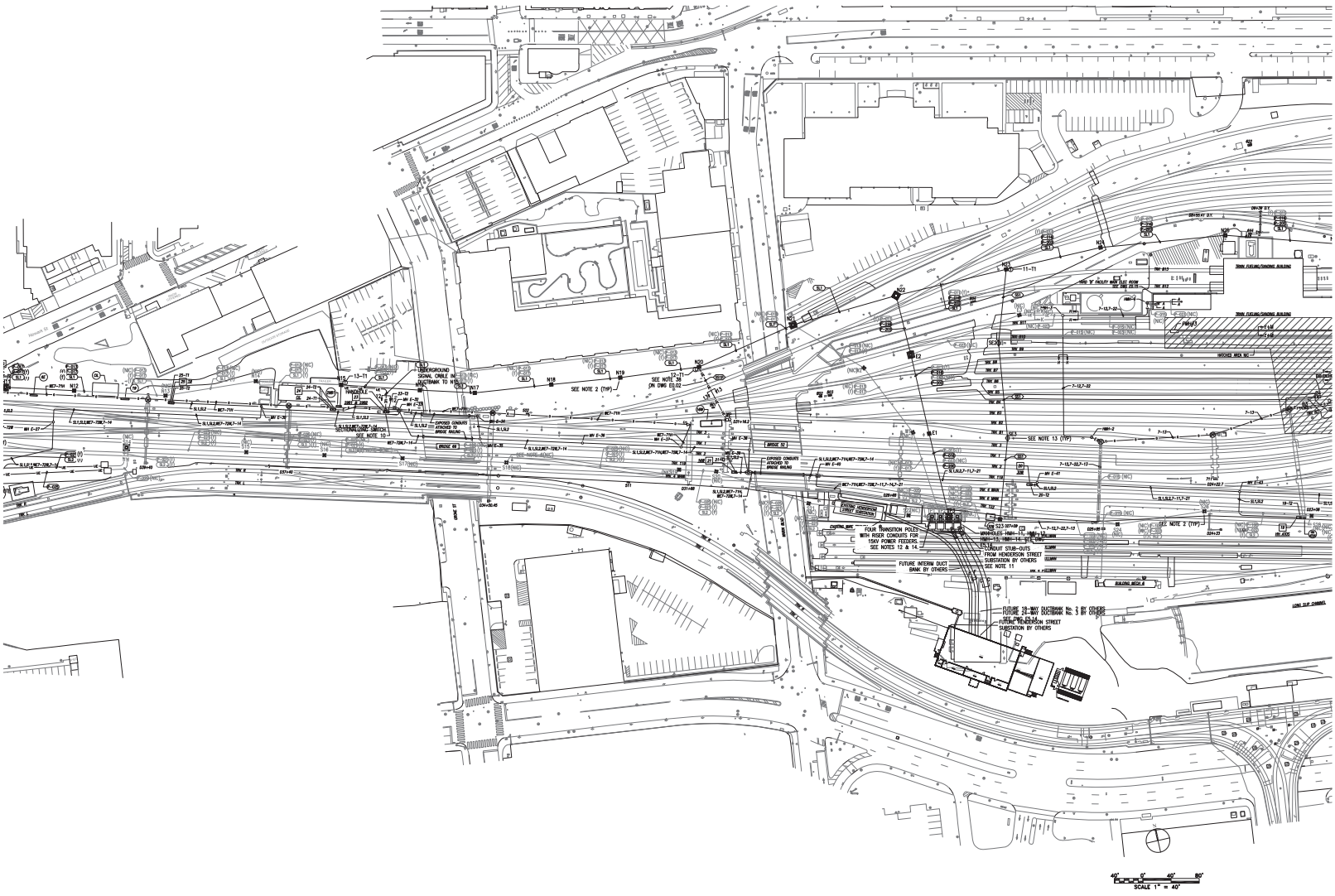
4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

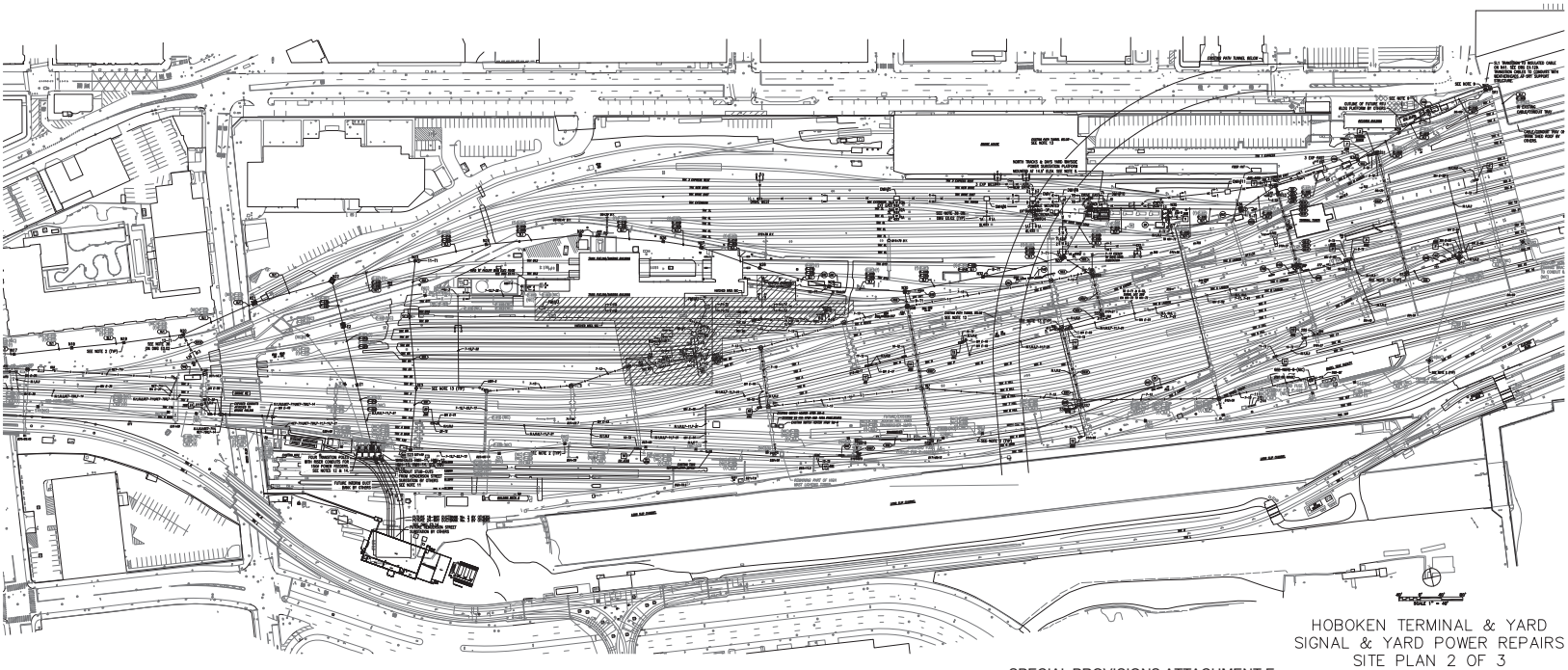


HOBOKEN TERMINAL & YARD
SIGNAL & YARD POWER REPAIRS
OVERALL SITE PLAN
JAN 10, 2020
SPECIAL PROVISIONS ATTACHMENT C



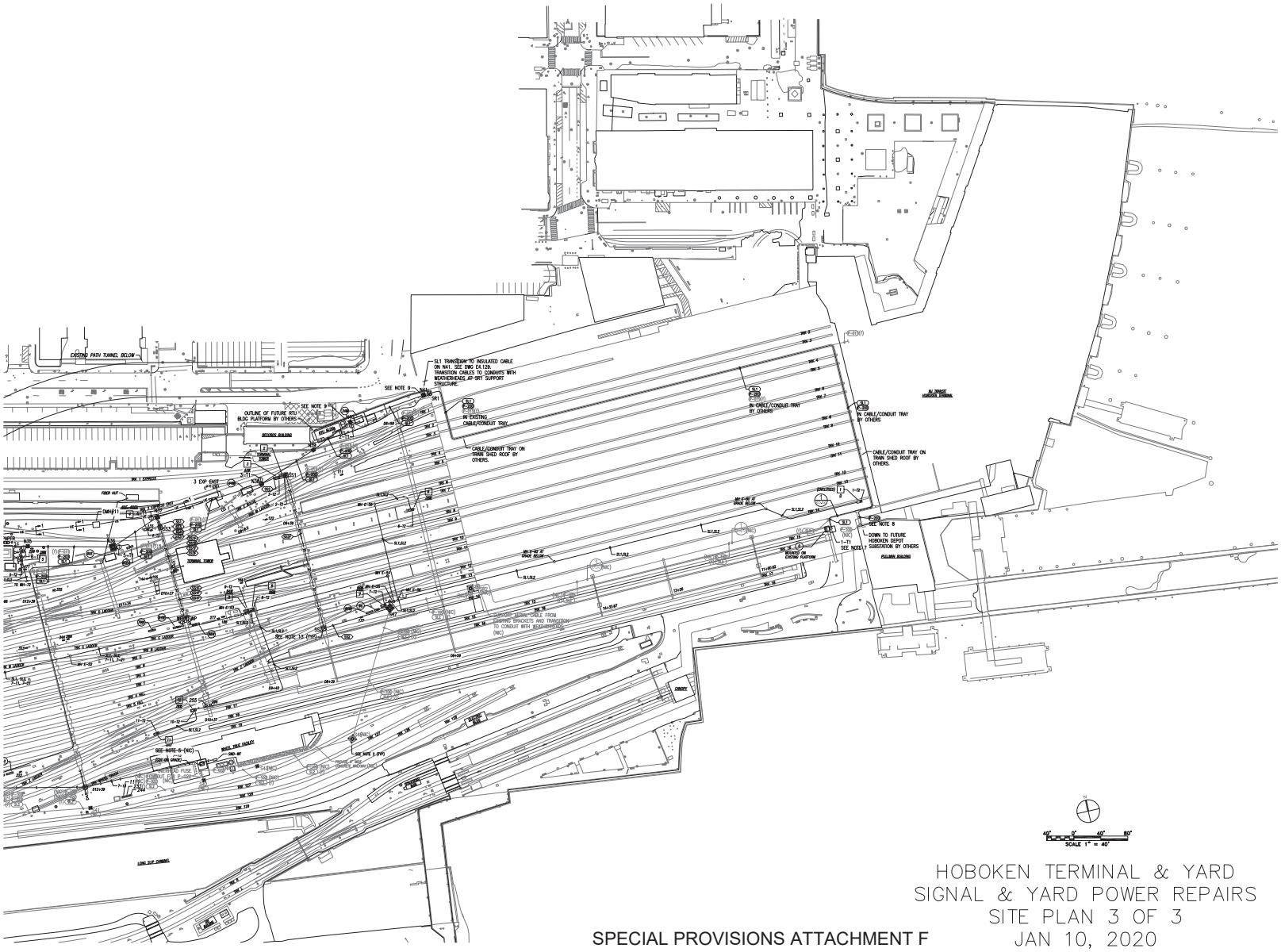
HOBOKEN TERMINAL & YARD
SIGNAL & YARD POWER REPAIRS
SITE PLAN 1 OF 3
JAN 10, 2020

SPECIAL PROVISIONS ATTACHMENT D



HOBOKEN TERMINAL & YARD
SIGNAL & YARD POWER REPAIRS
SITE PLAN 2 OF 3
JAN 10, 2020

SPECIAL PROVISIONS ATTACHMENT E



HOBOKEN TERMINAL & YARD
SIGNAL & YARD POWER REPAIRS
SITE PLAN 3 OF 3
JAN 10, 2020

SPECIAL PROVISIONS ATTACHMENT F

EXECUTIVE ORDER NO. 103

WHEREAS, Coronavirus disease 2019 ("COVID-19") is a contagious, and at times fatal, respiratory disease caused by the SARS-CoV-2 virus; and

WHEREAS, COVID-19 is responsible for the 2019 novel coronavirus outbreak, which was first identified in Wuhan, the People's Republic of China in December 2019 and quickly spread to the Hubei Province and multiple other countries; and

WHEREAS, symptoms of the COVID-19 illness include fever, cough, and shortness of breath, which may appear in as few as two or as long as 14 days after exposure, and can spread from person to person via respiratory droplets produced when an infected person coughs or sneezes; and

WHEREAS, on January 30, 2020, the International Health Regulations Emergency Committee of the World Health Organization declared the outbreak a "public health emergency of international concern," which means "an extraordinary event which is determined to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response," and thereafter raised its global risk assessment of COVID-19 from "high" to "very high"; and

WHEREAS, on January 31, 2020, the United States Department of Health and Human Services Secretary declared a public health emergency for the United States to aid the nation's healthcare community in responding to COVID-19; and

WHEREAS, as of March 9, 2020, according to the Centers for Disease Control and Prevention ("CDC"), there were more than 114,000 confirmed cases of COVID-19 worldwide, with over 4,000 of those cases having resulted in death; and

WHEREAS, as of March 9, 2020, there were more than 500 confirmed cases of COVID-19 in the United States, with 22 of those cases having resulted in death; and

WHEREAS, as of March 9, 2020, there were 11 presumed positive cases of COVID-19 in New Jersey, with 24 additional "Persons Under Investigation" spread across the counties of Bergen, Camden, Cumberland, Essex, Hunterdon, Middlesex, Monmouth, Passaic, Union, and Sussex; and

WHEREAS, as of March 9, 2020, there were 142 positive cases of COVID-19 in the State of New York and seven presumptive positive cases in the Commonwealth of Pennsylvania; and

WHEREAS, the CDC expects that additional cases of COVID-19 will be identified in the coming days, including more cases in the United States, and that person-to-person spread is likely to continue to occur; and

WHEREAS, if COVID-19 spreads in New Jersey at a rate comparable to the rate of spread in other affected areas, it will greatly strain the resources and capabilities of county and municipal governments, including public health agencies, that provide essential services for containing and mitigating the spread of contagious diseases, such as COVID-19, and the situation may become too large in scope to be handled in its entirety by the normal county and municipal operating services in some parts of this State, and this situation may spread to other parts of the State; and

WHEREAS, the spread of COVID-19 may make it difficult or impossible for citizens to obtain consumer goods and other necessities of life due to supply chain disruption and price increases, as well as hamper the delivery of essential services such as police, fire, and first aid; and

WHEREAS, the State's public bidding act, N.J.S.A. 52:34-6 et seq., provides a public exigency exemption, N.J.S.A. 52:34-10(b), that in the event of a threat to the life, health, or safety to the public, advertised bidding is not required to obtain those

goods and services necessary to address the public exigency where the Division of Purchase of Property provides preapproval in accordance with Treasury Circular 18-14-DPP; and

WHEREAS, in the event of a declared emergency pursuant to Treasury Circular 19-10-DPP, the threshold for delegated purchasing by individual State Departments is raised to $100,000 such that purchases at or below that amount do not require prior approval or action by DPP; and

WHEREAS, the spread of COVID-19 may disrupt the timely delivery of State contracted goods or services, the immediate delivery and fulfillment of which is necessary for the life, safety, or health of the public; and

WHEREAS, the State of New Jersey has been working closely with the CDC, local health departments, and healthcare facilities to monitor, plan for and mitigate the spread of COVID-19 within the State; and

WHEREAS, through Executive Order No. 102, which I signed on February 3, 2020, I created the State's Coronavirus Task Force, chaired by the Commissioner of the New Jersey Department of Health ("DOH"), in order to coordinate the State's efforts to appropriately prepare for and respond to the public health hazard posed by COVID-19; and

WHEREAS, it is critical to prepare for and respond to suspected or confirmed COVID-19 cases in New Jersey, to implement appropriate measures to mitigate the spread of COVID-19, and to prepare in the event of an increasing number of individuals requiring medical care or hospitalization; and

WHEREAS, the State of New Jersey also acts as an employer with tens of thousands of employees, and the spread of COVID-19 requires preparedness for staffing shortages and flexibility in work rules to ensure that its employees can fully comply with all

medically appropriate measures while also ensuring the continuous delivery of State services performed by Executive branch agencies; and

WHEREAS, the continuous delivery of services at the county and municipal level performed by those governments and their employees is also essential; and

WHEREAS, the spread of COVID-19 within New Jersey constitutes an imminent public health hazard that threatens and presently endangers the health, safety, and welfare of the residents of one or more municipalities or counties of the State; and

WHEREAS, it is necessary and appropriate to take action against this public health hazard to protect and maintain the health, safety, and welfare of New Jersey residents and visitors; and

WHEREAS, the facts as set forth above and consultation with the Commissioner of DOH confirms that there exists a public health emergency in the State; and

WHEREAS, New Jersey's Consumer Fraud Act, N.J.S.A. 56:8-107 et seq., prohibits excessive price increases during a declared state of emergency, or for 30 days after the termination of the state of emergency; and

WHEREAS, the Constitution and statutes of the State of New Jersey, particularly the provisions of N.J.S.A. 26:13-1 et seq., N.J.S.A. App. A: 9-33 et seq., N.J.S.A. 38A:3-6.1, and N.J.S.A. 38A:2-4 and all amendments and supplements thereto, confer upon the Governor of the State of New Jersey certain emergency powers;

NOW, THEREFORE, I, PHILIP D. MURPHY, Governor of the State of New Jersey, in order to protect the health, safety and welfare of the people of the State of New Jersey, DO DECLARE and PROCLAIM that a Public Health Emergency and State of Emergency exist in the State of New Jersey, and I hereby ORDER and DIRECT the following:

1. I authorize and empower the State Director of Emergency Management, who is the Superintendent of State Police, in conjunction with the Commissioner of DOH, to take any such emergency measures as the State Director may determine necessary, including the implementation of the State Emergency Operations Plan and directing the activation of county and municipal emergency operations plans, in order to fully and adequately protect the health, safety and welfare of the citizens of the State of New Jersey from any actual or potential threat or danger that may exist from the possible exposure to COVID-19. The State Director of Emergency Management, in conjunction with the Commissioner of DOH, is authorized to coordinate the relief effort from this emergency with all governmental agencies, volunteer organizations, and the private sector.

2. The State Director of Emergency Management, in conjunction with the Commissioner of DOH, shall also supervise and coordinate all activities of all State, regional and local political bodies and agencies in order to ensure the most effective and expeditious implementation of this order, and, to this end, may call upon all such agencies and political subdivisions for any assistance necessary.

3. Given the concurrent invocation of both a State of Emergency pursuant to N.J.S.A. App.A.:9-33 et seq. and a Public Health Emergency as contemplated by N.J.S.A. 26:13-1 et seq., I reserve the right as specifically contemplated by N.J.S.A. 26:13-3 to exercise the authority and powers specific to the Emergency Health Powers Act as I deem necessary and appropriate to ensure the public health for New Jersey's residents.

4. It shall be the duty of every person or entity in this State or doing business in this State and of the members of the governing body and every official, employee, or agent of every

political subdivision in this State and of each member of all other governmental bodies, agencies, and authorities in this State of any nature whatsoever, to cooperate fully with the State Director of Emergency Management and the Commissioner of DOH in all matters concerning this state of emergency.

5. The Coronavirus Task Force established under Executive Order No. 102 is continued with the Commissioner of DOH as the chair, and shall provide assistance on the State's efforts preparing for and responding to the public health hazard posed by COVID-19.

6. I authorize and empower the executive head of any agency or instrumentality of the State government with authority to promulgate rules to waive, suspend, or modify any existing rule, where the enforcement of which would be detrimental to the public welfare during this emergency, notwithstanding the provisions of the Administrative Procedure Act or any law to the contrary for the duration of this Executive Order, subject to my prior approval and in consultation with the State Director of Emergency Management and the Commissioner of DOH. Any such waiver, modification, or suspension shall be promulgated in accordance with N.J.S.A. App. A:9-45.

7. All State agencies, and specifically the Departments of Banking and Insurance, Health, Human Services, Education, and the Civil Service Commission are authorized to take appropriate steps to address the public health hazard of COVID-19, including increasing access and eliminating barriers to medical care, protecting the health and well-being of students, and protecting the health and well-being of State, county, and municipal employees while ensuring the continuous delivery of State, county, and municipal services.

8. I authorize and empower the State Director of Emergency Management, in conjunction with the Commissioner of DOH, to order the evacuation of all persons, except for those emergency and governmental personnel whose presence the State Director deems necessary, from any area where their continued presence would present a danger to their health, safety, or welfare because of the conditions created by this emergency.

9. I authorize and empower the State Director of Emergency Management, in conjunction with the Commissioner of DOH, to utilize all property, equipment, and facilities owned, rented, operated, and maintained by the State of New Jersey to house and shelter persons who may need to be evacuated from a residence, dwelling, building, structure, or vehicle during the course of this emergency.

10. I authorize and empower the Adjutant General, in accordance with N.J.S.A. 38A:2-4 and N.J.S.A. 38A:3-6.1, to order to active duty such members of the New Jersey National Guard who, in the Adjutant General's judgment, are necessary to provide aid to those localities where there is a threat or danger to the public health, safety, and welfare and to authorize the employment of any supporting vehicles, equipment, communications, or supplies as may be necessary to support the members so ordered.

11. In accordance with the N.J.S.A. App. A:9-34 and N.J.S.A. App. A:9-51, I reserve the right to utilize and employ all available resources of the State government and of each and every political subdivision of the State, whether of persons, properties, or instrumentalities, and to commandeer and utilize any personal services and any privately-owned property necessary to protect against this emergency.

12. In accordance with N.J.S.A. App. A:9 40, no municipality, county, or any other agency or political subdivision of this State shall enact or enforce any order, rule, regulation, ordinance, or resolution which will or might in any way conflict with any of the provisions of this Order, or which will in any way interfere with or impede the achievement of the purposes of this Order.

13. In accordance with N.J.S.A. App. A:9-34, N.J.S.A. App. A:9-40.6, and N.J.S.A. 40A:14-156.4, no municipality or public or semipublic agency shall send public works, fire, police, emergency medical, or other personnel or equipment into any non-contiguous impacted municipality within this State, nor to any impacted municipality outside this State, unless and until such aid has been directed by the county emergency management coordinator or his or her deputies in consultation with the State Director of Emergency Management in conjunction with the Commissioner of DOH.

14. This Order shall take effect immediately and shall remain in effect until such time as it is determined by me that an emergency no longer exists.

GIVEN, under my hand and seal this 9th day of March, Two Thousand and Twenty, and of the Independence of the United States, the Two Hundred and Forty-Fourth.

[seal]

/s/ Philip D. Murphy

Governor

Attest:

/s/ Matthew J. Platkin

Chief Counsel to the Governor

EXECUTIVE ORDER NO. 104

WHEREAS, through Executive Order No. 102, which I signed on February 3, 2020, I created the State's Coronavirus Task Force, chaired by the Commissioner of the New Jersey Department of Health ("DOH"), in order to coordinate the State's efforts to appropriately prepare for and respond to the public health hazard posed by Coronavirus disease 2019 ("COVID-19"); and

WHEREAS, in light of the dangers posed by COVID-19, I issued Executive Order No. 103 (2020) on March 9, 2020, the facts and circumstances of which are adopted by reference herein, which declared both a Public Health Emergency and State of Emergency; and

WHEREAS, in accordance with N.J.S.A. App. A:9-34 and -51, I reserved the right to utilize and employ all available resources of State government to protect against the emergency created by COVID-19; and

WHEREAS, in accordance with N.J.S.A App. A:9-40, I declared that, due to the State of Emergency, no municipality, county, or any agency or political subdivision of this State shall enact or enforce any order, rule, regulation, ordinance, or resolution which will or might in any way conflict with any of the provisions of my Executive Orders, or which will in any way interfere with or impede their achievement; and

WHEREAS, on March 11, 2020, COVID-19 was declared to be a global pandemic by the World Health Organization; and

WHEREAS, on March 13, 2020, the President of the United States declared a national emergency pursuant to his constitutional and statutory powers, including those granted by Sections 201 and 301 of the National Emergencies Act (50 U.S.C. § 1601, *et seq.*) and consistent with Section 1135 of the Social Security Act, as amended (42 U.S.C. § 1320b-5); and

WHEREAS, the President of the United States also determined on March 13, 2020, that the COVID-19 pandemic was of sufficient severity and magnitude to warrant an emergency determination under Section 501(b) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. § 5121-5207; and

WHEREAS, as of March 16, 2020, according to the Centers for Disease Control and Prevention ("CDC"), there were more than 130,000 confirmed cases of COVID-19 worldwide, with over 6,500 of those cases having resulted in death; and

WHEREAS, as of March 16, 2020, there were more than 4,900 confirmed cases of COVID-19 in the United States, with 67 of those cases having resulted in death; and

WHEREAS, as of March 16, 2020, there were 178 positive cases of COVID-19 in New Jersey, spread across numerous counties; and

WHEREAS, social mitigation strategies for combatting COVID-19 requires every effort to reduce the rate of community spread of the disease; and

WHEREAS, as of March 15, 2020, the CDC recommends that for the next eight weeks, gatherings of 50 or more people be canceled or postponed throughout the United States; and

WHEREAS, public and private preschool programs, elementary and secondary schools, and institutions of higher education are locations where significant numbers of students, educators, and support staff gather, often in close proximity in classrooms, hallways, cafeterias, and gymnasiums; and

WHEREAS, suspending in-person preschool programs, K-12 education, and in-person instruction at institutions of higher education are part of the State's mitigation strategy to combat COVID-19 and reduce the rate of community spread; and

WHEREAS, my Administration is committed to ensuring that all students will continue to have access to a quality education, in addition to school meals that are provided or subsidized for students from low-income families; and

WHEREAS, casinos, racetracks, gyms, fitness centers, movie theaters, performing arts centers, other concert venues, nightclubs, and other entertainment centers, which are vital to the economic health of the State, are also locations where large numbers of individuals gather in close proximity; and

WHEREAS, many individuals also come into contact with common surfaces at gyms, fitness centers, and other entertainment centers; and

WHEREAS, suspending operations at these businesses is part of the State's mitigation strategy to combat COVID-19 and reduce the rate of community spread; and

WHEREAS, even on casino floors, where slot machines or other casino games may be several feet apart, many individuals come into contact with common surfaces; and

WHEREAS, in contrast to gaming at brick-and-mortar facilities, online gaming provides a safe mode of entertainment during a time when physical proximity to other individuals can be dangerous; and

WHEREAS, the CDC has advised that COVID-19 spreads most frequently through person-to-person contact when individuals are within six feet or less of one another; and

WHEREAS, as a result, the CDC has recommended that individuals practice "social distancing" to prevent community spread of the virus; and

WHEREAS, the CDC has defined social distancing as the practice of "remaining out of congregate settings, avoiding mass gatherings, and maintaining distance (approximately 6 feet or 2 meters) from others when possible"; and

WHEREAS, bars and restaurants are locations where significant numbers of individuals gather in close proximity, making adherence to social distancing protocols impossible or impracticable; and

WHEREAS, to mitigate community spread of COVID-19, it is necessary to limit the unnecessary movement of individuals in and around their communities and person-to-person interactions in accordance with CDC and DOH guidance; and

WHEREAS, on March 15, 2020, the Director of the National Institute of Allergy and Infectious Diseases, Dr. Anthony Fauci, called for "a dramatic diminution of the personal interaction that we see in restaurants and in bars," and recommended pursuing "[w]hatever it takes to do that"; and

WHEREAS, the provision of take-out and delivery services do not pose the same danger of widespread person-to-person contact while still preserving necessary food delivery services for New Jersey residents; and

WHEREAS, narrowing scope of service or hours of operation for restaurants and certain retail establishments permits individuals to access food, clothing, and other essential materials while also limiting unnecessary person-to-person contact; and

WHEREAS, it is critical to ensure that law enforcement resources, particularly those that might otherwise be required to respond to late-night incidents, not be unnecessarily diverted from responding to COVID-19 related issues and maintaining public safety; and

WHEREAS, the Constitution and statutes of the State of New Jersey, particularly the provisions of N.J.S.A. 26:13-1 et seq., N.J.S.A. App. A: 9-33 et seq., N.J.S.A. 38A:3-6.1, and N.J.S.A. 38A:2-4 and all amendments and supplements thereto, confer upon the Governor of the State of New Jersey certain emergency powers, which I have invoked;

NOW, THEREFORE, I, PHILIP D. MURPHY, Governor of the State of New Jersey, by virtue of the authority vested in me by the Constitution and by the Statutes of this State, do hereby ORDER and DIRECT:

1. All gatherings of persons in the State of New Jersey shall be limited to 50 persons or fewer, excluding normal operations at airports, bus and train stations, medical facilities, office environments, factories, assemblages for the purpose of industrial or manufacturing work, construction sites, mass transit, or the purchase of groceries or consumer goods.

2. All public, private, and parochial preschool program premises, and elementary and secondary schools, including charter and renaissance schools, shall be closed to students beginning on Wednesday, March 18, 2020, and shall remain closed as long as this Order remains in effect.

3. All institutions of higher education shall cease in-person instruction beginning on Wednesday, March 18, 2020, and shall cease such in-person instruction as long as this Order remains in effect. The Secretary of the Office of Higher Education shall have the authority to grant a waiver to allow in-person instruction to students on a case-by-case basis where a compelling rationale to allow such access exists. The Secretary of the Office of Higher Education shall coordinate with institutions of higher education to determine appropriate student housing conditions for those students who reside in on-campus housing as their primary residence.

4. The Commissioner of the Department of Education ("DOE"), in consultation with the Commissioner of DOH, shall be authorized to permit schools to remain open on a limited basis for the provision of food or other essential, non-educational services, or for educational or child care services if needed in emergency situations after consultation with the Commissioner of DOH. The Commissioner of DOE shall also have the authority to close any other career or

training facilities over which he has oversight, after consultation with the Commissioner of DOH.

5. The Commissioner of DOE shall continue working with each public school district, and private and parochial schools as appropriate, to ensure that students are able to continue their educations during this time period through appropriate home instruction. Local school districts, charter schools, and renaissance schools, in consultation with the Commissioner of DOE, shall have the authority and discretion to determine home instruction arrangements as appropriate on a case-by-case basis to ensure all students are provided with appropriate home instruction, taking into account all relevant constitutional and statutory obligations.

6. The Secretary of the Department of Agriculture, in conjunction with the Commissioner of DOE, shall take all necessary actions to ensure that all students eligible for free or reduced meals shall continue to receive the services or supports necessary to meet nutritional needs during closures.

7. The following facilities are ordered closed to members of the public, effective 8:00 p.m. on Monday, March 16, 2020. These facilities are to remain closed to the public for as long as this Order remains in effect. The State Director of Emergency Management, who is the Superintendent of State Police, shall have the discretion to make additions, amendments, clarifications, exceptions, and exclusions to this list:

a. Casino gaming floors, including retail sports wagering lounges, and casino concert and entertainment venues. Online and mobile sports and casino gaming services may continue to be offered notwithstanding the closure of the physical facility.

b. Racetracks, including stabling facilities and retail sports wagering lounges. Mobile sports wagering

services may continue to be offered notwithstanding the closure of the physical facility.

c. Gyms and fitness centers and classes.

d. Entertainment centers, including but not limited to, movie theaters, performing arts centers, other concert venues, and nightclubs.

8. Other non-essential retail, recreational, and entertainment businesses must cease daily operations from 8:00 p.m. until 5:00 a.m.. From 5:00 a.m. until 8:00 p.m., these businesses may remain open if they limit their occupancy to no more than 50 persons and adhere to social distancing guidelines. Examples of essential businesses excluded from this directive include: grocery/food stores, pharmacies, medical supply stores, gas stations, healthcare facilities and ancillary stores within healthcare facilities. The State Director of Emergency Management, who is the Superintendent of State Police, shall have the discretion to make additions, amendments, clarifications, exceptions, and exclusions to the list of essential businesses and to the timelines applicable to operating hours.

9. All restaurants, dining establishments, and food courts, with or without a liquor license, all bars, and all other holders of a liquor license with retail consumption privileges, are permitted to operate their normal business hours, but are limited to offering only food delivery and/or take-out services. If alcoholic beverages are to be sold from a restaurant, dining establishment or bar with a liquor license, such sales shall be limited to original containers sold from the principal public barroom. All retail sales of alcoholic beverages by limited brewery licensees, restricted brewery licensees, plenary and farm winery licensees (and associated salesrooms), craft distillery licensees and cidery and meadery licensees must be in original containers and must be delivered by licensed entities and/or by customer pick up.

10. In accordance with N.J.S.A. App. A:9-33, et seq., as supplemented and amended, the State Director of Emergency Management, who is the Superintendent of State Police, through the police agencies under his control, to determine and control the direction of the flow of vehicular traffic on any State or interstate highway, municipal or county road, and any access road, including the right to detour, reroute, or divert any or all traffic and to prevent ingress or egress from any area that, in the State Director's discretion, is deemed necessary for the protection of the health, safety, and welfare of the public, and to remove parked or abandoned vehicles from such roadways as conditions warrant.

11. The Attorney General, pursuant to the provisions of N.J.S.A. 39:4-213, shall act through the Superintendent of State Police, to determine and control the direction of the flow of vehicular traffic on any State or interstate highway, municipal or county road, and any access road, including the right to detour, reroute, or divert any or all traffic, to prevent ingress or egress, and to determine the type of vehicle or vehicles to be operated on such roadways. I further authorize all law enforcement officers to enforce any such order of the Attorney General or Superintendent of State Police within their respective municipalities.

12. No municipality, county, or any other agency or political subdivision of this State shall enact or enforce any order, rule, regulation, ordinance, or resolution which will or might in any way conflict with any of the provisions of this Executive Order, or which will in any way interfere with or impede its achievement.

13. It shall be the duty of every person or entity in this State or doing business in this State and of the members of the governing body and every official, employee, or agent of every political subdivision in this State and of each member of all other governmental bodies, agencies, and authorities in this State of any

nature whatsoever, to cooperate fully in all matters concerning this Executive Order.

14. Penalties for violations of this Executive Order may be imposed under, among other statutes, N.J.S.A. App. A:9-49 and -50.

15. This Order shall take effect immediately and shall remain in effect until revoked or modified by the Governor, who shall consult with the Commissioner of DOH as appropriate.

GIVEN, under my hand and seal this 16th day of March, Two Thousand and Twenty, and of the Independence of the United States, the Two Hundred and Forty-Fourth.

[seal]

/s/ Philip D. Murphy

Governor

Attest:

/s/ Matthew J. Platkin

Chief Counsel to the Governor

EXECUTIVE ORDER NO. 107

WHEREAS, through Executive Order No. 102 (2020), which I signed on February 3, 2020, I created the State's Coronavirus Task Force, chaired by the Commissioner of the New Jersey Department of Health ("DOH"), in order to coordinate the State's efforts to appropriately prepare for and respond to the public health hazard posed by Coronavirus disease 2019 ("COVID-19"); and

WHEREAS, in light of the dangers posed by COVID-19, I issued Executive Order No. 103 (2020) on March 9, 2020, the facts and circumstances of which are adopted by reference herein, which declared both a Public Health Emergency and State of Emergency; and

WHEREAS, in accordance with N.J.S.A. App. A:9-34 and -51, I reserved the right to utilize and employ all available resources of State government to protect against the emergency created by COVID-19; and

WHEREAS, in accordance with N.J.S.A App. A:9-40, I declared that, due to the State of Emergency, no municipality, county, or any agency or political subdivision of this State shall enact or enforce any order, rule, regulation, ordinance, or resolution which will or might in any way conflict with any of the provisions of my Executive Orders, or which will in any way interfere with or impede their achievement; and

WHEREAS, to further protect the health, safety, and welfare of New Jersey residents by, among other things, reducing the rate of community spread of COVID-19, I issued Executive Order No. 104 (2020) on March 16, 2020, the facts and circumstances of which are also adopted by reference herein, which established statewide social mitigation strategies for combatting COVID-19; and

WHEREAS, Executive Order No. 104 (2020) limited the scope of service and hours of operation for restaurants and certain retail establishments to balance the need to allow individuals to access food and other essential materials with the need to limit unnecessary person-to-person contact; and

WHEREAS, Executive Order No. 104 (2020) deemed a subset of businesses as "essential," including grocery/food stores, pharmacies, medical supply stores, gas stations, healthcare facilities, and ancillary stores within healthcare facilities, and it authorized the State Director of Emergency Management, who is the Superintendent of State Police, to make additions, amendments, clarifications, exceptions, and exclusions to that list; and

WHEREAS, Executive Order No. 104 (2020) made clear that such essential businesses may continue operating without limits on their scope of service or hours of operation, absent further amendments by the State Director of Emergency Management; and

WHEREAS, Executive Order No. 104 (2020) and subsequent Administrative Orders issued by the State Director of Emergency Management also placed restrictions on other businesses' scope of service and hours of operation, and also placed restrictions on the size of gatherings in the State; and

WHEREAS, as of March 20, 2020, according to the Centers for Disease Control and Prevention ("CDC"), there were more than 234,000 confirmed cases of COVID-19 worldwide, with over 9,800 of those cases having resulted in death; and

WHEREAS, as of March 20, 2020, there were more than 15,000 confirmed cases of COVID-19 in the United States, with at least 201 of those cases having resulted in death; and

WHEREAS, as of March 20, 2020, there were at least 890 positive cases of COVID-19 in New Jersey, with at least 11 of those cases having resulted in death; and

WHEREAS, social mitigation strategies for combatting COVID-19 require every effort to reduce the rate of community spread of the disease; and

WHEREAS, the CDC has advised that COVID-19 spreads most frequently through person-to-person contact when individuals are within six feet or less of one another; and

WHEREAS, as a result, the CDC has recommended that individuals practice "social distancing" to prevent community spread of the virus; and

WHEREAS, the CDC has defined social distancing as the practice of "remaining out of congregate settings, avoiding mass gatherings, and maintaining distance (approximately 6 feet or 2 meters) from others when possible"; and

WHEREAS, to mitigate community spread of COVID-19, it is necessary to limit the unnecessary movement of individuals in and around their communities and person-to-person interactions in accordance with CDC and DOH guidance; and

WHEREAS, the best way for New Jersey residents to keep themselves, their families, and their communities safe during the COVID-19 outbreak is to stay at home as much as possible; and

WHEREAS, as of March 15, 2020, the CDC recommends that for the next eight weeks, gatherings of 50 or more people be canceled or postponed throughout the United States; and

WHEREAS, as of March 16, 2020, the White House went further than the CDC had and recommended that Americans avoid social gatherings in groups of more than 10 people; and

WHEREAS, restricting the physical presence of individuals in office environments and work sites is critical to preventing future spread of COVID-19; and

WHEREAS, accommodating work-from-home arrangements is an effective means to ensure continuity of operations while also limiting person-to-person contact; and

WHEREAS, the CDC has recommended employers to establish policies and practices to increase the physical distance among employees and between employees; and

WHEREAS, permitting the workforce to work from home may reduce stress on the State's child care system; and

WHEREAS, as of March 19, 2020, I have instructed all State departments and agencies to utilize work-from-home arrangements for both essential and non-essential employees wherever feasible; and

WHEREAS, given the rapidly rising incidence of COVID-19, temporarily closing non-essential retail businesses will strengthen New Jersey's efforts to slow the spread of COVID-19; and

WHEREAS, even as we institute social distancing measures, the number of COVID-19 cases in New Jersey is likely to increase for the immediate future, meaning we must take all possible steps to preserve our health care system's capacity to treat those who require emergency or intensive care; and

WHEREAS, the Constitution and statutes of the State of New Jersey, particularly the provisions of N.J.S.A. 26:13-1 et seq., N.J.S.A. App. A: 9-33 et seq., N.J.S.A. 38A:3-6.1, and N.J.S.A. 38A:2-4 and all amendments and supplements thereto, confer upon the Governor of the State of New Jersey certain emergency powers, which I have invoked;

NOW, THEREFORE, I, PHILIP D. MURPHY, Governor of the State of New Jersey, by virtue of the authority vested in me by the Constitution and by the Statutes of this State, do hereby ORDER and DIRECT:

1. The operative paragraphs of Executive Order No. 104 (2020) are hereby superseded in full. The factual findings of Executive Order No. 104 (2020) remain applicable except to the extent they are in conflict with the factual findings in this or any intervening Executive Order.

2. All New Jersey residents shall remain home or at their place of residence unless they are 1) obtaining goods or services from essential retail businesses, as described in Paragraph 6; 2) obtaining takeout food or beverages from restaurants, other dining establishments, or food courts, pursuant to Paragraph 8; 3) seeking medical attention, essential social services, or assistance from law enforcement or emergency services; 4) visiting family or other individuals with whom the resident has a close personal relationship, such as those for whom the individual is a caretaker or romantic partner; 5) reporting to, or performing, their job; 6) walking, running, operating a wheelchair, or engaging in outdoor activities with immediate family members, caretakers, household members, or romantic partners while following best social distancing practices with other individuals, including staying six feet apart; 7) leaving the home for an educational, religious, or political reason; 8) leaving because of a reasonable fear for his or her health or safety; or 9) leaving at the direction of law enforcement or other government agency.

3. When in public, individuals must practice social distancing and stay six feet apart whenever practicable, excluding immediate family members, caretakers, household members, or romantic partners.

4. Individuals who have to travel pursuant to Paragraph 2 should only use public transportation only if they have no other feasible choice. Individuals who ride public transportation should abide by best social distancing practices, including making

all efforts to stand or sit six feet away from other riders and frequently use sanitizing products.

5. Gatherings of individuals, such as parties, celebrations, or other social events, are cancelled, unless otherwise authorized by any part of this Order. The State Director of Emergency Management, who is the Superintendent of the State Police, shall have the discretion to make clarifications and issue orders related to this provision.

6. The brick-and-mortar premises of all non-essential retail businesses must close to the public as long as this Order remains in effect. Essential retail businesses, listed below, are excluded from this directive and may remain open during their normal business hours. Essential retail businesses must, wherever practicable, provide pickup services outside or adjacent to their stores for goods ordered in advance online or by phone. Additionally, online and telephonic delivery services are permitted to the extent the retail business is authorized to operate an online or telephonic delivery service under existing law. The State Director of Emergency Management, who is the Superintendent of the State Police, shall have the discretion to make additions, amendments, clarifications, exceptions, and exclusions to this list:

a. Grocery stores, farmer's markets and farms that sell directly to customers, and other food stores, including retailers that offer a varied assortment of foods comparable to what exists at a grocery store;

b. Pharmacies and alternative treatment centers that dispense medicinal marijuana;

c. Medical supply stores;

d. Retail functions of gas stations;

e. Convenience stores;

f. Ancillary stores within healthcare facilities;

g. Hardware and home improvement stores;

h. Retail functions of banks and other financial institutions;

i. Retail functions of laundromats and dry-cleaning services;

j. Stores that principally sell supplies for children under five years old;

k. Pet stores;

l. Liquor stores;

m. Car dealerships, but only to provide auto maintenance and repair services, and auto mechanics;

n. Retail functions of printing and office supply shops; and

o. Retail functions of mail and delivery stores.

7. Any essential retail business whose brick-and-mortar premises remain open to the public shall abide by social distancing practices to the extent practicable while providing essential services. These include all reasonable efforts to keep customers six feet apart and frequent use of sanitizing products on common surfaces.

8. All restaurants, cafeterias, dining establishments, and food courts, with or without a liquor license, all bars, and all other holders of a liquor license with retail consumption privileges, are permitted to operate their normal business hours, but are limited to offering only food delivery and/or take-out services in accordance with their existing liquor licenses. If alcoholic beverages are to be sold from a restaurant, dining establishment or bar with a liquor license, such sales shall be

limited to original containers sold from the principal public barroom. The on-premises consumption of alcohol is prohibited. All retail sales of alcoholic beverages by limited brewery licensees, restricted brewery licensees, plenary and farm winery licensees (and associated salesrooms), craft distillery licensees and cidery and meadery licensees must be in original containers and must be sold through customer pick up and/or delivered by licensees in accordance with their existing licenses.

9. All recreational and entertainment businesses, including but not limited to the following list, must close to the public as long as this Order remains in effect. The State Director of Emergency Management, who is the Superintendent of State Police, shall have the discretion to make additions, amendments, clarifications, exceptions, and exclusions to this list:

a. Casino gaming floors, including retail sports wagering lounges, and casino concert and entertainment venues. Online and mobile sports and casino gaming services may continue to be offered notwithstanding the closure of the physical facility.

b. Racetracks, including stabling facilities and retail sports wagering lounges. Mobile sports wagering services may continue to be offered notwithstanding the closure of the physical facility.

c. Gyms and fitness centers and classes.

d. Entertainment centers, including but not limited to, movie theaters, performing arts centers, other concert venues, and nightclubs.

e. All indoor portions of retail shopping malls. Restaurants and other stores located within

shopping malls that have their own external entrances open to the public, separate from the general mall entrance, may remain open pursuant to the terms and directives of this Order for operating hours and takeout or food delivery services. All entrances and exits to the common area portions of retail shopping malls must remain closed.

f. All places of public amusement, whether indoors or outdoors, including but not limited to, locations with amusement parks, water parks, aquariums, zoos, arcades, fairs, children's play centers, funplexes, theme parks, bowling alleys, family and children's attractions.

g. Facilities where personal care services are performed that, by their very nature, result in noncompliance with social distancing guidelines, including but not limited to cosmetology shops; barber shops; beauty salons; hair braiding shops; nail salons; electrology facilities; spas, including day spas and medical spas, at which solely elective and cosmetic medical procedures are performed; massage parlors, tanning salons, tattoo parlors, and public and private social clubs, whether or not they serve alcohol, including but not limited to facilities owned or operated by the American Legion, Veterans of Foreign Wars, Knights of Columbus, and any other social clubs associated with community service organizations. This excludes any health facilities that provide medically necessary or therapeutic services.

h. All municipal, county, and State public libraries, and all libraries and computer labs at public and private colleges and universities.

10. All businesses or non-profits in the State, whether closed or open to the public, must accommodate their workforce, wherever practicable, for telework or work-from-home arrangements. For purposes of this order, "telework" means the practice of working from home or alternative locations closer to home through the use of technology that equips the individual to access necessary materials.

11. To the extent a business or non-profit has employees that cannot perform their functions via telework or work-from-home arrangements, the business or non-profit should make best efforts to reduce staff on site to the minimal number necessary to ensure that essential operations can continue. Examples of employees who need to be physically present at their work site in order to perform their duties include, but are not limited to, law enforcement officers, fire fighters, and other first responders, cashiers or store clerks, construction workers, utility workers, repair workers, warehouse workers, lab researchers, information technology maintenance workers, janitorial and custodial staff, and certain administrative staff.

12. All public, private, and parochial preschool program premises, and elementary and secondary schools, including charter and renaissance schools, shall remain closed to students as long as this Order remains in effect.

13. All institutions of higher education shall continue to cease such in-person instruction as long as this Order remains in effect. The Secretary of the Office of Higher Education shall have the authority to grant a waiver to allow in-person instruction to students on a case-by-case basis where a compelling rationale to

allow such access exists. The Secretary of the Office of Higher Education shall coordinate with institutions of higher education to determine appropriate student housing conditions for those students who reside in on-campus housing as their primary residence.

14. The Commissioner of the Department of Education ("DOE"), in consultation with the Commissioner of DOH, shall be authorized to permit schools to remain open on a limited basis for the provision of food or other essential, non-educational services, or for educational or child care services if needed in emergency situations after consultation with the Commissioner of DOH. The Commissioner of DOE shall also have the authority to close any other career or training facilities over which he has oversight, after consultation with the Commissioner of DOH.

15. The Commissioner of DOE shall continue working with each public school district, and private and parochial schools as appropriate, to ensure that students are able to continue their educations during this time period through appropriate home instruction. Local school districts, charter schools, and renaissance schools, in consultation with the Commissioner of DOE, shall have the authority and discretion to determine home instruction arrangements as appropriate on a case-by-case basis to ensure all students are provided with appropriate home instruction, taking into account all relevant constitutional and statutory obligations.

16. The Secretary of the Department of Agriculture, in conjunction with the Commissioner of DOE, shall take all necessary actions to ensure that all students eligible for free or reduced meals shall continue to receive the services or supports necessary to meet nutritional needs during closures.

17. Nothing in this Order shall be construed to limit, prohibit, or restrict in any way the provision of health care or medical services to members of the public.

18. Nothing in this Order shall be construed to limit, prohibit, or restrict in any way access to essential services for low-income residents, including but not limited to food banks.

19. Nothing in this Order shall be construed to limit, prohibit, or restrict in any way the operations of newspapers, television, radio, and other media services.

20. Nothing in this Order shall be construed to limit, prohibit, or restrict in any way the operations of law enforcement agencies.

21. Nothing in this Order shall be construed to limit, prohibit, or restrict in any way the operations of the federal government, or the movement of federal officials in New Jersey while acting in their official capacity.

22. In accordance with N.J.S.A. App. A:9-33, et seq., as supplemented and amended, the State Director of Emergency Management, who is the Superintendent of State Police, through the police agencies under his control, to determine and control the direction of the flow of vehicular traffic on any State or interstate highway, municipal or county road, and any access road, including the right to detour, reroute, or divert any or all traffic and to prevent ingress or egress from any area that, in the State Director's discretion, is deemed necessary for the protection of the health, safety, and welfare of the public, and to remove parked or abandoned vehicles from such roadways as conditions warrant.

23. The Attorney General, pursuant to the provisions of N.J.S.A. 39:4-213, shall act through the Superintendent of State Police, to determine and control the direction of the flow of

vehicular traffic on any State or interstate highway, municipal or county road, and any access road, including the right to detour, reroute, or divert any or all traffic, to prevent ingress or egress, and to determine the type of vehicle or vehicles to be operated on such roadways. I further authorize all law enforcement officers to enforce any such order of the Attorney General or Superintendent of State Police within their respective municipalities.

24. It shall be the duty of every person or entity in this State or doing business in this State and of the members of the governing body and every official, employee, or agent of every political subdivision in this State and of each member of all other governmental bodies, agencies, and authorities in this State of any nature whatsoever, to cooperate fully in all matters concerning this Executive Order.

25. Penalties for violations of this Executive Order may be imposed under, among other statutes, N.J.S.A. App. A:9-49 and -50.

26. This Order shall take effect on Saturday, March 21, 2020, at 9:00 p.m., and shall remain in effect until revoked or modified by the Governor, who shall consult with the Commissioner of DOH as appropriate.

GIVEN, under my hand and seal this 21st day of March, Two Thousand and Twenty, and of the Independence of the United States, the Two Hundred and Forty-Fourth.

[seal]

/s/ Philip D. Murphy

Governor

Attest:

/s/ Matthew J. Platkin

Chief Counsel to the Governor

EXECUTIVE ORDER NO. 122

WHEREAS, through Executive Order No. 102 (2020), which I signed on February 3, 2020, I created the State's Coronavirus Task Force, chaired by the Commissioner of the New Jersey Department of Health ("DOH"), in order to coordinate the State's efforts to appropriately prepare for and respond to the public health hazard posed by Coronavirus disease 2019 ("COVID-19"); and

WHEREAS, on March 9, 2020, through Executive Order No. 103 (2020), the facts and circumstances of which are adopted by reference herein, I declared both a Public Health Emergency and a State of Emergency throughout the State due to the public health hazard created by COVID-19; and

WHEREAS, on April 7, 2020, I issued Executive Order No. 119 (2020), which declared that the Public Health Emergency declared in Executive Order No. 103 (2020) continues to exist; and

WHEREAS, in accordance with N.J.S.A. App. A:9-34 and -51, I reserved the right to utilize and employ all available resources of State government to protect against the emergency created by COVID-19; and

WHEREAS, on March 16, 2020, through Executive Order No. 104 (2020), the facts and circumstances of which are adopted by reference herein, I established statewide social mitigation strategies for combatting COVID-19; and

WHEREAS, in recognition that the Centers for Disease Control and Prevention ("CDC") has advised that social mitigation strategies for combatting COVID-19 require every effort to reduce the rate of community spread of the disease and that COVID-19 spreads most frequently through person-to-person contact when individuals are within six feet or less of one another, I issued Executive Order No. 107 (2020), on March 21, 2020, the facts and circumstances of which are adopted by reference herein, which ordered steps to mitigate community spread of COVID-19; and

WHEREAS, Executive Order No. 107 (2020) closed non-essential retail businesses to the public, but permitted essential retail businesses and other businesses that require an in-person workforce to continue to operate; and

WHEREAS, Executive Order No. 107 (2020) institutes clear parameters on essential retail businesses that are permitted to operate and requires that all businesses or non-profits utilize telework or work-from-home arrangements wherever practicable; and

WHEREAS, Executive Order No. 107 (2020) stated that businesses or non-profits who have employees who cannot perform their functions via telework or work-from-home arrangements should make best efforts to reduce staff on site to the minimal number necessary to ensure that essential operations can continue; and

WHEREAS, Executive Order No. 107 (2020) noted that examples of such workers who need to be physically present at their work site include construction workers; and

WHEREAS, construction sites are inherently difficult environments for social distancing to occur, as they frequently require large numbers of individuals to touch the same surfaces, gather closely together in areas such as service elevators, and use common facilities such as portable restrooms; and

WHEREAS, while some construction is needed to expand our health care system's capacity, address immediate infrastructure deficiencies, and prevent future disruptions in various areas such as education, housing, and transportation, which are themselves tied to the public health and safety, other construction projects do not need to proceed immediately and should be postponed in light of public health considerations; and

WHEREAS, essential retail businesses continue to deliver critical goods like food and medical supplies to the State's residents; and

WHEREAS, the State's manufacturing and warehousing businesses, where essential goods are made and/or stored before delivery to the retail business or consumer, continue to provide a vital service to the public by fueling our supply chain and continue to contribute to New Jersey's response to the present pandemic; and

WHEREAS, on April 7, 2020, I issued Executive Order No. 119 (2020), which declared that the Public Health Emergency declared in Executive Order No. 103 (2020) continues to exist; and

WHEREAS, as of April 7, 2020, according to the World Health Organization, there were more than 1,279,000 confirmed cases of COVID-19 worldwide, with over 72,000 of those cases having resulted in death; and

WHEREAS, as of April 7, 2020, according to the Centers for Disease Control, there were more than 374,000 confirmed cases of COVID-19 in the United States, with over 12,000 of those cases having resulted in death; and

WHEREAS, as of April 7, 2020, there were over 44,400 positive cases of COVID-19 in New Jersey, with at least 1,232 of those cases having resulted in death; and

WHEREAS, workers at essential retail businesses are continually exposed to members of the public, increasing their risk of exposure to COVID-19; and

WHEREAS, workers in the manufacturing, warehousing, and construction industries are typically forced to work in close contact with other individuals and regularly come into contact with goods, materials, and equipment that is delivered or accessible to members of the public; and

WHEREAS, even as we have limited essential business operations, the number of COVID-19 cases in New Jersey is anticipated to continue to increase for the immediate future,

meaning we must take additional steps to ensure that businesses are following public health guidelines regarding social distancing, cleaning, sanitizing, and hygiene practices; and

WHEREAS, imposing specific mitigation requirements on these industries will permit members of the public to access essential goods and services while also preventing increased spread of COVID-19; and

WHEREAS, the CDC has stated that such cloth face coverings must fit snugly but comfortably against the side of the face, be secured with ties or ear loops, include multiple layers of fabric, allow for breathing without restriction, and be able to be laundered and machine dried without damage or change to shape; and

WHEREAS, the CDC has also stated that cloth face coverings should not be placed on young children under age 2, anyone who has trouble breathing, or is unconscious, incapacitated or otherwise unable to remove the mask without assistance; and

WHEREAS, the CDC has stated that older adults and people of any age who have serious underlying medical conditions might be at higher risk for severe illness from COVID-19; and

WHEREAS, the CDC has now recommended that all residents wear cloth face coverings in public settings where other social distancing measures are difficult to maintain, such as grocery stores and pharmacies, particularly in areas of significant community-based transmission; and

WHEREAS, the CDC has also recommended certain cleaning and disinfecting procedures for businesses to reduce potential spread of COVID-19 to staff and members of the public; and

WHEREAS, the CDC has stated that older adults and people of any age who have serious underlying medical conditions might be at higher risk for severe illness from COVID-19; and

WHEREAS, the Constitution and statutes of the State of New Jersey, particularly the provisions of N.J.S.A. 26:13-1 et seq., N.J.S.A. App. A: 9-33 et seq., N.J.S.A. 38A:3-6.1, and N.J.S.A. 38A:2-4 and all amendments and supplements thereto, confer upon the Governor of the State of New Jersey certain emergency powers, which I have invoked;

NOW, THEREFORE, I, PHILIP D. MURPHY, Governor of the State of New Jersey, by virtue of the authority vested in me by the Constitution and by the Statutes of this State, do hereby ORDER and DIRECT:

1. Where an essential retail business is permitted to maintain in-person operations pursuant to Executive Order No. 107 (2020) and any subsequent Administrative Orders, such business must adopt policies that include, at minimum, the following requirements:

a. Limit occupancy at 50% of the stated maximum store capacity, if applicable, at one time;

b. Establish hours of operation, wherever possible, that permit access solely to high-risk individuals, as defined by the CDC;

c. Install a physical barrier, such as a shield guard, between customers and cashiers/baggers wherever feasible or otherwise ensure six feet of distance between those individuals, except at the moment of payment and/or exchange of goods;

d. Require infection control practices, such as regular hand washing, coughing and sneezing etiquette, and proper tissue usage and disposal;

e. Provide employees break time for repeated handwashing throughout the workday;

f. Arrange for contactless pay options, pickup, and/or delivery of goods wherever feasible. Such policies shall, wherever possible, consider populations that do not have access to internet service;

g. Provide sanitization materials, such as hand sanitizer and sanitizing wipes, to staff and customers;

h. Require frequent sanitization of high-touch areas like restrooms, credit card machines, keypads, counters and shopping carts;

i. Place conspicuous signage at entrances and throughout the store, if applicable, alerting staff and customers to the required six feet of physical distance;

j. Demarcate six feet of spacing in check-out lines to demonstrate appropriate spacing for social distancing; and

k. Require workers and customers to wear cloth face coverings while on the premises, except where doing so would inhibit that individual's health or where the individual is under two years of age, and require workers to wear gloves when in contact with customers or goods. Businesses must provide, at their expense, such face coverings and gloves for their employees. If a customer refuses to wear a cloth face covering for non-medical reasons and if such covering cannot be provided to the individual by the business at the point of entry, then the business must decline entry to the individual, unless the business is providing medication,

medical supplies, or food, in which case the business policy should provide alternate methods of pickup and/or delivery of such goods. Nothing in the stated policy should prevent workers or customers from wearing a surgical-grade mask or other more protective face covering if the individual is already in possession of such equipment, or if the business is otherwise required to provide such worker with more protective equipment due to the nature of the work involved. Where an individual declines to wear a face covering on store premises due to a medical condition that inhibits such usage, neither the essential retail business nor its staff shall require the individual to produce medical documentation verifying the stated condition.

2. The physical operations of all non-essential construction projects shall cease when this Order takes effect. "Essential construction projects" shall be defined as the following:

a. Projects necessary for the delivery of health care services, including but not limited to hospitals, other health care facilities, and pharmaceutical manufacturing facilities;

b. Transportation projects, including roads, bridges, and mass transit facilities or physical infrastructure, including work done at airports or seaports;

c. Utility projects, including those necessary for energy and electricity production and transmission, and any decommissioning of

facilities used for electricity generation;

d. Residential projects that are exclusively designated as affordable housing;

e. Projects involving pre-K-12 schools, including but not limited to projects in Schools Development Authority districts, and projects involving higher education facilities;

f. Projects already underway involving individual single-family homes, or an individual apartment unit where an individual already resides, with a construction crew of 5 or fewer individuals. This includes additions to single-family homes such as solar panels;

g. Projects already underway involving a residential unit for which a tenant or buyer has already entered into a legally binding agreement to occupy the unit by a certain date, and construction is necessary to ensure the unit's availability by that date;

h. Projects involving facilities at which any one or more of the following takes place: the manufacture, distribution, storage, or servicing of goods or products that are sold by online retail businesses or essential retail businesses, as defined by Executive Order No. 107 (2020) and subsequent Administrative Orders adopted pursuant to that Order;

i. Projects involving data centers or facilities that are critical to a business's ability to function;

j. Projects necessary for the delivery of essential social services, including homeless shelters;

k. Any project necessary to support law enforcement agencies or first responder units in their response to the COVID-19 emergency;

l. Any project that is ordered or contracted for by Federal, State, county, or municipal government, or any project that must be completed to meet a deadline established by the Federal government;

m. Any work on a non-essential construction project that is required to physically secure the site of the project, ensure the structural integrity of any buildings on the site, abate any hazards that would exist on the site if the construction were to remain in its current condition, remediate a site, or otherwise ensure that the site and any buildings therein are appropriately protected and safe during the suspension of the project; and

n. Any emergency repairs necessary to ensure the health and safety of residents.

3. Manufacturing businesses, warehousing businesses, and businesses engaged in essential construction projects must adopt policies that include, at minimum, the following requirements:

a. Prohibit non-essential visitors from entering the worksite;

b. Limit worksite meetings, inductions, and workgroups to groups of fewer than ten individuals;

c. Require individuals to maintain six feet or more distance between them wherever possible;

d. Stagger work start and stop times where practicable to limit the number of individuals entering and leaving the worksite concurrently;

e. Stagger lunch breaks and work times where practicable to enable operations to safely continue while utilizing the least number of individuals possible at the site;

f. Restrict the number of individuals who can access common areas, such as restrooms and breakrooms, concurrently;

g. Require workers and visitors to wear cloth face coverings, in accordance with CDC recommendations, while on the premises, except where doing so would inhibit the individual's health or the individual is under two years of age, and require workers to wear gloves while on the premises. Businesses must provide, at their expense, such face coverings and gloves for their employees. If a visitor refuses to wear a cloth face covering for non-medical reasons and if such covering cannot be provided to the individual by the business at the point of entry, then the business must decline entry to the individual. Nothing in the stated policy should prevent workers or visitors from wearing a surgical-grade mask or other more protective face covering if the individual is already in possession of such equipment, or if the businesses is otherwise required to provide such worker with more protective equipment due to the nature of the work involved. Where an individual declines to wear a face covering on the premises due to a medical condition that inhibits such usage, neither the business nor its staff shall require the individual to produce medical documentation verifying the

stated condition;

h. Require infection control practices, such as regular hand washing, coughing and sneezing etiquette, and proper tissue usage and disposal;

i. Limit sharing of tools, equipment, and machinery;

j. Provide sanitization materials, such as hand sanitizer and sanitizing wipes, to workers and visitors; and

k. Require frequent sanitization of high-touch areas like restrooms, breakrooms, equipment, and machinery.

4. All essential retail businesses, warehousing businesses, manufacturing businesses, and businesses performing essential construction projects must also adopt policies that include, at minimum, the following requirements:

a. Immediately separate and send home workers who appear to have symptoms consistent with COVID-19 illness upon arrival at work or who become sick during the day;

b. Promptly notify workers of any known exposure to COVID-19 at the worksite, consistent with the confidentiality requirements of the Americans with Disabilities Act and any other applicable laws;

c. Clean and disinfect the worksite in accordance with CDC guidelines when a worker at the site has been diagnosed with COVID-19 illness; and

d. Continue to follow guidelines and directives issued by the New Jersey Department of Health, the CDC and the Occupational Health and Safety Administration, as applicable, for maintaining a clean, safe and healthy work environment.

5. Where a business is authorized to maintain in-person operations pursuant to Executive Order No. 107 (2020) and subsequent Administrative Orders, owners of buildings used for commercial, industrial or other enterprises, including but not limited to facilities for warehousing, manufacturing, commercial offices, airports, grocery stores, universities, colleges, government, hotels, and residential buildings with at least 50 units, shall adopt policies that, at minimum, implement the following cleaning protocols in areas where operations are conducted:

a. Clean and disinfect high-touch areas routinely in accordance with CDC guidelines, particularly in spaces that are accessible to staff, customers, tenants, or other individuals, and ensure cleaning procedures following a known or potential exposure in a facility are in compliance with CDC recommendations;

b. Otherwise maintain cleaning procedures in all other areas of the facility; and

c. Ensure that the facility has a sufficient number of workers to perform the above protocols effectively and in a manner that ensures the safety of occupants, visitors, and workers.

6. The State Director of Emergency Management ("State Director"), who is the Superintendent of State Police, shall have the discretion to make additions, amendments, clarifications, exceptions, and exclusions to the terms of this Order.

7. It shall be the duty of every person or entity in this State or doing business in this State and of the members of the governing body and every official, employee, or agent of every political subdivision in this State and of each member of all other

governmental bodies, agencies, and authorities in this State of any nature whatsoever, to cooperate fully in all matters concerning this Executive Order, and to cooperate fully with Administrative Orders issued pursuant to this Executive Order.

8. Penalties for violations of this Executive Order may be imposed under, among other statutes, N.J.S.A. App. A:9-49 and -50.

9. This Order shall take effect beginning at 8:00 p.m. on Friday, April 10, 2020, and shall remain in effect until revoked or modified by the Governor, who shall consult with the Commissioner of DOH as appropriate.

GIVEN, under my hand and seal this 8th day of April, Two Thousand and Twenty, and of the Independence of the United States, the Two Hundred and Forty-Fourth.

[seal]

/s/ Philip D. Murphy

Governor

Attest:

/s/ Matthew J. Platkin

Chief Counsel to the Governor

EXECUTIVE ORDER NO. 142

WHEREAS, in light of the dangers posed by Coronavirus disease 2019 ("COVID-19"), I issued Executive Order No. 103 (2020) on March 9, 2020, the facts and circumstances of which are adopted by reference herein, which declared both a Public Health Emergency and State of Emergency; and

WHEREAS, the Public Health Emergency declared in Executive Order No. 103 (2020) has been twice extended, through Executive Order No. 119 (2020), which I signed on April 7, 2020, and through Executive Order No. 138 (2020), which I signed on May 6, 2020, and continues to exist today; and

WHEREAS, in accordance with N.J.S.A. App. A:9-34 and -51, I reserve the right to utilize and employ all available resources of State government to protect against the emergency created by COVID-19; and

WHEREAS, as COVID-19 continued to spread across New Jersey and an increasing number of individuals required medical care or hospitalization, I issued a series of Executive Orders pursuant to my authority under the New Jersey Civilian Defense and Disaster Control Act and the Emergency Health Powers Act, to protect the public health, safety, and welfare against the emergency created by COVID-19, including Executive Order Nos. 104-133, Executive Order Nos. 135-138, and Executive Order Nos. 140-141 (2020), the facts and circumstances of which are all adopted by reference herein; and

WHEREAS, among other measures to protect the health, safety, and welfare of New Jersey residents, Executive Order No. 122 (2020) prohibited non-essential construction projects from continuing in the State, given the risk of transmission at such construction sites among the workers; and

WHEREAS, to further limit the spread of COVID-19 through person-to-person contact, I issued Executive Order No. 107 (2020), which canceled all gatherings of individuals, and which thereby prohibited everything from informal events such as parties and celebrations to organized events of any kind, unless otherwise authorized; and

WHEREAS, the State Director of Emergency Management, who is the Superintendent of the State Police, issued Administrative Order No. 2020-4 to establish that gatherings of 10 persons or fewer are presumed to be in compliance with Executive Order No. 107 (2020); and

WHEREAS, while Administrative Order No. 2020-4 acknowledged there may be circumstances in which clear evidence showed an impermissible gathering was happening even if 10 persons or fewer were in attendance, law enforcement has not identified any such situations in practice, and instead is consistently enforcing violations of the prohibition on gatherings only where there have been more than 10 people in attendance; and

WHEREAS, in addition to limiting person-to-person contact at construction sites and gatherings, I also established statewide social mitigation strategies in Executive Order No. 107 (2020) that included closing the brick-and-mortar premises of non-essential retail businesses to the public; and

WHEREAS, the Centers for Disease Control and Prevention ("CDC") has now recommended that all residents wear cloth face coverings in public settings where other social distancing measures are difficult to maintain, particularly in areas of significant community-based transmission; and

WHEREAS, the CDC has also recommended certain cleaning and disinfecting procedures for businesses to reduce potential spread of COVID-19 to staff and members of the public; and

WHEREAS, as the rate of reported new cases of COVID-19 in New Jersey decreases, including a reduction in the total number of individuals being admitted to hospitals for COVID-19, the State can begin to take certain steps to lift certain restrictions that were designed to limit person-to-person contact; and

WHEREAS, even as the rate of reported new cases of COVID-19 decreases, the ongoing risks presented by COVID-19 mean that a considerable number of the State's current measures must remain in place, both to reduce additional new infections and to save lives, until additional metrics – such as expanded testing and use of contact tracing – have been satisfied; and

WHEREAS, given the decrease in the rate of reported new cases of COVID-19, permitting non-essential construction projects to resume subject to strict social distancing measures, allowing for gatherings at which individuals remain in their closed vehicles, and authorizing curbside pickup at non-essential retail businesses are each measures that are appropriately tailored to the current risk to public health and safety; and

WHEREAS, construction sites are generally limited to workers, rather than customers and other members of the public, and so involve less risk of significant transmission of COVID-19 in the community; and

WHEREAS, although gatherings generally present a significant risk of person-to-person transmission, attendees at gatherings who remain in their vehicles and therefore do not come into significant in-person contact during the gathering pose a lower threat to public health and safety, but permitting individuals to leave their

vehicle or open their windows or roofs when in proximity with other individuals could result in significant person-to-person contact, meaning that there must be careful limits whenever individuals gather while remaining in their vehicles; and

WHEREAS, permitting curbside pickup at non-essential retail businesses is reasonable in that it avoids unnecessary contact between customers and staff in enclosed spaces, and instead only allows for the similar amount of limited contact that might happen when products are being delivered to a residence; and

WHEREAS, by contrast, the extensive interactions that would happen at in-person gatherings and that would happen from in-store retail operations continue to present a significant risk, and so the general ban on gatherings and the restrictions on in-store operations for non-essential retail businesses cannot be lifted at this time; and

WHEREAS, the Constitution and statutes of the State of New Jersey, particularly the provisions of N.J.S.A. 26:13-1 et seq. and N.J.S.A. App. A:9-33 et seq., and all amendments and supplements thereto, confer upon the Governor of the State of New Jersey certain emergency powers, which I have invoked;

NOW, THEREFORE, I, PHILIP D. MURPHY, Governor of the State of New Jersey, by virtue of the authority vested in me by the Constitution and by the Statutes of this State, do hereby ORDER and DIRECT:

1. The physical operations of all construction projects that were not designated as essential in Executive Order No. 122 (2020) are permitted to resume, subject to the conditions in paragraph 2 of this Order.

2. All businesses engaged in construction projects in the State, whether or not the projects were designated as essential under Executive Order No. 122 (2020), must adopt policies that include, at minimum, the following requirements:

a. Prohibit non-essential visitors from entering the worksite;

b. Engage in appropriate social distancing measures when picking up or delivering equipment or materials;

c. Limit worksite meetings, inductions, and workgroups to groups of fewer than 10 individuals;

d. Require individuals to maintain six feet or more distance between them wherever possible;

e. Stagger work start and stop times where practicable to limit the number of individuals entering and leaving the worksite concurrently;

f. Identify congested and "high-risk areas," including but not limited to lunchrooms, breakrooms, portable rest rooms, and elevators, and limit the number of individuals at those sites concurrently where practicable;

g. Stagger lunch breaks and work times where practicable to enable operations to safely continue while utilizing the least number of individuals possible at the site;

h. Require workers and visitors to wear cloth face coverings, in accordance with CDC recommendations, while on the premises, except where doing so would inhibit the individual's health or the individual is under two years of age, and require workers to

wear gloves while on the premises. Businesses must provide, at their expense, such face coverings and gloves for their employees. If a visitor refuses to wear a cloth face covering for non-medical reasons and if such covering cannot be provided to the individual by the business at the point of entry, then the business must decline entry to the individual. Nothing in the stated policy should prevent workers or visitors from wearing a surgical-grade mask or other more protective face covering if the individual is already in possession of such equipment, or if the businesses is otherwise required to provide such worker with more protective equipment due to the nature of the work involved. Where an individual declines to wear a face covering on the premises due to a medical condition that inhibits such usage, neither the business nor its staff shall require the individual to produce medical documentation verifying the stated condition;

i. Require infection control practices, such as regular hand washing, coughing and sneezing etiquette, and proper tissue usage and disposal;

j. Limit sharing of tools, equipment, and machinery;

k. Where running water is not available, provide portable washing stations with soap and/or alcohol-based hand sanitizers that have greater than 60% ethanol or 70% isopropanol;

l. Require frequent sanitization of high-touch areas like restrooms, breakrooms, equipment, and machinery;

m. When the worksite is an occupied residence, require workers to sanitize work areas and keep a distance of at least six feet from the occupants; and

n. Place conspicuous signage at entrances and throughout the worksite detailing the above mandates.

3. Paragraph 2 of Executive Order No. 122 (2020) is hereby superseded in full. Paragraph 3 of that Order is hereby superseded to the extent that it applied to businesses engaged in essential construction projects. New Jersey Office of Emergency Management (NJOEM) Administrative Order No. 2020-11 is hereby superseded in full.

4. Any gathering that adheres to all of the following rules does not violate Paragraph 5 of Executive Order No. 107 (2020):

a. Attendees participating in the gathering must arrive in a vehicle and they must remain in that same vehicle during the entire gathering;

b. Each attendee's vehicle must remain entirely closed at all times, meaning that the windows, doors, sunroofs, and tops of the vehicle must be closed at all times, unless:

i. The vehicle is more than six feet from any other vehicle or individual, except for, as applicable, the limited number of individuals organizing or maintaining the gathering; or

ii. A law enforcement officer, appropriate public official, or private security guard asks any attendee to open the vehicle's windows, doors, sunroofs, and/or tops.

c. If there are individuals organizing or maintaining the gathering, and who are not in closed vehicles, such individuals must follow all applicable Executive Orders and Administrative Orders, and must wear cloth face coverings or more protective face coverings in any settings where other social distancing measures are difficult to maintain, except where doing so would inhibit that individual's health; and

d. To the degree that a gathering requires pre-payment, or seeks donations of any kind, contactless options for pre-payment or donation, such as online or by telephone, must be offered wherever feasible.

5. If an individual leaves their home to participate in any gathering in accordance with Paragraph 4 of this Order, it shall not be a violation of Paragraph 2 of Executive Order No. 107 (2020).

6. If a recreational and entertainment event adheres to the rules laid out in Paragraph 4 of this Order, it will also not be a violation of Paragraph 9 of Executive Order No. 107 (2020). Paragraph 9 of Executive Order No. 107 (2020) is hereby superseded to the extent that it prohibited recreational and entertainment events where customers do not leave their vehicles.

7. Nothing in Paragraph 4 of this Order shall prevent an individual from leaving a vehicle, opening a vehicle's windows, sunroofs, doors, and/or tops, and/or approaching a vehicle, if done to protect their health or safety or the health or safety of another individual, or to access a restroom.

8. Where a gathering does not adhere to Paragraph 4 of this Order, gatherings of 10 persons or fewer are in compliance with the terms of Section 5 of Executive Order No. 107 (2020), while gatherings of more than 10 persons are in violation of that Executive Order.

9. Non-essential retail businesses are permitted to reopen to the public, but only where they adopt policies that include, at minimum, the following requirements:

a. Customers shall not be permitted to enter the brick-and-mortar premises, but shall be permitted to pick up goods outside of the establishment that they have already ordered ("curbside pickup");

b. In-store operations shall be limited, wherever feasible, to those employees who are responsible for the operations required for curbside pickup;

c. Customer transactions shall be handled in advance by phone, email, facsimile, or other means that avoid person-to-person contact, wherever feasible;

d. Customers shall notify the retailer by text message, email, or phone once they arrive, whenever feasible, or make best efforts to schedule their arrival time in advance. The customer shall be asked to remain in their vehicle, if arriving by car, until store staff delivers the purchase;

e. Designated employees shall bring goods outside of the retail establishment and place the goods directly in a customer's vehicle whenever feasible; and

f. Retail businesses operating in shopping malls are permitted to operate by curbside pickup, in accordance with the other requirements of this paragraph, but employees must bring the goods to customers at the exterior of the mall and shall place them directly in a customer's vehicle whenever feasible. The indoor portions of shopping malls shall remain closed to the public, consistent with Executive Order No. 107 (2020).

Additionally, the policies described in this paragraph should also ensure that non-essential retail business employers do the following, at a minimum:

g. Require infection control practices, such as regular hand washing, coughing and sneezing etiquette, and proper tissue usage and disposal;

h. Provide employees break time for repeated handwashing throughout the workday;

i. Provide sanitization materials, such as hand sanitizer and sanitizing wipes, to staff;

j. Require frequent sanitization of high-touch areas to which workers have access; and

k. Require workers to wear cloth face coverings and gloves when interacting with other workers or customers and require workers to wear gloves when in contact with customers or goods. Businesses must provide, at their expense, such face coverings

and gloves for their employees. Nothing in the stated policy should prevent workers from wearing a surgical-grade mask or other more protective face covering if the individual is already in possession of such equipment, or if the business is otherwise required to provide such worker with more protective equipment due to the nature of the work involved.

10. The State Director of Emergency Management, who is the Superintendent of State Police, shall have the discretion to make additions, amendments, clarifications, exceptions, and exclusions to the terms of this Order.

11. It shall be the duty of every person or entity in this State or doing business in this State and of the members of the governing body and every official, employee, or agent of every political subdivision in this State and of each member of all other governmental bodies, agencies, and authorities in this State of any nature whatsoever, to cooperate fully in all matters concerning this Executive Order, and to cooperate fully with Administrative Orders issued pursuant to this Executive Order.

12. No municipality, county, or any other agency or political subdivision of this State shall enact or enforce any order, rule, regulation, ordinance, or resolution which will or might in any way conflict with any of the provisions of this Order or which will or might in any way interfere with or impede the achievement of this Order.

13. Penalties for violations of this Executive Order may be imposed under, among other statutes, N.J.S.A. App. A:9-49 and -50.

14. Paragraphs 4-8 shall take effect immediately and Paragraphs 1-3 and 9 shall take effect at 6:00 a.m. on Monday, May 18, 2020. This Order shall remain in effect until revoked or modified by the Governor.

GIVEN, under my hand and seal this 13th day of May, Two Thousand and Twenty, and of the Independence of the United States, the Two Hundred and Forty-Fourth.

[seal]

/s/ Philip D. Murphy

Governor

Attest:

/s/ Matthew J. Platkin

Chief Counsel to the Governor

EXECUTIVE ORDER NO. 192

WHEREAS, in light of the dangers posed by Coronavirus disease 2019 ("COVID-19"), I issued Executive Order No. 103 on March 9, 2020, the facts and circumstances of which are adopted by reference herein, which declared both a Public Health Emergency and State of Emergency; and

WHEREAS, through Executive Order Nos. 119, 138, 151, 162, 171, 180, 186, and 191 (2020), issued on April 7, 2020, May 6, 2020, June 4, 2020, July 2, 2020, August 1, 2020, August 27, 2020, September 25, 2020, and October 24, 2020, respectively, the facts and circumstances of which are adopted by reference herein, I declared that the COVID-19 Public Health Emergency continued to exist and declared that all Executive Orders and Administrative Orders adopted in whole or in part in response to the COVID-19 Public Health Emergency remained in full force and effect; and

WHEREAS, in accordance with N.J.S.A. App. A:9-34 and -51, I reserve the right to utilize and employ all available resources of State government to protect against the emergency created by COVID-19; and

WHEREAS, as COVID-19 continued to spread across New Jersey and an increasing number of individuals required medical care or hospitalization, I issued a series of Executive Orders pursuant to my authority under the New Jersey Civilian Defense and Disaster Control Act and the Emergency Health Powers Act ("EHPA"), to protect the public health, safety, and welfare against the emergency created by COVID-19, including Executive Order Nos. 104-133, Nos. 135-138, Nos. 140-166, Nos. 168-173, No. 175, Nos. 177-181, No. 183, Nos. 186-187 and Nos. 189-191 (2020), the facts and circumstances of which are all adopted by reference herein; and

WHEREAS, during that time, essential retail businesses and many other types of businesses continued to operate, and it was necessary to impose strict COVID-19 mitigation protocols on those businesses to protect the health of workers and of the community; and

WHEREAS, after consultation with officials from the Department of Health ("DOH"), I announced a multi-stage New Jersey's Road Back Plan (the "Plan") for the methodical and strategic reopening of businesses and activities based on scientific data and metrics concerning the level of disease transmission risk and essential classification; and

WHEREAS, part of the Plan required imposing health and safety protocols on businesses that were permitted to resume partial or total operations in order to protect visitors, customers, and the workforce; and

WHEREAS, now that a more significant portion of the State's workforce has returned to in-person work, and as the State's economy continues to gradually reopen, it is necessary to ensure broad application of relevant health and safety standards to protect workers across all industries; and

WHEREAS, given the recent upticks in the rate of reported new cases across all counties in the State, the use of mandatory health and safety protocols for all industries can help guard against continuing spread and ensure that New Jersey's workers feel safe and supported at their places of work; and

WHEREAS, the federal Occupational Safety and Health Administration ("OSHA") has not issued occupational safety or health standards specific to COVID-19; and

WHEREAS, expanding application of critical COVID-19 protocols to workplaces that have resumed physical operations will require increased investigative and enforcement capacity to efficiently address worker complaints of insufficient compliance with such protocols; and

WHEREAS, Public Employees Occupational Safety and Health ("PEOSH") has already established a process for considering health and safety complaints raised by public sector employees in New Jersey; and

WHEREAS, imposing new safety protocols will require training of both employers and employees to encourage full compliance, so as to ensure public health and safety; and

WHEREAS, the Constitution and statutes of the State of New Jersey, particularly the provisions of N.J.S.A. 26:13-1 et seq., N.J.S.A. App. A: 9-33 et seq., N.J.S.A. 38A:3-6.1, and N.J.S.A. 38A:2-4 and all amendments and supplements thereto, confer upon the Governor of the State of New Jersey certain emergency powers, which I have invoked;

NOW, THEREFORE, I, PHILIP D. MURPHY, Governor of the State of New Jersey, by virtue of the authority vested in me by the Constitution and by the Statutes of this State, do hereby ORDER and DIRECT:

1. Effective at 6:00 a.m. on Thursday, November 5, 2020, every business, non-profit, and governmental or educational entity (hereinafter collectively referred to as "employers" or "employer"), that requires or permits its workforce, whether in part or as a whole, to be physically present at a worksite to perform work is required to abide by the following requirements, at minimum, to protect employees, customers, and all others who come into physical contact with its operations:

a. Require that individuals at the worksite maintain at least six feet of distance from one another to the maximum extent possible, including but not limited to during worksite meetings, orientations and similar activities that would traditionally require individuals to be present in a single room or space and in close proximity, in common areas such as restrooms and breakrooms, and when individuals are entering and exiting the workplace. Where the nature of an employee's work or the work area does not allow for six feet of distance to be maintained at all times, employers shall ensure that each such employee wears a mask as provided in subsection b. and shall install physical barriers between workstations wherever possible.

b. Require employees, customers, visitors, and other individuals entering the worksite to wear cloth or disposable face masks while on the premises, in accordance with Centers for Disease Control and Prevention ("CDC") recommendations, except where the individual is under two years of age or where it is impracticable for an individual to wear a face mask, such as when the individual is eating or drinking or where a service being provided by the employer cannot be performed on an individual who is wearing a mask;

i. *Masking requirements specific to employees:*

1. Employers may permit employees to remove face masks when the employees are situated at their workstations and are

more than six feet from other individuals at the workplace, or when an individual is alone in a walled office;

2. Employers must make available, at their expense, such face masks to their employees;

3. Nothing in this subsection shall prevent employees from wearing a surgical-grade mask or other more protective face mask, or interfere with the employer's obligation to provide employees with more protective equipment if it is otherwise required because of the nature of the work involved; and

4. Employers may deny entry to the worksite to any employee who declines to wear a face mask, except when doing so would violate State or federal law. Where an employee cannot wear a mask because of a disability, an employer may, consistent with the Americans with Disabilities Act ("ADA") and/or New Jersey Law Against Discrimination ("NJLAD"), be required to provide the employee with a reasonable accommodation unless doing so would be an undue hardship on the employer's operations. An employer may require employees to produce medical documentation supporting claims that

they are unable to wear a face mask because of a disability.

ii. *Masking requirements specific to customers and visitors:*

1. Employers may deny entry to the worksite to any customer or visitor who declines to wear a face mask, except when doing so would violate State or federal law. The employer may be required to provide a customer or visitor who declines to wear a mask due to a disability services or goods via a reasonable accommodation, pursuant to ADA and NJLAD, unless such accommodation would pose an undue hardship on the employer's operations; and

2. Where a customer or other visitor declines to wear a face mask on the premises due to a disability that inhibits such usage, neither the employer nor its employees shall require the individual to produce medical documentation verifying the stated condition, unless production is otherwise required by State or federal law.

iii. Any prior requirements imposed by an Executive Order restricting the ability of an employer to require the production of medical documentation, or to deny entry to a customer,

employee, or other visitor to the worksite that refuses to wear a face mask, that are inconsistent with the terms of this Paragraph are hereby superseded.

iv. Subsection b. shall not apply to employers subject to Executive Order No. 175 (2020).

c. Provide sanitization materials, such as hand sanitizer that contains at least 60% alcohol and sanitizing wipes that are approved by the United States Environmental Protection Agency for SARS-CoV-2 virus to employees, customers, and visitors at no cost to those individuals;

d. Ensure that employees practice regular hand hygiene, particularly when such employees are interacting with the public, and provide employees break time for repeated handwashing throughout the workday and access to adequate hand washing facilities. Employers may adopt policies that require employees to wear gloves in addition to regular hand hygiene. Where an employer requires its employees to wear gloves while at the worksite, the employer must provide such gloves to employees;

e. Routinely clean and disinfect all high-touch areas in accordance with DOH and CDC guidelines, particularly in spaces that are accessible to employees, customers, or other individuals, including, but not limited to, restrooms, hand rails, door knobs, other common surfaces, safety equipment, and other frequently touched surfaces including employee used equipment, and ensure

cleaning procedures following a known or potential exposure are in compliance with CDC recommendations;

f. Prior to each shift, conduct daily health checks of employees, such as temperature screenings, visual symptom checking, self-assessment checklists, and/or health questionnaires, consistent with CDC guidance, including latest CDC guidance regarding COVID-19 symptoms, consistent with the confidentiality requirements of the ADA, NJLAD and any other applicable laws, and consistent with any guidance from the Equal Employment Opportunity Commission ("EEOC") and the New Jersey Division on Civil Rights;

g. Immediately separate and send home employees who appear to have symptoms, as defined by the CDC, consistent with COVID-19 illness upon arrival at work or who become sick during the day. Employers subject to the New Jersey Earned Sick Leave Law, New Jersey Family Leave Act, N.J.S.A. 34:11D-12 and/or federal leave laws must continue to follow the requirements of the law, including by allowing individuals to use accrued leave in the manner permitted by law and employer policy, when requiring employees to leave the workplace in accordance with the provisions of this subparagraph;

h. Promptly notify all employees of any known exposure to COVID-19 at the worksite, consistent with the confidentiality requirements of the ADA and any

other applicable laws, and consistent with guidance from the EEOC;

i. Clean and disinfect the worksite in accordance with CDC guidelines when an employee at the site has been diagnosed with COVID-19 illness; and

j. Continue to follow guidelines and directives issued by the New Jersey DOH, the CDC and the Occupational Safety and Health Administration, as applicable, for maintaining a clean, safe and healthy work environment.

2. The provisions included in Paragraph 1 do not apply when they interfere with the discharge of the operational duties of first responders, emergency management personnel, emergency dispatchers, health care personnel, public health personnel, court personnel, law enforcement and corrections personnel, hazardous materials responders, transit workers, child protection and child welfare personnel, housing and shelter personnel, military employees, and governmental employees engaged in emergency response activities.

3. Paragraph 1 does not apply to the United States government, or to religious institutions to the extent that application of the health and safety protocols would prohibit the free exercise of religion.

4. The Commissioner of the DOH, pursuant to her authority under the EHPA, N.J.S.A. 26:13-1 et seq., and in consultation with any applicable State agencies, is authorized to impose additional health and safety standards relevant to COVID-19 on employers. Nothing in this Order shall be construed to impair any other state agency's authority to impose additional health and safety standards pursuant to other laws or Executive Orders.

5. The Commissioner of the Department of Labor and Workforce Development ("DOLWD"), in consultation with the Commissioner of the DOH, is hereby authorized to provide support for efforts to enforce the requirements outlined in Paragraph 1 of this Order through the following means:

a. Establishing an intake mechanism to receive complaints from individuals working in the State that are subject to the COVID-19 specific health and safety protocols outlined in this Order. The Commissioner of the DOLWD shall, where applicable, coordinate with relevant licensing and/or regulating agencies or refer complaints to such agencies. Nothing in this Order shall require the intake mechanism to serve as the sole means for receiving or processing such complaints;

b. Creating a process for consideration of such complaints, including, but not limited to, through the use of employee and employer interviews; and

c. Coordinating with the Commissioner of the DOH and any other applicable State entity to establish a process to address such complaints and to raise potential deficiencies in compliance with the requirements outlined in Paragraph 1 with the employer. Such process shall, at minimum, provide employers with an opportunity to correct the alleged or confirmed deficiency.

Complaints received by employees working for employers subject to oversight by PEOSH shall be directed to PEOSH for consideration.

6. The Commissioner of the DOH, pursuant to her authority under the EHPA, N.J.S.A. 26:13-1 et seq., in consultation with the Commissioner of the DOLWD, shall establish a process for investigation of complaints received pursuant to the intake mechanism outlined above, where necessary, including, for example, by performing workplace inspections and issuing subpoenas for information. The DOH shall enter into a memorandum of understanding with the DOLWD to provide assistance in the exercise of those powers and support for investigative efforts. The Commissioners of DOH and DOLWD shall, where necessary, coordinate with relevant federal and State agencies, including OSHA, during this process.

7. Where consistent, the requirements of this Order shall supplement the requirements outlined in any Executive Order, Administrative Order, or similar directive that apply to employers that have resumed operations prior to the effective date of this Order, including via Executive Orders Nos. 122, 125, 142, 145, 147, 149, 155, 157, 165, 175, 181 and 183 (2020). Where an already existing requirement is inconsistent with a requirement outlined in Paragraph 1 of this Order, the previously issued requirement shall continue to apply unless otherwise specified.

8. Paragraph 2, subsection (c) of Executive Order No. 142 (2020) is hereby rescinded.

9. The Commissioner of the DOLWD is hereby further directed to provide compliance and safety training for employers and employees, focused at least in part on the health and safety protocols listed in Paragraph 1, through the following means:

a. Establish a program to fund workforce training partners to develop and deliver, including virtually, training to workers and employers

throughout the State, subject to the availability of funding; and

b. Develop notices and informational materials to inform workers of their rights and employers of their obligations under this Order.

10. The State Director of Emergency Management, who is the Superintendent of State Police, shall have the discretion to make additions, amendments, clarifications, exceptions, and exclusions to the terms of this Order.

11. It shall be the duty of every person or entity in this State or doing business in this State and of the members of the governing body and every official, employee, or agent of every political subdivision in this State and of each member of all other governmental bodies, agencies, and authorities in this State of any nature whatsoever, to cooperate fully in all matters concerning this Order.

12. No municipality, county, or any other agency or political subdivision of this State shall enact or enforce any order, rule, regulation, ordinance, or resolution which will or might in any way conflict with any of the provisions of this Order, or which will or might in any way interfere with or impede its achievement.

13. Penalties for violations of this Order may be imposed under, among other statutes, N.J.S.A. App. A:9-49 and -50. Any employer that fails to adhere to the protocols outlined in this Order or to any subsequent requirements issued by the Commissioner of the DOH is subject to, among other actions, closure by the Commissioner of the DOH pursuant to N.J.S.A. 26:13-8.

14. Nothing in this Order shall be considered to create a private right of action to enforce the requirements outlined herein.

15. This Order shall take effect immediately, and shall remain in effect until revoked or modified by the Governor, who shall consult with the Commissioner of the DOH as appropriate.

GIVEN, under my hand and seal this 28th day of October, Two Thousand and Twenty, and of the Independence of the United States, the Two Hundred and Forty-Fifth.

[seal]

/s/ Philip D. Murphy

Governor

Attest:

/s/ Parimal Garg

Chief Counsel to the Governor

EXECUTIVE ORDER NO. 196

WHEREAS, in light of the dangers posed by Coronavirus disease 2019 ("COVID-19"), I issued Executive Order No. 103 on March 9, 2020, the facts and circumstances of which are adopted by reference herein, which declared both a Public Health Emergency and State of Emergency; and

WHEREAS, through Executive Order Nos. 119, 138, 151, 162, 171, 180, 186, and 191, issued on April 7, 2020, May 6, 2020, June 4, 2020, July 2, 2020, August 1, 2020, August 27, 2020, September 25, 2020, and October 24, 2020, respectively, the facts and circumstances of which are adopted by reference herein, I declared that the COVID-19 Public Health Emergency continued to exist and declared that all Executive Orders and Administrative Orders adopted in whole or in part in response to the COVID-19 Public Health Emergency remained in full force and effect; and

WHEREAS, in accordance with N.J.S.A. App. A:9-34 and -51, I reserve the right to utilize and employ all available resources of State government to protect against the emergency created by COVID-19; and

WHEREAS, as COVID-19 continued to spread across New Jersey and an increasing number of individuals required medical care or hospitalization, I issued a series of Executive Orders pursuant to my authority under the New Jersey Civilian Defense and Disaster Control Act and the Emergency Health Powers Act, to protect the public health, safety, and welfare against the emergency created by COVID-19, including Executive Order Nos. 104-133, Nos. 135-138, Nos. 140-166, Nos. 168-173, No. 175, Nos. 177-181, No. 183, Nos. 186-187 and Nos. 189-195 (2020), the facts and circumstances of which are all adopted by reference herein; and

WHEREAS, after consultation with officials from the Department of Health ("DOH"), I announced a multi-stage New Jersey's Road Back Plan for the methodical and strategic reopening of businesses and activities based on scientific data and metrics concerning the level of disease transmission risk and essential classification; and

WHEREAS, the Centers for Disease Control and Prevention ("CDC") has issued guidance for mass gatherings or large community events, such as conferences, festivals, parades, concerts, sporting events, and other potentially super-spreading events, recognizing that gatherings can significantly contribute to the spread of COVID-19 and introduce the virus to new communities through increased transmission to a large number of people in a short period of time, and states throughout the region previously canceled all such events; and

WHEREAS, the CDC recognizes that the stringency of any limit on gatherings should be tailored to the significance of COVID-19 transmission in the State and region, meaning that as the spread of COVID-19 fluctuates in a state, that state can adjust its limits on indoor and outdoor gatherings accordingly; and

WHEREAS, consistent with the above principles, I signed a series of Executive Orders gradually lifting restrictions on both outdoor and indoor gatherings; and

WHEREAS, the most recent of which, Executive Order No. 183, issued on September 1, 2020, limited the number of individuals at indoor gatherings that are not religious services or celebrations, political activities, wedding ceremonies, funerals, or memorial services to 25 percent of the capacity of the room in which it takes place, but regardless of the capacity of the room, such limit shall never be larger than 25 persons or smaller than 10 persons; and

WHEREAS, the limitations on outdoor gatherings have not been altered since Executive Order No. 161, issued on July 2, 2020, which limited the number of individuals at such a gathering to 500 persons

or fewer and clarified that an outdoor gathering that is a religious service or political activity, such as a protest, is not required to comply with the numerical limit on persons; and

WHEREAS, the State has experienced recent upticks in the number of cases and hospitalizations across all counties; and

WHEREAS, approximately 13 percent of all outbreaks in New Jersey between March 20 through November 1 can be attributed to private gatherings, consistent with the role indoor gatherings have played in leading to further spikes of COVID-19 in other states and countries; and

WHEREAS, the combination of evidence tracing clusters of COVID-19 to gatherings and the overall statewide increase in the rate of transmission means that it is appropriate to reduce the limits on gatherings at the current time; and

WHEREAS, certain gatherings, including religious services and political activity, are constitutionally protected activities, and restrictions on these gatherings should be less aggressive than restrictions on other gatherings, as other states have repeatedly recognized; and

WHEREAS, legislative and judicial proceedings are particularly important to the functioning of the State, the latter of which implicates constitutional rights and foundational privileges, and so can proceed with less restrictive limits; and

WHEREAS, certain events such as wedding ceremonies, funerals, and memorial services, whether religious in nature or not, which typically happen once in a lifetime, provide benefits to the well-being of the participants such that they can be treated differently from casual social gatherings such as house parties and birthday parties, which occur on a more frequent basis and typically do not present the same compelling need; and

WHEREAS, indoor wedding ceremonies and memorial services may have been planned under the current capacity limits, and often with social distancing protocols set up well in advance, and therefore suddenly changing the applicable limits for these events would be highly disruptive; and

WHEREAS, events such as wedding ceremonies, funerals, and memorial services typically include a defined list of attendees, which makes it easier for contract tracing to occur; and

WHEREAS, the informal nature of large house parties also makes it especially hard to engage in contact tracing, as well as to monitor and to enforce the requirements to wear masks and engage in social distancing, which stands in sharp contrast to wedding ceremonies, funerals, and memorial services; and

WHEREAS, reducing the limits on indoor gatherings other than religious services or celebrations, political activities, wedding ceremonies, funerals, and memorial services from a maximum of 25 persons to a maximum of 10 persons will both help reduce the spread of COVID-19 and reduce the burden on our contact tracing program; and

WHEREAS, certain sports practices and competitions require more than 10 individuals to be present, when accounting for players, coaches, referees, and other necessary individuals, and the formal nature of such events makes it easier to ensure that health and safety protocols are being appropriately followed; and

WHEREAS, college and university athletic programs and professional athletic teams, leagues, and organizations, are readily able to establish comprehensive protocols for the athletes participating within their programs, including by placing limitations on outside activities, subjecting participants to regular testing, and requiring athletes to reside in a specified location; and

WHEREAS, while there is generally less risk associated with outdoor gatherings, it is likewise appropriate to lower the outdoor gatherings limit in our State to no more than 150 people to prevent increased transmission through super-spreading events and large community gatherings; and

WHEREAS, all gatherings, whatever their nature, must continue to utilize protective measures, including use of masks and social distancing; and

WHEREAS, because of the severity of the decrease of the limit on outdoor gatherings, as compared with the limit on indoor gatherings, the effective date of that provision will be delayed by approximately one week to avoid significant disruption of prescheduled activities; and

WHEREAS, the Constitution and statutes of the State of New Jersey, particularly the provisions of N.J.S.A. 26:13-1 et seq., N.J.S.A. App. A: 9-33 et seq., N.J.S.A. 38A:3-6.1, and N.J.S.A. 38A:2-4 and all amendments and supplements thereto, confer upon the Governor of the State of New Jersey certain emergency powers, which I have invoked;

NOW, THEREFORE, I, PHILIP D. MURPHY, Governor of the State of New Jersey, by virtue of the authority vested in me by the Constitution and by the Statutes of this State, do hereby ORDER and DIRECT:

1. Paragraph 4 of Executive Order No. 183 (2020) is hereby rescinded and the number of individuals at indoor gatherings that are not religious services or celebrations, political activities, wedding ceremonies, funerals, or memorial services shall be limited to 10 persons. The number of individuals at indoor gatherings that are religious services or celebrations, political activities, wedding ceremonies, funerals, or memorial services shall be limited to 25 percent of the capacity of the room in which it takes place, but

regardless of the capacity of the room, such limit shall never be larger than 150 persons or smaller than 10 persons. For purposes of this Paragraph, any private residence or residential unit shall be treated as a single "room". Legislative proceedings of state, county, or local government, including local Boards of Education, and state and local judicial proceedings are not subject to the capacity limits on gatherings in this or any other applicable Executive Order.

2. Professional and collegiate athletic competitions that are conducted indoors are subject to the current indoor gathering limit of 10 persons. Athletes, coaches, referees, and trainers, and other individuals who are necessary for the competitive professional or collegiate sporting event are not included in the number of individuals present at a gathering for purposes of the limits on gatherings. The number of individuals present inside facilities where indoor professional or collegiate athletic competitions are taking place may not exceed 25 percent of the capacity of the room in which it takes place, and such limit may not exceed 150 persons. The provisions of Paragraph 1 of Administrative Order No. 2020-22 regarding indoor gatherings shall continue to apply.

3. All other athletic practices and competitions that are conducted indoors are subject to the current indoor gathering limit of 10 persons. However, if the number of individuals who are necessary for a no-contact practice, contact practice, or competition, such as players, coaches, and referees, is greater than 10 persons, such a practice or competition may proceed, as long as no individuals are present who are not necessary for the practice or competition, such as spectators. If this exception applies, the number of individuals at such an indoor gathering still may not exceed 25 percent of the capacity of the room in which it takes place, and such limit may not exceed 150 persons. Paragraph 2 of Executive Order No. 187 (2020) is hereby rescinded.

4. While the numerical limits on indoor gatherings in Paragraph 4 of Executive Order No. 183 (2020) are rescinded, all other requirements for indoor gatherings outlined in Paragraphs 5 and 6 of Executive Order No. 183 (2020), including those provisions that incorporate by reference the requirements of Paragraph 1 of Executive Order No. 152 (2020), shall remain in effect.

5. Any requirements in any Executive Order, Administrative Order, or agency directive that incorporated by reference the gatherings limits in Executive Order Nos. 107, 142, 148, 152, 156, 161, 173, or 183 (2020) are amended to reflect the rules on gatherings stated in this Order.

6. Paragraph 2 of Executive Order No. 183 (2020) shall remain in effect.

7. Paragraph 1 of Executive Order No. 161 (2020) is hereby rescinded and the number of individuals at outdoor gatherings shall be limited to 150 persons or fewer. All other requirements for outdoor gatherings contained in Paragraph 1 of Executive Order No. 161 (2020), including the requirements of Paragraph 2 of Executive Order No. 152 (2020) incorporated by reference therein, shall remain in effect. An outdoor gathering that is a religious service or celebration, political activity, wedding ceremony, funeral, or memorial service is not required to comply with the numerical limit on persons.

8. Outdoor entertainment centers where performances are viewed or given, including movie theaters, performing arts centers, and other concert venues, must limit the number of patrons in any outdoor area where a performance is viewed or given to a number that ensures that all individuals can remain six feet apart, but such limit shall never be larger than 150 persons.

9. Professional and collegiate athletic competitions that are conducted outdoors are subject to the outdoor gathering limit of 150 persons. Athletes, coaches, referees, and trainers, and other individuals who are necessary for the competitive professional or collegiate sporting event are not included in the number of individuals present at a gathering for purposes of the limits on gatherings. The provisions of Paragraph 1 of Administrative Order No. 2020-22 regarding outdoor gatherings shall continue to apply.

10. All other sports practices and competitions that are conducted outdoors are subject to the outdoor gathering limit of 150 persons, inclusive of athletes, coaches, referees, and trainers.

11. The State Director of Emergency Management, who is the Superintendent of State Police, shall have the discretion to make additions, amendments, clarifications, exceptions, and exclusions to the terms of this Order.

12. It shall be the duty of every person or entity in this State or doing business in this State and of the members of the governing body and every official, employee, or agent of every political subdivision in this State and of each member of all other governmental bodies, agencies, and authorities in this State of any nature whatsoever, to cooperate fully in all matters concerning this Order.

13. No municipality, county, or any other agency or political subdivision of this State shall enact or enforce any order, rule, regulation, ordinance, or resolution which will or might in any way conflict with any of the provisions of this Order, or which will or might in any way interfere with or impede its achievement.

14. Penalties for violations of this Order may be imposed under, among other statutes, N.J.S.A. App. A:9-49 and -50.

15. Paragraphs 1 – 6 of this Order regarding the indoor gathering limit shall take effect at 6:00 a.m. on Tuesday, November 17, 2020, and Paragraphs 7 – 10 of this Order regarding the outdoor gathering limit shall take effect at 6:00 a.m. on Monday, November 23, 2020. This Order shall remain in effect until revoked or modified by the Governor, who shall consult with the Commissioner of DOH as appropriate.

GIVEN, under my hand and seal this 16th day of November, Two Thousand and Twenty, and of the Independence of the United States, the Two Hundred and Forty-Fifth.

[seal]

/s/ Philip D. Murphy

Governor

Attest:

/s/ Parimal Garg

Chief Counsel to the Governor

NEW JERSEY TRANSIT CORPORATION
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1. GENERAL REQUIREMENTS

1.1 ABBREVIATIONS AND DEFINITIONS

1.1.1 ABBREVIATIONS:

AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
AMTRAK	National Railroad Passenger Corporation
ANSI	American National Standards Institute (Formerly USASI, United States of American Standards Institute, and ASA, American Standard Association)
AREMA	American Railway Engineering and Maintenance Association (Formerly AREA, American Railway Engineering Association)
ASTM	American Society for Testing and Materials
B&B	Building and Bridges Inspectors
CONRAIL	Consolidated Rail Corporation
CFR	Code of Federal Regulations
CPM	Critical Path Method
DCA	New Jersey Department of Community Affairs
FTA	Federal Transit Administration
IOM	Integrity Oversight Monitor
MSDS	Material Safety Data Sheet(s)
NFPA	National Fire Protection Association
NJAC	New Jersey Administrative Code
NJDOT	New Jersey Department of Transportation
NJSCA	New Jersey State Council on the Arts
NJ TRANSIT	New Jersey Transit Corporation
NJUCC	New Jersey Uniform Construction Code
NJUFC	New Jersey Uniform Fire Code
NPC	Notice of Proposed Change
OSHA	Occupational Safety and Health Administration, and Occupational Safety and Health Act of 1970, and amendments thereto; United States Department of Labor
PMO	Project Management Oversight
RFI	Request for Information
USDOT	United States Department of Transportation

1.1.2 DEFINITIONS:

Acceptance of the Work: The act of the Contracting Officer, or the Contracting Officer's authorized representative, by which NJ TRANSIT accepts the Work performed as partial or complete performance of the requirements of the Contract on the part of the Contractor.

Addendum (plural Addenda): Written interpretations, clarifications, and revisions to any of the Contract Documents issued by NJ TRANSIT before the Bid opening.

Advertisement: The public announcement, as required by law, inviting Bids for Work to be performed, materials to be furnished, or both.

Affiliate: Any entity that (1) directly, indirectly, or constructively controls another entity, (2) is directly, indirectly, or constructively controlled by another entity, or (3) is subject to the control of a common entity. An entity controls another entity if it owns, directly or individually, more than 50% of the ownership in that entity.

Allowance: An item included in the Bidder's Proposal for the exclusive use and benefit of NJ TRANSIT.

Amendment: A modification to the Bid Form issued through NJ TRANSIT's electronic bidding website: www.bidexpress.com

Approved Equal: A product which, in the opinion of the Engineer , complies with the technical specification requirements in form, fit, functionality, maintainability, useful life and quality of performance.

Approval: The written endorsement, sanction, or authorization by NJ TRANSIT, or its designated representative of a proposal, plan, procedure, action, document, report, specification, design, or any part thereof, undertaken, promulgated, or developed by the Contractor in accordance with the indicated requirements of the Contract.

Architect: The term Architect shall be used interchangeably with Engineer and shall have the same meaning as Engineer.

Award: Written notice by NJ TRANSIT to the lowest responsive and responsible Bidder of NJ TRANSIT's approval of its bid.

Bid: The proposal or offer of the Bidder for the Work, when completed and submitted on the prescribed Bid Forms, properly signed, dated, and guaranteed, and which includes the schedule of Bid Items.

Bid Security: The Bid bond, cashier's check, certified check or irrevocable letter of credit accompanying the Bid submitted by the Bidder guaranteeing that the Bidder shall enter into a Contract with NJ TRANSIT for the performance of the Work indicated and will provide acceptable bonds and insurance if the Contract is awarded to it.

Bidder: An individual, firm, partnership, corporation, joint venture or combination thereof submitting a proposal for the Work contemplated as a single business entity and acting directly or through a duly authorized representative.

Bidder's Proposal: The prescribed Bid Forms which contain the schedule of Bid Items, including all required Proposal Forms, and the Bidder's declaration to perform the Work for the prices bid.

Business Day: Any weekday excluding Saturdays, Sundays, State holidays and State mandated closings unless otherwise indicated.

Business Organization: An individual, partnership, association, joint stock company, trust, corporation, or other legal business entity or successor thereof.

Business Registration: A Business Registration certificate issued by the New Jersey Department of the Treasury

Division of Revenue and Enterprise Services, or such other form or verification that a Contractor or Subcontractor is registered with the Department of Treasury.

Calendar Day: Each and every day shown on the calendar. If the last day for a submission based on Calendar Days falls on a Saturday, Sunday or holiday, the submission period continues to run until the end of the next day that is not a Saturday, Sunday or holiday.

Change Order: A written order issued by the Contracting Officer of NJ TRANSIT to the Contractor delineating changes in the Contract Documents in conjunction with one or more Notice(s) of Proposed Change and establishing, if appropriate, an equitable adjustment to the Contract Price or Contract Time for the Work affected by the change(s).

Construction Equipment: All machinery and equipment, together with the necessary supplies for upkeep and maintenance, and also tools and apparatus necessary for the proper and acceptable completion of the Work.

Construction Manager: NJ TRANSIT's Senior Vice President (SVP) of Capital Programs or Deputy General Manager of Infrastructure Engineering (DGM) acting, directly or through the SVP's or DGM's authorized representatives at the Construction Site, within the scope of duties assigned to them.

Construction Site: The geographical area of the property at which the Contract Work is performed, as authorized and identified by NJ TRANSIT.

Consultant: A firm or individual contracting with and providing professional services to NJ TRANSIT.

Contract: The written agreement executed by the Contracting Officer of NJ TRANSIT and the Contractor which covers the performance of the Work, the furnishing of labor, materials, tools, and equipment and the basis of payment, and which incorporates the various Contract Documents. The Contract represents the entire and integrated agreement between the parties and supersedes all prior negotiations, representations or agreements either written or oral.

Contract Documents: The Contract Documents include: The Instruction to Bidders, General Provisions for Construction, Special Provisions, Technical Provisions, Contract Drawings, Contractor Bid Proposal including required Contract and Proposal Forms, Documents referenced by these Specifications, the Notice(s) to Proceed, Directive Letters, Change Orders, and Addenda.

Contract Drawings (Drawings): The official plans, sections, elevations and details in the Contract Documents or Amendments thereto and supplemental Drawings approved by NJ TRANSIT which show the locations, character, dimensions, and details of the Work to be performed.

Contract Item (Pay Item): A specifically described product or unit of Work for which a price is listed in the Contract or the Contractor Bid Proposal.

Contractor Bid Proposal: The Bidder's Proposal submitted by the Contractor.

Contractor Initiated Change Order Request (CICOR): A request submitted to NJ TRANSIT by the Contractor specifying a proposed addition, deduction, or change to the Contract Documents.

Contract Limit: The lines shown on the Drawings beyond which no construction Work shall be performed unless otherwise noted on the Drawings or in the Specifications.

Contract Time: The number of Calendar Days or specified date set forth in the Contract for substantial completion of the Work, including Amendments authorized by Change Order thereto; also referred to as Time of Completion. Contract Time begins on the date of the Notice to Proceed which is day one (1) of the Contract Time.

Contracting Officer: NJ TRANSIT's Chief of Procurement & Support Services acting, directly or through the Chief of Procurement & Support Services authorized representative(s), within the scope of duties assigned to him or her.

Contractor: The individual, firm, partnerships, corporation, joint venture, or any combination thereof, who, as an independent contractor, has entered into a Contract with NJ TRANSIT, as party or parties of the second part and who is referred to throughout the Contract Documents by singular number and non-specific gender.

Days: Days, as used in the Specifications shall be understood to mean Calendar Days unless otherwise designated.

Directive Letter: A letter issued by the Contracting Officer, or the Contracting Officer's duly authorized designee, directing the Contractor to proceed with added, deleted or changed Work.

Drawings: See Contract Drawings.

Engineer: The authorized representative of NJ TRANSIT providing design and engineering services for the Project. This may be either internal NJ TRANSIT staff or an outside consultant working at the direction of NJ TRANSIT staff.

Execution of the Contract: The signing of the Contract by the authorized representative of NJ TRANSIT and the authorized representative of the Contractor.

Executive Director: The President and CEO of NJ TRANSIT appointed in accordance with N.J.S.A. 27:25-1 et seq. and NJ TRANSIT's by-laws, or his/her designee.

Extra Work: An item of Work not provided for in the Contract as awarded but found essential to the acceptable completion of the Contract within its intended scope.

Failure: Inability of a component, equipment, or system to function or perform in accordance with the indicated requirements.

Federal Transit Administration: Formerly known as the Urban Mass Transportation Administration, an agency within the United States Department of Transportation.

Final Inspection: The inspection conducted by NJ TRANSIT's Project Manager to determine if the Work, or any substantial portion thereof, declared by the Contractor to be completed, has been satisfactorily completed in accordance with the requirements of the Contract and Contract Documents, and properly conditioned for final acceptance by the Contracting Officer.

Form, Fit, and Function: The technical documentation describing the physical and functional characteristics of an item as an entity, but not including any characteristics of the elements making up the item.

General Provisions: The general conditions of the Contract set forth in the Contract Documents as the General Provisions for Construction.

Government: The Government of the United States of America.

Holiday(s): Specific day(s) on which NJ TRANSIT is not open for business.

Inspector: The Construction Manager's authorized representative assigned to observe Contract performance and materials furnished by the Contractor.

Installed Equipment: Equipment incorporated into the Work under this Contract.

Installer: The Contractor or entity (person or firm) engaged by the Contractor or its Subcontractor at any tier for the performance of a particular unit of Work at the Project site, including installation, erection, application and similar required operations.

Integrity Oversight Monitor: A private entity that is under Contract with NJ TRANSIT to provide specialized services to ensure legal compliance, detect misconduct, and promote best practices in the administration of recovery and rebuilding projects, which services may include, but should not be limited to, legal, investigative, accounting, forensic accounting, engineering, other professional specialties, risk assessment, developing compliance system constructs, loss prevention, monitoring, contract managers and independent private inspectors general as applicable.

Invitation for Bids: The set of documents issued by NJ TRANSIT's Procurement Department for the purpose of soliciting Bids.

Joint Venture: A legal association of Contractors formed for the purpose of bidding and executing a Contract as a single business entity.

Logo: An abbreviation for logotype, trademark or symbol.

Materials: Substances specified for use in the Work and its appurtenances.

May: Denotes that which is permissible or recommended not mandatory.

Must: Denotes that which is a mandatory requirement.

NJ TRANSIT: A public instrumentality of the State of New Jersey established by the New Jersey Public Transportation Act, N.J.S.A. 27:25-1 et seq.

Notice of Proposed Change (NPC): A notice issued to the Contractor by NJ TRANSIT specifying a proposed addition, deduction or change to the Contract Documents. A Notice of Proposed Change is not an order to incorporate revisions into the Work.

Notice(s) to Proceed: The Directive Letter from the Contracting Officer or their designee to the Contractor authorizing the Contractor to commence the performance of the Work required by the Contract or for added, deleted or changed Work.

Owner: The New Jersey Transit Corporation (NJ TRANSIT).

Performance and Payment Bonds: The approved form of security furnished by the Contractor and its surety guaranteeing complete performance of the Contract in conformity with the Contract Documents and the payment of legal obligations pertaining to the construction of the Contract.

Project: The specific Work required to be performed by the Contractor as described in the Contract Documents.

Project Data: Illustrations, standard schedules, performance charts, instructions, brochures, diagrams, performance and test data, test procedures, existing Drawings, operational manuals, maintenance manuals, spare parts lists and data, descriptive literature, catalogs, catalog cuts, and other information furnished by the Contractor to illustrate a material, product or equipment and to support its test, installation, operation or maintenance.

Project Management Oversight: Continuous review and evaluation of grantees and FTA processes to ensure compliance with federal, state and local statutory, administrative and regulatory requirements as applicable.

Project Manager: NJ TRANSIT's Senior Vice President (SVP) of Capital Programs or Deputy General Manager (DGM) of Infrastructure Engineering acting, directly or through their authorized representative(s), within the scope of the particular duties assigned to them.

Proposal: See Bid.

Purchase Order: The written document generated by NJ TRANSIT's Procurement Department and issued to the Contractor for its billing and payment purposes.

Quotation: The Contractor's written response to the Notice of Proposed Change.

Reliability: The probability that equipment or a system will perform its intended functions without failure and within design parameters under specified operating conditions for which designed and for a specific period of time.

Remaining Work: Any and all Work remaining to be performed after Substantial Completion, including but not limited to, punch list Work, which in the opinion of the Engineer is necessary for full conformance to the Contract.

Samples: Physical examples which illustrate materials, equipment or workmanship and establish standards by which the acceptability of the Work will be judged.

Shall: Denotes that which is a mandatory requirement.

Shop Drawings: Original Drawings, submitted to the Construction Manager by or through the Contractor, Subcontractor or any lower tier Subcontractor pursuant to the Work, including, but not limited to: stress sheets, working Drawings, diagrams, illustrations, schedules, performance charts, brochures, erection plans, falsework plans, framework plans, cofferdam plans, bending diagrams for reinforcing steel, reinforced concrete formwork Drawings, or other supplementary plans or similar data which are prepared by the Contractor or a Subcontractor, manufacturer, supplier or distributor, and which the Contractor is required to submit to the Construction Manager for review and approval by the Engineer.

Should: Denotes that which is permissible or recommended, not mandatory.

Special Provisions: Special Provisions are supplementary specified clauses setting forth conditions or requirements peculiar to the Work taking precedence over the General Provisions for Construction.

Specifications: The directions, provisions, and requirements contained or referred to in the Contract Documents, together with all duly authorized written agreements and directives made or to be made

pertaining to the manner of performing the Work, or to the quantities and qualities of materials to be furnished or the quantities and qualities of Work to be performed under the Contract.

State: The State of New Jersey.

Subcontractor: Any individual, partnership, firm or corporation who undertakes for the Contractor, with the prior approval of the Project Manager, the partial or total manufacture or installation, or both, of one or more items of Work under the terms of the Contract, or who performs other services for the Contractor as required to fulfill the terms of this Contract, by virtue of an agreement with the Contractor.

Substantial Completion: The point at which the Project Manager determines that the performance of Work or portion thereof under the Contract, except Remaining Work, has been completed: provided that the Project Manager has determined, in the Project Manager's sole discretion, that (1) the Project is safe and convenient for use and occupancy by the public and NJ TRANSIT employees and visitors; and (2) the Project and facilities resulting therefrom may be used for the purposes for which they were intended.

Substitution: A product which, in the opinion of the Engineer, does not comply in form, fit, functionality, maintainability, useful life and quality of performance, with the technical specification requirements yet is proposed by the Contractor for incorporation into the Work in lieu of a specified product.

Superintendent: The Contractor's designated representative at the Construction Site responsible for the supervision and coordination of the Work.

Supplier: Any individual, partnership, firm or corporation which provides materials or equipment but not labor or services to the Contractor in partial fulfillment of the Scope of the Work of the Contract and who is responsible to the Contractor by virtue of an agreement.

Surety: The corporate body authorized to issue surety bonds in New Jersey which is bound with and for the Contractor for the guarantee of its proposal and the satisfactory performance of the Work by the Contractor, and the prompt payment in full for materials, labor, equipment, rentals, utility services, and debts and obligations, as provided in the bonds.

Total Bid: The total monetary amount of the Contractor's Bid proposal in dollars for performance of the Work of the entire Contract.

Technical Data: Written, typed or printed material prepared by the Contractor, Subcontractors, vendors and suppliers or others, whether or not copyrighted, and submitted by the Contractor in response to the requirements set forth in these Specifications. Technical data include, but are not limited to, product data, shop Drawings, pictorial representations, reports, schedules, studies, and assessments.

Technical Provisions: The Technical Provisions are specific requirements setting forth the materials and methods required to accomplish the Work.

Upset Price: The maximum not to exceed the amount established by or agreed to by NJ TRANSIT.

U.S. Department of Transportation: The Secretary of the U.S. Department of Transportation, and other persons who may at the time be acting in the capacity of the Secretary, or an authorized representative or other persons otherwise authorized to perform the functions to be performed by USDOT, including representatives of the Federal Transit Administration (FTA).

Work: Work shall mean the furnishing of labor, materials, equipment, and other incidentals necessary or convenient to the successful completion of the Project and the carrying out of the duties and obligations imposed by the Contract, including alterations, Amendments or extensions.

Work Day: Each and every day Work is scheduled by the Contractor and allowed or approved to be performed by NJ TRANSIT's Construction Manager.

1.2 ORDER OF PRECEDENCE

The sequence of precedence pertaining to the Contract Documents is as follows:

Directive Letters
Contract Change Orders
Notice to Proceed
Contractor Bid Proposal
Addenda, if any
Special Provisions, if any
General Provisions
Technical Provisions
Contract Drawings
Details
Figured Dimensions
Scaled Dimensions
Referenced Standards
Instruction to Bidders

1.3 REFERENCED STANDARDS

1.3.1 All materials, equipment, and workmanship, specified by the number, symbol or title of a referenced standard shall comply with the latest edition or revision thereof and all Amendments and supplements thereto in effect on the date of the opening Bids, except where a particular issue is indicated in the reference. Where products or workmanship are specified by an association, trade or federal standard, Contractor shall comply with the requirements of that standard, except where exceeded by the requirements of the Contract plans and Specifications or regulatory authorities. Where referenced standards are in conflict, the more stringent shall apply. In case of conflicting requirements between Referenced Standards and the Contract Documents, the Contract Documents shall govern.

1.3.2 Where the New Jersey Uniform Construction Code, its adopted subcodes and their referenced standards, and the other regulations described in Article 1.6 are silent regarding the construction requirements of the Work specified herein, installation shall be in accordance with the most current versions of the following:

1.) National Fire Protection Association (NFPA) Standard 130 - Standard for Fixed Guideway Transit Systems;

2.) American Railway Engineering and Maintenance Association (AREMA) Manual of Railway Engineering;

3.) Industrial Risk Insurers (IRI) Standards;

4.) NJ TRANSIT Standards as identified in the Contract Documents;

5.) NJ TRANSIT Signs Standards Manual; and

6.) NJDOT Standard Specification for Road Bridge Construction -except Section 100(current version).

1.4 INTENTION

1.4.1 The Contract Documents are intended to provide for and comprise everything necessary to the proper and complete finishing of the Work in every part notwithstanding that each and every item necessary may not be shown on Drawings or mentioned in the Specifications. The Contractor shall abide by and comply with the true intent and meaning of all the Contract Documents taken as a whole, and shall not avail itself of any apparent error or omission, should any exist.

1.4.2 The Contractor's execution of this Contract constitutes its certification that it satisfied itself, through personal inspection, as to the correctness of information given which may affect the quantity, size, and quality of materials required for a satisfactorily completed Contract, whether or not such information is indicated on the Drawings or within the Specifications. The Contractor confirms that it checked and verified conditions outside of the Contract Limit Lines to determine whether or not any conflict exists between elevations or other data shown on the Drawings and existing elevations or other data outside of the Contract Limit Lines.

1.4.3 Work that may be called for in the Specifications and not shown on the Drawings or shown on the Drawings and not called for in the Specifications shall be executed and furnished by the Contractor as if described in both. Should Work or materials be required which are necessary for the proper carrying out of the intent thereof, the Contractor shall understand same to be implied and required and it shall perform such Work and furnish such materials as fully as if they were particularly delineated or described.

1.4.4 The Contractor shall not at any time after the execution of this Contract set up any claims whatsoever based upon insufficient data, patent ambiguities, inconsistencies or confusion in the Contract Documents or incorrectly assumed conditions, nor shall it claim any misunderstanding with regard to the nature, conditions or character of the Work to be done under the Contract, except as provided for under Article 8.4-DIFFERING, LATENT OR UNUSUAL SITE CONDITIONS.

1.4.5 Should any error or discrepancy appear or should any doubt exist or any dispute arise as to the true intent and meaning of the Contract Documents, or should any portion of same be obscure or capable of more than one method of construction, the Contractor shall immediately apply in writing to the Construction Manager for the correction or explanation thereof and, in case of dispute, the Contracting Officer's decision shall be final.

1.4.6 Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise such provision is not inserted, or is not correctly inserted, then upon the application of either party the Contract shall forthwith be physically amended to make such insertion or correction.

1.4.7 NJ TRANSIT may act directly through its own employees or may act indirectly through retained independent third party Contractors and consultants and their employees. The Contractor shall be advised by the Contracting Officer of those persons authorized to act on NJ TRANSIT's behalf.

1.4.8 A waiver on the part of NJ TRANSIT of any breach of any part of the Contract shall not be held to be a waiver of any other or subsequent breach.

1.5 INTERPRETATION

1.5.1 The headings of the articles herein are for convenience of reference only and shall have no bearing on their interpretation. Whenever in these Contract Documents the following terms are used, the intent and meaning shall be interpreted as defined herein. All of the terms used herein are treated throughout the Contract as if each were the singular number and non-specific gender.

1.5.2 Wherever in the Contract Documents the words "directed", “required”, "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription" of NJ TRANSIT is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import, shall mean "approved by", or "acceptable to", or "satisfactory to" NJ TRANSIT unless otherwise expressly stated. Where "as shown", "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the Specifications and Drawings accompanying the Contract unless stated otherwise.

1.5.3 References to all Articles or Sections include all Subarticles or subsections under the Article referenced, and references to all Subarticles include all Subarticles.

1.6 PERMITS, LAWS, AND REGULATIONS

1.6.1 NJ TRANSIT in entering into this Contract does not waive its sovereign immunity except as provided in the New Jersey Contractual Liability Act, N.J.S.A. 59:13-1 et seq. The terms and conditions of the Contract are not intended to, and shall not be deemed to expand the waiver of sovereign immunity as set forth in that Act.

1.6.2 The Work under this Contract is subject to Federal, State, and local laws, ordinances, codes, and regulations, including those of railroad companies and utility companies, for Work on the Project. Except as otherwise provided in the Contract Documents, the Contractor shall obtain and pay for necessary permits and make necessary arrangements with the authorities having jurisdiction. Where the Contractor's compliance with Federal, State or local laws, ordinances, codes or regulations may or will conflict with the Contract, the Contractor shall notify the Construction Manager in writing for appropriate action.

1.6.3 NJ TRANSIT will supply the Contractor with applications for construction permits, as required by the New Jersey Department of Community Affairs (DCA). Within seven (7) Calendar Days the Contractor shall return signed and sealed permit applications to NJ TRANSIT. NJ TRANSIT will submit the Contractor's applications along with all fees required, to the DCA. The fees for all DCA applications shall be the responsibility of NJ TRANSIT.

(a) Except as otherwise provided in the Contract Documents, all Work shall be performed in accordance with the New Jersey Uniform Construction Code (NJUCC), N.J.A.C. 5:23-1 et seq., its adopted subcodes, and their referenced standards. Specific requirements of the NJUCC and its adopted subcodes shall supersede any conflicting requirements in other documents referenced herein.

(b) The Contractor shall be responsible for assisting NJ TRANSIT in the preparation and submission of any new or revised plans and Specifications required due to DCA requests for clarification, changes in scope of Work, etc., necessary for obtaining amended or additional permits or approvals for Work for which NJ TRANSIT has already secured construction permits.

(c) The Contractor shall be responsible for requesting utility location markups and obtaining permits and approvals from utility authorities and other authorities having jurisdiction.

1.6.4 It shall be the responsibility of the Contractor to keep itself fully informed concerning all requirements of law, including but not limited to, all Federal, State, and local laws, ordinances, codes, and regulations which in any manner affect the Project, and of all such orders and decrees of bodies or tribunals having jurisdiction or authority over the same. The Contractor shall at all times observe, and shall cause its Subcontractors, agents, and employees to observe, such requirements of law, and shall defend, indemnify, save, and hold harmless the State of New Jersey and NJ TRANSIT and all of their officers, agents, and employees against claims and liabilities arising from or based upon the violation of such requirement of law whether by the Contractor or its agents, Subcontractors or employees.

1.6.5 Plumbing, drainage, and sewage disposal Work shall conform with applicable Federal, State, and all relevant utility regulator environmental laws and regulations.

1.6.6 Electrical and applicable mechanical materials and systems shall bear the label of the Underwriters' Laboratories (UL) and shall be listed in the publication issued by the UL. Other materials or systems bearing labels of other testing laboratories may be accepted upon written approval of the Engineer. Rules of the

National Fire Protection Association shall be followed explicitly unless deviations are agreed to in writing by the Engineer or otherwise modified by these Specifications.

1.6.7 Work shall be conducted in accordance with all applicable regulations as promulgated by the Commissioner of Labor and Workforce Development under the authority of the Construction Safety Act, N.J.S.A. 34:5-166 to 182, and applicable provisions of the Occupational Safety and Health Administration (OSHA), 29 C.F.R. 1910, Rules and Regulations. Where the Construction Safety Code refers to the designation of General Contractor for enforcing compliance with the Code, such designation shall be intended to refer to the Contractor.

1.6.8 Construction Work shall be performed in accordance with the requirements of the New Jersey Uniform Fire Code (NJUFC), N.J.A.C. 5:71-1 et seq.

1.6.9 The Contractor shall immediately notify the Construction Manager should any review or inspection by any regulatory agency or official result in the issuance of a citation or notice of violation of any permit, regulation, statute or other governmental rule.

1.7 FEDERAL, STATE, AND LOCAL TAXES

Except as may be otherwise provided in the Contract, each Contract Item shall include all applicable taxes and duties. N.J.S.A. 54:32B-9 provides that any sale or service to NJ TRANSIT is not subject to the sales and use taxes imposed under the Sales and Use Tax Act. N.J.S.A. 54:32B-8.22 provides that sales made to Contractors or repairmen of materials, supplies or services for exclusive use in erecting structures, or building on, or otherwise improving, altering or repairing real property of NJ TRANSIT are exempt from the tax on retail sales imposed by the Sales and Use Tax Act. The exemption provided under N.J.S.A. 54:32B-8.22 is conditioned on the person seeking such exemption qualifying therefore pursuant to the rules and regulations and upon the forms prescribed by the New Jersey Division of Taxation. The required form, "Contractor's Exemption Purchase Certificate" (Form No. ST-13), can be obtained by writing or calling the New Jersey Division of Taxation, Tax Information Service (TIS), West State and Willow Streets, Trenton, New Jersey 08625.

NJ TRANSIT is exempt from Federal Excise Taxes. The State of New Jersey's Federal Excise Tax exemption number is 22-75-0050K.

The Contractor and any Subcontractor providing goods or performing services under the Contract, and each of their Affiliates, shall, during the term of the Contract, collect and remit to the Director of the Division of Taxation in the Department of the Treasury the use tax due pursuant to the “Sales and Use Tax Act”, P.L 1966, c. 30 (N.J.S.A. 54:32B-1 et seq.) on all their sales of tangible personal property delivered into the State.

1.8 INDEPENDENT CONTRACTOR

The relationship of the Contractor to NJ TRANSIT is that of an independent Contractor, and said Contractor, in accordance with its status as an independent Contractor, covenants and agrees that it will conduct itself consistent with such status, that it will neither conduct itself as nor claim to be an officer or employee of NJ TRANSIT or the State by reason thereof. The Contractor will not, by reason thereof, make any claim, demand or application to or for any right or privilege applicable to an officer or employee of NJ TRANSIT or the State, including, but not limited to, worker's compensation coverage, unemployment insurance benefits, social security coverage or retirement membership or credit.

1.9 ASSIGNING AND SUBCONTRACTING CONTRACT

1.9.1 The Contractor shall not transfer, assign or otherwise dispose of the Contract or Contract funds, due or to become due, or claims of any nature it has against NJ TRANSIT to any other party except upon the express written approval of NJ TRANSIT, which approval NJ TRANSIT shall not unreasonably withhold. Application for subcontracting any part or parts of the Work shall be made by the Contractor and shall be addressed to NJ TRANSIT through the Construction Manager. The Contractor shall perform with its own organization and with the assistance of workmen under its immediate superintendence, Work amounting to not less than twenty percent (20%) of the Contract Price, exclusive of Bid Items for Insurance, Performance/Payment Bonds, Mobilization and Allowances.

1.9.2 At the Preconstruction Meeting, the Contractor shall submit to the Construction Manager a list of, and Subcontractor Evaluation Data Forms (Appendix A) for, all Subcontractors to be used on the Project within the first two months. The list shall identify the Subcontractor's name, nature of Work and value of Work to be performed, and date Work is to start. Thereafter, the Contractor shall provide the Construction Manager and the Office of Business Development with at least fifteen (15) Calendar Days' notice before engaging additional or alternative Subcontractors. Each proposed Subcontractor shall submit a completed Subcontractor Evaluation Data Form. NJ TRANSIT reserves the right to reject any Subcontractor with unsatisfactory qualifications, experience or record of performance. No Contract shall be entered into by the Contractor with a Subcontractor before its name has been approved in writing by the Construction Manager.

All Subcontractors are required to comply with the Public Works Contractor Registration Act N.J.S.A. 34:11-56.48 et seq. as amended. Subcontractors shall not engage in the performance of any public work as defined in N.J.S.A. 34:11-56.26 unless the Subcontractor is registered pursuant to the Act. As part of the post award Subcontractor approval process detailed above, certificates of registration shall be submitted to NJ TRANSIT's Construction Manager for each Subcontractor.

In accordance with N.J.S.A. 52:32-44 all Subcontractors must obtain a Business Registration Certificate prior to performing Work or providing goods and/or services on the contract. A Subcontractor shall provide a copy

of its Business Registration to the Contractor who shall forward it to NJ TRANSIT. No contract with a Subcontractor shall be entered into by the Contractor unless the Subcontractor first provides proof of valid Business Registration.

The Contractor shall maintain a list of the names of all Subcontractors and their current addresses, updated as necessary during the course of the Contract performance. In conjunction with the Subcontractor approval process detailed above, the Contractor shall submit a complete and accurate list of the Subcontractors to NJ TRANSIT before for final payment is made.

1.9.3 The Contractor agrees that it is as fully responsible to NJ TRANSIT for the acts and omissions of its Subcontractors and of persons either directly or indirectly employed by them as it is for the acts and omissions of persons directly employed by the Contractor. The Contractor hereby gives its assurance that, when minimum wage rates are specified in lieu of prevailing wage, those rates shall apply to labor performed on all Work subcontracted, assigned or otherwise disposed of in any way.

1.9.4 The Contractor agrees to bind every Subcontractor to and have every Subcontractor agree to be bound by the terms of the Contract Documents, as far as applicable to its Work. Each Subcontractor Evaluation Data Form shall contain the Subcontractor's certification that it has reviewed and is familiar with the Contract Documents in their entirety and that the Subcontractor shall comply with all Contract requirements.

1.9.5 It is understood, however, that any consent of NJ TRANSIT for the subcontracting of any of the Work of the Contract in no way relieves the Contractor from its full obligations under the Contract. Approval by NJ TRANSIT of a Subcontractor, including a material supplier, does not relieve the Contractor or its Subcontractor of the responsibility of complying with the Contract Documents. Further, the approval of a Subcontractor does not imply approval of any material, installed equipment, substitution or additional Approved Equal.

1.9.6 When the Contractor proposes to subcontract a portion of an item which involves a breakdown of the unit of measurement of that item, it shall submit a breakdown of cost showing the value of the portion of the item to be subcontracted in relation to the value of the whole item, which shall be subject to the approval of NJ TRANSIT.

1.9.7 Nothing contained in the Contract Documents shall create any contractual relation between any Subcontractor and NJ TRANSIT. The consent to subcontract any part of the Work shall not be construed to be an approval of the said subcontract or of any of its terms, but shall operate only as an approval of the Contractor's request for the making of a subcontract between the Contractor and its chosen Subcontractor.

1.10 CONTRACTING OFFICER'S AUTHORITY

The Contracting Officer is the final interpreter of the terms and conditions of the Contract and the judge of its performance. The Contracting Officer has the sole authority to execute the Contract; order additions, deductions and changes to the Work; render final decisions on disputes; suspend or terminate the Work, or portions thereof; and accept or reject Contractor performance.

1.11 PROJECT MANAGER'S AUTHORITY

In connection with the Work to be performed under the Contract, the Project Manager shall be the technical representative of the Contracting Officer. The Project Manager shall review and approve the Contractor's invoices, after certification by the Construction Manager, and the Project Manager shall authorize payments. When duly authorized in writing by the Contracting Officer, the Project Manager shall have the authority to give approval of and order changes in the Work. The limits of this authorization shall be specified in writing by the Contracting Officer and provided to the Contractor. The Project Manager shall monitor the performance of the Contract, shall determine Substantial Completion of the Work and recommend to the Contracting Officer its Final Acceptance.

1.12 CONSTRUCTION MANAGER'S AUTHORITY

The Construction Manager shall apply the Contract Documents, and shall judge the quantity, quality, fitness, and acceptability of all parts of the Work. In addition, the Construction Manager shall determine whether specific items of construction Work, methods or materials are properly specified in the Contract Documents. In the event of a dispute, the Contractor shall proceed diligently with the performance of the Work in accordance with the Construction Manager's determination, pending the decision of the Contracting Officer. The Construction Manager shall certify Contractor's invoices for Work performed and materials delivered to the site, and shall be given access to the Work for inspection at all times. The Construction Manager shall not have authority to give approval of nor order changes in Work which alter the terms or conditions of the Contract, nor which involve additional cost or Contract Time unless duly authorized in writing by the Contracting Officer. The Construction Manager may, however, make recommendations to the Contracting Officer for such changes, whether or not costs are to be revised and the Contracting Officer may act, at the Contracting Officer's discretion, on the basis of the Construction Manager's recommendations. The Construction Manager has the authority to reject unsuitable material or suspend Work that is being improperly performed.

1.13 INSPECTOR'S AUTHORITY

Inspectors are authorized to inspect Work done and materials furnished. Such inspection may extend to all or any part of the Work and to the preparation, fabrication or manufacture of the materials to be used. Inspectors are not authorized to alter or waive the provisions of the Contract. Inspectors are not authorized to issue instructions contrary to the Contract Documents, or to act as foremen for the Contractor; however,

they shall have the authority to reject Work or materials until a question at issue can be referred to and decided by the Construction Manager.

1.14 NOTICE AND COMMUNICATION

1.14.1 Written notice shall be deemed to have been duly served and received by NJ TRANSIT and the Contractor if: **(A)** Delivered in person to the intended individual, to a member of the firm, an officer of the corporation or their authorized representative on the Work, or **(B)** Sent by certified mail, or other mail or courier service, with delivery receipt, to the last business address known to the individual who gives the notice, or **(C)** Sent by electronic mail, followed by a hard copy to the last business address known to the individual who gives the notice.

1.14.2 Communications to the Contractor shall be transmitted through and coordinated by the Contractor's authorized representative(s), as designated at the Pre-Construction Conference.

1.14.3 Communications to NJ TRANSIT shall be transmitted through and coordinated by the Construction Manager. Correspondence shall be addressed to the appropriate NJ TRANSIT authorized representative as set forth in the Contract Documents or as otherwise designated by NJ TRANSIT at the Pre-Construction Conference. Upon written notice to the Contractor, NJ TRANSIT may change its authorized designee(s) at any time.

1.14.4 All communications to NJ TRANSIT shall be clearly marked with NJ TRANSIT's Contract Number and Contract Title.

1.15 DISPUTES

Disputes regarding whether a party has failed to make payments may be submitted to a process of alternative dispute resolution. Disputes arising in the performance of this Contract, which are not resolved by agreement of the parties shall be decided in writing by the authorized representative of the Contracting Officer. This decision shall be final and conclusive unless, within ten (10) Calendar Days from the date of receipt of its copy, the Contractor mails or otherwise furnishes a written appeal to the Contracting Officer. In connection with any such appeal, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its position. Pending final decision of a dispute hereunder, the Contractor shall proceed diligently with performance of the Contract in accordance with the decision of the authorized representative of the Contracting Officer.

1.16 GOVERNING LAW; CONSENT TO JURISDICTION AND WAIVER OF TRIAL BY JURY

1.16.1 This Contract shall be construed in accordance with and shall be governed by the Constitution and laws of the State of New Jersey.

1.16.2 Except as otherwise provided in this Contract, disputes, and claims arising under this Contract which are not disposed of by mutual agreement shall be governed by the laws of the State of New Jersey as they may from time to time be in effect. The Contractor, by entering into this Contract, consents and submits to the exclusive jurisdiction of the Courts of the State of New Jersey over any action at law, suit in equity or other proceeding that may arise out of this Contract, and the Contractor agrees, during the period of performance and of Warranty, to maintain within the State of New Jersey an agent to accept service of legal process on its behalf. Notwithstanding the language of N.J.S.A. 59:13-4, the Contractor expressly waives trial by jury on any and all disputes and claims arising out of this Contract whether by or against the Contractor, NJ TRANSIT or any other person or entity.

1.17 AUDIT AND INSPECTION TO RECORDS

The Contractor shall retain all Contract records and permit the authorized representatives of NJ TRANSIT, the State of New Jersey, the USDOT , the FTA and the Comptroller General of the United States and their duly authorized representatives, such as Project Management Oversight (PMO, Integrity Oversight Monitors (IOM) etc. to inspect and audit all financial data, operational data and other records of the Contractor including but not limited to disclosure forms, payment requests, change orders, invoices, certified payrolls, manifests, etc. relating to products, transactions or services provided under this Contract including the performance of its Subcontractors from the date of the Advertisement of the Invitation for Bid (IFB) and for five (5) years after final payment under this Contract has been made.

NJ TRANSIT, the State of New Jersey, the USDOT, the FTA and the Comptroller General of the United States and their duly authorized representatives also shall have the right to examine all aspects of the products, transactions and services and specifically the right to conduct interviews, on-site visits, surveillance, field activities and head counts and to perform financial audits and operational reviews as deemed necessary to prevent, remediate or mitigate fraud, waste and abuse. Any inspection, audit or review or lack thereof shall not relieve the Contractor of responsibility for satisfactory performance of the Work. Contractor shall maintain a true and correct set of records for all financial and operational data in sufficient detail to permit reasonable verification or correction of charges and performance in accordance with this Contract from the date of the Advertisement of the IFB and for five (5) years after final payment under this Contract has been made.

The Contractor further agrees to include in all its subcontracts hereunder a provision requiring the Subcontractor to keep all Contract records and that NJ TRANSIT, the U.S. Department of Transportation, the FTA and the Comptroller General of the United States or any of their duly authorized representatives , such as PMO, IOM etc. shall, until the expiration of five (5) years after final payment under the subcontract, have access to and the right to examine pertinent books, documents, papers, and records of such Subcontractor, involving transactions related to the Subcontractor. The term "Subcontractor" as used in this clause excludes (1) purchase orders not exceeding $10,000 and (2) subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public.

Pursuant to N.J.S.A. 52:15C-14(d), the Contractor shall maintain all documentation related to products, transactions or services under this contract for a period of five (5) years from the date of final payment. Such records shall be made available to the New Jersey Office of State Comptroller upon request.

The periods of access and examination described above, for records which relate to (1) appeals under the "Disputes" clause of the Contract, (2) litigation or the settlement of claims arising out of the performance of this Contract, or (3) costs and expenses of this Contract as to which exception has been taken by the Comptroller General, USDOT, FTA, NJ TRANSIT or the State of New Jersey or their duly authorized representatives, shall continue until such appeals, litigation, claims, or exceptions have been disposed of.

2. CONTRACT TIME, SUSPENSION AND TERMINATION

2.1 TIME OF COMPLETION - DELAY - LIQUIDATED DAMAGES

2.1.1 The Contractor and NJ TRANSIT recognize that delay in completion of the Project will result in damage to the State of New Jersey in terms of the effect of the delay in the use of the Project upon the public convenience and economic development of the State of New Jersey, and will also result in additional cost to NJ TRANSIT for engineering, inspection, and administration of the Contract. Because some of this damage is difficult or impossible to estimate, the parties agree that if the Contractor fails to substantially complete the Projector any interim milestones within the time stated in the Contract, or within such further time as may have been granted in accordance with the provisions of the Contract, or fails to complete Remaining Work, other than Punch List Work (as described in Article 13.2- SUBSTANTIAL COMPLETION) within the period fixed by NJ TRANSIT, the Contractor shall pay NJ TRANSIT liquidated damages, in accordance with the amount set forth in the Special Provisions for each day that it is in default on time to complete the Work. The days in default shall be the number of Calendar Days in default when the time for completion of the Project is specified on the basis of Calendar Days or a fixed date; and shall be the number of Work Days in default when the time for completion is specified on the basis of Work Days. NJ TRANSIT shall recover said damages by deducting the amount thereof from monies due or that may become due the Contractor, and if said monies be insufficient to cover said damages, then the Contractor or its Surety shall pay the amount due. This clause is expressly limited in purpose and effect to damages to NJ TRANSIT and the State of New Jersey as a consequence of the Contractor's failure to complete the Project on time. It is not intended, and shall not be construed, to apply to any other claim for damages or disputes arising from the Contractor's performance on the Project, nor shall it limit the Contractor's duty to indemnify NJ TRANSIT for claims made by third parties.

2.1.2 The Work embraced in this Contract including Work authorized under Article 3.1 shall commence as soon as possible but not later than ten (10) Calendar Days after receipt of a Notice to Proceed unless otherwise specified by NJ TRANSIT.

The Contractor agrees that said Work shall be prosecuted regularly, diligently, and without interruption, at such rate of progress as will ensure substantial completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and NJ TRANSIT, that the time for the completion of the Work herein is a reasonable time for the completion of the same. It is further agreed that float, or slack time, is not for the exclusive use or benefit of either the Contractor or NJ TRANSIT, as further described in Article 6.2- Construction Project Schedule.

2.1.3 It is further agreed that time is of the essence of each and every portion of this Contract and of the Specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever, and where under the Contract additional time is allowed for the completion of any Work, the new time limit fixed by such extension shall be of the essence of this Contract. The Contractor shall not be charged with liquidated damages when the delay in the completion of the Work arises from both: a.) causes beyond the reasonable control and without any fault or negligence of the Contractor, its officers, employees, agents, servants, Subcontractors, and suppliers, including but not restricted to, acts of God, or of the public enemy, acts of another contractor in the performance of a Contract with NJ TRANSIT, fires, floods, epidemics, quarantine restrictions, labor disputes not determined by final judicial or administrative adjudication to have been caused or provoked by the illegal acts of the Contractor or one of its Subcontractors or agents, freight embargoes, and unusually severe weather and, b.) such causes arise after the award of the Contract and neither were nor could have been anticipated by the Contractor by reasonable investigation before such award. The basis to define unusually severe weather will be the data showing high and low temperatures, precipitation and wind conditions in the geographic area of the Work for the previous twenty (20) years, as compiled by the recording station of the U.S. National Weather Service located nearest to the Work.

2.1.4 Even though a cause of delay meets both conditions a.) and b.) above, an extension shall be granted only to the extent that (i) the completion of the affected Work is actually and necessarily delayed, (ii) the effect of such cause could not be anticipated and avoided or mitigated by the exercise of all reasonable precautions, efforts and measures (including planning, scheduling and rescheduling) whether before or after the occurrence of the cause of delay, and (iii) the critical path of the Project schedule is actually extended due to the delay beyond the required Contract completion date. Any reference in this Article to the Contractor shall be deemed to include materialmen, suppliers, and Subcontractors, whether or not in privity of contract with the Contractor, all of whom shall be considered as agents of the Contractor for the purposes of this Article. A delay resulting from a cause meeting all conditions in Subarticle 2.1.3 and this Subarticle 2.1.4 shall be deemed an Excusable Delay.

2.1.5 The period of any extension of time shall be only that which is necessary to make up the time actually lost as determined by NJ TRANSIT. NJ TRANSIT may defer all or part of its decision on an extension and any extension may be rescinded or shortened if it subsequently is found that the delay can or could have been overcome or reduced by the exercise of reasonable precautions, efforts, and measures.

2.1.6 In case the Contractor shall be actually and necessarily delayed by reason of the failure of NJ TRANSIT to deliver to the Contractor access to the Project Site or any materials or facilities to be furnished by NJ TRANSIT which are actually needed for use in the Work, or by any act or omission on the part of NJ TRANSIT, and such delay is recognized by NJ TRANSIT in writing, such delay shall also be deemed to be an Excusable Delay. The time for completion of the Project shall be extended by NJ TRANSIT by the amount of time of such delay as determined by NJ TRANSIT, but no allowance by way of damages of any kind or nature will be made for such failure.

2.1.7 As a condition precedent to the granting of an extension of time, the Contractor shall give written notice to NJ TRANSIT within seven (7) calendar days after the time when the Contractor knows or should know of any cause which might under reasonably foreseeable circumstances result in delay for which it may claim an extension of time (including those causes for which NJ TRANSIT itself is responsible or of which NJ TRANSIT has knowledge), specifically stating in such notice that an extension is or may be claimed, identifying such cause and describing, as fully as practicable at that time, the nature and expected duration of the delay, including justification, and its effect on the completion of that part of the Work identified in the notice. Since the possible necessity for an extension of time may materially alter the scheduling plans and other actions of NJ TRANSIT and since, with sufficient notice, NJ TRANSIT may, if it should so elect, attempt to mitigate the effect of the delay for which an extension of time might be claimed, and since mere oral notice may cause dispute as to the existence or substance thereof, the giving of written notice as above required shall be of the essence of the Contractor's obligations hereunder. Failure to give the written notice within the aforementioned seven (7) calendar day period shall deprive the Contractor of any right to an extension of time, except to the extent that NJ TRANSIT may determine otherwise in its sole discretion.

It shall in all cases be presumed that no extension, or further extension of time, is due unless the Contractor shall affirmatively demonstrate the extent thereof to the reasonable satisfaction of NJ TRANSIT. To this end, the Contractor shall maintain adequate records supporting any claim for an extension of time, and in the absence of such records, this presumption shall be deemed conclusive.

2.1.8 In regard to an injunction or interference of public authority which may delay or impact the Project, the Contractor shall give NJ TRANSIT a copy of the injunction or other orders and of the papers upon which the same shall have been granted.

2.1.9 Within a reasonable time after receipt of a written notice requesting an extension of time NJ TRANSIT will advise the Contractor if such notice is adequate, or if further information is required. Failure of NJ TRANSIT to furnish the Contractor with the foregoing advisement shall not, however, be deemed to waive NJ TRANSIT's right to deny an extension of time. Within a reasonable time after NJ TRANSIT, at its sole discretion, has determined that the Contractor has provided sufficient information for NJ TRANSIT to decide

on a request for an extension of time, NJ TRANSIT shall issue a determination on that request. In the event that NJ TRANSIT was unable to decide on a request for an extension, NJ TRANSIT may issue at the completion of the Project, in conjunction with issuing its Final Certificate of Payment, a final determination on the Contractor's request or requests for an extension of time.

2.1.10 Only the actual delay or impact to the Contractor necessarily resulting from the causes above-mentioned, as determined by NJ TRANSIT, shall be considered for an extension of time. In case the Contractor shall be delayed or impacted at any time or for any period by two or more of the causes above-mentioned, the Contractor shall not be entitled to a separate extension for each one of the causes but only one period of extension shall be granted for the period of concurrent delay. In case the Contractor shall be actually and necessarily delayed by one or more of the causes above-mentioned in the performance of any portion of the Project, the extension of time to be granted to the Contractor shall be only for such portion of the Project. The Contractor shall not be entitled by reason of such delay to an extension of time for the completion of the remainder of the Project. If the Contractor shall be so delayed as to a portion of the Project, it shall nevertheless proceed continuously and diligently with the prosecution of the remainder of the Project. No demand by the Contractor that NJ TRANSIT determine any matter of extension of time for the completion of the Project or any part thereof will be of any effect whatsoever unless the same be made in writing and duly served upon NJ TRANSIT prior to the issuance of the Final Certificate of Payment as provided for in Article 12.8, FINAL PAYMENT.

2.1.11 Delay to or impacts upon the Contractor's performance arising out of any request of the Contractor to change the order of furnishing working Drawings as provided elsewhere in this Contract or arising out of any changes made or requested by the Contractor in any matters shown or indicated on the Contract Drawings will not be cause for an extension of time, and all additional costs to the Contractor, incidental to such request or change, shall be borne by the Contractor.

2.1.12 The permission granted to the Contractor to continue and finish the Project or any part thereof after the time fixed for completion or after the date to which the time for completion may have been extended or the making of payments to the Contractor after any such period shall not operate as a waiver on the part of NJ TRANSIT of any rights under this Contract, including but not limited to declaring the Contractor in default.

2.1.13 The determination of NJ TRANSIT as to any matter of extension of time for completion of the Project or any part thereof shall be binding and conclusive upon the Contractor.

2.2 NO DAMAGES FOR DELAY

2.2.1 The Contractor expressly waives the right to make any claim against NJ TRANSIT for damages or additional compensation for any delay to or impact upon the performance of this Contract occasioned by any act or omission to act by NJ TRANSIT or its employees or any third parties for any reason whether or not

enumerated in Article 2.1, and agrees that any such claim shall be fully compensated for by an extension of time to complete performance of the Work as provided in Article 2.1.

2.2.2 Except as provided in Subarticle 2.2.4, the Contractor alone hereby specifically assumes the risk of all delays, obstruction, or interference of any kind, duration or cause whatsoever, whether or not within the contemplation of the parties or foreseeable.

2.2.3 The Contractor shall have no right to rescind or terminate this Contract, and Contractor shall have no cause of action under any theory of unjust enrichment, quasi-contract, quantum meruit or additional risk by reason of any delay, obstruction, or interference of any kind or duration whatsoever.

2.2.4 Nothing in these General Provisions is intended to limit Contractor's remedy for delayed performance caused by NJ TRANSIT's negligence, bad faith, active interference or other tortious conduct, to the extent such limitation is determined by a court of law to be void and unenforceable under N.J.S.A. 2A:58B-3.

2.3 SUSPENSION OF WORK

2.3.1 If the Contracting Officer deems it advisable, the Contracting Officer may notify the Contractor in writing to suspend Work on one or more occasions on all or any part of the Project. After notification(s) is delivered to the Contractor, the Contractor shall do no Work where so suspended until it has received written notice from the Contracting Officer to resume Work.

2.3.2 When Work is suspended as provided above, payments for the completed parts of the Work will be made as provided and a suitable extension of time for completing the suspended Work will be granted where appropriate. Should any single suspension be for a period greater than forty-five (45) Calendar Days and the Contractor incurs unavoidable extended field overhead costs as a result of the suspension, the Contractor shall notify the Contracting Officer within thirty (30) Calendar Days of the completion of the suspension period and provide a detailed accounting of such extended field overhead costs. No profit markup will be allowed on extended field overhead costs. The Contracting Officer’s determination as to the amount of compensation to be paid under this clause shall be final and conclusive. Under no circumstances shall any other compensation or allowance be made on account of such suspension. No payment will be made for Work done by the Contractor on suspended work.

2.3.3 After a notice of suspension is delivered to the Contractor, or within any extension of either period to which the parties shall have agreed, NJ TRANSIT shall either: a.) cancel the notice of suspension, or b.) terminate the Work covered by such suspension as provided in Article 2.4, TERMINATION FOR CONVENIENCE, or c.) negotiate reasonable compensation with the Contractor for a further period of suspension.

2.4 TERMINATION FOR CONVENIENCE

2.4.1 NJ TRANSIT may terminate performance of Work under this Contract in whole or, from time to time, in part if the Contracting Officer determines that a termination is in NJ TRANSIT's interest. The Contracting Officer shall terminate the Work by delivering to the Contractor a Notice of Termination specifying the extent of termination and the effective date.

2.4.2 After receipt of a Notice of Termination, and except as directed by the Contracting Officer, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:

(a) Stop Work as specified in the notice.

(b) Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion if any of the Contract.

(c) Terminate all subcontracts to the extent they relate to the Work terminated.

(d) Assign to NJ TRANSIT, as and if directed by the Contracting Officer, all right, title, and interest of the Contractor under the subcontracts terminated, in which case NJ TRANSIT shall have the right to settle or to pay any termination settlement proposal arising out of those terminations.

(e) With approval or ratification to the extent required by the Contracting Officer, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts; the approval or ratification will be final for purposes of this clause.

(f) As directed by the Contracting Officer, transfer title and deliver to NJ TRANSIT: (i) the fabricated or unfabricated parts, Work in process, completed Work, supplies, and other material produced or acquired for the Work terminated, and (ii) the completed or partially completed plans, Drawings, information, and other property that, if the Contract had been completed, would be required to be furnished to NJ TRANSIT.

(g) Complete performance of the Work not terminated.

(h) Take any action that may be necessary, or that the Contracting Officer may direct, for the protection and preservation of the property related to this Contract that is in the possession of the Contractor and in which NJ TRANSIT has or may acquire an interest.

(i) Use its best efforts to sell, as directed or authorized by the Contracting Officer, any property of the types referred to in Subparagraph (f) above; provided, however, that the Contractor (i) is not required to extend credit to any purchaser and (ii) may acquire the property under the conditions prescribed by, and at prices approved by the Contracting Officer. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by NJ TRANSIT under this contract, credited to the price or cost of the Work, or paid in any other manner directed by the Contracting Officer.

2.4.3 After expiration of the plant clearance period as defined in Federal Acquisition Regulation 49.001, the Contractor may submit to the Contracting Officer a list, certified as to quantity and quality, of termination

inventory not previously disposed of, excluding items authorized for disposition by the Contracting Officer. The Contractor may request NJ TRANSIT to remove those items or enter into an agreement for their storage. Within twenty (20) Calendar Days, NJ TRANSIT will accept title to those items and remove them or enter into a storage agreement. The Contracting Officer may verify the list upon removal of the items, or if stored, within sixty (60) Calendar Days from submission of the list, and shall correct the list, as necessary, before final settlement.

2.4.4 After termination, the Contractor shall submit a final termination settlement proposal to the Contracting Officer in the form and with the certification prescribed by the Contracting Officer. The Contractor shall submit the proposal promptly, but no later than one (1) year from the effective date of termination, unless extended in writing by the Contracting Officer upon written request of the Contractor within this one (1)-year period. However, if the Contracting Officer determines that the facts justify it, a termination settlement proposal may be received and acted on after one (1) year or any extension. If the Contractor fails to submit the proposal within the time allowed, the Contracting Officer may determine, on the basis of information available, the amount, if any, due the Contractor because of the termination and will pay the amount determined.

2.4.5 Subject to Sub-article 2.4.4 above, the Contractor and the Contracting Officer may agree upon the whole or any part of the amount to be paid because of the termination. However, the agreed amount, whether under this Sub-article or Sub-article 2.4.6 below, exclusive of costs shown in Sub-article 2.4.6(b) below, may not exceed the total contract price as reduced by: (i) the amount of payments previously made and, (ii) the contract price of Work not terminated. The Contract shall be amended by Change Order, and the Contractor paid the agreed amount. Sub-article 2.4.6 below shall not limit, restrict, or affect the amount that may be agreed upon to be paid under this Paragraph.

2.4.6 If the Contractor and Contracting Officer fail to agree on the whole amount to be paid the Contractor because of the termination of Work, the Contracting Officer shall pay the Contractor the amounts determined as follows, but without duplication of any amounts agreed upon under Sub-article 2.4.5 above:

(a) For contract Work performed before the effective date of termination, the total (without duplication of any items) of:

(i) The actual cost of this Work;

(ii) The cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the Contract if not included in subdivision (i) above; and

(iii) A sum, as profit on (i) above in accordance with Sub-article 3.2.9.6, determined by the Contracting Officer to be fair and reasonable; however, if it appears that the Contractor would have sustained a loss on the entire Contract had it been completed, the Contracting Officer shall allow no profit under this subdivision (iii) and shall reduce the settlement to reflect the indicated rate of loss.

(b) The reasonable costs of settlement of the Work terminated, including:

(i) Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data;

(ii) The termination and settlement of subcontracts (excluding the amounts of such settlements); and

(iii) Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory.

2.4.7 Except for normal spoilage, and except to the extent that NJ TRANSIT expressly assumed the risk of loss, the Contracting Officer will exclude from the amounts payable to the Contractor under Sub-article 2.4.6 above, the fair value, as determined by the Contracting Officer, of property that is destroyed, lost, stolen, or damaged so as to become undeliverable to NJ TRANSIT or to a buyer.

2.4.8 The cost principles and procedures of Part 31 of the Federal Acquisition Regulation, in effect on the date of this contract, shall govern all costs claimed, agreed to, or determined under this clause.

2.4.9 The Contractor shall have the right of appeal, under the Disputes clause, from any determination made by the Contracting Officer under Sub-article 2.4.4, 2.4.6, or 2.4.11, except that if the Contractor failed to submit the termination settlement proposal within the time provided in Sub-article 2.4.4 or 2.4.11 and failed to request a time extension, there is no right of appeal. If the Contracting Officer has made a determination of the amount due under Sub-article 2.4.4, 2.4.6, or 2.4.11, NJ TRANSIT shall pay the Contractor (i) the amount determined by the Contracting Officer if there is no right of appeal or if no timely appeal has been taken, or (ii) the amount finally determined on an appeal.

2.4.10 In arriving at the amount due the Contractor under this clause, there shall be deducted:

(a) All unliquidated advance or other payments to the Contractor under the terminated portion of this Contract;

(b) Any claim which NJ TRANSIT has against the Contractor under this contract; and

(c) The agreed price for, or the proceeds of sale of, materials, supplies, or other things acquired by the Contractor or sold under the provisions of this clause and not recovered by or credited to NJ TRANSIT.

2.4.11 If the termination is partial, the Contractor may file a proposal with the Contracting Officer for an equitable adjustment of the price(s) of the continued portion of the contract. The Contracting Officer shall make any equitable adjustment agreed upon. Any proposal by the Contractor for an equitable adjustment under this clause shall be requested within ninety (90) Calendar Days from the effective date of termination unless extended in writing by the Contracting Officer.

2.4.12 NJ TRANSIT may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the terminated portion of the contract if the Contracting Officer believes the total of these payments will not exceed the amount to which the Contractor will be entitled. If the total payments exceed the amount finally determined to be due, the Contractor shall repay the excess to NJ TRANSIT upon demand, together with interest computed at the rate established by the Secretary of the Treasury under 50 U.S.C. App. 1215(b)(2). Interest shall be computed for the period from the date the excess payment is received by the Contractor to the date the excess is repaid. Interest shall not be charged on any excess payment due to a reduction in the Contractor's termination settlement proposal because of retention or other disposition of termination inventory until ten (10) Calendar Days after the date of the retention or disposition, or a later date determined by the Contracting Officer because of the circumstances.

2.4.13 Unless otherwise provided in this contract, or by statute, the Contractor shall maintain all records and documents relating to the terminated portion of this Contract for three (3) years after final settlement. This includes all books and other evidence bearing on the Contractor's costs and expenses under this contract. The Contractor shall make these records and documents available to NJ TRANSIT, at the Contractor's office, at all reasonable times, without any direct charge. If approved by the Contracting Officer, photographs, microphotographs or other authentic reproductions may be maintained instead of original records and documents.

2.5 TERMINATION FOR CAUSE

2.5.1 In the event that any of the provisions of this Contract are violated by the Contractor or any of its Subcontractors, the Contracting Officer may serve written notice upon the Contractor and Surety of NJ TRANSIT's intention to terminate the Contract for cause. The Notice of Intent to Terminate for Cause shall identify the causes for the proposed termination and demand the elimination of such causes.

2.5.2 If the Contractor or Surety, within a period of ten (10) Calendar Days after such notice or within such additional time as may be granted by the Contracting Officer, does not proceed in accordance therewith to make satisfactory arrangements to eliminate the causes of the proposed termination, then the Contracting Officer may terminate the Contract for cause.

2.5.3 The Notice of Termination for Cause will terminate the Contractor's right to proceed with all items of Work except as specified in the termination notice. The Notice of Termination will include all Work necessary to ensure the safety of the public, to properly secure existing work already constructed or partially constructed, and to secure the Job Site. The Work specified in the notice shall be performed in accordance with the Contract Documents and may include items of Work not in the original Contract. Unless otherwise specified in the notice, all insurance policies provided by the Contractor naming NJ TRANSIT and any other parties as

additional insureds shall remain in full force and effect until issuance by NJ TRANSIT of a Final Certificate of Payment.

2.5.4 Payment for completed or partially completed items of Work shall be made in accordance with the Contract Documents. Payment for new items, if any, will be paid either at agreed prices or paid for by Time and Material methods described in Sub-article 3.2.7. No other costs or compensation will be allowed the Contractor.

2.5.5 When all Work specified in the termination notice is completed to the satisfaction of NJ TRANSIT, the Contract shall terminate upon issuance by NJ TRANSIT of a Final Certificate of Payment.

2.5.6 Upon issuance of a Notice of Termination for Cause, the Surety shall have ten (10) Calendar Days to advise NJ TRANSIT in writing that it intends to take over and complete the Project in accordance with the Contract terms and conditions, without any further conditions. The Surety shall have thirty (30) Calendar Days from the date of such written notice to commence the Work. Upon the Surety's failure to comply with either of the above, NJ TRANSIT may take over the Work and prosecute the same to completion by contract with another contractor, or use whatever methods it deems necessary to complete the Work, including completion of the Work by its own forces for the account and at the expense of the Contractor. NJ TRANSIT may take possession of and utilize in completing the work such materials, appliances and plants as may be on the site of the work and necessary therefor.

2.5.7 Whether the Contract Work is completed by NJ TRANSIT, either directly or through other contractors, or the Surety, the Contractor and its Surety shall be liable to NJ TRANSIT for excess costs incurred by NJ TRANSIT and other such damages arising out of the Termination for Cause including liquidated damages caused by the delay to the date of completion of the Project Work.

2.5.8 All such costs and damages incurred by NJ TRANSIT will be deducted from any monies due or that may become due the Contractor and Surety. If such costs and damages incurred by NJ TRANSIT exceed the sum which is due and owing to the Contractor and Surety, then the Contractor and the Surety shall be liable and shall pay NJ TRANSIT within thirty (30) Calendar Days of the issuance of an invoice for the amount of such excess.

2.5.9 In terminating the Contract for cause NJ TRANSIT does not waive its right to sue the Contractor and/or Surety for any costs incurred or damages suffered by NJ TRANSIT as a result of the Contractor's default and termination.

2.5.10 If, after a Notice of Termination for Cause has been issued, it is determined by the Contractor Officer that the provisions of the Contract were not violated by the Contractor or any of its Subcontractors, or if the termination

of the Contract for Cause pursuant to the provisions of this Article is found by a court to be legally improper, then the termination of the Contract for cause will be treated as if it had been a termination for convenience and such termination shall be compensated for in accordance with the provisions of Article 2.4.

3. CONTRACT CHANGES

3.1 CHANGE ORDERS

3.1.1 The Contracting Officer, at the Contracting Officer's sole discretion, may at any time during the progress of the Work authorize additions, deductions, or changes to the Work as set forth below, and the Contract shall not be terminated or the surety released thereby. When changes in the work must be performed immediately, the Contracting Officer may issue a Directive Letter to the Contractor detailing the changed Work and the basis for determining compensation, and the Contractor will proceed immediately with the Work as directed, pending the execution of a formal Change Order.

If any such change causes an increase or decrease in the cost of the performance of any part of the Work or requires a change in the Contract Time, then a Change Order will be issued incorporating the change. All Change Orders will be priced in accordance with Article 3.2. The Change Order shall be a written order to the Contractor and will describe the change with cost changes and changes to Contract Time. The Change Order shall be signed by the Contractor and returned to NJ TRANSIT. Upon receipt, the Change Order will be countersigned by the Contracting Officer and shall then become a part of the Contract Documents.

In the event the Contractor and NJ TRANSIT cannot, for whatever reason, reach an agreement on cost changes or changes to Contract Time, the Contracting Officer will issue a unilateral Change Order incorporating the change and the Contractor shall nonetheless proceed with the Work as directed therein. The unilateral Change Order shall then become a part of the Contract Documents.

3.1.2 The Construction Manager shall have the authority to order, in writing, minor changes in the Work not involving an adjustment to the price of any items of Work or an extension of time and not inconsistent with the intent of the Contract. Such changes shall be binding on NJ TRANSIT and the Contractor, and shall not be the basis of increased compensation to the Contractor. The Contractor shall execute such Work under the conditions of the original Contract.

3.1.3 All additions, deductions or changes to the Work as directed by Change Orders shall be executed under the conditions of the original Contract. The Change Order shall recite the additional time granted by NJ TRANSIT to perform the Work, if any. Except as specified in Sub-article 3.1.2 above, or in an emergency endangering life or property, no change shall be made unless pursuant to a Directive Letter of the Contracting Officer or Change Order, and no claim for an addition to the Contract Price or time shall be valid unless so ordered.

3.1.4 Should the Contractor dispute the Construction Manager's interpretation of Work specified in the Contract Documents and claim that Work is Extra Work that will involve additional costs or Contract Time, the Contractor shall proceed with the Work in accordance with the Construction Manager's interpretation. In such event, the Contractor shall follow the procedures and maintain the detailed cost records set forth in Article 3.3-T&M CHANGE ORDER RECORDS pending the resolution of the dispute. In all other cases, should the Contractor perform Extra Work without first obtaining a Directive Letter or Change Order from the Contracting Officer's authorized representative, such action shall be construed by NJ TRANSIT as voluntary performance and as a waiver of any and all claims to extra payment and time therefor.

3.1.5 The time needed to perform Extra Work shall not be the basis of claims by the Contractor for extra costs of any nature whatsoever.

3.2 CHANGE ORDER PRICING

3.2.1 Proposed additions, deductions and changes will be defined in a Notice of Proposed Change (NPC) and issued to the Contractor. The Contractor's proposal for all proposed additions, deductions and changes to the Work involving cost or Contract Time shall be submitted by the Contractor to the Construction Manager with copies to the Contracting Officer and Project Manager within fifteen (15) Calendar Days, or such other time as the Construction Manager may direct, after the issuance of the Notice of Proposed Change. The Contractor's cost proposal shall be structured in accordance with the format(s) set forth below and shall comply with the pricing Specifications set forth in this Article 3.2. NJ TRANSIT will review the Contractor's cost proposal and, if necessary, meet with the Contractor to negotiate the cost proposal. The Contractor shall submit any additional information requested by the Construction Manager or the Contracting Officer within seven (7) Calendar Days or within such other time as the Construction Manager or Contracting Officer may direct. The Contractor's costs for preparing, submitting, and negotiating proposals will not be paid separately and shall not be included in the proposals, but shall be considered paid for in the Contract Price.

Table 3.2.1: Change Order Cost Proposal Format

I	II	III
LABOR[1]	Cost Calculation	Summary of Costs
Name Each Trade Classification	Person-hours) x (Labor Costs) =	A
MATERIAL[2]		
Name Each Major Type of Material	(Quantity) x (Unit Costs) =	B
EQUIPMENT[3]		
Name Each Major Piece of Equipment	(Time) x (Unit Costs) =	C
SUBTOTAL	A + B + C =	D
OVERHEAD[4]	(D) x (Overhead %) =	E

Table 3.2.1: Change Order Cost Proposal Format		
PROFIT[5]	(D) x (Profit %) =	F
TOTAL	D + E + F =	G
Footnotes: [1]Labor Costs as specified in Sub-article 3.2.9.1 [2]Material Costs as specified in Sub-article 3.2.9.2 [3]Equipment Costs as specified in Sub-article 3.2.9.3 [4]Overhead Markups as specified in Article 3.2.9.4 [5]Profit Markups as specified in Article 3.2.9.6		

3.2.2 Requests for extension of time for proposed Change Order Work shall be included in the Contractor's proposal. Extensions of time will not be granted unless requested in accordance with the provisions of Sub-article 3.2.1.

3.2.3 The Contractor shall furnish full documentation supporting all estimated and actual costs to the Construction Manager or Contracting Officer if such is requested. Documentation may consist of records such as actual payroll records and receipted bills for rentals and materials. All Change Orders shall be subject to audit by the Contracting Officer or the Contracting Officer's authorized representative.

3.2.4 All proposed and incurred change order costs shall at a minimum be allowable, allocable and reasonable in accordance with the Contract cost principles and procedures in Part 31 of the Federal Acquisition Regulations in effect on the date of the Contract. The Contracting Officer's determination on the allowability, allocability, and reasonableness of incurred costs shall be final and conclusive.

3.2.5 The value of any change in the Contract shall be determined in accordance with the following pricing bases, listed in the order of priority of use: a) unit price, b) Lump Sum and c) Time and Material (T&M). Unit prices shall govern if contained in the Contractors' Bid Proposal for the applicable Work. If no unit prices apply, then a Lump Sum pricing approach shall be used. If a Lump Sum cannot be determined, or agreement cannot be reached, or the Contracting Officer determines that Work must be performed immediately, then the Contracting Officer will direct the Contractor to proceed on a T & M basis. Whenever the terms "labor", "materials", "equipment", "overhead" and "profit" are used herein with regard to change order cost and price proposals, they are used as these cost and price elements are defined in this Article 3.2.

3.2.6 Unit Price Basis: Whenever unit prices govern, the Contractor's cost proposal shall identify the additional estimated quantities required for the Work. The unit prices included in the Contract or subsequently agreed upon, shall be used to solely determine the increased or decreased cost of the Work. The unit price shall be deemed to include all costs for labor, material, overhead and profit and the increase or decrease in the cost of the Work shall be on a dollar for dollar basis.

3.2.7 Lump Sum Basis: When unit prices do not apply, the Contractor shall submit a detailed breakdown of labor, materials, and equipment. The Contractor shall add to this overhead and profit markups as specified in Sub-article 3.2.10. Cost proposals for labor and material shall be provided on the stationery of the parties that will be performing the Work (Subcontractors) and supplying material (suppliers).

3.2.8 Time and Material: The Contractor shall submit the same detailed breakdown of costs as set forth in Sub-article 3.2.7 for Lump Sum change orders. In addition, the Contractor shall submit a Guaranteed Maximum Price (GMP) which may be accepted or rejected by the Contracting Officer.

3.2.8.1 Time and Material with GMP: If the Guaranteed Maximum Price is accepted, the payment for such Work shall not exceed the actual cost for labor, materials, and equipment. To this may be added overhead and profit mark-ups both as specified in Sub-article 3.2.10. However, in no event shall payment exceed the Guaranteed Maximum Price established by agreement between the Contractor and NJ TRANSIT.

3.2.8.2 Time and Material with Upset Price: If the Guaranteed Maximum Price submitted by the Contractor is rejected, NJ TRANSIT may direct the Contractor to proceed on a time and material basis with an Upset Price established by NJ TRANSIT. The Upset Price shall be the limit of authorization for performance of the Extra Work by the Contractor. At such time as the Contractor has expended eighty percent (80%) of the authorized limit, NJ TRANSIT may establish a new limit by revising the Upset Price. However, if NJ TRANSIT chooses not to establish a revised Upset Price, the Contractor shall cease the time and material Work when the original Upset Price has been reached. The payment for such Work shall include the actual cost for labor, materials and equipment and may also include added overhead and profit mark-ups as specified in Sub-article 3.2.10.

3.2.8.3 Emergent Time and Material: Should the Contracting Officer determine that changed work must be performed immediately, and NJ TRANSIT determines that the Contractor has insufficient time to submit a detailed cost proposal in advance of performing the work, NJ TRANSIT may direct the Contractor to proceed on an emergent time and material basis with an Upset Price established by NJ TRANSIT. The terms of performance and payment shall be as set forth in Sub-article 3.2.8.2, except that profit markups shall be as specified in Sub-article 3.2.10.

3.2.9 NJ TRANSIT will consider for payment only the labor, material and equipment cost elements as specified herein in conjunction with any cost proposal submitted by the Contractor. These cost elements, individually or together, shall serve as the cost basis upon which applicable markups for profit and overhead shall be applied, all as specified in Sub-article 3.2.10. These costs elements, together with the applicable markups for profit and overhead, shall constitute full compensation for all direct and indirect costs and shall be deemed to include all items of expense not specifically designated.

3.2.9.1 <u>Labor Costs</u>

a) For necessary labor and foremen in direct charge of the specific operations, whether the employer is the Contractor, Subcontractor or another, the Contractor shall receive the rate of wage (or scale) actually paid as shown in its certified payrolls for each and every hour that said labor and foremen are actually engaged in such Work.

b) The Contractor shall also receive the actual costs paid to, or in behalf of, workers by reason of health and welfare benefits, pension fund benefits or other benefits, when such amounts are required by collective bargaining agreements or other employment contracts, or the Contract prevailing wage determination, generally applicable to the classes of labor employed on the Work.

c) The Contractor shall receive the actual cost paid to applicable State and Federal agencies and insurance carriers for Worker's Compensation Insurance, Federal Insurance Compensation Act (FICA, Social Security), Unemployment Insurance and Contractor's General Liability and Worker's Disability.

3.2.9.2 Material Costs: Only materials furnished by the Contractor and necessarily used in the performance of the Work will be compensated. The cost of such materials will be the cost to the purchaser, whether Contractor, Subcontractor or other forces from the supplier thereof, together with transportation charges actually paid by the Contractor, except as the following are applicable.

(a) If a cash or trade discount by the actual supplier is offered or available to the purchaser, it shall be credited to NJ TRANSIT notwithstanding the fact that such discount may not have been taken.

(b) If materials are procured by the purchaser by any method which is not a direct purchase from and a direct billing by the actual supplier to such purchaser, the cost of such materials shall be deemed to be the price paid to the actual supplier as determined by NJ TRANSIT plus the actual costs, if any, incurred in the handling of such materials.

(c) If the materials are obtained from a supply or source owned wholly or in part by the purchaser, the cost of such materials shall not exceed the price paid by the purchaser for similar materials furnished from said source on Contract Items or the current wholesale price for such materials delivered to the job site, whichever price is lower.

(d) If the cost of such materials is, in the opinion of NJ TRANSIT, excessive, then the cost of such material shall be deemed to be the lowest current wholesale price at which such materials are available in the quantities concerned delivered to the job site, less any discounts as provided in Subparagraph (a) above.

(e) If the Contractor does not furnish satisfactory evidence of the cost of such materials from the actual supplier thereof, the cost shall then be determined in accordance with Subparagraph (d) above.

NJ TRANSIT reserves the right to furnish such materials as it deems advisable, and the Contractor shall have no claims for costs and markups on such materials.

3.2.9.3 Equipment and Plant Rental Costs:

(a) Contractor Owned Equipment and Plant - The hourly rates for Contractor owned equipment and plant will be based on "Rental Rate Blue Book for Construction Equipment" or the "Rental Rate Blue Book for Older Construction Equipment" (both referred to hereafter as the "Blue Book"), published by Nielsen/DATAQUEST, Inc. of Palo Alto, California. The Blue Book shall be used in the following manner:

(1) The hourly rate will be determined by dividing the "monthly" rate set out in the Blue Book by 176. The "weekly," "hourly," and "daily" rates listed in the Blue Book will not be used.

(2) The number of hours to be paid for shall be the number of hours that the equipment or plant is actually used on a specific activity.

(3) The "current revisions" to the Blue Book will be used in establishing rates. The "current revision" applicable to specific Change Order Work will be the "current revision" as of the first day of Work performed on that Change Order Work and that rate will apply throughout the period the Change Order Work is being performed.

(4) Area adjustments will not be made. Equipment life adjustments will be made in accordance with the rate adjustment tables.

(5) Overtime shall be charged at the same rate indicated in (1), above.

(6) The "estimated operating costs per hour" shall be used for each hour that the equipment or plant is in operation on the Change Order Work. No such costs shall apply to idle time regardless of the cause of the idleness.

(7) Idle time for equipment will not be paid for, except where the equipment has been held on the Project site on a standby basis at the request of NJ TRANSIT and, but for this request, would have left the Project site. Such payment will be made at one half (1/2) the rate established in (1), above.

(8) The rates as established above shall be deemed to include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs, overhaul, and maintenance of any kind, depreciation, storage, overhead, profits, insurance, costs of moving equipment or plant on to and away from the site, and incidentals (including labor and equipment).

(9) Operator costs shall be paid only as provided in Sub-article 3.2.9.1, "Labor Cost," of this Article.

Equipment shall be in good operating condition and suitable for the Work, in the opinion of the Construction Manager. Equipment used by the Contractor shall be specifically described and be of suitable size and capacity required for the Work to be performed. In the event the Contractor elects to use equipment of a higher rental value than that suitable for the Work, payment will be made at the rate applicable to the suitable equipment. The equipment actually used and the suitable equipment paid for will be recorded as a part of the record for Change Order Work. If there is a

differential in the rate of pay of the operator of oversize or higher rate equipment, the rate paid for the operator will likewise be that for the suitable equipment.

In the event that a rate is not established in the Blue Book for a particular piece of equipment or plant, NJ TRANSIT shall establish a rate for that piece of equipment or plant that is consistent with its cost and use.

The provisions of this Subparagraph (a), "Contractor Owned Equipment and Plant" shall apply to the equipment and plant owned directly by the Contractor or by entities which are divisions, affiliates, subsidiaries or in any other way related to the Contractor or its parent company.

(b) Rented Equipment and Plant - In the event that the Contractor does not own a specific type of equipment and must obtain it by rental, it shall be paid the actual rental for the equipment for the time that the equipment is actually used to accomplish the Work, plus the cost of moving the equipment on, to, and away from the job. The Contractor shall provide a copy of the paid receipt for the rental expense incurred.

3.2.9.4 Overhead Costs: Overhead shall be defined to include any and all Contractor Field Office and Home Office overhead and operating expenses whatsoever. Overhead includes, as a minimum, the following categories of expense, regardless of whether or not the Contractor's accounting system allocates such expenses on a direct or indirect basis:

(a) Salary and expenses of all Field Office employees, including project managers, supervising officers, supervising employees, superintendents, technical, scheduling or engineering employees, draft persons and clerical or stenographic employees;

(b) Charges for minor equipment, small tools, and other miscellaneous supplies and expenses, including computers and telephones, personal protection equipment, shovels, picks, axes, saws, bars, sledges, lanterns, jacks, cables, pails, wrenches, etc.;

(c) Charges for trailer rentals, utility and other temporary facility rental and maintenance charges, monthly utility charges, and all other costs to operate and maintain Contractor's Field Office unless otherwise provided as a direct charge elsewhere in the contract.

(d) Salary and expenses of Home Office employees, including executive officers, managers, professional and administrative staff, and clerical and support staff;

(e) Charges and expenses for drafting, Computer Assisted Design, scheduling, billing, financing, etc.

(f) All other costs to operate and maintain the Contractor's Home Office.

(g) Bond and insurance costs described in Sub-article 3.2.9.5.

The Contractor agrees that its overhead costs will be fully and fairly compensated by the fixed, non-negotiable overhead percentage markups set forth in Sub-article 3.2.10.

3.2.9.5 Bond and Insurance: Compensation for bond premiums and other insurance premiums not listed in Sub-article 3.2.9.1 shall be considered paid for under the overhead percentages added to the sum of the actual cost for labor, material and equipment and will not be considered or paid separately by NJ TRANSIT.

3.2.9.6 Profit: The Contractor's profit shall be negotiated as a percentage markup based on the type of Work, the value of the change, the pricing basis and the amount of risk to the Contractor associated with the Work to be performed. The Contractor agrees that the profit percentage markups are subject to negotiation on each change. However, under no circumstances shall negotiated markups exceed the maximum allowable markup set forth in Sub-article 3.2.10.

3.2.10 Overhead and profit markups on each change shall be calculated in accordance with this Sub-article 3.2.10. Where Work is performed by Subcontractors at any tier, the Contractor shall reach an agreement with such Subcontractors as to the distribution of payments, including overhead and profit markups made by NJ TRANSIT for such Work. No additional payment therefor will be made by NJ TRANSIT by reason of the performance of the Work of any Subcontractor.

3.2.10.1 When Work is to be added or deleted on a Unit Price basis, the Unit Price shall govern and is deemed to include all markups for overhead and profit. No additional markups for overhead and profit will be allowed. When a portion of the Work comprising a complete Bid Item is deleted from the Project, it shall be treated as a Unit Price Bid item (regardless of whether it is a Lump Sum or Unit Price item) and the total Bid price for that item shall be deducted from the Contract Price.

3.2.10.2 When Work is to be added on a lump sum or time and material basis, markups for profit and overhead shall be as specified in Table 3.2.10.

3.2.10.3 When Work is to be deleted on a lump sum or time and material basis, markups specified in Table 3.2.10, for overhead costs that will not be incurred and profit that would have been realized if the Work had not been deleted, shall be included in the deductive cost proposal submitted by the Contractor. If the Contractor's deductive cost proposal does not include an amount for overhead and profit, the Contracting Officer will add the markups specified in Table 3.2.10 to the cost proposal. When Work is to be deleted, the Contractor may include documented cancellation and restocking charges and subtract those charges from the cost basis of the deductive cost proposal.

3.2.10.4 When Work is to be both added and deleted on a lump sum or time and material basis, the cost basis shall be determined first by calculating both the added and deleted labor, material and equipment costs. Overhead and profit markups specified in Table 3.2.10 shall be applied to:

a) Net increase in cost basis, in which case Paragraph 3.2.10.2 shall govern;

b) Net decrease in cost basis, in which case Paragraph 3.2.10.3 shall govern.

Should there be a net change in cost basis of zero (0), there will be no change in the Contract Price.

3.2.10.5 When there is a change only to the material being supplied and no additional labor cost will be incurred by the Contractor or Subcontractors at any tier, markups for overhead and profit shall be as specified in Table 3.2.10.

3.2.10.6 When a change is authorized for standby time, markups for overhead and profit shall be as specified in Table 3.2.10. Any claim for standby time will be rejected unless documented by timesheets signed by the Inspector.

3.2.10.7 When a change is authorized for overtime and the Work to be performed is an established item of Work, markups for overhead and profit shall be as specified in Table 3.2.10 and shall be applied only to the premium portion of labor costs.

Table 3.2.10: Maximum Overhead and Profit Markups for Added Work

Work Performed By	Change Order Pricing Basis	Cost Basis	Overhead Markup (as a % of Cost Basis)	Maximum Profit Markup (as a % of Cost Basis)
Contractor	Lump Sum or T&M with GMP	Contractor labor, material and equipment costs	10%	10%
Subcontractor (at any tier)	Lump Sum or T&M with GMP	Subcontractor labor, material and equipment costs	15% (to be shared between Contractor and Subcontractors)	15% (to be shared between Contractor and Subcontractors)
Contractor	T&M with NJT Upset Price	Contractor labor, material and equipment costs	10%	5%
Subcontractor (at any tier)	T&M with NJT Upset Price	Subcontractor labor, material, and equipment	15% (to be shared between Contractor and Subcontractors)	7.5% (to be shared between Contractor and Subcontractors)
Contractor	Emergent T&M	Contractor labor, material, and equipment costs	10%	7.5%
Subcontractor (at any tier)	Emergent T&M	Subcontractor labor, material and equipment costs	15% (to be shared between Contractor and Subcontractors)	10% (to be shared between Contractors and Subcontractors)

No Additional Labor	Lump Sum All T&M's	Only Material Costs	2.5%	2.5%
Standby Time	T&M Only	Labor Costs Only	5%	5%
Overtime	T&M Only	Premium Labor Costs Only	5%	5%

3.3 TIME AND MATERIAL (T&M) CHANGE ORDER RECORDS

3.3.1 The Contractor shall maintain its records in such a manner as to provide a clear distinction between the direct costs of T & M Work and the costs of other Work.

From the above records, the Contractor shall furnish the Construction Manager completed daily work reports for each day's Work to be paid for on a T & M basis. The daily T & M Work reports shall be detailed as follows:

(a) Name, classification, date, daily hours, total hours, rate, and extension for each laborer and foreman.

(b) Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.

(c) Quantities of materials, prices, and extensions.

(d) Transportation of materials.

(e) Cost of property damage, liability, and worker's compensation insurance premiums, unemployment insurance contributions, bonds, and social security tax.

3.3.2 Material charges shall be substantiated by valid copies of vendor's invoices. Such invoices shall be submitted with the daily work reports, or if not available, they shall be submitted with subsequent daily T & M work reports. Should said vendor's invoices not be submitted within sixty (60) Calendar Days after the date of delivery of the material, NJ TRANSIT reserves the right to establish the cost of such materials at the lowest current wholesale prices at which said materials are available, in the quantities concerned delivered to the location of Work less any discounts provided in Sub-article 3.2.9.2(a), above.

3.3.3 Said daily time and material work reports shall be signed by the Contractor or its authorized representative.

3.3.4 The Construction Manager will compare NJ TRANSIT's records with the completed daily time and material Work reports furnished by the Contractor and make any necessary adjustments. Except when daily time and material Work reports are submitted for the purpose of recording the cost of disputed items of Work, as required under Sub-article 3.1.4, when daily time and material Work reports are agreed upon and signed by both parties, said reports shall become the basis of payment for the Work performed, but shall not preclude subsequent adjustment based on a later audit by NJ TRANSIT. In the case of disputed items of Work, the signature of NJ TRANSIT's Construction Manager represents only the Construction Manager's concurrence with the costs allocated by the Contractor to the disputed Work and shall not preclude the Contracting Officer from disputing such Work.

3.4 CONTRACTOR INITIATED CHANGE ORDERS

3.4.1 The Contractor may request a change order for an increase in the cost of the performance of any part of the Work or a change in the Contract Time only when such costs or time impacts are attributable to the following:

a.) Latent errors and omissions in the contract documents;

b.) Additional costs or an extension of Contract time for which a change order is expressly permitted under any Article in this Contract.

The Contractor must give immediate notice to the Construction Manager when it becomes aware of the condition causing the initiation of a request for change.

3.4.2 Contractor Initiated Change Order Requests (CICOR's) will not be considered unless the Contractor has strictly complied with the notice requirements of the appropriate Articles of this Contract. The Contractor further understands and agrees that neither the procedure established under this Article nor the review of CICOR's by NJ TRANSIT pursuant hereto shall in any way affect the requirements of the filing of a Notice of Claim or the filing of a suit pursuant to the provisions of N.J.S.A. 59:13-1 et seq.

3.4.3 Within fifteen (15) Calendar Days of notification by the Contractor of a condition causing the initiation of a request for change, the Contractor must submit the CICOR with sufficient detail to enable NJ TRANSIT to ascertain the basis and amount of said request. As a minimum, the following information must accompany each request submitted pursuant to the provisions of this Sub-article:

(a) A detailed factual statement of the CICOR providing all necessary dates, locations, and items of Work affected by the CICOR;

(b) The date on which facts arose which gave rise to the CICOR;

(c) The name, function, and activity of each NJ TRANSIT individual, official or employee involved in or knowledgeable about such CICOR;

(d) The specific provisions of the Contract which support or mitigate against the CICOR and a statement of the reasons why such provisions support or mitigate against the CICOR;

(e) If the CICOR relates to a decision of NJ TRANSIT or the Construction Manager which the Contract leaves to NJ TRANSIT's or the Construction Manager's discretion or as to which the Contract provides that NJ TRANSIT's or the Construction Manager's decision is final, the Contractor shall set out in detail all facts supporting its contention that the decision of NJ TRANSIT or the Construction Manager was fraudulent or capricious or arbitrary or is not supported by substantial evidence;

(f) The identification of documents and the substance of oral communications relating to such CICOR;

(g) A statement as to whether the additional compensation or extension of time sought is based on the operation of the provisions of the Contract or an alleged breach of contract;

(h) If an extension of time is sought, the specific days for which it is sought and the CPM schedule data providing a logical basis for such an extension;

(i) If additional compensation is sought, the exact amount sought and a breakdown of that amount in accordance with the pricing Specifications set forth in Article 3.2.

The Contractor shall furnish within a reasonable time such further information and details as may be required by NJ TRANSIT to determine the facts or contentions involved in the CICOR's, including but not limited to those items identified in Article 3.5.

3.5 AUDIT OF CHANGE ORDERS

3.5.1 Unless otherwise provided in this contract, or by statute, the Contractor and its Subcontractors shall maintain all cost records during the life of the Contract and for a period not less than five (5) years after the date of acceptance thereof, and the Contractor and its Subcontractors shall retain such records for that period. The cost records of the Contractor and its Subcontractors pertaining to change orders shall be open to inspection or audit by representatives of NJ TRANSIT during the life of the Contract and for a period of not less than five (5) years after the date of acceptance thereof. This audit provision shall apply whether or not such change orders are part of a suit pending in the courts of this State pursuant to the New Jersey Contractual Liability Act. The audit may be performed by employees of NJ TRANSIT or by an auditor under contract with NJ TRANSIT. The audit may begin with ten (10) Calendar Days' notice to the Contractor or its Subcontractor. The Contractor or Subcontractor shall provide adequate facilities, acceptable to NJ TRANSIT, for such audit during normal business hours. The Contractor or its Subcontractor shall make a good faith effort to cooperate with the auditors.

3.5.2 If an audit is to be commenced more than sixty (60) Calendar Days after the acceptance date of the Contract, the Contractor will be given a reasonable notice of the time when such audit is to begin.

3.5.3 As a minimum, the Contractor shall maintain and the auditors shall have available to them the following documents:

(a) daily timesheets and foreman's daily reports.

(b) union agreements.

(c) insurance, welfare and benefits records.

(d) payroll registers.

(e) earnings records.

(f) payroll tax forms.

(g) material invoices and/or requisitions.

(h) material cost distribution worksheet.

(i) equipment records (list of company equipment, rates, etc.)

(j) vendors', rental agencies', and Subcontractors' invoices.

(k) Subcontractors' payment certificates.

(l) canceled checks (payroll and vendors).

(m) job cost report.

(n) job payroll ledger.

(o) general ledger.

(p) cash disbursements journal.

(q) financial statements for all years reflecting the operations on this Project.

(r) income tax returns for all years reflecting the operations on this Project.

(s) depreciation records on all company equipment whether such records are maintained by the company involved, or its accountant, or others.

(t) if a source other than depreciation records is used to develop costs for the Contractor's internal purposes in establishing the actual cost of owning and operating equipment, all such other source documents.

(u) all documents which reflect the Contractor's actual profit and overhead during the years this Project was being performed and for each of the five years prior to the commencement of this Project.

(v) all documents related to the preparation of the Contractor's Bid including the final calculations on which the Bid was based.

(w) all documents which relate to each and every change order together with all documents which support the amount of claimed costs and

(x) worksheets used to prepare the CICOR or cost proposal tracing the cost elements of the change order (including, but not limited to, labor, benefits and insurance, materials, equipment and Subcontractors) to the primary records which establish the time periods, individuals, hours, rates, materials and equipment involved in the change order.

3.6 SUPPLEMENTAL CONSTRUCTION COSTS

Whenever the Bid Item "Supplemental Construction Costs" appears in the Contractor’s Bid Proposal, NJ TRANSIT has provided an Allowance for additional or supplemental construction Work that it has not yet defined. This Allowance is provided for the sole convenience of NJ TRANSIT and can only be used for Work authorized by NJ TRANSIT.

All additional or supplemental Work authorized under this provision will be incorporated into the Contract by Change Order pursuant to Article 3.1. The Change Order will describe the additional or supplemental Work with any associated cost changes and will reduce the Supplemental Construction Cost allowance in the amount specified in the Change Order. Residual amounts remaining in the Supplemental Construction Cost Allowance Bid Item at Final Completion will be deleted from the Contract Amount by NJ TRANSIT.

4. PROTECTION AND CONTROL OF PREMISES

4.1 RESPONSIBILITY FOR WORK

4.1.1 The Contractor shall be responsible for damages arising from its Work on the Project, to any part of the Project Work, both temporary and permanent, to adjoining property and to NJ TRANSIT property both within and outside the Project limits. The Contractor shall, at its own expense, protect finished Work susceptible to damage and keep the same protected until the Project is completed and accepted by NJ TRANSIT.

4.1.2 All Contractor and Sub-Contractor personnel are required to carry, and display when requested, a form of photo identification acceptable to NJ TRANSIT.

4.1.3 The Contractor shall make, use, and provide proper, necessary, and sufficient precautions, safeguards, and protection against the occurrence of accident, injury, damage or hurt to person or property during the progress of the Work. The Contractor alone shall be responsible for the safety, efficiency, and adequacy of its plant, appliances, and methods, and for damage or injury which may result from its failure to act in a safe, careful, efficient, and workmanlike manner. Any action or direction by NJ TRANSIT or its representatives relating to the adequacy or implementation of the Contractor's precautions, safeguards, and protection shall in no manner relieve the Contractor of any of its obligations or responsibilities hereunder.

4.1.4 In case of an emergency which threatens persons or property, the Contractor shall act, without previous instructions from the Construction Manager, in a diligent and proper manner to remedy the situation. The Contractor shall notify the Construction Manager immediately. During non-standard work hours (See Sub-article 4.2.9 for Standard Work Hours) the Rail or Bus Control Center, as appropriate, shall be notified. Claims for compensation by the Contractor for Extra Work arising from emergencies not caused by the Contractor shall be documented and promptly submitted for review and approval. Where the Contractor has notified the Construction Manager of such emergency but has not taken any action, it shall act as instructed or authorized by the Construction Manager.

4.2 USE OF PREMISES

4.2.1 Prior to the use of NJ TRANSIT premises, the Contractor shall obtain the approval of the Construction Manager for the Contractor's staging area(s), access and egress to the premises, parking area(s) for Contractor vehicles and equipment, elevator use, and any other use of NJ TRANSIT property, facilities, or on site utilities. The Contractor shall notify the Construction Manager no later than 72 hours in advance of any utility shutdowns that affect NJ TRANSIT facilities. All cut overs of existing mechanical and electrical services shall be done at a time convenient to NJ TRANSIT and any other private or public agency having jurisdiction, so as not to interfere with facility operations.

4.2.2 The Contractor shall comply with the rules and regulations of NJ TRANSIT. The Contractor shall confine its apparatus, the storage of materials and the operations of workmen to limits indicated by law, ordinances, permits, contract limit lines as established, or directions of the Construction Manager and shall not unreasonably encumber the premises with its materials. The Contractor shall maintain a reasonably clean job site free of debris and litter.

4.2.3 The Contractor shall be responsible for hoisting and distributing material and equipment throughout the Project for its Work, and the Work of its Subcontractors. The Contractor shall handle materials in a controlled manner with as few handlings as possible. The Contractor shall not drop or throw materials from heights. The Contractor shall not load or permit any part of a structure to be so loaded as might endanger its safety or integrity.

The Contractor agrees to NJ TRANSIT's use and occupancy of a portion or unit of the Project after the portion or unit has been declared Substantially Complete by NJ TRANSIT.

4.2.4 The Contractor shall request of and obtain from NJ TRANSIT specific instructions, rules, and regulations regarding the required conduct of the Contractor during the construction so that the security and safety of personnel and property, including both NJ TRANSIT's and the general public's, will not be endangered. NJ TRANSIT will not allow an increase in the Contract amount due to the Contractor's failure to determine the conditions under which it must perform its contractual obligations. The Contractor shall enforce the Construction Manager's instructions regarding but not limited to signs, advertisements, fires, smoking, alcohol, safety, and cleanliness on the site.

4.2.5 Accessibility to the Work area shall be determined by the Contractor and approved by the Construction Manager unless otherwise indicated in the Contract Documents. It is the Contractor's responsibility to make arrangements for use of public and/or private properties required to execute and complete the Work under this Contract.

4.2.6 Space that the Contractor may require for plant, equipment, storage or other purposes, in addition to that available therefor at the site of the Project, shall be procured by the Contractor and the cost thereof is considered to be included in the prices Bid for the various items scheduled in the Bid. In event of default, NJ TRANSIT has the right to take over and occupy such space, or cause it to be occupied, for the purpose of completing the Project, at the Contractor's expense. If leased, the lease shall contain a provision that in event of default by the Contractor the lease may be assigned to NJ TRANSIT or its nominee. The Contractor agrees, in event of said default, that it will make such assignment. At the time of execution, a copy of all lease agreements shall be submitted to the Construction Manager.

4.2.7 The Contractor shall provide watchmen service, when necessary or when directed by the Construction Manager throughout the period of construction, to adequately protect the Work, stored materials and temporary structures located on the premises, and to prevent unauthorized persons from entering upon the construction site.

4.2.8 The Contractor shall adequately insure, secure and protect its own tools, equipment, materials, and supplies.

4.2.9 Regular working hours are from 8:00 a.m. to 4:30 p.m., Monday through Friday. The Contractor shall obtain the written approval of the Construction Manager for performance of Work other than during regular working hours or on weekends or Holidays. Standard NJ TRANSIT Holidays are as follows: New Year's Day, Martin Luther King Day, President's Day, Good Friday, Memorial Day (Monday observance), Independence Day, Labor Day, Thanksgiving Day and the day after, and Christmas Day. The Contractor shall advise the Construction Manager no less than ten (10) Calendar Days in advance of Work to be performed during such times. This shall not preclude taking prudent and necessary actions in an emergency situation.

4.3 MAINTENANCE AND CLEANING OF PREMISES

4.3.1 The Contractor shall maintain and clean the premises as necessary to ensure a safe, orderly and clutter-free working environment. The Contractor shall comply with the following cleaning requirements:

4.3.2 The Contractor shall retain all stored items in an orderly arrangement to allow maximum access, not impede drainage or traffic, eliminate fire hazards and provide proper protection of materials. Weekly, and more often if necessary, the Contractor shall inspect all material storage conditions on the site and restack, tidy, or otherwise service material storage conditions to maintain an orderly arrangement. Scrap, debris, waste materials, and other items not required for construction of the Work shall be regularly disposed of in accordance with the requirements set forth below. The Contractor shall wet down dry materials to minimize dust and prevent blowing dust. The Contractor shall maintain the site in a neat and orderly condition at all times.

4.3.3 The Contractor shall provide adequate storage for all items awaiting removal from the job site, observing all requirements for fire protection, health, and protection of the environment. Combustible waste, scrap, rubbish, etc., shall be stored in properly sized metal containers (with metal covers where practical) pending removal from the premises. Pest control services shall be provided as necessary to control vermin, rodents and other pests. Daily, and more often as necessary, the Contractor shall inspect the site and move all scrap debris and waste material to the place designated for their storage. At least once a week and more often if necessary, the Contractor shall completely remove and legally dispose of all scrap, debris and waste material from the job site. Placement of waste containers and carting schedules shall be submitted to the Construction Manager for the Construction Manager's review and approval. If the Contractor fails to remove debris from the site within seven (7) Calendar Days after it has been given written notice to do so by the Construction

Manager, the Construction Manager will have the debris removed by others and the cost back charged to the Contractor.

4.3.4 Weekly, and more often if necessary, the Contractor shall sweep all interior spaces clean. "Clean", for the purpose of this Subparagraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and a hand-held broom.

4.3.5 Preparatory to the installation of any succeeding materials, the Contractor shall clean all structures, or pertinent portions thereof, to the degree of cleanliness recommended by the manufacturer of the succeeding material, using all equipment and materials required to achieve the required cleanliness.

4.3.6 The Contractor shall schedule cleaning operations so that dust and other contaminants resulting from any cleaning process will not fall on wet, newly painted surfaces.

4.3.7 The Contractor shall schedule final cleaning, as approved by the Construction Manager, to enable NJ TRANSIT to accept a completely clean project. Prior to completion of Work, the Contractor shall remove from the job site all tools, surplus materials, equipment, scrap, debris and waste. The Contractor shall remove all traces of soil, waste material, mortar and paint droppings, grease and other foreign matter from all interior and exterior surfaces. All floor slabs shall receive a final steam cleaning.

4.4 FIRE PREVENTION ON PREMISES

4.4.1 Each Contractor shall perform its Work on or about the premises in a careful manner with full consideration to fire prevention as required by the New Jersey Uniform Fire Code (NJUFC), N.J.A.C. 5:71-1 et seq., and its referenced standards. Fire resistant materials shall be used for temporary enclosures. Storage of flammable materials on the site shall be subject to limitations specified in the NJUFC and the approval of the Construction Manager, and shall be the Contractor's responsibility. Accessibility to fire hydrants shall be maintained at all times. On site open burning of rubbish, garbage, trade waste, leaves or plant life is strictly prohibited by New Jersey law.

4.4.2 Chemical extinguishers approved by the Construction Manager shall be provided by the Contractor during the progress of the Work where specified by the NJUFC or required by Fire Officials from the DCA Bureau of Fire Safety or the local fire department. In addition, the Contractor shall be responsible for furnishing and maintaining his own extinguisher equipment in storage sheds, warehouses, Contractor's offices, and workmen's temporary buildings.

4.4.3 The Contractor shall maintain an active program of fire prevention to keep workers fire conscious during the entire Contract duration. It shall designate one member of its organization to execute and coordinate the fire control measures of its own organization, that of all Subcontractors under its jurisdiction and that of all other

personnel at the site. It shall report to the Construction Manager any lack of cooperation or refusal to participate on the part of any worker or Subcontractor with regard to the fire prevention program. Failure of any worker or Subcontractor to cooperate with the Contractor in carrying out the above program shall be grounds for barring that individual or firm from the Project.

4.4.4 Temporary heating systems provided under Article 5.6 shall conform to the requirements of the NJUFC where the building is fully or partially occupied.

4.4.5 Where required under the NJUFC, the Contractor shall be responsible for obtaining required permits from the DCA Bureau of Fire Safety for flammable or combustible gas or liquid storage, fumigation/fogging, blasting, welding, burning, cutting and torch-applied roofing or paint removal.

4.5 PROTECTION AGAINST DAMAGE

4.5.1 The Contractor shall protect existing property, structures, curbs, walks, drives, trees, shrubs, lawns, and landscape Work on the site or affected by its activities from damage and shall provide such guards and covering as necessary. Damaged items shall be repaired or replaced at the Contractor's expense to the satisfaction of NJ TRANSIT. No extension of time will be allowed for repair or replacement of damaged items. Should the Contractor not repair or replace such damaged items, NJ TRANSIT will take corrective measures and deduct the cost from the Contract Price.

4.5.2 It shall be the responsibility of the Contractor at all times to protect construction excavations, trenches up to ten (10) feet from structures, and the structures from water damage, including damage by rainwater, ground water, backing up of drains, downspouts, or sewers. The Contractor shall construct and maintain necessary drainage and do pumping required to keep the Project free from water, and shall perform pumping necessary for the full and proper execution of the construction Work and protection of the Project including equipment installed therein.

4.5.3 Beyond a point ten (10) feet from facilities, it shall be the responsibility of the Contractor to protect the trenches by shoring or other methods and perform pumping required to dispose of the surface and subsurface water to permit the satisfactory performance of the Work. Each Contractor shall provide its own pumping equipment of adequate capacity and shall be responsible for fuel, cost of operators, and supervision.

4.5.4 The Contractor shall protect equipment, such as electric switch gear and HVAC equipment that is subject to damage by moisture during the period from installation of equipment to completion of the Project acceptance, and shall provide temporary waterproof enclosures and ceilings over such equipment. The interior of the enclosure shall be kept dry by whatever measures are necessary. Special openings shall be provided in the enclosures and ceilings in order to service the equipment during the protection period. The Contractor shall procure and maintain, during the protection period, insurance covering the subject equipment in the full

amount of the value of the equipment. See Article 9.2- INSURANCE for submission of proof of carriage of insurance.

4.5.5 The Contractor shall remove snow and ice as may be required for the proper protection and prosecution of the Contract and to provide access to the Project Site.

4.5.6 In the event of temporary suspension of Work, or during inclement weather, or whenever the Construction Manager shall direct, the Contractor shall protect, and shall cause its Subcontractors to protect, carefully its and their Work and materials against damage from the weather. If, in the opinion of the Construction Manager or NJ TRANSIT, Work or materials have been damaged, such work or materials shall be removed and replaced at the expense of the Contractor.

4.5.7 Unless otherwise specified or shown in the Contract Documents, the Contractor shall provide protection of the entire construction area. It shall also install four (4) one-foot (1') high snow fences around trees that are to remain and that are located within the Contract Limit Line, at a distance equal to the branch spread of the tree.

4.6 PROTECTION OF PRIVATE PROPERTY

The Contractor shall not enter on or make use of private property in the prosecution of the Project unless written permission therefor is secured, in duplicate, from the owner of the property, one copy of which shall be filed with NJ TRANSIT. The Contractor shall promptly restore or repair, without cost to NJ TRANSIT and in a manner satisfactory to the owner of the property, property damaged or destroyed by its operations. Special attention shall be given to the protection of existing landscape features and natural vegetation.

4.7 PROTECTION OF PUBLIC UTILITIES

4.7.1 The terms public utility or public utilities used in this Contract shall be construed to include those publicly and privately owned. Within the site of the Project there may be public utility facilities, and notwithstanding any other clause or clauses of this Contract, the Contractor shall not proceed with its Work until it has made diligent inquiry at the offices of the Construction Manager, the utility companies and municipal authorities, NJ TRANSIT or other owners to determine their exact location. The Contractor shall notify, in writing, the utility companies and municipalities or other owners involved of the nature and scope of the Project and of its operations that may affect their facilities or property. Two (2) copies of such notices shall be sent to the Construction Manager.

The Contractor's attention is called to the fact that the exact locations of the various overhead and underground lines, utilities, and structures located throughout the Project are unknown, and the Contractor is advised to use extreme caution during construction. The plans showing the approximate locations of the

various overhead and underground lines, utilities, and structures are to be used only as guidelines and are not guaranteed as to their accuracy or correctness.

4.7.2 The Contractor shall carry out its Work carefully and skillfully and shall support and secure public utility facilities so as to avoid damage to them. Flow in drains and sewers shall be satisfactorily maintained. The Contractor shall not move any public utility facilities without the owner's written consent and, upon the completion of the Work, the condition of the facilities shall be as safe and permanent as before. When public utility facilities are damaged by the Contractor, the Contractor shall notify their owner, who will cause the damage to be repaired at the Contractor's expense. If the cost thereof is not paid by the Contractor within thirty (30) Calendar Days after repairs have been completed, the Contracting Officer shall deduct an amount sufficient to cover the cost from any monies due or that may become due the Contractor under this Contract. Service connections damaged by the Contractor shall be repaired by competent skilled mechanics.

4.7.3 During the normal course of construction the Contractor may find it necessary to temporarily relocate certain public utilities in order to proceed. The Contractor will be responsible for the coordination and scheduling of all such relocations with the utility owner. If the Bid Item "Protection of Public Utilities" appears in the Contractor’s Bid Proposal, NJ TRANSIT shall reimburse the Contractor for these relocation services upon receipt of an itemized invoice from the participating utility owner, and only for the amount of the invoices, to be submitted along with the Contractor's monthly invoice. If the Bid Item "Protection of Public Utilities" does not appear in the Contractor’s Bid Proposal, the Contractor shall assume all costs associated with the temporary relocation of public utilities.

When facilities requiring relocation belong to NJ TRANSIT, the Contractor shall make requests for relocation by NJ TRANSIT personnel through the Construction Manager. The cost of such relocation shall be borne by NJ TRANSIT.

4.7.4 Under no circumstances shall the Contractor be entitled to damages of any kind arising from the need to relocate public utilities in order to complete the Work.

4.8 PROTECTION OF EXISTING MONUMENTS

Existing monuments and title stones which need not be removed shall be left in place and protected by the Contractor against damage and dislocation. When relocation or change in the grade of existing monuments is necessary, they shall be protected in their original position until their removal is approved by NJ TRANSIT, and shall be reset when directed and in conformance with the new lines and grades to be furnished by the Contractor. Monuments and title stones that are to be left in place or reset and are moved without approval of NJ TRANSIT shall be replaced at the Contractor's expense.

4.9 MAINTENANCE AND PROTECTION OF ROADWAY AND PEDESTRIAN TRAFFIC

4.9.1 The Contractor shall conduct its Work with the least possible obstruction of traffic. The convenience of the public and of the residents adjacent to the Project, and the protection of persons and property, are of primary importance and shall be provided for by the Contractor in an adequate and satisfactory manner. When a detour will be established, the Contractor shall make arrangements for establishing, maintaining, and signing for it and provide safety measures as are necessary to provide traffic guidance and protection. The signage shall include safety, directional and informational signals and devices necessary to provide effective pedestrian and vehicular circulation. The number and location of the signals and devices shall be subject to the Construction Manager's approval.

4.9.2 The Contractor shall erect or place, and maintain in good condition, appropriate and adequate barricades, signs, lights, beacons, flares, approved red flasher units, rubber cones, drums and other warning and danger signals and devices at working sites, closed roads, intersections, open excavations, locations of material storage, standing equipment and other obstructions; at points where the usable traffic width of the road is reduced; at points where traffic is deflected from its normal course of lanes; and at other places of danger to vehicular or pedestrian traffic or to completed Work. Contractor shall use flagmen as necessary. The various traffic control and warning devices shall be in accordance with Part VI of the Manual on Uniform Traffic Control Devices of the USDOT and approved by NJ TRANSIT's Construction Manager.

4.9.3 The Contractor shall provide, maintain and remove when no longer required, temporary driveways, parking areas and walkways that may be necessary to allow access to all parts of the Project, to adjacent property, and for handling of materials and equipment. Should the Contractor elect to place materials that will be incorporated into the permanent driveways, parking areas or walks, it shall not do so without having prepared the subgrade as may be elsewhere required by the Specifications nor will it be relieved from responsibility for providing additional materials or for reworking the subgrade, if required to make the improvements conform fully with the Specifications.

4.9.4 The Contractor shall obtain permission in writing from the Construction Manager before using existing driveways or parking areas for construction purposes. The Contractor shall maintain such driveways and areas in good condition during the construction period, and at the completion of the Project, shall leave them in the essentially equal or better condition as at the start of the Work to the satisfaction of the Construction Manager.

4.9.5 The Contractor shall employ construction methods and means that will keep flying dust to a minimum. Trucks hauling materials shall have tight tail gates and shall be loaded with adequate freeboard of not less than three inches, without precarious cones or piles of material. The Contractor shall provide for the containment of dust on the Project, and on roads, streets and other areas immediately adjacent to the Project limits, wherever

traffic or occupied buildings or those in use, are affected by such dust. The materials and methods used for dust control shall be subject to the approval of NJ TRANSIT.

4.9.6 When vehicular or pedestrian traffic, or both, is to be maintained on new or existing roadways and pedestrian paths of travel, the Contractor shall plan and carry out its Work to provide for the convenient and safe passage of such traffic. The Contractor shall provide for prompt removal from such roadways and pedestrian paths of all dirt and other materials that have been spilled, washed, tracked or otherwise deposited thereon by its hauling or other operations. Roadways and pedestrian paths within the limits of the Project which are reserved for traffic shall be maintained by the Contractor free from obstructions and in a smooth traveling condition at all times.

4.9.7 The Contractor shall not perform construction work above vehicular or pedestrian traffic until it obtains explicit written permission from the Construction Manager. Subject to such permission, the Contractor shall provide the necessary devices and means to protect such traffic from falling construction materials and other objects and from painting operations, during the time that construction Work is carried on above traffic.

4.9.8 The Contractor shall comply with local codes and ordinances affecting complete or partial roadway closings, detours and roadway and pedestrian protective measures. All costs associated with maintaining and protecting roadway and pedestrian traffic is at the Contractor's sole expense and is considered included in the Contract Price.

4.10 MAINTENANCE OF MARINE TRAFFIC

The Contractor shall conduct Work over, on or adjacent to navigable waters so that no interference occurs with free navigation of the waterways and no impairment occurs to the existing navigable depths except as allowed by permit issued by the U.S. Coast Guard and/or the U.S. Army Corps of Engineers, as applicable.

4.11 MAINTENANCE OF RAILROAD TRAFFIC

4.11.1 Where the Project includes Work across, over, under or adjacent to railroad tracks or railroad right-of-way as specified in the Contract Documents, the Contractor shall safeguard the traffic, tracks and appurtenances, and other railroad property affected by its Work. The Contractor shall comply with the regulations of NJ TRANSIT Rail Operations and those of any other operating railroad company relating to the Work; shall keep the tracks clear of obstructions; shall provide barricades, warning signs, lights, flares, and other danger signals and means of protection; and shall arrange with the operating railroad company through NJ TRANSIT for the furnishing of watchmen and flagmen and other protective service that may be required by the railroad company. The Contractor's Work activities shall be conducted in strict conformance with the governing rules of the specific railroad on whose track it is working as detailed in Appendix D to these General Provisions. The Contractor shall note that Work around and adjacent to the railroad is severely restricted during the annual holiday moratorium on performance of Work, which is defined as the period beginning five (5) Calendar Days

prior to Thanksgiving and ending on January 2 of the following year. Track outages and fouling may not be permitted during this period.

4.11.2 Work done within NJ TRANSIT railroad right-of-way shall be subject to the approval of NJ TRANSIT in matters affecting railroad property and the safety and operation of its trains. The safety and continuity of railroad operation shall be of primary importance and shall be at all times protected and safeguarded. The Contractor, and any Subcontractor, shall perform and arrange all pertaining construction Work accordingly. Work shall be performed carefully and shall be regulated so as to avoid interruption of train movements and damage to the tracks and other facilities of the railroad. The Contractor agrees that delays in the performance of the Work attributable to the operations of the railroad shall not be the basis of claims for damages for delay or otherwise or for additional compensation. However, the Contractor may be entitled to an extension of time for completion of the Work, but only to the extent that the critical path of the Work schedule is impacted by NJ TRANSIT railroad operations.

4.11.3 The maintenance and protection of railroad traffic will not be paid for under any specific scheduled item but the cost thereof, including the safeguarding of tracks, traffic and appurtenance of the railroad, watchmen, barricades, lights, signs, signals, warning, other protection and services is considered included in the Contract Price.

4.11.4 If Work is done on or affecting the property of a railroad company other than NJ TRANSIT, the railroad company may assign inspectors or engineers during the time the Contractor is engaged in construction Work on said railroad property for the general supervision of construction operations to insure adherence to Plans and Specifications and to insure the use of approved construction methods pertaining to the safety and condition of the company's right-of-way. The salary and expense of said inspector and/or engineers and the cost of other engineering services furnished by the railroad company will be at no cost to the Contractor, unless otherwise specified in the Special Provisions. The same care taken to protect NJ TRANSIT railroad traffic as set forth above shall be exercised in the protection of railroad traffic on other affected railroads.

4.11.5 Detailed Protective Measures

A. General

1. Whenever in this Sub-article the term "Railroad" is used without further qualifications, it shall mean and be taken to mean NJ TRANSIT Rail Operations.

2. The Contractor shall note that the proposed Work involves construction operations on and over property owned or controlled by the Railroad and will be performed adjacent to the high speed main line electrified tracks of the Railroad in the vicinity of high voltage lines of the Railroad. The Contractor shall exercise great care in working near these lines and shall strictly observe the Railroad's rules detailing requirements for clearance to be maintained between equipment and energized wires and other instructions in regard to working in the vicinity of their electric operations

and requirements whenever the tracks, structures, or properties of the Railroad are involved or affected.

3. Prior to commencement of Work on Railroad property, the Contractor shall name a qualified safety representative to interface with the Railroad's supervision. The Contractor safety representative shall ensure full compliance with the Railroad's safety policies and procedures as they relate to the project. All Contractor personnel with the potential to Work within a fouling distance of fifteen feet (15') from the nearest rail or eighteen feet (18') from centerline of track shall attend the Railroad's safety orientation class which will be provided by the Railroad at no cost to the Contractor. The Contractor's personnel may be required to travel to offices in Newark at 703 Ferry St, or some other location convenient to the Railroad and remote from the site, for administration of this class. Each trained employee will be issued a qualification card by NJ TRANSIT to be carried on their person and a safety sticker to be placed on the employee's hard hat. The employee must display the sticker when working in the Railroad's limits. Contractor shall comply with the Railroad's safety requirements throughout the entire construction period. All costs encountered by Contractor due to complying with Railroad's safety requirements shall be at the sole expense of Contractor.

4. If, during the carrying out of the Work, the tracks or other facilities of the Railroad are endangered, the Contractor shall immediately do such Work as directed by the Railroad to restore safety, and upon failure of the Contractor to carry out such orders immediately, the Railroad may take whatever steps as are necessary to restore safe conditions. The cost and expense to the Railroad of restoring safe conditions or of any damage to the Railroad's trains, tracks or other facilities caused by the Contractor or Subcontractor's operations, shall be considered a charge against the Contractor and shall be paid for by the Contractor, or may be deducted from any monies due or that may become due to Contractor under this Contract. Final payment to Contractor shall be contingent upon a showing by the Contractor that the bills of the Railroad for such services have been paid by the Contractor.

B. Rules and Regulations

1. Railroad traffic shall be maintained at all times with safety and continuity, and the Contractor shall conduct all of its operations on or over the Railroad's right-of-way fully within the rules, regulations, and requirements of the Railroad. The Contractor shall acquaint itself with such requirements as the Railroad may demand. The Contractor shall be cognizant of the limited ability of NJ TRANSIT to control the actions of the Railroad's operations and in the Contractor's Bid Proposal has made allowance for the fact that no additional compensation will be allowed for any delays, inconvenience or damages sustained by Contractor due to the actions, operations, inactions, or interference of the Railroad.

2. The Contractor shall obtain verification of the time and schedule of track occupancy from the Railroad before proceeding with any construction or demolition Work over, under, within, or adjacent to the Railroad's right-of-way. The Contractor shall submit for the approval of the Railroad a detailed description of the method of procedure which will be followed for Work within these areas. The

Work in the field shall not proceed until the plans and method of procedure have been approved by the Railroad.

3. All Work to be done under or over the Railroad's right-of-way shall be performed by the Contractor in a manner satisfactory to the Railroad and shall be performed at such times and in such manner as not to interfere with the movement of trains or traffic upon the tracks of the Railroad. The Contractor shall use all necessary care and precaution in order to avoid accidents, damage, delay or interference with the Railroad's trains or other property.

4. The Contractor shall give written notice to NJ TRANSIT's Construction Manager and the Railroad at least thirty (30) Calendar Days prior to the commencement of any Work, or any portion of the Work, by the Contractor or its Subcontractors on, over or adjacent to the Railroad's right-of-way, in order to protect Railroad traffic.

5. If deemed necessary by the Railroad, it may furnish or assign an inspector who will be placed on the site of the Work during the time the Contractor or any Subcontractor is performing work under the Contract on Railroad property. The cost and expense will be paid directly by NJ TRANSIT.

6. Before proceeding with any construction or demolition Work on, over or adjacent to the Railroad's property, the Contractor shall attend a pre-construction meeting, at which time the Contractor shall submit for approval of the Railroad plans, computations, and a detailed description of Contractor's method of procedure for accomplishing the Work required under this Contract, including methods of protecting railroad traffic; however, such approval shall not serve in any way to relieve the Contractor of its complete responsibility for the adequacy and safety of its methods or procedures.

7. During the demolition procedures the Contractor must provide an approved shield to prevent all debris from falling onto the Railroad's right-of-way. The shield must be designed to provide a solid barrier between the Work area and the tracks below. This shield must span over all tracks plus an additional 15 (fifteen) feet beyond the center line of each track. The Contractor shall submit details and calculations of the proposed shield for Railroad approval.

8. Whenever equipment or personnel are working closer than fifteen (15) feet from the nearest rail or eighteen (18) feet from the center line of track or over the top of track within this limitation, that track shall be considered fouled. Cranes, shovels, or any other equipment shall be considered to be fouling the track when located in such position that failure of same, with or without load, brings the equipment within the fouling limit. Operations within this fouling distance shall be conducted only with the permission of the Railroad and as directed by qualified railroad employees providing protection for track, signal, and catenary equipment. A power line is fouled and subject to hazard when any object is brought to a point less than fifteen (15) feet therefrom and a signal line or communication line shall be considered fouled and subject to hazard when any object is brought nearer than fifteen (15) feet to any wire or cable.

9. The Contractor shall conduct its Work and handle its equipment and materials so that no part of any equipment shall foul an operated track or wire line without the written permission of the Railroad and NJ TRANSIT's Construction Manager. When the Contractor desires to foul an operated track, it

must give the Railroad and NJ TRANSIT's Construction Manager written notice of its intentions thirty (30) Calendar Days in advance, so that if approved, arrangements may be made for proper protection of the Railroad. Although the Railroad may shift or reroute traffic to accommodate the Contractor, the Contractor shall still provide flagging protection when fouling a normal operating track as this track could be returned to operation on short notice as necessitated by demand. Contractor shall conform to working hours as determined by the Railroad with regard to fouled tracks and/or platform Work. If railroad flagmen or protection is not available, the Contractor shall not undertake construction Work if this Work is to take place within the fouling limits. Should Contractor violate any of the conditions set forth herein, the Railroad shall have the right to remedy the situation as appropriate, including suspending the Work, at the sole cost and expense of Contractor. The Contractor shall not permit its employees or equipment to work near overhead wires or apparatus, except when protected by a Class A employee of the Railroad who will take necessary precautions for their safety before starting and during the progress of such Work. The Contractor shall supply and install a grounding cable (4/0 copper or equivalent ACSR) for each piece of equipment working adjacent to any electrified lines. The ground must be an approved 'C' clamp type ground. When Contractor is working in existing electrified territory, it shall comply with the New Jersey High Voltage Proximity Act, N.J.S.A. 34:6-47.1 et seq.

10. The Contractor shall use equipment adjacent to the tracks that is in first-class condition so as to fully prevent failures of defective equipment that might cause delay in the operation of trains or damage to Railroad facilities. The Contractor’s equipment shall not be placed or put into operation adjacent to tracks without first obtaining permission from the Railroad and NJ TRANSIT's Construction Manager. Under no circumstances shall any equipment or materials be placed or stored within twenty feet (20’) feet from the near rail of a track in operation.

11. Materials and equipment belonging to the Contractor shall not be stored on Railroad property without first having obtained permission from the Railroad NJ TRANSIT's Construction Manager and such permission will be on the condition that the Railroad and NJ TRANSIT will not be liable for damage to such materials and equipment from any cause. The Contractor shall keep tracks adjacent to the site clear of all refuse and debris that may accumulate from its operations, and shall leave the Railroad property in the condition existing before the start of its operations.

12. The Contractor shall consult the Railroad and NJ TRANSIT's Construction Manager in order to determine the type of protection required to insure safety and continuity of Railroad traffic incident to the particular methods of operation and equipment to be used on the Work. Any Building & Bridges (B & B) Inspectors, track foremen or track watchmen, signalmen, electric traction linemen, or other employees deemed necessary for protective services by the Railroad, or its duly authorized representative, to insure the safety of trains, contingent upon the Contractor's operations, shall be obtained from the Railroad by the Contractor. The Contractor shall make all such requests through NJ TRANSIT's Construction Manager. The cost of same shall be paid by NJ TRANSIT.

13. The providing of such watchmen and other precautionary measures shall not, however, relieve the Contractor from liability for payment of damages caused by its operations.

14. The Railroad will require flagging and/or other protection of railroad traffic during all periods when the Contractor is working on or over the right-of-way of the Railroad, or as may be found necessary in the opinion of the Railroad Engineers. When protection is required the Contractor shall make the requests in writing to NJ TRANSIT's Construction Manager, who will forward same to the Railroad at least thirty (30) Calendar Days before such protection is required. NJ TRANSIT shall be responsible for any compensation owing to the Railroad for such protection. Contractor shall not include the cost of such railroad protective services in the Contractor's Bid Proposal. However, the costs for safeguarding the tracks, barricades, lights, signs, signals warnings, other protections and services, including insurance shall be provided by the Contractor and shall be included in the Bid price.

15. Prior to the beginning of Work, the Contractor in consultation with the Construction Manager must determine whether the tracks near the Work area must be taken out of service. The track must be taken out of service by a qualified Railroad employee when any of the following conditions exist:

    a. Any construction machinery or equipment occupies the traffic envelope or is standing within eighteen (18) feet of the center line of an outside track.

    b. Any unsecured construction materials are stored within twenty (20) feet of the center line of any track.

    c. Excavations will be performed under operating tracks or adjacent to where stability of tracks may be affected. Under no circumstances will excavations be permitted within the "track live load influence line". The live load influence occurs when an excavation nearest the adjacent track intersects a line from a point five feet horizontally from center line of adjacent track at the plane of the base or rail drawn on a slope of 1-1/2 foot horizontal to one foot vertical. If the excavation occurs within this perimeter, then temporary earth support plans, designed and sealed by a registered professional engineer, shall be submitted for approval to the Construction Manager. In any event, the excavation shall be no less than twenty-five (25) feet from adjacent track, unless otherwise approved by the Railroad. Excavations shall be fenced, lighted, and otherwise protected as directed by the Railroad.

    d. Any other conditions, circumstances, or situation that may present a danger to the safe movement of trains.

16. This Contract does not includes Work for which the Railroad is to be billed by the Contractor, The Contractor shall not bill the Railroad for Work which the Contractor may perform.

17. Upon completion of the Work and as a condition of Final Acceptance, the Contractor shall remove from within the limits of the Railroad's right-of-way, all machinery, equipment, surplus materials, false work, rubbish and temporary buildings and other property of the Contractor, or Subcontractor, and shall leave the right-of-way in a condition satisfactory to the Railroad and NJ TRANSIT's Construction Manager.

18. Contractor’s request notices for assignment of Railroad personnel and other written requests shall be directed to the Railroad through NJ TRANSIT's Construction Manager.

19. Crossing of tracks at-grade by equipment and personnel is prohibited except by prior arrangement with the Railroad.

20. All tunneling, jacking and boring operations within the railroad track influence lines shall be performed on a twenty-four (24) hour/day basis to minimize the Railroad's exposure to construction hazards.

21. No Work across, over, under or adjacent to the Railroad shall commence until the Contractor's written notice is received and approved by the Railroad and all required personnel have attended the Railroad's safety class. Thereafter, rail protective personnel will be assigned, as required, for the Work.

4.12 WORK FURNISHED BY OTHERS

4.12.1 NJ TRANSIT may, and reserves the right to, enter upon the Work site, or areas adjacent thereto, at any and all times during the progress of the Work, or cause others to do so, for the purpose of performing Work not included in these Contract Documents.

4.12.2 When such additional Work is to be performed, the Contractor shall conduct its Work so as not to interfere with or hinder the progress or completion of the work being performed by others. Moreover, the Contractor shall cooperate with such others and coordinating its activities with theirs. If there is a difference of opinion as to the respective rights of the Contractor and others doing Work within the limits of or adjacent to the Project, NJ TRANSIT will decide as to the respective rights of the various parties involved in order to secure the completion of NJ TRANSIT's Work in general harmony and in a satisfactory manner. NJ TRANSIT's decision shall be final and binding on, and shall not be cause for claims by the Contractor for additional compensation.

4.12.3 The Contractor shall assume all liability, financial or otherwise, in connection with this Contract and hereby waives any and all claims against NJ TRANSIT for additional compensation that may arise because of inconvenience, delay, or loss experienced by the Contractor because of the presence and operations of others working within the limits of or adjacent to the Project.

4.12.4 The Contractor will not be held responsible for damage or loss to Work performed on the Contract or on other contracts within or adjacent to the site of the Project that may be caused by or on account of the Work of others. The Contractor will be held responsible for any damage or loss done or caused by its Work or forces to the Work performed by other contractors within or adjacent to the site of the Project and it shall repair or make good any such damage or loss in a manner satisfactory and without cost to NJ TRANSIT.

4.12.5 The Contractor shall examine Work or materials not included in this Contract, the installation of which will affect the Work in this Contract, and should the same be imperfect, incorrect or insecure, it shall notify the Construction Manager immediately in order that the same may be rectified. The Contractor shall arrange its Work and shall place and dispose of the materials being used so as not to interfere with the operation of others within the limits of the Project or adjacent thereto. The Contractor shall join its work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

5. MOBILIZATION AND TEMPORARY FACILITIES

5.1 MOBILIZATION

5.1.1 When the item Mobilization and General Requirements (Mobilization) is included as a Contract Item it shall consist of initiating the Contract, and shall include such portions of the following as are required at the beginning of the Project: setting up the Contractor's general plant, offices, shops, storage areas, sanitary and other facilities as required by the Specifications, by Federal, State, or local law or by regulation; providing access to the Project site; obtaining necessary permits, grants and licenses, and payment of fees; protecting existing utilities; lighting work areas; providing shop Drawings; sampling and testing of materials; providing required insurance and bonds other than the Performance Bond and Payment Bond, unless Insurance Bid Items are included in the Contractor's Bid Proposal. Mobilization shall also be deemed to include the Contractor's cost of ongoing maintenance and protection of the Work premises, demobilization and remobilization as necessary to accommodate sequencing the Work, and all costs associated with the provision and maintenance of temporary facilities, unless a specific Bid Item has been provided in the Contractor's Bid Proposal for a specific element of Work (e.g. Field Offices).

5.1.2 Payment for Mobilization as hereinbefore specified will be made for the lump sum price bid therefor, regardless of the fact that the Contractor may have, for any reason, shut down its Work on the Project or moved equipment away from the Project and back again.

5.1.3 Except where a specific Bid Item has been provided in the Contractor's Bid Proposal for a specific element of Work, the provisions for payment of the Contract Item Mobilization supersede any provisions elsewhere in the Contract for including the costs of these initial and ongoing services and facilities in the prices bid for the various Contract Items in the Proposal.

5.1.4 Payment to the Contractor for the item Mobilization will be made in accordance with the following schedule:

(a) When five percent (5%) of the Work is completed – twenty-five percent (25%) of the amount bid for mobilization or two and one half percent (2 ½%) of the total Contract Price, whichever is less, will be paid.

(b) When ten percent (10%) of the Work is completed an additional twenty-five percent (25%) of the amount bid for mobilization or five percent (5%) of the total Contract Price, whichever is less, will be paid.

(c) When twenty-five percent (25%) of the Work is completed an additional twenty-five percent (25%) of the amount bid for mobilization or six percent (6%) of the total Contract Price, whichever is less, will be paid.

(d) When fifty percent (50%) of the Work is completed – an additional twenty-five percent (25%) of the amount bid for mobilization or ten percent (10%) of the total Contract Price, whichever is less, will be paid.

(e) The percentage of Work completed shall be the total of payments earned, exclusive of the amount paid for this item, as shown on the monthly certificates of the approximate quantities of Work done.

(f) Upon completion of all Work on the Project, payment for any amount bid for mobilization in excess of ten percent (10%) of the total Contract Price will be paid.

5.1.5 When the item Mobilization is not a Bid Item, no specific payment will be made for the Work included in this Article. All costs thereof shall be included in the Contractor's Bid Proposal for the various scheduled Contract Items.

5.2 FIELD OFFICE AND SANITARY FACILITIES

5.2.1 The Contractor shall provide a field office on or as convenient to the job site as possible, subject to the approval of the Construction Manager and sufficient to accommodate NJ TRANSIT representatives assigned to the Project. The Contractor shall supply such space, together with necessary furnishings, equipment, supplies, etc., and all utilities shall be as required by this Article.

5.2.2 Within thirty (30) Calendar Days of the Notice to Proceed, the Contractor shall provide and maintain the mobile trailer units described herein with parking facilities for five (5) vehicles. The Field Office and the parking facilities will be for the use of the Construction Manager, Engineer/Architect, and their staff.

5.2.3 The Field Office shall be a new or like new NJDCA approved weatherproof mobile trailer with a seven foot (7') minimum ceiling height, weatherproof windows (screened), doors each equipped with adequate locking devices, and a burglar and fire alarm system to be connected to a local twenty-four (24) hour security service. The Field Office shall total at least 576 square feet and shall be divided into three (3) rooms, one (1) with a floor area of not less than 288 square feet and two (2) with floor areas of not less than 144 square feet. All walls shall be paneled. The Field Office location shall be submitted for approval by the Construction Manager. The trailer shall be adequately tied down to resist high winds. The Contractor shall level the Field Office trailer and provide entrance steps, landing platforms, handrails, and under trailer enclosures as directed by the Construction Manager. The Contractor shall obtain required DCA permits and approvals for the Field Office as well as any subsequent permit renewals.

5.2.4 All Field Office windows shall be protected by expanded metal grilles with angle frames which must be through bolted top 2" x 2" x 1/4" plates. All external doors shall be heavy duty construction with cylinder locks and

with two 2" x 2" x 1/4" angle bars which can be placed across the closed door and padlocked in place. Padlocks to be placed through eye bolts which shall be through-bolted to 2" x 2" x 1/4" plates. Contractor shall supply the padlocks and all keys (original and copies) to the Construction Manager.

5.2.5 The Contractor shall maintain and service the Field Office trailer as specified in this Article. Upon Project completion, and only after receipt of written authorization from the Construction Manager, the Contractor shall remove the Field Office from the job site.

5.2.6 The Contractor shall perform any relocation of the Field Office trailer and utilities during the entire Project duration.

5.2.7 The Contractor shall provision the Field Office, subject to the Construction Manager's approval as follows:

1. Provide adequate lighting, electrical receptacles, and ground fault circuit interruptions as required by OSHA.
2. Provide lighting to furnish a minimum of 100 foot-candles at desk height uniformly in all areas.
3. Provide heating and cooling equipment and any necessary fuel to maintain an ambient air temperature of 70 degrees F +/- 5 degrees F.
4. Provide and maintain a source of hot and cold potable water for use in a flushing water closet, and for hand washing. The Contractor shall be responsible for plumbing hook-up to a sanitary line or for provision of a storage tank.
5. Provide five (5) separate phone lines; three (3) lines to be equipped for voice; one (1) for fax and one (1) with modem capabilities. Provide and install the phone system with three (3) new touch-tone phones with answering machine, speaker and hunting capabilities. All equipment shall be approved by the Construction Manager prior to installation.
6. Provide OSHA required fire extinguisher.
7. Furnish the CM Field Office with the following new equipment and furniture as approved by the Construction Manager:

Table 5.2.7.7: Field Office Equipment

Description	Quantity
Desk (60" x 30") with three lockable draws and rolling armchair	3
Drafting table (60" x 36") with drawer and 54" straightedge and stool	1
Reference table (54" x 30")	1
Conference table (36" x 96")	1
Metal folding chairs with saddle seat and steel back	10
Storage cabinet (36" x 18" x 6') with lock and two keys	1
Two file cabinets, four (4) drawers (legal size) with lock and key.	2
Two file cabinets, fireproof, four (4) drawers (legal size) with lock and key.	2

Table 5.2.7.7: Field Office Equipment	
Magnetic dry marker board (36" x 48"), mounted, and supply of markers and erasers including replacements as required	1
Copier, using 8-1/2" x 11", 8-1/2" x 14", and 11" x 17" paper	1
Two cubic feet refrigerator/freezer	1
Wall clock (battery operated) 12" diameter face	1
Plain paper laser and facsimile machine capable of 8½ x 11 and 8½ x 14" paper	1
Automatic Drip Coffee machine (10 cup)	1
Fully stocked first-aid cabinet in compliance with OSHA regulations	1
Microwave	1
Bookcase (36 x 42) with four shelves	1

5.2.8 The Contractor shall maintain and service the Field Office in accordance with the following requirements. The Contractor shall:

1. Repair and clean the Field Office, including complete janitorial services, including cleaning and emptying of any temporary sanitary system, and trash removal, at a minimum frequency of once per week to the standard approved by the Construction Manager.
2. Repair, clean, and adjust equipment specified under Sub-article 5.2.7 and provide repair/maintenance service with twenty-four (24) hour response/repair time for proper operation of all copiers, typewriters, computers, and any other office equipment whether supplied by the Contractor or supplied by others.
3. During other than normal working hours, provide security measures and area protection adequate to insure the safety and integrity of the Project site.
4. Provide all necessary paper, including sanitary paper, and other office supplies as required by the Construction Manager.
5. Provide adequate bottled water and paper cups inside the Field Office.
6. Provide coffee, filters, plastic stirrers, sugar, cups, napkins, and non-dairy creamer.
7. Maintain and restock the first-aid cabinet as required.

5.2.9 Payment for the Field Office materials and services identified in this Article shall be as follows:

A. Included and to be paid for under the Bid Item “Mobilization and General Requirements” shall be the costs for the following:

1. Trailer site preparation and trailer delivery.
2. Trailer utility and sanitary hookups.
3. Trailer set-up, including: skirting, tying down, securing and making the trailer weatherproof; wooden stair and platform construction (including handrails); installation of burglar alarm system; and other miscellaneous efforts required to provide safe and orderly access to the trailer. Further, any and all labor and materials required for repair and maintenance to the above for the duration of the project.

4. Obtaining and paying for any and all permits required for hauling, building and making utility connections for the trailer.
5. Any costs associated with the location and/or relocation, for any reason, of the Field Office and utilities.
6. All Field Office equipment and furnishings identified in this Article.
7. Trailer demobilization and removal at the completion of the project, including utility disconnections, temporary construction and disposal fees.
8. Any and all other costs associated with mobilizing, erecting, maintaining, repairing, demobilizing and removing the Field Office trailer and associated temporary improvements/structures.
9. All costs associated with Sub-article 5.2.8 Items 1, 2 and 3.

B. Included and to be paid for under the Bid Item Allowance “Field Office” shall be the costs for the following:

1. Monthly rental of the Field Office trailer.
2. NJ TRANSIT telephone usage.
3. NJ TRANSIT electrical power usage.
4. NJ TRANSIT heating fuel expenses.
5. Office supply account covering all costs associated with Sub-article 5.2.8 Items 4, 5, 6 and 7.

The Contractor shall submit copies of invoices from the trailer rental and utility companies and receipts for office supply expenses along with the monthly applications for payment. The Contractor shall be reimbursed for the items listed in this Sub-article 5.2.9.B as a direct expense without any additional markups for overhead or profit.

All items purchased by the Contractor under Article 5.2 shall become the property of the Contractor for its use or disposition upon removal of the Field Office.

5.3 CONSTRUCTION SIGN

The Contractor shall construct and install construction sign(s) as indicated in the Contract Documents. Lettering shall be as shown in the Contract Documents and shall include the names of the Contractors engaged on the Project and such other persons or entities as directed. The sign(s) shall be securely installed to remain rigid and plumb, shall be maintained in good condition throughout the construction period, and shall be removed when directed by the Construction Manager. If the Contractor desires to install a sign other than those specified in the Contract Documents it shall first obtain the approval of the Construction Manager.

5.4 TEMPORARY WATER

5.4.1 The Contractor shall provide, protect and maintain an adequate water supply for use on the Project during the period of construction, either by means of the permanent water supply line, or by the installation of a temporary water supply line. This water supply line shall be made available within fifteen (15) Calendar Days after written authorization to proceed with the Project. If the source of water supply is a well, provisions covering the supply of water will include the installation of necessary power driven pumping facilities by the Contractor, as well as protection of well from contamination. The water supply shall be tested periodically by the Contractor and, if necessary, shall be chlorinated and filtered.

5.4.2 The Contractor shall install a valved temporary water supply connection at a point approximately ten (10) feet from the building or buildings and provide a meter, if required; the actual location of the point to which the water is brought shall be determined by the Contractor.

5.4.3 If there is a charge for water, said charges shall be paid by the Contractor. When temporary water lines are no longer required, they shall be removed by the Contractor and any part, or parts, of the grounds or building disturbed or damaged shall be restored to the original condition by the Contractor. The Contractor shall install its permanent water lines to the boiler room and heating equipment in sufficient time to be available for supplying water for testing and operation of the heating system when needed to supply heat on the Project.

5.5 TEMPORARY LIGHT AND POWER

5.5.1 The Contractor shall extend electrical service to the building or buildings at locations approved by the Construction Manager; temporary electrical service shall be independent of the existing permanent service. Initial temporary service shall be three-phase or single-phase depending upon which phase is nearest to the Project site. This service shall be installed within fifteen (15) Calendar Days after written Notice to Proceed with the Project. When the Contract calls for three-phase permanent service, the Contractor shall install same within a reasonable time to permit use by all the trades.

5.5.2 The Contractor shall extend the service into the building and shall provide such receptacles and lighting as required for the proper conduct of the Work.

5.5.3 The Contractor shall pay for the cost of all electric energy used, and it shall also maintain and service any electrical equipment installed and necessary for maintaining heat after same is required in the building.

5.5.4 When the temporary electrical lines are no longer required, the Contractor shall remove the lines and shall restore to their original condition any part, or parts, of the grounds or building disturbed or damaged.

5.5.5 Any Contractor who fails to carry out its responsibility in the supplying of uninterrupted light and power to expedite the Project, as set forth in this Contract, shall be held responsible for such failure and the Contracting

Officer shall have the right to take such action as the Contracting Officer deems proper for the protection and conduct of the Work and shall deduct the costs involved from the amount due the Contractor.

5.6 TEMPORARY HEAT

5.6.1 The Contractor shall provide, protect and maintain, at its own expense, sufficient heat to the Project during the entire period of construction either by using an NJ TRANSIT approved method of temporary heat or, when operational, the permanent heating system.

5.6.2 Prior to any building being enclosed by walls and roof, if the outside temperature shall fall below 40 degrees F., at any time during the day or night, and the Work in progress requires heat for execution and protection, the Contractor shall furnish acceptable means to provide sufficient heat to maintain a temperature of 40 degrees F., for that portion of the Work which requires same.

5.6.3 Heating of field office, storage spaces, concrete and masonry materials and working area heating required prior to enclosure, as specified herein, shall be provided by the Contractor as specified in the Contract Documents.

5.6.4 As soon as the building, or a major unit thereof, is generally enclosed by walls and roof, as determined by the Construction Manager, the responsibility for supplying working area heat shall rest with the Contractor. When the outside temperature falls below 45 degrees F., at any time during the day or night, the Contractor shall furnish sufficient heat, by the use and maintenance of LP gas heaters or other system approved by the Construction Manager, to maintain a temperature of 45 degrees F. within the enclosed area of the building at all times and shall remove same when no longer required. The Contractor shall provide or arrange at its own expense supervision of the LP gas heaters at all times prior to start of the permanent heating system. The Contractor shall furnish and pay for all fuel required for the above temporary installation during the term of this contract.

5.6.5 The Contractor will be held responsible for freeze ups following enclosure of the building. The Contractor shall remove soot, smudges, and other deposits from walls, ceilings, and exposed surfaces which are the result of the use of heating equipment including the permanent heating system during the period of its use for supplying heat. The Contractor shall not do any finish Work until the areas are properly cleaned.

5.6.6 A building, or major unit thereof, shall be considered "enclosed" when: (1) the exterior walls have been erected; (2) temporary roof or permanent roof is installed and in watertight condition; and (3) temporary or permanent doors are hung and window openings are closed with either permanent or temporary weather tight enclosures (cardboard, muslin and light canvas materials are not acceptable; any impervious transparent material is acceptable). A major unit of building as referred to herein shall be: (1) an entire separate structure; (2) a fully enclosed wing which shall have a floor area equal to at least 50 percent (50%) of the total floor area

of the Project; or (3) a section which shall have a floor area equal to at least fifty percent (50%) of the total floor area of the Project.

5.6.7 Sixty (60) Calendar Days after the building, or major unit thereof, is enclosed and the Engineer has determined that heat is required for the proper execution of the construction Work, the permanent heating system shall provide the heat. Regardless of whether the boiler room is within the confines of the major unit or not, the Contractor shall enclose the boiler room and install the floor at the time the permanent heating system shall supply heat. The boiler room floor area shall not be considered in determining the area comprising the major unit. The sixty (60) calendar day period shall apply only to the enclosed portion of this building.

5.6.8 The Contractor shall continue to provide acceptable means of temporary heat until the permanent heating system is operational. If the permanent heating system is not acceptable to the Construction Manager for providing sufficient heat, the Contractor shall continue to provide temporary heat as described above and as ordered by the Construction Manager or NJ TRANSIT.

5.6.9 When the heating system provided by the Contractor is designed for tie-in to existing steam lines for source of heat, NJ TRANSIT will provide steam for temporary heat through the Project's permanent heating system at no additional cost to the Contractor. The Contractor shall arrange, at its own cost, for connections.

5.6.10 Valves, traps and other parts of the heating system which are permanently installed by the Contractor and used for supplying heat during the construction period need not be replaced, provided the system was in acceptable condition prior to its use, and further, that the system is properly cleaned and adjusted to operate after the permanent system is in use to the satisfaction of the Construction Manager. Seven (7) Calendar Days prior to acceptance by NJ TRANSIT of the heating system as substantially complete, the Contractor shall replace disposable filters or turn over spare sets of filters to NJ TRANSIT.

5.7 TEMPORARY PARTITIONS, ENCLOSURES, GLAZING BREAKAGE AND CLEANING

5.7.1 Whenever necessary, in order to maintain proper temperatures for the prosecution of the Work, or for the protection thereof, the Contractor shall furnish and maintain temporary enclosures and partitions. All openings in exterior walls not enclosed with finishing materials shall be closed temporarily. Window sashes may be installed and glazed. Temporary wood doors shall be provided at door openings. Temporary partitions shall be securely anchored, stable, well-constructed and maintained, and fit for the purpose intended, e.g., Work area separation, protection of the public, delineation of pedestrian pathways, etc.

5.7.2 The Contractor shall be responsible for all breakage of glazing after same has been installed, no matter by whom or what caused, and shall replace all broken, scratched or otherwise damaged glazing before the completion and acceptance of the Work. The Contractor shall wash all glazing on both sides at completion, or when directed, removing all paint spots, stains, plaster, etc.

5.7.3 The Contractor shall provide and maintain necessary temporary dustproof partitions around areas of Work in any existing building.

5.8 TEMPORARY, INTERMEDIATE AND HIDDEN WORK

5.8.1 The Contractor shall be responsible for temporary, intermediate and hidden Work, including the furnishing and setting of sleeves, built in items, anchors, inserts, and chases for its work. The Contractor shall build these items into the construction. The Contractor shall build recesses, channels, chases, openings, and flues, and leave or create holes where shown on Drawings or where directed for steam, water or other piping, electrical conduits, switch boxes, panel boards, flues and ducts, or other features of the heating and ventilating work. Subcontractors requiring such recesses, channels, chases, openings, and flues shall furnish to the Contractor complete details and Drawings of such as required in connection with the work. Such information shall be furnished in complete form and in ample time to allow the construction work to proceed without interruption or delay. These details and Drawings shall be furnished in accordance with Article 6.5- SHOP AND WORKING DRAWING SUBMITTALS to the Construction Manager for review and approval prior to installation.

5.8.2 The Contractor shall close, build in, and finish around or over openings, chases, channels, pockets, and sleeves after installation has been completed.

5.8.3 The Contractor shall obtain positive instructions in writing from the Engineer before cutting or boring floor beams, floor constructions, or supporting members.

5.9 DEMOBILIZATION

At the completion of the Work and prior to final payment, the Contractor shall remove temporary facilities entirely from the site including, but not limited to the following: Field offices, trailers, shanties, sheds, temporary electric services, temporary water hydrants, temporary fences, project sign, job telephone, temporary roads, temporary toilets, temporary enclosures, dust barriers, and other temporary protection devices. The Contractor shall conduct final cleaning activities and restore all disturbed landscaping, street and sidewalk surfaces, subsurfaces and overhead structures, if any. Should the Contractor fail to remove such temporary facilities and restore disturbed conditions, NJ TRANSIT shall perform such activities as necessary and deduct the cost from the Contractor’s final payment.

6. PROJECT ADMINISTRATION AND DOCUMENT CONTROL

6.1 PROJECT MEETINGS

6.1.1 The Contractor, Subcontractor, supplier or vendor whose presence is necessary, unless excused in writing by the Construction Manager, shall attend Project meetings when called by the Construction Manager for the purpose of discussing the execution of the Work. The initial pre-construction meeting will generally be held prior to commencement of the work at a time, date and location to be set by the Contracting Officer.

6.1.2 General Requirements for Project Meetings:

A. One of the persons designated by the Contractor to attend and participate in the Project meetings shall have all required authority to commit the Contractor to solutions agreed upon in the Project meetings.

B. To the maximum extent practicable, the Contractor shall advise the Construction Manager at least twenty-four (24) hours in advance of Project meetings regarding all items to be added to the agenda.

C. The Construction Manager will compile the official minutes of each Project meeting and will furnish three (3) copies to the Contractor.

D. Except as noted below for the Pre-Construction Meeting, Project Meetings will be held once every two (2) weeks. The Contractor shall coordinate with the Construction Manager as necessary to establish a mutually acceptable schedule for meetings.

6.1.3 Pre-Construction Meeting:

A. A pre-construction meeting will be scheduled by NJ TRANSIT. The Contractor shall provide attendance by an authorized representative and authorized representatives of all major Subcontractors. The Construction Manager will advise other interested parties and request their attendance. The Construction Manager will arrange to review details of construction with the Contractor, and if appropriate, to walk the Project with the Contract Drawings in hand and carefully observe all pertinent conditions relating to the construction of the Work, including the status of right-of-way, existing structures and obstructions to be removed, altered or changed.

B. Minimum Pre-Construction Agenda: The Contractor shall be prepared to discuss:

(1) Organizational arrangement of Contractor's forces and personnel, and those of Subcontractors, materials suppliers, Engineer and Construction Manager.

(2) Established channels and procedures for communications as approved by NJ TRANSIT.

(3) Construction schedule, including sequence of critical Work as described in Article 6.2-CONSTRUCTION PROJECT SCHEDULE.

(4) Contract Documents, including distribution of required copies of original documents and revisions.

(5) Processing of shop Drawings and other data submitted to the Construction Manager for review.

(6) Processing of field decisions and contract change orders.

(7) Rules and regulations governing performance of the Work.

(8) Procedures for safety and first aid, security, quality control, housekeeping, and other related matters.

(9) Existing conditions.

(10) Equal employment regulations.

(11) DBE requirements.

(12) Quality assurance.

(13) MSDS submittal requirements as set forth in Article 9.7- ENVIRONMENTAL COMPLIANCE AND LIABILITY.

(14) Subcontractor submittals and approvals as set forth in Article 1.9- ASSIGNING AND SUBCONTRACTING CONTRACT. The Contractor shall provide the initial submittals noted therein.

(15) Contract Completion and liquidated damages.

6.1.4 Project Meetings:

A. Attendance: To the maximum extent practicable, the Contractor shall assign the same person or persons to represent the Contractor and major Subcontractors, as requested by NJ TRANSIT, at Project meetings throughout progress of the Work. If requested by NJ TRANSIT, Subcontractors, material suppliers, and others shall attend those Project meetings in which their aspects of the Work are involved.

B. Minimum Agenda for Project Meetings:

(1) Review, revise as necessary, and approve minutes of previous meeting.

(2) Questions and issues unresolved at the previous Project Meeting.

(3) Engineer's, Construction Manager's and/or Contractor's unsatisfied request for information.

(4) Work accomplished since the previous Project Meeting, off-site fabrication problems, product delivery problems, proposed changes, and other circumstances which might delay progress of the Work.

(5) Corrective measures and procedures developed to regain planned and scheduled progress.

(6) Field observations, problems, Engineer's or Construction Manager's decisions, Work quality, and employee Work standards.

(7) Plan of the following month's Work.

(8) Status of DBE Subcontractors.

(9) NPC and Change Order statuses.

(10) CPM status.

(11) Submittal schedule.

(12) Safety.

(13) Others, as required.

6.2 CONSTRUCTION PROJECT SCHEDULE

6.2.1 The Contractor shall be responsible for preparing and furnishing, at the pre-construction meeting, an initial draft of a coordinated combined Project schedule that incorporates the Project schedules of the Contractor

and its Subcontractors activities for the prosecution of the Work. The schedule shall be a Critical Path Method (CPM) schedule in sufficient detail satisfactory to the Construction Manager.

6.2.2 Float, or slack time, in the schedule is defined as the amount of time between the early start date and late start date or the early finish and late finish date of any activity. The definition of float or slack time also includes the amount of time between the late finish date of the Contractor's schedule and the time for completion specified in the Contract Documents, if the Contractor's scheduled late finish date is earlier than the Contract Time. Float or slack time is not for the exclusive use or benefit of either the Contractor or NJ TRANSIT, but for the overall benefit of the Project as determined by NJ TRANSIT. Extensions of time for performance under any and all of the provisions of this Contract will be granted only to the extent that such equitable time adjustments for the activity or activities affected exceed the total float along the paths involved at the time the delay occurred or notification was issued for the change. The Contractor shall not sequester shared float through such strategies as excessively extending durations, artificially constraining resources, or introducing faulty logical relationships between schedule activities.

6.2.3 The Contractor shall prepare and maintain the Contract Schedule by the use of skilled and experienced scheduling personnel; each with at least five (5) years' experience or the equivalent thereof in detailed scheduling. Such personnel shall be directly involved in the planning, scheduling, evaluating, and progress reporting of the Work. The Contractor shall submit the qualifications of the scheduler/scheduling consultant for approval at the Pre-Construction Meeting. Should the scheduler/scheduling consultant's qualifications prove unacceptable to NJ TRANSIT, the Contractor shall submit the qualifications of a substitute scheduler/scheduling consultant within seven (7) Calendar Days of NJ TRANSIT's rejection of the originally proposed personnel.

6.2.4 No later than ten (10) Calendar Days after the Notice to Proceed, Contractor shall submit to the Construction Manager a Detailed Project Schedule (DPS). This DPS shall outline all activities and sequences of operations, as needed, for the orderly performance and timely completion of all Work in accordance with the Contract, commencing with the Notice to Proceed and concluding with the Contract completion. The schedule should take into account mandatory sequencing, phasing, and restrictions of access to the Project Area, if any. The DPS is required to ensure adequate planning and scheduling of the Work by Contractor and to enable the Construction Manager to evaluate Work progress and to make progress payments. No progress payments (excluding payments for mobilization) will be made until a DPS is approved by the Construction Manager.

6.2.5 Within twenty-one (21) Calendar Days of receipt of Contractor's DPS, the Construction Manager will review the schedule for conformance with the Contract and provide the Contractor with the Construction Manager's comments. The Contractor shall incorporate the Construction Manager's comments into the DPS and shall

resubmit the DPS to the Construction Manager within ten (10) Calendar Days of receipt of such comments. Contractor shall repeat this process (at its own expense) until the Construction Manager approves the DPS.

6.2.6 Upon approval by the Construction Manager, the Contractor's DPS shall become the Baseline Schedule for the Work. This schedule shall be used by Contractor for planning, scheduling and executing the Work, for monitoring and reporting progress to the Construction Manager, and as a basis for progress payments. Progress shall be shown in terms of remaining duration, actual dates and percent complete for each activity. During the life of this Contract, Contractor shall make monthly progress updates to the DPS. The updated DPS reflecting progress through the end of the month, as determined by NJ TRANSIT during the schedule meetings, shall be submitted by the fifth Work day of the following month. Under no circumstances at any time during the Project shall the Contractor make any changes to the NJ TRANSIT-approved Baseline Schedule logic, durations and construction sequencing without first receiving the written approval of the Construction Manager.

6.2.7 The DPS shall be a CPM schedule prepared with the software "Primavera", latest version, using the precedence diagram method. The DPS shall show a clear and definable critical path for the Work. All imposed or constrained dates shall be clearly identified. The DPS shall include all contractual milestones and activities for the complete scope of the work including interface activities with the Railroad and other parties such as utility companies and outside agencies. Contractor's activities shall delineate the individual components of the work such as design efforts, submittals, procurement activities, fabrication, deliveries, construction operations, application and receipt of permits, track usage requirements, and testing. For each activity in the DPS, Contractor shall include:

1. Description, which shall clearly describe the operation and the location where it is occurring;
2. Durations, which shall be expressed in Calendar Days. Durations shall not exceed twenty (20) Calendar Days except in the case of non-construction activities such as the site specific Work plan review, procurement of materials, fabrication and delivery of equipment or other such activities. Durations shall include allowances for lost time and inefficiencies. Activities that have started shall show the remaining duration;
3. Activity code, which will be utilized to allow for breakdown of the total schedule by Work area, phase of Work, activity type, etc. A responsibility code (as part of the activity code), shall individually and singularly denote Contractor, each Subcontractor, the Railroad, outside agencies, utilities, and any other parties performing the activity;
4. The number of person-hours required performing the activity. The number of person-hours shall be shown as a resource using integers;
5. The percent complete using integers, which represents the activity's progress as of the status date.; and
6. The actual start and finish dates.

6.2.8 In every DPS Submittal, the Contractor shall include an electronic copy, on a flash drive or Compact Disc (CD) or equivalent, containing the Contract schedule and all related files generated by the "Primavera" back-up utility and shall include five hard copies of the following graphical and tabular reports:

1. Graphical:
    a. Activity Bar Chart (ABC), on 8-1/2 inch by 11 inch or 11 inch by 17 inch paper with activities grouped by Work areas and sorted by early start.
2. Tabular:
    a. Activity Listing Report (ALR), sorted by activity identifier and including predecessor activities, successor activities, resources, and allocated dollar amount. Show constraint dates on a separate line.
    b. Total Float Report (TFR), sorted by total float with a secondary sort by early start and including predecessor activities and successor activities.
    c. Early Start Report (ESR), sorted by early start with a secondary sort by total float.
    d. Cost Control Activity Report (CCAR), sorted by activity identifier and including the dollar amount earned to date for each activity (to be used as invoice back up).
    e. Predecessor-Successor Report (PSR), sorted by activity number.

6.2.9 In every DPS Submittal, the Contractor shall include a written Narrative Report explaining the CPM schedule and the Contractor's approach for meeting the interim and completion milestones. The Contractor shall include in the report an analysis and summary of the contents of the computer reports and shall address, at a minimum, the following:

1. Description of the Project status;
2. Critical path analysis which takes into account construction sequencing, major procurement items that may influence the critical path, activities that influence interim contract milestones, and NJ TRANSIT approved constraint dates;
3. Total float;
4. Schedule slippage, including a comparison to the previous month's status.;
5. List of activities that may become critical within the next thirty (30) day period;
6. Logic revisions/other changes as approved by NJ TRANSIT; and
6. If the Project falls behind, the measures the Contractor will take to get the Project back on schedule.

6.2.10 In the event that it is necessary for the Contractor to revise the durations, construction sequencing or logic of the DPS, the revised DPS shall be submitted to the Construction Manager for approval, at no additional cost to NJ TRANSIT. Minor changes to the DPS, such as re-sequencing of activities, may be approved at a Project or Schedule Meeting; a minor change is not considered a revision in the context of this Paragraph. However, the Contractor shall incorporate, in a revision all previously made changes, major or minor, to reflect current

as-built and as-planned conditions. Reasons for revisions may include, but are not limited to, the incorporation of an approved change order or changes required to recover lost time if the Construction Manager determines that Work is not progressing in accordance with the Baseline Schedule. In the case of minor changes or revisions that were made to improve Contractor's Work progress and are not part of a change order, the monetary value of the activities in the revised portion of the schedule shall be identical, in aggregate value, to the value of that same Work as reflected in the initial Baseline Schedule.

6.2.11 NJ TRANSIT will conduct Schedule Meetings as necessary with the Contractor to review and discuss the schedule. Schedule Meetings will generally be held as part of a progress meeting. If necessary, they shall be held as separate meetings. All Schedule Meetings shall be attended by the Contractor's Project Manager or a designee, who shall have the authority to make decisions on behalf of, and commit the resources of, the Contractor. The Contractor's superintendent and appropriate scheduling staff shall also attend the meetings. At these meetings, NJ TRANSIT will examine and comment on the Contractor's DPS. Schedule slippages will be analyzed and corrective actions will be discussed and agreed upon.

6.2.12 The Construction Manager will plan the Schedule Meetings so that, regardless of frequency, there will always be a Schedule Meeting taking place on or about the twenty-fifth (25^{th}) day of the month. During this "monthly" Schedule Meeting, in addition to the in-depth review of the DPS, the Project progress (i.e., completed activities and percent complete of partially completed activities) shall be presented by the Contractor and reviewed by NJ TRANSIT. NJ TRANSIT will determine the percent of Work complete and advise the Contractor accordingly. Subsequent to this meeting, the DPS shall be updated with the progress, as determined by NJ TRANSIT, and the Contractor shall submit the monthly Narrative Report and the revised DPS to the Construction Manager as part of its Payment Application. NJ TRANSIT's review of the DPS and Narrative Report shall not constitute NJ TRANSIT's approval of any Contractor changes to the logic, durations and construction sequencing of the previously approved Baseline Schedule unless NJ TRANSIT specifically confirms in writing its acceptance of such changes.

6.2.13 In the event of a change order, the Contractor must clearly demonstrate how it proposes to incorporate the change order into the schedule. The Contractor shall provide, as part of its change order documentation and prior to change order negotiations, a schedule that clearly identifies the newly introduced change order Work activities, the CPM path(s) affected and a narrative explaining the schedule impact of the change order to the DPS. If Contractor fails to notify the Construction Manager of the schedule changes associated with a change order, it will be deemed an acknowledgment by Contractor that the change order has no impact on the schedule.

6.2.14 All change order Work activities shown in the schedule are considered to be tentative unless a Directive Letter or Change Order has been issued incorporating the changed Work into the Contract. Acceptance of a schedule containing change order Work activities will not be construed to be approval of the value of the

change, the duration of the Work or constraints concerning the changed activities. The applicable Directive Letter or Change Order shall govern the monetary value and Contract Time impact of the changed Work.

6.2.15 The Contractor shall furnish sufficient labor, plant and equipment to insure the prosecution of the Work in accordance with the approved Project Schedule. If, in the opinion of the Construction Manager, the Contractor falls behind in the prosecution of the Work as indicated in the Project Schedule, the Contractor shall take such steps as may be necessary to improve its progress. The Construction Manager may require the Contractor to increase the number of shifts, days of work, and/or the amount of plant and equipment, all without additional cost to NJ TRANSIT.

6.3 CONTRACT DRAWINGS AND SPECIFICATIONS

6.3.1 Unless otherwise provided in the Contract Documents, NJ TRANSIT will furnish to the Contractor, free of charge, a maximum of six (6) full size copies of conformed Drawings and Specifications for the execution of the Work. The Contractor shall at all times keep one copy of all Contract Documents up to date and in good order, available to the Engineer and to the Engineer's representatives. The Contractor shall keep its prints of the Contract Drawings up to date at all times by marking on them the final location of any changes in the Work. Prior to final payment the Contractor shall submit a copy of the marked-up Drawings of all Contract Drawings whether altered or not to the Construction Manager. These marked up As-Built Drawings shall become the property of NJ TRANSIT.

6.3.2 The Engineer or NJ TRANSIT may furnish additional detail instructions to the Contractor through the Construction Manager, by means of supplemental Drawings or otherwise, necessary for the proper execution of the Work. Such Drawings and instructions shall be consistent with the Contract Documents and reasonably inferable therefrom. The Work shall be executed in conformity therewith and the Contractor shall do no Work without proper Drawings and instructions.

6.3.3 When the Contractor requests clarifications of Contract Drawings and Specifications it must give written notice to the Construction Manager with at least fourteen (14) Calendar Days lead time for the Construction Manager and Engineer to provide timely instruction or interpretation.

6.3.4 All Drawings referred to, together with such supplementary details as may be furnished or approved from time to time as the Work progresses, are understood as being included in and a part of the Contract.

6.3.5 Dimensioned and full-size Drawings shall take precedence over scaled dimensions. Where the Work is shown in complete detail on only half or a portion of a drawing or there is an indication of continuation, the remainder being shown in outline, the Work drawn out in detail shall be understood to apply to other like portions of the Project.

6.4 GENERAL REQUIREMENTS FOR SUBMITTALS

6.4.1 The Contractor shall make all submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements. Individual requirements for submittals are described in the Technical Provisions of these Specifications. Prior to each submittal, the Contractor shall carefully review and coordinate all aspects of each item being submitted and verify that each item and the submittal for it conforms in all respects with the requirements of the Contract Documents. By affixing the Contractor's signature to each submittal, the Contractor certifies that this coordination has been performed.

6.4.2 No later than thirty-five (35) Calendar Days after the Notice to Proceed, and before any items are submitted for review, the Contractor shall submit to the Construction Manager two (2) copies of the schedule described below.

6.4.3 The Contractor shall compile a complete and comprehensive schedule of all submittals anticipated to be made during progress of the Work which shall include a list of each type of item for which Contractor's Drawings, shop Drawings, Certificates of Compliance, material samples, guarantees, or other types of submittals are required. Upon review and approval of the Submittal Schedule by the Construction Manager, the Contractor will be required to adhere to the schedule except when specifically otherwise permitted in writing by the Construction Manager. The submittal schedule shall be incorporated into the Construction Project Schedule specified in Article 6.2.

6.4.4 The Contractor shall coordinate the submittal schedule with all necessary Subcontractors and materials suppliers to ensure their understanding of the importance of adhering to the approved submittal schedule and their ability to so adhere. The Contractor shall coordinate as required to ensure the grouping of submittals as described in Sub-article 6.4.11herein.

6.4.5 The Contractor shall, on a monthly basis, revise, update and submit the submittal schedule to the Construction Manager reflecting the actual conditions and sequences highlighting any changes from the previously approved schedule.

6.4.6 The Contractor shall submit documentation such as certificates, reports, test results, delivery tickets, manufacturers' literature, etc., as specified in the Technical Provisions to the Construction Manager for NJ TRANSIT's use and approval. Where contents of submitted literature from manufacturers or other submittals include data not pertinent to the submittal, the Contractor shall clearly indicate which portion of the contents is being submitted for review. The Contractor shall submit six (6) copies of each of the various items required to the Construction Manager, except that only one (1) copy of delivery ticket will be required. Three (3) copies will be returned to the Contractor.

6.4.7 The Contractor shall consecutively number all submittals and accompany each submittal with a letter of transmittal containing all pertinent information required for identification and checking of submittals to the satisfaction of the Construction Manager. The Contractor shall on at least the first page of each copy of each submittal, and elsewhere as required for positive identification, clearly indicate the submittal number in which the item was included.

6.4.8 When material is resubmitted for any reason, the Contractor shall transmit under a new letter of transmittal. All resubmittals shall carry the same submittal number as the original submittal except that an appendage ".01", ".02", ".03", etc. shall be added to indicate that the material is a first, second, third, etc. resubmission. For example, submission 177.01 would indicate the first resubmission; 177.02, would indicate a second resubmission; and 177.03, would indicate a third resubmission, etc.

6.4.9 The Contractor shall maintain an accurate submittal log for the duration of the Contract, showing current status of all submittals at all times and make the submittal log available for the Construction Manager's review upon request.

6.4.10 The Contractor shall, prior to submittal, use all means necessary to fully coordinate all material including, but not necessarily limited to:

(a) Determining and verifying all interface conditions, catalog numbers, and similar data.
(b) Coordinating with other trades as required.
(c) Clearly indicating all deviations from requirements of the Contract Documents.

6.4.11 Unless otherwise specified, the Contractor shall make all submittals in groups containing all associated items to ensure that information is available for checking each item when unit is received. Partial submittals may be rejected by the Construction Manager as not complying with the provisions of the Contract Documents and the Contractor shall be strictly liable for all delays by such non-compliance.

6.4.12 The Contractor shall make all submittals in advance of schedule dates for installation to provide sufficient time required for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery. All submittals shall be made within the first six (6) months of the Project.

6.4.13 In scheduling, the Contractor shall allow at least thirty (30) Calendar Days from receipt of the submittal for review. The Construction Manager will stamp all submittals "Received", and the date so stamped shall be the official receipt date. Delays caused by tardiness in receipt by the Construction Manager of submittals will not be an acceptable basis for extension of the Contract Time.

6.4.14 The Engineer's review of submittals will be general, but should not be construed:

(a) As permitting any departure from the Contract requirements.

(b) As offering relief from the responsibility for any errors, omissions or negligence in the preparation by the Contractor of details, dimensions, materials, etc.

(c) As approving departures from details furnished by the Engineer, except as otherwise provided herein.

6.4.15 The Contractor shall take responsibility for and bear all cost of damages which may result from the ordering of any material or from proceeding with any part of the work prior to the final review by the Engineer of necessary submittals, including Shop and Working Drawings and all other required submittals.

6.4.16 Full compensation for furnishing all submittals shall be considered as included in the payments for the Contract Items to which such submittals relate and no additional compensation will be allowed therefor.

6.4.17 The provisions of Article 6.4 apply to all submittals.

6.5 SHOP AND WORKING DRAWING SUBMITTALS

6.5.1 The Contractor shall submit, with such promptness as to cause no delay in the Work, a reproducible and five (5) legible copies and one (1) sepia of all completed and detailed shop, setting or working Drawings, details and schedules as are necessary to adequately perform the Work to the Construction Manager for review as to conformance to the design. By approving and submitting shop Drawings, the Contractor thereby represents that it has determined and verified field measurements, field construction criteria, materials, catalog numbers, and similar data, or will do so, and that it has checked and coordinated each shop drawing with the requirements of the Work and of the Contract Documents. Drawings submitted by the Contractor on behalf of Subcontractors shall have been checked by the Contractor before being submitted.

6.5.2.1 The Engineer will review the shop and working Drawings within thirty (30) Calendar Days and return. The sepia and three (3) copies will be returned to the Contractor as reviewed with comments. The Contractor shall make corrections if required by the Engineer and resubmit a reproducible and five (5) copies for approval. After final approval of the Drawings has been received, the Contractor shall immediately send the Engineer a minimum of three (3) prints of the finally approved Drawings, plus the required number of approved prints each to every other affected Contractor. The Contractor shall prepare all Work and shop Drawings on sheets measuring twenty-four (24) inches by thirty-six (36) inches unless otherwise approved by the Construction Manager. The Contractor shall make all shop Drawings and working Drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its method of connection to the Work. The Contractor shall provide each drawing with a blank area five (5) inches by five (5) inches, located adjacent to the title block, and labeled as shown in the following Table. Failure to comply with these instructions will be sufficient reason to return such Drawings to the Contractor without any action being taken. The title block shall display the following:

Table 6.5.2 Shop Drawing Labeling
Contract Number and Name
Number and Title of the Drawings
Date of Drawing and Revision Number
Name of Contractor and Subcontractor submitting Drawing
Clear identification of contents and location of Work
Specification Article Number
Name; New Jersey State Registration Number and seal of professional Engineer certifying the Drawings if engineering computations are involved or if original design work is depicted
Submittal Number

6.5.3 The Contractor's shop Drawings shall show the general arrangement and such details as are necessary to provide a comprehensive description of the Work to be performed. Shop Drawings shall consist of, but are not limited to, fabrication and erection Drawings, schedule Drawings, manufacturer's scale Drawings, wiring and control diagrams, cuts of entire catalogs, pamphlets, descriptive literature, performance and test data.

6.5.4 Shop Drawings for steel structures shall consist of shop, erection, and other Drawings, showing details, dimensions, sizes, and other information necessary for the complete fabrication and erection of the metal Work. Shop Drawings for concrete structures shall consist of such additional detailed Drawings as may be required for the prosecution of the Work and may include Drawings of falsework, bracing, centering, formwork, and masonry layout diagrams. The Contractor shall check completely the rod lists and details of reinforcement steel shown on the plans and shall submit complete shop Drawings for the reinforcement steel to the Construction Manager for the Engineer’s review. Material specification designations for the various components of the structures shall be noted on the Drawings. If structural steel is scheduled for payment on the basis of weight, shop Drawings for steel structures shall include a shop bill of material on each individual drawing showing pertinent information including weights of items together with the total weight of steel for that shop drawing.

6.5.5 Working Drawings shall consist of, but are not limited to, plans for temporary structures such as decking, temporary bulkheads, support of excavation, support of utilities, groundwater control systems and forming and falsework; for underpinning; and for such other Work as may be required for construction but which does not become an integral part of the completed project. The Working Drawings shall be accompanied by calculations or other sufficient information to completely explain the structure or system described and its intended manner of use. The Contractor shall coordinate Drawings for Work on utilities, streets and other facilities which are constructed for owners other than NJ TRANSIT so that the information required by these other owners is included on the Working Drawings.

6.5.6 At the time of submission the Contractor shall inform the Engineer in writing of any deviation in the shop Drawings from the requirements of the Contract Documents. If Drawings show variations from the Contract

requirements because of standard shop practice or for other reasons, the Contractor shall describe such variations in the letter of transmittal.

Failure to describe such variation to the Construction Manager, and the Engineer's review of shop Drawings, shall not relieve the Contractor of responsibility for deviation from the requirements of the Contract Documents unless the Contractor has informed the Engineer in writing of such deviation at the time of submission and the Engineer has given written acceptance of the specific deviation. Neither shall the Engineer's review relieve the Contractor from responsibility for errors or omissions in the shop Drawings nor relieve the Contractor from the responsibility for executing the Work in accordance with the Contract.

6.5.7 Drawings Not In Conformance:

(1) If corrections to the Drawings are required, each print will be marked "REJECTED" or "FURNISH AS CORRECTED" or "REVISE AND RESUBMIT" and in each case the required corrections will be shown;

(2) Each resubmittal will be handled in the same manner and review timeframe as the first submittal;

(3) The Contractor shall direct specific attention, in writing or on the resubmitted Drawings to revisions other than the corrections requested by the Engineer or Construction Manager on previous submittals;

(4) If any corrections indicated on the Drawings constitutes a change of the Contract requirements, the Contractor shall give direct and specific notice to the Construction Manager; and

(5) Work indicated on Drawings marked "CONFORMS AS NOTED" or "FURNISH AS CORRECTED" may be carried out without resubmission if progressed "As Noted" or "As Corrected".

6.5.8 Drawings In Conformance:

(1) Each copy of the Drawings will be identified as conforming by being stamped, "REVIEWED", and dated by the Engineer; and

(2) When Shop and Working Drawings have been completed and stamped "REVIEWED," the Contractor shall carry out the construction in accordance therewith and make no further changes therein except upon written instructions from the Construction Manager.

6.6 SAMPLES SUBMITTALS

6.6.1 The Contractor shall furnish samples as required by the Contract Documents and as directed by the Construction Manager for review and acceptance. The Work shall be in accordance with accepted samples. The Contractor shall submit such samples promptly to the Construction Manager, at the beginning of the Work, so as to give the Construction Manager ample time to obtain approval from the Engineer. A list of samples required by the Construction Manager is for NJ TRANSIT's convenience only, and shall not be construed as limiting the number or type of samples which the Contractor shall furnish.

6.6.2 Procedure for Submittal of Samples:

A. The samples submitted by the Contractor shall be of the precise article, product or material proposed to be furnished.

B. The Contractor shall submit all samples in the quantity identified.

C. The Contractor shall prepay all shipping charges on samples.

D. The Contractor shall label each sample indicating the following:

(1) Name of Project and Contract Number;

(2) Name of Contractor and Subcontractor;

(3) Material or equipment represented;

(4) Source;

(5) Name of producer and brand (if any);

(6) Specification Section, article or paragraph;

(7) Location in Project; and

(8) Submittal Number.

6.7 PRODUCT AND SUBMITTALS

6.7.1 The Contractor shall, within thirty (30) Calendar Days after the notice to proceed date, notify the Construction Manager in writing of the names of manufacturers, products, and equipment. The Construction Manager may reject products or installed equipment not in conformance with the Specifications. The Contractor shall properly submit complete identifying information, note whether the item is included in the Specifications and state Specifications Section and Paragraph. Requests for approval of alternate products and equipment (Approved Equals or substitutions) shall comply with the provisions of Sub-articles 6.7.3 or 6.7.4, as applicable.

6.7.2 Where a particular brand or manufactured product is specified, it is to be regarded as a standard. Another brand or make which meets or exceeds the Specifications, in the sole discretion of the Project Manager, may be accepted, in accordance with Article 6.7.3.

6.7.2.1 The designs in the Contract are based on the named manufacturer's product(s) in each Section of the Technical Provisions. Where the Contractor proposes to use a product other than the named product(s), the Contractor shall pay all costs for modifications of the design, including all re-engineering costs and any additional construction costs associated with the use of that product. Written approval shall be obtained from the Engineer through the Construction Manager prior to any use of a product other than the named.

6.7.2.2 Where a performance is specified and no manufacturer is listed, the Contractor shall submit in accordance with Sub-article 6.7.1 the name of the manufacturer, the product proposed, and detailed information showing its characteristics.

6.7.2.3 Where a choice of color, pattern, or texture is available for a specified product, the Engineer will make a selection from the manufacturer's highest and best standards.

6.7.2.4 Where the Contractor requests that a manufacturer's product be added to the named list it shall follow the procedure set forth in Sub-article 6.7.3 below. Any NJ TRANSIT approval of an additional Approved Equal is subject to the conditions of Sub-article 6.7.2.1 above.

6.7.2.5 Where the Contractor requests that an alternate product be substituted for that specified the terms of Sub-article 6.7.4. below shall apply.

6.7.3 Request for Approved Equal: Should the Contractor desire to use a product other than the named manufacturer(s) product, it shall first make application to the Engineer through the Construction Manager in writing, otherwise it will be held to what is specified. The application shall clearly identify that it is a "Request for Approved Equal".

6.7.3.1 The procedure for submitting a request for an Approved Equal will be as follows: The Contractor shall submit five (5) copies of the request and data. The Contractor shall amend and update data when changes concerning information on products become known. The Contractor shall include the following information:

a. Complete data substantiating compliance of proposed Approved Equal with requirements of the Specifications and Contract Drawings;

b. For products:

(1) Product identification, including manufacturer's name and address, model number and options;

(2) Installation characteristics, installation Drawings, manufacturer's literature including product description, performance and test data, and reference standards if pertinent;

(3) Name and address of project(s) on which product was used under similar circumstances, and date of installation;

c. For construction methods:

(1) Detailed description of proposed method; and

(2) Drawings illustrating methods;

d. Itemized comparison of proposed manufacturer's product with first-named product specified. Include differences in estimated life, estimated maintenance, availability of spare parts and repair services, energy consumption, performance capacity, salvageability, manufacturer's warranties, and other material differences. The Contractor may be required, at its own expense, to perform tests to demonstrate proof of equality;

e. Data relating to changes in Construction Schedule;

f. In making a request for an Approved Equal, Contractor is certifying:

(1) That it personally investigated the proposed product and method; that it believes, to the best of its knowledge and information, that product and method is either equivalent or superior to the product and method specified; and that it will update information as new or different data becomes known to the Contractor;

(2) That it will furnish the same guarantee as it would for the product and method specified;

(3) That it will coordinate installation of proposed product and method into the Work, and will make those changes required for the Work to be complete in all respects, all at no additional expense to NJ TRANSIT; and

(4) That it waives all claims for additional costs and entitlement to any extension of Contract Time as a result of requesting approval of an Approved Equal, whether such approval is granted by NJ TRANSIT or not.

6.7.3.2 NJ TRANSIT reserves the right, at its sole discretion, to deny requests for Approved Equals should it deem the number of such requests to be excessive.

6.7.4 Requirements for Substitutions: The Contractor agrees that NJ TRANSIT is under no obligation to consider substitutions of any kind and may direct the Contractor to proceed with the Work as specified. NJ TRANSIT shall not be liable for any costs or delays in action upon or for failure to act upon a proposed request for substitution. Requests for substitutions will not be considered if, in the opinion of the Project Manager, the substitutions are excessively broad in scope, require substantial revision of the Contract Drawings or Specifications, require substantial administrative effort and expense to review or are otherwise not in NJ TRANSIT's best interest.

Substitutions merely indicated or implied on shop Drawings or product data submittals will not be considered if no formal request for substitution has been submitted in accordance with this Article. NJ TRANSIT's approval of such a shop drawing or data submittal shall not constitute approval of a substitution and the Contractor shall be liable for all costs for corrective Work to provide products in conformance with the Contract Documents.

When making a request for substitution, the Contractor shall follow the same procedural and data submission requirements as set forth in Sub-article 6.7.3 above, except that any such submission shall be clearly identified as a “Request for Substitution”. The Contractor shall include the following additional information:

a) A detailed cost breakdown of the proposed product in comparison to the product specified, naming the difference in cost in each case. The cost breakdown shall be submitted in the format specified in Article 3.2.

b) A description of the benefit that will accrue to NJ TRANSIT should approval of the proposed substitution be granted.

If a substitute item is approved and the substitute item changes the scope of Work under this or other contracts from the original Specifications, then the Contractor offering the substitute item shall be responsible for all added costs and additional Contract Time involved by reason of the change in its Work and the Work of other contracts, including redesign. Any reduction in costs involved by reason of the change in its Work shall be deducted from the Contract Price by Change Order. No change involving cost shall be made without the written consent of the Contracting Officer.

6.8 VALUE ENGINEERING SUBMITTALS

6.8.1 Value Engineering is defined as cost reduction proposals initiated and developed by the Contractor for changing the materials or other requirements of the Contract. This clause does not apply to such proposal unless it is identified by the Contractor at the time of submission to the Construction Manager or NJ TRANSIT as a proposal submitted pursuant to this clause. The cost reduction proposals contemplated are those that:

(a) Would result in less costly items or components of items than those specified herein without impairing any of the items' essential functions and characteristics such as service life, reliability, economy of operation, ease of maintenance, and necessary standardized features; and

(b) Would require, in order to be applied to this Contract, a Change Order to the Contract.

6.8.2 Cost reduction proposals as defined herein will be processed expeditiously and in the same manner as prescribed for any other proposal which would likewise necessitate issuance of a Change Order. As a minimum, the following information shall be submitted by the Contractor with each proposal:

(a) A description of the difference between the existing Contract requirements and the proposed change, and the comparative advantages and disadvantages of each;

(b) An itemization of the requirement of the Contract which must be changed if the proposal is adopted and suggested wording for revisions required;

(c) An estimate of the reduction in performance costs that will result from adoption of the proposal taking into account the costs of implementation by the Contractor and the basis for the estimate;

(d) A prediction of the effects the proposed change would have on other costs to NJ TRANSIT such as NJ TRANSIT furnished property costs, costs of related items, and costs of maintenance and operation; and

(e) A statement of the time by which a Change Order adopting the Proposal must be issued so as to obtain the maximum cost reduction during the remainder of the Contract, noting any effect on maintaining the Contract delivery schedule.

6.8.3 NJ TRANSIT shall not be liable for delays in action upon or for failure to act upon a proposal submitted pursuant to this clause. The decision of the Contracting Officer as to the acceptance or rejection of such proposal under this Contract shall be final and shall not be subject to the "Disputes" clause of this Contract. Unless and until a Change Order adding such proposal to the Contract is issued, the Contractor shall remain obligated to perform in accordance with the existing terms of the Contract. NJ TRANSIT may accept in whole or in part a cost reduction proposal submitted pursuant to this clause by issuing a Change Order which will identify the cost reduction on which it is based.

6.8.4 If a cost reduction proposal submitted pursuant to this clause is accepted under this Contract, an equitable adjustment in the Contract Price and in other affected provisions of this Contract will be made in accordance with this clause. If the equitable adjustment involves a reduction in the Contract Price, it shall be established by determining the amount of the total estimated decrease in the Contractor's cost of performance resulting from the adoption of the cost reduction proposal, taking into account the cost of implementing the change by the Contractor, and reducing the Contract Price by fifty percent (50%) of such decrease.

6.9 PROGRESS PHOTOGRAPH SUBMITTALS

6.9.1 Prior to construction beginning and after construction operations have been started at the site, the Contractor shall have twenty (20) different color photographs taken each month, by a professional photographer, until completion of the Work. The Construction Manager will designate the location of views to be taken each month. The Contractor shall submit three (3) sets of prints of each photograph to the Construction Manager within ten (10) Calendar Days after taking.

6.9.2 The prints shall be standard commercial quality, 8 x 10 inches, single weight glossy paper. Each print shall have an information box, stamped on the back, 1-1/2 x 3-1/2 inches, and arranged as follows:

Table 6.9.2 Photo Labeling
NJ TRANSIT
Contract Name
Contract Number
Contractor
Photograph Number

Date
Submittal Number
Information regarding view such as location, direction or site and significant points of interest

6.9.3 The Contractor shall enclose the three (3) sets of photographs back-to-back in a double-faced plastic sleeve punched and bound in separate standard three-ring binders.

6.9.4 Digital Photos: The Contractor shall submit the digital photos to the Construction Manager.

6.10 REPORTS, RECORDS AND DATA SUBMITTALS

The Contractor shall submit to the Construction Manager such schedules of quantities and costs, progress schedules, certified payrolls, reports, estimates, records and other data as NJ TRANSIT may request concerning Work performed or to be performed under this Contract. The cost of submitting all such data shall not be paid separately and is considered paid for under the various items contained in the Contractor's Bid Proposal.

6.11 AS-BUILT DRAWINGS AND QUANTITIES SUBMITTAL

6.11.1 The Contractor shall keep its prints of the Contract Drawings up to date at all times by marking on them the final location of any changes in the Work. These Drawings shall be identified as the "Marked-Up Drawings". The data shall be transferred regularly by the Contractor to transparencies furnished by the Construction Manager at the expense of the Contractor.

6.11.2 Prior to final payment the Contractor shall submit a copy of the Marked-Up Drawings of all Contract Drawings whether altered or not to the Construction Manager with the Contractor's certifications as to the accuracy of the information. As built Drawings shall be entitled "AS-BUILT" above the Title Block and dated. This information shall be reviewed by the Construction Manager; such review by the Construction Manager is for content only and not for accuracy and does not relieve the Contractor of its certification. The Contractor shall pay for the cost of reproduction. Upon completion of the Work and prior to release of final payment the Contractor shall transfer all as-built data to 24" x 36" transparencies (sepia mylar or mylars) at the expense of the Contractor. These Marked-Up Drawings and As-Built Drawings shall be submitted to and become the property of NJ TRANSIT.

6.11.3 Following acceptance of the Project, the Construction Manager will proceed with the preparation of as-built quantities for all Contract Items and Extra Work which has been authorized and incorporated into the Project. When such as-built quantities are completed, they will be incorporated into a proposed Final Certificate of Payment. The Contractor shall assist the Construction Manager wherever possible in the preparation of such as-built quantities.

6.11.4 The Construction Manager may, prior to acceptance, prepare as-built quantities and incorporate these quantities into monthly estimate certificates through an appropriate field order or change order. Such interim as-built quantities shall be subject to recalculation following acceptance of the Project. However, nothing contained in these Specifications shall be construed to place on the Construction Manager the obligation of providing the Contractor with as-built quantities for the Work performed prior to the issuance of a Final Certificate of Payment, nor to provide more than rough, approximate quantities of the Work done for use in the preparation of monthly estimates.

6.11.5 Should it appear to the Construction Manager at the time the Project is accepted that the calculation of as-built quantities might result in the Contractor being obliged to return money to NJ TRANSIT, NJ TRANSIT may, in its sole discretion, refuse to release retainages pending completion of the proposed Final Certificate of Payment. Where the estimate reveals that an overpayment has been made, the Contractor shall immediately return the amount of the overpayment. If the Contractor fails to remit the overpayment, NJ TRANSIT shall avail itself of other funds held on other projects with the same Contractor or against the retainages, and then if necessary, proceed against the Contractor or its Surety. Where the proposed Final Certificate of Payment reveals that no overpayment has been made, the Contractor shall be entitled to payment thereunder and the release of retainages, but the Contractor shall have no claim of any kind for additional compensation as a result of NJ TRANSIT's decision to withhold retainages or other monies pending issuance of the proposed Final Certificate.

6.11.6 Asset Management Plan.

The Contractor shall refer to the Federal Transit Administration’s (FTA) Final Rules, 49 CFR Parts 625 and 630. The Contractor shall provide a narrative of how it plans to collect and record asset data and must provide a sample data collection format in a spreadsheet (such as Microsoft Excel) to the Project Manager within three (3) months of the Notice to Proceed. This information shall be reviewed and approved by the Project Manager; such review by the Project Manager is for content only and not for accuracy, and the format by which the Contractor shall provide all asset data for the Project. The Project Manager will provide the Contractor the starting asset number; the Contractor shall utilize the same number format and apply number tags to assets in sequential order. The Contractor shall ensure all number tags are of durable plastic material and shall have the number as well as bar code to the tag number. A sample tag is shown below:

NJ TRANSIT

ASSET No. XXXXXXXX

[Bar Code]

The Contractor shall provide asset data as described; all maintainable assets shall be grouped in the following Asset Class with parent/child relationship:

i. Facilities
ii. Infrastructure Systems
iii. Revenue Rolling Stock
iv. Systems Vehicles Equipment

The Contractor shall provide a database of all maintainable assets in an Excel format (flat file – with exclusions of any macros or formulas). The data shall be transferred with their specified field names and their order shall remain as specified below. However, nothing contained in these Specifications listed shall be altered. The fields shall include, but are not limited to:

i. Operating Mode
ii. Asset Number
iii. Asset Class
iv. Asset Type
v. Description
vi. Location (facility address)
vii. GPS Coordinates
viii. Manufacturer's Name
ix. Model Name or Number
x. Serial Number
xi. Part Number
xii. Installation Date
xiii. Warranty Date
xiv. Expected Useful Life (as per the Manufacturer’s recommendation)
xv. Recommended Maintenance Service Schedules (as per the Manufacturer’s recommendation)
xvi. Disposal of Old Assets
xvii. Comments

An example of the spreadsheet contemplated is attached as Appendix E.

7. QUALITY ASSURANCE AND QUALITY CONTROL

7.1 QUALITY ASSURANCE

7.1.1 General: The Contractor shall establish and maintain a quality assurance program in accordance with ANSI/ASQC Q9001-1994. The program shall ensure compliance with the requirements of the Contract Documents and shall include provisions ensuring compliance by Subcontractors should any portion of the Work be subcontracted.

7.1.2 Six (6) copies of the Contractor's quality assurance program shall be submitted to the Construction Manager at the pre-construction meeting for review and approval by the Construction Manager. Work undertaken by the Contractor before the Construction Manager's formal approval of the Contractor's program will be at the Contractor's sole risk and expense. A quality assurance audit of the Contractor's quality assurance program may be conducted by NJ TRANSIT at any time.

7.1.3 The Contractor's designated quality assurance program shall not be changed without the written concurrence of NJ TRANSIT. Work undertaken by the Contractor before receipt of written concurrence from NJ TRANSIT

concerning such changes of the Contractor's quality assurance program will be at the Contractor's sole risk and expense.

7.1.4 The Contractor's quality assurance operations may be subject to NJ TRANSIT verification at any time. Verification shall include, but not be limited to: Audit of the quality assurance program; surveillance of the operations to determine that practices, methods, and procedures of the program are being properly implemented; inspection to measure the quality of items offered for acceptance; and inspection of items prior to release for shipment to ensure compliance with requirements of the Contract Documents.

7.1.5 Failure by the Contractor to promptly correct deficiencies discovered by the Contractor or of which the Contractor is notified by NJ TRANSIT may be cause for suspension of the Contract until corrective action has been taken or until conformance of the Work to prescribed criteria has been demonstrated to and approved by NJ TRANSIT. As a result of such suspension, no adjustment will be made with respect to increases in the cost or time.

7.2 MATERIAL - WORKMANSHIP - LABOR

7.2.1 Only approved materials shall be used, and the work shall be carefully carried out in strict accordance with the general and detail Drawings. The Construction Manager shall have full power at any time to reject such Work or material which does not, in the Construction Manager’s opinion, conform to the true intent and meaning of the Contract Documents.

7.2.2 Work when completed in a substantial and workmanlike manner, to the satisfaction of the Construction Manager, shall be accepted by NJ TRANSIT in writing. Unless otherwise specified all materials used shall be new.

7.2.3 The Contractor shall furnish and pay for necessary transportation, scaffolding, centering, forms, water, labor, tools, light, power, and mechanical appliances, permits for the installation and construction of Work, and all other means, materials, and supplies for properly prosecuting its Work under the Contract, unless expressly specified otherwise. The Contractors and all Subcontractors shall rely on their own measurements for the performance of their Work.

7.2.4 The Contractor shall furnish necessary and approved materials in ample quantities and as frequently as required to avoid delay in the progress of the Work, and shall so store them as to prevent interference with Work not under this Contract.

7.2.5 The Contractor shall employ qualified and competent personnel in their respective lines of Work. Should the Construction Manager deem any employee incompetent or negligent or for any cause unfit for the employee's duties, the Contractor shall dismiss that person, and that individual shall not again be employed on the Work;

except that the permanent dismissal and replacement of any workers employed by a Disadvantaged Business Enterprise (DBE) Subcontractor or organization also requires the prior review of the NJ TRANSIT Office of Business Development in accordance with 49 CFR Part 26.

7.2.6 The Contractor shall employ a full-time superintendent assigned solely to this Project who shall have full authority to act for the Contractor. It is understood that such representative shall be acceptable to the Construction Manager and shall be one who is to be continued in that capacity for the particular job involved unless that individual ceases to be on the Contractor's payroll.

The various Subcontractors shall have competent foremen in charge of their respective part of the work at all times. The Subcontractors shall not employ on the Work an unfit person or anyone not skilled in the Work assigned to that person.

The Contractor shall supervise all work, lay out its own Work, do the necessary leveling and measuring or employ a competent New Jersey licensed engineer or land surveyor satisfactory to the Construction Manager to do so. If, due to trade agreement, additional standby personnel are required to supervise equipment or temporary services used by other trades, the Contractor shall provide such standby services.

The superintendent and the number of workmen shall be sufficient to insure the completion of the Project within the time stipulated therefore.

7.2.7 No materials or supplies for the Work shall be purchased by the Contractor or by any Subcontractor which are subject to a lien or other encumbrance or an agreement by which an interest is retained by the seller. The Contractor and all Subcontractors warrant that they have good title to materials and supplies used by them in the Work, free from liens, claims or encumbrances.

7.2.8 Manufacturer's Instructions: Where installations include manufactured products, the Contractor shall comply with the manufacturer's applicable instructions and recommendations for installation to the extent that these instructions and recommendations are more explicit or more stringent than the requirements indicated in the Contract Documents.

7.2.9 Where the Specifications or the manufacturer's instructions or warranty require that the site be visited and inspected by a representative of the manufacturer prior to the commencement of a particular item of Work, the Contractor shall ensure that said visit or inspection occurs and that the Construction Manager be given no less than twenty-four (24) hours' notice of arrival of the manufacturer's representative.

7.3 INSPECTION OF WORK

7.3.1 NJ TRANSIT shall at all times have access to the Work whether it is in preparation or in progress and the Contractor shall provide proper facilities for such access and for inspection and testing. NJ TRANSIT reserves the right, at its option, to employ the services of professional consultants for any phase of the Work as it may deem to be in the best interest of NJ TRANSIT. The Contractor shall cooperate with NJ TRANSIT and these consultants and shall provide access to the work and facilities for inspection and testing.

7.3.2 If the Specifications, the Engineer's or Construction Manager's instructions, laws, ordinances or public or private authority require Work to be specifically tested or approved, the Contractor so affected shall give the Construction Manager five (5) Calendar Days' notice in writing of its readiness for inspection, and if the inspection is by an authority other than the Construction Manager, of the date fixed for such inspection. Inspections by the Construction Manager will be promptly made. If such Work should be covered up or otherwise concealed from view without approval or consent of the Construction Manager, it must, if required by the Construction Manager, be uncovered for examination and recovered after the examination at the Contractor's expense. There will be no extension of time to the Contract for uncovering or recovering Work.

7.3.3 Except as otherwise provided herein, materials and installed equipment used in the construction of the Project shall be adequately tested according to standards of the trade, industry or as required by NJ TRANSIT, at the expense of the Contractor.

7.3.4 Whenever, in the Construction Manager's opinion, the Construction Manager considers it necessary or advisable to insure the proper implementation of the intent of the Contract Documents, the Construction Manager will have authority to require special inspection or testing of the Work in addition to that required elsewhere in the Contract Documents, whether or not such Work be then fabricated, installed or completed. However, neither the Construction Manager's authority to act under this Subsection, nor any decision made by the Construction Manager either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the Construction Manager to the Contractor, Subcontractor, their agents or employees, or any other person performing part of the Work.

7.3.5 If after commencement of the Work the Construction Manager determines that some portion of the Work requires special inspection, testing or approval not provided for elsewhere in the Contract Documents, the Construction Manager will proceed with such inspection, testing or approval under contract with a third party for such services, or instruct the Contractor to order such special inspection, testing or approval. If such special inspection or testing reveals a failure of the Work to comply (1) with the requirements of the Contract Documents or (2) with respect to the performance of the Work, with laws, ordinances, rules, regulations or orders of public authority having jurisdiction, the Contractor shall bear all costs thereof, including the Construction Manager's additional services made necessary by such failure; otherwise NJ TRANSIT shall bear such costs, and an appropriate change order will be issued.

7.3.6 The Contractor shall cooperate fully with the Construction Manager and any testing company and supply materials for testing as required.

7.3.7 All construction subcode inspections shall be performed by the DCA Bureau of Code Services. The Contractor shall be responsible for requesting subcode inspections, as necessary, by contacting the DCA directly. The Contractor shall abide by all DCA instructions regarding subcode inspection procedures. The Contractor must notify the Construction Manager of the time and date of all DCA inspections.

7.4 PLANT INSPECTION

NJ TRANSIT may undertake the inspection of materials at the source. Manufacturing plants may be inspected periodically for compliance with specified manufacturing methods. Material samples may be obtained for laboratory testing for compliance with materials quality requirements. This may be the basis for acceptance of manufactured lots as to quality.

In the event plant inspection is undertaken the Contractor shall meet the following conditions;

(a) NJ TRANSIT shall have the cooperation and assistance of the Contractor and the producer with whom it contracted for the provision of materials and equipment;

(b) NJ TRANSIT shall have full entry at all times to such parts of the plant as may concern the manufacture or production of the materials being furnished;

(c) If required by NJ TRANSIT, the Contractor shall arrange for approved office space for the use of the inspector; such space to be located conveniently in or near the plant; and

(d) Adequate safety measures shall be provided and maintained.

NJ TRANSIT reserves the right to retest materials which have been tested and accepted at the source of supply after the same have been delivered and to reject materials which, when retested, do not meet the requirements of the Contract Documents. The cost of retesting in case of rejection shall be borne by the Contractor.

7.5 INSTALLED EQUIPMENT TESTING AND TRAINING

7.5.1 When mechanical, electrical or other equipment is installed it shall be the responsibility of the Contractor to operate it for a satisfactory period of time as required by the Contract Documents for proper testing of the equipment and instructing NJ TRANSIT operating personnel. The Contractor shall provide, at its own expense fuel, power, and other items or services required for proper testing of equipment and for the period of instruction The Contractor shall provide the Construction Manager with a minimum of five (5) Business Days prior written notice of the performance of a test. Tests shall be conducted in the presence of NJ TRANSIT. The Contractor shall test results for approval by NJ TRANSIT prior to acceptance of the installation.

7.5.2 The Contractor shall furnish six (6) copies of each "Operating and Maintenance Booklet" to the Construction Manager which shall contain not less than the following (as applicable to each trade):

1. Manufacturer's service manuals and equipment parts list of all functional components of the system including control diagrams, wiring diagrams of controllers, and explanation and description of each system;
2. A complete typewritten list of all items of pertinent equipment including compressors, pumps, fans, motors, coils, etc. with nameplate date, capacities, model numbers, lubrication charts and preventive maintenance schedule;
3. Trouble shooting guides and testing instructions;
4. Manufacturer's parts list and ordering requirements;
5. Names, addresses and telephone numbers of all manufacturers agents, Subcontractors, supply houses, etc. from which replacement parts, service and operating information can be obtained; and
6. The manuals shall be divided into indexed sections with tabs dividing sections, for A) Mechanical/HVAC, B) Electrical/Lighting, C) Finish Schedules.

7.5.3 The Contractor shall instruct NJ TRANSIT designated personnel as to the proper operation of all equipment and apparatus, and each of the various systems specified. No later than two (2) weeks prior to conducting training sessions, the Contractor shall submit a Training Plan for the Construction Manager's approval. The Training Plan shall include the instructor's qualifications, the proposed training schedule and an outline of the instructor's lesson plan. Training session topics shall include, as a minimum, a detailed review of operating and maintenance procedures, spare parts, tool requirements, prescribed lubricants and fuels, hazards and warranties. The Contractor shall be responsible for providing all visual aids and training materials. The Contractor shall conduct the training sessions at a time and place convenient to NJ TRANSIT personnel.

The Contractor, after issuing complete instructions and direction to the NJ TRANSIT designated personnel, shall secure from such persons a signed acknowledgment in duplicate stating that complete and comprehensive instructions have been received and understood. The Contractor shall then forward the two copies of the signed acknowledgment to the Construction Manager for record purposes.

7.6 LABORATORY TESTING AND INSPECTION

7.6.1 General Requirements:

NJ TRANSIT will reimburse the Contractor for the services of an independent Testing Laboratory to perform structural steel, reinforced concrete, soils and any other testing services required by NJ TRANSIT. The Contractor shall cooperate with the laboratory to facilitate the execution of its required services. Employment of the laboratory shall in no way relieve the Contractor of its obligations to either perform any other testing and inspection Work as required by the Contract Documents or to perform any other item of Work.

7.6.2 Related Requirements:

A. Laboratory Selection: The Contractor shall submit the name and qualifications of three (3) independent testing laboratories for approval to the Construction Manager. The Contractor shall solicit pricing from each prospective testing and inspection laboratory for the services requested by NJ TRANSIT. The pricing information shall be submitted with the qualification submissions listed in Sub-article 7.6.3. The Construction Manager will determine the best qualified laboratory.

B. Payment: Payment for the services described herein shall be made only for work which is actually performed and approved by NJ TRANSIT. Payment shall be at the rates quoted for the services listed in the Special Provisions and shall be in effect from the Notice to Proceed date and for a two (2) year period thereafter.

Rates and fees are to be based on Work performed between 8:30 a.m. and 4:30 p.m.; on Work days; overtime rate of 1-1/2 times the corresponding hourly rates may be applied for work performed after 4:30 p.m. and before 8:30 a.m. The overtime rate shall also be applicable for weekends and Holidays.

Travel expenses for inspection and testing services rendered outside the fifty (50) mile radius of Newark, New Jersey shall be completely documented to the satisfaction of NJ TRANSIT. Any out of town travel expenses shall be pre-approved by the Construction Manager via an estimate submitted by the laboratory.

NJ TRANSIT will reimburse the Contractor for laboratory testing and inspection costs upon receipt of itemized invoices from the approved laboratory.

NJ TRANSIT will pay only the amounts of the laboratory invoices, under the Allowance amount included by NJ TRANSIT as a Bid Item in the Contractor’s Bid Proposal. The Allowance may be adjusted upward or downward at NJ TRANSIT's sole discretion, to reflect actual costs. NJ TRANSIT shall pay for the initial testing only. Should any material fail to satisfy the test requirements, the Contractor shall be responsible for any additional costs and delays to retest or test replacement material.

7.6.3 Qualification of Laboratory:

To be qualified the laboratory shall:

A. Meet "Recommended Requirements for Independent Laboratory Qualification", published by American Council of Independent Laboratories;

B. Meet basic requirements of ASTM E329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction;"

C. Be authorized to operate in the State of New Jersey;

D. Submit copy of report inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during the most recent tour of inspection, with memorandum of remedies of any deficiencies reported by inspection; and

E. Have testing equipment:

1. Calibrated at reasonable intervals by devices of accuracy traceable to either:

a. National Bureau of Standards; or

b. Accepted value of natural physical constants.

7.6.4 Laboratory Duties:

The laboratory shall promptly submit three (3) copies of a written report of each test and inspection to the Construction Manager for distribution. Each report shall include:

1. Date issued;
2. Project title and number;
3. Testing laboratory name, address and telephone number;
4. Name and signature of laboratory inspector;
5. Date and time of sampling or inspection;
6. Record of temperature and weather conditions;
7. Date of test;
8. Identification of product and specification section;
9. Location of inspection or test;
10. Results of tests and compliance with Contract Documents; and
11. Interpretation of test results, when requested by the Construction Manager.

7.6.5 Limitation of Authority of Testing Laboratory:

Laboratory is not authorized to:

1. Release, revoke, alter or enlarge on requirements of Contract Documents;
2. Approve or accept any portion of the Work; or
3. Perform any duties of the Contractor.

7.6.6 The Contractor shall:

A. Cooperate with laboratory personnel, provide access to Work, and to manufacturer's operations;

B. Secure and deliver to the laboratory adequate quantities or representational samples of materials proposed to be used and which require testing;

C. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other materials mixes which require control by the testing laboratory;

D. Furnish copies of products test reports as required;

E. Furnish incidental labor and facilities:

1. To provide access to Work to be tested;
2. To obtain and handle samples at the Project Site or at the sources of the product to be tested;
3. To facilitate inspections and tests; and
4. For storage and curing of test samples;

F. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests. NJ TRANSIT reserves the right to have materials that were not properly tested, removed and replaced at no additional cost to NJ TRANSIT. When test or inspections cannot be performed after such notice, the Contractor shall reimburse the laboratory for laboratory personnel and travel expenses incurred due to Contractor's negligence; and

G. The Contractor shall have the laboratory perform additional tests as required by NJ TRANSIT

7.7 CERTIFICATION OF COMPLIANCE

Certain materials as specified elsewhere will be accepted on the basis of Certificates of Compliance provided by the Contractor stating that such materials or assemblies fully comply with the requirement of the Contract. The form of the Certificates of Compliance shall be approved by the Construction Manager.

Materials or assemblies used on the basis of Certificates of Compliance may be sampled and tested at any time and if found not to be in conformity with the Contract requirements, will be subject to rejection whether in place or not. The Contractor shall require the manufacturer or supplier to furnish three (3) copies of Certificates of Compliance with each delivery of materials, components, and manufactured items that are acceptable by certification. Two (2) copies shall be furnished to the Construction Manager and one (1) copy shall be retained by the Contractor.

Certificates of Compliance shall contain the following information:

(a) Project to which the material is consigned;

(b) Name of the Contractor to which the material is supplied;

(c) Kind of material supplied;

(d) Quantity of material represented by the certificate;

(e) Means of identifying the consignment, such as label marking, seal number, manufacturer or supplier, and such additional information as required to make positive identification;

(f) Date and method of shipment;

(g) A statement that the material has been tested and found in conformity with the pertinent Contract requirements stated in the certificate and that test results pertaining to the material are either on file with the producer and available upon request or attached to the certificate;

(h) Signature of a person having legal authority to bind the supplier; and

(i) Signature attested to by a Notary Public.

The Construction Manager will not make any payments relative to materials specified to be accepted on the basis of Certificates of Compliance until the Contractor provides an acceptable Certificate of Compliance.

A Certificate of Compliance shall not be construed as a waiver of NJ TRANSIT's right to test the material or assemblies supplied.

7.8 NON-CONFORMING WORK AND MATERIALS

7.8.1 Materials or Work found to be defective, or not in strict conformity with the requirements of the Contract Documents, or defaced or damaged through the acts or omissions of a Contractor or its Subcontractors, or through action of fire, weather, vandalism or other causes, shall be removed immediately and new materials or Work substituted therefor to the satisfaction of the Construction Manager without delays by the Contractor involved and at its sole cost and expense. Under no circumstances shall the Contractor be entitled to an extension of time for correcting defective Work.

7.8.2 Should the Construction Manager determine that Work, including Work of an administrative nature, is not in conformance with the requirements of the Contract Documents, the Construction Manager will issue a Non-Conformance Notice (NCN). The NCN shall state the Work or material which is non-conforming and establish a reasonable time period for correcting the non-conforming Work or material. Should the Contractor fail to correct, repair or replace the non-conforming Work or material in a timely manner, NJ TRANSIT may take such actions as NJ TRANSIT deems necessary to protect NJ TRANSIT’s and the public’s interest, including but not limited to, withholding payments, suspending all or a portion of the Work, terminating the Contract for Default, denying future prequalification or Subcontractor approvals, and/or suspending or debarring the Contractor from bidding on future NJ TRANSIT contracts.

7.8.3 No previous inspection or certification shall be held as an acceptance of defective Work or materials or to relieve the Contractor from the obligation to furnish sound materials and to perform good satisfactory Work. The Engineer shall be the final judge of the materials and Work furnished.

7.8.4 The Contractor shall be given every opportunity to correct defective or damaged Work; however, if the Contracting Officer deems it inexpedient to have the Contractor correct Work damaged or done not in accordance with the Contract, the difference in value between such Work and that specified, as determined

by the Contracting Officer, together with the cost and expense of correcting the Work, shall be deducted from the Contract Price.

7.9 WARRANTY AGAINST DEFECTIVE WORK

7.9.1 In addition to other warranties set out elsewhere in this Contract, the Contractor warrants that Work performed under this Contract conforms to the Contract requirements and is free of defect of equipment, material or design furnished, or workmanship performed by the Contractor or its Subcontractors or suppliers at any tier. Such warranty shall continue for a period of one (1) year from the date of Acceptance of the Work. Under this warranty, the Contractor shall remedy at its own expense any such failure to conform or any such defect. In addition, the Contractor shall remedy at its own expense damage to NJ TRANSIT owned or controlled real or personal property, when that damage is the result of the failure of the Contractor or its Subcontractors or suppliers at any tier to conform to contract requirements or any such defect of equipment, material, workmanship, or design. The Contractor shall also restore Work damaged in fulfilling the terms of this clause. The Contractor's warranty with respect to Work repaired or replaced hereunder will run for one (1) year from the date of the acceptance by NJ TRANSIT of such repair or replacement.

7.9.2 NJ TRANSIT shall notify the Contractor in writing within a reasonable time after the discovery of failure, defect, or damage. Should the Contractor fail to remedy failure, defect or damage described in the first paragraph of this Article within a reasonable time after receipt of notice thereof, NJ TRANSIT shall have the right to replace, repair, or otherwise remedy such failure, defect, or damage at the Contractor's expense.

7.9.3 In addition to the other rights and remedies provided by this clause, Subcontractor's, manufacturers', and suppliers' warranties, expressed or implied, respecting Work and materials shall, at the direction of the Contracting Officer, be enforced by the Contractor for the benefit of NJ TRANSIT. In such case if the Contractor's warranty under the first paragraph of this Article has expired, a suit directed by NJ TRANSIT to enforce a Subcontractor's, manufacturer’s or supplier's warranty shall be at the expense of NJ TRANSIT. The Contractor shall obtain warranties which the Subcontractors, manufacturers, or suppliers would give in normal commercial practice.

If directed by the Contracting Officer, the Contractor shall require any such warranties to be executed in writing to NJ TRANSIT.

7.9.4 Notwithstanding other provisions of this Article, unless such a defect is caused by the negligence of the Contractor or its Subcontractors or suppliers at any tier, the Contractor shall not be liable for the repair of defects of material or design furnished by NJ TRANSIT nor for the repair of damage which results from any such defect in NJ TRANSIT furnished material or design.

7.9.5 The warranty specified herein shall not limit NJ TRANSIT's rights under Article 13.3, COMPLETION AND FINAL ACCEPTANCE.

8. EXCAVATION AND DIFFERING SITE CONDITIONS

8.1 UNCLASSIFIED EXCAVATION

Unless otherwise provided elsewhere in this Contract, excavation Work shall be considered unclassified excavation and shall consist of the removal of earth, rock, abandoned utilities, foundations and all other materials encountered of whatever nature.

8.2 MEASUREMENT OF PAY LIMITS FOR EXCAVATION

The method of measurement and establishment of pay limits for additions or deductions for excavation shall be as follows:

Basement Excavations: Pay limit for excavation shall be in accordance with cross sections limited by vertical parallel planes extending twenty-four (24) inches outside of foundation walls shown on Contract Drawings, and horizontal plane along bottom of basement concrete slab or footings.

Pipelines and Encased Utilities: Pay limit for trench excavation shall be limited to width of thirty-six (36) inches or the largest diameter of pipe barrel plus twenty-four (24) inches, whichever is greater and depth at bottom of pipe barrel. When rock is encountered, the Contractor shall excavate to six (6) inches below bottom of pipe barrel. A six (6) inch compacted granular fill for the pipe shall be provided by the Contractor. No additional payment will be made for this additional excavation of six (6) inches and the granular fill.

Encased Electrical Conduit, Steam Transmission Lines, Unformed Foundation Footings: Width and depth of trench shall be limited to same width and elevations of structure shown on Contract Drawings.

Where unsuitable foundation material is encountered, the Contractor shall excavate to elevations as directed by the Construction Manager. Unit prices for additional excavation and replacement with approved compacted granular fill, if stated in the Contractor’s Bid Proposal, shall be used as a basis for additional payment by NJ TRANSIT.

8.3 SOIL BORINGS

Where data pertaining to test pits, test borings, or any like information are given, by Drawings or in writing, they are for general information only and shall not relieve the Contractor from the responsibility for making such investigations as may have been necessary to ensure that the Contractor’s Bid Proposal was based on actual conditions.

8.4 DIFFERING, LATENT OR UNUSUAL SITE CONDITIONS

8.4.1 The Contractor shall not proceed with the Work at the site until it has satisfied itself that the topographic data in the Contract Documents are correct.

8.4.2 Should the Contractor encounter subsurface and latent conditions at the site materially differing from those shown on the plans or indicated in the Specifications (Type I), it shall immediately give notice to the Construction Manager of such conditions before they are disturbed. NJ TRANSIT will thereupon promptly investigate the conditions, and if it finds that they materially differ from those shown on the plans or indicated in the Specifications, it will promptly make such changes in the plans and/or Specifications as it may find necessary. Any increase or decrease of cost and time of completion resulting from such change shall be adjusted in the manner provided in Article 3.1, Contract Changes.

8.4.3 The Contractor shall promptly, and before such conditions are disturbed, notify the Construction Manager in writing of any other unknown physical conditions at the site, (Type II) of an unusual nature, differing materially from those ordinarily encountered and generally recognized as belonging in Work of the character provided for in this Contract. NJ TRANSIT shall promptly investigate the conditions, and if it finds that such conditions do materially so differ that they could not have been discovered by the Contractor through employing the high standard of care required in the Contractor's pre-bid investigations and that they cause an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under this Contract, an equitable adjustment shall be made in accordance with Article 3.2.

8.4.4 No claim of the Contractor under this Article shall be allowed unless the Contractor has given the written notice required above.

8.4.5 No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after substantial completion under this Contract.

8.4.6 The Contractor waives its right of claim if it disturbs the condition prior to submitting notice to the Construction Manager and before the Contracting Officer acts thereon.

8.5 ARCHEOLOGICAL FINDINGS

When the Contractor's excavating operations encounter prehistoric remains or artifacts of historical or archeological significance, the operations shall be temporarily discontinued in that area. NJ TRANSIT will consult archeological authorities and determine the disposition of the remains or artifacts. The discontinuance of the Work shall be governed by Article 2.3, SUSPENSION OF WORK.

9. INDEMNIFICATION AND LIABILITY

9.1 INDEMNIFICATION; RISKS ASSUMED BY THE CONTRACTOR

9.1.1 The Contractor shall defend, indemnify and save harmless the State of New Jersey, NJ TRANSIT, the USDOT, the FTA (if the Contract is in whole or part federally funded) and their officers, employees, servants and agents from all suits, actions, or claims of any character including, but not limited to, expenditures and costs of investigations, hiring of witnesses, court costs, counsel fees, settlements, judgments or otherwise, brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of said Contractor or its Subcontractors in the performance of the Work specified in this Contract; or on account of or in consequence of any neglect in safeguarding the Work as specified in this Contract; or because of any act or omission, neglect, or misconduct of said Contractor or its Subcontractors in the performance of the Work specified in this Contract; or from any claims or amounts arising or recovered under the Worker's Compensation Act, or any other law, ordinance, order, or decree. So much of the money due the said Contractor under and by virtue of this Contract as may be considered necessary by NJ TRANSIT for such purpose may be retained for the use of NJ TRANSIT; except that money due to the Contractor will not be withheld when the Contractor produces satisfactory evidence that it is adequately protected by public liability and property damage insurance. NJ TRANSIT will, as soon as practicable after a claim has been made against it, give written notice thereof to the Contractor along with full and complete particulars of the claim. If the suit is brought against NJ TRANSIT, NJ TRANSIT will immediately forward to the Contractor every claim, demand, complaint, notice, summons, pleading or other process received by NJ TRANSIT or its representatives. NJ TRANSIT shall have the right, but not the obligation, to participate, to the extent it deems appropriate, in the defense of the matter and must concur in the terms of any settlement or other voluntary disposition of the matter. In the defense of any such claims, demands, suits, actions and proceedings, the Contractor shall not raise or introduce, without the express written permission in advance of the Attorney General of the State of New Jersey, any defense involving in any way the immunity of NJ TRANSIT or the State of New Jersey, the jurisdiction of the tribunal over NJ TRANSIT or the State of New Jersey, or the provisions of any statutes respecting suits against NJ TRANSIT or the State of New Jersey.

9.1.2 The Contractor assumes the following distinct and several risks, whether they arise from acts or omissions whether negligent or not of the Contractor, its Subcontractors, suppliers, employees, agents, and others working for the Contractor on the Project, of NJ TRANSIT or of third persons, or from any other cause, and whether such risks are within or beyond the control of the Contractor, excepting only risks which arise from solely affirmative acts performed by NJ TRANSIT subsequent to the execution of the Contract with actual and willful intent to cause the loss, damage, and injuries described in Paragraphs (a) and (b) below:

(a) Risks of Loss or Damage to the Construction: Until completion of all Work and the acceptance of the Project by NJ TRANSIT, the Contractor shall have the charge and care of the Work and of the materials to be used therein, whether permanent or temporary, including materials for which it has received partial payment and shall take every precaution against injury or damage to any part

thereof by the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the Work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the Work occasioned by any of the above causes before acceptance and shall bear the expense thereof. However, the Contractor shall not assume the risk for damage to the Work due to acts of war.

Where necessary to protect the Work or materials from damage the Contractor shall in furtherance of the above Paragraph, but not by way of limitation, at its expense, provide suitable drainage for the Project and erect such temporary structures as are necessary to protect the Work or materials from damage. The risks for failure to take such actions are assumed by the Contractor.

In case of suspension of Work from any cause whatever, the Contractor shall continue to be responsible for the Project as provided above and shall take such precautions as may be necessary to prevent damage to the Project, shall provide for drainage and shall erect necessary temporary structures, signs or other facilities. During such period of suspension of Work, the Contractor shall properly and continuously maintain in an acceptable growing condition living material in newly established plantings, seedings, and soddings furnished under this Contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury. If ordered by NJ TRANSIT, the Contractor shall properly store during such suspension of Work materials which have been partially paid for by NJ TRANSIT or which have been furnished by NJ TRANSIT. Such storage by the Contractor shall be on behalf of NJ TRANSIT. NJ TRANSIT shall at all times be entitled to the possession of such materials, and the Contractor shall promptly return the same to the site of the Work when requested. The Contractor shall not dispose of any of the materials so stored except on written authorization from NJ TRANSIT. The Contractor shall be solely responsible for the loss of or damage to such materials.

(b) Risk of Loss to Property in Performing the Work: The risk of loss or damage to any property of the Contractor, and of claims made against the Contractor or NJ TRANSIT for loss or damage to any property of Subcontractors, supplier, workmen, and others performing the work, and to lessors, occurring at any time prior to completion of removal of such property from the construction site or NJ TRANSIT's premises, or the vicinity thereof shall be borne by the Contractor.

9.1.3 Neither the acceptance of the Project by NJ TRANSIT nor the making of final payment shall release the Contractor from its obligations under this Article. Moreover, neither the enumeration in this Subparagraph nor the enumeration elsewhere in this Contract of particular risks assumed by the Contractor or of particular claims for which it is responsible shall be deemed: (a) to limit the effect of the provisions of this Article or of any other provision of this Contract relating to such risks or claims; (b) to imply that it assumes or is responsible for risks or claims only of the type enumerated in this Article or in any other provision of this Contract; or (c) to limit the

risks which it would assume or the claims for which it would be responsible in the absence of such enumerations.

9.1.4 The Contractor expressly understands and agrees that insurance protection required by the Contract, or otherwise provided by the Contractor, shall in no way limit the Contractor's responsibility to defend, indemnify, and save harmless NJ TRANSIT and the State as herein provided.

9.2 INSURANCE

The Contractor shall and shall require its Subcontractor(s) to procure and maintain until the issuance of the Final Certificate of Payment, the types of insurance specified below:

9.2.1 Fire Insurance and Extended Coverage (Builder's Risk):

The Contractor shall procure and maintain "All Risk" Builder's Risk insurance coverage, including terrorism coverage, for one hundred percent (100%) of the Construction value upon the facility or facilities on which the Work is to be executed or which is to be constructed, and shall also cover materials, equipment, and supplies of all kinds incident to the construction of said facility or facilities, in temporary structures, or on vehicles, or in the open.

9.2.2 Workers' Compensation Insurance:

The Contractor shall procure and shall maintain during the life of this Contract, Workers' Compensation Insurance, as required by applicable State law, for all of its employees to be engaged in Work at the site of the Project under this Contract and, in case any such work is subcontracted, the Contractor shall require the Subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees to be engaged in such Work unless such employees are covered by the protection afforded by the Contractor's Workers Compensation Insurance. In case any class of employees on the Project under this Contract is not protected under the Workers' Compensation Statute, the Contractor shall provide and shall cause each Subcontractor to provide employer's liability insurance for the protection of such of its employees as are not otherwise protected. Limits of Employer Liability are as follows:

Employer’s Liability

Bodily Injury by Accident	$1,000,000 each accident
Bodily Injury by Disease	$1,000,000 each employee
Bodily Injury by Disease	$1,000,000 policy limit

9.2.3 Commercial General Liability Insurance:

The Contractor shall, and shall require its Subcontractor(s), to procure and maintain, during the life of this Contract, Commercial General Liability Insurance using ISO Occurrence Form CG0001 10/93 or equivalent. The policy shall provide a minimum amount of $2,000,000 each occurrence, $2,000,000 personal and

advertising injury, $4,000,000 general aggregate and $4,000,000 products completed operations aggregate.

Coverage provided under this liability policy shall be on an occurrence basis and shall include, but not be limited to, bodily injury and property damage coverage including products liability/completed operations coverage, premises operations liability, blanket contractual liability, personal injury liability, independent contractors liability, mobile equipment, damage from explosion, collapse and underground hazards, and cross liability and severability of interests clause. Additional insured endorsement CG2026 11/85, CG 2010 11/85 or CG 2010 10/93 (but only if modified to include both ongoing and completed operations) naming NJ TRANSIT, the State of New Jersey, and the Indemnified Parties and coverage must apply on a primary and non-contributory basis. The policy shall allow the Contractor to waive its and its insurer's rights of subrogation. There shall be no coverage exceptions for property containing or adjacent to railroad facilities or other transportation facilities.

The Contractor shall furnish completed operations insurance written to the limits stipulated herein for Commercial General Liability Insurance. Coverage shall be required and maintained in force for a minimum of three (3) years following acceptance of the overall Contract, regardless of any beneficial occupancy by NJ TRANSIT during the Contract term.

9.2.4 Umbrella Liability Insurance

The Contractor shall, and shall require its Subcontractors, to procure and maintain umbrella liability insurance with a minimum limit of $8,000,000 per occurrence and in the aggregate; coverage must follow from above underlying Commercial General Liability, Business Automobile Liability and Employer's Liability policies.

9.2.5 Automobile Liability Insurance

The Contractor shall, and shall require its Subcontractor(s), to procure and maintain during the life of the Contract, Automobile Liability Insurance applicable to all owned, non-owned, hired or leased vehicles with a minimum of $1,000,000 combined single limit per accident for bodily injury and property damage liability. This policy shall name NJ TRANSIT and the State of New Jersey as a stipulated additional insured.

9.2.6 Asbestos Abatement Liability –If applicable, the Contractor or whoever is performing the removal of any Asbestos Containing Material {ACM} shall maintain throughout the entire period of their performance under this Contract Asbestos Abatement Liability Insurance in the amount of $2,000,000 per loss and $2,000,000 in the aggregate. The Contractor or whoever is responsible for transporting and disposing of the {ACM} shall maintain throughout the entire period of their performance under this Contract Transportation Pollution Coverage {Form MCS90} in the amount of $2,000,000 or statutory minimum whichever is greater.

9.2.7 Contractor's Pollution Liability Insurance

The Contractor and any Subcontractor performing construction and/or environmental remediation Work must procure and maintain through the life of the Contract, Contractor's Pollution Liability Insurance, including lead abatement if required, covering the liability arising out of any sudden and non-sudden pollution or impairment of the environment, including bodily injury, property damage, clean-up costs and defense that arise from the Work performed by the Contractor or its Sub-Contractor(s). Coverage under this policy shall have limits of liability with a minimum of $5,000,000 per occurrence and shall be on an occurrence basis. The policy shall name NJ TRANSIT and the State of New Jersey as an additional insured. Transport of any hazardous waste generated under this Contract shall require Hazardous Waste Haulers Insurance (MCS90) in an amount of $5,000,000 per occurrence or statutory minimum, whichever is greater.

9.2.8 The Contractor and its Subcontractor(s) shall, at its own expense, carry all insurance which may be required to provide the necessary protection against loss or damage to any property of the Contractor or to any property of Subcontractors, suppliers, workmen, and others performing the Work and to lessors, which insurance shall contain a waiver of any right of subrogation against NJ TRANSIT.

9.2.9 The insurance required herein shall provide adequate protection for the Contractor and its Subcontractors, respectively, against damage claims which may arise from operations under this Contract, whether such operations be by the insured or by anyone directly or indirectly employed by the Contractor and, also against any of the special hazards which may be encountered in the performance of this Contract.

9.2.10 The insurance policies must be written by good and solvent insurance companies authorized to do business in New Jersey with an A.M. BEST Insurance Rating of "A-" or better or by such other companies acceptable to NJ TRANSIT in its sole discretion.

9.2.11 The Contractor shall furnish NJ TRANSIT with two (2) copies of all Certificates showing the types, amount, class of operations covered, effective dates, and dates of expiration of policies. The policies evidencing required insurance shall contain an endorsement to the effect that cancellation or any material change in the policies adversely affecting the interests of NJ TRANSIT in such insurance shall not be effective for less than thirty (30) Calendar Days after written notice thereof to NJ TRANSIT. Evidence of such endorsement must be contained in the certificate of insurance. If requested by NJ TRANSIT, the Contractor shall also provide copies of the insurance policies covered by the certificate. The Contractor shall not commence Work under this Contract until it has obtained the insurance required under this Paragraph and such insurance has been approved by the Contracting Officer, nor shall the Contractor allow any Subcontractor to commence Work on its subcontract until the insurance required of the Subcontractor has been so obtained and approved.

If the insurance provided by the Contractor or any of its Subcontractor(s) fails to comply with the requirements listed herein, or if the Contractor or its Subcontractor(s) fails to maintain such insurance, then NJ TRANSIT maintains the right to stop Work until proper evidence is provided.

9.2.12 The cost of providing the required insurance shall be included under the Bid Item "Mobilization" whenever such a Bid item is listed in the Contractor's Bid Proposal. If no such item is listed then the cost shall be considered included under the total lump sum Bid amount or allocated within the unit prices that sum to the total Bid price.

9.2.13 Railroad Protective Comprehensive General Liability Insurance:

Should it be required, NJ TRANSIT will provide Railroad Protective Comprehensive General Liability Insurance coverage for this Contract.

9.3 LIMITATIONS OF LIABILITY

In no event, whether under the provisions of this Contract, as a result of breach of Contract, tort (including negligence) or otherwise, shall NJ TRANSIT, the State, or USDOT, be liable to the Contractor for special, consequential, incidental or penal damages including, but not limited to, loss of profit or revenues, loss of rental value for Contractor owned equipment, damages to associated equipment, additional risk, cost of capital or interest of any nature (whether characterized as damages for the retention of money, an increase in the cost of performance, a penalty, or otherwise).

9.4 NO THIRD PARTY BENEFICIARIES

It is specifically agreed between the parties executing this Contract that it is not intended by any of the provisions of any part of the Contract to create the public or any member thereof a third party beneficiary hereunder, or to authorize anyone not a party to the Contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the Contract.

It is the further intent of NJ TRANSIT and the Contractor in executing this Contract that no individual, firm, corporation or any combination thereof, which supplies materials, labor, services or equipment to the Contractor for the performance of the Work becomes thereby a third party beneficiary of this Contract. Any such individual, firm, corporation or combination thereof, has no right to bring an action in the courts of this State against the State or NJ TRANSIT, by virtue of this lack of standing and also by virtue of the provisions of the New Jersey Contractual Liability Act, N.J.S.A. 59:13-1, et seq.

9.5 PERSONAL LIABILITY OF PUBLIC OFFICIALS

In carrying out the provisions of the Contract, or in exercising power or authority granted to them by or within the scope of the Contract, there shall be no liability upon any NJ TRANSIT employee, either personally or as officials of the State, as in all such matters they act solely as agents and representatives of the State.

9.6 INTELLECTUAL PROPERTY

If the Contractor uses any design, device or materials covered by letters, patent or copyright, it shall provide for such use by suitable agreement with the owner of such patented or copyrighted design, device or material. The Contract Price, without exception, shall include all royalties or costs arising from the use of such design, device or materials in any way involved in the Work. The Contractor shall defend, indemnify and save harmless the State, USDOT, NJ TRANSIT, and their officers, agents, servants, and employees from any and all claims for infringement by reason of the use of such patented or copyrighted design, device or materials or any trademark or copyright in connection with Work agreed to be performed under this Contract, and shall defend and indemnify the State, USDOT, NJ TRANSIT, and their officers, agents, servants, and employees, for any cost, expense or damage which it or they may be obliged to pay by reason of such infringement at any time during the prosecution of the Work or after completion of the Work.

9.7 ENVIRONMENTAL COMPLIANCE AND LIABILITY

9.7.1 The Contractor shall conduct all activities in compliance with all applicable federal, state and local laws, rules, regulations and permits designed to prevent or control the discharge of substances into the land, water and air and to protect individual health and safety. The Contractor will indemnify, hold harmless and defend NJ TRANSIT, the State of New Jersey, their directors, officers, employees, agents and assigns from and against any and all suits, actions, proceedings, costs, fines, penalties and claims arising from or alleged to have arisen from its violation of any such environmental, health or safety laws, rules, regulations or permits whenever such suits, actions, claims or proceedings shall be commenced, or whenever such costs are accrued, except for any violations, if any, at the NJ TRANSIT facility existing prior to the Contractor's activities. The Contractor shall take reasonable and necessary precautions to prevent the discharge of hazardous substances, including asbestos and petroleum products, onto NJ TRANSIT property or into the environment, including the air. Failure to comply will be considered grounds for default, and NJ TRANSIT may terminate the Contract in accordance with Article 2.5, TERMINATION FOR CAUSE. The indemnification obligations hereunder shall survive the completion or termination of this Contract.

9.7.2 No later than two (2) weeks after the Notice to Proceed for this project, the Contractor shall supply to NJ TRANSIT a set of MSDS for any and all chemicals, materials or substances intended for use in the completion of the Project that are covered by reference or definition by the OSHA Hazard Communication Standard (hereinafter HCS) and/or the New Jersey Worker and Community Right-to-Know Act, N.J.S.A. 34:5A-1 et seq. The chemical name and Chemical Abstract Service (hereinafter CAS) number must be provided for all hazardous substances and for the five most predominant ingredients. If this information is not available on the MSDS, the information must be provided under separate cover when the MSDS is submitted. The Contractor shall also supply to NJ TRANSIT a copy of its written hazard communication program as defined by the OSHA-HCS and the New Jersey Worker and Community Right-to-Know Act, N.J.S.A. 34:5A-1 et seq.

9.7.3 In addition to supplying NJ TRANSIT with the MSDS, the Contractor shall obtain the expressed written approval of NJ TRANSIT to use any chemicals with a flammability or reactivity hazard classification of 2, 3, or 4 as defined by the National Fire Protection Association Standard NFPA704.

9.7.4 During the performance of this contract, the Contractor shall take any and all necessary precautions to ensure that personnel and property of NJ TRANSIT, the Contractor, third parties, and the general public are not exposed to physical or health hazards from any of the aforementioned chemicals, materials and substances. In addition, the aforementioned chemicals, materials and substances shall be labeled with the chemical name and CAS number of all hazardous substances including the five most predominant ingredients in accordance with the requirements of OSHA-HCS and the New Jersey Worker and Community Right-to-Know Act.

9.7.5 In the event the Contractor obtains any new information pertaining to the aforementioned chemicals, materials and substances during the performance of the Work on this contract, the Contractor shall immediately make that information available to NJ TRANSIT.

9.7.6 The Contractor's format shall meet the requirements of OSHA-HCS. Alternative formats may be accepted provided they meet the requirements of the OSHA-HCS and New Jersey Worker and Community Right-to-Know Act.

10. ETHICAL REQUIREMENTS

10.1 COVENANT AGAINST CONTINGENT FEES

The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this Contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, NJ TRANSIT shall have the right to annul this Contract without liability and in its discretion to deduct from the Contract Price, or otherwise recover, the full amount of such commission, percentage, brokerage or contingent fee.

10.2 OFFICIALS NOT TO BENEFIT

10.2.1 Interest of Members of Congress: No member of or delegate to the Congress of the United States shall be admitted to any share or part of this Contract or to any benefit arising therefrom.

10.2.2 Interest of Public Officials: No member, officer or employee of NJ TRANSIT or the State shall have any interest, direct or indirect, in this Contract or the proceeds thereof. No former member, officer or employee of NJ TRANSIT who, during that person’s tenure, had a direct, substantial involvement with matters that are related to this Contract, shall have any interest, direct or indirect, in this Contract or the proceeds thereof.

10.3 GRATUITIES

10.3.1 The Contracting Officer may, by written notice to the Contractor, terminate the right of the Contractor to proceed under the Contract if it is found, after notice and hearing, that gratuities (in the form of entertainment, gifts or otherwise) were offered or given by the Contractor, or any agent or representative of the Contractor, to any officer, agent or employee of NJ TRANSIT with a view toward securing a contract or securing favorable treatment with respect to the performance of such Contract; provided that the existence of the facts upon which NJ TRANSIT makes its findings may be reviewed in any competent court.

10.3.2 In the event this Contract is terminated as provided in the preceding Paragraph, NJ TRANSIT shall be entitled to pursue the same remedies against the Contractor as it could pursue in the event of a breach of the Contract by the Contractor.

10.4 NJ TRANSIT CODE OF ETHICS FOR CONTRACTORS

A.) General

1.) NJ TRANSIT considers the maintenance of public trust and confidence critical to its proper functioning. Contractors of NJ TRANSIT must avoid all situations where proprietary or financial interest, or the opportunity for financial gain, could lead to the favored treatment of any organization or individual. Contractors must also avoid circumstances and conduct which may not constitute actual wrongdoing, or conflict of interest, but might nevertheless constitute the appearance of questionable behavior to the general public, thus compromising the integrity of NJ TRANSIT. **For the purposes of this Article only, NJ TRANSIT shall be deemed to include any person contracting with NJ TRANSIT to perform services on the Project. All Contractors must comply with NJ TRANSIT's Code of Ethics contained in this Article.**

2.) This policy is based upon the principles established in the New Jersey Conflicts of Interest Law (N.J.S.A. 52:13 D-12et seq.) and the regulations promulgated by the New Jersey State Ethics Commission thereunder, as well as the Plain Language Guide to Ethical Business Conduct for Companies Transacting Business with the State of New Jersey, promulgated by the New Jersey Department of the Treasury.

3.) This Code of Ethics for Vendors shall be deemed to be a substantial and integral part of every NJ TRANSIT Invitation for Bid (IFB), Request for Proposal (RFP) and contract.

4.) This policy is intended to augment, not to replace, existing law, regulations, administrative orders and the current Uniform Ethics Code.

B.) NJ TRANSIT Code of Ethics for Contractors

1.) Gifts, Gratuities And Favors

a.) The Contractor shall not, either directly or indirectly, pay, offer to pay, or agree to pay any amount of money, fee, commission, compensation, gift, gratuity or other thing of value of any kind to any NJ TRANSIT Board Member or employee or to any member of their immediate family, or to any partnership,

firm or corporation with which any such Board Member or employee is employed or associated, or in which (s)he has an interest within the meaning of N.J.S.A. 52:13D-13g.

b.) The Contractor shall not give or offer any NJ TRANSIT Board Member, or employee or their immediate family member any amount of money, gift, loan, or other thing of value regardless of whether it might be reasonably inferred that such amount of money, gift, loan, service or other thing of value was given or offered for the purpose of influencing the Board Member or employee in the discharge of his or her official duties. In addition, Board Members, employees and their immediate family are not permitted to accept breakfasts, lunches, dinners, alcoholic beverages, tickets to entertainment and/or sporting events, wagers or other items or consideration. A Contractor may not “wine and dine” NJ TRANSIT Board Members, employee or their immediate family.

c.) NJ TRANSIT Board Members and employees may not accept any food or beverages from any vendor with the exception of coffee, tea, soda, Danish, chips, pretzels, donuts or similar snacks, which may be provided to all attendees at a conference, seminar or business meeting. If food other than the above is provided (e.g., sandwich, pizza or a meal), the Board member or employee must pay the cost for the meal.

d.) Any questions as to what is or is not acceptable or what constitutes proper conduct for an NJ TRANSIT Board Member or employee, and any solicitation of gifts, consideration or items of value by or on behalf of a NJ TRANSIT Board Member or employee, should be referred to:

Chief Ethics Officer
NJ TRANSIT
One Penn Plaza East, 8th Floor
Newark, NJ 07105-2246
(973) 491-8820

2.) Solicitation by NJ TRANSIT Board Member or employee:

A Contractor shall immediately report in writing the solicitation of any fee, commission, compensation, gift, gratuity or other thing of value by a NJ TRANSIT Board Member or employee, to NJ TRANSIT's Chief Ethics Officer, the New Jersey Attorney General and the State Ethics Commission.

3.) Business, commercial or entrepreneurial relationship:

Whether or not pursuant to employment, contract or other agreement, expressed or implied, a Contractor shall not, directly or indirectly, undertake any private business, commercial or entrepreneurial relationship with, or sell any interest in such vendor to any NJ TRANSIT Board Member or employee having any duties or responsibilities in connection with the purchase, acquisition or sale of any property or services by or to NJ TRANSIT or with any person, firm or entity with which (s)he is employed or associated or in which (s)he has an interest within the meaning of N.J.S.A. 52:13D-13g. Any relationships subject to this provision shall be reported in writing forthwith to NJ TRANSIT’s Chief Ethics Officer.

4.) General Standards:

a.) A Contractor shall not influence, or attempt to influence or cause to be influenced, any NJ TRANSIT Board Member or employee in his/her official capacity in any manner which might tend to impair the objectivity or independence of judgment of any Board Member or employee.

b.) A Contractor shall not request, influence, or attempt to request, influence or cause to be requested or influenced, any NJ TRANSIT Board Member or employee to use, or attempt to use, his/her official position in any manner to secure unwarranted privilege or advantage for the Consultant or any other person.

5.) Protected/Confidential Information:

a.) A Contractor may not profit, directly or indirectly, from the use of any secret or confidential NJ TRANSIT information, knowledge or data that has been illicitly disclosed.

b.) A Contractors and their employees may not use any secret or confidential NJ TRANSIT information, knowledge or data for any purposes other than complying with their contractual obligations to NJ TRANSIT.

6.) Intellectual Property:

A Consultant may not use NJ TRANSIT branding, logo or any promotional or marketing materials without prior written approval from the NJ TRANSIT Communications Department.

7.) Employment Offers:

a.) Current State Employees/Future Employment: If a vendor offers a job to a NJ TRANSIT employee, with whom they have direct and substantial contact, such offer or solicitation must be immediately disclosed to management and the Chief Ethics Officer. Please also note that NJ TRANSIT employees must secure prior approval for secondary employment. Depending on the vendor relationship with the employee, the vendor employment offer may be disapproved, and the NJ TRANSIT employee could be screened from taking any official action with respect to the particular vendor contracts, applications, or matters in the future.

b.) Former State Employees: After leaving NJ TRANSIT, employees are under a lifetime ban against the use or provision of information not generally available to the public acquired during their employment. Additionally, former employees are prohibited from representing or assisting a vendor concerning a particular contract or other matter if they were substantially and/or directly involved in that particular contract or other matter while employed by NJ TRANSIT.

8.) Failure to Comply:

A Consultant's failure to comply with this policy may result in termination of the contract or debarment pursuant to N.J.A.C. 16:72-5.2. Additionally, violations of certain provisions of the Conflict of Interest Law are subject to a fine not to exceed $1,000, or imprisonment not to exceed six months, or both.

C.) CROSS-REFERENCES

New Jersey Uniform Ethics Code, available online at https://www.state.nj.us/ethics/docs/ethics/uniformcode.pdf

New Jersey Conflicts of Interest Law and regulations adopted thereunder (N.J.A.C. 19:61-1.1 et seq.), available online at https://www.state.nj.us/ethics/statutes/conflicts/ and https://www.state.nj.us/ethics/statutes/rules/

Plain Language Guide to Ethical Business Conduct for Companies Transacting Business with the State of New Jersey, available online at https://nj.gov/ethics/docs/ethics/plainlanguage.pdf

10.4.1. In accordance with N.J.A.C. 16:72-5.2, the Contractor shall be debarred if the Contractor:

A. Makes any offer or agreement to pay or to make payment of, either directly or indirectly, any fee, commission, compensation, gift, gratuity, or other thing of value of any kind to any NJ TRANSIT Board member, officer, or employee or to any member of the immediate family of such Board member, officer, or employee, or any partnership, firm, or corporation with which they are employed or associated, or in which such Board member, officer, or employee has an interest within the meaning of N.J.S.A. 52: 13D-13g;

B. Fails to report to the Attorney General and to the State Ethics Commission in writing forthwith the solicitation of any fee, commission, compensation, gift, gratuity or other thing of value by any NJ TRANSIT Board member, officer, or employee;

C. Fails to report the Attorney General and to the State Ethics Commission in writing forthwith or fails to obtain a waiver from the State Ethics Commission, to undertake, directly or indirectly, any private business, commercial, or entrepreneurial relationship with, whether or not pursuant to employment, contract or other agreement, express or implied, or sale, directly or indirectly of any interest in such Contractor to, any NJ TRANSIT Board member, officer, or employee having any duties or responsibilities in connection with the purchase, acquisition, or sale of any property or services by or to NJ TRANSIT, or with any person, firm, or entity with which he or she is employed or associated or in which he or she has an interest within the meaning of N.J.S.A. 52:13D-13g. Any relationship subject to this provision shall be reported in writing forthwith to the State Ethics Commission, which may grant a waiver of this restriction upon application of the NJ TRANSIT Board member, officer, or employee upon a finding that the present or proposed relationship does not present the potential, actuality, or appearance of a conflict of interest;

D. Influence or attempts to influence or causes to be influenced, any NJ TRANSIT Board member, officer, or employee in his official capacity in any manner which might tend to impair the objectivity or independence of judgment of such Board member, officer, or employee; or

E. Causes or influences or attempts to cause or influence, any NJ TRANSIT Board member, officer, or employee to use, or attempt to use, his official position to secure unwarranted privileges or advantages for the Contractor or any other person.

11. SOCIAL AND ECONOMIC REQUIREMENTS

11.1 NEW JERSEY PREVAILING WAGE ACT

11.1.1 The Contractor and each Subcontractor shall comply with the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 et seq., and this Act is hereby made a part of this Contract. All workers shall be paid not less than the prevailing wage rate as designated by the Commissioner of Labor and Industry or the Commissioner's duly authorized deputy or representative.

In the event it is found that any worker has been paid a rate of wages less than the prevailing wage required to be paid by this Contract, the Contracting Officer may terminate the Contractor's or Subcontractor's right to proceed with the Work, or such part of the Work as to which there has been a failure to pay required wages, and take such action it deems necessary or prosecute the Work to completion.

NJ TRANSIT shall furnish as part of the Contract a copy of the prevailing minimum wage rates which shall be paid to the workers employed in the performance of the Contract.

11.1.2 Nothing contained in the Prevailing Wage Act shall prohibit the payment of more than the prevailing wage rate to any worker employed on the Project.

11.1.3 The Contractor and each Subcontractor performing Work for NJ TRANSIT who is subject to the provisions of the Prevailing Wage Act shall post the prevailing wage rates for each craft and classification involved, including the effective date of any changes thereof, in prominent and easily accessible places at the site of the Work or at such place or places as are used by them to pay workers their wages.

11.1.4 The Contractor's signature on its Bid Proposal is its guarantee that neither it nor any Subcontractor it intends to contract with is currently listed by or on record with the Commissioner of Labor and Industry as one who failed to pay the prevailing wages according to the Prevailing Wage Act.

11.1.5 The Contractor and all of its Subcontractors performing Work at the site must prepare their Bids as to labor costs in accordance with the prevailing wage (valid for the date the Bids are to be submitted) for the geographical area of the Project Site.

11.1.6 After the completion of all construction Work and before the proposed Final Certificate of Payment will be issued, the Contractor and Subcontractors shall furnish the Construction Manager with written statements in form satisfactory to NJ TRANSIT certifying to the amounts then due and owing from the Contractor and

Subcontractors filing such statement to any and all workers for wages due on account of the Contract, setting forth therein the names of the persons whose wages are unpaid and the amount due to each respectively, which statement shall be verified by the oath of the Contractor or Subcontractor, as the case may be, that it has read such statement subscribed by the Contractor or Subcontractor, knows the contents thereof, and that the same is true of its own knowledge, provided, however, that nothing herein shall impair the right of the Contractor to receive Final Payment because of failure of any Subcontractor to comply with provisions of this Article.

11.2 EQUAL OPPORTUNITY

11.2.1 Equal Employment Opportunity

The Contractor hereby acknowledges that pursuant to N.J.A.C. 17:27-3.1, NJ TRANSIT cannot award a contract or pay money to any Contractor or Subcontractor which has not agreed and guaranteed to afford equal employment opportunity in performance of the contract in accordance with an affirmative action program and, except with respect to affectional or sexual orientation, approved under the terms established in N.J.A.C. 17:27.

MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE FOR CONSTRUCTION CONTRACTS (required by N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27-1.1 et seq.) –

During the performance of this contract, the Contractor agrees as follows:

The Contractor or Subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the Contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The Contractor or Subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The Contractor or Subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union or workers'

representative of the Contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The Contractor or Subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the Contractor or Subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. l7:27-7.2; provided, however, that the Department of Labor & Workforce Development (Dept. LWD), Construction EEO Monitoring Program, may, in its discretion, exempt a Contractor or Subcontractor from compliance with the good faith procedures pre-scribed by the following provisions, A, B, and C, as long as the Dept. of LWD, Construction EEO Monitoring Program is satisfied that the Contractor or Subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Dept. of LWD, Construction EEO Monitoring Program, that its percentage of active “card carrying” members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. 17:27-7.2. The Contractor or Subcontractor agrees that a good faith effort shall include compliance with the following procedures:

(A) If the Contractor or Subcontractor has a referral agreement or arrangement with a union for a construction trade, the Contractor or Subcontractor shall, within three Business Days of the contract award, seek assurances from the union that it will cooperate with the Contractor or Subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq., as supplemented and amended from time to time and the Americans with Disabilities Act. If the Contractor or Subcontractor is unable to obtain said assurances from the construction trade union at least five Business Days prior to the commencement of construction Work, the Contractor or Subcontractor agrees to afford equal employment opportunities minority and women workers directly, consistent with this chapter. If the Contractor's or Subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with affording equal employment opportunities as specified in this chapter, the Contractor or Subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the hiring or scheduling procedures prescribed under (B) below; and the Contractor or Subcontractor further agrees to take said action immediately if it determines that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

(B) If good faith efforts to meet targeted employment goals have not or cannot be met for each construction trade by adhering to the procedures of (A) above, or if the Contractor does not have a referral agreement or arrangement with a union for a construction trade, the Contractor or Subcontractor agrees to take the following actions:

(1) To notify the Public Agency Compliance Officer , the Dept. of LWD, Construction EEO Monitoring Program, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;

(2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;

(3) Prior to commencement of Work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the Contractor or Subcontractor has a referral agreement or arrangement with a union for the construction trade;

(4) To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the Contractor or Subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;

(5) If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and non-discrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;

(6) To adhere to the following procedure when minority and women workers apply or are referred to the Contractor or Subcontractor:

(i) The Contactor or Subcontractor shall interview the referred minority or women worker.

(ii) If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the Work of the construction trade, the Contractor or Subcontractor shall in good faith determine the qualifications of such individuals. The Contractor or Subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a Contractor or Subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Dept. of LWD, Construction EEO Monitoring Program. If necessary, the contractor or Subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below.

(iii) The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Dept. of LWD, Construction EEO Monitoring Program, the Contractor or

Subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.

(iv) If, for any reason, said Contractor or Subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the Contractor or Subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Dept. of LWD, Construction EEO Monitoring Program.

(7) To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Dept. of LWD, Construction EEO Monitoring Program and submitted promptly to the Dept. of LWD, Construction EEO Monitoring Program upon request.

(C) The Contractor or Subcontractor agrees that nothing contained in (B) above shall preclude the Contractor or Subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the targeted county employment goal, the Contractor or Subcontractor shall consider for employment persons referred pursuant to (B) above without regard to such agreement or arrangement; provided further, however, that the Contractor or Subcontractor shall not be required to employ women and minority advanced trainees and trainees in numbers which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ratio established by practice in the area for said construction trade. Also, the Contractor or Subcontractor agrees that, in implementing the procedures of (B) above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the Contractor shall submit to the Public Agency Compliance Officer and the Dept. of LWD, Construction EEO Monitoring Program an initial project workforce report (Form AA-201) electronically provided to the public agency by the Dept. of LWD, Construction EEO Monitoring Program, through its web-site, for distribution to and completion by the Contractor, in accordance with N.J.A.C. 17:27-7. The Contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Dept. of LWD, Construction EEO Monitoring Program, and to the Public Agency Compliance Officer.

The Contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the-job programs for outreach and training of minorities and women.

(D) The Contractor and its Subcontractors shall furnish such reports or other documents to the Dept. of LWD, Construction EEO Monitoring Program as may be requested by the Dept. of LWD, Construction EEO Monitoring Program from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Dept. of LWD, Construction EEO Monitoring Program for conducting a compliance investigation pursuant to N.J.A.C. 17:27-1.1 et seq.

(NOTE: FOR THE PURPOSE OF THIS CONTRACT THE "PUBLIC AGENCY COMPLIANCE OFFICER" IS NJ TRANSIT'S VP CIVIL RIGHTS & DIVERSITY PROGRAMS AND THE "PUBLIC AGENCY" IS NJ TRANSIT.)

11.2.2 The Contractor and all Subcontractors hereby agree that the provisions of N.J.S.A. 10:2-1 to 4 and N.J.S.A. 10:5-31 et seq. as amended and supplemented, and the rules and regulations promulgated pursuant thereto are made a part of the Contract and are binding upon them.

11.2.3 The Contractor, Subcontractors, and their assignees shall guarantee an equal employment opportunity to Veterans of the Vietnam era, pursuant to N.J.S.A. 10:5-40. “Veterans of the Vietnam era” are defined by N.J.S.A. 10:5-39(c).

11.2.4 Antidiscrimination: In accordance with N.J.S.A. 10:2-1 the Contractor agrees that:

a. In the hiring of persons for the performance of Work under this contract or any subcontract hereunder, or for the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under this contract, no Contractor, nor any person acting on behalf of such Contractor or Subcontractor, shall, by reason of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex, discriminate against any person who is qualified and available to perform the Work to which the employment relates;

b. No Contractor, Subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee engaged in the performance of Work under this contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under such contract, on account of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex;

c. There may be deducted from the amount payable to the Contractor by the contracting public agency, under this contract, a penalty of fifty ($ 50.00) for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the contract; and

d. This contract may be canceled or terminated by the contracting public agency, and all money due or to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the Contractor from the contracting public agency of any prior violation of this section of the contract.

11.2.6 Equal Opportunity for Individuals with Disabilities

The Contractor and NJ TRANSIT agree that the provisions of Title II of the Americans with Disabilities Act of 1990 (the "Act") (42 U.S.C. §12101 et seq.), which prohibit discrimination on the basis of disability by public entities in all services, programs, and activities provided or made available by public entities, and the rules and regulations promulgated thereto, are made a part of this Contract. In providing any aid, benefit, or service on behalf of NJ TRANSIT pursuant to this Contract, the Contractor agrees that the performance shall be in strict compliance with the Act. In the event that the Contractor, its agents, servants, employees, or Subcontractors violate or are alleged to have violated the Act during the performance of this Contract, the Contractor shall defend NJ TRANSIT and the State of New Jersey in any action or administrative proceeding commenced pursuant to this Act. The Contractor shall indemnify, protect, and save harmless NJ TRANSIT and the State, their agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The Contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the applicable grievance procedure, the Contractor agrees to abide by any decision rendered pursuant to such grievance procedure found at: http://njtransit.com/tm/tm_servlet.srv?hdnPageAction=EqualOpportunityAffirmativeActionTo. If any action or administrative proceeding results in an award of damages against NJ TRANSIT or the State or if NJ TRANSIT or the State incurs any expense to cure a violation of the Act which has been brought pursuant to its grievance procedure, the Contractor shall satisfy and discharge the same at its own expense.

NJ TRANSIT shall, as soon as practicable after a claim has been made against it, give written notice thereof to the Contractor along with full and complete particulars of the claim. If any action or administrative proceeding is brought against NJ TRANSIT or any of its agents, servants, and employees, NJ TRANSIT will forward or have forwarded to the Contractor every demand, complaint, notice, summons, pleading, or other process received by it or its representatives.

Any approval by NJ TRANSIT of the services provided by the Contractor pursuant to this Contract shall not relieve the Contractor of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless NJ TRANSIT pursuant to this paragraph.

The provisions of this indemnification clause shall in no way limit the Contractor's obligations assumed in this Contract, nor shall they be construed to relieve the Contractor from any liability, nor preclude NJ TRANSIT from taking any other actions available to it under any other provisions of this Contract or otherwise at law.

11.3 UTILIZATION OF DISADVANTAGED BUSINESS ENTERPRISES

The term "disadvantaged business enterprise" means a for-profit small business concern that is owned and controlled by one or more socially and economically disadvantaged persons, as defined by 49 C.F.R. Part 26. Such disadvantage may arise from cultural, racial, chronic economic circumstances or background or other similar cause. Such persons would include, but not be limited to, Black Americans (not of Hispanic origin); Hispanic Americans; Native Americans; Asian-Pacific Americans; Subcontinent Asian Americans; and Women, regardless of race or ethnicity.

NJ TRANSIT's DBE Program is accorded the same priority as compliance with all other legal obligations required by the USDOT. Contractors shall comply with the DBE Program requirements in the award and administration of NJ TRANSIT contracts. Failure by the Contractor to carry out these requirements shall constitute a breach of the contract, which may result in the termination of the contract or other such remedy, as NJ TRANSIT deems appropriate.

Should the actual contract amount increase or decrease, through approved change order(s), the Office of Business Development (OBD) must be informed. OBD will determine if this will result in an adjustment to DBE participation to reflect the assigned DBE goal, as applicable.

The Contractor shall fully comply with the requirements and provisions set forth in the New Jersey Transit Corporation DBE Requirements for Federal Procurement Activities.

11.4 EQUAL PAY ACT

Pursuant to N.J.S.A. 34:11-56.14(b), any employer, regardless of the location of the employer, who enters into a contract with a public body to perform any public work for the public body shall provide to the Commissioner of the New Jersey Department of Labor and Workforce Development (“LWD”), through certified payroll records required pursuant to N.J.S.A. 34:11-56.25 et seq., information regarding the gender, race, job title, occupational category, and rate of total compensation of every employee of the employer employed in the State in connection with the contract. The employer shall provide the Commissioner, throughout the duration of the contract or contracts, with an update to the information whenever payroll records are required to be submitted pursuant to N.J.S.A. 34:11-56.25 et seq.

Information regarding the Diane B. Allen Equal Pay Act and its requirements may be obtained from the LWD web site at https://nj.gov/labor/equalpay/equalpay.html. Required forms may be obtained from that website by clicking on the “Contracts for Public Works” hyperlink.

12. MEASUREMENT AND PAYMENT

12.1 SCOPE OF PAYMENT

12.1.1 The Contractor shall receive and accept compensation provided for in the Contract as full payment for furnishing materials and for performing work under the Contract in a complete and acceptable manner and for risk, loss, damage or expense of whatever character arising out of the nature of the Work or the prosecution thereof.

12.1.2 If the Specifications relating to a unit price in the Contractor's Bid Proposal require that the said unit price cover and be considered compensation for certain Work or material essential to the item, this same Work or material will not also be measured or paid for under any other item which may appear elsewhere in the Contract.

12.1.3 If the Specifications include Work for which no specific method of payment is provided, no separate payment will be made for that Work and the cost thereof shall be considered as included in the prices paid for the various scheduled Contract Items.

12.1.4 Except as specifically provided otherwise, no separate payment will be made for any of the requirements of the General and Special Provisions, and the cost thereof shall be considered as included in the various scheduled Contract Items.

12.1.5 Notwithstanding any other provision of this Contract, for a period of three (3) years after acceptance, all estimates and payments (including the Final Certificate of Payment and payments made pursuant to the Final Certificate of Payment) shall be subject to correction and adjustment for clerical or other errors in the calculations involved in the determination of quantities and payments. The Contractor and NJ TRANSIT agree to pay to the other any sum due under the provisions of this Article.

12.2 QUANTITIES: MEASUREMENT AND PAYMENT

12.2.1 Work completed under the Contract will be measured by the Construction Manager according to United States standard measure. The method of measurement and computations to be used in determination of quantities of material furnished and of Work performed under the Contract will be those methods generally recognized as conforming to good engineering practice.

12.2.2 Wherever the estimated quantities of Work to be done and materials to be furnished under the Contract are shown in the documents including the Contractor's Bid Proposal, they are given for use in comparing Bids and the right is especially reserved, except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by NJ TRANSIT to complete the Work contemplated by this Contract, and such increase or diminution shall in no way abrogate this Contract, nor shall such increase or diminution give cause for claims or liability for damages.

12.2.3 When the Contractor's Bid Proposal contains itemized quantities which are to be paid on a Unit Price basis, those quantities are designated as the Pay Quantities. When the estimated quantities for a specific portion of the Work are designated as the Pay Quantities in the Contract, and if the Work is actually performed as specified, they shall be the final quantities for which payment for such specific portion of the Work will be made, unless the dimensions of said portions of the Work shown on the plans are revised, or unless errors in the quantities are discovered. If revised dimensions result in an increase or decrease in the quantities of such Work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

12.2.4 Wherever the actual quantity of Work performed varies more than twenty-five percent (25%) above or below an estimated quantity shown in the Contractor's Bid Proposal, an equitable adjustment to the contract shall be made upon demand of either NJ TRANSIT or the Contractor. The equitable adjustment shall be based upon an increase or decrease in costs due solely to the twenty-five percent (25%) variation above or below the estimated quantity.

12.3 PARTIAL PAYMENTS

12.3.1 Monthly estimates will be made of the approximate quantities of Work satisfactorily performed in accordance with the Contract Documents during the preceding month by the Contractor and submitted to the Construction Manager for review and approval. Partial payments on account of such monthly estimate will be made by NJ TRANSIT based on the Contractor's Bid Proposal or as provided by Change Order. The Contractor will also be paid under the monthly estimates for materials delivered in accordance with Article 12.4, MATERIALS PAYMENTS and Article 8.2, MEASUREMENT OF PAY LIMITS FOR EXCAVATIONS.

For each lump sum Bid item excluding Performance/Payment Bond, Mobilization and Allowances, the Contractor shall submit for the Construction Manager's review and approval a "Schedule of Values" (a detailed price breakdown of all individual items of Work that are contained in said Bid items) within ten (10) Calendar Days of the Notice to Proceed. The approved Schedule of Values shall be incorporated into each Application for Payment and shall be used by NJ TRANSIT as the basis for partial payment and, if it so elects, as a basis for determining values of Work it wishes to modify or delete.

12.3.2 No such estimate or payment shall be required to be made, in the judgment of NJ TRANSIT, when the Work is not proceeding in accordance with the Contract Documents or following NJ TRANSIT giving the Contractor or surety notice of delay, neglect or default.

12.3.3 No such estimate or payment shall be construed to be an acceptance of any defective Work or improper materials. NJ TRANSIT upon determining that any payment under a previous monthly estimate was improper

or unwarranted for any reason may deduct the amount of such payment from the subsequent monthly estimate and partial payments made to the Contractor.

12.3.4 Material and Work covered by partial payments made shall thereupon become the sole property of NJ TRANSIT but this provision shall not be construed as relieving the Contractor from the sole responsibility for care and protection of materials and Work upon which payments have been made or restoration of any damaged Work, or as a waiver of the right of NJ TRANSIT to require fulfillment of terms of the Contract.

12.3.5 NJ TRANSIT will deduct from any monthly estimate and payment and the final payment such amounts as are required to be deducted pursuant to provisions of the Contract Documents.

12.3.6 In accordance with N.J.S.A. 52:32-40 to 41, prior to the issuance of a partial payment by NJ TRANSIT to the Contractor, the Contractor shall certify that a Subcontractor or Supplier has been paid any amount due from any previous partial payment and shall be paid any amount due from the current partial payment, or that a valid basis for withholding payment exists and the Contractor has complied with the applicable notice provisions. The Contractor shall refer to Article 12.6 for Subcontractor payments and retainage.

12.4 MATERIALS PAYMENTS

12.4.1 The monthly estimates and payments made on account thereof will also include, when allowed by the Project Manager, an amount equal to the actual cost of materials furnished but not incorporated into the Work, provided, however, that such amount shall not exceed eighty-five percent (85%) of the Contractor's Bid Proposal bid price for the Contract Item into which the material will be incorporated, and the quantity allowed does not exceed the corresponding quantity estimated in the Contract.

12.4.2 Before including payments for such materials in an estimate, the Construction Manager will determine that:

(a) The materials have been properly stored and protected by the Contractor or have been stored at locations owned or leased by NJ TRANSIT;

(b) The materials have been inspected and appear to be acceptable;

(c) The Contractor has provided NJ TRANSIT an invoice or bill of sale sufficient to show the price paid for the materials and proof that title, if applicable, has been transferred to NJ TRANSIT;

(d) The materials, if stored on property not belonging to NJ TRANSIT, are fenced in with access limited to NJ TRANSIT and the Contractor or their authorized agents and the fenced in materials are clearly identified in large letters as being without encumbrances and for use solely on this Project, and

(e) When such materials are stored in a leased area, the lease is made out to the Contractor and provides that it shall be cancelled only with the written permission of NJ TRANSIT.

12.4.3 The Contractor shall safely store and protect the materials and nothing in this Paragraph shall alter the provisions of Article 9.1, INDEMNIFICATION; RISKS ASSUMED BY THE CONTRACTOR. If materials paid for under this Article are damaged, stolen or prove to be unacceptable, the payment made therefor will be deducted from subsequent estimates and payment.

12.4.4 Payment for materials as provided in this Article shall not be deemed to be an acceptance of such materials, and the Contractor shall deliver to the site and properly incorporate in the work only those materials that comply with the Contract.

12.4.5 No payment for living or perishable plant materials will be made until they are accepted by NJ TRANSIT.

12.4.6 The Contractor shall pay all costs of handling and delivering materials to and from the place of storage to the site of the Work, as well as storage rental. Taxes levied by any government against the materials shall be borne by the Contractor.

12.5 RETAINAGE

12.5.1 In making partial payments for Work, there will be retained by NJ TRANSIT five percent (5%) of the estimated amount until completion and final acceptance of all Work covered by the Contract and issuance of a Final Certificate of Payment.

12.5.2 The Contractor shall defend, indemnify and save NJ TRANSIT harmless from claims arising out of the demands of Subcontractors, laborers, workmen, mechanics, Suppliers, and furnishers of machinery and parts thereof, equipment, power tools, and supplies, including commissary, incurred in the furtherance of the performance of this Contract. The Contractor shall, at NJ TRANSIT's request, furnish satisfactory evidence that all obligations of the nature herein above designated have been paid, discharged or waived. The retainage specified herein shall not be paid to the Contractor until such obligations have been paid, discharged or waived. NJ TRANSIT may also seek recourse, if necessary, to the payment bond.

12.6 SUBCONTRACTOR PAYMENTS AND RETAINAGE

12.6.1 A Subcontractor shall look only to the Contractor for the payment of any claims of any nature whatsoever arising out of the said subcontract, and said Subcontractor agrees, as a condition of NJ TRANSIT's consent to the making of said subcontract, that it shall make no claim whatsoever against NJ TRANSIT, its officers, agents, servants or employees for any Work performed or thing done by reason of said subcontract, or for any other cause whatsoever that may arise by reason of the relationship created between the Contractor and Subcontractor by the subcontract.

12.6.2 Prompt Payment: The Contractor agrees to pay each Subcontractor and Supplier under this Contract for satisfactory performance of completed Work under its subcontract no later than ten (10) Calendar Days from

the receipt of each payment the Contractor receives from NJ TRANSIT. The Contractor shall ensure that all lower tier Subcontractors and suppliers are paid all invoiced amounts (less retainage) that meet all applicable requirements within ten (10) Calendar Days from the time the Subcontractor receives payment from the Contractor.

12.6.3 If the Contractor withholds payment from the Subcontractor or Supplier, the Contractor shall provide to the Subcontractor or Supplier written notice thereof. The notice shall detail the reason for withholding payment and state the amount of payment withheld. If a Performance/ Payment Bond has been provided under this Contract, the Contractor shall send a copy of the notice to the Surety providing the bond for the Contractor. A copy of the notice shall also be submitted to NJ TRANSIT with the certification that payments are being withheld.

12.6.4 Should the Contractor provide notice and proceed to withhold payment from any Subcontractor or Supplier, NJ TRANSIT may elect, at its sole discretion, to help resolve the dispute. NJ TRANSIT's efforts shall be limited to meeting with the Contractor and the Subcontractor or Supplier and reviewing the relevant facts with both parties. NJ TRANSIT will not act as a decider of fact nor will NJ TRANSIT direct a settlement to the dispute. Any NJ TRANSIT effort is solely intended to assist the parties in understanding their respective positions and to encourage a reasonable resolution of the dispute.

12.6.5 The Contractor agrees to make retainage payments to each Subcontractor or Supplier within ten (10) Calendar Days after the Subcontractor's or Supplier's Work is completed. Only Subcontractors whose Work has been 100% completed, including all Punch List Work, and any other Remaining Work, and who have supplied closeout documents shall be eligible for release of retainage. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of NJ TRANSIT.

12.6.6 NJ TRANSIT agrees to release an equivalent amount of Contractor retainage provided that a) there are no offsetting claims from NJ TRANSIT (including, but not limited to, liquidated damages), other Subcontractors, Suppliers, materialmen or workers, and b) none of the other reasons to withhold payments specified under Article 12.7 exists. Prior to release of the Contractor's retainage, the Contractor shall provide to NJ TRANSIT executed copies of the following Subcontractor Closeout Documents, as appropriate: Consent of Surety to Final Payment to the Subcontractor, Subcontractor's Certificate of Amounts Due Workers For Wages, a Subcontractor Affidavit of Payment of Debts and Claims, a Subcontractor Affidavit of Release of Liens and a Certificate of Final Acceptance of Subcontractor Work, all in the form shown in Appendix B to the Contract.

12.6.7 Notwithstanding NJ TRANSIT's release or partial release of retainage, nothing in this Article shall be deemed to constitute NJ TRANSIT's partial or final acceptance of the Work, or any portion thereof, unless either a

Certificate of Partial Acceptance or a Certificate of Final Acceptance has been executed by NJ TRANSIT, in the form(s) shown in Appendix B to the Contract.

12.7 PAYMENTS WITHHELD

12.7.1 NJ TRANSIT may withhold or, on account of subsequently discovered evidence, nullify the whole or a part of a certificate for payment to such extent as may be necessary to protect NJ TRANSIT from loss on account of:

(1) Defective Work not remedied;
(2) Claims filed, or reasonable evidence indicating probable filing of claims;
(3) Failure of the Contractor to make payments promptly to Subcontractors or Suppliers for material or labor;
(4) A reasonable doubt that the Contract can be completed for the balance then unpaid;
(5) Damage to another contractor;
(6) Lack of updated and approved CPM schedule;
(7) Submission of incomplete payment invoice;
(8) Liquidated damages;
(9) Previous overpayments; and
(10) Lack of compliance with Contract terms.

12.7.2 When the above grounds are removed, certificates of payment will be issued for amounts withheld because of them, less appropriate adjustments.

12.8 FINAL PAYMENT

12.8.1 The Contractor shall submit, as a condition of final payment, i at a minimum the following items:

(1) Completed Operations Insurance Certificate;
(2) Affidavit of Payment of Debts and Claims;
(3) Affidavit of Release of Liens
(4) Consent of Surety to Final Payment;
(5) Certificate of amounts due workers for wages on the work pursuant to N.J.S.A. 34:11-56.25 et seq.;
(6) The one (1) year and special written guarantees for periods of time in excess of the one (1) year general guarantee;
(7) Operating instructions and maintenance manuals for equipment as required under Article 7.5.3. The maintenance and operating information shall be organized into suitable sets, including where applicable: Operating and emergency instructions, replacement parts listing, maintenance contracts, warranties, guarantees, wiring diagrams, recommended "turn around" cycles, inspection procedures, shop Drawings, product data, and similar applicable information for each type of equipment. Each set should be bound in a plastic covered binder. Identification should be printed

clearly on both front and spine of each binder, and a complete typewritten index of contents should be provided by the Contractor. The Contractor shall submit the manuals to the Construction Manager for review by the Engineer. The Contractor shall make corrections as required and then submit five (5) copies in final form to the Construction Manager.

(8) Markup Drawings, as required under Article 6.11;

(9) Certificate of Final Acceptance;

(10) Final payment request based on one hundred percent (100%) completion of the Work with all releases, certificates, consents, guarantees, warranties, and other documents, attached as required, including "Consent of Surety", and

(11) Final Contractor Monthly DBE Payment Report.

12.8.2 The Proposed Final Certificate of Payment will show the total amount payable to the Contractor, including therein an itemization of said amount segregated as to Contract Item quantities, Extra Work and other basis for payment, and will also show therein all deductions made or to be made for prior payments and as required pursuant to the provisions of the Contract Documents. All prior estimates and payments will be subject to correction in the Proposed Final Certificate of Payment. Within thirty (30) Calendar Days after said Proposed Final Certificate of Payment has been issued to the Contractor, the Contractor shall submit to the Construction Manager its written approval of said Final Certificate of Payment or a written statement of all outstanding Contractor Initiated Change Order Requests (CICOR's) arising under or by virtue of the Contract or any action by any NJ TRANSIT employee, agent or officer in the performance of the Contract. CICOR's will not be considered unless the Contractor has strictly complied with the requirements of Article 3.4 - CONTRACTOR INITIATED CHANGE ORDERS.

12.8.3 On the Contractor's approval, or if it files no statement of outstanding CICOR's within said period of thirty (30) Calendar Days, the Contracting Officer will issue a Final Certificate of Payment in writing in accordance with the proposed Final Certificate of Payment submitted to the Contractor and within thirty (30) Calendar Days thereafter, NJ TRANSIT will pay the entire sum due thereunder. Such Final Certificate of Payment and acceptance by the Contractor of the Final Payment based thereon shall operate as a release by the Contractor of the State and NJ TRANSIT, their agents, officers and employees, from all claims and liability of whatsoever nature for anything done or furnished or in any manner growing out of the performance of the Contract.

12.8.4 If the Contractor within said period of thirty (30) Calendar Days files a statement of outstanding CICOR's, the Contracting Officer will issue a Conditional Final Certificate of Payment in accordance with the proposed Final Certificate of Payment. Within thirty (30) Calendar Days thereafter, NJ TRANSIT will pay the sum due there under, provided the Contractor has in good faith provided the detailed CICOR cost information required by Article 3.4. The Contractor may request up to an additional thirty (30) Calendar Days within which to provide the required information.

12.8.5 Failure to submit such detailed cost information as to any CICOR within the sixty (60) Calendar Days provided from the date of the issuance of the proposed Final Certificate of Payment shall operate as a waiver of those CICOR's as to which such information is not provided and a release by the Contractor in favor of the State and NJ TRANSIT as to such CICOR. NJ TRANSIT will then issue a Conditional Final Payment based on the Conditional Final Certificate. Acceptance by the Contractor of this Conditional Final Payment shall constitute a release by the Contractor of the State and NJ TRANSIT, their agents, officers and employees, from all claims and liability of whatsoever nature for anything done or furnished or in any manner growing out of the performance of the Contract except those CICOR's filed in response to the proposed Final Certificate and not waived as herein provided for failure to provide information and details.

12.8.6 The Contracting Officer's decision on outstanding CICOR's will be rendered in accordance with Article 1.15-DISPUTES.

12.8.7 Upon final resolution of the outstanding CICOR's, the Contracting Officer will then make and issue a Final Certificate of Payment, and within thirty (30) Calendar Days thereafter, NJ TRANSIT will pay the entire sum, if any, found due thereon. Such Final Payment, if it resolves any of the CICOR's reserved under the Conditional Final Payment, will operate as a release in favor of the State, and NJ TRANSIT, their agents, officers and employees as to such claims.

12.8.8 No payment, however, final or otherwise, shall operate to release the Contractor or its Sureties from any obligations under this Contract or the Performance and Payment Bond.

12.9 SETTING OFF TAX ARREARS AGAINST SUMS OWED

Whenever any taxpayer under contract to provide goods or services to the State of New Jersey or its agencies or instrumentalities, and including the legislative and judicial branches of State government, or under contract for construction projects of the State of New Jersey or its agencies or instrumentalities, and including the legislative and judicial branches of State government, is entitled to payment for the goods or services or on that construction project and at the same time the taxpayer is indebted for any State tax, the Director of the Division of Taxation shall seek to set off so much of that payment as shall be necessary to satisfy the indebtedness. The Director, in consultation with the Director of the Division of Budget and Accounting in the Department of the Treasury, shall establish procedures and methods to effect a set-off. The Director shall give notice of the set-off to the taxpayer, the provider of goods or services or the Contractor or Subcontractor of construction projects and provide an opportunity for a hearing within thirty (30) Calendar Days of such notice under the procedures for protests established under N.J.S.A.54:49-18, but no request for conference, protest, or subsequent appeal to the Tax Court from any protest under this section shall stay the collection of the indebtedness. No payment shall be made to the taxpayer, the provider of goods or services or the Contractor or Subcontractor of construction projects pending resolution of the indebtedness. Interest that

may be payable by the State pursuant to N.J.S.A.52:32-32 et seq., to the taxpayer, the provider of goods and services or the Contractor or Subcontractor of construction projects shall be stayed.

13. ACCEPTANCE AND COMPLETION

13.1 PARTIAL ACCEPTANCE

If at any time during the performance of the Project the Contractor completes a unit or portion of the Project, such as a structure or a section of right-of-way, it may request that NJ TRANSIT make a final inspection of that unit. NJ TRANSIT reserves the right to reject the request made by the Contractor if NJ TRANSIT, in its sole discretion, determines that the unit or portion of the Project should not be the subject of a Partial Acceptance.

If NJ TRANSIT determines that Partial Acceptance of the unit or portion of the Project is appropriate and finds upon inspection that the unit or portion is satisfactorily completed in compliance with the Contract, the Project Manager may accept that unit as being completed, and the Contractor may be relieved of the responsibility of doing further Work on or maintaining that unit or portion of the Project.

Such Partial Acceptance shall in no way void or alter the terms of the Contract, including Articles 9.1- INDEMNIFICATION; RISKS ASSUMED BY THE CONTRACTOR and 9.2- INSURANCE, nor shall it be construed as relieving the Contractor of full responsibility for making good defective Work or materials found at any time before Final Acceptance pursuant to Article 13.3- COMPLETION AND FINAL ACCEPTANCE OF THE WORK.

13.2 SUBSTANTIAL COMPLETION

13.2.1 The Work shall be deemed substantially complete when, in the opinion of the Project Manager (whose judgment shall be conclusive), so much thereof has been completed in accordance with the terms of the Contract Documents that NJ TRANSIT may occupy the site of the Work and use the Work and the facilities resulting therefrom for the purposes for which they are intended. Unless the Project Manager determines that temporary pavement is sufficient, substantial completion will not be deemed to have occurred prior to the backfilling and restoration of street surfaces (if any) and the restoration of other surfaces, subsurfaces and overhead structures. Upon such substantial completion the Project Manager will issue a Certificate of Substantial Completion. The issuance of this Certificate shall not relieve the Contractor from its obligation hereunder to finally complete all of the Work of the Contract.

13.2.2 The Work remaining to be completed after substantial completion in order for the Contractor to fulfill its obligations to fully complete the Work in accordance with the Contract shall be known as the "Remaining Work". The Remaining Work shall generally be limited to minor defects or omissions (also known as "Punch List Work"). However, NJ TRANSIT may include as part of Remaining Work, Work which would ordinarily be required for substantial completion. Such other Remaining Work includes, but is not limited to, Work not done because of seasonal factors or Work which cannot be done until third persons perform other Work which is

not the Contractor's responsibility under the Contract. Nothing herein, however, shall diminish the right of NJ TRANSIT to determine what is necessary for substantial completion in accordance with Sub-article 13.2.1 above.

13.2.3 NJ TRANSIT will advise the Contractor of the time required to complete Punch List Work and the time required to complete all other Remaining Work. Failure to complete in a timely manner all Remaining Work, other than Punch List Work, shall result in the Contractor being liable for liquidated damages as set forth in Article 2.1, TIME OF COMPLETION - DELAY - LIQUIDATED DAMAGES. As an additional remedy for such failure, and not in lieu of liquidated damages, NJ TRANSIT may complete the Remaining Work including Punch List Work, either by its own forces or by other contractors. The Contractor shall be entitled to payment according to the Contract Price upon such completion, subject however to NJ TRANSIT's right to reimbursement for its costs of completion. NJ TRANSIT may deduct such costs from any payment or payments due to the Contractor, and if such costs exceed the amount due the Contractor, the Contractor shall promptly pay such excess to NJ TRANSIT. NJ TRANSIT's entitlement to such reimbursement shall in no respect relieve the Contractor of its obligation to timely complete the Remaining Work.

13.2.4 Before final inspection, completion and acceptance of the Project, borrowed and local material sources and areas occupied by the Contractor in connection with the Work shall be cleaned of rubbish, excess materials, temporary structures and equipment, and the Work shall be left in an acceptable condition. The final inspection and acceptance will not be made by NJ TRANSIT until the Project has been completed, including all Work identified as "Remaining Work" (Punch List Work).

13.3 COMPLETION AND FINAL ACCEPTANCE OF THE WORK

13.3.1 When the Contractor believes that the Project has been fully completed, the Contractor shall provide written notification to the Construction Manager that the Project is ready for final inspection by NJ TRANSIT.

If the Project Manager finds the Work to be in compliance with the Contract, it will notify the Contracting Officer establishing completion as of the date of notification from the Contractor. If the Contracting Officer concurs, the Contractor will be issued a Certificate of Final Acceptance.

If the Project Manager's inspection discloses that the Work is not in conformance with the Contract, the Construction Manager will advise the Contractor as to the particular defects to be remedied. Upon correction of the defects, the Contractor shall provide written notification to the Construction Manager and another inspection shall be made. This procedure shall be repeated until the Project Manager finds the Work to be in compliance with the Contract.

Payments made to the Contractor before the final acceptance do not commit NJ TRANSIT to acceptance of the Project.

13.3.2 NJ TRANSIT shall not be precluded or estopped, by any measurement, estimate or certificate made either before or after the completion and final acceptance of the Project and payment therefor if such measurement, estimate or certificate is found to be in error or untrue, from showing the true amount and character of the Work performed and materials furnished by the Contractor, or from showing that any such measurement, estimate or certificate is incorrectly made or untrue, or that the Work or materials do not conform in fact to the requirements of the Contract. NJ TRANSIT shall not be precluded or estopped, notwithstanding any such measurement, estimate or certificate, and payment made in accordance therewith, from recovering from the Contractor and its Surety such damages as it may sustain by reason of the Contractor's failure to comply or to have complied with the terms of the Contract.

13.3.3 The Contractor, without prejudice to the terms of the Contract, shall be liable to NJ TRANSIT at any time both before and after acceptance for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards NJ TRANSIT's rights under any warranty or guarantee.

14. FEDERAL PROVISIONS

14.1 EMPLOYEE PROTECTIONS-CONSTRUCTION ACTIVITIES

The Contractor agrees to comply, and assures the compliance by each Subcontractor at any tier, with the following employee protection requirements for construction employees:

1. Davis-Bacon Act, as amended, 40 U.S.C. 3141-3148, and U.S. DOL regulations, “Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction”, 29 C.F.R. Part 5, and 29 C.F.R. Parts 1 & 3.

2. Contract Work Hours and Safety Standards Act, 40 U.S.C. 3701-3708, as amended, in particular with the requirements of section 102 of the Act, and U.S. DOL regulations, “Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction”, 29 C.F.R. Part 5; and with section 107 of the Act, and U.S. DOL regulations, “Safety and Health Regulations for Construction”, 29 C.F.R. Part 1926.

3. Copeland “Anti-Kickback” Act, as amended, 18 U.S.C. § 874, and U.S. DOL regulations, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in part by Loans or Grants from the United States“, 29 C.F.R. Part 3.

14.1.1 MINIMUM WAGES

The Contractor shall comply with the following labor provisions. Should wage rates determined in accordance with the following conflict with those determined in accordance with Article 11.1, New Jersey Prevailing Wage Act, the greater of the two rates apply.

(a) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the Construction or Development of the Project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act, 29 C.F.R. Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at the time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 C.F.R. Part 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs that cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided at 29 C.F.R. Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed 29 C.F.R. Part 5.5(a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its Subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(b) 1. The Contracting Officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the Contract shall be classified in conformance with the wage determination. The Contracting Officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(a) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(b) The classification is utilized in the area by the construction industry; and

(c) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

2. If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Contracting Officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the Contracting Officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within thirty (30) Calendar Days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the thirty (30) day period that additional time is necessary.

3. In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the Contracting Officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Contracting Officer shall refer the questions, including the views of all interested parties and the recommendation of the Contracting Officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within thirty (30) Calendar Days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

4. The wage rate (including fringe benefits where appropriate) determined pursuant to 29 C.F.R. Part 5.5 shall be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

(c) Whenever the minimum wage rate prescribed in the Contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(d) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

14.1.2 WITHHOLDING

FTA shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this Contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any Subcontractor the full amount of wages required by the Contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the Construction or Development of the Project), all or part of the wages required by the contract, FTA may, after written notice to the Contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

14.1.3 PAYROLLS AND BASIC RECORDS

(a) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three (3) years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the Construction or Development of the Project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 C.F.R. Part 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(b) 1. The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the FTA if the agency is a party to the contract, but if the agency is not such a party, the Contractor shall submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to the FTA. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29

C.F.R. Part 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The Contractor is responsible for the submission of copies of payrolls by all Subcontractors. Contractors and Subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the FTA if the agency is a party to the contract, but if the agency is not such a party, the Contractor shall submit them to NJ TRANSIT for transmission to the FTA, the Contractor, or the Wage and Hour Division of the United States Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of 29 C.F.R. Part 5.5(a)(3) for a contractor to require a Subcontractor to provide addresses and social security numbers to the Contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, sponsor, or owner).

2. Each payroll submitted shall be accompanied by "Statement of Compliance", signed by the Contractor or Subcontractor or his or her agent who pays or supervises the payment of the persons employed under the Contract and shall certify the following:
   (a) That the payroll for the payroll period contains the information required to be provided under 29 C.F.R. Part 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 C.F.R. Part 5.5 (a)(3)(i) and that such information is correct and complete;
   (b) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the Contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth at 29 C.F.R. Part 3;
   (c) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
3. The weekly submission of a properly executed certification set forth on the reverse side of optional form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by 29 C.F.R. Part 5.5(a)(3)(ii)(B).

4. The falsification of any of the above certifications may subject the Contractor or Subcontractor to civil or criminal prosecution under 18 U.S.C. § 1001 and 31 U.S.C. § 231.

(c) The Contractor or Subcontractor shall make the records required under 29 C.F.R. Part 5.5(a)(3)(i) available for inspection, copying, or transcription by authorized representatives of FTA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the Contractor or Subcontractor fails to submit the required records or make them available, FTA may, after written notice to the Contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or make such records available may be grounds for debarment action pursuant to 29 C.F.R. Part 5.12.

14.1.4 APPRENTICES AND TRAINEES

(a) Apprentices - Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first ninety (90) Calendar Days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a Contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or Subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for

the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State apprenticeship agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(b) Trainees - Except as provided in 29 C.F.R. Part 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(c) Equal Employment Opportunity - The utilization of apprentices, trainees, and journeymen under 29 C.F.R. Part 5 shall be in conformity with the Equal Employment Opportunity requirements of Executive Order 11246, as amended, and 29 C.F.R. Part 30.

14.1.5 COMPLIANCE WITH COPELAND ACT REQUIREMENTS

The Contractor shall comply with the requirements of 29 C.F.R. Part 3, which are incorporated herein by reference.

14.1.6 CONTRACT TERMINATION: DEBARMENT

A breach of the Contract clauses in 29 C.F.R. Part 5.5 may be grounds for termination of the contract, and for debarment as a Contractor and a Subcontractor as provided in 29 C.F.R. Part 5.12.

14.1.7 COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REQUIREMENTS

All rulings and interpretations of the Davis-Bacon and related acts contained in 29 C.F.R. Parts 1, 3, and 5 are incorporated herein by reference.

14.1.8 DISPUTES CONCERNING LABOR STANDARDS

Disputes arising out of the labor standards provisions of this Contract shall not be subject to the general disputes clause of this Contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 C.F.R. Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its Subcontractors) and NJ TRANSIT, the U.S. Department of Labor, or the employees or their representatives.

14.1.9 CERTIFICATION OF ELIGIBILITY

(a) By entering into this Contract, the Contractor certifies that neither it (nor he nor she) nor any person or firm that has an interest in the Contractor's firm is a person or firm ineligible to be awarded government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 C.F.R. Part 5.12(a)(1).

(b) No part of this Contract shall be subcontracted to any person or firm ineligible for award of a government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 C.F.R. Part 5.12(a)(1).

(c) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. § 1001.

14.1.10 OVERTIME REQUIREMENTS

No Contractor or Subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any work week in which he or she is employed on such work to work in excess of forty (40) hours in such work week unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty (40) hours in such work week.

14.1.11 VIOLATION; LIABILITY FOR UNPAID WAGES; LIQUIDATED DAMAGES

In the event of any violation of the requirements of 29 C.F.R. Part 5.5(b)(1), the Contractor and any Subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and Subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory) for liquidated damages. Such liquidated damages

shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of 29 C.F.R. Part 5.5(b)(1) in the sum of $25 for each calendar day on which such individual was required or permitted to work in excess of the standard work week of forty hours without payment of the overtime wages required by 29 C.F.R. Part 5.5(b)(1).

14.1.12 WITHHOLDING FOR UNPAID WAGES AND LIQUIDATED DAMAGES

FTA or NJ TRANSIT shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or Subcontractor under any such contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or Subcontractor for unpaid wages and liquidated damages as provided in the clause set forth at 29 C.F.R. Part 5.5(b)(2).

14.1.13 SUBCONTRACTS

The Contractor or Subcontractor shall insert in any subcontracts the clauses set forth in this Article 14.1 and also a clause requiring the Subcontractors to include these clauses in any lower tier subcontracts. The prime Contractor shall be responsible for compliance by any Subcontractor or lower tier Subcontractor with the clauses set forth in this Article 14.1.

14.2 CLEAN WATER AND CLEAN AIR ACTS

14.2.1 The Contractor shall comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1251 et seq.;

(a) With the notification of violating facilities provisions of Executive Order No. 11738; “Administration of the Clean Air Act and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants, or Loans”, 42 U.S.C. § 7606 note. The Contractor agrees to report each violation to NJ TRANSIT and understands and agrees that NJ TRANSIT will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

(b) With the provisions of the Safe Drinking Water Act of 1974, as amended, 42 U.S.C. § 300h et seq.

14.2.2 The Contractor agrees to comply with all applicable regulations, standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq. The Contractor agrees to report each violation to NJ TRANSIT and understands and agrees that NJ TRANSIT will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

14.2.3 The Contractor agrees to include both the Clean Water and Clean Air requirements in each subcontract exceeding $150,000. The $150,000 limit includes indefinite quantities where the amount is expected to exceed this limit in any year.

14.3 BUY AMERICA

(1) Surface Transportation Assistance Act Requirements

Pursuant to 49 U.S.C. § 5323(j) and the regulations found at 49 C.F.R. Part 661 et seq., the Contractor agrees that all iron, steel and manufactured products purchased or used as a result of this Contract shall be of domestic manufacture or origin unless a waiver of these provisions is granted by the U.S. Secretary of Transportation.

There are four exceptions to this requirement:

(a) That its application would be inconsistent with the public interest.

(b) That such materials or products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality.

(c) With respect to rolling stock only, but including train control, communications, traction power equipment, and rolling stock prototypes, if the cost of components and subcomponents produced in the United States is more than 70 percent of the cost of all components of the rolling stock, provided that final assembly of such products takes place in the United States.

(d) That inclusion of domestic material will increase the cost of the overall Contract by more than 25 percent.

With respect to rolling stock only, but including train control, communications, traction power equipment, and rolling stock prototypes, less than 30 percent may be non-domestic manufacture, but final assembly of such products must take place in the United States.

(2) Domestic Preferences for Procurements

(a) In accordance with 2 C.F.R. 200.322, the Contractor is notified of NJ TRANSIT's preference, to the greatest extent practicable, for the purchase, acquisition, or use of goods, products, or materials, produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products).

(b) For purposes of this section:

(1) ''Produced in the United States'' means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.

(2) ''Manufactured products'' means items and construction materials composed in whole or in part of nonferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

14.4 FLY AMERICA REQUIREMENTS

The Contractor agrees to comply with 49 U.S.C. § 40118 (the “Fly America” Act) in accordance with the General Services Administration’s regulations at 41 C.F.R. Part 301-10, which provide that recipients and subrecipients of Federal funds and their Contractors are required to use U.S. Flag air carriers for U.S. Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag air carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Contractor agrees to include the requirements of this section in all subcontracts that may involve international air transportation.

14.5 CARGO PREFERENCE - USE OF U.S. FLAG VESSELS

The Contractor agrees to utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, materials, or commodities pursuant to 46 C.F.R. Part 381.7(b), to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. The Contractor further agrees to furnish within twenty (20) working days following the date of loading for shipments originating within the United States, or within thirty (30) working days following the date of loading for shipment originating outside the United States, a legible copy of a rated "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described in the Paragraph above to NJ TRANSIT (through the prime Contractor in the case of Subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, D.C. 20590, marked with appropriate identification of the Project pursuant to 46 C.F.R. Part 381.7(b).

The Contractor further agrees to insert the substance of the provisions of this clause in all subcontracts issued pursuant to this Contract.

14.6 ENERGY CONSERVATION

The Contractor shall comply with mandatory standards and policies relating to energy efficiency contained in applicable State of New Jersey energy conservation plans issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. § 6321 et seq.).

14.7 CONTRACT WORK HOURS AND SAFETY STANDARDS

Each Contractor shall be required to compute the wages of every mechanic and laborer on the basis of a standard work day of eight (8) hours and a standard work week of forty (40) hours. Work in excess of a work day or work week is permissible provided that the worker is compensated at a rate of not less than one and one half (1½) times the basic rate of pay for all hours worked in excess of eight (8) hours of any calendar day or forty (40) hours in the work week. No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous to his/her health and safety. The foregoing provisions are to be in compliance with Section 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. §§ 327-330) as supplemented by Department of Labor Regulations (29 C.F.R. Part 5).

14.8 CIVIL RIGHTS

During the performance of this Contract, the Contractor, for itself, its assignees and successors in interest and its Subcontractors at every tier (hereinafter referred to as the "Contractor") agrees as follows:

(a) Compliance with Regulations

The Contractor shall comply with the Regulations relative to nondiscrimination in federally-assisted programs of the United States Department of Transportation, Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this Contract.

(b) Nondiscrimination

In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, Federal transit law at 49 U.S.C. § 5332, and N.J.S.A. 10:3-1, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, sex, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

(c) Equal Employment Opportunity

The following equal employment opportunity requirements apply to the underlying contract:

(1) Race, Color, Religion, National Origin, Sex In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, sexual orientation, gender identity or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

(2) Age

In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. § 623, Federal transit law at 49 U.S.C. § 5332, and N.J.S.A. 10:3-1, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

(3) Disabilities

In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with N.J.S.A. 10:5-29.1 and any implementing requirements FTA may issue.

(d) The Contractor also agrees to include these requirements in each subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary, to identify the affected parties.

(e) Information and Reports

The Contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or NJ TRANSIT or the FTA to be pertinent to ascertain compliance with such Regulations, orders and instruction. Where any information is required or a Contractor is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to NJ TRANSIT, or the FTA, as appropriate, and shall set forth what efforts it has made to obtain the information.

(f) Sanctions for Noncompliance

In the event of the Contractor's noncompliance with the nondiscrimination provisions of this Contract, NJ TRANSIT shall impose such contract sanctions as it or the FTA may determine to be appropriate, including but not limited to:

(1) Withholding of payments to the Contractor under the Contract until the Contractor complies; and/or

(2) Cancellation, termination or suspension of the Contract, in whole or in part.

14.9 PATENT RIGHTS

If any invention, improvement, or discovery of the Contractor is conceived or first actually reduced to practice in the course of or under this Contract, which invention, improvement or discovery may be patentable under the laws of the United States of America or any foreign country, the Contractor shall immediately notify NJ TRANSIT and provide a detailed report for transmission to FTA.

The rights and responsibilities of NJ TRANSIT, the Contractor and FTA with respect to such invention, improvement, or discovery will be determined in accordance with applicable Federal laws, regulations, policies and any waiver thereof.

14.10 USE OF RECOVERED MATERIALS

Pursuant to 2 C.F.R. 200.323, the Contractor agrees to provide a preference for those products and services that conserve natural resources, protect the environment and are energy efficient by complying with and facilitating compliance with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, 42 U.S.C. § 6962, and U.S. Environmental Protection Agency's "Comprehensive Procurement Guideline for Products Containing Recovered Materials," 40 C.F.R. Part 247.

14.11 FEDERAL EEO PROVISIONS FOR CONSTRUCTION CONTRACTS

The Contractor, in addition to complying with Article 11.2, shall comply with the following Federal EEO Provisions for Construction Contracts:

14.11.1 EQUAL EMPLOYMENT OPPORTUNITY

As fully set forth in 41 C.F.R. 60-1.4(b), during the performance of this contract, the Contractor agrees as follows:

a.) In connection with the execution of this Contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin pursuant to Executive Order 11246, as amended. The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during their employment without regard to their race, color, religion, sex, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

b.) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

c.) The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee’s essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor’s legal duty to furnish information.

d.) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the Contractor's commitments under this Article,

and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

e.) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, as amended by Executive Orders 11478, 11375, 12086, 13665, 13672 and of the rules, regulations and relevant orders of the Secretary of Labor.

f.) The Contractor will furnish all information and reports required by Executive Order 11246, as amended, and by the rules, regulations, and orders of the Secretary of Labor or pursuant thereto, and will permit access to his books, records and accounts by the Federal Transit Administration (FTA) and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

g.) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations or orders, this contract may be cancelled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246, as amended, and such other sanctions as may be imposed and remedies invoked as provided in the said Executive Order or its amendments, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

h.) The Contractor will include the provisions of paragraphs (a) through (g) in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246, as amended, so that such provisions will be binding upon each Subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as FTA may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a Subcontractor or vendor as a result of such direction by FTA, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

14.11.2 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

a.) The Contractor's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

b.) The goals and timetables for minority and female participation expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

GOALS FOR MINORITY PARTICIPATION (Timetable Until Further Notice)

County	Goal Percent
Atlantic	18.2
Bergen	22.6
Burlington	17.3
Camden	17.3
Cape May	14.5
Cumberland	16.0
Essex	17.3
Gloucester	17.3
Hudson	12.8
Hunterdon	17.0
Mercer	16.4
Middlesex	5.8
Monmouth	9.5
Morris	17.3
Ocean	17.0
Passaic	12.9
Salem	12.3
Somerset	17.3
Sussex	17.0
Union	17.3
Warren	1.6

GOALS FOR FEMALE PARTICIPATION (Timetable Until Further Notice)

County	Goal Percent
All	6.9

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area.

The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 C.F.R. Part 60-4.1, et seq., shall be based on its implementation of the Equal Employment Opportunity Clause, specific affirmative action obligations required by the Specifications set forth in 41 C.F.R. Part 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the

contract and in each trade, and the Contractor shall make a good faith effort to employ minorities and women on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 C.F.R. Part 60-4, et seq. Compliance with the goals will be measured against the total work hours performed.

c.) The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the Subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

d.) As used in this notice, and in the contract resulting from this solicitation, the "covered area" is the State of New Jersey.

14.11.3 STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246, as amended)

1. As used in these specifications and defined by 41 C.F.R. Part 60-4.3:
   (a) "Covered area" means the geographical area described in the solicitation from which this contract resulted;
   (b) "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
   (c) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
   (d) "Minority" includes:
      (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
      (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race);
      (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
      (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 C.F.R. Part 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to make good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7(a) through (o) of this Article. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246,as amended, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

(a) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

(b) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(c) Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union, or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

(d) Provide immediate written notification to the Director and the Contract Compliance Officer of NJ TRANSIT when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or a woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(e) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7(b) above.

(f) Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting his EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

(g) Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(h) Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other contractors and Subcontractors with whom the Contractor does or anticipates doing business.

(i) Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(j) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

(k) Validate all tests and other selection requirements where there is an obligation to do so under 41 C.F.R. Part 60-3.1 et seq.

(l) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

(m) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

(n) Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractors' associations and other business associations.

(o) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7 (a) through (o)). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7(a) through (o) of this Article, provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate goal for women have been established. The Contractor, however is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of Executive Order 11246, as amended, if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.

11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246, as amended.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Employment Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under this Article, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in Paragraph 7 of these General Provisions, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of Executive Order 11246, as amended, the implementing regulations, or this Article, the Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority, shall proceed in accordance with 41 C.F.R. Part 60-4.8. In connection with the foregoing, NJ TRANSIT or its Contract Compliance Officer may utilize any remedies that may be available.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions herein as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, Contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

14.12 LIMITATIONS ON LOBBYING

The Contractor and its Subcontractors shall comply with 31 U.S.C. § 1352, entitled "Limitation on Use of Appropriated Funds to Influence Certain Federal Contracting and Financial Transactions".

1.) No appropriated funds may be expended by the recipient of a Federal contract, grant, loan or cooperative agreement to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan or cooperative agreement.

2.) Any Contractor and any Subcontractor at any tier who requests or receives a Federally-assisted contract or subcontract in excess of $100,000 from NJ TRANSIT shall file with NJ TRANSIT the certification attached to this Contract and entitled "Certification for Contracts, Grants, Loans and Cooperative Agreements", that the Contractor or Subcontractor, as applicable, has not made, and will not make, any payment prohibited by Paragraph 1 of this Section.

3.) Any Contractor and any Subcontractor who has made or has agreed to make any payment using non-appropriated funds (to include profits from any covered Federal action) which would be prohibited under Paragraph 1 of this Section if paid for with appropriated funds, shall file with NJ TRANSIT a disclosure form, which may be obtained from the Contracting Officer, entitled "Disclosure of Lobbying Activities".

4.) Any certification or disclosure form filed under Paragraphs 2 and 3 of this Section shall be forwarded from tier to tier until received by NJ TRANSIT. Any certification or disclosure form shall be treated as a material representation of fact upon which all receiving tiers shall rely. All liability arising from an erroneous representation shall be borne solely by the tier filing that representation and shall not be shared by any tier to which the erroneous representation is forwarded.

5.) The prohibition on the use of appropriated funds does not apply in the case of a payment of reasonable compensation to an officer or employee of the Contractor or Subcontractor if the payment is for agency and legislative liaison activities not directly related to a covered Federal action.

6.) The prohibition on the use of appropriated funds does not apply in the case of any reasonable payment to an officer or employee of a Contractor or Subcontractor or to a person, other than an officer or employee of a Contractor or Subcontractor, if the payment is for professional or technical services rendered directly in the preparation, submission or negotiation of any Bid, proposal or application for a Federal contract, grant, loan or cooperative agreement.

14.13 SEISMIC SAFETY

The Contractor agrees that any new building or addition to an existing building will be designed and constructed in accordance with the standards for Seismic Safety required in USDOT Seismic Safety Regulations, 49 C.F.R. Part 41, and will certify to compliance to the extent required by the regulation. The Contractor also agrees to ensure that all work performed under this Contract including work performed by a Subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance issues on the project.

14.14 EXCLUSIONARY OR DISCRIMINATORY SPECIFICATIONS

Except where otherwise required by Federal statute or regulations, the Contractor agrees that it will comply with the requirements of 49 U.S.C. § 5323(h)(3) by refraining from using exclusionary or discriminatory specifications in the performance of the Work.

14.15 NO FEDERAL GOVERNMENT OBLIGATIONS TO THIRD PARTIES

The Contractor agrees that, absent the Federal Government's express written consent, the Federal Government shall not be subject to any obligations or liabilities to the Contractor in connection with the performance of the Project. Notwithstanding any concurrence provided by the Federal Government in the approval of the Contract, the Federal Government continues to have no obligations or liabilities to the Contractor.

14.16 FALSE OR FRAUDULENT STATEMENTS AND CLAIMS

14.16.1 The Contractor recognizes that the requirements of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. §§ 3801 to 3812 et seq. and USDOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to the Project. Accordingly, by signing the Contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, or it may make pertaining to the Contract. In addition to other penalties that may be applicable, the Contractor also acknowledges that if it makes a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986, as amended, on the Contractor to the extent the Federal Government deems appropriate.

14.16.2 The Contractor also acknowledges that if it makes a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government in connection with an urbanized area formula project financed with Federal assistance authorized by 49 U.S.C. § 5307, the Government reserves the right to impose on the Contractor the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1), to the extent the Federal Government deems appropriate.

14.17 VETERAN'S EMPLOYMENT

The Contractor and Subcontractors under this Federally-funded Contract shall ensure that they give a hiring preference, to the extent practicable, to veterans (as defined in 5 U.S.C. § 2108) who have the requisite skills and abilities to perform the construction work required under the Contract. This Sub-article shall not be understood, construed or enforced in any manner that would require an employer to give preference to any veteran over any equally qualified applicant who is a member of any racial or ethnic minority, female, an individual with a disability, or a former employee.

14.18 FEDERAL AID, LAWS AND REGULATIONS

This Contract is funded in whole or in part by the United States Government and is subject to all Federal laws and regulations governing Federally-financed projects.

(a) Changes to Federal Requirements

The Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between NJ TRANSIT and the FTA, as they may be amended or promulgated from time to time during the term of this Agreement. Contractor's failure to so comply shall constitute a material breach of this Agreement unless the FTA determines otherwise.

(b) Incorporation of FTA Terms

These General Provisions include, in part, certain standard terms and conditions required by USDOT, whether or not expressly set forth in this Agreement. All Contractual provisions required by USDOT, as set forth in FTA circular 4220.1F, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any NJ TRANSIT requests which would cause NJ TRANSIT to be in violation of the FTA Master Agreement between NJ TRANSIT and the FTA.

14.19 FEDERAL PROVISIONS RELATED TO CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

The Contractor shall abide by 2 C.F.R. 200.216, which prohibits recipients and subrecipients of federal funds from entering into contracts (or extending or renewing a contract) to procure or obtain equipment, services, or systems that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. Covered telecommunications equipment means telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities). Additional prohibitions include:

(i) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

(ii) Telecommunications or video surveillance services provided by such entities or using such equipment.

(iii) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country

The Contractor agrees to extend this provision to its subcontractors.

APPENDIX A

SUBCONTRACTOR
EVALUATION DATA FORM

_____

(PROJECT)

_____

(SUBCONTRACTOR)

_____

(DATE)

SUBCONTRACTOR EVALUATION DATA FORM

1. Proposed Project: _____

2. Proposed work or trade: _____ Division Nos.: _____

3. Approximate Contract Amount: _____

4. Company Name: _____
_____ Corp._____ Partnership _____ Individual _____ Joint Venture

5. Principal Office Location: _____
_____
Phone: _____ Person in Charge: _____

6. Name and Title of Principals:
_____
_____
_____

7. Branch Office Locations:
_____
Phone: _____
_____
Phone: _____

8. Office which would be directly responsible for work at this project.
_____
_____
_____

9. Subcontractor Information Data Form as required by Federal Regulation, submitted herewith.

10. Contractor has confirmed that the listed Subcontractor is not listed on the State of New Jersey, Department of Labor and Workforce Development, Division of Wage and Hour Compliance, Prevailing Wage Debarment List or on the Department of Treasury, Consolidated Debarment Report and Contractor has also confirmed that the listed Subcontractor has no exclusion on the consolidated U.S. Government, System for Award Management (SAM) database.

11. Number of years organization has been under present name:
_____

12. List all other names under which the company has done business and for how many years.
_____
_____
_____

13. State Licensed or Certified to do business in:
_____

14. Certificate of registration pursuant to N.J.S.A. 34:11-56.48 et seq., "THE PUBLIC WORKS CONTRACTOR REGISTRATION ACT" (Copy attached) Yes:_____ No:_____

15. Business Registration Certificate N.J.S.A. 52:32-44: (Copy attached) Yes:_____ No:_____

16. Have you ever failed to complete any work awarded to you? If so, note When, Where, And Why:

_____

17. List Name, address, type of work and person in charge for any sub-sub, 3rd tier subcontractors, or major suppliers to whom portions of this sub-contract will be left:

Name: _____ Phone: _____ Attn: _____
Address: _____ Work: _____Value:_____
Name: _____ Phone: _____ Attn: _____
Address: _____ Work: _____Value: _____
Name: _____ Phone: _____Attn: _____
Address: _____ Work _____Value: _____

18. Do you qualify as a DBE/SBE/ESBE on this project: _____

19. Surety company that normally handles bonding:_____

Company Name: _____ No. of Years: _____

Agent: _____ Phone:_____

Address: _____

Bond Limits: _____

20. Project references: (List four projects where you performed similar work to this project):

NAME	ADDRESS	PHONE	CONTACT

21. Are you listed in Dunn & Bradstreet:_____ What City? _____

22. List all projects that you are participating in litigation against the owner:

_____

23. Annual Billings: _____

24. The undersigned certifies that it is aware of the terms, conditions, Specifications and other Contract requirements of the Prime Contract.

25. The undersigned certifies that I am authorized to execute this certification on behalf of the Company and that the information contained herein is, to the best of my knowledge, true and complete. I acknowledge that NJ TRANSIT is relying on the information contained herein and that I am aware it is a criminal offense to make a false statement or misrepresentation in this certification.

COMPANY:_____
BY:_____
TITLE:_____

NJ TRANSIT

SUBCONTRACTOR INFORMATION

DATA FORM

PURPOSE:

Federal Regulations require that NJ TRANSIT obtain information on an ongoing basis from all companies seeking to do business with NJ TRANSIT as prime contractors or subcontractors. As part of the subcontractor evaluation process, prime contractors shall provide the required information for all subcontractors performing work under the contract.

Information may be completed on-line by visiting the following website:
http://www.tcgionline.com/njtransitbidresponse.asp

Prime contractors will need to create a company profile and password by clicking on the "Add or Update Bidder Profile" link.

Once the company profile and password are created, prime contractors may add Bid and subcontractor information by clicking on appropriate links.

Include the printed form with the Subcontractor Evaluation Data Form.*

Completion and submission of this form will:

1. Place the firm in NJ TRANSIT'S database for use in developing Bidder's lists;
2. Assist NJ TRANSIT in establishing appropriate small and disadvantaged business enterprise goals; and,
3. Alert NJ TRANSIT of any changes in the goods and services provided.

Important Notice about DBE/SBE/ESBE Certification:

Submission of this form does not certify a firm as a Disadvantaged Business Enterprise with either NJ TRANSIT or the State of New Jersey. Contact NJ TRANSIT'S Office of Business Development (973) 491-8060 for clarification of this form and for information regarding certification. For questions regarding the Bid package, contact the contract specialist.

NEW JERSEY TRANSIT CORPORATION
SUBCONTRACTOR INFORMATION DATA FORM

(MANDATORY FORM TO BE FILLED OUT ENTIRELY)

NJT Contract No: _____ ***Project Name:*** _____

Prime Contractor Name: _____

Address: _____

Complete the information below for ALL SUBCONTRACTORS

	SUBCONTRACTOR
Company's Full Name	
Address	
City	
Zip	
County	
Phone	
Fax	
E-mail	
Owner	
Date Established	
Date Certified	
Ethnicity	
Gender	
Certification Status: Non SBE or SBE I, SBE II, SBE III, SBE IV or SBE V (please indicate all that apply)	
Federal Tax ID # / SSN #	
Annual Gross Receipts: *A – Less than $500K* *B - $500K to $1M* *C - $1M to $2M* *D - $2M to $5M* *E - $5M and over* **indicate the letter that applies*	
Primary Industry Operation Code:	

APPENDIX B- CLOSEOUT FORMS

Affidavit of Payment of Debts and Claims
Affidavit of Release of Liens
Consent of Surety to Final Payment
Certificate of amounts due workers for wages on the work pursuant to N.J.S.A. 34:11-56.25 et seq.
Certificate of Substantial Completion
Certificate of Partial Acceptance
Certificate of Final Acceptance
Proposed Final Certificate of Payment
Final Certificate of Payment
Subcontractor Affidavit of Payment of Debts and Claims
Subcontractor Affidavit of Release of Liens
Consent of Surety to Final Payment to the Subcontractor
Subcontractor's Certificate of amounts due workers for wages on the work pursuant to N.J.S.A. 34:11-56.25 et seq.
Certificate of Final Acceptance of Subcontractor's Work

AFFIDAVIT OF PAYMENT
OF DEBTS AND CLAIMS

TO: New Jersey Transit Corporation
One Penn Plaza East
Newark, New Jersey 07105-2246

PROJECT:

CONTRACT NO.:

CONTRACTOR:

CONTRACT DATE:

STATE OF:

COUNTY OF:

The undersigned, pursuant to Sub-article 12.8.1 of the Contract's General Provisions for Construction, hereby certifies that, except as listed below he has paid in full or has otherwise satisfied all obligations for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the CONTRACTOR for damages arising in any manner in connection with the performance of the Contract referenced above for which the NEW JERSEY TRANSIT CORPORATION or its property might in any way be held responsible.

EXCEPTIONS: *(If none, write "NONE". The CONTRACTOR shall furnish bond satisfactory to the NEW JERSEY TRANSIT CORPORATION for each exception.)*

SIGNED,

CONTRACTOR

By: _____

Title: _____

Subscribed and sworn to before me this

_____ *day of* _____, *20*_____

Notary Public of

My commission expires _____, *20*_____

(SEAL)

AFFIDAVIT OF RELEASE OF LIENS

TO: New Jersey Transit Corporation
One Penn Plaza East
Newark, New Jersey 07105-2246

PROJECT:

CONTRACT NO.:

CONTRACTOR:

CONTRACT DATE:

STATE OF:

COUNTY OF:

The undersigned, pursuant to Sub-article 12.8.1 of the Contract's General Provisions for Construction, hereby certifies that to the best of his knowledge, information and belief, except as listed below, there are no liens filed against any property of the NEW JERSEY TRANSIT CORPORATION by the CONTRACTOR, or any subcontractors, suppliers of materials and equipment, or performers of work, labor or services arising from the performance of the Contract referenced above.

EXCEPTIONS: *(If none, write "NONE". The CONTRACTOR shall furnish bond satisfactory to the NEW JERSEY TRANSIT CORPORATION for each exception.)*

SIGNED,

CONTRACTOR

By: _____

Title: _____

Subscribed and sworn to before me this

_____ *day of* _____, *20*_____

Notary Public of

My commission expires _____, *20*_____

(SEAL)

CONSENT OF SURETY
TO FINAL PAYMENT

Bond No.

TO: New Jersey Transit Corporation
One Penn Plaza East
Newark, New Jersey 07105-2246

CONTRACT NO.:

CONTRACTOR:

PROJECT:

CONTRACT DATE:

In accordance with the General Provisions for Construction, Sub-article 12.8.1 of the Contract between the NEW JERSEY TRANSIT CORPORATION and the CONTRACTOR as indicated above, the

, ***SURETY COMPANY***

on bond of

, ***CONTRACTOR***

hereby approves to the final payment to the CONTRACTOR, and agrees that final payment to the CONTRACTOR shall not relieve the SURETY COMPANY of any of its obligations to

NEW JERSEY TRANSIT CORPORATION
One Penn Plaza East
Newark, New Jersey 07105-2246 *,* ***OWNER***

as set forth in said Surety Company's bond.

IN WITNESS WHEREOF, the SURETY COMPANY has hereunto set its hand this ____ day of _____, 20__.

_____
Surety Company

Attest: _____

_____
Signature of Authorized Representative

(Seal):

_____
Title

CERTIFICATE OF AMOUNTS DUE
WORKERS FOR WAGES

TO: New Jersey Transit Corporation
One Penn Plaza East
Newark, New Jersey 07105-2246

PROJECT:

CONTRACT NO.:

CONTRACTOR:

CONTRACT DATE:

The undersigned CONTRACTOR, pursuant to Sub-articles 11.1.6 and 12.8.1 of the Contract's General Provisions for Construction, hereby certifies that, except as listed below he has paid in full all wages earned on the work to all laborers, mechanics, apprentices, trainees, watchmen, guards, and workers in general employed by him or by any subcontractor performing work under the Contract on the Project. It is further certified that all laborers, mechanics, apprentices, trainees, watchmen, guards, and workers in general have been paid wages at rates not less than those required by the Contract provisions and pursuant to N.J.S.A. 34:11-56.25 et seq., and that the work performed by each such laborer, mechanic, apprentice, trainee, watchman, guard, and worker in general conformed to the classifications set forth in the Contract or training program provisions applicable to the wage rate paid.

EXCEPTIONS: *(If none, write "NONE"; for each exception, the CONTRACTOR shall provide complete and detailed explanation.)*

SIGNED,

CONTRACTOR

Subscribed and sworn to before me this

_____day of _____, 20_____

Notary Public of

My commission expires _____, 20_____

(SEAL)

By: _____

Title: _____

Date: _____

CERTIFICATE OF SUBSTANTIAL COMPLETION

TO: New Jersey Transit Corporation
One Penn Plaza East
Newark, New Jersey 07105-2246

CONTRACT NO.:

CONTRACTOR:

PROJECT:

CONTRACT DATE:

The undersigned Project Manager hereby certifies that a field inspection performed on _____, 20___ at the above captioned Project revealed that the CONTRACTOR has substantially completed his base contract and all authorized additional work for the following items of work:

All Contract Bid Items

Bid Item(s) No.

Other

It is further certified that the items of work above enumerated have been satisfactorily completed in accordance with the Contract Documents, and that as of the aforementioned date the NEW JERSEY TRANSIT CORPORATION may take beneficial occupancy of the subject work.

The Remaining Work to be completed in order to achieve one hundred percent (100%) completion is hereby listed in the Punch List Work attached hereto.

SIGNED,	***ACCEPTED,***
NJ TRANSIT	***CONTRACTOR***
By: _____	*By: _____*
Title: _____	*Title: _____*
Date: _____	*Date: _____*

NEW JERSEY TRANSIT CORPORATION ***Form GP 13.1***

\

CERTIFICATE OF PARTIAL ACCEPTANCE

TO: New Jersey Transit Corporation
One Penn Plaza East
Newark, New Jersey 07105-2246

CONTRACT NO.:

CONTRACTOR:

PROJECT:

CONTRACT DATE:

The undersigned Project Manager hereby certifies that a field inspection performed on _____, 20___ at the above captioned Project revealed that the CONTRACTOR has completed one hundred percent (100%) of the work described below within its base contract and all authorized additional work for the following items of work:

Bid Item(s) No.

Other

It is further certified that the items of work above enumerated have been satisfactorily completed in accordance with the Contract Documents, and that as of the aforementioned date the NEW JERSEY TRANSIT CORPORATION may take beneficial occupancy of the subject work, subject to the terms of general provision Sub-article 13.1.

SIGNED, ***ACCEPTED,***

NJ TRANSIT ***CONTRACTOR***

By: _____ *By:* _____

Title: _____ *Title:* _____

Date: _____ *Date:* _____

NEW JERSEY TRANSIT CORPORATION ***Form GP 12.8.1.9***

CERTIFICATE OF FINAL ACCEPTANCE

TO: New Jersey Transit Corporation
One Penn Plaza East
Newark, New Jersey 07105-2246

PROJECT:

CONTRACT NO.:

CONTRACTOR:

CONTRACT DATE:

In accordance with Sub-article 12.8.1.9 and 13.3.1 of the Contract's General Provisions for Construction, the undersigned CONTRACTOR hereby notifies that as of _____, 20___ the base contract and all authorized additional work has been one hundred percent (100%) completed, including but not limited to the Remaining Work (Punch List Work) listed on the attached Certificate(s) of Substantial Completion.

SIGNED,

CONTRACTOR

By: _____

Title: _____

The undersigned Project Manager hereby certifies that on _____, 20___ a final field inspection was performed on the Project and all base and authorized additional work found to be one hundred percent (100%) complete in accordance with the Contract Documents.

In testimony thereof, this Certificate of Final Acceptance is signed on this _____ day of _____ _____, 20___.

SIGNED, ***CONCURRENCE,***

_____ _____
Project Manager *Contracting Officer*

_____ _____
Title *Title*

PROPOSED FINAL CERTIFICATE OF PAYMENT

TO: New Jersey Transit Corporation
One Penn Plaza East
Newark, New Jersey 07105-2246

CONTRACT NO.:

CONTRACTOR:

PROJECT:

CONTRACT DATE:

The undersigned Project Manager, considering that

*, **CONTRACTOR***

on the above referenced Contract has completed one hundred percent (100%) of the base contract and all authorized additional work, and fulfilled all his contractual obligations including those enumerated in Sub-article 12.8.1 of the Contract's General Provisions for Construction, hereby proposes that a Final Payment in the amount of _____ be issued to said CONTRACTOR in compensation for the unpaid balance of his work under this Contract.

Original Contract Value:	*$*
Total Contract Changes Value	*$_____*
Changed Contract Value:	*$*
Less: Payments to Date:	*$_____*
Balance Due Contractor:	*$*
Less: Deductions:	*$_____ (1)*
Total Final Payment Amount:	*$_____*

(1) Deductions Explanations:

It is further understood that this Final Payment includes all direct and indirect costs attributable to this Contract, and that the CONTRACTOR will not seek further compensation for any other costs related to this Contract.

SIGNED, ***ACCEPTED CONTRACTOR,***

_____ _____

Title: _____ *Title:* _____

Date: _____ *Date:* _____

FINAL CERTIFICATE OF PAYMENT
(Attach to Final Payment Request)

TO: New Jersey Transit Corporation
One Penn Plaza East
Newark, New Jersey 07105-2246

CONTRACT NO.:

CONTRACTOR:

PROJECT:

CONTRACT DATE:

The undersigned Contracting Officer, considering that

*, **CONTRACTOR***

on the above referenced Contract has completed one hundred percent (100%) of the base contract and all authorized additional work, and fulfilled all his contractual obligations including those enumerated in Sub-article 12.8.1 of the Contract's General Provisions for Construction, hereby proposes that a Final Payment in the amount of _____ be issued to said CONTRACTOR in compensation for the unpaid balance of his work under this Contract.

Original Contract Value:	*$*
Total Contract Changes Value	*$ _____*
Changed Contract Value:	*$*
Less: Payments to Date:	*$_____*
Balance Due Contractor:	*$*
Less: Deductions:	*$_____ (1)*
Total Final Payment Amount:	*$_____*

(1) Deductions Explanations:

It is further understood that this Final Payment includes all direct and indirect costs attributable to this Contract, and that the CONTRACTOR will not seek further compensation for any other costs related to this Contract.

SIGNED, ***ACCEPTED CONTRACTOR,***

_____ _____

Title: _____ *Title:* _____

Date: _____ *Date:* _____

SUBCONTRACTOR AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS

TO: New Jersey Transit Corporation
One Penn Plaza East
Newark, New Jersey 07105-2246

CONTRACT NO.:

CONTRACTOR:

PROJECT:

SUBCONTRACTOR:

CONTRACT DATE:

STATE OF:

COUNTY OF:

The undersigned, pursuant to Sub-article 12.6.7 of the Contract's General Provisions for Construction, hereby certifies that, except as listed below, he has paid in full or has otherwise satisfied all obligations for all materials and equipment furnished for all work, labor, and services performed, and for all known indebtedness and claims against the SUBCONTRACTOR for damages arising in any manner in connection with the performance of the Contract referenced above for which the NEW JERSEY TRANSIT CORPORATION or its property might in any way be held responsible.

EXCEPTIONS: *(If none, write "NONE". The CONTRACTOR shall furnish bond satisfactory to the NEW JERSEY TRANSIT CORPORATION for each exception.)*

SIGNED,

SUBCONTRACTOR

By: _____

Title: _____

Subscribed and sworn to before me this

_____ *day of* _____, *20*_____

Notary Public of

My commission expires _____, *20*_____

(SEAL)

SIGNED,

CONTRACTOR

By: _____

Title: _____

Subscribed and sworn to before me this

_____ *day of* _____, *20*_____

Notary Public of

My commission expires _____, *20*_____

(SEAL)

SUBCONTRACTOR AFFIDAVIT OF RELEASE OF LIENS

TO: New Jersey Transit Corporation
One Penn Plaza East
Newark, New Jersey 07105-2246

CONTRACT NO.:

CONTRACTOR:

PROJECT:

SUBCONTRACTOR:

CONTRACT DATE:

STATE OF:

COUNTY OF:

The undersigned, pursuant to Sub-article 12.6.7 of the Contract's General Provisions for Construction, hereby certifies that to the best of his knowledge, information and belief, except as listed below, there are no liens filed against any property or Contract funds of the NEW JERSEY TRANSIT CORPORATION by the SUBCONTRACTOR, or its suppliers of materials and equipment, or performers of work, labor or services arising from the performance of the Contract referenced above.

EXCEPTIONS: *(If none, write "NONE". The CONTRACTOR shall furnish bond satisfactory to the NEW JERSEY TRANSIT CORPORATION for each exception.)*

SIGNED,

SUBCONTRACTOR

Subscribed and sworn to before me this

_____ day of _____, 20_____

Notary Public of

My commission expires _____, 20_____

By: _____ *(SEAL)*

Title: _____

SIGNED,

CONTRACTOR

Subscribed and sworn to before me this

_____ day of _____, 20_____

Notary Public of

My commission expires _____, 20_____

By: _____ *(SEAL)*

Title: _____

CONSENT OF SURETY
TO FINAL
PAYMENT TO THE SUBCONTRACTOR

Bond No.

TO: New Jersey Transit Corporation
One Penn Plaza East
Newark, New Jersey 07105-2246

CONTRACT NO.:

CONTRACTOR:

PROJECT:

SUBCONTRACTOR:

CONTRACT DATE:

In accordance with the General Provisions for Construction, Sub-article 12.6.7, of the Contract between the NEW JERSEY TRANSIT CORPORATION and the CONTRACTOR as indicated above, the

, ***SURETY COMPANY***

on bond of

, ***CONTRACTOR***

hereby consents to the final payment to the SUBCONTRACTOR, and agrees that final payment to the SUBCONTRACTOR shall not relieve the SURETY COMPANY of any of its obligations to

NEW JERSEY TRANSIT CORPORATION
One Penn Plaza East
Newark, New Jersey 07105-2246 *,* ***OWNER***

as set forth in said Surety Company's bond.

IN WITNESS WHEREOF, the SURETY COMPANY has hereunto set its hand this ____ day of _____, 20__.

_____
Surety Company

Attest: _____

_____
Signature of Authorized Representative

(Seal):

_____
Title

NEW JERSEY TRANSIT CORPORATION ***Form GP 12.6.7.2***

SUBCONTRACTOR'S CERTIFICATE OF AMOUNTS DUE WORKERS FOR WAGES

TO: New Jersey Transit Corporation
One Penn Plaza East
Newark, New Jersey 07105-2246

CONTRACT NO.:

CONTRACTOR:

PROJECT:

SUBCONTRACTOR:

CONTRACT DATE:

The undersigned SUBCONTRACTOR, pursuant to Sub-articles 11.1.6 and 12.6.7 of the Contract's General Provisions for Construction, hereby certifies that, except as listed below, he has paid in full all wages earned on the work to all laborers, mechanics, apprentices, trainees, watchmen, guards, and workers in general employed by him. It is further certified that all laborers, mechanics, apprentices, trainees, watchmen, guards, and workers in general have been paid wages at rates not less than those required by the Contract provisions and pursuant to N.J.S.A. 34:11-56.25 et seq., and that the work performed by each such laborer, mechanic, apprentice, trainee, watchman, guard, and worker in general conformed to the classifications set forth in the Contract or training program provisions applicable to the wage rate paid.

EXCEPTIONS: *(If none, write "NONE"; for each exception, the SUBCONTRACTOR shall provide complete and detailed explanation.)*

SIGNED,

SUBCONTRACTOR

By: _____

Title: _____

Date: _____

Subscribed and sworn to before me this

_____ *day of* _____, *20*_____

Notary Public of

My commission expires _____, *20*_____

(SEAL)

SIGNED,

CONTRACTOR

By: _____

Title: _____

Date: _____

Subscribed and sworn to before me this

_____ *day of* _____, *20*_____

Notary Public of

My commission expires _____, *20*_____

(SEAL)

CERTIFICATE OF FINAL ACCEPTANCE OF SUBCONTRACTOR'S WORK

TO: New Jersey Transit Corporation
One Penn Plaza East
Newark, New Jersey 07105-2246

PROJECT:

CONTRACT NO.:

CONTRACTOR:

SUBCONTRACTOR:

CONTRACT DATE:

In accordance with Sub-article 12.6.7 of the Contract's General Provisions for Construction, the undersigned SUBCONTRACTOR hereby notifies the NJ TRANSIT Corporation that as of _____, 20___ its Subcontract work and all authorized additional work has been one hundred percent (100%) completed, including but not limited to the Remaining Work (Punch List Work) listed on the attached Certificate(s) of Substantial Completion.

SIGNED,

SUBCONTRACTOR

By: _____

Title: _____

SIGNED,

CONTRACTOR

By: _____

Title: _____

The undersigned Project Manager hereby certifies that on _____, 20___ a final field inspection was performed on the Subcontractor's work and all Subcontract work and authorized additional work found to be one hundred percent (100%) complete in accordance with the Contract Documents.

This Certificate of Final Acceptance of Subcontractor's work is signed on this _____ day of _____ _____, 20___.

SIGNED,

_____
Project Manager

_____
Title

CONCURRENCE,

_____
Contracting Officer

_____
Title

APPENDIX C
CONTRACT EXECUTION FORM

CONTRACT NO.

This Agreement made this _____day of _____ 20__, between the New Jersey Transit Corporation, hereinafter referred to as NJ TRANSIT, and _____ hereinafter referred to as the Contractor.

WITNESSETH:

Whereas, the said Contractor, for and in consideration of the payments hereinafter specified and agreed to be made by NJ TRANSIT, hereby covenants and agrees to furnish and deliver all materials and to do and perform all work and labor required to complete the _____within _____ consecutive Calendar Days from the issuance of the official notice to proceed, in strict and entire conformity with the Specifications for the project, which said Specifications are as follows and are hereby made a part of this Contract as fully and with the same effect as if the same had been set forth at length in the body of this Contract:

Contractor's Bid Proposal
Performance / Payment Bond
Non-Collusion Affidavit
New Jersey Prevailing Wage Determination
Federal Prevailing Wage Determination
Prevailing Wage Affidavit
Contractor's Certification of Eligibility
Affidavit of Compliance
Ownership Disclosure
Disclosure of Investment Activities in Iran
Federal EEO Provisions for Construction Contracts
State EEO Provisions for Construction Contracts
Certification for Contracts, Grants, Loans and Cooperative Agreements
Certification of No Tax Liability or Felony Conviction
Buy America Certificate
DBE Provisions
General Provisions
Special Provisions
Technical Provisions
Addendum: _____

The Contractor agrees to make payment of all proper charges for labor and materials required in the aforementioned work.

It is also agreed and understood that the acceptance by the Contractor of the final payment by NJ TRANSIT shall be considered as a release in full of all claims against the Executive Director and NJ TRANSIT out of, or by reason of, the work done, and materials furnished under this Contract.

In consideration of the premises, NJ TRANSIT hereby agrees to pay to the Contractor for the said work when completed in accordance with the said Specifications, the sum of $_____. It is understood that payments shall be the total of the unit prices written in this Contract for the work actually done.

In Witness Whereof, the Contracting Officer of NJ TRANSIT has signed this instrument and caused it to be attested, and the Contractor has caused this instrument to be signed by its _____ *and attested by its* _____ *the day and year first written.*

ATTEST:

_____

NEW JERSEY TRANSIT CORPORATION

By: _____
Contracting Officer

ATTEST:

_____
Name:
Title:

CONTRACTOR

By: _____
Name:
Title:

The above Contract has been reviewed and approved as to form only.

GUBIR S. GREWAL
ATTORNEY GENERAL OF NEW JERSEY

By: _____
Deputy Attorney General

APPENDIX D

GOVERNING RULES FOR WORKING WITHIN THE RAILROAD RIGHT OF WAY

A. GENERAL REQUIREMENTS FOR WORKING WITHIN NJ TRANSIT'S RIGHT OF WAY

Contractors shall cooperate at all times with officials of NJ TRANSIT and use all reasonable care and diligence in their work to avoid accidents, damage or unnecessary delay to, or interference with, passenger trains and other property of NJ TRANSIT. Contractors are advised that attendance at a pre-construction meeting will be required prior to any work commencing on NJ TRANSIT property (within the Right-of-Way). Prior to entering NJ TRANSIT's property, all Contractor's employees and Subcontractors must attend a Contractor Safety Training course at www.njtransitcontractor.com.

Contractors are advised that all construction operations within and over the limits of NJ TRANSIT's Right-of-Way shall be accomplished by methods which will in no way cause damage to the tracks, facilities, aerial or underground lines, embankments or drainage systems. The Contractor shall provide for protection of the tracks and embankments as shown on approved plans or as field approved in a safe and satisfactory manner, install and shall maintain such shoring, sheeting and bracing as may be required, and shall remove and dispose of such protective facilities upon completion of the work. Blasting will not be permitted on or along the right-of-way without prior written approval of NJ TRANSIT. All damage to NJ TRANSIT property caused by the Contractor's operations shall be repaired by the Contractor, or at his cost by NJ TRANSIT at the discretion of NJ TRANSIT Rail Operations (NJTRO). Work shall not continue until such damage is repaired and the railroad is back in service.

Whenever, in the judgment of NJTRO, work within or above the railroad's right-of-way may affect or involve the safe movement of its trains, the time and method of doing such work shall first be submitted in writing by the Contractor and approved by NJTRO. This approval shall not be considered as releasing the Contractor from responsibility or liability for any damage which NJTRO may suffer, or for which it may be held liable, by the action or omissions of the Contractor or those of his Sub-Contractors, or his or their employees.

Contractors shall provide written notice not less than ten (10) Calendar Days in advance of any work to be performed within or above the right-of-way, or other work which may affect railroad safety to: Director of Right-of-Way Engineering, NJ TRANSIT Rail Operations, One Penn Plaza East, Newark, NJ 07105.

NJTRO will require protective personnel to be on duty to protect its operations when the Contractor is working within the property right-of-way. Flag protection by NJTRO will be required when the Contractor is on, above or below, or immediately adjacent to

NJTRO property or having the capability of obstructing an adjacent track. The NJTRO Flagman will provide enforcement of NJTRO Safety and Operating rules and other items as provided in these General Requirements as discussed in the "Contractor Safety Training Course", and is not provided for Engineering related matters.

Where such work is in proximity (twenty (20) feet or less) or has the potential to come in contact with overhead electrical wires or facilities, before any work proceeds, the Contractor must request and attend an on-site safety meeting conducted with Construction Management and NJTRO to determine the identity of such wires or facilities and appropriate steps to be taken. If owned by NJTRO, a qualified Class A employee(s) will be assigned who will take the necessary precautions in accordance with the NJTRO-3 Electrical Operating Instructions. All cranes and hoisting equipment used in this application must be properly grounded in accordance with NJTRO Specification MW-252.

When Crane Operators' visibility is impaired during any hoisting operation; the Spotters or qualified Groundmen shall be utilized to guide the Operator. Universal hand signals shall be utilized, and their meaning clearly understood between Operator and Spotter. When visual contact between the Operator and Spotter is impaired, two-way radio contact must be utilized.

If a temporary crossing of railroad tracks is necessary, Contractors shall apply to NJ TRANSIT in writing for such a crossing, and, if required, NJTRO will execute its regular form of private grade crossing agreement covering the crossing desired and providing for the Contractor to pay all construction, maintenance, removal, protection, and other costs and affording contractual liability insurance in the amounts required.

NJTRO will assign Inspectors and /or Engineers during the time the Contractor is engaged in construction work on railroad property to provide general coordination of construction operations, to insure adherence to plans and Specifications, and to insure the use of approved construction methods. The providing of Inspectors, Engineers, Operators, Conductors, Flagmen or other forces, and the taking of any other precautions deemed necessary by NJTRO shall not relieve the Contractor or his Sub-Contractor from liability for payment of damages caused by their respective operations.

Typically, use of NJ TRANSIT property will be restricted as follows, unless specifically authorized by the on-site NJTRO qualified employee (Flagman):

(a) All workers must maintain a distance of no less than eighteen (18) feet from the track.

(b) Any tools and equipment being utilized must not extend closer than eighteen (18) feet from the track.

(c) When a train is approaching, all workers must cease work, stand clear of the track, and face the approaching train.

(d) No worker is permitted to cross the railroad tracks at any area other than designated grade crossings.

(e) No tools or working materials are permitted to be left along the NJTRO right-of-way.

(f) In no event shall equipment or material be transported across a track or tracks without special permission and appropriate flagging protection.

(g) All personnel, equipment and materials to be used during the construction shall be kept at all times at least twenty (20) feet from all electrical, signal and communication systems unless protected by an Electrical, Signal or Communication's Department representative. The Contractor is responsible for damage to NJTRO property and any utilities located thereon, whether above or below ground.

(h) All personnel, equipment and materials to be used during the construction in electrified territory shall also be kept at all times at least twenty (20) feet from overhead trolley, messenger, static and transmission lines unless clearance and protection is provided by a qualified Electric Traction Department Class A High Tension Lineman. All work performed on or around electrical equipment where arc flash exists shall be governed by the more stringent requirements of NJ TRANSIT TRO-3 Electrical Operating Instructions or the latest National Fire Protection Association 70E Requirements.

(i) All lifting operations shall be reviewed to determine compliance with a standard requirement for the installation of a positive block to on the hoisting equipment. This positive block is required to avoid contact with facilities or interfere with safe train operations.

(j) When construction activity involves any type of hoisting procedure adjacent to aerial lines, the Contractor shall furnish NJTRO with sufficient florescent orange rubber goods, as determined by NJTRO, to be installed as an aid for equipment Operators and Groundmen in visually locating the aerial lines, and as additional protection against damage.

ENGINEERING DATA REQUIRED FOR ERECTION, DEMOLITION OR OTHER HOISTING OPERATIONS

1. A detailed plan must be submitted by the Contractor and approved by NJTRO, showing locations of cranes or hoisting devices (both horizontally and vertically), operating radii, positive stops and delivery or disposal locations. The location of all tracks and other railroad facilities should also be clearly shown on the submission (with distance and dimension information).

2. Crane rating sheets must be provided by the Contractor showing cranes to be adequate for 150% of the lift. Crane and boom nomenclature must be indicated.

3. Plans and computations must be included with the Contractor's submission showing weight of pick, safety factors and what work is being performed over NJTRO. Plans must also show a positive stop attachment and general plans of the existing and proposed facilities, showing complete and sufficient details with supporting data for the demolition or erection of the structure.

4. The Contractor shall submit a location plan showing all physical limitations, restrictions or obstructions such as wires, poles, adjacent structures, etc., showing that the proposed swings are possible. In the event of any hoisting operation proposed to be adjacent to aerial lines, the Contractor shall furnish NJTRO with sufficient florescent orange rubber goods, as determined by NJTRO, to be installed as an aid in visually locating the aerial lines and as additional protection.

5. The Contractor shall prepare a data sheet listing the type, size and arrangements of slings, shackles, or other connecting equipment, including copies of a catalog or information sheets of specialized equipment being used.

6. The Contractor shall include a complete lifting procedure indicating the order of lifts and any repositioning of crane or cranes including reattachment of positive stop.

7. The Contractor must show temporary support of any components or intermediate stages

8. The Contractor shall provide a time schedule of various stages as well as a schedule for the entire lifting procedure.

9. All bridge erection or demolition procedures submitted by the Contractor must be signed and sealed by a registered professional Engineer licensed in the State of New Jersey.

10. The Contractor should send at least six (6) copies of the plan to Director of Right-of-Way Engineering, One Penn Plaza East, Newark, NJ 07105.

11. The Contractor is advised that it can expect a minimum thirty (30) day review period for this and any other shop drawing submissions.

MINIMUM STANDARDS FOR GEO-TECHNICAL INVESTIGATIONS ALONG THE RIGHT-OF-WAY

Subsurface investigations made on or adjacent to the right-of-way should meet the minimum recommended practices as provided in Chapter 1, Volume 1, of the current American Railway Engineering association Manual for Railway Engineering. Additionally, the Contractor must meet following requirements:

- Borings shall be advanced using casing or mud rotary techniques. Use of hollow stem augers below the water table is prohibited.

- All borings shall be tremie grouted with non-shrink cement grout from the bottom to the top of the bore hole at completion. Subsequent minor surface settlement shall be back-filled with tamped earth, asphalt or finished concrete, as appropriate.

- No observation or monitoring wells shall be installed on railroad property without the prior express authorization of the Environmental Services Unit.

- No sampling of any kind shall be done on railroad property without the prior express authorization of the Environmental Services Unit.

- No work shall be done that interferes with operation and/or maintenance of the railroad unless specifically approved in the Temporary Access Permit issued by NJ TRANSIT.

- The crossing of tracks or use of tracks for or by personnel, equipment of material shall only be done under the protection of a qualified NJTRO representative.

- The presence of buried railroad or foreign utilities may or may not be known and any damage resulting from the investigation will be repaired as required, and all charges resulting from such damage shall be paid promptly by the Permittee in accordance with the terms of the Temporary Access Permit.

- In advance of the authorized investigation, the locations of proposed pits, boring location, or monitoring well location shall be marked out in the field to review the site for possible location of buried utilities or conflict with operating systems.

A reproducible location plan of proposed boring layout, test pits' locations, or monitoring well locations shall be submitted by the Contractor with the technical specification for the work for review and approvals prior to start of work. Detail of the plan shall be sufficient to permit review and comment by the Engineering and Environmental Services Departments. These plans and Specifications shall be accompanied by a brief narrative of how the work will be carried out.

The location plan should provide, from a licensed Land Surveyor, the proposed State plane coordinates and approximate ground surface elevations of the work, and reference centerline alignment and profile of near tracks, support poles and guy anchors, existing foundations and overhead or undergrade wire, conduit, pipelines or structures. NJ TRANSIT uses State coordinate systems for horizontal control as appropriate and vertical datum based on Mean Sea Level equal to 0.0 feet in plan and nearest 0.1 feet in elevation.

Property information should be coordinated with the applicable Right-of-Way and Track Maps or Valuation Sheets. Copies of these maps can be obtained from the NJTRO Real Estate Department. These maps should be used to locate the work with respect to railroad stationing, structure number and mile post.

A draft summary Engineering Report shall be prepared signed and sealed by the licensed professional Engineer in charge of the work. Upon review and comment by NJTRO, three (3) copies of the final report shall be submitted for the record.

ADDITIONAL REQUIREMENTS FOR PIPELINE OCCUPANCIES

The Contractor shall be responsible for compliance with all provisions of NJTRO Specification EP-2 and shall comply with all reasonable requests from NJTRO.

The Contractor shall furnish all labor, materials and equipment necessary to install the casing and carrier pipes as referred to in the executed Occupancy Agreement and as shown on the approved contract documents. The Contractor shall notify the appropriate utility companies for surface markout and NJTRO will be responsible for markout of its own facilities potentially affected by the installation.

If the jacking pit/boring equipment is constructed such that verbal communications are limited, universal hand signals shall be utilized, and their meaning clearly understood

between all employees. When visual contact between key operators and support Groundmen cannot be adequately maintained, two-way radio contact must be utilized.

The Contractor must provide material certifications for all material to be installed and must prepare and submit for review (allowing 30 Calendar Days) detailed drawings and supporting calculations (all signed and sealed by a licensed professional Engineer) showing the proposed methods of crossing; including jacking pit details, shoring, bracing, dewatering methods, pushing backstops, receiving pits, grade and alignment controls, catalog cuts on jacking equipment, and narrative methods for installing casing and carrier pipe. The Contractor must be prepared to work continuously and complete the jacking operation below the tracks once the live load influence line has been entered by the auger/casing.

The use of water or other liquids to facilitate conventional casing emplacement and soil removal is prohibited. If during installation, an obstruction is encountered which prevents installation of the pipe in accordance with the approved plans, the pipe shall be abandoned in place and immediately filled with grout. A revised installation plan must be submitted by the Contractor for approval.

When water is known or expected to be encountered, a designed dewatering system with pumps of sufficient capacity shall be utilized to handle the flow in such a fashion which does not allow groundwater to affect the installation. When dewatering, the Contractor shall maintain close observation to detect any settlement or displacement of the embankments, tracks and facilities.

As part of the jacking operation, the Contractor shall be responsible for the completion of Survey Control Monitoring to verify track movement prior to, during, and at a point after completion. The survey monitoring procedure and location layout can be site-specific modified, but must generally follow those as shown on the attached. The survey monitoring procedure must be completed and signed by a Licensed Land Surveyor.

NJ TRANSIT SURVEY MONITORING PROCEDURES FOR PIPELINE OCCUPANCIES

ACTIVITY	LOCATION OF SETTLEMENT POINTS	FREQUENCY
Prior to installation and disturbance of the property.	The top of each rail at the centerline of crossing, 5', 10' and 25' on each side of the crossing or as directed by the Manager of Right-of-Way Engineering or his designee. When temporary track supports have been installed, only the running rails shall be monitored.	Take three (3) sets of reading with at least one (1) train passing the area between readings for a base level measurement. All readings to be measured to the nearest 0.001 ft.
Installation of the casing, grouting operation, and, or during dewatering operation.	All points noted above and as required by NJTRO on the Contractors approved dewatering plans.	Immediately prior to start and trains continuously during jacking, and week all dewatering activities for the first activities for the first seven (7) Calendar Days and then twice weekly.
At completion of jacking, as, necessary.	All points noted above.	After one (1) train, after five (5) after one (1) day, after one (1) after one (1) month or as directed by the Manager, Right-of-Way Engineering or his designee

Should the total changes in rail elevations for any pair of adjacent points exceed the established base elevations by 0.02 ft., the Surveyor shall immediately notify the Manager, Right-of-Way, Engineering or his designee. All readings shall be transmitted directly to the NJ TRANSIT Resident Engineer within twenty-four (24) hours of taking the measurement. Elevations shall be referenced to a U.S.G.S. benchmark and survey runs shall be reported with the proper closure errors. Readings and elevations shall be certified by a licensed Land Surveyor. Copies of the field data

shall be maintained on- site by the Permittee's Engineer. Review of the survey data by NJ TRANSIT will be made at the end of the first month following the jacking operation to determine the need for additional elevation measurements.

TRACK SURVEY MONITORING POINTS (TYPICAL FOR ALL TRACKS)

25'	10'	5'	**CENTERLINE OF CROSSING**	5'	10'	25'
A	**C**	**E**	**G**	**I**	**K**	**M**

RAIL_____

RAIL_____

B	**D**	**F**	**H**	**J**	**L**	**N**

NOTE: All field markouts shall be accomplished using a paint or keel marker, chisel cuts are prohibited on the rail.

B. SPECIFICATIONS REGARDING SAFETY AND PROTECTION OF RAILROAD TRAFFIC AND PROPERTY WHEN WORKING WITHIN THE NATIONAL RAILROAD PASSENGER CORPORATION (RAILROAD) RIGHT OF WAY

In the following Specifications "Chief Engineer" shall, mean Railroad's Vice President, Chief Engineer, "Railroad" shall mean the National Railroad Passenger Corporation, 'and/or his/her duly authorized representative.

(1) **Pre-Entry Meeting:** Before entry of Permittee and/or Contractors onto Railroad's property, a pre-entry meeting shall be held at which time Permittee and/or Contractors shall submit for written approval of the Chief Engineer, plans, computations and a detailed description of proposed methods for accomplishing the work, including methods for protecting Railroad's traffic. Any such written approval shall not relieve Permittee and/or Contractor of their complete responsibility for the adequacy and safety of their operations.

(2) **Rules, Regulations and Requirements:** Railroad traffic shall be maintained at all times with safety and continuity, and Permittee and/or Contractors shall conduct their operations in compliance with all rules, regulations, and requirements of Railroad (including these Specifications) with respect to any work performed on, over, under, within or adjacent to Railroad's property. Permittee and/or Contractors shall be responsible for acquainting themselves with such rules, regulations and requirements. Any violation of Railroad's safety rules, regulations, or requirements shall be grounds for the immediate suspension of the Permittee and/or Contractor work, and the retraining of all personnel, at the Permittee's expense.

(3) **Maintenance of Safe Conditions:** If tracks or other property of Railroad are endangered during the work, Permittee and/or Contractor shall immediately take such steps as may be directed by Railroad to restore safe conditions, and upon failure of Permittee and/or Contractor to immediately carry out such direction, Railroad may take whatever steps are reasonably necessary to restore safe conditions. All costs and expenses of restoring safe conditions, and of repairing any damage to Railroad's trains, tracks, right-of-way or other property caused by the operations of Permittee and/or Contractors, shall be paid by Permittee.

(4) **Protection in General:** Permittee and/or Contractors shall consult with the Chief Engineer to determine the type and extent of protection required to insure safety and continuity of railroad traffic. Any Inspectors, Track Foremen, Track Watchmen, Flagmen, Signalmen, Electric Traction Linemen, or other employees deemed necessary by Railroad, at its sole discretion, for protective services shall be obtained from Railroad by Permittee and/or Contractors. The cost of same shall be paid directly to Railroad by Permittee. The provision of such employees by Railroad, and any other precautionary measures taken by Railroad, shall not relieve Permittee and/or Contractors from their complete responsibility for the adequacy and safety of their operations.

(5) **Protection for Work Near Electrified Track or Wire:** Whenever work is performed in the vicinity of electrified tracks and/or high voltage wires, particular care must be exercised, and Railroad's requirements regarding clearance to be maintained between equipment and tracks and/or energized wires, and otherwise regarding work in the vicinity of electrified tracks, must be strictly observed. No employees or equipment will be permitted to work near overhead wires, except when protected by a Class A employee of Railroad. **Permittee and/or Contractors must supply an adequate length of grounding cable (4/0 copper with approved clamps) for each piece of equipment working near or adjacent to any overhead wire.**

(6) **Fouling of Track or Wire: No work will be permitted within twenty-five (25) feet of the centerline of track or the energized wire or have potential of getting within twenty-five (25) feet of track wire without the approval of the Chief Engineer's representative.** Permittee and/or Contractors shall conduct their work so that no part of any equipment or material shall foul an active track or overhead wire without the written permission of the Chief Engineer's representative. **When Permittee and/or Contractors desire to foul an active track, they must provide the Chief Engineer's representative with their site-specific work plan a minimum of twenty-eight *(28)* Calendar Days in advance, so that, if approved, arrangements may be made for proper protection of Railroad**. Any equipment shall be considered to be fouling a track or overhead wire when located (a) within fifteen (15) feet from the centerline of the track or within fifteen (15) feet from the wire, or (b) in such a position that failure of same, with or without a load, would bring it within fifteen (15) feet from the centerline of the track or within fifteen *(15)* feet from the wire and requires the presence of the proper Railroad protection personnel.

If acceptable to the Chief Engineer's representative, a safety barrier (approved temporary fence or barricade) may be installed at fifteen (15) feet from centerline of track or overhead wire to afford the Permittee and/or Contractor with a work area that is not considered fouling. Nevertheless, protection personnel may be required at the discretion of the Chief Engineer's representative.

(7) **Track Outages:** Permittee and/or Contractors shall verify the time and schedule of track outages from Railroad before scheduling any of their work on, over, under, within, or adjacent to Railroad's right-of-way. Railroad does not guarantee the availability of any track outage at any particular time. Permittee and/or Contractors shall schedule all work to be performed in such a manner as not to interfere with Railroad operations. Permittee and/or Contractors shall use all necessary care and precaution to avoid accidents, delay or interference with Railroad's trains or other property.

(8) **Demolition:** During any demolition, the Contractor must provide horizontal and vertical shields, designed by a Professional Engineer registered in the state in which the work takes place. These shields shall be designed in accordance with the Railroad's specifications and approved by the Railroad, so as to prevent any debris from falling onto the Railroad's right-of-way or other property. A grounded temporary vertical protective barrier must be provided if an existing vertical protective barrier is 'removed during demolition. In addition, if any openings are left in an existing bride deck, a protective fence must be erected at both ends of the bridge to prohibit unauthorized persons from entering onto the bridge.

(9) **Equipment Condition:** All equipment to be used in the vicinity of operating tracks shall be in "certified" first-class condition so as to prevent failures that might cause delay to trains or damage to Railroad's property. No equipment shall be placed or put into operation near or adjacent to operating tracks without first obtaining permission from the Chief Engineer's representative. **Under no circumstances shall any equipment or materials be placed or stored within twenty-five (25) feet from the centerline of an outside track, except as approved by the Site Specific Safety Work Plan.** To insure compliance with this requirement, Permittee and/or Contractors **must establish a twenty-five (25) foot foul line prior to the start of work** by either driving stakes, taping off or erecting a temporary fence, or providing an alternate method as approved by the Chief Engineer's representative. Permittee and/or Contractors will be issued warning stickers which must be placed in the operating cabs of all equipment as a constant reminder of the twenty-five (25) foot clearance envelope.

(10) **Storage of Materials and Equipment**: No material or equipment shall be stored on Railroad's property without first having obtained permission from the Chief Engineer. Any such storage will be on the condition that Railroad will not be liable for loss of or damage to such materials or equipment from any cause.

(11) **Condition of Railroad's Property:** Permittee and/or Contractors shall keep Railroad's property clear of all refuse and debris from its operations. Upon completion of the work, Permittee and/or Contractors shall remove from Railroad's property all machinery, equipment, surplus materials, falsework, rubbish, temporary structures, and other property of the Permittee and/or Contractors and shall leave Railroad's property in a condition satisfactory to the Chief Engineer.

(12) **Safety Training**: **All individuals, including representatives and employees of the Permittee and/or Contractors, before entering onto Railroad's property or coming within twenty-five (25) feet of the centerline of the track or energized wire shall first attend Railroad's Safety Contractor/Leasee Employee Training Class.** The Safety Orientation Class will be provided by Railroad's Safety Representative at Permittee's expense. A photo I.D. will be issued and must be worn/displayed while on Railroad property. All costs of complying with Railroad's safety training shall be at the sole expense of Permittee. Permittee and/or Contractors shall appoint a qualified person as their Safety Representative. He/she shall continuously assure that all individuals comply with Railroad's safety requirements. All safety training records shall be maintained with site specific work plan.

(13) **No Charges to Railroad:** It is expressly understood that neither these Specifications, nor any document to which they are attached, include any work for which Railroad is to be billed by Permittee and/or Contractors, unless Railroad gives a written request that such work be performed at Railroad's expense.

C. SPECIFIC REQUIREMENTS OF CONSOLIDATED RAIL CORPORATION ("CONRAIL") FOR WORK ON ITS RIGHT OF WAY

SCOPE

It must be clearly understood that CONRAIL owns and uses its right of way for the primary purpose of operating a railroad. All work shall therefore be done in a manner such that the rail operations and facilities are not interfered with, interrupted or endangered. In addition, any facilities that are a result of the proposed work shall be located to minimize encumbrance to the right of way so that CONRAIL will have unrestricted use of its property for current and future operations.

The sponsor of the project shall be ultimately responsible for assuring that its agents, consultants, contractors and sub-contractors fully comply with the specifications contained herein. The term 'sponsor' used throughout these specifications shall mean the sponsor, its employees, its agents, consultants, contractors, sub-contractors, etc. The following terms and conditions shall apply to any project which requires performance of work on the right of way or other property of CONRAIL.

RIGHT OF ENTRY ON CONRAIL PROPERTY

No entry upon CONRAIL property shall be permitted without the proper authorization by CONRAIL to the sponsor in the form of an agreement or a proper permit-to-enter prepared by CONRAIL. The applicant shall pay the associated fees and execute the permit-to-enter prior to entering CONRAIL property. The location and design of that portion of the access route to the project site that is on CONRAIL property shall be shown clearly on any plans for the project and approved by CONRAIL.

It is to be clearly understood that the issuance of a permit-to-enter does not constitute authority to proceed with any construction work. Construction cannot begin until a formal agreement between CONRAIL and the sponsor is executed, and the sponsor receives permission from CONRAIL's representative to proceed with the work.

INSURANCE

In addition to any other forms of insurance or bonds required under the terms of any contract or specifications and except to the extent that any of the requirements of this section are expressly waived or revised in writing by CONRAIL, prior to the commencement of any work, Contractor, at his own cost and expense, shall maintain insurance of the following kinds and amounts and deliver to CONRAIL satisfactory evidence of such insurance as indicated herein:

1. Public Liability Insurance

Public Liability Insurance, including contractual liability insurance of not less than $5,000,000 combined single limit for bodily injury and/or property damage for damages arising out of bodily injuries to or death of all persons in any one occurrence and for damage to or destruction of property, including the loss of use thereof, in any one occurrence. CONRAIL shall be named as an additional insured under this insurance.

2. Automobile Liability Insurance

Automobile Liability Insurance with a limit of not less than $5,000,000 combined single limit for bodily injury and/or property damage per occurrence. CONRAIL shall be named as an additional insured under this insurance.

3. **Workers' Compensation / Employers' Liability Insurance**

Employers' Liability and Occupational Disease Insurance with limits of $1,000,000 each accident, $1,000,000 policy limit and $1,000,000 each employee. Such policy shall include a waiver of subrogation in favor of CONRAIL.

4. **General Contractor's Pollution Legal Liability Insurance**

General Contractor's Pollution Liability Insurance with limits of not less than $5,000,000 per occurrence/ $5,000,000 aggregate bodily injury, property damage and cleanup expenses resulting from pollution conditions. CONRAIL shall be named as an additional insured under this insurance.

5. **Railroad Protective Liability Insurance**

Should it be required, NJ TRANSIT will provide Railroad Protective Liability Insurance Coverage for this Contract.

CHANGES IN RAILROAD FACILITIES

Temporary and permanent changes of signal, communication, power transmission lines, trailers, drainage and other railroad facilities required in connection with the project to clear temporary and/or permanent work of the sponsor as shown on the approved construction plans, shall be made or caused to be made by CONRAIL at the sole cost and expense of the sponsor in accordance with CONRAIL's force account estimate. Any other changes made or services furnished by CONRAIL at the request of the sponsor shall be the sole cost and expense of the sponsor.

PROTECTION OF RAILROAD OPERATIONS

The sponsor shall conduct the work in such a manner as to safeguard the operations, facilities, right-of-way and property of CONRAIL. All work affecting the above items shall be subject to the approval of CONRAIL. The sponsor's operations adjacent to, over or under CONRAIL's tracks, facilities, right-of-way, and property shall be governed by CONRAIL's standards and by such other requirements as specified by CONRAIL's representative so as to insure the safe operation of trains, prevent delay to trains and insure the safety of all concerned, including the sponsor's forces.

An operating track shall be considered obstructed or fouled when any object is brought closer than fifteen *(15)* feet (4.6 m) horizontally from the centerline of track and projects above the top of tie or as determined by CONRAIL's representative. A power line shall be considered fouled when any object is brought to a point less than eight (8) feet (2.5 m) therefrom. A signal line shall be considered fouled when any object is brought nearer than six (6) feet (1.8 m) to any wire or cable. Cranes, trucks and other equipment shall be considered as fouling the track, power line

or signal line when failure of equipment, whether working or idle, with or without load, will obstruct the track or other CONRAIL facilities.

Equipment used by the sponsor shall be in first-class condition to preclude any failure that would cause interference with the operation of CONRAIL trains or damage to its facilities. The sponsor's equipment shall not be placed or put in operation adjacent to the tracks or facilities of CONRAIL without obtaining clearance from CONRAIL's representative. All such equipment shall be operated by the sponsor in a manner satisfactory to CONRAIL. No equipment or material shall be stored on CONRAIL property.

In general, a hazard occurs, and a flagman is necessary in the following circumstances: (1) the driving of sheeting or piles within twenty five (25) feet (7.6 m) of the tracks, (2) the removal or demolition of all or part of an overhead or adjacent structure, (3) the erection of any structural material, or (4) the performance of any other operation that could obstruct or foul (as described above) the tracks or other facilities of CONRAIL as determined by CONRAIL 's representative.

Minimum overhead and lateral clearances as specified by CONRAIL, shall be maintained during the performance of all work. Existing overhead and lateral clearances shall be maintained during construction unless a temporary reduction in clearance for construction purposes is approved, in writing, by CONRAIL. The sponsor shall erect a highly visible construction fence no closer than fifteen *(15)* feet (4.6 m) from the centerline of the track through the work area to insure that the lateral clearance requirement is being met.

All wire and attachments shall be treated as live unless notified by CONRAIL's representative that same have been grounded and de-energized. Particular attention shall be given to the use of hand lines containing metal strands which cannot be used when working near or above exposed live wires. When working over wires, tools and materials not in use shall be stored in a manner to prevent them from falling. Tools or materials shall not be thrown to or by men working over the wires. The sponsor shall be responsible for locating and protecting all underground facilities.

Painting and paint removal procedures shall be approved by CONRAIL and inspected by CONRAIL's representative prior to beginning the work over railroad right of way. The sponsor shall protect the track structure and railroad property from any material used in conjunction with performing the work. A flagman shall be required whenever the above described work fouls or is likely to foul the track, as previously defined.

The sponsor shall give notice to CONRAIL's representative at least fourteen (14) Calendar Days in advance of the time work is to be commenced. CONRAIL shall assign, at the sole cost and expense of the sponsor, conductors and/or flagmen, or other similar qualified employees to protect CONRAIL's trains and facilities when in the opinion of its representative, the construction work will cause or may cause a hazard to CONRAIL facilities and the safe operation of trains. No operations of the sponsor shall be carried out without all the necessary protection to properly safeguard the work.

The minimum hours per day for railroad employees engaged in flagging service shall be eight (8) hours. The overtime rate will be charged for all time in excess of eight (8) hours. Flagmen are paid from the time they leave headquarters until they arrive back at headquarters. The travel

time to and from project site is known as “deadheading” and is paid at full rate of pay, plus travel expenses. No conductor or flagman may remain on duty longer than twelve (12) hours in any twenty-four (24) hour period.

The providing of flagmen or inspectors or the taking of other precautionary measures, shall not, however, relieve the sponsor from liability for payment of damages caused by their operations. The sponsor must obtain permission from the flagman before fouling or obstructing any track.

The sponsor shall be responsible for damage to CONRAIL facilities or property arising out of the execution of its work. CONRAIL shall undertake any necessary repair work at the sole cost and expense of the sponsor. Billing for the work shall be in accordance with CONRAIL’s standard billing procedures.

CONRAIL labor shall be charged to sponsor at actual rate plus amount paid for insurance, railroad retirement, excise tax, vacation allowance, holidays, health and welfare benefits, small tools, 401k payment and overhead in accordance with CONRAIL’s standard billing procedures. Materials shall be charged to the sponsor at actual cost to CONRAIL plus transportation costs, handling expense and applicable taxes.

RAILROAD ENGINEERING AND INSPECTION

CONRAIL, at its sole discretion, may assign an engineer or inspector for the general protection of railroad property and operations during the construction of the project. This inspection service shall be supplied at the sole cost and expense of the sponsor.

PAYMENT OF RAILROAD SERVICES

It is a requirement that the sponsor shall reimburse CONRAIL in full for work undertaken by CONRAIL in accordance with any provision of these special requirements. Final contract payment shall not be made by the sponsor to its Contractor, Subcontractor, consultant or agent, until CONRAIL certifies that all railroad bills against them, if any, have been paid in full.

TEMPORARY GRADE CROSSING

Under most circumstances, a grade crossing of our track will not be permitted. Should the sponsor demonstrate a necessity for a temporary grade crossing of CONRAIL’s tracks, the sponsor shall be required to apply for and execute the standard private grade crossing agreement for each crossing required. Application for the crossing shall be made to CONRAIL at least twelve (12) weeks before the crossing is required and addressed to:

Consolidated Rail Corporation
1000 Howard Boulevard
4th Floor
Mount Laurel, New Jersey 08054-2355

Attention: Maria Bourassa
Manager, Real Engineering Contracts
Telephone: (856) 231-2454

A letter size plan showing the location, size, construction details, and access to the requested crossing should accompany the letter of application. The plan shall be fully detailed and dimensioned with all CONRAIL facilities shown and referenced. The sponsor shall state the purpose for which the crossing is needed and the expected life of the crossing. All application fees, construction, maintenance, protection and removal costs shall be at the sole cost and expense of the sponsor. The roadbed and all other CONRAIL facilities will be restored to the original condition subject to the approval of CONRAIL's designated representative.

SHEETING AND SHORING REQUIREMENTS

The following items are to be included in the design and construction procedures for all permanent and temporary facilities adjacent to CONRAIL tracks:

1) Footings for all piers, columns, walls or other facilities shall be located and designed so that any temporary sheeting and shoring for support of adjacent track or tracks during construction shall not be closer than ten (10) feet (3.0 m) from the centerline of the nearest track.

2) When excavation for construction of the above mentioned facilities is within the theoretical railroad embankment line (see CONRAIL Drawing SK-1, attached), interlocking steel sheet piling, driven prior to excavation, must be used to protect track stability. The use of trench boxes or similar devices is not acceptable. Soldier piling and lagging will be considered for supporting adjacent track(s) only when its use is approved by CONRAIL. Consideration for the use of soldier piling and lagging shall be made if the required penetration of steel sheet piling cannot be obtained and when dry, non-running, stable material will be encountered.

3) The sheeting shall be designed to support all lateral forces caused by the earth, railroad and other surcharge loads. The railroad loading to be applied is an E-80 loading. This loading consists of 80 Kip (356 KN) axles spaced five (5) feet (1.5 m) on centers. The lateral forces acting on the sheeting shall be computed as follows:

   (a) The Rankine Theory shall be used to compute the active earth pressure due to the weight of the soil.

   (b) The Boussinesq analysis shall be used to determine the lateral pressure caused by the railroad loading. The load on the track shall be taken as a strip load with a width equal to the length of the ties (8'-6" or 2.6 m)**.** The vertical surcharge, q (psf), caused by each axle, shall be uniform and equal to the axle weight divided by the tie length and the axle spacing *(5'-0"* or *1.5 m*). For an E-80 loading, this results in: q = 80,000 /*(8.5 X 5)* = 1882 psf (90.1 KPa).

   (c) The horizontal pressure due to the live load surcharge at any point on the sheet piling wall is Ph and can be calculated by the following: Ph = (2q/π)(B-sin B cos 2 oc) (see CONRAIL Drawing SK-2, attached).

4) Deflection design criteria is as follows:

(a) 1/2” (1.27 cm) maximum deflection for sheet piling ten (10) feet (3.0 m) from centerline of the nearest track.

(b) 1” *(2.54* cm) maximum deflection for sheet piling greater than ten (10) (3.0m) feet from centerline of the nearest track.

(c) Use K (at-rest earth pressure) for design of all braced and tie-back excavations.

5) The allowable stresses for the sheet piling and other steel members (wales, struts, etc.) shall be in accordance with AREA Chapter 15, Part 1. These allowable stresses may be increased ten percent (10%) due to the temporary nature of the installations. A factor of safety of at least *1.5* must be used on temporary sheeting for the embedment length (i.e. multiply calculated embedment depth by 1.5).

6) Where soil or rock anchors are used, all anchors must be tested. Testing shall be in accordance with industry standards with ten percent (10%) of the anchors “Performance Tested” and all others “Proof Tested”. All tie-back anchor stresses are to be in accordance with AREA Chapter 8, Part *20.5.7.*

7) Exploratory trenches, three (3) feet (0.9 m) deep and fifteen (15) inches (0.4 m) wide in the form of an “H” with outside dimensions matching the outside of sheeting dimensions are to be hand dug, prior to placing and driving steel sheeting, in areas where railroad underground installations are known to exist. These trenches are for exploratory purposes only and are to be backfilled with the backfill compacted immediately. This work must be done in the presence of CONRAIL’s representative.

8) Absolute use of track is required while driving sheeting within fifteen (15) feet (4.6 m**)** from centerline of a live track. The procedure for arranging the use of track shall be as outlined on pages Three and Four.

9) Cavities adjacent to the sheet piling, created by the driving of sheet piling, shall be filled with sand and any disturbed ballast must be restored and tamped immediately.

10) Sheet piling shall be cut off at the top of tie during construction. After construction and backfilling has been completed, piling within ten (10) feet (3.0 m) from centerline of track, or when bottom of excavation is below a line extending a 1:1 slope from end of tie to point of intersection with sheeting, shall be cut off eighteen (18) inches (0.5 m) below existing ground line and left in place.

11) Any excavation adjacent to track shall be covered and ramped and provided with barricades as required by CONRAIL. A lighted walkway with a handrail must be provided adjacent to the track for any excavation within ten (10) feet (3.0 m) of the centerline.

12) Final backfilling of excavation shall be as required by project specifications.

13) The sponsor is to advise CONRAIL of the time schedule of each operation and obtain approval of CONRAIL for all work to be performed adjacent to Conrail tracks so that it may be properly supervised by railroad personnel.

14) All drawings for temporary sheeting and shoring shall be prepared and stamped by a Registered Professional Engineer and shall be accompanied by complete design computations when submitted for approval.

15) Where physical conditions of design impose insurmountable restrictions requiring the placing of sheeting closer than specified above, the matter must be submitted to CONRAIL for approval of any modifications.

16) Five *(5)* copies of the submission are to be sent to Conrail's Area Engineer. The sponsor is advised to expect a minimum thirty (30) day review period from the day the submission is received by the Area Engineer.

17) CONRAIL's representative must be present at the site during the entire sheeting and shoring procedure period. The sponsor must notify the railroad representative at least seventy-two (72) hours in advance of the work. No changes will be accepted after that time.

ERECTION, HOISTING AND DEMOLITION REQUIREMENTS

1) A plan showing the locations of cranes, horizontally and vertically, operating radii, with delivery or disposal locations shown. The location of all tracks and other railroad facilities should also be shown.

2) Crane rating sheets showing cranes to be adequate for 150% of the actual weight of the pick. A complete set of crane charts, including crane, counterweight, and boom nomenclature is to be submitted.

3) Plans and computations showing weight of picks must be submitted. Where beams are being removed over CONRAIL facilities, the weight shall include the weight of concrete or other material that will be included in each pick. Calculations shall be made from plans of the existing and/or proposed structure showing complete and sufficient details with supporting data for the demolition or erection of the structure.

4) If the sponsor can prove to CONRAIL that plans do not exist and weights must be calculated from field measurements, the field measurements are to be made under the supervision of the Registered Professional Engineer submitting the procedure and he shall include sketches and estimated weight calculations with his procedure. If possible, field measurements shall be taken with a CONRAIL representative present. Weights shall include the weight of concrete, or other material that will be included in the lifts.

5) If the procedure involves either the cutting of steel or the bolting of joints which would affect CONRAIL operations, a detailed staging plan with estimated durations will be required.

6) A location plan showing all obstructions such as wires, poles, adjacent structures, etc., must be provided to show that the proposed lifts are clear of these obstructions.

7) A data sheet shall be prepared listing the type, size and arrangements of slings, shackles, or other connecting equipment. Include copies of a catalog or information sheets for specialized equipment.

8) A complete procedure is to be included, indicating the order of lifts and any repositioning or rehitching of the crane or cranes.

9) Demolition shield submittals must include a plan showing the details of the shield, a written installation and removal procedure and design calculations verifying the capacity of the shield. The shield should be designed for a minimum load of fifty (50) pounds/sq.ft. (245 kgs/sq.m.) plus the weight of the equipment, debris and any other load to be carried.

10) Temporary support of any components (overhead or undergrade) or intermediate stages is to be shown and detailed. A guardrail (railroad) will be required to be installed in a track where a temporary bent is located within twelve (12) feet (3.7 m**)** from the centerline of that track.

11) A time schedule of the various stages must be shown as well as a schedule for the entire lifting procedure.

12) All bridge erection or demolition procedures submitted will be prepared, signed and sealed by a Registered Professional Engineer.

13) Five *(5)* copies of the lifting procedures are to be sent to CONRAIL's Area Engineer. The sponsor is to expect a minimum thirty (30) day review period from the day the submission is received by the Area Engineer.

14) CONRAIL's representative must be present at the site during the entire demolition and erection procedure period. The sponsor must notify the railroad representative at least seventy-two (72) hours in advance of the work. No changes will be accepted after that time.

15) The name and experience of the employee supervising the operation must be supplied to CONRAIL.

OVERGRADE BRIDGE REQUIREMENTS

CLEARANCES

1) The minimum vertical clearance above the top of the higher rail shall be twenty three (23) feet (7 m) at all times. In areas where the railroad has been electrified with a catenary

wire, and areas which are likely to be electrified, the minimum vertical clearance must be twenty four (24) feet, six (6) inches *(7.5* m) above the top of the higher rail.

2) The minimum horizontal clearance measured from the centerline of track to the near face of the obstruction must be twenty (20) feet (6.1 m) for tangent track and twenty one (21) feet (6.4 m) for curves. See CONRAIL Standard Plan 48754-B, attached.

3) Whenever practicable, bridge structures must have the piers and abutments located outside of the railroad right of way. All piers located less than twenty five *(25)* feet (7.6 m) from the centerline of track require a crash wall designed in accordance with specifications outlined in the current AREA manual.

4) All piers should be located so that they do not interfere with ditches. Where special conditions make this impossible, an explanation of these conditions must be submitted with the drainage plans for review by CONRAIL.

5) The permanent clearances should be correlated with the methods of construction so that temporary construction clearances will not be less than the minimum allowed.

6) Bridge structures shall provide sufficient lateral and vertical clearance for anticipated future tracks, changes in track centers and raising of tracks for maintenance purposes. The locations of these tracks shall be determined by inquiry to CONRAIL.

7) The profile of the top of rail should be examined to determine if the track is in a sag at the location of the bridge. If the track is in a sag, the vertical clearance from the track to the bridge should be increased sufficiently to allow raising the track to remove the sag.

8) Plans for bridges must show dimensioned locations of all utilities which might be located on the railroad right of way.

9) Vertical and horizontal clearances must be adjusted so that the sight distance to railroad signals is not reduced from what is existing.

10) All proposed temporary clearances which are less than those listed above must be submitted to Conrail for review and must be approved by CONRAIL prior to construction.

11) Clearances are subject to the requirements of the state in which the construction takes place and must be approved by NJ TRANSIT and CONRAIL if less than those prescribed by law.

DRAINAGE

1) Maintaining the existing drainage and providing for future drainage improvements is of the utmost importance. CONRAIL will give special attention to reviewing drainage details.

2) Drainage plans must be included with the general plans submitted to CONRAIL for approval. These plans must include hydrologic and hydraulic studies and computations

showing the frequency and duration of the design storm used, as well as the method of analysis such as Soil Conservation Service or the Rational method. CONRAIL uses storms with a 100-year recurrence interval as the minimum design storm.

3) Lateral clearances must provide sufficient space for construction of the required track ditch parallel to the standard roadbed section. If the ditch cannot be provided, or the pier will interfere with the ditch, then a culvert of sufficient size must be provided. See CONRAIL Standard Plans 48754-B and 48747, attached.

4) Ditches and culverts must be sized to accommodate all increased run-off due to the construction and the increased size must continue to the natural outlet of the ditch. Ditches must be designed in accordance with good drainage engineering practices and must meet all local codes and ordinances.

5) No scuppers or other deck drains, roadway drainage, catch basins, inlets or outlets are permitted to drain onto Conrail property. Any variation of this policy must have the prior approval of CONRAIL. If an exception is ultimately granted, maintenance of such should not be CONRAIL's responsibility. Drainage from scuppers and deck drains must be conveyed through pipes, preferably to a point which is off CONRAIL property. If the drainage must be conveyed into a railroad ditch, calculations must be provided to CONRAIL which indicate the ability of the ditch to carry the additional runoff.

6) Additional drainage may require the installation of a pipe or pipes, new ditch or reprofiling of the existing ditch.

EROSION CONTROL

1) Embankment slopes on CONRAIL property adjacent to the track must have a slope of 2:1 or less and be paved for a minimum of two (2) feet (0.6 m) beyond the outside edge of the bridge foundation structure. The purpose of the pavement is to minimize erosion of the embankment material and to reduce deterioration of the sub-grade material by drainage water. The pavement shall consist of a prepared sub-base and/or filter fabric with grouted rip-rap on the surface.

2) The general plans for the bridge should indicate the proposed methods of erosion control during construction and must specifically address means to prevent silt accumulation in ditches and culverts and to prevent fouling the track ballast and sub-ballast. If the plans do not show erosion control, the Contractor must submit a proposed method of erosion control and must have this method approved by CONRAIL prior to beginning any grading on the site.

3) Existing track ditches must be maintained at all times throughout the construction period. After the construction has been completed, all erosion and siltation must be removed and the ditches must be restored.

4) CONRAIL's approval of drainage and erosion control plans will not relieve the sponsor submitting these plans from ultimate responsibility for a satisfactory plan.

REFERENCES

1) In areas where underground utilities may be affected, CONRAIL's C.E. 8, "Specifications for Pipeline Occupancy" will govern.

2) In areas where power or communication lines will be affected, CONRAIL's C.E. 4, "Specifications for Wire, Conduit and Cable Occupations" will govern

APPENDIX E

Contractor - Consultant Asset Data

Operating Mode	Asset Number (If Not Use Grid)	FA Asset Class	Asset Type	Description	Location Code (If Not Use Grid)	Vendor Invoice No.	Vendor Name	Vehicle Type (If Applicable)	Lease Company No. (If applicable)	Work Account / Name	Installed Item or No.	Serial No.	Plate No.	Transfer Out Date	Expected Useful Life	Comments
Ex) Example		2 = Furniture & Equipm...	3 = Equipment													

New Jersey Transit

Hoboken Terminal & Yards
Sandy Recovery Program – Phase 2

Technical Provisions

Signal and Yard Power Repairs

Bid Design – 10 January 2020

Prepared by:

STV Incorporated
Matrix New World Engineering

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SECTION 01100 – DIVISION OF WORK

PART 1 GENERAL

1.1 PROJECT REQUIREMENTS:

A. This Section outlines the Division of Work between the Contractor and NJ TRANSIT.

1.2 PROJECT DESCRIPTION:

A. The overall scope of work of this contract includes various project elements related to the Signal Power Project and the Yard Power Project, which is generally described as follows.

1. The existing signal power distribution system consists of two underground 2.4kV primary power feeders that distribute power to signal transformers and 120V secondary power feeders that distribute power to the signal bungalows and cabinets. The existing 15kV building and yard power systems are distributed from the Henderson Substation throughout the yard via underground power feeders.

2. The Signal Power Project and Yard Power Project will construct aerial distribution systems that will utilize steel monopoles, primarily located on the northern side of the yard, to support the distribution of one of the primary signal power feeders and the associated secondary signal power feeders, as well as the distribution of the building and yard power feeders. The Yard Power Project will also replace the Days Yard Wayside Power System, including the construction of a new substation on a steel platform, replacing the existing duct bank and manhole systems, and providing new wayside power outlets and control stations.

3. The Contract Documents depict the work that shall be constructed as part of the overall Signal Power and Yard Power Repairs Project, as well as work that will be constructed in future phases. Future work is identified as Not in Contract or NIC and is included in the documents for reference. Work constructed as part of this Contract shall be constructed in a manner to accommodate and/or not preclude the future construction of elements identified as Not in Contract or NIC.

4. Elements identified as “Future/Existing” on the Contract documents are elements that are being constructed in the near term as part of separate construction contracts and are identified in the manner as it is unknown as to whether these items will have already been constructed or will be constructed in the future under the other contracts. The Contractor shall coordinate the work in this Contract with the construction of these elements and ensure that the work of this Contract is constructed in a manner to accommodate and/or not preclude the construction of elements identified as “Future/Existing”.

B. The Division of Work between the Contractor and NJ TRANSIT for the Signal Power and Yard Power Project shall be defined as follows:

1. Contractor Work: The Contractor shall be responsible for all work included in the Contract Documents unless specifically noted otherwise. The Contractor shall perform all work associated with the construction of the following project elements:

    a. Preparation of Site Specific Work Plans
    b. Preparation and adherence to Health and Safety Program Requirements
    c. Demolition as required to support the installation of Signal Power and Yard Power Project elements.
    d. Handling of soils and groundwater (Management of Excavated Soils, Dewatering, Earthwork, Existing Utilities and Structures, Trenching and Backfilling for Utilities, Contaminated Groundwater)
    e. Support of Excavation
    f. Monopole foundations (micropiles), pile caps, monopoles, anchor bolts, and grounding of the monopoles in accordance with Detail GR-1 on Drawing E4.308 at Pole IDs: N15, N16, N17, N18, N19, N20, N21, N22, N23, N24, N25, N26, N27, N28, N29, N30, N32, N33, N34, N35, N36, N37, N38, N39, N40, N41, S23, S36, S47, E1, E2, and TP3

        1) Monopole foundations (micropiles), pile caps, anchor bolts, and below grade grounding elements for Pole IDs N40 and N41 are existing. The Contractor shall be responsible furnishing and installing the monopoles and completing the grounding of the monopoles in accordance with Detail GR-1 on Drawing E4.308 at these locations.
        2) Work at Monopole ID TP3 includes the construction of the monopole foundations (micropiles), Pile cap (PC-16), the anchor bolts, and the grounding infrastructure in accordance with Detail GR-1 on Drawing E4.308 associated with Monopole IDs TP1, TP2, and TP4.

            a) A minimum 6 ft grounding wire pigtail shall be left above the top of the pile cap for the grounding of monopoles TP1, TP2, and TP4.
            b) Anchor bolts and grounding wire pigtail at monopole IDs TP1, TP2, and TP4 shall be protected for future connections.

    g. Micropile Verification Test Pile, Verification Load Test, Micropile Proof Load Tests (first pile installed at each monopole location), and associated engineering

        1) The Contractor shall retain the services of a Professional Engineer Licensed in the State of New Jersey to design the verification micropile casing, core steel, grout and associated instrumentation, test frames and apparatus for conducting the verification load test.
        2) The Contractor's engineer shall then establish the required bond lengths for the micropile proof tests and design the associated proof test frames, instrumentation and apparatus for conducting the proof load tests. The Contractor's Professional Engineer shall be responsible for supervising the verification and proof tests conducted by the Contractor, recording

and evaluating all load test data, and establishing final bond lengths for production micropiles.

3) All load test reports with bond length recommendations shall be submitted to NJ TRANSIT for conformance review upon completion of each pile load test.

h. Extension of existing Catenary Light Pole SE3
i. Signal 0 Location Platform including structural steel, grating, steel gate, guardrails, and grounding of all Signal 0 Location Platform components
j. Roof Termination Steel Structure (Steel Rack SR-1) including roof patching
k. Days Yard Wayside Power Substation Platform including foundations, structural steel, stairs, ladder, grating, guardrails, fencing, and grounding of all Days Yard Wayside Power Substation components
l. Monopole hardware items as detailed on drawings E4.305, E4.306, E4.309, E4.314, E4.315, E4.316, and E4.317 and installed as indicated on the monopole erection diagrams.
m. Water pipe relocation work at Signal 0 Location Platform including all supporting hardware, insulation, and heat tracing of the water pipe.
n. Raceways on Catenary Trusses and the Trainshed Roof including all supporting hardware and roof patching as required.
o. Underground ductbanks “12-12” and “13-13”, “0-0”, “1-1”, “1A-1A”, “2-2”, “2A-2A”, “3-3”, “3A-3A”, “4-4”, “5-5”, “6-6”, “7A-7A”, “7B-7B”, “8-8”, “9-9”, “3V-3V”, “4V-4V”, “4H-4H”, “FG1-FG1”, “FG2-FG2”, and 1” direct buried conduits between Wayside Power Outlets and Control Stations.
p. Handole at Signal Transformer 23-T1
q. Days Yard Wayside Power Manholes
r. 15kV Power Manholes
s. Transition Pole Pull Boxes on Monopole TP3
t. Electrical work including Basic Electrical Requirements, Boxes, Grounding, Supports, and Electrical Identification
u. Days Yard Wayside Power Substation electrical equipment (all equipment identified on Drawings E0.13 & E0.14 including but not limited to transformers, switchgear, and overcurrent protection devices), the interconnecting raceways, and grounding of all Days Yard Wayside Power equipment. The Contractor shall provide temporary power for the switchboard space heaters until a temporary power feeder can be provided by NJ TRANSIT.
v. Days Yard Wayside Power Outlets and Control Stations and associated foundations
w. Overcurrent Protective Device Short-Circuit Study & Arc Flash Study required to determine the short circuit rating required for the Days Yard Wayside Power Equipment including, but not limited to Days Yard Wayside Power Substation electrical equipment, Wayside Power Outlets, and Wayside Power Control Stations.

2. NJ TRANSIT Work: NJ TRANSIT will perform all work associated with the construction of the following project elements:

a. Medium Voltage Cable & Wiring – NJ TRANSIT will furnish and install all Medium Voltage Cable & Wiring that is either run aerially or within infrastructure (raceways, ductbanks, and manholes/handoles) constructed by the Contractor.
b. Signal system electrical equipment – NJ TRANSIT will furnish and install all electrical components and equipment necessary to complete the signal power distribution system including transformers, fuse cutouts, sectionalizing overhead load break switch, feeder clamps and commercially available assembly hardware, enclosed switches and circuit breakers, disconnect switches, panelboards, and conduits mounted on monopole structures.
c. Yard Power system electrical equipment – NJ TRANSIT, unless otherwise noted, will furnish and install all electrical components and equipment necessary to complete the yard power distribution system including fuse cutouts, feeder clamps and commercially available assembly hardware, and conduits mounted on monopole structures.

PART 2 PRODUCTS

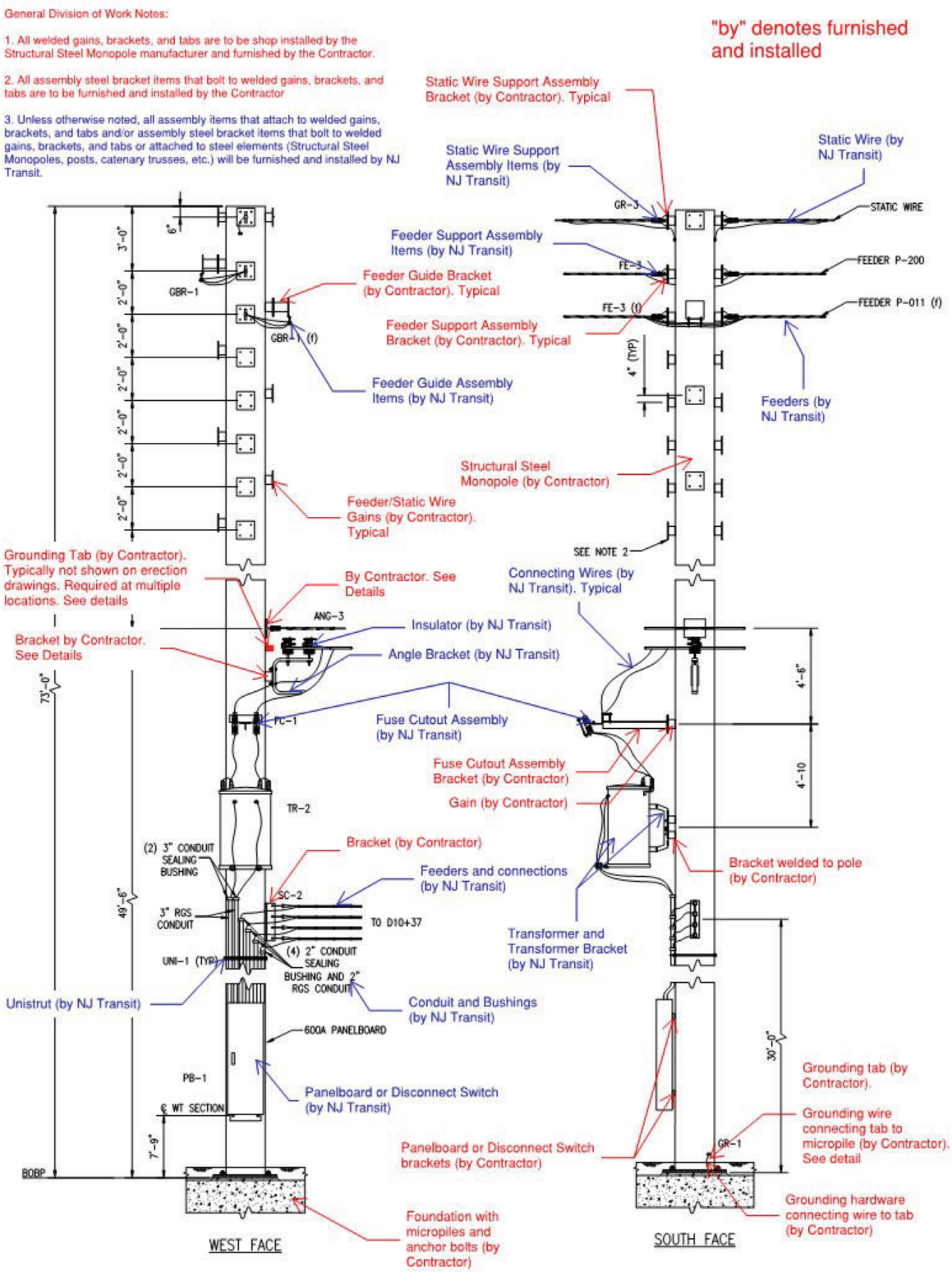
(NOT USED)

PART 3 EXECUTION

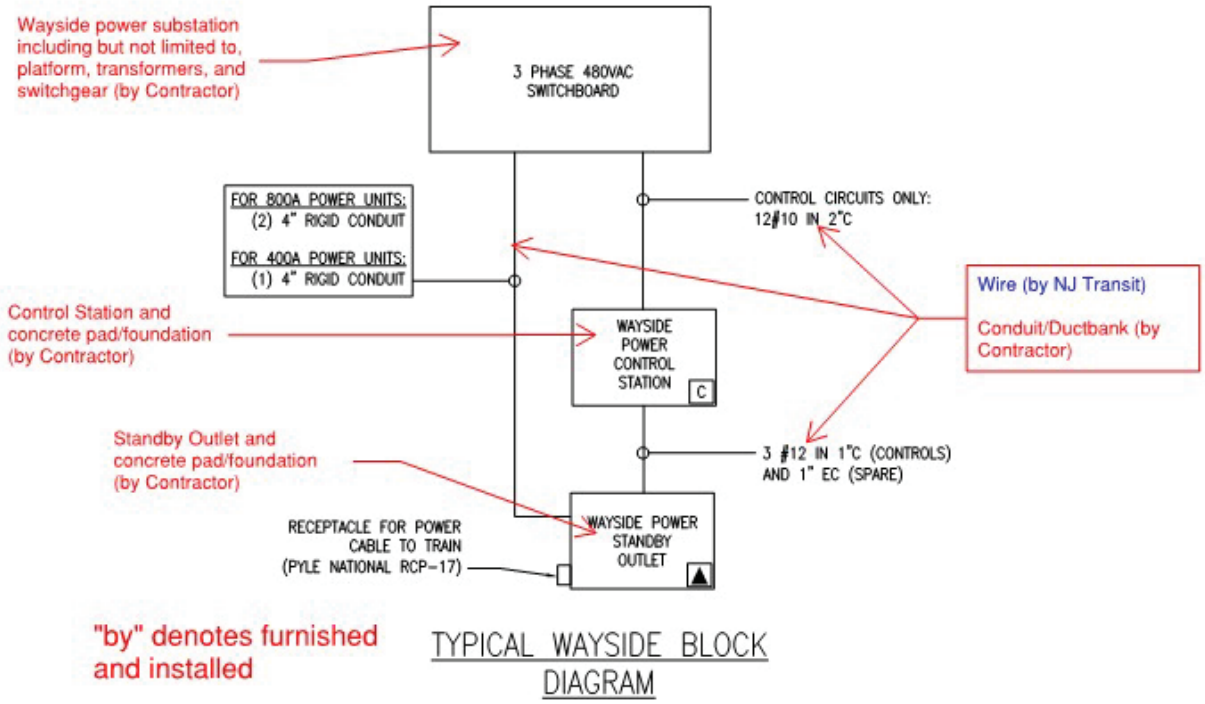
3.1 GENERAL:

A. The following sketches are provided to depict the typical Division of Work between the Contractor and NJ TRANSIT:

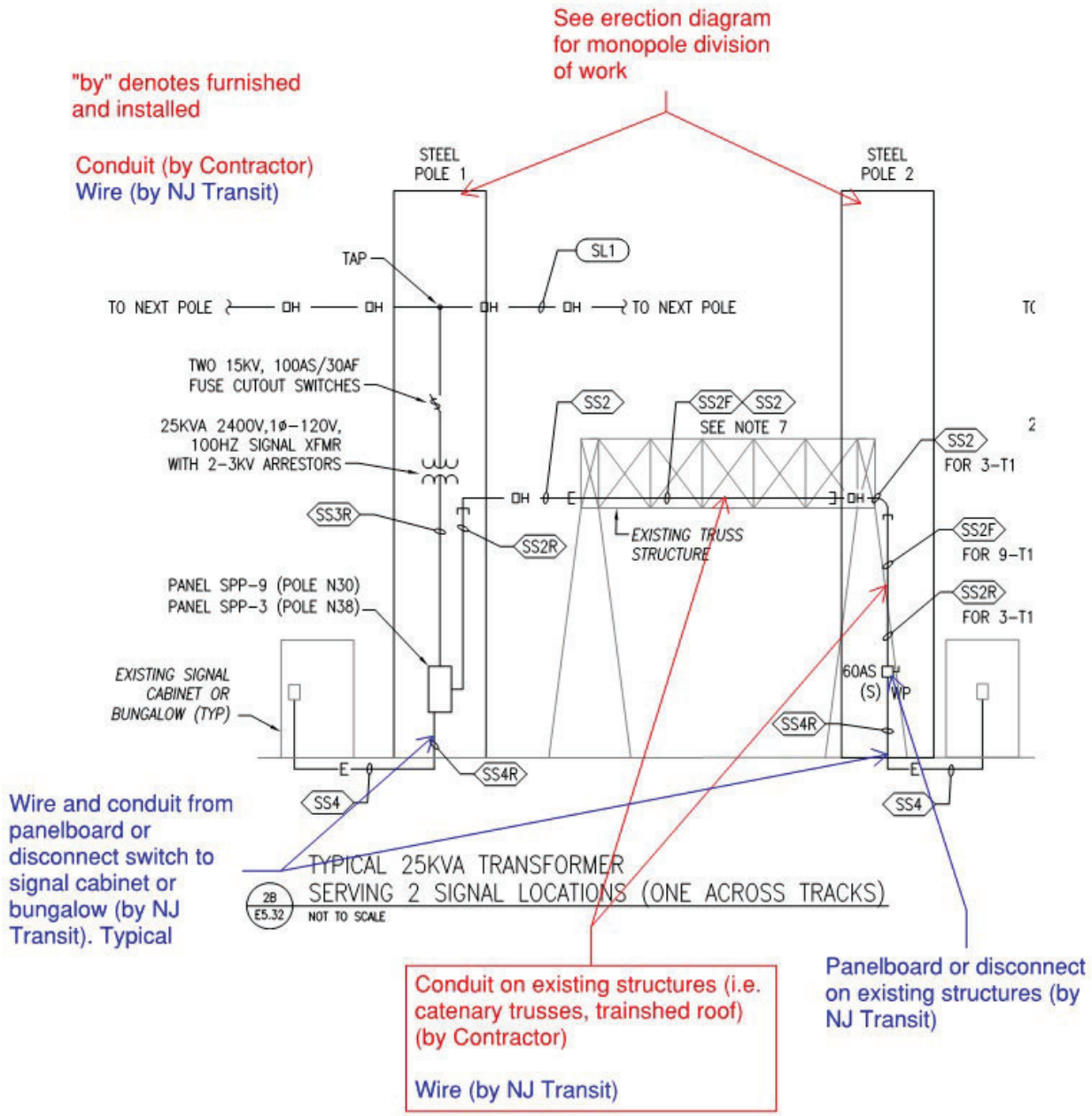
1. Erection Pole Division of Work Sketch (Typical)



2. Wayside Power Division of Work Sketch (Typical)



3. Catenary Truss Yard Crossing Division of Work Sketch (Typical)



PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. No measurement will be made of the work of this Section.

4.2 PAYMENT

A. No separate payment will be made for the work of this Section. All costs therefore shall be included in the overall price bid for the Contract.

END OF SECTION

SECTION 01112 – SITE SPECIFIC WORK PLANS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Develop Site Specific Work Plan(s) (SSWP's) to describe in detail all work elements to be performed under this Contract.

1.2 SUBMITTALS

A. Submit a Site Specific Work Plan (SSWP) at least 30 days prior to the commencement of any work or any portion of work on or off Railroad property. The SSWP shall also address the items listed below.

1. NJ TRANSIT Pipeline Occupancy Specifications EP-2;
2. NJ TRANSIT General requirement for Working within the Railroad Right of Way;
3. Engineering Data Required for Erection, Demolition or other Hoisting Operations over NJ TRANSIT Rail Operations;
4. NJ TRANSIT Guidelines for Temporary Shoring;
5. Specifications for Wire, Conduit, and Cable Occupancy of NJ TRANSIT Property ET-2;
6. Third Party Contractor Vehicle Use on NJ TRANSIT Property

B. Track outage acceptance signed by the Contractor.

PART 2 PRODUCTS

NOT USED.

PART 3 EXECUTION

3.1 SSWP DEVELOPMENT

A. NJ TRANSIT, has determined the need for SSWP's at all individual work locations.

B. Develop SSWP's in accordance with the format and sample provided at the end of this specification section.

C. Produce SSWPs using Microsoft Work software and print on 8 ½" x 11" white paper. The SSWP shall contain, but not be limited to, the following information:

1. Cover sheet with project title and submittal date.

2. Signatures of the NJ TRANSIT and the Construction Manager reviewers, as shown in the sample provided at the end of this section, Work will not be permitted to proceed without all of these signatures on the SSWP.

3. Scope of work listing major work elements.

4. Index.

5. Construction schedule showing each activity name, date, and duration.

6. Pre-construction details. List all activities to occur before construction begins, including equipment inspection and testing, verification of proper tools and equipment at the site, and other pre-construction activities that may be directed by the Construction Manager.

7. Necessary design calculations.

8. Description of access to the work site.

9. List of approved formal drawings to be kept at the job site.

10. Equipment list. List all major equipment, equipment specifications and tools to be used for the Project.

11. Detailed work schedule. Describe in detail each activity and duration. List requested track fouling shots and outages and the work to be performed during each fouling shot and track outage.

12. List of procedures to be following the event of an emergency.

13. List safety procedures to be followed as required by the Health and Safety Plan.

14. List emergency telephone numbers for local police and fire departments, rescue squads, NJ Transit Police, and additional telephone numbers that may be required by the Construction Manager.

D. Charts, diagrams, CPM schedules and other such graphics will be placed on 11” x 17” sheets as required.

3.2 WORK OPERATIONS

A. All work requiring track outages and/or track “fouling shots: will be scheduled in accordance with the track outages and “fouling shots” specified.

B. All work operations will conform strictly to the SSWPs approved by the Construction Manager and accepted by the Railroad. Deviations from the SSWPs will not be permitted unless directed in the writing by the Construction Manager.

C. All work will be in accordance with Rail Operations Specifications included in the Appendix to the Technical Provisions.

3.3 TRACK OUTAGE ACCEPTANCE

A. The Contractor will sign-off on the outage(s) when required by Railroad personnel in charge of track shutdowns.

B. A copy of the signed track outage acceptance will be submitted to the Construction Manager prior to beginning work in the outage area.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. No measurement will be made of the work of this Section.

4.2 PAYMENT

A. No separate payment will be made for the work of this Section for developing and submitting Site Specific Work Plans. All costs therefore shall be included in the overall price bid for the Contract.

END OF SECTION

APPENDIX TO SECTION 01112

SAMPLE SITE SPECIFIC WORK PLAN

SITE SPECIFIC WORK PLAN

FOR

_____
(Describe Work Activity, e.g. Pile Driving)

SIGNAL AND YARD POWER REPAIRS PROJECT

BY

_____
(Contractor Name)

SUBMITTAL DATE: _____

_____
(Project Manager Signature)

REVISION DATE: _____

_____
(Project Manager Signature)

REVISION DATE: _____

_____
(Project Manager Signature)

REVIEWED BY:

NJ TRANSIT:

_____
(Project Manager Signature)

_____
(Safety Officer Signature)

CONSTRUCTION MANAGER: _____

SCOPE OF WORK

1. Describe work activities
2. Who

3. When
4. Where

A. WORK SCHEDULE

1. Allowable track outages (reference GP's, SP's, etc.)
2. Weekly work activities
   a) Outage activities
   b) Dates
   c) Durations
   d) Work zone

B. WORK PROCEDURES

1. Preparation
   a) Site access
   b) Equipment
   c) Materials
   d) Survey
   e) Staging
   f) Communications
2. Construction operation
   a) Production schedule – step-by-step narrative of work activities to include date, time and description with supporting sketches
   b) Contingency procedures
3. Non-working operations
   a) Secure work operations
   b) Site security

C. SAFETY

1. Specific work activity safety procedures
2. Railroad protection procedures

3. Emergency contacts

D. STAFFING

1. Supervision
2. Work activity management

E. REFERENCES

1. Contract documents
2. Sketches
3. Shop drawings
4. Equipment specifications
5. Material specifications

END OF SECTION

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SECTION 01351 – HEALTH AND SAFETY PROGRAM REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

A. The references listed below, and other applicable codes, standards or regulations will be used by the contractor to develop a site specific Safety Program.

1. OSHA Safety and Health Standards: 29 CFR 1910, 29 CFR 1926 and 40 CFR, as referenced within the contract Documents.

2. USEPA Standard Operating Safety Guides.

3. ACGIH Threshold Limit Values and Biological Exposure Indices.

4. 49 CFR Parts 191-195 and 49 CFR Parts 390-397.

5. Occupational Safety and Health Guidance Manual for Hazardous Waste site Activities: NIOSH, 85-115.

6. Air Pollution Control Code of the Hudson Regional Health Commission (for dust control).

7. ANSI Standards.

8. NJ TRANSIT Roadway Worker Protection Training.

1.2 RESPONSIBILITY

A. The Contractor assumes full responsibility and liability for compliance with all applicable codes and regulations pertaining to the health and safety of personnel during the execution of the work.

1.3 SUBMITTALS

A. Develop a site-specific Health and Safety Program (HASP) that clearly delineates the health and safety procedures to be used during the construction of this work.

B. Submit the site-specific HASP for review within fourteen (14) days from the Notice-to-Proceed. The HASP will require approval by the Construction Manager before any work can commence at the site.

1.4 ACCIDENT AND INJURY PREVENTION

A. Adhere to applicable environmental regulations and mandatory documents listed herein for the entire duration of the Project. If hazardous waste materials are detected or generated at any time, immediately notify the Construction Manager of each and every occurrence.

B. Ensure the project is provided with adequate safeguards, including but not limited to proper safe rigging, safety nets, fencing, barricades, scaffolding and ladders, as necessary for the protection of their employees, as well as the public and other personnel at the site. All rigging and scaffolding shall be of good sound materials, of adequate dimensions for its intended use, and substantially braced, tied or secure to insure absolute safety for those required to use it. As well as those in its vicinity. All riggings, scaffolding and ladders shall meet ANSI requirements.

C. Should any life-threatening emergency condition requiring assistance develop during the entire project, first immediately notify emergency personnel (e.g., rescue squad, fire, police, etc.), then the Construction Manager of each and every occurrence. Also recommend any appropriate courses of action to the Construction Manager. The Construction Manager will contact NJ TRANSIT. An emergency contact list will be provided by the Construction Manager.

D. Any review and comment of the Contractor's Health and Safety Program by the Construction Manager will not impose any liability upon the Construction Manager, nor shall any such review relieve the Contractor of any of its responsibilities under the Contract.

E. Provide protection to the public from damage to person or property, within the limits of, and for the duration of the Contract, through completion. This requirement includes furnishing, installing and maintaining temporary fences, cones, construction signs, truck mounted and other appropriate safety equipment to protect and divert the public from the work areas.

F. Prior to the start of any demolition work, relocation, repairing or re-routing of existing structures, notify the Construction Manager in advance and obtain full clearance within the work area.

G. Obtain the required railroad safety training (NJ TRANSIT Roadway Worker Protection), and Hazardous Waste Operations and Emergency Response (HAZWOPER) training for all personnel.

H. After HASP approval, a Health and Safety Kick-Off Meeting with the Contractor's key personnel shall be conducted to comply with the HASP requirements prior to initiating any field activities, in addition to daily tailgate briefing meetings to comply with the Project Health and Safety Program requirements.

I. Provide directions to first aid equipment and facilities as are necessary or required, in the event of an injury.

J. Immediately report to the Construction Manager every accident to persons or damage to property and furnish in writing full information, including testimony of witnesses regarding any and all accidents.

K. Provide one (1) copy of the Material Safety Data Sheets (MSDSs) for chemical substances regularly utilized by the Contractor at the Project site. MSDSs must be kept on site available for review and inspection. MSDSs are not required for waste products generated by the Contractor during the course of work.

PART 2 PRODUCTS

NOT USED.

PART 3 EXECUTION

3.1 DEVELOPMENT OF THE SAFETY PROGRAM

A. Develop a site-specific HASP in compliance with the references cited in Part 1 of this Section.

3.2 TRAINING OF PERSONNEL

A. The following are minimum requirements:

The Contractor's on-site representative in charge (Project Manager, Project Engineer or Project Superintendent) and the Safety Officer must have completed:

1. A 40 hour hazardous material safety and health course as stipulated in 29 CFR 1910.120 e(3), and

2. An eight hour refresher course per year after 1) above has been met, as per 29 CFR 1910.120 e(8), and

3. A 30 hour construction safety course as administered by OSHA or an accredited OSHA training facilitator.

B. On site management and supervisory personnel shall receive at least 8 hours of specialized management and supervisory training on site-specific health and safety topics, 29 CFR 1910.120 e(4), prior to working at the site.

C. Retain all records to demonstrate such training on site and submit all records to the Construction Manager for review and acceptance of the competent personnel.

D. All training as listed above shall be in addition to such safety training required by NJ TRANSIT.

3.3 STOP WORK ORDERS

A. When the Contractor, or subcontractor, is notified by a Construction Manager's representative of any non-compliance with the provisions of the contract and the action(s) to be taken, the Contractor shall immediately, if so directed, or within 24 hours after receipt of a notice of violation correct the unsafe or unhealthy condition. If the Contractor fails to comply promptly, all or any part of the work being performed may be stopped by the Construction Manager or its representative with a "Stop Work Order". When, in the opinion of the Construction Manager, a satisfactorily corrective action has been taken to correct the unsafe and unhealthy condition, a start order will be given. The

contractor will not be granted any extension of time or compensation for damages by reason of or in connection with such work stoppage.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. No measurement will be made of the work of this Section.

4.2 PAYMENT

A. No separate payment will be made for the work of this Section for developing, submitting, and implementing a Health and Safety Program. All costs therefore shall be included in the overall price bid for the Contract.

END OF SECTION

SECTION 02050 – DEMOLITION

PART 1 GENERAL

1.1 DESCRIPTION

A. This Section includes specifications for demolition, removal and disposal of surface and subsurface structures and related ancillary services, including backfilling of excavations and depressions to restore site to final grade.

B. Extent of demolition work shall include, but not limited to:

1. Those portions of existing buildings and structure foundations, footings, and foundation systems, in interference with the new work, shall be removed.

2. Disconnect, cut, and cap utility services to facilities to be removed, rerouted, or demolished.

3. Removal of existing concrete curbs, sidewalks, pavements, abandoned inlets and manholes, drain pipes, metal and concrete structures, duct banks and other obstructions to the work.

1.2 RELATED WORK

A. Section 02200 – Earthwork

1.3 REFERENCED STANDARDS

A. American National Standards Institute (ANSI):

ANSI A10.6 Safety Requirements for Demolition

1.4 PERMITS

A. Contractor shall obtain all special permits and licenses and give all notices required for performance and completion of the demolition and removal work, hauling, and disposal of debris.

B. NJ Transit will provide a list of occupied properties and holiday observances to the Contractor.

1.5 SUBMITTALS

A. Demolition Plan: Provide a demolition plan to the Construction Manager to review, describing the proposed sequence, methods, and equipment for demolition, removal, and disposal of structure(s), including salvage if required.

B. Permits: Submit copies of demolition, hauling and debris disposal permits and notices to the Construction Manager for review and record purposes. Include description of proposed haul routes.

C. Utility Severance Certificates: Provide certificates of severance of utility services to the Construction Manager for review and record purposes.

D. Temporary Structures: Submit drawings of temporary structural shoring, bracing, framing or support, for review by the Engineer. These drawings shall include the reason for such temporary members, the location, the direction and magnitude of design reaction forces on existing structure, and details showing how these reaction forces will be applied to the existing structure.

The shop drawings shall be submitted with the Seal of the PE engaged by Contractor; PE must be licensed in the State of New Jersey.

1.6 SPECIAL PRECAUTIONS

A. The Hoboken Ferry Terminal, as part of the historic Erie-Lackawanna Railroad and Ferry Terminal, is listed on the State and National Registers of Historic Places. The preservation of the building and surrounding site features are of the highest importance. The Contractor is to be responsible for taking all necessary precautions to protect elements of the building and surrounding site features that are not scheduled for removal and those items that are to be salvaged as part of this contract.

B Hazardous materials may be encountered during demolition operations including asbestos and lead based paint; comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

1.7 SITE CONDITIONS

A. Protection of Persons and Property:

1. Where directed, install chain link fencing around the work area.

2. Where directed, erect and maintain temporary bracing, shoring, lights, barricades, signs, and other measures as necessary to protect the public, workers, and adjoining property from damage from demolition work, all in accordance with applicable codes and regulations.

3. Open depressions and excavations occurring as part of this work shall be barricaded and posted with warning lights when accessible through adjacent property or through public access. Operate warning lights during hours from dusk to dawn each day and as otherwise required.

4. Protect utilities, pavements, and facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by the demolition operations.

B. Protection of Utilities:

1. Protect active sewer, water, gas, electric, and other utilities indicated or, when not indicated, found or otherwise made known to the Contractor before or during demolition work. If utility is damaged, immediately notify the Construction Manager and the utility owner for corrective action.

2. Prior to the demolition of any part of the building, involving utilities, arrangements shall be made for the disconnection and termination of all water, sewer, gas, electric, telephone, cable television, traction power and other facilities that are connected within the building, in conformance with the requirements of the owner and municipalities and companies owning or controlling them.

3. When only a portion of an occupied structure is to be demolished, demolition and related operations shall be conducted in such a manner as not to interrupt the service to the portion of the structure, which is not to be demolished. Where it is necessary to reconnect any facilities to the undemolished portion of the structure, such reconnection shall be made permanent.

4. The municipalities and companies concerned shall be notified, in writing, when such disconnections, terminations or reconnections are required, and the work shall be performed in accordance with their standard practices and requirements and under their supervision, or arrangements shall be made for the work to be performed with their forces.

C. Noise and Dust Abatement:

1. Provide continuous noise and dust abatement as required to prevent disturbance and nuisance to the public workers and to the occupants of adjacent premises and surrounding areas. Dampen areas affected by demolition operations as necessary to prevent dust from rising.

2. When a certain level of noise is unavoidable because of the nature of the work or equipment involved, and such noise is objectionable to the occupants of adjacent premises, make arrangements with the governmental authorities having jurisdiction to perform such work or operate such equipment at the most appropriate time periods of the day. Provide abatement measures to the extent feasible and practicable.

D. Unknown Conditions:

1. NJ Transit cannot and does not warrant that the Contract Drawings and related documents represent all surface and subsurface conditions at the site and adjoining areas.

2. Existing utilities and drainage systems below grade are located from existing documents and from surface facilities such as manholes, valve boxes, area drains, and other such surface fixtures. NJ Transit cannot and does not warrant the accuracy and completeness of the Contract Documents. It is the Contractor's responsibility to verify type and location of all existing utilities prior to demolition.

3. If existing active services encountered are not indicated or otherwise made known to the Contractor and interfere with the permanent facilities under construction, notify the Construction Manager in writing, requesting instructions on their disposition. Take immediate steps to ensure the service provided is not interrupted, at no additional cost to the NJTransit and do not proceed with the work until written instructions are received from the Construction Manager.

4. Thickness of existing pavements, where indicated on the Contract Drawings, are from previous construction documents, and may not depict the actual depth or thickness of the total pavement or base material, where it occurs. NJ Transit cannot and does not warrant these dimensions. Contractor shall remove and dispose of pavement of whatever thickness as required, at no additional cost to NJ Transit.

E. Rodent Control and Extermination: Prior to beginning any demolition operations, a qualified sanitarian shall conduct a survey for evidence of current rat activity and shall initiate a control program by a certified pest control operator if the survey indicates that it is necessary.

1. The application of exterminating materials shall conform to NJAC 7:30 et seq.

2. At least 10 days before beginning demolition of any structure, the pest control operator shall begin to rid the structure and adjacent areas within the limits of the Project of any rats or their carcasses and to prevent their migration to other adjacent areas.

3. Where there is no competing water supply, liquid anticoagulant baits can be used at the discretion of the certified pesticide applicator.

4. Toxic bait in the form of one pound paraffinized block shall also be placed in each manhole or inlet of storm or combination drains located in the same general area as the building to be demolished. Bait shall be placed in suitable locations within the drainage structures, as determined by the pest control operator. The bait block shall be fastened in its location with wire.

5. All Toxic bait in structures or drains shall be inspected and renewed as necessary on the fourth or fifth day after initial baiting.

6. All visible carcasses of rats shall be removed and disposed of in a satisfactory manner.

7. The pest control operations shall submit a signed statement after the initial treatment and each follow-up inspection reporting the amount and type of bait placed in each location and stating the visible results obtained from the rat control program.

PART 2 PRODUCTS

1.1 MATERIALS, EQUIPMENT, AND FACILITIES

A. Furnish all materials, tools, equipment, devices, appurtenances, facilities, and services as required for performing the demolition and removal work.

B. Materials used for backfill shall conform to the requirements for backfill of Section 02200, Earthwork.

PART 3 EXECUTION

3.1 PRESERVATION OF REFERENCE MARKERS

A. Record the locations and designation of survey markers and monuments prior to their removal. Provide three reference points for each survey marker and monument removed, established by a licensed land surveyor.

B. Store removed markers and monuments during demolition work, and replace them upon completion of the work. Re-establish survey markers and monuments in conformance with the recorded reference points. Forward to the Construction Manager a letter verifying re-establishment of survey markers and monuments, signed by a licensed land surveyor.

3.2 DEMOLITION

A. Perform demolition in accordance with the accepted demolition plan and phasing plan(s). Perform demolition work in accordance with ANSI A10.6.

B. Perform operational procedures in accordance with the accepted demolition plan and permit requirements.

C. Demolish concrete and masonry in small sections. Perform demolition with small tools as much as possible. Blasting will not be permitted. Salvage pavers as indicated on Contract Drawings.

D. Cap or plug sanitary sewer with brick and mortar or Class C concrete. Cap and plug pipe and other conduits abandoned due to demolition, with approved type caps and plugs as required by the utility owners.

E. Backfill depressions caused by excavations, demolition, and removal with materials placed and compacted in accordance with Section 02200, Earthwork.

1. Additional materials required for backfilling shall be furnished at no additional cost to NJ Transit. The quality, nature and source of additional material required for backfilling shall be in accordance with Section 02200.

2. All operations in connection with backfilling and grading shall be performed and completed in such a manner to ensure proper drainage.

3. Wall foundations against which backfill material is to be placed shall first be cleaned, pointed and waterproofed with two coats of asphalt or tar.

4. The ground surface shall be graded, if necessary, to eliminate water pockets.

3.3 DISPOSAL OF DEBRIS

A. Dispose of removed materials, waste, trash, and debris in a safe, acceptable manner, in accordance with applicable laws and ordinances and as prescribed by authorities having jurisdiction.

B. Burying of trash and debris on the site will not be permitted. Burning of trash and debris at the site will not be permitted.

C. Remove trash and debris from the site at frequent intervals so that its presence will not delay the progress of the work, nor it be an annoyance to the occupants.

D. Removed materials, trash, and debris shall become the property of the Contractor and shall be removed from the NJ Transit's property and disposed of in a legal manner. Location of disposal site and length of haul shall be the Contractor's responsibility.

3.4 CLEANUP

A. Provide a clean and orderly site.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for "Demolition" and all associated work in this section shall be included in the Division 2 lump sum bid line item C02-003-002.0 for "Selective Demolition" on the Bid Price Sheet.

END OF SECTION

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SECTION 02113 – MANAGEMENT OF EXCAVATED SOILS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section includes specifications for protection requirements, excavation of contaminated soil, management of soil/material designated for off-site management, and soil sampling and analysis, as needed, to characterize contaminated soil/material for disposal.

1.2 REFERENCED SECTIONS

Not Used

1.3 CITED STANDARDS

A. Code of Federal Regulations (CFR):

1. 29 CFR 1910, Occupational Safety and Health Standards (OSHA)
2. 29 CFR 1926, Safety and Health Regulations for Construction (OSHA)
3. 40 CFR 260-279, Protection of Environment – Hazardous Wastes
4. 49 CFR 171-180, Hazardous Material Transportation Regulations (USDOT)

B. New Jersey Department of Environmental Protection (NJDEP):

1. N.J.A.C. 7:26E - Technical Requirements for Site Remediation
2. N.J.A.C. 7:26 - Solid and Hazardous Waste Regulations
3. N.J.A.C. 7:26D – Remediation Standards
4. NJDEP – Alternative and Clean Fill Guidance for SRP Sites (December 29, 2011)

C. Applicable local laws and regulations.

1.4 NOTED RESTRICTIONS

A. Contractor shall not commence work until all equipment and materials to be used are on site and ready.

1.5 QUALITY CONTROL

Not Used.

1.6 SUBMITTALS

A. The Contractor shall prepare and submit a Soil Management Plan (SMP) to the Site Engineer which describes the proposed methods for management of excavated soil, soil designated for off-site disposal, soil designated for on-site reuse, and soil sampling and analysis, as needed to characterize contaminated soil for off-site disposal or on-site reuse. The SMP must be approved by the Site Engineer prior to implementation. The SMP will include, at a minimum, details related to:

1. Excavation procedures and equipment specifications.
2. Management of soil designated for off-site disposal.
3. Sampling and analysis plans.
4. Method of documentation for tracking contaminated soil/material from the origin to final off-site disposal location.
5. Contractor Health and Safety Procedures including personnel certifications.
6. Identification of licensed transporter and disposal facility to be utilized by the Contractor.
7. Decontamination of Equipment

1.7 JOB CONDITIONS

A. As-built drawings showing locations of all utilities.

PART 2 PRODUCTS

2.1 EQUIPMENT

A. Equipment suitable and of size compatible with site conditions and be operated in accordance with applicable OSHA, federal, state and municipal regulations

2.2 MATERIALS

A. Roll off containers with appropriate tarps for covering of containerized soils.

PART 3 EXECUTION

3.1 GENERAL

A. The Contractor shall perform all work in accordance with the approved site specific Health and Safety Plan (HASP), the SMP, and other requirements of this Section.

B. The Contractor shall be responsible, at all times, for protecting the health and safety of his workers, subcontractors, and the public.

3.2 SOIL EXCAVATION ACTIVITIES

A. Excavated soils will generally consist of historic fill material which may consist of elevated concentrations of heavy metals (e.g., arsenic, cadmium, chromium, lead, etc.), polycyclic aromatic hydrocarbons (PAHs), coal, ash, and petroleum contamination.

B. If soil is encountered that exhibits severe staining, free product and/or elevated readings on a photo-ionization detector (PID), at the direction of the Site Engineer, the Contractor shall segregate the soils in separate roll-off containers.

C. The Contractor shall protect and maintain excavation areas until completion of the work and acceptance by the Site Engineer. Excavated contaminated soil designated for off-site management shall be containerized in roll-off containers at designated area(s), as directed by the Site Engineer.

D. All equipment used in the excavation and handling of contaminated soil and material designated for off-site management shall be decontaminated in accordance with the approved SMP.

E. At no time will soil excavated during this project be removed from the Construction Site without approval of the Site Engineer.

3.3 SOIL DISPOSAL

A. The Contractor shall be responsible for providing and completing all forms, bills of lading, and (hazardous and non-hazardous) waste manifests, as required, for the proper disposal, recycling, and transportation of all wastes generated from the excavation of contaminated soils in accordance with all applicable Federal, State, and Local regulations, including but not limited to 40 CFR 260-279, 40 CFR 761, and 49 CFR 171-180.

B. Excess soils shall be disposed of as ID-27 waste at an approved soil recycling facility pending soil characterization sampling. The Contractor shall identify a facility for the disposal of non-hazardous, ID-27 waste and receive approval from NJ TRANSIT and the LSRP to use that facility prior to removal of the material from the project site.

C. At no time will any soil excavated during the project be reused on-site without approval of the Site Engineer.

D. The Contractor shall keep an accurate record of the soil excavated and disposed of off-site. The Contractor shall record soil volumes in tons, and provide copies of waste disposal tickets, bills of lading, and/or waste manifests showing the actual weights to document these quantities. The documentation will be submitted to the Site Engineer upon completion of the soil excavation activities.

E. The Site Engineer shall be responsible for filing any Exception Reports but it shall be Contractor's responsibility to notify Site Engineer immediately if it becomes aware of any errors or defects in the manifest system for the disposal associated with this project.

E. All requirements and approvals from the approved disposal facility will be performed by Contractor. This includes but is not limited to the sampling of soils, screening of soils, and removal of non-compliant materials, solidification of wet material, and any other requirements of the disposal facility.

3.4 SOIL REUSE

A. Soils that meet the most stringent Soil Remediation Standards (N.J.A.C. 7:26D) or impact to groundwater soil screening levels will be considered available for reuse on-site with approval by the Site Engineer and Licensed Site Remediation Professional for the site, if applicable.

3.5 SOIL SAMPLING AND ANALYSIS

A. Soil sampling and analyses of containerized soils shall be by the Contractor within seven days of the completion of excavation activities. All results must be obtained by the Contractor and provided to the Site Engineer within 21 days from the collection of the soil samples. In-situ sampling, conducted prior to excavation activities, can be utilized provided the Contractor follows the sampling and analysis requirements outlined in Section 3.5(B) below. The Contractor shall provide NJ TRANSIT with the analytical results for any sampling conducted.

B. If the Contractor proposes to reuse soils within the work area, the Contractor shall collect soil samples in accordance with the requirements of NJDEP's Fill Material Guidance for SRP Sites (April 2015), to determine if soils meet most stringent Soil Remediation Standards (N.J.A.C.

7:26D) or impact to groundwater soil screening levels. The Contractor shall also collect and analyze samples to fulfill the requirements of the proposed off-site disposal facility.

C. If the analytical results do not exceed the most stringent Soil Remediation Standards (N.J.A.C. 7:26D) or impact to groundwater soil screening levels, the Contractor may reuse the soil on-site with approval from the Site Engineer and Licensed Site Remediation Professional for the site, if applicable.

D. If the analytical results exceed the most stringent Soil Remediation Standards (N.J.A.C. 7:26D) or impact to groundwater soil screening levels, the excavated soils must be managed for off-site disposal.

E. If the analytical results exceed the most stringent Soil Remediation Standards (N.J.A.C. 7:26D) or impact to groundwater soil screening levels, but are below RCRA limits (40 CFR 261), the Contractor shall transport the contaminated soil off-site management as non-hazardous waste.

F. If the analytical results indicate the presence of contamination at levels exceeding RCRA limits (40 CFR 261), Contractor shall transport the contaminated soil for off-site management as hazardous waste.

G. In all cases, the Contractor's proposed method of off-site management of contaminated soil shall be approved by the Site Engineer a minimum of seven days prior to removal of the soil from the Construction Site.

3.6 CLEAN FILL REQUIREMENTS

A. Clean fill imported on-site must be evaluated in accordance with NJDEP's Fill Material Guidance for SRP Sites (April 2015). The importation of clean fill must be approved by the Site Engineer, NJ TRANSIT, and the LSRP prior to importation to the Site.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for "Management of Excavated Soils" and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C02-011-001.0 - Mircropiles (02499) – Permanent Casing Portion of Micropile Seated into the Top of Bedrock

2. C02-011-002.0 - Mircropiles (02499) – Bond Length Portion of Micropile in Bedrock

3. C03-005-001.0 - Monopole Pile Cap PC-4A (6'x6')

4. C03-005-002.0 - Monopole Pile Cap PC-4B (10'-6"x10'-6")

5. C03-005-003.0 - Monopole Pile Cap PC-16 (10'-6"x46'-6")

6. C03-006-001.0 - Days Yard Wayside Power Platform Foundation Type F4.0 & Pedestal P1

7. C03-006-002.0 - Days Yard Wayside Power Platform Foundation Type F4.5 & Pedestal P1

8. C03-006-003.0 - Days Yard Wayside Power Platform Foundation Type F6.0 & Pedestal P1
9. C03-006-004.0 - Days Yard Wayside Power Platform Foundation Type F7.5 & Pedestal P1
10. C03-006-005.0 - Days Yard Wayside Power Platform Stair Concrete Pad
11. C03-006-006.0 - Days Yard Wayside Power Outlets Concrete Pad
12. C03-006-007.0 - Days Yard Wayside Power Control Station Concrete Pad
13. C16-006-001.0 - Underground Ductbank "12-12"
14. C16-006-002.0 - Underground Ductbank"13-13"
15. C16-006-003.0 - Underground Ductbank "0-0"
16. C16-006-004.0 - Underground Ductbank "1-1"
17. C16-006-005.0 - Underground Ductbank "1A-1A"
18. C16-006-006.0 - Underground Ductbank "2-2"
19. C16-006-007.0 - Underground Ductbank "2A-2A"
20. C16-006-008.0 - Underground Ductbank "3-3"
21. C16-006-009.0 - Underground Ductbank "3A-3A"
22. C16-006-010.0 - Underground Ductbank "4-4"
23. C16-006-011.0 - Underground Ductbank "5-5"
24. C16-006-012.0 - Underground Ductbank "6-6"
25. C16-006-013.0 - Underground Ductbank "7A-7A"
26. C16-006-014.0 - Underground Ductbank "7B-7B"
27. C16-006-015.0 - Underground Ductbank "8-8"
28. C16-006-016.0 - Underground Ductbank "9-9"
29. C16-006-017.0 - Underground Ductbank "3V-3V"
30. C16-006-018.0 - Underground Ductbank "4V-4V"
31. C16-006-019.0 - Underground Ductbank "4H-4H"
32. C16-006-020.0 - Underground Ductbank "FG1-FG1" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
33. C16-006-021.0 - Underground Ductbank "FG2-FG2" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)

34. C16-006-022.0 - Underground Direct Buried Conduit (Wayside Power Outlet to Control Station -2C 1" at Locations 7L, 9L, Paper, and 3 Exp East)

35. C16-007-001.0 - Handhole at Signal Transformer 23-T1 (36"Lx24"Wx30"D)

36. C16-007-002.0 - Days Yard Wayside Power Manholes (10'L x 8'W x 8'D)

37. C16-007-003.0 - 15KV Power Manholes (10'L x 10'W x 8'D)

END OF SECTION

SECTION 02140 – DEWATERING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section includes specifications for designing, furnishing, installing, maintaining, operating and removing temporary dewatering systems and control water levels and hydrostatic pressure during construction; disposing of pumped water; constructing, maintaining, observing and, except where no longer needed.

B. Dewatering includes lowering the water table and intercepting seepage which would otherwise emerge from the slopes or bottoms of excavations; increasing the stability of excavated slopes; prevented loss of material from beneath the slopes or bottom of excavations; reducing laterals loads on sheeting bracing; preventing rupture or heaving of the bottom of and excavation; and disposing of pumped water.

1.2 REFERENCED SECTIONS

A. Section 02200 Earthwork

1.3 CITED STANDARDS

A. Methods of groundwater discharge, conveying and transmission to off-site locations shall meet with the approval of EPA and NJ DEP.

1.4 NOTED RESTRICTIONS

A. Assume responsibility for the design and adequacy of the dewatering systems to perform as follows:

1. Effectively reduce the hydrostatic pressure and lower the groundwater levels below the excavation;

2. Develop a substantially dry and stable subgrade for prosecution of Construction operations;

3. Prevent damage to adjacent properties, building structures, utilities and other work; and

4. Assure that, after 12 hours of initial pumping, no soil particles will be present in the discharge.

B. Methods of dewatering may include sump pumping, single or multiple stage well point systems, educator and type systems, deep wells and combinations thereof.

C. Locate dewatering facilities where they will not interfere with utilities and construction work being performed by others.

D. Modify dewatering procedures, which cause, or threaten to cause damage to new or existing facilities so as to prevent further damage. Assume responsibility for determining modification to be made at no additional expense to the NJ TRANSIT.

E. Wherever possible, discharge groundwater into a nearby, existing storm sewerage system.

F. During dewatering, the abutments of the existing bridge shall be protected from settlement and/or damage; railroad operations shall not be impacted.

1.5 QUALITY CONTROL

(None Listed)

1.6 SUBMITTALS

A. Prior to installation of the dewatering system, submit shop drawings and design data, indicating the following, for review by the Construction Manager.

1. The proposed type of dewatering system;

2. Methods of dewatering including location plan showing dewatering installation, location and depths of system components and must be sealed by a NJ-P.E. and submitted for approval;

3. Complete description of equipment and instrumentation to be used, with installation, operation, and maintenance procedures;

4. Types and sizes of filters;

5. Design calculations demonstrating adequacy of the proposed system and equipment; and

6. Method of disposal of pumped.

B. Submit records as required by Article 3.2 herein.

1.7 JOB CONDITIONS

A. Surface Drainage: Intercept and divert precipitation and surface water away from excavations through the use of dikes, curb walls, ditches, pipes sumps, or other means.

B. Drainage of excavated Areas:

1. Provide and maintain ditches of adequate size to collect surface and seepage water which may enter the excavations. Divert water into sumps and drain or pump into drainage channels or storm drains or sewers, subject to approval of jurisdictional authorities.

2. When water is to be diverted into a storm drain, provide accepted apparatus as required to reduce the amount of fine particles which may be carried into the drain. If a storm drain becomes blocked or its capacity resurrected due to dewatering operations, make arrangements with the governing jurisdictional authority, and clean the drain at no additional expense to NJ TRANSIT.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Furnish all materials, tools, equipment, facilities and services as required. Provide the necessary dewatering work and facilities. Provide back-up equipment as necessary for replacement and for unanticipated emergencies.

PART 3 EXECUTION

3.1 DEWATERING

A. Perform dewatering in accordance with approved shop drawings. Keep the Construction Manager advised of any changes made to accommodate field conditions and, on completion of the dewatering system installation, revise and resubmit shop drawings and necessary to indicate the installed configuration.

B. Organize dewatering operations to lower the groundwater level in excavations as required for prosecution of the work, and to provide a stable, dry upgrade for the prosecution of construction operations.

C. Maintain water level at lower elevations, so that no danger to structures can occur because of buildup of excessive hydrostatic pressure, and provide for maintaining the water level a minimum of 2 feet below the subgrade.

D. The extent of dewatering may be reduced for structures designed to withstand hydrostatic uplift pressure, provided such water level does not result in uplift pressures in excess of 80 percent of the downward pressure produced by the weight of the structure and backfill in place.

3.2 RECORDS

A. Observe and record the average flow rates and time of operation of each pump used in the dewatering system. Where necessary, provide appropriate devices, such as flow meters, for the observing the flow rates. Record the data during the period that the dewatering system is in operation.

B. Observe and record the elevation of the groundwater during the period that the dewatering system is in operation.

C. During initial period of the dewatering, make required observations on a daily basis. If, after a period, dewatering operations have stabilized, observations at longer intervals may be considered by the Construction Manager.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Dewatering” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C02-011-001.0 - Mircropiles (02499) – Permanent Casing Portion of Micropile Seated into the Top of Bedrock

2. C02-011-002.0 - Mircropiles (02499) – Bond Length Portion of Micropile in Bedrock

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32. C16-006-020.0 - Underground Ductbank "FG1-FG1" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)

33. C16-006-021.0 - Underground Ductbank “FG2-FG2” (Conduits extending Ductbanks “F-F” & “G-G” into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)

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37. C16-007-003.0 - 15KV Power Manholes (10’L x 10’W x 8’D)

END OF SECTION

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SECTION 02160 – SUPPORT OF EXCAVATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Requirements for designing, furnishing, installing, maintaining, and removing excavation support systems.

1.2 DEFINITIONS

A. Lagging: Temporary or permanent excavation support structure consisting of heavy timber boards, planking, sheathing, or reinforced precast concrete planks secured in place by steel H-piles.

B. Proof Load: An applied load 25 percent greater than the design load, imposed by load test.

C. Sheeting: A line of timber or planks, plain or tongue-and-grooved on sides, driven endwise into ground to protect subgrade operations.

D. Sheet Piling: Interlocking steel sheet piling installed vertically to hold back earth or retain soil and to keep water out of a foundation excavation. May be temporary or permanent structure.

E. Shores/Shoring: Props or posts of timber or other material in compression, used for temporary support or excavations.

F. Soldier Piles: Vertical steel H-piles installed to take the side thrust of horizontal sheeting or lagging. Also called soldier beams.

G. Strut: A brace or supporting member that resists thrusts in the direction of its own length; may be vertical, diagonal, or horizontal.

H. Tremie Concrete: Concrete placed by means of tremie equipment, for depositing concrete under water and thereby displacing bentonite slurry in slurry-wall trench or excavation.

I. Waler: Horizontal timber or beam used to brace or support vertical sheeting or sheet piling.

1.3 REGULATORY REQUIREMENTS

A. Excavations shall be defined or classified as being in excess of 10 feet in depth, and, as such, shall comply with the requirements of the 2015 International Building Code, New Jersey Edition.

1.4 REFERENCE STANDARDS

A. Guidelines for working within or in vicinity of NJ Transit's right-of-way, items 1 through 6

B. American Society for Testing and Materials (ASTM):

ASTM A6	Specifications for General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use
ASTM A328	Specifications for Steel Sheet Piling
ASTM A563	Specification for Carbon and Alloy Steel Nuts

ASTM A690	Specification for High-Strength Low-Alloy Steel H-Piles and Sheet Piling for Use in Marine Environments
ASTM D245	Method for Establishing Structural Grades and Related Allowable Properties for Visually Graded Lumber
ASTM D390	Specification for Coal-Tar Creosote for the Preservative Treatment of Piles, Poles, and Timbers of Marine, Land, and Fresh Water Use
ASTM D391	Specification for Creosote-Coal Tar Solution
ASTM D1760	Specification for Pressure Treatment of Timber Products
ASTM F432	Specification for Roof and Rock Bolts and Accessories
ASTM F436	Specification for Hardened Steel Washers

1.5 SUBMITTALS

A. Excavation Support Systems Program: Submit a written schedule and procedure, along with detailed drawings, of the proposed excavations and excavation support systems to the Construction Manager for review and acceptance.

B. Shop Drawings: Indicate method, staging, and necessary details for construction of the excavation support systems.

C. Computations: Submit appropriate design calculations to support shop drawings. Include maximum theoretical deflections of supporting members and estimated ground movements.

D. The Contractor shall be solely responsible for design and construction of excavation support systems, including safety of people and property. The Contractor shall hire Professional Engineer registered in the State of New Jersey to prepare signed and sealed shop drawings and calculations of excavation support systems for review and approval. Engineer shall have previous experience designing excavation support systems of this type and complexity.

1.6 DESIGN CRITERIA

A. Design criteria and requirements for support of excavation shall be strictly follow the “guidelines for temporary shoring NJ Transit rail property”. This document is included in the “guidelines for working within or in vicinity of NJ Transit’s right-of-way”, dated November 2012, as item #4.

B. Design excavation support systems to support earth pressures, hydrostatic pressures, utility loads, equipment, applicable vehicular and railroad traffic and construction loads, and other surcharge loads in a manner that will allow the safe and expeditious construction of permanent structures without movement or settlement of the ground and in a manner that will prevent damage to, or movement of, adjacent buildings, structures, and utilities.

C. Design each member to support the maximum loads that may occur during construction. For the purpose of this Section, the design load means the maximum load the support member will have to carry in actual practice, and the proof load means a specified test load greater than the design load.

D. Carry the bottom of the support system to a depth below the main excavation adequate to prevent lateral and vertical movement. Where additional excavation is carried below the main excavation, provide means to prevent movement of the main excavation supports.

E. Design the excavation support system to allow the required free excavated space for workers, concrete formwork, wall waterproofing, and drainage systems.

F. Design excavation support systems for staged removal to conform to construction and backfill sequences. Leave excavation support systems in place, except as specified otherwise herein or approved on the shop drawings.

G. Employ walers, struts, tiebacks or other type of bracing for horizontal support for excavation faces to be retained by soldier piles and lagging, or sheet piles. Provide struts with intermediate vertical and horizontal supports to prevent buckling as required.

H. Provide diagonal bracing where needed for stability of the system. Use timber lagging, steel sheeting, or reinforced precast concrete sheeting or planking.

I. Design soldier piles as simple beams assuming hinges at struts and at bottom of excavations.

J. Design piles or other vertical support members to be incorporated in a system employing tieback anchors to have the capability of resisting vertical components of tieback loads without significant settlement during any stage of excavation and construction.

K. Timber support systems, except lagging, will be permitted only for utilities and minor structures.

L. Basis for determining minimum allowable working stresses for timbers: ASTM D245.

M. Minimum thickness of lagging between soldier piles spaced up to 7 feet on center: 3 inches for excavations of depth up to 25 feet, and 4 inches for excavations of depth in excess of 25 feet.

1.7 SITE CONDITIONS

A. Provision for Contingencies:

1. Monitor performance of components of excavation support systems, both for vertical and horizontal movement, at regular intervals. At a minimum measure
    a. horizontal deformations of the tops of the retaining system and at each bracing level;
    b. vertical movements of the adjacent ground and buildings, and
    c. stress levels in representative struts at each bracing level.

2. Provide and secure approval for a contingency plan, or alternative procedures, to be implemented in the event of an unfavorable performance of the system.

3. Have materials and equipment available to implement the approved contingency plan.

B. Existing Utilities:

1. Proceed with the caution in areas of utility facilities and structures. Expose existing utilities by hand excavation or by other method acceptable to NJ Transit.

2. If existing utility facilities and structures interfere with the proposed method of excavation support, modify or relocate such facilities in accordance with NJ Transit's recommendations.

C. Loads: Lateral loads shall not be transferred to new structures by removal of excavation support systems, except as indicated or approved.

D. Site Information:

1. Subsurface conditions are shown on the contract Drawings.

2. Additional test borings and other exploratory operations may be made by the Contractor at no additional cost to NJ Transit, provided such operations are acceptable to the Construction Manager.

PART 2 PRODUCTS

2.1 MATERIALS

A. Soldier Piles/H-Piles: ASTM A690 of sizes indicated on approved shop drawings. Provide H-Piles of sizes required to contain lagging, sheeting, or planking.

B. Steel Sheet Piling: ASTM A572 Grade 50, continuous interlocking type, of sizes indicated on approved shop drawings, with suitable handling holes.

C. Timber: Structural grade lumber with a minimum fiver stress in bending of 1100 PSI.

1. Lagging: Heavy timber boards or planking of sizes indicated on approved shop drawings. Lagging boards or planking shall be secured and contained in place by H-piles with boards inserted in the recesses between the H-flanges.

2. Posts, Struts, and Walers: Heavy timber posts, beams, stringers, and planking, of sizes indicated on approved shop drawings.

3. Preservative Treatment: Lagging and timbers to be left in place shall be pressure-impregnated with creosote or creosote-coal tar solution, conforming to ASTM D390 or ASTM D391, treated in accordance with ASTM D1760.

D. Concrete: Refer to Section 03300 Cast in Place Concrete.

PART 3 EXECUTION

3.1 GENERAL

A. Inspect site, examine existing conditions and make all necessary preparations for the safe and proper sequence of work.

B. Properly guard and protect excavations so as to prevent them from becoming dangerous to person or properly.

C. Properly slope sides of excavation or provide shoring, sheeting and bracing to prevent caving, erosion, or gullying of sides of excavations.

D. Brace, shore, and protect existing structures when excavations are made adjacent to the existing structures or within a distance that they will be affected by the excavation.

E. Maintain sides and slope of excavation in safe condition until backfilling or other work is complete. Maintain shoring and bracing in place until completion of work.

F. Provide materials work in good serviceable order.

3.2 INSTALLATION OF SOLDIER PILES AND LAGGING

A. Provide prebored holes for H-piles adequate to accommodate pile sections. Extend holes to depth below level of adjacent subgrade to provide firm bearing.

B. After a pile has been seated plumb in the prebored hole, encase it with Class 4000 concrete from the bearing tip to the level of adjacent subgrade excavation.

C. Provide timber lagging or reinforced precast concrete members, secured in place to soldier piles, contained in the recesses between the H-flanges. Install lagging horizontally with no gaps between boards. Carry the bottom of the lagging system to a depth below the adjacent subgrade to prevent lateral movement and obtain adequate vertical support.

D. As installation progresses, backfill voids between excavation face and lagging with sand or soil rammed into place. Pack with materials such as hay or burlap to allow drainage of groundwater without loss of soil or sand packing or backfill.

E. If unstable material is encountered during excavation, take suitable measures to contain such material in place and to prevent soil displacement.

3.3 INSTALLATION OF SHEET PILING

A. Drive sheet piles in plumb position with each pile interlocked with the adjoining pile for its entire length to form a continuous diaphragm throughout the length of each run of wall, bearing firmly against original ground. Drive to depth required for base stability and deflection control.

B. Do not drive piles within 100 feet of concrete less than seven days old.

C. Methods of driving, cutting, and splicing shall conform to the approved shop drawings.

D. Connections shall be as shown on the Shop Drawings. Connections which are not shown, but which are required to complete the installation shall be provided by the Contractor and shall be subject to the Engineer's approval.

3.4 SUPPORT SYSTEMS WITH BRACING AND TIE-BACKS

A. Provide walers, struts, rakers, shores, and tie-backs to support excavation faces retained by posts, or soldier piles.

B. Internal Bracing:

1. Provide walers where required, at each level of bracing. As excavation proceeds, place walers on open face of support system wall. Wedge, drypack, and otherwise provide tight bearing between walers and support system wall, with ample bearing areas to provide uniform transfer of loads.

2. Provide struts with intermediate bracing to enable struts to carry the design load without distortion or buckling.

3. Provide diagonal bracing for stability of the system.

4. Include web stiffeners, plates, angles, or bracing to prevent rotation, crippling, or buckling of connections and points of bearing between structural members. Allow for eccentricities caused by field fabrication and assembly.

5. Install and maintain internal bracing support members in tight contact with each other and with the surface being supported. Shim and wedge braces to wales prior to excavating to next lower level of braces.

6. Design internal bracing support members for maximum loads that may occur during excavation and removal stages.

C. Tie-Backs:

1. Provide tie-back anchorage system. Install tie-back system in accordance with approved shop drawings.

2. Tie-backs shall not extend beyond NJ Transit's right-of-way and easement properties.

3. Install tiebacks in accordance with manufacturer's instructions.

4. Stress installed tie-backs to proof loads indicated on approved shop drawings. Tie-backs that lose more than 5 percent of applied proof loads will be rejected.

5. Apply proof loads as herein specified, and provide means to measure load application within an accuracy of plus or minus 5 percent.

6. After load-test approval, reduce tie-back proof load to the design load. Provide a method of fixation that will limit the load loss to not more than 5 percent of the design load in the transfer of loads form the jacks to the support system.

D. Proof Loading:

1. Perform and accomplish proof loading by approved load testing or jacking procedures. Submit detailed shop drawings of proposed load testing and jacking procedures for review by the Construction Manager. Perform proof loading under the observation of the Construction Manager.

2. Apply proof loads as soon as possible after bracing and tie-backs are installed in accordance with approved methods, procedures, and sequences.

3. Coordinate excavation work with installation of bracing and tie-backs and with the application of proof loading. Provide steel shims and wedges, welded or bolted in place, to help maintain the proof-loading force on the bracing and tie-backs after release of load-testing pressures.

E. Creep Tests on Tie-Backs:

1. Load test tie-backs for creep at each level of support in the excavation, at the first installation on each side of the excavation, at horizontal intervals not exceeding 500 feet, and wherever a significant change occurs in the soil in which the tie-backs are anchored. Tests shall be performed under the observation of the Design Engineer and Construction Manager.

2. Perform 24-hour load test on one out of each 100 tie-back anchors. Perform tests by applying the proof load and maintaining it constant for 24 hours.

3. Keep records of axial movement with incremental applications of the load, and the amount and time of load fall-off with no pumping of the jack or axial movement during the 24-hour period that the proof load on the anchor is maintained.

4. Design the tie-back system to attain specified limits if, during the 24-hour period, the axial deformation of the tie-back system exceeds 0.20 inch, or the decrease in jack pressure without pumping is more than 5 percent after correcting for temperature changes.

3.5 REMOVAL OF EXCAVATION SUPPORT SYSTEMS

A. If removal is required wholly or in part, perform such removal in a manner that will not disturb or damage adjacent buildings, structures, construction, or utilities. Fill voids immediately with lean concrete or with approved backfill compacted to the density specified in Section 02200 Earthwork.

B. Excavation support systems shall be left in place until the concrete walls and structures to receive the transferred loading from the removal support system have reached 80 percent of the specified compressive strength at 28 days. Demonstrate with strength test results that concrete has reached sufficient strength before load transfer from the support systems to the concrete structure may be performed.

C. Portions of sheeting which are in contact with concrete shall be left in place. Remove from the site all elements of excavation support systems to minimum depth of 6 feet below yard level.

D. Repair damage to properties resulting from removal, at no additional cost to NJ Transit.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Support of Excavation” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C02-011-001.0 - Mircropiles (02499) – Permanent Casing Portion of Micropile Seated into the Top of Bedrock
2. C02-011-002.0 - Mircropiles (02499) – Bond Length Portion of Micropile in Bedrock
3. C03-005-001.0 - Monopole Pile Cap PC-4A (6’x6’)
4. C03-005-002.0 - Monopole Pile Cap PC-4B (10’-6”x10’-6”)
5. C03-005-003.0 - Monopole Pile Cap PC-16 (10’-6”x46’-6”)
6. C03-006-001.0 - Days Yard Wayside Power Platform Foundation Type F4.0 & Pedestal P1
7. C03-006-002.0 - Days Yard Wayside Power Platform Foundation Type F4.5 & Pedestal P1
8. C03-006-003.0 - Days Yard Wayside Power Platform Foundation Type F6.0 & Pedestal P1
9. C03-006-004.0 - Days Yard Wayside Power Platform Foundation Type F7.5 & Pedestal P1
10. C03-006-005.0 - Days Yard Wayside Power Platform Stair Concrete Pad
11. C03-006-006.0 - Days Yard Wayside Power Outlets Concrete Pad
12. C03-006-007.0 - Days Yard Wayside Power Control Station Concrete Pad

13. C16-006-001.0 - Underground Ductbank "12-12"
14. C16-006-002.0 - Underground Ductbank"13-13"
15. C16-006-003.0 - Underground Ductbank "0-0"
16. C16-006-004.0 - Underground Ductbank "1-1"
17. C16-006-005.0 - Underground Ductbank "1A-1A"
18. C16-006-006.0 - Underground Ductbank "2-2"
19. C16-006-007.0 - Underground Ductbank "2A-2A"
20. C16-006-008.0 - Underground Ductbank "3-3"
21. C16-006-009.0 - Underground Ductbank "3A-3A"
22. C16-006-010.0 - Underground Ductbank "4-4"
23. C16-006-011.0 - Underground Ductbank "5-5"
24. C16-006-012.0 - Underground Ductbank "6-6"
25. C16-006-013.0 - Underground Ductbank "7A-7A"
26. C16-006-014.0 - Underground Ductbank "7B-7B"
27. C16-006-015.0 - Underground Ductbank "8-8"
28. C16-006-016.0 - Underground Ductbank "9-9"
29. C16-006-017.0 - Underground Ductbank "3V-3V"
30. C16-006-018.0 - Underground Ductbank "4V-4V"
31. C16-006-019.0 - Underground Ductbank "4H-4H"
32. C16-006-020.0 - Underground Ductbank "FG1-FG1" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
33. C16-006-021.0 - Underground Ductbank "FG2-FG2" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
34. C16-006-022.0 - Underground Direct Buried Conduit (Wayside Power Outlet to Control Station -2C 1" at Locations 7L, 9L, Paper, and 3 Exp East)
35. C16-007-001.0 - Handhole at Signal Transformer 23-T1 (36"Lx24"Wx30"D)
36. C16-007-002.0 - Days Yard Wayside Power Manholes (10'L x 8'W x 8'D)
37. C16-007-003.0 - 15KV Power Manholes (10'L x 10'W x 8'D)

END OF SECTION

SECTION 02200 – EARTHWORK

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section includes specifications for earthwork, including: excavation for pavement; excavation and placement of compacted fill and backfill for structures and utilities; subgrade and foundation preparation; and subsurface extraction of miscellaneous structures and facilities indicated to be removed.

1.2 DEFINITIONS

A. Earthwork Terminology: Terms used in this Section and not defined herein shall be interpreted in accordance with the definitions given in ASTM D653.

B. Subgrade: Subgrade is the lowest elevation of excavation and the highest elevation of embankment required to accommodate the indicated construction.

C. Soil Classification: Soil classification is based on the Unified Soil Classification system given in ASTM D2487. Group symbols, where used, conform to the symbols of ASTM D2487.

D. Backfill: Soil or soil-rock material used to backfill excavations and to backfill excavated spaces around foundation walls, building walls, retaining walls, and abutments.

E. Embankment: Soil or soil-rock material placed to raise the subgrade or natural grade of the site for embankment construction.

F. Borrow: Soil material in embankment or other construction that is excavated from any location other than required on-site excavations.

G. Imported Material: Soil or granular material that is hauled in from off-site areas.

H. Unsuitable Material: Excavated material or material below the natural ground surface in embankment areas or below subgrade elevation in excavated areas, which is unsuitable for its planned use as determined by the Construction Manager. Unsuitable material is further defined as material determined to be:

1. Of such unstable nature as to be incapable of being compacted to specified density using ordinary methods at optimum moisture content; or

2. Too wet to be properly compacted and circumstances prevent suitable in-place drying prior to incorporation into the work: or

3. Otherwise unsuitable for the planned use.

The presence of excessive moisture in a material is not, by itself, sufficient cause for determining that the material is unsuitable. The existence of unsuitable material may be indicated in the Contract Documents.

I. Relative Compaction: The ratio, expressed as a percentage, of the in-place dry density of fill material as compacted in the field to the maximum dry density of the same material as determined by laboratory test ASTM D1557, Method D.

J. Optimum Moisture Content: The water content at which as soil can be compacted to a maximum dry unit weight by a given compactive effort.

K. Relative Density: Refer to ASTM D4253 and ASTM D4254.

1.3 REFERENCE SECTIONS

A. Section 02140 Dewatering

1.4 CITED STANDARDS

A. American Society for Testing and Materials (ASTM):

ASTM C131	Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C535	Test Method for Resistance to Degradation of Large-Size coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM D422	Standard Method for Particle-Size Analysis of Soils
ASTM D427	Standard Test Method for Shrinkage Factors of Soils
ASTM D1140	Standard Test Method for Amount of Material in Soils Finer Than the 200 (75-um) Sieve
ASTM D1557	Standard Test Methods for Moisture-Density Relations of soils and Soil Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in. (457-mm) Drop
ASTM D2216	Method of Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures.
ASTM D2487	Standard Test Method for Classification of Soils for Engineering Purposes
ASTM D2922	Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D4253	Standard Test Methods for Maximum Index Density of Soils Using a Vibratory Table
ASTM D4254	Standard Test Methods for Minimum Index Density of Soils and Calculation of Relative Density
ASTM D4318	Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

B. Standard Specifications for Road and Bridge Construction issued by the New Jersey State Department of Transportation, herein referred to as "NJDOTSS".

1.5 CLASSIFICATION OF EARTHWORK

A. Excavation and backfill are classified according to the purpose of the work, as follows:

1. Pavement Excavation: All excavation involved in grading and construction of the parking areas, landscaped areas, walkways, brick alley and connections thereto; and any other excavation classified or indicated to be paid for as Pavement Excavation.

2. Structure Excavation and Backfill: The removal of material for the construction of foundations for buildings, retaining walls, headwalls, bulkheads and other structures, and other excavation indicated as structure excavation. Structure backfill includes furnishing material, if necessary, and placing and compacting backfill material around structures to the lines and grades indicated.

3. Cut-and-Cover Excavation and Backfill: The removal of material for the construction of underground utilities and structures constructed by the cut-and-cover method, and furnishing material, if necessary, and placing and compacting backfill around such structures to the lines and grades indicated.

4. Borrow Excavation: The excavation of borrow material from either on-site or off-site locations and hauling the material to the location of its placement in embankment or other construction. For payment purposes, borrow excavation may be classified as Local Borrow if the material is taken from an on-site source, or Imported Borrow if the material is taken from an off-site source.

B. Subgrade and foundation preparation includes find grading and compaction of excavations, moisture-conditioning and compaction of subgrades, and original ground upon which pavement, surfacing, structures, or embankment are to be constructed. Subgrade preparation includes the placement and compaction of structural fill material in holes, pits, and other depressions within the areas to be paved.

C. Structure Excavation: The removal of material for the construction of foundations for structures, buildings, retaining walls, headwalls, bulkheads and other structures, and other excavation indicated as structure excavation.

D. Structure Backfill: Structure backfill includes furnishing structure fill material for raising grades, and placing and compacting structural fill material around structures to the lines and grades indicated. Structure backfill includes borrow excavation and material when required.

1.6 NOTED RESTRICTIONS

A. Contractor shall nor commence work until all equipment and materials to be used are on site and ready.

1.7 SUBMITTALS

A. Test Reports: Submit on a monthly basis certified test reports of all tests specified to be performed. Test reports shall be signed and sealed by a New Jersey registered professional engineer experienced in geotechnical work.

B. Samples: Furnish and deliver samples of fill and backfill materials as selected by the Construction Manager for testing and analysis.

C. Delivery Tickets: Submit a delivery ticket for each load with a monthly summary report with documentation of imported borrow material delivered to the site, stating the type of fill material, the quantity, and trip origin and destination.

1.8 QUALITY CONTROL

A. Inspections and Tests: The Contractor shall provide quality control inspections and tests as specified under Article 3.14 to assure compliance with specified requirements.

B. Laboratory and Geotechnical Services: Engage the services of an approved independent soils testing laboratory to perform the above-specified inspections and tests. Foundation and

subgrade preparation and the placement and compaction of fills shall be performed under the surveillance of a New Jersey registered geotechnical engineer employed by the Contractor.

C. Tolerances:

1. Construct finished subgrades to plus 0 or minus ½-inch of the elevations indicated.

2. Construct finished grade of slopes not steeper than 3:1 plus or minus 1 inch and on slopes steeper than 3:1 plus or minus 2 inches.

a. Maintain the moisture content of fill material as it is being placed within plus or minus two percent of the optimum moisture content of the material as determined by the laboratory tests herein specified.

1.9 SITE CONDITIONS

A. Unfavorable Weather Conditions:

1. Excavating, filling, backfilling, and grading work shall not be performed during weather conditions which might damage or be detrimental to the condition of existing ground, in-progress work, or completed work. When the work is interrupted by rain, excavating, filling, backfilling, and grading work shall not resume until the site and soil condition (moisture content) are suitable for compaction.

2. Subgrade shall be free from mud, snow, ice, and deleterious material when work is resumed.

3. Soil material that is too wet for compaction shall be left to drain, aerated and dried by disking and harrowing or other approved method until the moisture content of the area is uniform, and within the specified limits.

B. Erosion Prevention: Protect stockpiles, ditches, embankments, filled, backfilled, and graded areas to prevent erosion until such time as permanent drainage and erosion control measures have been installed.

PART 2 PRODUCTS

2.1 FILL AND BACKFILL MATERIALS – GENERAL REQUIREMENTS

A. Material used for fill, backfill, and embankment construction shall be an inert, non-expansive soil, free from organic matter and other deleterious substances, and of such quality that it will compact thoroughly without the presence of voids when watered and rolled. Excavated on-site material will be considered suitable for fill, backfill, and embankment construction if it is free from organic matter and other deleterious substances and conforms to the requirements specified herein.

B. Excavated material that is suitable for fill, backfill, and embankment construction shall be conditioned for reuse and properly stockpiled for later filling and backfilling operations. Conditioning shall consist of spreading material in layers not to exceed 8 inches and raking fee of debris and rubble. Rocks exceeding four inches in largest dimension and deleterious material shall be removed from the site and disposed of as specified herein under Disposal of Surplus Material.

C. Where conditions require the importing of fill or backfill material, the material shall be an inert, non0expansive soil or soil-rock material free of organic matter and meeting or exceeding the minimum requirements specified herein for the location.

D. Fill, backfill, and embankment material shall conform to the following minimum requirements, unless otherwise specified:

1. Liquid Limit (ASTM D4318): 30 maximum

2. Plasticity Index (ASTM D4318): 15 maximum

2.2 FILL AND BACKFILL MATERIALS – SPECIFIC REQUIREMENTS

A. Common Fill: Well-to-moderately well-graded soils consisting of sands, silts, and clays, with or without gravel, as excavated, screened or blended, having the following mechanical properties and gradation:

1. Laboratory dry weight: 95 pcf minimum

2. Dry Change (ASTM D427): 15 percent maximum

3. Gradation (ASTM D422):

Sieve Opening	**Percent Passing by Weight**
4 inch square	100
3 inch square	85 minimum
U.S. No. 200	50 maximum

B. Common Embankment: Common fill, with the following additional requirements:

1. Laboratory dry weight: 100 pcf minimum

2. Material retained on U.S. No. 10 Sieve (ASTM D422): 50 percent maximum

3. Material passing U.S. No. 40 Sieve:

a. Liquid Limit (ASTM D4318): 25 maximum

b. Plasticity Index (ASTM D4318): 6 maximum

C. Select Fill: Well-to-moderately well-graded solid consisting of sands, silts, and clays, with or without gravel, as excavated, screened or blended, having the following mechanical properties and gradation:

1. Laboratory dry weight: 100 pcf minimum

2. Dry Change (ASTM D427): 10 percent maximum

3. Gradation (ASTM D422):

Sieve Opening	**Percent Passing by Weight**
1 inch square	100
3/8 inch square	75 minimum
U.S. No. 4	20 minimum
U.S. No. 10	10 minimum

4. Sand Equivalent: 15 minimum

D. Structural Fill: Well-to-moderately well-graded granular soils, as excavated, screened or blended, having the following mechanical properties and gradation:

1. Laboratory dry weight: 100 pcf minimum

2. Dry Change (ASTM D427): 12 percent maximum

3. Material retained on U.S. NO. 40 Sieve (ASTM D422): 50 percent maximum

4. Material passing U.S. No. 40 Sieve:

   a. Liquid Limit (ASTM D4318): 25 maximum

   b. Plasticity Index (ASTM D4318): 6 maximum

5. Gradation (ASTM D422):

Sieve Opening	**Percent Passing by Weight**
2 inch square	100
1 inch square	75 minimum
3/8 inch square	30 minimum
U.S. No. 4	25 minimum
U.S. No. 10	15 minimum

Sieve Opening	**Percent Passing by Weight**
U.S. No. 40	8 minimum
U.S. No. 200	15 maximum but not more than 75 percent of the fraction passing No. 40 Sieve

6. Sand Equivalent: 15 minimum

E. Structural Embankment: Structural fill, except 100 percent shall pass a four-inch square sieve.

2.3 MATERIALS FOR EARTHWORK

A. Fill and Backfill Materials: Where specific fill, backfill, and embankment materials are not indicated on Contract Drawings, conform to the following requirements:

1. Embankment: Common Embankment.

2. Rock Fill: Fill or embankment may be Rock fill at depths greater than 6 feet below finished subgrade, and Select Rock Fill at depths from one to 6 feet below finished subgrade.

3. Subgrade and Foundation: Structural Fill for a depth of not less than 12 inches.

4. Backfill against Concrete Walls and Waterproofing: Select Fill.

5. Backfill for Retaining Walls and, and Bulkheads: Structural Fill.

6. Backfill for Abandoned Vaults (including airways, cross adits, and similar voids): Structural Fill.

7. Backfill under Supporting Walls and Columns and Similar Locations: class 4000 concrete.

8. Backfill Where Not Otherwise Indicated: Common Fill or Common Embankment.

9. No. 57 stone shall consist of broken stone conforming to NJDOT Standard Specification Subsection 901-1.

B. Testing laboratory to determine the suitability of topsoil proposed to be salvaged. Topsoil that does not meet requirements shall be classified as Unsuitable Material and removed from the site as Surplus Material.

2.4 SOURCE QUALITY CONTROL

A. Fill, backfill, and embankment materials proposed to be used in the work shall be tested in the laboratory for compliance with specified requirements as follows:

1. Moisture-Density Relationship: ASTM D1557, Method D.

2. Moisture Content: ASTM D2216.

3. Relative Density: ASTM D4253 and D4254.

4. Liquid Limit: ASTM D4318.

5. Plastic Limit and Plasticity Index: ASTM D4319.

6. Dry Change (percent volumetric change): ASTM D427.

7. Percentage of Wear: ASTM C131 or C535 as applicable.

8. Sieve Analysis: ASTM D422, and ASTM C136, as applicable.

9. Percent Passing No. 200 sieve: ASTM D1140.

10. Sand Equivalent: NJDOT Test A-8.

B. Where classification of soils is necessary to meet specified requirements, perform laboratory tests in accordance with ASTM D2487.

C. Submit certified test reports of all tests to the Construction Manager as herein specified under Submittals.

PART 3 EXECUTION

3.1 STAKING AND GRADES

A. Lay out the work, establish all necessary markers, bench marks, grading stakes, and other stakes as required, in accordance with the requirements of standard practice in the industry.

B. Perform surveys in accordance with the requirements of good practice in the industry. Such surveys shall include the following:

1. Initial survey of original ground.

2. Final surveys when excavations, backfills, and embankments are completed.

3. When excavation is classified as common and rock excavation for payment purposes, a survey of the top-of-rock profile shall be performed.

3.2 EXISTING UTILITIES

A. Verify on site the location and depth (elevation) of all existing utilities and services before performing any excavation work. Excavation within 3 feet of a utility line shall be performed by hand.

B. Abandoned sewers, piping, and other utilities encountered during excavation shall be removed and the ends plugged.

C. Active utility lines encountered, which are not indicated in the Contract Documents, shall be reported immediately to the Construction Manager and utility owners involved. The Construction Manager and utility authorities shall be permitted free access to determine the measures deemed necessary to repair, relocate, or remove the utility.

3.3 EARTHWORK GENERAL REQUIREMENTS

A. Erosion Protection: Prevent erosion of the site at all times.

B. Construction Traffic: Disperse travel paths of traffic and construction equipment over entire width of compacted surfaces so as to aid in obtaining uniform compaction. Protect exposed soil layers with high moisture content from excessive wheel loads.

C. On-Site Excavation or Borrow Pits: Do not excavate or remove any material from the project site or right-of-way that is not within the designated excavation, as indicated by the slope and grade lines.

D. Stockpiling of Fill and Backfill Material:

1. Excavate and separately stockpile suitable fill and backfill material. Save sufficient suitable excavated material, if available, for later filling, backfilling, and embankment construction.

2. Store materials from required excavations that are suitable for fill, backfill, and embankment as excavated, in stockpiles segregated by type.

3. Establish excavated material stockpiles on site only in locations where they will not interfere with the progress of the work. Offsite stockpiling, if necessary, shall be the responsibility and at the expense of the Contractor.

E. Disposal of Surplus Material:

1. Excess earth materials, unsuitable materials and debris shall become the property of the Contractor and shall be removed from the site and disposed of in a legal manner.

2. Location of disposal site and length of haul shall be the Contractor’s responsibility.

3. All excavation material removed from the site must be considered as ID-27.

F. Maintenance of Excavations, Slopes, and Embankments:

1. Excavate and remove material outside the limits of excavation which is unstable and constitutes potential sides and material which comes into excavations for any reason including from the driving of piles.

2. Maintain slopes and embankments until final completion and acceptance of the work. Promptly repair slides, slipouts, washouts, settlements, and subsidences that occur for any reason, and refinish the slope or embankment to the indicated lines and grades.

G. Safeguarding of Structure Walls: Heavy equipment and rollers shall not be operated within 4 feet of structure walls.

3.4 SUBSURFACE EXTRACTION

A. Remove subsurface facilities and obstructions to the extent indicated.

B. When subsurface facilities are encountered during excavation that interferes with new construction, and such facilities are not indicated, notify the Construction Manager promptly for corrective determination.

3.5 ROUGH GRADING AND FILLING

A. Prior to commencement of structural earthwork, perform such soil and rock removal and filling as may be required to facilitate the progress of the work and bring all elevations to the rough grading lines indicated on Contract Drawings. Grading shall be by blading or as herein specified under Article 3.6.

B. Fill or backfill wells, test pits, and holes which will not be completely removed by excavation, with Class A concrete, crushed stone, or clean select fill, and compact as herein specified in layers not exceeding 6 inches after compaction.

C. Fill or backfill holes, swales, and low points which will not otherwise be removed in the course of the work, to the indicated grades or as required.

3.6 EXCAVATION

A. General Excavation Requirements:

1. Perform excavating as indicated and required for roadway beds, for concrete footings, foundations, exterior paving, floor slabs, concrete walks, brick alley and for site levels and grading, and provide shoring, bracing, underpinning, cribbing, pumping, and planking as required.

2. The bottoms of excavations shall be level, firm, undisturbed earth, clean and free from loose material, debris, and foreign matter.

3. Excavate to the lines and grades indicated on the Contract Drawings.

4. Support and maintain excavations so that sides are stable and will not move. Excavations may be maintained by sloping cut faces where space permits, or by providing structural support of earth walls.

5. Limits of excavations shall allow for adequate working space for installing forms, wall waterproofing, and as required for safety of personnel.

6. Dewater excavation as specified in Section 02240, Dewatering.

7. Remove unstable bottom material. Remove large stones, debris, and incompressible soils from common excavation bottoms to a minimum depth of 12 inches. Where required to excavate to rock, it shall be understood to mean sound bedrock. Remove friable and unsound material.

8. Except as otherwise indicated, preserve the material below and beyond the lines of excavations. Where excavation is carried below the indicated grade, backfill to the indicated grade or as required.

9. Excavation and its restoration, for convenience of the Contractor shall be at no additional expense to NJ TRANSIT.

10. Place excavated material at sufficient distance from edge of excavation so as not to cause cave-ins or bank slides, but in no case closer than 3 feet from the edge of excavations.

11. Unauthorized over excavations for footings and foundations shall be filled with structural fill, or class 4000 concrete to indicated elevations.

12. Condition excavated earth material that is suitable for fill, backfill, or embankment for re-use and properly stockpile for later filling and backfilling operations as herein specified. Test, screen, and mix as necessary to meet specified requirements.

3.7 SUBGRADE PREPARATION

A. Perform al cutting, blading, and shaping as required to cut and shape the subgrade to the grades and elevations indicated.

B. Subgrade preparation includes fine grading, reworking as necessary, and preparation of cut, fill, or embankment upon which structure and equipment foundations, pipe, subballast, subbase, base, and pavement will be placed.

C. Scarify and mix entire surface of subgrade to a depth of at least 6 inches. Remove all organic materials and soil. Moisture-condition scarified subgrade to 3 percent above optimum moisture content. If subgrade stabilization material is required, incorporate it into subgrade at this time.

D. After the market has been thoroughly mixed and moisture-conditioned, accurately construct and fine grade the subgrade to indicated line, grade, and contour with high and low spots eliminated. Compact for full width to the specified density. Remove soft spots developed during working, fill with approved material, and re-compact.

E. Where feasible, use roller for compaction of size suitable to produce the specified density. Where compaction by roller is not feasible, use mechanical tampers or vibratory compactors.

F. Finish subgrade to straightedge or template within specified tolerances with the finished surface bladed to a uniform, dense, smooth texture.

3.8 FOUNDATION PREPARATION

A. Complete construction of the excavation support and dewatering systems prior to placement of structure and equipment foundations.

B. Avoid disturbing bottom of excavation. If bottom is disturbed, restore and stabilize the bearing foundation at no additional expense to NJ TRANSIT.

3.9 SUBGRADE FILLING/RAISING GRADE

A. Construct compacted fill for raising of subgrade to indicated elevation by approved and accepted methods. Spread fill material in uniform lifts not exceeding 8 inches in uncompacted thickness. Fill material that does not contain sufficient moisture to compact properly shall be sprinkled with water; if it contains excess moisture it shall be aerated or permitted to dry to the proper water

content. Fill material and water shall then be thoroughly mixed before being compacted. Compact each layer or spread fill material to the specified density.

B. Control of fill shall consist of field inspection and testing to determine that each layer has been compacted to the required density and to ensure that optimum moisture is being obtained. Any layer or portion of a layer that does not attain the compaction required shall be scarified and recompacted until the required compaction is obtained.

C. Perform spreading and compacting as required to produce the required density, and a uniform surface smooth, true to grade.

3.10 COMPACTION

A. Compaction Density: Compact each layer of embankment, fill, and backfill material to not less than the indicated or specified compaction. Required compactions are defined as Class I or Class II, as follows:

1. Class I Compaction: 90 percent relative compaction as determined by ASTM D1557, Method D, if the material is cohesive; or 70 percent relative density as determined by ASTM D4253, Dry Method, and ASTM D4254, Method A, if the material is granular.

2. Class II Compaction: 95 percent relative compaction as determined by STM D1557, Method D, if the material is cohesive; or 75 percent relative density as determined by ASTM D4253, Dry Method, and ASTM D4254, Method A, if the material is granular.

B. Required Compactions:

1. Embankment or fill where the surface will be subgrade or bearing foundation: Class II for full depth.

2. Backfill around Structures: Class I under top 12 inches; Class II for top 12 inches.

3. Cut-and-Cover Backfill: Class I to 36 inches above structure or utility; Class II for balance.

4. Original Ground or Cut Subgrade: Except as specified in Articles 3.08 where original ground or cut subgrade, or fill less than 1 foot thick, will be subgrade or bearing foundation, scarify the surfaces and provide Class II compaction for at least 12 inches in depth. Include the following additional requirements:

a. Provide Class II compaction for original ground within 3-1/2 feet of top of rail profile and 2-1/2 feet of finished pavement grade, for full width of pavement plus three feet on each side thereof.

b. Provide Class II compaction for top 6 inches of undisturbed original ground upon which embankments are to be constructed.

3.11 BACKFILLING

A. Use materials removed from site excavations if such material meets specified requirements.

B. Backfilling is required around all substructures. Fill all abandoned vaults, shafts, airways, adits, holes, pits, and other voids.

C. Place backfill in layers not to exceed 8 inches of loose material, and compact each layer to specified density before the next layer is placed.

D. Place backfill material in such manner that unbalanced horizontal loads will not be applied to a newly-placed structure or portion of structure, utilities, or pipelines. Do not backfill around portions of structures requiring backfill on only one side or on less than all aides until the concrete has reached the specified strength to withstand the earth pressures.

E. When placing material for backfill around waterproofed structures, protect such structures and the waterproofing thereof with a shield when necessary to prevent displacement of injury by stones or other hard substances in the backfill.

F. Do not backfill on or against structural concrete until the specified 28-day concrete strength has been attained.

G. Complete backfill for bulkheads, in accordance with the above specified time limit.

H. Do not use compaction equipment and methods that produce excessive horizontal or vertical earth pressures.

3.12 FINISH GRADING

A. Finish grade all areas to elevations and grades indicated.

3.13 FIELD QUALITY CONTROL

A. Inspections and Tests by the Contractor.

1. Density Tests: Compacted fill, backfill, and embankment shall be tested to verify compliance with specified requirements in accordance with ASTM D2922. Minimum frequency of tests shall conform to the following requirements:

   a. Expansive Horizontal Areas: One test per 100 cubic yards, or fraction thereof, of fill or backfill placed.

   b. Confined Areas and Embankments: One test per lift of fill, backfill, or embankment placed.

2. Tests for compaction shall be made in accordance with test procedures outlined in ASTM D1557, Method D, as applicable. Field testing of soils or compacted fill in place shall be performed in accordance with applicable requirements of ASTM D2922.

3. Moisture Content Tests: Compacted fill, backfill, and embankment shall be tested to verify compliance with specified requirements in accordance with ASTMD3017. Minimum frequency of tests shall be as specified above for density tests.

B. Inspections by the Construction Manager:

1. Site preparation, cutting and shaping, excavating, filling, backfilling, and embankment construction shall be carried out under the inspection of the Construction Manager, who will have the Contractor perform appropriate field and laboratory tests, as necessary, to evaluate the suitability of fill and backfill material, the proper moisture content for compaction, and the degree of compaction achieved. Fill or backfill that does not meet the specified requirements shall be removed or recompacted until the requirements are satisfied.

2. Cutting and shaping, excavating, conditioning, filling, backfilling, and compacting procedures require approval of the Construction Manager as they are successively performed. Work found to be unsatisfactory or work disturbed by subsequent operations

before approval is granted shall be corrected in an approved manner directed by the Construction Manager.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for "Earthwork" and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C02-011-001.0 - Mircropiles (02499) – Permanent Casing Portion of Micropile Seated into the Top of Bedrock
2. C02-011-002.0 - Mircropiles (02499) – Bond Length Portion of Micropile in Bedrock
3. C03-005-001.0 - Monopole Pile Cap PC-4A (6'x6')
4. C03-005-002.0 - Monopole Pile Cap PC-4B (10'-6"x10'-6")
5. C03-005-003.0 - Monopole Pile Cap PC-16 (10'-6"x46'-6")
6. C03-006-001.0 - Days Yard Wayside Power Platform Foundation Type F4.0 & Pedestal P1
7. C03-006-002.0 - Days Yard Wayside Power Platform Foundation Type F4.5 & Pedestal P1
8. C03-006-003.0 - Days Yard Wayside Power Platform Foundation Type F6.0 & Pedestal P1
9. C03-006-004.0 - Days Yard Wayside Power Platform Foundation Type F7.5 & Pedestal P1
10. C03-006-005.0 - Days Yard Wayside Power Platform Stair Concrete Pad
11. C03-006-006.0 - Days Yard Wayside Power Outlets Concrete Pad
12. C03-006-007.0 - Days Yard Wayside Power Control Station Concrete Pad
13. C16-006-001.0 - Underground Ductbank "12-12"
14. C16-006-002.0 - Underground Ductbank"13-13"
15. C16-006-003.0 - Underground Ductbank "0-0"
16. C16-006-004.0 - Underground Ductbank "1-1"
17. C16-006-005.0 - Underground Ductbank "1A-1A"
18. C16-006-006.0 - Underground Ductbank "2-2"
19. C16-006-007.0 - Underground Ductbank "2A-2A"

20. C16-006-008.0 - Underground Ductbank "3-3"
21. C16-006-009.0 - Underground Ductbank "3A-3A"
22. C16-006-010.0 - Underground Ductbank "4-4"
23. C16-006-011.0 - Underground Ductbank "5-5"
24. C16-006-012.0 - Underground Ductbank "6-6"
25. C16-006-013.0 - Underground Ductbank "7A-7A"
26. C16-006-014.0 - Underground Ductbank "7B-7B"
27. C16-006-015.0 - Underground Ductbank "8-8"
28. C16-006-016.0 - Underground Ductbank "9-9"
29. C16-006-017.0 - Underground Ductbank "3V-3V"
30. C16-006-018.0 - Underground Ductbank "4V-4V"
31. C16-006-019.0 - Underground Ductbank "4H-4H"
32. C16-006-020.0 - Underground Ductbank "FG1-FG1" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
33. C16-006-021.0 - Underground Ductbank "FG2-FG2" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
34. C16-006-022.0 - Underground Direct Buried Conduit (Wayside Power Outlet to Control Station -2C 1" at Locations 7L, 9L, Paper, and 3 Exp East)
35. C16-007-001.0 - Handhole at Signal Transformer 23-T1 (36"Lx24"Wx30"D)
36. C16-007-002.0 - Days Yard Wayside Power Manholes (10'L x 8'W x 8'D)
37. C16-007-003.0 - 15KV Power Manholes (10'L x 10'W x 8'D)

END OF SECTION

SECTION 02210 – EXISTING UTILITIES AND STRUCTURES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This section includes the requirements for protecting, removing relocation and replacing existing utilities and structures, and notifying utility owners, and marking out existing utilities on the site.

1.2 DEFINITIONS

A. “Interference”: With the work of utilities that may require re-routing or removal, relocation or replacement is defined as utilities that are either approximately parallel with the new conduits and within the two vertical places enclosed by the conduit embedment zone width, as shown on the Contract Drawings, plus 6” on each side (total of 1’ added to the conduit embedment zone width) or crossing the conduit trench at any angle and existing at the same elevation as the proposed conduits so as to be in direct conflict. All other utilities, including all laterals and services, approximately parallel to new conduits but outside of conduit embedment zone width plus 1’ or crossing the conduit trench at any angle and in direct conflict with the proposed conduits are the obligation of the Contractor’s to project, remove, relocate, or replace at and additional cost to the NJ Transit.

B. “Utilities” is defined as any pipeline, conduit, wire or other facility that conveys fuel, gas, water, sewage or storm water; transit electricity, voice communications, television, signals or alarm; and similar related services.

1.3 NOTED RESTRICTIONS

A. Contractor shall not commence work until all equipment and materials to be used are on site and ready.

1.4 QUALITY CONTROL

(None Listed)

1.5 SUBMITTALS

A. Lists of owners of utilities on site.

B. Revised site drawings showing location of existing utilities confirmed by the owners of the utilities.

1.6 DELIVERABLES

A. As-built drawings showing locations of all utilities.

PART 2 PRODUCTS

2.1 MATERIALS

A. All materials used for relocation or replacement of utilities and structures shall be as approved by the respective utility owners thereof.

PART 3 EXECUTION

A. Prior to construction, Contractor shall notify in writing owners of utilities and structures within the vicinity of the proposed work.

B. Contractor shall provide the Construction Manager with a list of all Owners of utilities and structures contacted, including the time and date of contact and the names of responsible individuals contacted.

C. Contractor shall be responsible for full mark-out of the existing utilities and Structures sufficiently in advance of the work to allow for a field evaluation of the routing of work contractor shall not proceed with the work where utilities have not been located and marked by Utility or other.

D. The Contractor shall maintain the mark-out of existing utilities and structure until the work in the vicinity of the marked-out utilities and structures has progressed sufficiently in advance thereof that their location is no longer required.

E. The locations of utilities and structures as shown on the Contract Drawings are based on the best information available, but the Owner does not guarantee the accuracy or completeness of the data.

F. Protect existing utilities and structures not designated for removal, relocation or replacement. The contractor shall strictly comply with the requirements of the owners of existing utilities and structures including but not limited to those relating to support, protection, inspection and testing and shall be responsible for costs associated therewith. As the excavation approaches utilities or underground structures digging by machinery shall be discontinued until manual excavation properly locates the extent of the utility or structure.

G. In the event of damage, injury or loss to existing utilities and structure, whether shown on the Contract Drawings or not, the Contractor shall make all reasonable efforts to facilitate repairs and to mitigate the impact of such event upon the utility or structure to at least to a condition found immediately prior to the work. In the event the utility owner elects to repair, the Contractor shall provide all reasonable access and assistance and will reimburse the utility owner for the cost of the repair. If utility service is interrupted, alternate backup utility service shall be provided by the Contractor.

1. Backfilling around protected utilities and structures shall be in accordance with Section 02225, Trenching and Backfilling for Utilities.

H. Re-routing of the work to avoid existing utilities, and structures.

1. Where existing utilities and structures appear to be located differently than shown on the Contract Drawings, the Contractor shall notify the Construction Manager so that the work may be re-routed, if possible, to avoid interference. Rerouting to avoid interference shall be treated as a minor change as stated in General Conditions Section ”Change in the Work”.

I. Removal, relocation or replacement of existing utilities and structures:

1. Where shown on the Contract Drawings the Contractor shall be responsible to remove, relocate or replace existing utilities and structures in accordance with the specific specification section describing the item of work.

2. If removal, relocation or replacement of existing utilities and structures are required because of interference with the work, or by request of the utility owner, and are not shown on the Contract Drawings, the change shall be in accordance with General Conditions.

3. Backfilling around relocated utilities, facilities lines and structures shall be in accordance with Section 02225, Trenching and Backfilling for Utilities.

J. Work affecting water distributions systems that will take fire hydrants out of service shall be coordinated with the local fire department. The contractor shall be prepared to take whatever measures necessary to restore fire flows in the event of an emergency or provide temporary fire flow service in accordance with the requirements of the local fire department.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for "Existing Utilities and Structures" and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C02-011-001.0 - Mircropiles (02499) – Permanent Casing Portion of Micropile Seated into the Top of Bedrock
2. C02-011-002.0 - Mircropiles (02499) – Bond Length Portion of Micropile in Bedrock
3. C03-005-001.0 - Monopole Pile Cap PC-4A (6'x6')
4. C03-005-002.0 - Monopole Pile Cap PC-4B (10'-6"x10'-6")
5. C03-005-003.0 - Monopole Pile Cap PC-16 (10'-6"x46'-6")
6. C03-006-001.0 - Days Yard Wayside Power Platform Foundation Type F4.0 & Pedestal P1
7. C03-006-002.0 - Days Yard Wayside Power Platform Foundation Type F4.5 & Pedestal P1
8. C03-006-003.0 - Days Yard Wayside Power Platform Foundation Type F6.0 & Pedestal P1
9. C03-006-004.0 - Days Yard Wayside Power Platform Foundation Type F7.5 & Pedestal P1
10. C03-006-005.0 - Days Yard Wayside Power Platform Stair Concrete Pad
11. C03-006-006.0 - Days Yard Wayside Power Outlets Concrete Pad
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13. C16-006-001.0 - Underground Ductbank "12-12"
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15. C16-006-003.0 - Underground Ductbank "0-0"
16. C16-006-004.0 - Underground Ductbank "1-1"
17. C16-006-005.0 - Underground Ductbank "1A-1A"
18. C16-006-006.0 - Underground Ductbank "2-2"

19. C16-006-007.0 - Underground Ductbank "2A-2A"
20. C16-006-008.0 - Underground Ductbank "3-3"
21. C16-006-009.0 - Underground Ductbank "3A-3A"
22. C16-006-010.0 - Underground Ductbank "4-4"
23. C16-006-011.0 - Underground Ductbank "5-5"
24. C16-006-012.0 - Underground Ductbank "6-6"
25. C16-006-013.0 - Underground Ductbank "7A-7A"
26. C16-006-014.0 - Underground Ductbank "7B-7B"
27. C16-006-015.0 - Underground Ductbank "8-8"
28. C16-006-016.0 - Underground Ductbank "9-9"
29. C16-006-017.0 - Underground Ductbank "3V-3V"
30. C16-006-018.0 - Underground Ductbank "4V-4V"
31. C16-006-019.0 - Underground Ductbank "4H-4H"
32. C16-006-020.0 - Underground Ductbank "FG1-FG1" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
33. C16-006-021.0 - Underground Ductbank "FG2-FG2" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
34. C16-006-022.0 - Underground Direct Buried Conduit (Wayside Power Outlet to Control Station -2C 1" at Locations 7L, 9L, Paper, and 3 Exp East)
35. C16-007-001.0 - Handhole at Signal Transformer 23-T1 (36"Lx24"Wx30"D)
36. C16-007-002.0 - Days Yard Wayside Power Manholes (10'L x 8'W x 8'D)
37. C16-007-003.0 - 15KV Power Manholes (10'L x 10'W x 8'D)

END OF SECTION

SECTION 02225 – TRENCHING AND BACKFILLING FOR UTILITIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. This Section includes specifications for excavating, and backfilling for utilities and related structures, as indicated, including underground piping for domestic and fire water supply, and utility boxes.

B. Trenching and backfilling for utilities includes restoration for existing pavements, where applicable, to the conditions existing before the excavation.

1.2 REFERENCED SECTIONS

A. Section 02140 Dewatering

B. Section 02200 Earthwork

1.3 CITED STANDARDS

A. American Society for Testing and Material (ASTM):

ASTM C33 Specification for Concrete Aggregates

B. Except-as otherwise specified, the current Standard Specifications for Road and Bridge Construction issued by the New Jersey State Department herein referred to as “NJDOTSS” shall apply to materials and workmanship required for the work of this Section.

1.4 NOTED RESTRICTIONS

A. Contractor shall not commence work until all equipment and materials to be used are on site and ready.

1.5 QUALITY CONTROL

Refer to Section 02220, Earthwork, for requirements.

1.6 SUBMITTALS

A. Results of material testing for bedding materials to be used.

B. Shop drawing for warning tapes.

1.7 JOB CONDITIONS

A. As-built drawings showing locations of all utilities.

PART 2 PRODUCTS

2.1 BEDDING AND BACKFILLING MATERIALS

A. Bedding:

1. Coarse Aggregate (NO. 57): Coarse aggregate size No. 57 shall consist of broken stone conforming to NJDOT Standard Specification Subsection 901-1.

B. Backfill Material: Backfill for excavations and trenches under structures and paving shall be Structural Fill as specified in Section 02220. Select Fill will be permitted only for backfilling of excavations and trenches in open areas and landscaped areas.

C. Slurry Cement Backfill: Slurry cement backfill shall consist of a fluid, workable mixture of Portland cement, clean and graded aggregate, and water.

D. Warning Tapes: Warning tape shall be acid and alkali-resistant polyethylene film, 6 inches wide with minimum thickness of 0.004 inch. Tape shall have a minimum strength of 1750 psi lengthwise and 1500 psi crosswise. The tape shall be manufactured with integral wires, foil backing or other means to enable detection by a metal detector when the tape is buried up to 3 feet deep. The tape shall be of type specifically manufactured for marking and locating underground utilities. Tape color shall be yellow and shall bear a continuous printed inscription describing the specific utility.

PART 3 EXECUTION

3.1 STAKING AND GRADES

A. Refer to Section 02200, Earthwork, for requirements.

3.2 EXISTING UTILITIES

A. Refer to Section 02200, Earthwork, for requirements.

3.3 TRENCHING AND EXCAVATING

A. Perform trenching and excavating as indicated and required for drainage and utility piping, conduits and related structures, and provide and remove upon completion, shoring, bracing, pumping, and planking as required and as specified in Section 02160, Support for Excavation.

B. Excavate to the lines and grades indicated on Contract Drawings.

C. Excavate trenches for pipes and conduits by the open-cut method, except where tunneling and jacking are indicated. Hand-excavate for crossing pipelines.

D. In paved areas, cut pavement on the neat lines at the width indicated for the trench. Pavement shall be saw cut. After compacting the backfill, restore pavement to a condition equivalent to the existing pavement at the start of construction. Restore pavement damaged outside the neat lines at no additional expenses to NJ TRANSIT.

E. Excavate trenches to the indicated width at all points below a horizontal plane two feet above the top of the pipe. Excavation above this plane may exceed the indicated width if approved by the Construction Manager. Where the width is not indicted, make the width not less than 24 inches not more than 18 inches from the outside of the pipe. If excavation exceeds permissible dimensions, install higher strength pipe or encase the pipe in concrete at no additional expense to NJ TRANSIT.

F. The bottoms of excavations shall be firm, undisturbed earth or cut subgrade, clean and free from loose material, debris, and foreign matter. When bottoms of excavations or trenches are a soft or unsuitable material, the bed shall be made firm and solid by removing said unsuitable material to a sufficient depth and replacing same with ¾ clean stone. When the bottom of the excavation is rock or other hard material, it shall be removed within 6 inches outside the bottom of the pipe and backfilled with suitable material.

G. Where water is encountered in the trench, dewater as specified in Section 02140. Dewater and remove “soft” material and replace with ASTM C33 for coarse aggregate, size number 57.

H. Bell holes shall be accurately placed and shall not be larger than required to make the joint.

I. Trenches for pipes shall not be excavated in advance of laying the pipes.

J. Excavations for structures shall conform to the applicable requirements of Section 02200, Earthwork.

3.4 BEDDING AND BACKFILLING

A. Material for bedding of pipe shall be as shown on the Contract Drawings. Minimum thickness of bedding under concrete, PVC, and ductile iron pipe shall be 6 inches. Provide firm and uniform support of piping at indicated elevations and grades. Compact bedding as required for firm support.

B. Backfill of piping shall be as shown on the Contract Drawings.

C. Backfill shall be placed in 6-inches layers, leveled, rammed, and tamped in place. Each layer shall be compacted with suitable compaction equipment to at least 90 percent relative compaction. The top 12 inches under structures and pavement shall be compacted to at least 95 percent relative compaction.

D. Backfilling around concrete structures and for duct banks and similar utilities shall conform to the applicable requirements of Section 02200, Earthwork.

E. Install warning tapes over all underground utilities.

3.5 FIELD QUALITY CONTROL

A. Refer to Section 02200, Earthwork, for requirements.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Trenching and Backfilling for Utilities” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C16-006-001.0 - Underground Ductbank “12-12”
2. C16-006-002.0 - Underground Ductbank”13-13”
3. C16-006-003.0 - Underground Ductbank “0-0”
4. C16-006-004.0 - Underground Ductbank “1-1”
5. C16-006-005.0 - Underground Ductbank “1A-1A”
6. C16-006-006.0 - Underground Ductbank “2-2”

7. C16-006-007.0 - Underground Ductbank "2A-2A"
8. C16-006-008.0 - Underground Ductbank "3-3"
9. C16-006-009.0 - Underground Ductbank "3A-3A"
10. C16-006-010.0 - Underground Ductbank "4-4"
11. C16-006-011.0 - Underground Ductbank "5-5"
12. C16-006-012.0 - Underground Ductbank "6-6"
13. C16-006-013.0 - Underground Ductbank "7A-7A"
14. C16-006-014.0 - Underground Ductbank "7B-7B"
15. C16-006-015.0 - Underground Ductbank "8-8"
16. C16-006-016.0 - Underground Ductbank "9-9"
17. C16-006-017.0 - Underground Ductbank "3V-3V"
18. C16-006-018.0 - Underground Ductbank "4V-4V"
19. C16-006-019.0 - Underground Ductbank "4H-4H"
20. C16-006-020.0 - Underground Ductbank "FG1-FG1" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
21. C16-006-021.0 - Underground Ductbank "FG2-FG2" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
22. C16-006-022.0 - Underground Direct Buried Conduit (Wayside Power Outlet to Control Station -2C 1" at Locations 7L, 9L, Paper, and 3 Exp East)
23. C16-007-001.0 - Handhole at Signal Transformer 23-T1 (36"Lx24"Wx30"D)

END OF SECTION

SECTION 02499 – MICROPILES

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. The Work covered by this section consists of furnishing all plant, labor, equipment, appliances and materials and performing all operations in connection with the construction, installation and load testing of cement-grouted micropiles each having a minimal required nominal axial resistance to support the maximum factored axial load per pile at the locations and to the grades as shown on the Drawings.

B. Micropiles shall be constructed with one or more permanent steel casings through the overburden soil and uncased in the bedrock bearing strata as specified on the Drawings. Each pile shall include a continuous steel core as specified herein and on the Drawings.

C. The permanent steel casings shall be constructed of minimum 55 ksi yield strength steel and have a minimum diameter and a minimum wall thickness as shown on the Drawings. The casing shall include flush threaded joints, except that no joints are permitted within 10 feet below the micropile design cutoff elevation.

D. Drilling equipment and methods used by the Contractor shall permit advancement of the casing, drill rods and drill bits through soils, gravel, cobbles, boulders and bedrock as needed.

E. All drilling to advance the steel casing shall be completed using duplex drilling techniques with the permanent, outer steel casing advanced simultaneously with an inner drill rod and drill bit. The inner drill bit shall not extend below the bottom of the outer casing more than 18 inches at any time. Duplex drilling shall be completed such that all drilling fluid returns to the ground surface inside the outer casing so that the permanent casing remains in contact with the surrounding soil. Drilling fluid shall be directed through hoses to a constructed temporary basin to handle drilling fluids. No drilling fluids shall flow over the ground surface.

F. All water, drilling fluids, grout and other materials shall be contained within the worksite at all times and shall not be allowed to leave the site or enter the river or any surface waterbody. The Contractor shall conduct the work such that there is no discharge of fluids or materials from the site to off-site locations. The Contractor shall install, maintain and clean, as necessary, barriers, protection systems and other devices and systems to control all fluids and materials on-site.

G. The micropiles shall be advanced through fill, gravel, sand, silt, clay, glacial till, cobbles and boulders with varying densities and embedded into the bedrock as shown on the Drawings. The work under this item shall consist of the removal of man-placed materials and obstructions encountered at or below the ground surface.

H. Core steel shall be continuous from bottom to top of the micropile. Lengths of core steel shall be spliced using in-line mechanical splices, installed in accordance with the manufacturer’s instructions, which develop 125% of the core steel capacity.

I. Centralizers shall be installed on the core steel at 3 feet from the top and bottom of each micropile and at maximum 10-foot spacing along the core steel.

J. Conduct one (1) verification load test on a sacrificial micropile at a convenient location within the project site proposed by the Contractor and approved by the Engineer. The verification test shall be constructed with a bond length in bedrock equal to 15 feet to achieve a representative embedment into bedrock. Conduct one acceptable static compression test in accordance ASTM D1143 or static tension test in accordance to ASTM 3689 to failure, or to a maximum test load equal to 850 kips, whichever occurs first. Test loads shall be applied in accordance with the Quick Load Test Procedure.

K. Conduct a proof load test on the first micropile installed at each monopole location. Conduct one acceptable static compression load test in accordance with ASTM D1143 or tension load test in accordance with ASTM D3689. The maximum proof test load shall not be less than the factored axial resistance as specified on the Drawings for that monopole location and shall be applied in accordance with the Quick Load Test Procedure. An acceptable proof load test shall be completed prior to installing the remaining micropiles at that monopole location, with each of the remaining micropiles having a minimum bond length as successfully verified by the proof load test.

L. Retain the services of a Professional Engineer licensed in the State of New Jersey to design the verification micropile casing, core steel, grout and associated testing frames and apparatus for conducting the verification load test. The Contractor's Professional Engineer shall then establish the required bond lengths for the micropile proof tests at each monopole location and design the associated proof test frames, instrumentation and apparatus for conducting the proof load tests. The Contractor's Professional Engineer shall be responsible for supervising the verification and proof load testing conducted by the Contractor, recording and evaluating all load test data, and establishing final bond lengths for production micropiles. Submit all load test reports with bond length recommendations to the Engineer for conformance review within 36 hours of the completion of each load test.

M. Provide survey control, layout of design micropile locations and as-built sketches by a Land Surveyor licensed in the State of New Jersey. Forward records to the Engineer upon completion of each pile.

1.2 REFERENCED SECTIONS

A. 02113 – Management of Excavated Soils

B. 02140 – Dewatering

C. 02160 – Support of Excavation

D. 02200 – Earthwork

E. 03210 – Galvanized Reinforcing Bars

F. 03300 – Cast-in-Place Concrete

G. 09877 – Micropile Casing Coatings

1.3 DEFINITIONS AND REFERENCE STANDARDS

A. AASHTO: The American Association of State Highway and Transportation Officials.

B. ACI: American Concrete Institute.

C. AISC: Specification of the American Institute of Steel Construction.

D. ASTM: Specifications of the American Society for Testing and Materials.

E. AWS: Standard Code for Welding in Building Construction, of the American Welding Society.

F. CONSTRUCTION MANAGER: NJ Transit or an authorized representative of NJ Transit.

G. CONTRACTOR: Person or organization identified in the Agreement as being responsible for the Work under this Section. The term Contractor shall also refer to an authorized representative(s) of the Contractor.

H. CONTRACTOR'S PROFESSIONAL ENGINEER: Professional Engineer currently licensed in the State of New Jersey and retained by the Contractor to be responsible for micropile verification and proof testing.

I. ENGINEER: STV Incorporated.

J. EPA: U.S. Environmental Protection Agency.

K. NJDEP: New Jersey Department of Environmental Protection.

L. OWNER: NJ Transit.

1.4 QUALITY ASSURANCE

A. Comply with all rules, regulations, laws and ordinances of the City of Hoboken, and that of all other authorities having jurisdiction. All labor, materials, equipment and services necessary to make the work comply with such requirements shall be provided without additional cost to the Owner.

B. Field Monitoring and Testing:

1. Full-time field monitoring of the micropile installation and micropile load test operations will be provided by the Construction Manager. No micropiles shall be installed, or load tested except in the presence of the Construction Manager.

2. The Construction Manager will provide on-site monitoring of cement grout placement. No micropiles shall be grouted except in the presence of the Construction Manager. Cement grout test cylinders shall be taken and tested by the Contractor, who shall also facilitate storing samples. The Contractor shall provide a minimum of two (2) seven-day and two (2) twenty-eight day compressive strength tests per grout mix.

3. Certification of the quality of the micropile materials to be used in the Work shall be furnished, in a form acceptable to the Engineer and Construction Manager, at

the time of delivery of materials to the site. Micropile materials shall also be subject to on-site observation for conformance with the specifications.

4. Approvals and acceptance given by the Engineer and/or the Construction Manager shall not relieve the Contractor of responsibility for performing the Work in accordance with the Contract Documents.

C. Lines and Grades:

1. The Contractor shall be responsible for the correct location of micropiles and keeping a record of the micropiles installed.

2. The Contractor shall establish, maintain and record all locations and elevations required.

D. Qualifications:

1. The Contractor shall submit supporting documentation demonstrating a minimum of 5 years' experience in the work specified in this Section and of successful completion of a minimum of 5 similar projects to the work specified in this Section. Supporting documentation shall include, at a minimum, the following:

a. Project Name
b. Project Location
c. Dates of Construction
d. Types of Piles Installed
e. Number and Length of Piles Installed
f. Value of Pile Contract
g. Contact information for project Owner or Engineer.

1.5 SUBMITTALS

A. The Contractor shall submit the information specified herein to the Engineer for review. Micropile installation and load testing shall not commence until all required submittals have been reviewed and accepted, and approval to proceed is provided by the Engineer.

B. Micropile Installation and Load Test Schedule

1. Schedule prepared by the Contractor in consultation with the Contractor's Professional Engineer showing the sequence of verification and proof load test micropile installation and load testing at all the various foundation units.

C. Design Drawings:

1. Product data for micropile casing, steel core, splices, centralizers, grout, and other items pertinent to the micropile installation.

2. Details of equipment and procedures for micropile installation and placement of grout.

3. Details of drilling including: materials, techniques, rig sizes, tools, bits, casing, drilling fluid, casing bits (or shoe, J-teeth, etc.) methods and devices for establishing and maintaining micropile alignment.

4. Verification loads test micropile design, verification test and proof test setup designs prepared by the Contractor's Professional Engineer. Shop drawings of the verification and proof load test setups including all details of micropiles, equipment and apparatus to be used for the load tests, a certificate of calibration for both the pressure gage and the hydraulic jack, and design details of the test including load test procedure. The pressure gage and hydraulic jack shall have been calibrated together as a unit within 30 days prior to the load test. Details of load frame and hold-down anchors, if used, or load frame setup to support gravity load and details of gravity loads, if used.

5. Submit a load test report for each of the micropile verification test and proof tests, prepared by the Contractor's Professional Engineer, which contains records of test micropile installation procedures and as-built data, grout compressive strength results, data collected from test micropile instrumentation, interpretation of the load test data including graphical presentation (i.e. load vs. settlement data for the various dial gages and telltales and load vs. elevation for the strain gages), a comparison of the results to acceptance criteria, and a presentation of any adjustments to the micropile design, installation or bond lengths as may be required.

D. Installation:

1. Provide details of the micropile including: reinforcing, reinforcement connection methods, procedures for placement of grout, steel core centralizers and other items pertinent to micropile installation.

2. Details of equipment and procedures to be used for micropile installation including those to be used to drill through obstructions.

3. Detailed plan to advance micropiles through obstructions including: equipment, machines, tools, drill bits, drilling techniques, support equipment and other items proposed by the Contractor to advance the micropiles through obstructions. A narrative including detailed procedures the Contractor will employ to advance micropiles through obstructions.

4. Planned construction and drilling sequence

E. The cement grout mix design proposed for use. If the Contractor performs on-site cement grout batching, submit quality control test procedures (other than samples for compressive strength testing) to be performed to monitor consistency of batched grout.

F. Submit proposed core steel splice detail.

G. Coordination drawing showing the size and location of equipment relevant to complete micropile installation. Included on the drawing shall be shown the areas planned to use for staging, access areas, micropile locations, and any other element of the installation.

H. Engineered drawings with plan and elevation views of micropile drill rig set-up showing existing site features with rig set-up and other support items the Contractor proposes to use for drill rig support such as drilling platform, excavation required, backfilling required or other support.

I. Details of plans to contain and dispose of drill spoil during the drilling operation.

J. As-Built Data: Contractor shall provide the Engineer and Construction Manager written, individual micropile installation logs for each micropile indicating the following information:

1. Results of the verification and proof load testing performed as required in Section "Submittals"

2. Micropile Logs:

a. Project Name and Micropile Number
b. Name of Contractor;
c. Micropile location;
d. Dates of drilling, installation, and grouting;
e. Micropile type and size;
f. Design micropile capacity;
g. Type of drill rig used;
h. Type of drilling method used;
i. Material type, dimensions, and thicknesses of micropile components including casing, core steel, spacers, tremie tubes and grout;
j. Casing length and type of couplings;
k. Core steel size, batch number, mill certificate, grade, length and splice locations;
l. Splice size, type and installation technique;
m. Rate of operation of drill rig;
n. Micropile dimensions;
o. Date, time, and volume of grout placed;
p. Elevation of tip;
q. Elevation of top of weathered rock;
r. Elevation of top of intact rock;
s. Length of rock socket;
t. Micropile batter angle;
u. Micropile orientation;
v. Elevation of butt before and after cut-off;
w. Unusual occurrences during micropile installation;
x. Elevation of top of each micropile after installation of the cap plate (measured to the nearest 0.05 ft);
y. Deviation of core steel from center of micropile; and
z. Deviation from design plan location (measured to the nearest 0.01 ft.).

1.6 Minimum Micropile Installation Criteria

A. General: Installation details of the micropiles shall be in accordance with previously accepted and approved submittals.

B. Micropile Length: Minimum micropile lengths shall be in accordance with the Drawings and the accepted micropile load test results and bond length recommendations submitted by the Contractor's Professional Engineer.

C. Micropile Diameter: Minimum micropile diameters shall be in accordance with the Drawings and the accepted micropile load test results.

D. Permanent Steel Casing: Each micropile shall be installed with a permanent steel casing from the top of the micropile (pile cut-off elevation) downward, through overburden soils and securely seated into the bedrock bearing strata.

1. The upper 20 feet of the micropile casing, below the cut-off elevation, shall be coated with the epoxy-polyamide coating system, or the coal tar epoxy-polyamide coating system in accordance with Section 09877.

E. Steel Core: Core Steel shall be in accordance with the Drawings and the accepted micropile load test results.

F. Micropile Splices:

1. Lengths of core steel shall be spliced using in-line mechanical splices, installed in accordance with the manufacturer's instructions, which develop a minimum 125% of the core steel capacity. No splices of the core steel shall be installed within 10 feet below the micropile design cut-off elevation (i.e., no core steel splices in top 10 feet of a micropile). Splices of core steel and permanent steel casing shall be offset minimum of 2 feet vertically within the micropile (i.e., core steel splices and casing joints shall not be within 2 feet of each other).

2. Lengths of permanent steel casing shall be spliced together using flush threaded joints and the joints shall be sufficient to develop minimum 100% of the steel casing axial capacity. No splices of the permanent steel casing shall be installed within 10 feet below the micropile design cutoff elevation (i.e., no permanent steel casing splices in top 10 feet of a micropile). Splices of core steel and permanent steel casing shall be offset minimum of 2 feet vertically within the micropile (i.e., core steel splices and casing joints shall not be within 2 feet of each other).

G. Centralizers: Centralizers shall be installed on core steel at 3 feet from the top and bottom of each micropile and at maximum 10-foot spacing along the core steel.

H. Grouting: Grout shall be Portland cement-water grout mix and minimum compressive strength of 4000 psi at 28 days. Grout shall be installed in each micropile by tremie methods from the bottom of the top of the micropile or as shown on the Drawings.

PART 2 - PRODUCTS

2.1 CEMENT GROUT

A. Cement grout for micropiles may be prepared at the site or may be batched offsite. If batched offsite, the grout shall conform to the current ASTM C94 Standard Specification for Ready Mixed Concrete.

2.2 STEEL CORE

A. Steel core reinforcement as a minimum shall be standard deformed steel conforming to the requirements of ASTM A722, Grade 150.

2.3 PERMANENT STEEL CASING

A. Permanent steel casing shall conform to ASTM A252 Grade 3, except the yield strength shall be a minimum of 55 ksi. Mill Secondary steel pipe meeting the specified ASTM

standard but without mill certification, free from defects (dents, cracks, tears) and with two coupon tests per truckload delivered to the fabricator is acceptable. The permanent steel casing shall meet the following criteria:

1. Minimum Grade 55 steel

2. Minimum wall thickness of 0.582 inches

3. Minimum Outside Diameter of 11.875 inches

4. Flush threaded splices

B. Bottom of casing shall be fitted with cutting shoe, bits, J-teeth, or other approved device to enable casing to drill through overburden soil and be adequately seated into rock as needed.

2.4 STEEL CORE SPLICES

A. Steel Core Splices shall consist of in-line mechanical splices capable of developing a minimum of 125% of the steel core capacity.

2.5 CENTRALIZERS

A. Centralizers shall be fabricated from any material, except wood, which is non-detrimental to the micropile and can securely position the core steel within 0.5 in. of the center of the micropile and maintain the core steel at the micropile center until grout has cured. Centralizers shall position the core steel in the micropile to within 0.5 inches of the center of the micropile. Centralizers shall be spaced at 10-foot intervals as a maximum and at 3 feet from the top and bottom of each micropile. Centralizers shall not inhibit the placement of a tremie pipe or the flow of grout.

PART 3 - EXECUTION

3.1 GENERAL

A. Micropiles shall be installed to the line and grades specified in the Drawings.

3.2 CONDUCT OF WORK

A. The design, materials, equipment and installation procedures developed by the Contractor shall avoid any detrimental effects to existing structures, unnecessary noise or vibrations, and damage to property.

B. The Contractor will be completely and solely responsible for job safety, and security.

C. The Contractor shall have the known utility locations near proposed micropile locations marked in the field by utility companies, prior to commencing work. The Contractor is responsible for all Dig-Safe calls and utility coordination. In addition, the Contractor shall be responsible for completing micropile installation without damage to any utilities or other substructures.

D. The Contractor shall provide provisions to control exhaust from equipment, the flow of water/cuttings and disposal of same and shall keep the premises clean and free of water and debris from the drilling/micropile installation work.

E. The Contractor shall repair any damage to structures or property caused from performing the Work as described herein.

3.3 METHOD OF INSTALLATION

A. Prior to the excavations for micropiles and pile caps, the Contractor shall locate the foundations, call for utility mark-outs, and pre-excavate by hand to a minimum depth of 5 feet below grade to expose portions of the existing utilities within the micropile and pile cap work area, and provide support and protection as necessary so as not to adversely affect the integrity of the utilities due to construction activities. The excavation and support methods shall be acceptable to the Construction Manager.

B. The method of micropile installation shall be determined by the Contractor, subject to review by the Engineer and the following: micropile installation shall be made by non-displacement, low vibration, duplex (internal flush), and rotary wash drilling. Rotary wash drilling methods shall employ sufficient fluid pressure to provide complete removal of the drill cuttings from the hole. Driving of the casing is prohibited.

C. Drilling shall be made in such a manner as to prevent loss of ground beyond the specified micropile diameter. Drilling shall be by duplex (internal flush) drilling employing the use of an outer, permanent casing through the overburden soils and seated into the rock bearing stratum. The bottom of the outer permanent casing shall be fitted with a cutting shoe, bits, J-teeth, or other device acceptable to the Engineer to drill through overburden and bearing strata and permit adequately seating the casing into bedrock. Drilling mud shall consist of water and drill cuttings, unless alternative drilling mud is authorized in writing by the Engineer. Drilling mud shall be sufficiently fluid such that it is readily and fully displaced by the cement grout.

D. All excavation and drilling spoils shall be controlled to minimize disturbances to site conditions and hindrances to micropile installation procedures and requirements. All drilling water, spoils and other resulting by-products shall be returned to the top of the micropile through the outer casing in duplex drilling techniques. During drilling, the outer, permanent steel casing shall be advanced simultaneously with an inner drill rod and drill bit. The inner drill bit shall not extend below the bottom of the outer casing more than 18 inches at any time when drilling through the soils. Duplex drilling shall be completed such that all drilling fluid returns to the ground surface inside the outer casing such that the permanent casing remains in contact with the surrounding soil. Drilling fluid shall be directed through hoses, or other device approved by the Engineer or Construction Manager, in writing, to a constructed temporary basin to handle drilling fluids. No drilling fluids shall flow over the ground surface.

E. All water, drilling fluids, grout and other materials shall be contained within the worksite at all times and shall not be allowed to leave the site or enter the river or any surface waterbody. The Contractor shall conduct the work such that there is no discharge of fluids or materials from the site to off-site locations. The Contractor shall install, maintain and clean, as necessary, barriers, protection systems and other devices and systems to control all fluids and materials onsite.

F. All micropiles shall be installed at the locations and alignments shown on the Drawings which include field verification to miss existing foundations. Micropile location and

alignment shall be checked during installation and appropriate measures taken as necessary to maintain the correct micropile location and alignment.

G. Each micropile shall be drilled to achieve foundation support within the bedrock bearing strata and shall be capable of developing the minimum nominal axial resistance specified on the Drawings.

H. Following completion of drilling of the bond length in the bearing strata and placement of the core steel, the micropiles shall be grouted. Grouting of the micropiles shall provide complete filling of the micropile with a minimum of segregation. Grout shall be placed under a pressure head by means of a tremie pipe and grout pump from the bottom of the micropile upward in one continuous operation until the micropile is filled to the depth shown on the Drawings. The cement grout shall not be allowed to fall freely through slurry or water.

I. Core steel shall be centered in the hole with approved centralizers. Core steel shall be placed to within 0.5 inches of the center of each micropile. Core steel lengths shall be installed full height in the micropiles. If multiple lengths of core steel are required, core steel lengths shall be spliced together using in-line mechanical splices capable of developing 125% of the core steel capacity. Core steel splices shall be offset from joints/splices in the permanent steel casing a minimum of 2 feet vertically. There shall be no splices in the core steel within the top 10 feet of the micropile. Centralizers shall be installed at 10-foot lengths along the core steel and at 3 feet from the top and bottom of the micropile.

J. The Contractor shall sequence micropile installation such that micropiles within 8 feet of the micropile to be drilled are not grouted within the previous 12 hours (i.e., when a micropile is grouted, micropiles within 8 feet of the grouted micropile shall not be drilled for a minimum 12 hours, or, allow 12 hours of grout set-up prior to drilling within 8 feet).

3.4 MICROPILE LOAD TESTING

A. General:

1. The Contractor shall retain the services of a Professional Engineer licensed in the State of New Jersey to design the verification micropile casing, core steel, grout and associated testing frames and apparatus for conducting the verification load test. The Contractor's Professional Engineer shall then establish the required bond lengths for the micropile proof tests at each monopole location and design the associated proof test frames, instrumentation and apparatus for conducting the proof load tests. The Contractor's Professional Engineer shall be responsible for supervising the verification and proof load testing conducted by the Contractor, recording and evaluating all load test data, and establishing final bond lengths for production micropiles. Submit all load test reports with bond length recommendations to the Engineer for conformance review within 36 hours of the completion of each load test.

2. The Contractor shall conduct one (1) verification load test on a sacrificial micropile at a convenient location within the project site proposed by the Contractor and approved by the Engineer. The verification test shall be constructed with a bond length in bedrock equal to 15 feet to achieve a representative embedment into bedrock. Conduct one acceptable static compression test in accordance ASTM D1143 or static tension test in accordance to ASTM 3689 to failure, or to a maximum test load equal to 850 kips, whichever occurs first. Test loads shall be applied in accordance with the Quick Load Test Procedure.

3. The Contractor shall conduct a proof load test on the first micropile installed at each monopole location. Conduct one acceptable static compression load test in accordance with ASTM D1143 or tension load test in accordance with ASTM D3689. The maximum proof test load shall not be less than the factored axial resistance as specified on the Drawings for that monopole location and shall be applied in accordance with the Quick Load Test Procedure. An acceptable proof load test shall be completed prior to installing the remaining micropiles at that monopole location, with each of the remaining micropiles having a minimum bond length as successfully verified by the proof load test.

4. Contractor shall provide all labor, materials and equipment required to set up, conduct and dismantle the load tests. The Contractor' shall install the load frame and test apparatus, conduct an acceptable micropile load test under the direction of the Contractor's Professional Engineer, and breakdown and demobilize the material offsite.

5. If hold-down piles are used as a reaction for the micropile load test, hold-down piles shall be a minimum of 8 feet clear from the test micropile and shall be non-production.

6. The test micropiles shall be installed by the same methods and equipment proposed for production micropile installations.

7. The static proof load test at a monopole foundation unit shall be completed and accepted before production micropiles are installed at that foundation unit.

8. Grout in test micropiles shall have attained a minimum compressive strength of 4,000 psi prior to load testing. The Contractor shall provide substantiating compressive strength test data prior to load testing.

B. Test Micropile Instrumentation:

1. The Contractor shall embed two 5/8-inch I.D. (minimum) steel pipes in the sacrificial verification load test micropile to permit the installation of solid stainless steel telltale rods at the tip of the micropile and at the top of the bond length as specified by the Contractor's Professional Engineer.

2. The Contractor shall furnish and install strain instrumentation (Geokon Model 4911 rebar strain meter or approved equal and telltale rods) as specified by the Contractor's Professional Engineer for the verification load test micropile.

3. The Contractor will furnish and install instrumentation as specified by the Contractor's Professional Engineer to monitor settlement and deflection of the verification and proof load test micropiles during the load tests.

C. Test Procedures:

1. Load shall be applied to the test micropile by means of a hydraulic jack operated by the Contractor which reacts against a reaction beam. Reaction beam support shall be at least 8 feet away from the test micropile.

2. The hydraulic jack shall have a capacity of at least 1.5 times the maximum test load and shall be capable of moving the micropile a minimum of 6 inches.

3. Micrometer dials shall be mounted to one or more steel reference beams provided by the Contractor. The beam(s) shall be rigid and supported by piles extending at least 15 feet below ground surface at a distance of at least 10 feet from the test micropile. The reference beams shall be fixed at one end and shall be free to move horizontally at the other end to allow for expansion and contraction of the reference beam without vertical deflection at points where the dials are mounted. Wood or other materials subject to variations in moisture content shall not be used in reference beams, crossbeams, shims, or for any other means of dial support.

4. The Contractor shall protect the entire measuring apparatus against disturbances which may affect the reliability of the settlement observations. The Contractor shall provide suitable heaters and suitable enclosures to maintain the temperature around the test apparatus at a minimum of 40^{o}F, and shall provide temporary lighting as necessary.

5. Loading and unloading of the verification and proof test micropiles shall be performed only in the presence of the Construction Manager.

3.5 TOLERANCES AND CRITERIA FOR ACCEPTANCE

A. Micropiles shall be installed as close as practicable to the required locations. A maximum lateral deviation from the correct location at cut-off elevation permitted will be 1.5 inches. A maximum deviation from design cut-off elevation equal to one (1) inch will be permitted.

B. Micropiles which are believed to have collapsed, based on the grout take volume, or which are otherwise unsatisfactory as specified above and which cannot be removed or repaired, shall be abandoned and filled with cement grout.

C. Micropiles that are rejected because of damage, mislocation or misalignment, or failure to meet other installation criteria, shall be cut off below the design cut-off grade and abandoned. Additional micropile(s) shall be installed as necessary subject to review by the Engineer. Whenever, in the judgment of the Engineer, misalignment or rejection of a micropile is caused by the Contractor's violation of the specifications or other error on the Contractor's part, and installation of one or more replacement micropiles is necessitated, the cost of such re-installation shall be borne by the Contractor.

3.6 DISPOSAL OF EXCAVATED MATERIAL

A. All excavated material, drill fluid, drill spoils and other material generated during work of this section shall be removed and properly disposed of off-site by the Contractor.

3.7 TEST PILE REMOVAL

A. After completion of successful verification and proof micropile testing, all temporary piles (hold down piles) for support of the reaction and reference beam systems shall be removed to a depth of at least 3 feet below finished grade.

PART 4- MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Micropiles” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C02-011-001.0 - Mircropiles (02499) – Permanent Casing Portion of Micropile Seated into the Top of Bedrock

2. C02-011-002.0 - Mircropiles (02499) – Bond Length Portion of Micropile in Bedrock

3. C02-011-003.0 - Micropiles (02499) – Verification Test

4. C02-011-004.0 - Micropiles (02499) – Proof Test

END OF SECTION

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SECTION 02710 - CONTAMINATED GROUNDWATER MANAGEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Management of contaminated groundwater from construction dewatering activities.

1.2 DEFINITIONS

A. Contaminated Effluent: Effluent from construction dewatering activities that is impacted with contaminants of concern and require special handling in accordance with applicable federal and state regulations.

B. Contaminated Groundwater: Groundwater that is impacted with contaminants of concern and require special handling in accordance with applicable federal and state regulations.

C. Effluent: Groundwater pumped from the ground during construction.

D. NJDEP : New Jersey Department of Environmental Protection

E. NHSA: North Hudson Sewerage Authority

F. TWA: Treatment Works Application

G. NJPDES: New Jersey Pollutant Discharge Elimination System

H. HEPSCD:Hudson Essex Passaic Soil Conservation District

1.3 ACTION SUBMITTALS

A. Contaminated Groundwater Management Plan: Submit a Contaminated Groundwater Management Plan within 30 days of contract award but prior to construction commencement. This plan shall include:

1. Summary of information regarding the location and nature of known or suspected groundwater contamination from studies provided by Owner.

2. Summary of NJDEP TWA, Dewatering Allocation Permit,General Surface Water Permits or NHSA TWA required for the discharge and plan for securing such permits.

3. Proposed methods and procedures for contaminated groundwater management generated from construction dewatering activities including treatment equipment required.

4. Sampling, monitoring and reporting requirements and plans.

B. Proposed Protection Measures: Submit informational report, including drawings, indicating the measures proposed for worker protection from contaminated groundwater in accordance to applicable federal and state regulations.

1.4 REQUIRED INFORMATIONAL SUBMITTALS

A. Discharge Permit Submittals: Provide all contaminated groundwater discharge permits, correspondence and submittals related to NJPDES permit compliance to include Discharge Monitor Reports (DMRs), and reporting for compliance with NJDEP General Surface Water Permit -Category BGR General Groundwater Remedaition Cleanup Permit, or NHSA TWA , if applicable.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements: Review the requirements of all permits issued for contaminated groundwater discharge. Comply with governing NJDEP and/or NHSA regulations in regard to discharging contaminated groundwater before beginning construction.

B. Contaminated Groundwater Management Conference: Conduct a contaminated groundwater discharge conference at project site a minimum of 45 days prior to the start of dewatering. Review methods and procedures related to contaminated groundwater management including, but not limited to, the following:

1. Review and discuss the Contaminated Groundwater Management Plan including duties of contaminated groundwater management coordinator responsible for this task.

2. Review plan for documenting volume of effluent generated.

3. Review procedures for encountering and discharging of known or suspect contaminated effluent.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 GROUNDWATER MANAGEMENT PROTOCOLS

A. Comply with applicable Contract document terms, regulations, approvals, and permit conditions regarding dewatering. Measures to direct discharge to both NHSAand/or state waters under a NJPDES permit shall be explored and implemented as appropriate.

B. Employ best management practices as required by HEPSCD including use of control measures, such as sediment basins and dewatering structures, per HEPSCD regulations.

C. Monitor dewatering discharge to ensure compliance with regulations and permits. Prepare sampling schedule and collection of effluent samples as required by permitting agency and adjust control measures accordingly.

3.2 PLAN IMPLEMENTATION

A. General: Implement approved contaminated groundwater management plan.

B. Training: Train workers, subcontractors, and suppliers on proper contaminated groundwater management procedures, as appropriate for the work.

3.3 PROCEDURE

A. The Contractor shall dewater only the minimum volume of groundwater as necessary to construct the proposed improvement.

B. Apply for and secure all permits required to discharge contaminated groundwater. Contractor shall be the Permittee for all required permits to discharge contaminated groundwater, and will be solely responsible for compliance with all provisions of the applicable permit(s). The owner may periodically monitor compliance to ensure contractor is in compliance with permits. Any upset, as defined by NJDEP or NBSA effluent limitations, shall be reported to the appropriate authority immediately.

C. Dewatering discharge shall be monitored to ensure compliance with regulations and permits. Sample in accordance to EPA and permit requirements and adjust control measures accordingly.

D. Discharge as per regulations and applicable permits.

E. If during construction activities, the Contractor detects other evidence of groundwater contamination (e.g. staining, turbidity, etc.) in an area of unknown contamination, then the Contractor shall immediately call the owner and report the suspected contaminated groundwater. All dewatering work should be temporarily stopped in this area of suspect contamination until additional guidance is provided by owner regarding the handling and treatment of such materials.

F. Contractor shall not discharge any contaminated groundwater except as authorized and specified by applicable permits.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Contaminated Groundwater Management” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C02-011-001.0 - Mircropiles (02499) – Permanent Casing Portion of Micropile Seated into the Top of Bedrock

2. C02-011-002.0 - Mircropiles (02499) – Bond Length Portion of Micropile in Bedrock

3. C03-005-001.0 - Monopole Pile Cap PC-4A (6’x6’)

4. C03-005-002.0 - Monopole Pile Cap PC-4B (10’-6”x10’-6”)

5. C03-005-003.0 - Monopole Pile Cap PC-16 (10’-6”x46’-6”)

6. C03-006-001.0 - Days Yard Wayside Power Platform Foundation Type F4.0 & Pedestal P1

7. C03-006-002.0 - Days Yard Wayside Power Platform Foundation Type F4.5 & Pedestal P1

8. C03-006-003.0 - Days Yard Wayside Power Platform Foundation Type F6.0 & Pedestal P1

9. C03-006-004.0 - Days Yard Wayside Power Platform Foundation Type F7.5 & Pedestal P1
10. C03-006-005.0 - Days Yard Wayside Power Platform Stair Concrete Pad
11. C03-006-006.0 - Days Yard Wayside Power Outlets Concrete Pad
12. C03-006-007.0 - Days Yard Wayside Power Control Station Concrete Pad
13. C16-006-001.0 - Underground Ductbank "12-12"
14. C16-006-002.0 - Underground Ductbank"13-13"
15. C16-006-003.0 - Underground Ductbank "0-0"
16. C16-006-004.0 - Underground Ductbank "1-1"
17. C16-006-005.0 - Underground Ductbank "1A-1A"
18. C16-006-006.0 - Underground Ductbank "2-2"
19. C16-006-007.0 - Underground Ductbank "2A-2A"
20. C16-006-008.0 - Underground Ductbank "3-3"
21. C16-006-009.0 - Underground Ductbank "3A-3A"
22. C16-006-010.0 - Underground Ductbank "4-4"
23. C16-006-011.0 - Underground Ductbank "5-5"
24. C16-006-012.0 - Underground Ductbank "6-6"
25. C16-006-013.0 - Underground Ductbank "7A-7A"
26. C16-006-014.0 - Underground Ductbank "7B-7B"
27. C16-006-015.0 - Underground Ductbank "8-8"
28. C16-006-016.0 - Underground Ductbank "9-9"
29. C16-006-017.0 - Underground Ductbank "3V-3V"
30. C16-006-018.0 - Underground Ductbank "4V-4V"
31. C16-006-019.0 - Underground Ductbank "4H-4H"
32. C16-006-020.0 - Underground Ductbank "FG1-FG1" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
33. C16-006-021.0 - Underground Ductbank "FG2-FG2" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
34. C16-006-022.0 - Underground Direct Buried Conduit (Wayside Power Outlet to Control Station -2C 1" at Locations 7L, 9L, Paper, and 3 Exp East)

35. C16-007-001.0 - Handhole at Signal Transformer 23-T1 (36”Lx24”Wx30”D)

36. C16-007-002.0 - Days Yard Wayside Power Manholes (10’L x 8’W x 8’D)

37. C16-007-003.0 - 15KV Power Manholes (10’L x 10’W x 8’D)

END OF SECTION

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SECTION 03210 - GALVANIZED REINFORCING BARS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies requirements for galvanized reinforcing steel for concrete

1.2 REFERENCE DOCUMENTS

A. Codes and Standards

1. American Concrete Institute (ACI)

a. "Building Code Requirements for Reinforced Concrete (ACI 318)".

b. "ACI Detailing Manual - 1980 (SP-66)".

c. "Standard Tolerances for Concrete Construction and Materials (ACI 117-81)".

2. American Society for Testing and Materials (ASTM)

a. “Reinforcing bars, ASTM A615, A616 including supplementary requirement S1, A617, A706, latest edition”

b. “Bar Mats, ASTM A184, latest edition; fabricated from reinforcing bars that conform to Section 1.3A.2(a)".

c. ”Wire, ASTM A82, A496, latest edition".

d. "Welded wire fabric, ASTM A185, A497, latest edition".

e. “Steel reinforcing bars to be galvanized, ASTM A767, latest edition".

3. Concrete Reinforcing Steel Institute (CRSI)

a. "Manual of Standard Practice, 24th Edition, 1986".

b. "Placing Reinforcing Bars, 5th Edition, 1986".

4. American Welding Society (AWS)

a. "Structural Welding Code - Reinforcing Steel (AWS D1.4-79)".

5. American Railway Engineering and Maintenance-of-Way Association (AREMA)

PART 2 - MATERIALS

2.1 MATERIAL SHALL CONFORM TO THE FOLLOWING:

A. Reinforcing Steel

1. Deformed bars, per ASTM type and grade as specified in the Contract Documents.

2. Spirals, hot rolled plain or deformed bars per ASTM A615 Grade 60 or cold drawn wire per ASTM A82 as specified in the Contract Documents.

3. Plain welded wire fabric per ASTM A185, or deformed welded wire fabric per ASTM A497 with wire size and spacing as specified in the Contract Documents.

4. Reinforcing bars to be galvanized per ASTM A767 when specified in the Contract Documents; when required, damaged galvanizing shall be repaired with zinc-rich spray paint in accordance with ASTM A780.

B. Identification of Reinforcing Steel

1. Bundles of reinforcing bars shall be tagged showing quantity, grade size, and suitable identification to allow checking, sorting and placing.

2. Bundles of flat sheets and rolls of welded wire fabric shall be tagged showing quantity, style designation, width, and length.

C. Storage and Protection

1. Reinforcing steel shall be stored off the ground and protected from oil, or other deleterious materials. Galvanized reinforcing bars shall be stored on protective cribbing.

2. Rust, seams, surface irregularities, or mill scale shall not be cause for rejection, provided the weight and height of deformations of a hand-wired-brush test specimen are not less than the applicable ASTM specification requirements.

D. Bar Supports

1. Bar supports and spacing of same shall be per recommendations set forth by Chapter 3 of the CRSI Manual of Standard Practice.

2. Steel wire bar supports in concrete areas where soffits are exposed to view or are painted shall be Class 1 or Class 2, Types A or B; Class 3 is acceptable in other areas.

2. Galvanized reinforcing bars supported from form-work shall rest on plastic or galvanized bar supports.

E. Tie Wire

1. Wire shall be 16-1/2 gauge or heavier, black-annealed.

2. Galvanized reinforcing bars shall be tied with plastic or galvanized tie wire.

PART 3 - EXECUTION OF WORK

3.1 PLACING DRAWINGS

A. Submit placing drawings prepared in accordance with the ACI Detailing Manual.

3.2 FABRICATION

A. Reinforcing steel shall be accurately fabricated to the dimensions shown in the Contract Documents.

1. Bends shall conform to bend dimensions defined as standard in accordance with details in the ACI Detailing Manual and/or CRSI Manual of Standard Practice, unless otherwise shown.

2. Bars shall be bent cold, and shall not be bent or straightened in a manner that will damage the material.

3. Bars shall be fabricated within the tolerances shown in the ACI Detailing Manual and/or CRSI Manual of Standard Practice.

B. Spirals

1. Provide one and one-half finishing turns top and bottom minimum.

2. Splices shall be a tension lap splice of 48 bar diameters minimum, but not less than 12 inches.

3. Provide spacers per Chapter 5, Section 9 of the CRSI Manual of Standard Practice.

C. Welding as an aid to fabrication and/or installation will not be permitted except as specifically shown in the Contract Documents, or as authorized by the Architect-Engineer.

3.3 TESTING AND INSPECTION

A. At the time of shipment, and only upon request, a certified copy of a mill test report showing physical and chemical analysis for each heat of reinforcing bars delivered shall be provided for ASTM A615 material; and for ASTM and ASTM A617 material a mill test report showing a physical analysis for each lot of reinforcing bars delivered shall be provided.

B. Field inspection shall be in accordance with local Building Code and AREMA requirements as well as all inspection requirements of the project Special Provisions.

3.4 PLACING

A. The placement of bars should conform to the recommended practices in CRSI Placing Reinforcing Bars.

B. Reinforcement shall be placed within the tolerances given in ACI 117.

C. When necessary to move reinforcing bars to avoid interference with other reinforcement, conduits, or embedded items exceeding the specified placing tolerances, the resulting arrangement of bars shall be subject to acceptance by the Architect-Engineer.

D. Bars shall be securely tied to prevent displacement. All dowels shall be secured in place before depositing concrete, unless otherwise permitted.

E. All splicing of reinforcement shall be as indicated in the Contract Documents, unless otherwise permitted Concrete cover and bar spacing shall conform to ACI 318.

F. Welded wire fabric shall be furnished in flat sheets or rolls.

G. Mechanical connections shall be made only at locations shown in the Contract Documents or as permitted by the Architect/Engineer.

1. When required or permitted, mechanical connections shall be installed per manufacturer's recommendations. All mechanical connectors shall also be galvanized. After installation of mechanical connections of zinc-coated (galvanized) reinforcing bars, coating damage shall be repaired in accordance with Section 2.1A.4.

H. Reinforcing bars partially embedded in concrete shall not be field bent, except as shown in the Contract Documents or when permitted by the Architect-Engineer.

1. When galvanized reinforcing bars are field bent, coating damage shall be repaired in accordance with Section 2.1A.4.

I. When galvanized reinforcing bars are cut in the field, the ends of the bars shall be repaired in accordance with Section 2.1A.4.

PART 4- MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Galvanized Reinforcing Bars” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C02-011-001.0 - Mircropiles (02499) – Permanent Casing Portion of Micropile Seated into the Top of Bedrock

2. C02-011-002.0 - Mircropiles (02499) – Bond Length Portion of Micropile in Bedrock

3. C03-005-001.0 - Monopole Pile Cap PC-4A (6’x6’)

4. C03-005-002.0 - Monopole Pile Cap PC-4B (10’-6”x10’-6”)

5. C03-005-003.0 - Monopole Pile Cap PC-16 (10’-6”x46’-6”)

6. C03-006-001.0 - Days Yard Wayside Power Platform Foundation Type F4.0 & Pedestal P1

7. C03-006-002.0 - Days Yard Wayside Power Platform Foundation Type F4.5 & Pedestal P1

8. C03-006-003.0 - Days Yard Wayside Power Platform Foundation Type F6.0 & Pedestal P1

9. C03-006-004.0 - Days Yard Wayside Power Platform Foundation Type F7.5 & Pedestal P1

10. C03-006-005.0 - Days Yard Wayside Power Platform Stair Concrete Pad

11. C03-006-006.0 - Days Yard Wayside Power Outlets Concrete Pad

12. C03-006-007.0 - Days Yard Wayside Power Control Station Concrete Pad

13. C16-006-001.0 - Underground Ductbank "12-12"
14. C16-006-002.0 - Underground Ductbank"13-13"
15. C16-006-003.0 - Underground Ductbank "0-0"
16. C16-006-004.0 - Underground Ductbank "1-1"
17. C16-006-005.0 - Underground Ductbank "1A-1A"
18. C16-006-006.0 - Underground Ductbank "2-2"
19. C16-006-007.0 - Underground Ductbank "2A-2A"
20. C16-006-008.0 - Underground Ductbank "3-3"
21. C16-006-009.0 - Underground Ductbank "3A-3A"
22. C16-006-010.0 - Underground Ductbank "4-4"
23. C16-006-011.0 - Underground Ductbank "5-5"
24. C16-006-012.0 - Underground Ductbank "6-6"
25. C16-006-013.0 - Underground Ductbank "7A-7A"
26. C16-006-014.0 - Underground Ductbank "7B-7B"
27. C16-006-015.0 - Underground Ductbank "8-8"
28. C16-006-016.0 - Underground Ductbank "9-9"
29. C16-006-017.0 - Underground Ductbank "3V-3V"
30. C16-006-018.0 - Underground Ductbank "4V-4V"
31. C16-006-019.0 - Underground Ductbank "4H-4H"
32. C16-006-020.0 - Underground Ductbank "FG1-FG1" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
33. C16-006-021.0 - Underground Ductbank "FG2-FG2" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
34. C16-007-002.0 - Days Yard Wayside Power Manholes (10'L x 8'W x 8'D)
35. C16-007-003.0 - 15KV Power Manholes (10'L x 10'W x 8'D)

END OF SECTION

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SECTION 03300- CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

Furnishing material, services required to provide for cast - in - place concrete , as shown on the drawings for work such as, but not limited to, the construction of the concrete equipment pads and concrete foundation for monopoles supporting electrical power and signal distribution lines.

1.2 WORK INCLUDED

The work of this section includes furnishing all labor, materials, equipment, tools, supplies and services necessary for the complete installation of the work as shown on the drawings.

The work shall include but not be limited to:

A. Cast-in-place normal weight concrete for equipment pads and concrete foundation for monopoles supporting electrical power and signal distribution lines.

B. Cast–in-place normal weight concrete for the foundation pads of the wayside power boxes at ends of the tracks.

C. Alternate reinforcement (enclosing) of existing steel columns in YMCA Building.

1.3 RELATED WORK

Related work is described in the following sections of the specification

A. Section 02499 Micropiles

B. Section 03210 Galvanized Reinforcing Bars

1.4 REFERENCES

As a minimum, materials and services furnished in accordance with this specification shall comply with the latest editions of the codes, specifications and standards as herein listed:

American Concrete Institute (ACI):

ACI301	Specifications of Structural Concrete for Buildings
ACI304	Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete
ACI305	Recommended Practice for Hot Weather Concreting
ACI306	Recommended Practice for Cold Weather Concreting
ACI311	Recommended Practice for Concrete Inspection
ASTM A-36	Specifications for Structural Steel
ASTM A-185	Steel Welded Wire Fabric, Plain, for Concrete Reinforcement

ASTM A-615	Deformed and Plain Billet Steel Bars for Concrete Reinforcement
ASTM C-31	Methods of Making and Curing Concrete Test Specimens in the Field
ASTM C-33	Standard Specifications for Concrete Aggregates
ASTM C-39	Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C-94	Specifications for Ready-Mixed Concrete
ASTM C-136	Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C-143	Test Method for Slump of Portland Cement Concrete
ASTM C-150	Specifications for Portland Cement
ASTM C-172	Method of Sampling Freshly Mixed Concrete
ASTM C-494	Specifications for Chemical Admixture for Concrete
IBC	International Building Code 2015 – New Jersey Edition

American Railway Engineering and Maintenance-of-Way Association (AREMA)

1.5 SUBMITTALS

A. Submit each of the following except field test reports for approval by the Engineer at least twenty working days prior to casting each type of new concrete:

1. Shop drawings showing the following:

    a. Dimensions for cast-in-place concrete details and layout of reinforcing including dimensions, bending details, bar sizes, bar schedules, splicing details and formwork details, slab opening in-fills and similar items required for the proper construction of the work. No concrete may be placed without approved shop drawings.

2. Certification that reinforcing steel incorporated in the work complies with the specifications.
3. Concrete mix design with supporting mix proportioning data prepared by an approved laboratory for all work shown on the Contract Drawings. Submit mix design for all concrete to be placed on the job.
4. Recent sieve analysis of fine and coarse aggregate ASTM C136 test data, as made by the approved laboratory. Materials tested shall be from the same source and of the same physical characteristics as those used on the job.
5. Product data for all admixtures to be used.

B. A copy of all field test reports by the testing laboratory shall be submitted to the Engineer within two days of testing. Test reports shall show name of job, date and exact location of pour, type of concrete, air temperature, concrete temperature, mix data, slump, air content, compressive strength, age and condition of test cylinders, type of fracture, and method of curing.

1.6 QUALITY ASSURANCE

A. Contractor shall engage an independent commercial testing laboratory to test concrete used on this project.
B. Representative of the testing laboratory must be present at the batch plant to verify that the concrete mix is the same as the mix approved for use by the Engineer. Work shall be performed in accordance with ACI 301.

1.7 TESTS

A. Contractor shall secure the services of an independent testing agency, selected by the owner, to perform concrete testing.
B. Testing shall be performed in accordance with Article 3.3 of this Section.

1.8 COORDINATION

A. Notify Construction Manager of intent to place concrete at least 24 hours before each placement so that reinforcement or structural member repair can be inspected before placement.
B. Owner will select a qualified Testing Agency to perform Special Inspections in accordance with Building Code, AREMA, Contract Requirements, and the Special Provisions. An inspection by the Special Inspector is required prior to all reinforced concrete placements. The Contractor shall notify the Special Inspector in accordance with the inspector's notification requirements and shall not proceed without the Special Inspector's acceptance of the preparations.

PART 2 - PRODUCTS

2.1 CEMENT

A. Cement for all concrete shall be Portland Cement Type II complying with the requirements of ASTM Specification C-150.

2.2 CONCRETE AGGREGATES

A. Aggregates for normal weight concrete shall comply with the requirements of ASTM Specification C-33 and ACI 318. They shall be prepared by expanding pelletizing or sintering products such as blast–furnace slag, clay, diatomite, shale or slate.
B. Coarse and fine aggregates for normal weight concrete shall comply with the requirements of ASTM C-33.

2.3 SLAG

A. Slag: ASTM C 989, Grade 120.

2.4 WATER

A. Water used in all concrete shall be clear and free from oil, acids, alkali, salts, organic material or other deleterious substances.

2.5 CONCRETE ADMIXTURES

A. The admixtures considered for use shall be produced by established reputable manufacturers, and used in compliance with the manufacturer's printed instructions. The following manufacturers shall be considered for use as specified herein (or approved equal):

1. Admixture	Manufacturer
a. Pozzolith	Master Builders Co.
b. Darex	W. R. Grace & Co.
c. MBVR	Master Builders Co.
d. Rheocrete CNI	BASF, The Chemical Co.

2. The accelerator admixture shall be used in strict accordance with the printed literature of the manufacturer.

B. The admixture shall be used as follows:

1. Admixture (a) shall be used in all concrete to reduce the water content, increase workability and improve the durability. The admixture shall conform to ASTM C-494 and shall be a combination of polydroxilated polymers including catalysts and components to produce the required setting time, rate of early strength development, improved finished characteristics and surface texture. Water reduction shall not be obtained by promotion of bleeding.
2. Admixtures (b.) And (c.) shall be used in all concrete exposed to the weather and shall conform to ASTM C-260. The air content shall not be less than 4% nor greater than 7%.
3. No other admixtures may be used without the prior written acceptance of New Jersey Transit and the Engineer.
4. Admixture (d) shall be used in all concrete exposed to the weather and shall conform to ASTM C494 Interim requirements for Type C, accelerating admixtures.

2.6 EPOXY ADHESIVE

A. All drilled and grouted bars, dowels or anchors shown on the drawings shall be installed using Hilti HIT-RE-500 Epoxy Adhesive, or approved equal, unless otherwise noted on construction documents. The Contractor shall have a manufacturer representative on site at commencement of the work to ensure proper cleaning of holes and installation of epoxy conforms to manufacturer’s requirements.

PART 3 - EXECUTION

3.1 CONCRETE HANDLING AND PLACING

A. Before placing any concrete, all equipment for mixing and transporting the concrete should be clean, all debris shall be removed from the spaces to be occupied by the concrete, and the reinforcement thoroughly cleaned of other deleterious coatings.

B. Existing concrete surfaces shall be cleaned with high pressure water blast, and all loose and deleterious material and substances removed, prior to placing new concrete.

C. At rehabilitation areas, provide approved bonding agent between existing concrete members and new placement/re-encasement.

D. The time interval between completion of mixing at the central plant and completion of discharge into the forms shall not exceed 90 minutes. The concrete shall be handled from the mixer to the place of final deposit as rapidly as practicable and by methods which will prevent the separation or loss of the ingredients. Concrete shall be distributed by means of concrete buckets, buggies, short spouts, or as otherwise approved. Dropping the concrete a distance of more than five feet will not be permitted, unless suitable and approved equipment is provided to prevent segregation of the ingredients.

E. Concrete shall be thoroughly compacted during and immediately after depositing by vibrating, spading or rodding to insure dense, smooth concrete surfaces, thorough filling of the forms and embedment of all reinforcing and inserts. All concrete shall be densified in place by means of internal type concrete vibrators.

F. No concrete may be cast when the temperature is below 40 Degrees F. or predicted to be below 40 Degrees F. after the time of placing unless the ACI 306 requirements for cold weather concreting are followed completely.

G. When the temperature is below 40 Degrees F. during the 24-hour period after placing, adequate equipment shall be provided for heating the concrete materials and protecting the concrete against freezing. No frozen materials containing ice shall be used. Temperatures of the separate materials, including the mixing water, when placed in the mixer, shall not exceed 140 Degrees F. When placed in forms, the concrete shall have a temperature between 50 Degrees F. and 70 Degrees F.

H. In hot weather, the average temperature of the concrete placed shall be less than 85 Degrees F. Concrete temperature shall be controlled by controlling the temperatures of the aggregates and mixing water and the use of crushed ice, if required.

3.2 MIX DESIGN

A. Normal weight concrete shall be composed of materials meeting the requirements of this specification proportioned so as to provide a minimum compressive strength of 5,000 psi at 28 days.
B. An approved admixture shall be used to provide 6% entrained air +/- 1% for all concrete exposed to weather.
C. All concrete shall be designed to a minimum water-cement ratio to limit shrinkage and produce maximum durability. Maximum water-cement ratio shall be 0.45.
D. A water reducing admixture shall be used for all concrete to improve workability. Water-reducing admixture shall comply with the requirements of ASTM C-494 Type A or Type D.
E. The working consistency of all concrete shall be governed by slump test described in ASTM Specification C-143. The concrete consistency shall be such that the slump will be 3" +/- 1" for all concrete. Concrete designed for pumping shall have a slump range of 4 to 7 inches. Any mix design slump may be increased to a maximum of 9 inches with an appropriate high range water reducer meeting all the requirements of this specification.
F. The Contractor shall employ and pay for, as part of this division's lump sum price for cast- in-place concrete, an approved Testing Laboratory to design a series of concrete mixes using the materials and sources which he proposes to employ during the construction of the work, and of which he has previously supplied samples in sufficient quantity and time for approval by the Engineer. Concrete design mixes shall produce an average strength 25% higher than the minimum 28 day strength specified. Design mixes shall comply with the requirements of ACI 318-95.

3.3 CYLINDER TESTING

A. Testing firm will take cylinders, measure air entrainment and perform slump tests in accordance with ASTM C-31, C-172 and C-231.
B. One set of five concrete test cylinders shall be taken for every 50 cubic yards or less of any concrete placed each day.
   1. At a minimum, one set of test cylinders shall be taken for each Drilled Pier (See Section 02466).
C. Air content and one slump test will be taken for each set of test cylinders made.
D. For concrete where the 28 day strength is specified, one concrete test cylinder will be tested at 7 days and three at 28 days in accordance with ASTM C-39. One cylinder shall be retained for possible future testing.
E. During cold weather one additional test cylinder shall be cured on site under same conditions as the concrete it represents.
F. No concrete shall be placed until it is determined that the mix complies with the air and slump requirements of paragraph 3.2.

3.4 CURING AND PROTECTION

A. All fresh concrete shall be protected from premature drying out by thoroughly sprinkling, wetting or flooding with potable water for minimum period of seven days after placing. During this time, the temperature of the concrete shall not be allowed to fall below 50 Degrees F. In warm weather exposed concrete shall be protected from the direct rays of the sun by the use of burlap, continually wetted, by light colored, non-staining curing paper, lapped four inches and sealed conforming to ASTM Specification C-171, or by such other means as approved by the Engineer.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Cast-In-Place Concrete” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

   1. C03-005-001.0 - Monopole Pile Cap PC-4A (6’x6’)
   2. C03-005-002.0 - Monopole Pile Cap PC-4B (10’-6”x10’-6”)
   3. C03-005-003.0 - Monopole Pile Cap PC-16 (10’-6”x46’-6”)
   4. C03-006-001.0 - Days Yard Wayside Power Platform Foundation Type F4.0 & Pedestal P1
   5. C03-006-002.0 - Days Yard Wayside Power Platform Foundation Type F4.5 & Pedestal P1
   6. C03-006-003.0 - Days Yard Wayside Power Platform Foundation Type F6.0 & Pedestal P1
   7. C03-006-004.0 - Days Yard Wayside Power Platform Foundation Type F7.5 & Pedestal P1
   8. C03-006-005.0 - Days Yard Wayside Power Platform Stair Concrete Pad

9. C03-006-006.0 - Days Yard Wayside Power Outlets Concrete Pad
10. C03-006-007.0 - Days Yard Wayside Power Control Station Concrete Pad
11. C16-006-001.0 - Underground Ductbank "12-12"
12. C16-006-002.0 - Underground Ductbank"13-13"
13. C16-006-003.0 - Underground Ductbank "0-0"
14. C16-006-004.0 - Underground Ductbank "1-1"
15. C16-006-005.0 - Underground Ductbank "1A-1A"
16. C16-006-006.0 - Underground Ductbank "2-2"
17. C16-006-007.0 - Underground Ductbank "2A-2A"
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19. C16-006-009.0 - Underground Ductbank "3A-3A"
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27. C16-006-017.0 - Underground Ductbank "3V-3V"
28. C16-006-018.0 - Underground Ductbank "4V-4V"
29. C16-006-019.0 - Underground Ductbank "4H-4H"
30. C16-006-020.0 - Underground Ductbank "FG1-FG1" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
31. C16-006-021.0 - Underground Ductbank "FG2-FG2" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
32. C16-007-001.0 - Handhole at Signal Transformer 23-T1 (36"Lx24"Wx30"D)
33. C16-007-002.0 - Days Yard Wayside Power Manholes (10'L x 8'W x 8'D)
34. C16-007-003.0 - 15KV Power Manholes (10'L x 10'W x 8'D)

END OF SECTION

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SECTION 03460 - STRUCTURAL TESTS AND SPECIAL INSPECTIONS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Perform Structural Tests and Special Inspections, and other tests of the materials, installation, fabrication, erection and placement of components and connections requiring special expertise to ensure compliance with the Contract Documents, as required by Chapter 17 of the 2015 IBC Code - NJ Edition.

B. Wherever the Contract Documents require tests and inspections that are also required by Chapter 17 of the 2015 IBC Code - NJ Edition, it is not intended that such tests and inspections be repeated provided the persons or testing agency performing the inspections and tests meet the qualification requirements of Chapter 17 of the 2015 IBC Code - NJ Edition and all documentation of satisfactory completion of the inspections and tests is submitted to the Engineer. Where the Contract Documents conflict with the 2015 IBC Code - NJ Edition, the more stringent requirements shall apply. See Section 1J-Contractor's Quality Program for Inspection and Test Plan for requirements for this Contract.

C. The Contractor shall be responsible for Special Inspectors and Testing Agencies and for coordinating, supervising, and directing all day-to-day activities of the Special Inspectors as required by Chapter 17, 2015 IBC Code - NJ Edition. The Contractor shall retain Special Inspectors and Testing Agencies who are competent and duly qualified as required in paragraph 3.3 of this Specification Section and Chapter 17 of the IBC Code. The Special Inspector(s) shall not be an employee of the Contractor. These Special Inspectors and employees of the Testing Agencies shall be present at the Work Site during the progress of the Work at the times required by Chapter 17 of the IBC Code. The Contractor acknowledges that the Owner is also the "authorized construction permitting agency" for the purpose of this Specification Section, as such term is defined in Chapter 17 of the IBC Code, and shall obtain Owner's approval of the Special Inspectors and Testing Agencies, including any replacements. The Contractor shall submit all documentation required by Chapter 17 of the IBC Code to the Engineer for approval.

1.2 REFERENCED SECTIONS

A. Section 03470 Testing Laboratory Services.

1.3 CITED STANDARDS

A. 2015 IBC Code - NJ Edition, Chapter 17.

B. ASTM E-329, Standard Specification for Agencies Engaged in Construction Inspection and/or Testing

1.4 NOTED RESTRICTIONS

None Noted.

1.5 QUALITY CONTROL

A. All proposed inspectors, testing and inspection agencies shall meet the requirements of the 2015 IBC Code - NJ Edition, Chapter 17, and paragraphs 3.3 and 3.4 of this specification section.

1.6 SUBMITTALS

A. The following items shall be submitted for approval of the Engineer on the forms provided during the construction kick-off meeting.

1. Resumes with Qualifications of Special Inspectors and Testing Agencies shall be submitted within 60 days after Notice of Award.

2. A schedule of Structural Tests and Special Inspections for all categories listed in Paragraph 3.2 A shall be submitted prior to the start of Structural Tests and Special Inspections.

B. The following items shall be submitted on a timely basis to the Engineer for information, on the forms provided during the construction kick-off meeting.

1. Monthly documentation of satisfactory completion of required Structural Tests and Special Inspections.

2. Monthly status reports of discrepancy (non-conformance) notices of Structural Tests and Special Inspections including documentation that all discrepancies (non-conformances) have been satisfactorily resolved, or specific plans to resolve.

3. Final Reports of Structural Tests and Special Inspections with all required documentation as required in paragraph 3.5.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

A. Contractor’s Quality Manager shall act as the Contractor’s main coordinator/liaison for all Special Inspection and test activities, which shall include:

1. Coordinating Structural Tests and Special Inspection activities between Contractor’s construction supervision, and the Engineer.

2. Ensuring that Structural Tests and Special Inspections are performed in accordance with the Contractor's Inspection and Test plan (see Section 1J, paragraph 2.5) and schedule of Special Inspections and Tests referenced in paragraph 1.5A above.

3. Monitoring and controlling Contractor’s Structural Tests and Special Inspection activities.

3.2 REQUIRED SPECIAL INSPECTIONS, STATEMENT OF SPECIAL INSPECTIONS, STRUCTURAL TESTING AND SPECIAL CASES

A. Special Inspections

CATEGORY	IBC 2015 SECTION
1. Steel Construction	1705.2
a. Welding	AWS D1.1
b. High Strength Bolts	RCSC
2. Concrete Construction	1705.3
3. Soil	1705.6
a. Driven deep foundation	1705.7

3.3 QUALIFICATIONS OF INSPECTORS AND TESTING AGENCIES

A. Inspector(s) shall be a qualified person(s) or firm who shall provide training certifications and demonstrate competence, to the satisfaction of the Engineer for inspection of the particular type of construction or operation requiring a special inspection. All inspection services will be supplied by the CM or TOCCM. The minimum qualifications for Inspectors for various categories of work are outlined in Table 1704.1 of the 2015 IBC Code - NJ Edition. The resumes of proposed Inspectors shall be submitted to the Engineer for approval. The Inspector (s) shall not be an employee of the Contractor.

B. Testing shall be performed by independent testing and inspection agencies, which comply with the requirements of ASTM E-329 - Standard Specification for Agencies Engaged in Construction Inspection and/or Testing. The identity and qualifications of proposed testing and inspection agencies including its current scope of accreditation shall be submitted to the Engineer for approval.

C. If for any reason, and at any time, a candidate for Inspector or a Testing Agency submitted by the Contractor is not acceptable to the Engineer, or becomes unacceptable, the Contractor shall propose additional candidates or Testing Agencies for the acceptance of the Engineer. Within ten days of any such submission, the Engineer will advise the Contractor of whether such proposed replacement is approved and, if not, the basis for disapproval. If the Contractor wishes to replace any of the Inspectors or Testing Agencies approved by the Engineer at any time during the performance of this Contract, it shall first submit the resume of its new candidate or Testing Agencies to the Engineer for the Engineer’s acceptance and shall not make a substitution without the Owner's acceptance. Within ten days of any such submission, the Engineer will advise the Contractor of whether such proposed replacement is approved and, if not, the basis for disapproval. All final decisions in respect to hiring and / or replacement of Inspectors or Testing Agencies shall be at the sole discretion of the Engineer. In no event shall any Inspector or Testing Agency be replaced without Engineer's approval.

3.4 DOCUMENTATION OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS

A. Contractor shall keep records of Structural Tests and Special Inspections and shall furnish reports to the Engineer using the appropriate forms for submittals as required in paragraph 1.5 above. These forms will be given to the Contractor at the construction kick-off meeting. Monthly reports shall indicate that work inspected was done in conformance with the Contract Documents. Discrepancies (non-conformances) shall be brought to the immediate attention of Contractor and the Engineer.. The Contractor shall promptly complete all required corrections of discrepancies (non-conformances). Correction of discrepancies (non-conformances) shall be documented in monthly status reports and maintained in the project files and copies shall be provided to the Engineer. If the discrepancies (non-conformances) are not corrected, they shall be brought to the attention of the Engineer prior to the completion of that phase of the work, or to being covered, shipped, energized or placed in service.

3.5 FINAL REPORT

A. Prior to the issuance of a Code Compliance Certificate (CCC) a final report certified by the Contractor's Quality Manager shall be submitted by the Contractor stating that all items requiring Structural Tests and Special Inspections were done in accordance with the Contract Documents as required by Chapter 17 of the 2015 IBC Code - NJ Edition . Discrepancies (items not in conformance), unresolved items, or any discrepancies in inspection coverage (i.e. missed inspections, periodic inspection when continuous inspection was required, etc.) shall be specifically itemized in this report.

PART 4MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Structural Tests and Special Inspections” and all associated work in this Section shall be included in the bid line item C01-002-003.0 allowance for “Laboratory Testing and Inspection” on the Bid Price Sheet.

END OF SECTION

SECTION 03470 - TESTING LABORATORY SERVICES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Laboratory Employment

B. Contractor Submittals

C. Laboratory Submittals

D. Special Inspections

E. Contractor Responsibilities

F. Laboratory Responsibilities

G. Laboratory Reports

H. Limits On Laboratory Authority

1.2 LABORATORY EMPLOYMENT

A. The Laboratory is defined as an organization, independent of both the Contractor and the Owner, who is retained to perform designated testing tasks at:

1. the Work Site
2. the premises of the Laboratory
3. the premises of the Contractor
4. the premises of the Contractor's Fabricators, Vendors, Subcontractors and/or Suppliers.

B. Retain and pay for the services of an Independent Testing Laboratory to perform tests specified in the Contract Documents or as directed by the Engineer.

C. This Section and the applicable requirements of all the Technical Specifications of the Contract shall apply to the Laboratory as if specifically referred to herein.

D. The Contractor's use of a Laboratory shall not relieve the Contractor of full responsibility for the Work to be performed in accordance with Contract Requirements. Nothing provided herein shall create any relationship in contract or otherwise between the Contractor's Laboratory and the Owner. Further, nothing herein shall create any rights in any third party nor any obligation on the part of the Owner.

1.3 CONTRACTOR SUBMITTALS

A. Submit name of each proposed Laboratory using the same procedure and documentation as the submittal of any Subcontractor for approval.

B. Submit a list of Laboratory qualified personnel who would be assigned to this Contract.

1. Include certifications noted in appropriate Specification Sections.
2. Include resume of responsible Laboratory personnel.

3. Laboratory shall maintain a full-time Professional Engineer on staff to review and approve test reports.

C. Submit a list of equipment to be used by the Laboratory for this Contract.

1. Include construction materials and/or equipment to be tested using Laboratory equipment.
2. List date and the standard against which each piece of major equipment was last calibrated. Provide reports of calibrations.

D. Submit the following for the Engineer's review and approval through the Contractor:

1. The Laboratory's detailed method of performing tests in accordance with specified procedures.
2. The Laboratory's format of reports to be presented.
3. List of the Laboratory personnel to be assigned to each activity.

E. Submit a copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent tour of inspection, with memorandum of remedies of any deficiencies report by the inspection.

1.4 CONTRACTOR RESPONSIBILITIES

A. Cooperate with Laboratory personnel.

1. Provide incidental labor and facilities to provide access to locations where work is proceeding.
2. Provide ancillary facilities and services for the Laboratory personnel, including:
   a. areas where paperwork can be prepared
   b. toilets, drinking water, telephone, etc.
   c. personal protection clothing

B. Provide the following for Laboratory personnel:

1. Protective materials and/or equipment to safeguard personnel taking samples.
2. Materials needed for tests:
   a. concrete cylinders
   b. identification tags and labels
   c. sample bags
   d. aggregates, sand, cement, asphaltic products
3. Equipment to reach test sites and/or obtaining samples including:
   a. ladders and/or scaffolds
   b. core borers

c. torches and/or cutting devices.

4. Access for taking samples.

5. Patching areas where samples were removed.

6. Guarded locations where samples can be stored.

7. Delivering samples to the Laboratory.

C. Notify Engineer and Laboratory prior to scheduled times for taking samples, performing required tests by the Laboratory.

D. Ensure Laboratory representatives have access to manufacturing sites.

E. Provide Laboratory representatives with specified testing equipment or assure that proper equipment is provided by the Laboratory.

1.5 LABORATORY RESPONSIBILITIES

The Contractor shall ensure that its subcontract with the Laboratory addresses, as necessary, the following requirements, based on the scope of work specified in the Contract.

A. Test samples of concrete and mortar mixes submitted by Contractor.

B. Provide qualified and certified personnel at Site and/or plant and/or Laboratory facility. The Contractor shall review all related qualification and certification documentation and assure that all testing personnel certifications of the Contractor and their Testing Laboratories are issued by a third party certification body. No company internal certification program will be accepted, unless third party certified personnel is not available. The Contractor and their Testing Laboratories will be allowed to utilize internal certified personnel on a case by case basis, only after their internal certification and qualification program has been reviewed and approved by the Engineer.

1. For concrete, all testing personnel engaged by the Contractor and their Testing Laboratories shall be certified in accordance with ACI and ASTM standards, as applicable.

2. For structural steel weld testing, all personnel engaged by the Contractor and their Testing Laboratories, shall be certified in accordance with AWS and ASNT standards, as applicable, based on the type of test, such as Non-destructive testing of welds (i.e. ultrasonic tests of all full penetrations welds, magnetic particle tests of fillet welds, size, etc.) or visual inspection.

C. Cooperate with Engineer and Contractor in performance of services.

D. Provide equipment to perform on-site tests.

E. Perform specified samplings, and testing of products in accordance with specified standards:

F. Protect samples prior to delivery to testing Laboratory.

G. Transport samples to the Laboratory in the most expeditious manner.

H. Store samples under controlled conditions in Laboratory until performance of tests.

I. Ascertain compliance of test materials with requirements of Contract Documents.

J. Promptly notify Engineer and Contractor of observed irregularities or non-conformance of Work or products.

K. Perform additional tests required by Engineer

L. Attend construction conferences and/or progress meetings when invited

M. Provide materials for preparing samples, such as:

1. Cylinders/Cubes
2. Tags
3. Chests.

1.6 LABORATORY REPORTS

The Contractor shall ensure that its subcontract with the Laboratory requires the Laboratory to comply with the following requirements:

A. Within 5 working days of completion of each inspection and/or test, submit copies of the report and the interpretation of the results to the Engineer and to the Contractor.

1. on standard forms approved by the Engineer.
2. signed by a Professional Engineer or
   signed by a Certified Specialist who performed testing.

B. Include for each test:

1. date issued
2. contract number and title
3. name of testing personnel
4. date and time of sampling
5. date of test
6. type of test
7. results of tests
8. identification of product and related Specifications Section
9. location of the Work
10. statement of Conformance With Contract Documents or list of test failures with explanation.

C. When requested by Engineer, provide interpretation of test results.

Testing of Design Mixes

1. The Testing Laboratory shall perform tests and trial mixes in accordance with the specified ASTM Standards and the requirements of the Contract. The design mix and test data should include the proportions of cement, fine aggregate, coarse aggregate, water, admixtures, etc.

2. The Contractor may use previously tested and accepted design mixes if proportions of aggregates that have the same specific gravity, size and gradation, cements of the same type and batch weight, admixtures of the same type of quality, other ingredients of the same or equal and having the same water-cement ratio. Prior to utilization of previously tested and accepted design mixes, related documentation shall be submitted to the Engineer for review and approval. In the event any proportions or ingredients are changed, the previously design mix cannot be approved. A separate submission shall be prepared and shall be processed as a new Design Mix.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 GENERAL

A. The Contractor shall ensure that the Laboratory provides tests and services on the subjects specified in the individual Specification Sections of the Contract Documents. Tests shall be performed in accordance with applicable laws, codes, rules, regulations, standards and procedures and in accordance with the Contract Documents.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Structural Tests and Special Inspections” and all associated work in this Section shall be included in the bid line item C01-002-003.0 allowance for “Laboratory Testing and Inspection” on the Bid Price Sheet.

END OF SECTION

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SECTION 03600 - GROUT

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for grout for uses other than masonry.

1.2 QUALITY ASSURANCE:

A. Conformance with the specified requirements will be demonstrated testing performed by an independent testing laboratory retained by New Jersey Transit.

B. References:

This section contains references to the latest version of documents which are part of this section as specified and modified. In case of conflict between the requirements of this section and the listed documents, the requirements of this section will govern.

ASTM C33	Concrete Aggregates
ASTM C88	Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Material Finer Than 75µm Sieve in Mineral Aggregates by Washing
ASTM C136	Sieve Analysis of Fine and Coarse Aggregates
ASTM C150	Portland Cement
ASTM C289	Potential Reactivity of Aggregates (Chemical Method)
ASTM C494	Chemical Admixtures for Concrete
ASTM C881	Epoxy-Resin-Base Bonding Systems for Concrete
ASTM E329	Inspection and Testing Agencies for Concrete, Steel, Bituminous Materials as Used in Construction

1.3 SUBMITTALS:

A. Manufacturer's product data for bonding compounds, nonshrink, pressure grout, retardants, epoxy grout, polymer concrete, and all other types of grout or other additives intended for use in the project.

B. Test reports, accompanied by a manufacturer's statement that previously tested material is of similar type, quality, and manufacture as that which is proposed for use on this projects, shall be submitted for:

1. Cement

2. Aggregates

3. Retardants

4. Bonding compounds

5. Epoxy resin

C. The Contractor's testing laboratory shall provide evidence of the most recent inspection of its facilities by the Cement and Concrete Reference Laboratory of the National Bureau of Standards and evidence of correction of any deficiencies noted in the inspection report before any materials specified in this section are delivered to the job site.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Portland Cement: ASTM C150 Type II or Type V, containing less than 0.6 percent alkali.

B. Aggregate:

1. General: Aggregate shall be non-reactive and shall be washed before use. When sources of aggregate are changed, test reports shall be provided for the material from the new source prior to commencing grout work.

2. Fine Aggregate: Fine aggregate shall be sand or crushed stone conforming to ASTM C33 as modified herein. When tested in accordance with ASTM C136, gradation shall be such that 100% by weight passes a standard No. 8 sieve and not less than 45% by weight pass a standard No. 40 sieve. Variation from the specified gradation in individual tests will be accepted if the average of three consecutive tests is within the following variation:

Standard Sieve	Permissible Variation in Individual Test
No. 30 or coarser	2% by weight
No. 50 or finer	0.5% by weight

C. Admixtures:

1. General: Admixtures shall be compatible with the grout and shall comply with the manufacturer's recommendations. Admixtures shall be added to the grout mix separately.

2. Water Reducing Retarder: Water reducing retarder shall comply with ASTM C494, Type D and shall be Master Builders Pozzolith 300-R, Sika Corporation Plastiment or approved equal.

3. Lubricant: Lubricant additive for cement pressure grouting shall be Intrusion Prepakt Intrusion Aid, Sika Intraplast N, or approved equal.

D. Water: Water for washing aggregate, for mixing and for curing shall be potable, shall not contain more than 1,000 mg/l of chlorides as Cl, nor more than 1,300 mg/l of sulfates as SO_4, and shall not contain impurities which may change the setting time by more than 25% or a reduction of more than 5% of the compressive strength of the grout at 14 days when compared to the results for grout made with distilled water.

2.2 GROUT:

A. Drypack Grout: Drypack grout shall be a mixture of approximately one part cement, 1-1/2 parts sand, water reducing retarder and sufficient water to make a stiff workable mix.

B. Cement Grout: Cement grout shall be a mixture of one part cement, two parts sand proportioned by volume admixtures for pressure grouting and sufficient water to form a workable mix.

C. Nonshrink Grout: Nonmetallic aggregate nonshrink grout cement based material meeting ASTM 1107 and CRDC-621 shall be A-H Axpand Crete H1-Flow as manufactured by Anti-Hydro International Inc., or approved equal.

D. Epoxy Grout for Crack Repair and Dowel Anchorage:

1. Except for applications involving pressure grouting or crack injection, epoxy shall be a high modulus, moisture insensitive, two component, 100% solids, thermosetting modified polyamid epoxy compound. The material shall conform to ASTM C881 Type I, Grade 3 such as Sika Corporation Sikadur Hi-Mod series, Adhesive Technology Corporation Solidbond 200, or equal which is capable of not sagging in horizontal or overhead anchoring applications.

2. Epoxy for applications involving pressure grouting or crack injection, shall be a high modulus, moisture insensitive, two component, injection grade, 100% solids blend of epoxy resin compounds. The material shall conform to ASTM C881 Type I, Grade 1 such as Sika Corporation Sikadur 52, Adhesive Technology Corporation SLV 300 series, or equal which is capable of achieving complete penetration of hairline and larger cracks.

E. Polymer Concrete for Resurfacing and Patching: Polymer concrete shall consist of a liquid binder and dry aggregate mixed together to make a flowable mortar. The liquid binder shall be a chemical and oil resistant, stress relieved, low modulus, moisture insensitive, two component epoxy resin compound. The binder material shall conform to ASTM C881 Type 3, Grade 1 such as Sika Corporation Sikadur Lo-Mod series, Adhesive Technology Corporation 400 series, or equal with a consistency similar to light weight oil for proper mixing with the aggregate. The aggregate shall be oven dry, kept in sealed packages until the time of mixing and be of size and consistency compatible with recommendations of the manufacturer of the liquid binder for the intended application.

F. Adhesive Capsules for Dowel Anchorage: Adhesive resin capsules will consist of sealed glass capsules containing pre measured quantities of polyester or vinylester resin, quartz sand aggregate and a hardener contained in a separate vial within the capsule. Adhesive capsules shall be Hilti HEA Capsules, Molly Parabond Capsules, or equal.

2.3 PRESSURE GROUTING EQUIPMENT:

A. Pressure grouting equipment shall include a mixer and holdover agitator tanks designed to place grout at pressures up to 50 PSI. Gauges indicating grouting pressure shall be provided and the mixer shall be equipped with a meter capable of indicating to within 1/10 cubic foot the volume of grout placed.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Transmit submittals required by this section.

B. Furnish products as indicated.

C. Ensure that substrates are in suitable condition to receive the work.

3.2 GENERAL:

A. Bonding compounds for use with grout shall be provided per manufacturer's recommendations. Primer, if required for polymer concrete, shall be provided per the manufacturer's recommendations.

3.3 DRYPACK GROUT:

A. Drypack grout shall be used for built-up surfaces, setting miscellaneous metal items and minor repairs.

B. Surfaces required to be built-up with drypack grout shall be roughened by brushing, cleaned and coated with a bonding compound before application of grout. The grout shall be applied to the required thickness and properly cured.

3.4 CEMENT GROUT:

A. Cement grout shall be used for filling nonbearing portions of equipment pads and pressure grouting.

B. Except for the specialized requirements for pressure grouting, grout shall be mixed and placed in the same manner as cast-in-place concrete. Grout is to be mixed for at least one minute and diluted grout is to be agitated until placed.

3.5 NONSHRINK GROUT:

A. Nonshrink, nonmetallic aggregate grout is to be used under equipment, bearing plates, expansion joint cover frames and column base plates. Nonshrink, metallic aggregate grout shall be used under rotating equipment where high strength and fatigue are of concern, to grout anchor bolts and to grout reinforcing steel. Grout shall be placed and cured in accordance with the manufacturer's recommendations.

B. Holes required for grouting shall be blown clean with compressed air and are to be free of dust or standing water. Horizontal holes for grouting shall be drilled at a slight downward angle and with the inserted dowel or bolt bent to match.

C. Minimum strength of non-shrink grout shall be f'c= 8000 psi or 2x the base concrete strength, whichever is greater.

3.6 EPOXY GROUT:

A. Epoxy grout shall be used for repairing cracks by pressure grouting or gravity, repairing structural concrete and may be used for setting dowels or bolts in holes. Concrete shall be primed in accordance with the grout manufacturer's recommendations.

B. The use of epoxy grout must comply with the following restrictions during installation:

1. Limited to areas where exposure, on an intermittent or continuous basis, to acid, chlorine gas or to machine or diesel oils is unlikely (based on contractor's judgement).

C. Holes for the anchors shall be drilled (not cored), shall be blown clean with compressed air and shall be free of dust or standing water.

D. The anchor type, size and embedment depth shall be as shown on the drawings and the anchor must be installed in accordance with the manufacturer's recommendations.

E. The anchor shall not be loaded until after the full curing period has elapsed.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Management of Excavated Soils” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C02-011-001.0 - Mircropiles (02499) – Permanent Casing Portion of Micropile Seated into the Top of Bedrock

2. C02-011-002.0 - Mircropiles (02499) – Bond Length Portion of Micropile in Bedrock

3. C05-011-001.0 - Structural Steel Monopoles (05125) – 20”X20”

4. C05-011-002.0 - Structural Steel Monopoles (05125) – 24”X24” 5.

C05-011-003.0 - Structural Steel Monopoles (05125) – 26”X26” 6.

C05-011-004.0 - Structural Steel Monopoles (05125) – 28”X28” 7.

C05-011-005.0 - Structural Steel Monopoles (05125) – 30”X30” 8.

C05-011-006.0 - Structural Steel Monopoles (05125) – 34”X34” 9.

C05-011-007.0 - Structural Steel Monopoles (05125) – 44”X44”

10. C05-014-013.0 - Days Yard Wayside Power Platform (SP-2)

END OF SECTION

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SECTION 05120- STRUCTURAL STEEL

PART 1 - GENERAL

1.1 DESCRIPTION

A. General:

1. Provide structural steel in accordance with the Contract Documents.

2. For Structural Steel Monopoles specification, see Section 05125.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Miscellaneous steel of access ladder, plates, angles, attachment bolts of the electrical equipment not specifically shown on structural drawings but called for in the electrical drawings.

1.3 STANDARD

A. Except as modified by governing codes and by the Contract Documents, comply with the applicable provisions, most recent revisions, and recommendations of the following:

1. AISC "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings, Load and Resistance Factor Design" or "Specification for Structural Steel Buildings- Allowable Strength Design" (including all supplements), AISC 360-05.

2. AISC "Code of Standard Practice for Steel Buildings and Bridges", except in Paragraph 4.2.1, delete the first and second sentences, AISC 303-05

3. AISC "Specifications for Structural Joints Using ASTM A325 or A490 Bolts".

4. AWS D1.1 "Structural Welding Code".

B. Where the language in any of the documents referred to herein is in the form of a recommendation or suggestion, such recommendations or suggestions shall be deemed to be mandatory under this Contract.

1. American Society for Testing and Materials (ASTM):

A-36	All Purpose Carbon Grade Structural Steel
A-992 Grade 50	Wide flange sections
A-325	High Strength Steel Bolts (for structural joints)
A-490	High Strength Steel Bolts (for structural joints)
A-563	Carbon and Alloy Steel Nuts
F-436	Hardened Steel Washers
A-500 Grade B (Fy=46ksi)	HSS Shapes
F- 959	DTI's
F-1554 GR 36	Anchor Rods

2. American Institute of Steel Construction (AISC): Manual of Steel Construction (Allowable Stress Design), latest edition.

3. American Welding Society (AWS):

D 1.1	Structural Welding Code- Steel

4. Steel Structures Painting Council (SSPC):

SP-1	Solvent Cleaning Power
SP-3	Tool Cleaning Commercial
SP-6	Blast Cleaning

5. International Building Code- Latest Edition of New Jersey

1.4 SUBMITTALS

A. Shop Drawings: Submit shop and erection drawings for all structural steel components showing the following:

1. Types of materials, including sizes and weights of members.
2. Location, types and details of connections.
3. Openings
4. Cleaning, surface preparation and painting schedules.
5. A Fourteen Day (14) minimum notice of request for power outage is required

B. Reports

1. Submit certified copies of mill test reports for all steel furnished. Perform mechanical and chemical tests for all material regardless of thickness or use. No part of the ASTM Specifications will be waived without written consent of the Engineer.
2. Submit copies of prequalified and other welding procedures in form prescribed in "Structural Welding Code".
3. Provide certified fastener test reports for each component lot of high-strength structural fasteners used in the project, including those for any A325 and A490 bolts, F436 washers, F959 DTI's and A563 nuts.
4. Submit report from Testing Laboratory, indicating weldability and chemical composition of existing structural steel.

C. Manufacturer's Data: Submit product data or manufacturer's specifications and installation instructions for the following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).

1. High-strength bolts (each type), including nuts and washers.
   a. Include Direct Tension Indicators.

D. United States Mill Certificates and test reports covering the chemical and physical properties of all steel and metal.

E. Procedures and details for removals and temporary supports.

F. Calculations of connections as per requirements spelled out in section 2.3.

1.5 PRODUCT HANDLING

A. Do not handle structural steel until galvanizing has thoroughly dried. Care shall be exercised to avoid abrasions and other damage.

B. Store materials to permit easy access for inspection and identification. Keep steel members off ground by using pallets, platforms, or other supports. Protect steel members and packaged materials from corrosion and deterioration. Prior to installation and tightening, fastener components shall be protected from dust, dirt, moisture and other jobsite conditions detrimental to their lubricants and finish. Fastener components that accumulate rust or dirt resulting from job-site conditions shall not be used unless they are cleaned and re-lubricated (Twist-off bolts shall only be re-lubricated by the original manufacturer).

C. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

D. Stack material out of mud and dirt and provide for proper drainage. Protect from damage or soiling by adjacent construction operations.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Structural steel shapes, shims, plates, and bars. Structural steel shall conform to the provisions of ASTM A36 or ASTM A992, pipe steel to the provisions of ASTM A501, and tube steel to the provisions of ASTM A500, Grade B.

B. All rebars used for reinforcing of existing steel members at catenary trusses shall be plain billet steel bars Grade 60. They shall conform to ASTM A-615 “Deformed and Plain Billet Steel Bars for Concrete Reinforcement “.

C. High-Strength Structural Fasteners:

1. Heavy hex structural Bolts: Use only ASTM A325 or A490 bolts manufactured by Infasco, Vermont Fasteners or approved equal.

2. Hardened washers: Use only through-hardened ASTM F436 washers manufactured by Infasco, Vermont Fasteners, Technical Stamping, Prestige or Wrought Washer or approved equal.

3. Direct Tension Indicators: Use only ASTM F959 DTI's manufactured by Turnasure or Bethfast or approved equal.

4. Heavy hex nuts: Use only ASTM A563 heavy hex nuts manufactured by Infasco, Vermont Fasteners, or Unitite or approved equal.

D. Direct Tension Indicators: ASTM F959, type as required.

1. Use on all A325 and A490 bolts in pre-tensioned connection joints that, including those using F1852 twist-off type bolts.

2. Prior to fabrication and erection, representatives of the Engineer, the Owner's testing agency, and the bolt and DTI manufacturers shall meet at the site to ensure that bolting methods and requirements (including inspection) for tensioning of high strength structural connections are fully understood and agreed to.

E. Anchor bolts:

1. Shall conform to ASTM F-1554 type as shown on the Contract Drawings and be the regular hexagonal-bolt type

2.2 FABRICATION

A. Shop Fabrication and Assembly: Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on final shop drawings. Provide camber in structural members where indicated.

1. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence that will expedite erection and minimize field handling of materials.

2. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs, and other defects.

B. Drill or punch holes at right angles to the surface of the metal, not more than 1/16 in. larger than the connector diameter. Do not make or enlarge holes by burning. Drill material having a thickness in excess of the connector diameter and material thicker than 7/8 in. Holes shall be clean-cut without torn or ragged edges. Remove outside burrs resulting from drilling operations.

C. Provide holes in members to permit connection of the work of other trades. Use suitable templates for proper location of these holes. Steel requiring adjustment shall be provided with slotted holes as shown.

D. Provide holes, slots and openings required by other trades together with necessary reinforcing as shown. Use suitable templates for proper location of these opening. Where openings are shown on the Drawings or shop drawings no change in location will be permitted without prior approval.

E. Manual oxygen cutting shall be done only with a mechanically guided torch. An unguided torch may be used provide the cut is within 1/8 in. of the required line.

2.3 CONNECTIONS

A. Connections shall be of the types shown on the Drawings unless prior approval is obtained from the Engineer. Design connections for the capacities and according to the requirements shown on the Drawings. Employ a qualified Structural Engineer licensed in the State of New Jersey to perform the structural design and detailing of connections where:

1. The general details shown on the drawings are conceptual only

2. The sections or details not indicate the required number of bolts or weld sizes.

B. All connections shall be one of the following:

1. Expansion anchors or adhesive anchors to concrete

2. High-strength structural bolts.

3. Welds.

2.4 FABRICATION FINISHES

A. Shop Cleaning.

1. Surface Preparation

a. Blast clean surfaces not otherwise specified in accordance with SSPC SP 6. Wash cleaned surfaces which become contaminated with rust, dirt, oil, grease, or other contaminants with solvents until thoroughly clean. Steel to be embedded in concrete shall be free of dirt and grease. Do not galvanize bearing surfaces, including contact surfaces within joints, but coat with rust preventative applied in the shop.

2.5 SHOP PAINTING

A. All structural steel shall not receive a shop coat of primer.

2.6 STRUCTURAL STEEL

A. Metal Surfaces, General: For fabrication of work that will be exposed to view, use only materials that are smooth and free of surface blemishes including pitting, rust and scale seam marks, roller marks, rolled trade names, and roughness. Remove such blemishes by grinding, or by welding and grinding, prior to cleaning, treating, and applying surface finishes.

B. Galvanize all structural shapes exposed to elements by hot dip method. Galvanize structural shapes in accordance with ASTM 123. Apply zinc coating as per thickness grade specified in ASTM A123. Galvanize all hardware in accordance with ASTM A153.

2.7 SOURCE QUALITY CONTROL

A. Testing and inspection of structural steel will be performed by a testing agency retained by the Owner. Provide the testing agency with the following:

1. A complete set of accepted documents required under Paragraph "Submittals".

2. Cutting lists, order sheets, material bills, and shipping bills.

3. Information as to time and place of all railings and shipment of material to shops.

4. Representative sample pieces as requested by the testing agency.

5. Full and ample means and assistance for testing all materials.

6. Proper facilities, including scaffolding, temporary work platforms, etc., for inspection of the work in the mills, shop and field.

B. Each person installing connections shall be assigned an identifying symbol or mark and all shop and field connections shall be so identified so that inspector can refer back to the person making the connection.

C. The Inspector will perform his duties, when possible, in such a way that fabrication and erection are not unnecessarily delayed or impeded, and as follows:

1. The inspector will make all tests and inspections as required by all applicable federal, state and local Building Laws. The inspector shall make all the tests and inspections indicated on the Drawings.

2. The technique for radiographic inspection will be in accordance with Section 6, Part B of the "Structural Welding Code". A double film technique will be used. One copy of each film will be sent to the Engineer, the other will be retained by the Inspector.

3. Ultrasonic inspection will be performed in accordance with Section 6, Part C of the "Structural Welding Code".

4. Shop welds will be inspected in the shop before the work is painted or approved for shipment.

5. The inspector will make all tests and inspections of high strength structural bolt connections as required by AISC "Specifications for Structural Joints Using ASTM A325 or A490 Bolts".

   a. Under-tensioned A325 and A490 bolts are to be further tightened until they meet acceptable inspection criteria for tension. Use of, stick-wax' lubricant can facilitate ease of tightening.

6. Where inspection reveals defects, the extent of inspection will be increased as much as necessary to assure that the full extent of the defects in a joint have been found and to assure that the same defects are not present on similar parts or under similar circumstances.

7. Work that is not acceptable will be designated by "Repair" or "Reject", as applicable.

8. The Inspector will maintain a daily record of the work he has inspected and its disposition. One copy of each of the reports will be submitted to the Engineer on a weekly basis.

   a. Welding reports of test will be made in form prescribed in the "Structural Welding Code".

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION MEETING

A. Prior to the start of the Work, meet at the Project site to review methods and sequence of structural steel erection, quality control requirements, standard of workmanship, job organization, coordination of the work with other trades, special details and conditions, testing and inspection procedures, and other pertinent topics related to the Work. The meeting shall include Owner's Representative, the Engineer, the Contractor, the Structural Steel Subcontractor, the Owner's Testing Laboratory, and any other subcontractors whose

work requires coordination with this Work. Also see requirements of Part 2.1.D.2 with regards to bolting. Submit an SSWP a minimum of 45 days prior to start of work.

3.2 CONDITION OF SURFACE

A. Examine the substrates, adjoining construction and the conditions under which the Work is to be installed. Do not proceed with the Work until unsuitable conditions have been corrected. Consider all conditions which will affect the satisfactory erection of the structural steel systems.

B. Visit the project site and advise Engineer of any discrepancy or conflict. Field verify existing construction requirements, existing conditions, restrictions and clearances which may affect structural steel systems erection. Assume responsibility for all errors of detailing and fabrication and for the correct fitting and erection of the structural steel systems.

C. Verify existing conditions, dimensions and sizes prior to beginning the work.

D. Beginning of installation means erector accepts existing conditions.

E. Allow for erection loads and conditions, and for sufficient temporary bracing to maintain the structure safely, plumb and in true alignment until completion of removal, erection and installation.

3.3 ERECTION

A. Surveys: Engage a Land Surveyor, holding a valid license and registration to practice in the State of New Jersey for accurate erection of structural steel. Check elevations and locations of existing steel before erection work proceeds. Report discrepancies to the Engineer. Do not proceed with erection until corrections have been made or until compensating adjustments to structural steel work have been agreed upon with the Engineer.

1. Examine adjoining construction and conditions under which the work is to be erected. Do not proceed with work until unsatisfactory conditions have been corrected.

2. Consider all conditions which will affect the satisfactory erection of the indicated structural steel systems. Field verify existing construction requirements, existing conditions, restrictions, and clearances which affect structural steel system erection. Assume responsibility for all errors of detailing and fabrication and for the correct fitting and erection of the structural systems.

3. Visit the premises and advise the Engineer of any discrepancy or conflicts. If any conflict occurs, necessitating departures from the Contract Drawings, details of such departures and the reasons therefore shall be submitted to the Engineer for written approval before performing any work. Departures shall not be made without the prior written approval of the Engineer. Approved departures shall be executed at no additional cost to the New Jersey Transit.

B. General: Except as modified herein, erection shall be in accordance with the AISC manual of steel construction. Erecting equipment shall be suitable for the work and shall be in first class condition. Where parts cannot be assembled or fitted properly as a result of errors in fabrication or deformation due to handling or transportation, such condition shall be reported immediately to the controlled inspection representative and his approval of the method of correction obtained; the correction shall be made in his presence.

C. Temporary Shoring and Bracing: Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and connections when permanent members are in place and final connections are made.

D. Temporary Planking: Provide temporary planking and working platforms as necessary to safely complete the work.

E. Field Assembly: Set structural columns accurately to lines and elevations indicated. Align and adjust before permanently fastening. Provide for drainage in structural steel. Clean bearing surfaces and other surfaces that will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. All work shall be installed in correct location, in alignment, and plumb to true planes. Level and plumb individual members of structure within specified AISC tolerances, supplemented and amended as indicated in 3.6 "ERECTION TOLERANCES."

2. Splice members only where indicated and accepted on shop drawings.

F. Connections: Except as modified in this Section, connections not detailed shall be designed in accordance with AISC. Build connections into existing work. Punch, sub-punch, and ream, or drill bolt holes. Bolts, nuts and washers shall be clean of dirt and rust, and lubricated immediately prior to installation. Unless otherwise indicated all bolted connections shall be bearing type connections.

1. High-strength ASTM A-325 bolts shall be fully tensioned to 70 percent of their minimum tensile strength. Bolts shall be installed in connection holes and initially brought to a "snug tight" fit. After the initial tightening procedure, bolts shall then be fully tensioned, progressing from the most rigid part of a connection to the free edges.

G. Oxygen cutting of structural steel for "fitting-up" purposes shall not be done except with the acceptance of the Engineer.

H. Make all necessary provisions for temporary shoring and bracing with connections of sufficient strength to bear imposed loads and for completion of erection where structural members are temporarily left out for erection at a later date. Provide temporary planking and working platforms as necessary to effectively complete the work.

I. Field Assembly: Set structural columns accurately to lines and elevations indicated. Align and adjust before permanently fastening. Clean bearing surfaces and other surfaces that will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

3.4 CONNECTIONS

A. Connections shall comply with requirements specified in Part 2 - Products. Bolts, nuts and washers shall be clean of dirt and rust and lubricated immediately prior to installation (except twist-off bolts, which if used, may not be lubricated by anyone other than the original manufacturer).

3.5 BOLTING

A. Bolts shall be of a length that will extend not less than 1/4 in. beyond the nuts. Enter bolts into holes without damaging the thread.

B. Use high-strength structural bolts installed in pre-tensioned joints unless otherwise noted on the Drawings. Bring members tightly together with sufficient high- strength "fitting-up" bolts which shall be retightened as all the bolts are finally tightened. Manual torque wrenches will not be accepted for final tightening. Protect bolt heads from damage during placing. Bolted connections that have been completely tightened and are ready for inspection shall be marked for identification.

C. Final tightening of high-strength structural bolts shall be by properly calibrated and sufficiently powerful air-impact, hydraulic or electric wrenches capable of generating ample torque for the diameter and grade of fasteners to be tensioned, unless turn-of-nut method is specifically permitted. Each wrench shall be checked for accuracy at least once daily.

3.6 WELDING

A. Do not begin structural welding until joint elements are bolted or tacked in intimate contact and adjusted to dimensions shown on Drawings, or both, with allowance for any weld shrinkage that is expected. Weld heavy sections and those having a high degree of restraint with low hydrogen type electrodes. No members are to be spliced without prior review by the Engineer.

B. Welding shall be performed by operators who have been qualified within the preceding one year period under AWS standard qualification procedure for the type of work required. All field welders shall be recertified for this project at the job site.

3.7 FIELD PAINTING

A. Field painting shall comply with the requirements specified in Part 2 -Products, "Shop Painting".

B. After erection, clean exposed surfaces of field connections, unpainted areas adjacent to field connections and damaged areas in the shop coat to the same standards as required for the shop coat and paint with the same primer used in the shop coat.

3.8 ERECTION TOLERANCE

A. Dimensions shown on Drawings are based on an assumed design temperature of 70 deg. F. Fabrication and erection procedures shall take into account the ambient temperature range at the time of the respective operations.

3.9 INSPECTION

A. Provide an independent testing laboratory inspector who shall make detailed reports of his inspection to the New Jersey Transit.

B. Perform a 100% visual and ultrasonic examination on repair members within repair locations to ensure their size, length and locations conform to the Contract Drawings. Replacement members shall cover all corrosion areas.

C. Perform on welds a 100% visual and ultrasonic examination to ensure that their size, length and locations conform to the Contract Drawings.

1. Nondestructive testing procedures and techniques, as well as Personnel Qualifications shall be in accordance with Section 6.7 and 6.9.3 of AWS D 1.1.

D. For testing of high strength bolts, provide onsite an approved hydraulic tester for setting and checking impact wrenches and an approved hand torque wrench (with dial gauges) together with facilities for setting and checking.

E. For shop bolted connections, test, at least 10% of the bolts in any connection, and not less than one bolt of each size in each connection at the work site.

1. Should any bolt fail to meet the requirements of this test, re-tighten all the bolts in that member by properly adjusted power wrenches before the member is erected.

F. Field bolted connections shall be checked by an independent testing laboratory for tension on at least 10% of the bolts in any connection and not less than one bolt of each size in each connection.

G. Verify that the steel has been prepared for painting in accordance with the painting manufacturer's recommendations and the requirements of the Specifications. Verify the thicknesses of the paints, and that the application is in accordance with the manufacturer's recommendations.

H. Additional Inspections: Perform additional inspections as necessary to confirm any non- compliance of original work, to show conformance of corrected work, to show that all variances have been corrected in an acceptable manner, and to verify that completed structural steel work, including materials, installation, fabrication, assembly, erection, inspection, and testing, meet the Contract Document requirements.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Structural Steel” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C05-012-001.0 - SE3 Pole Extension

2. C05-013-001.0 - Signal 0 Location Steel Platform (SP-3)

3. C05-013-002.0 - Roof Termination Steel Structure (Steel Rack SR-1)

4. C05-014-013.0 - Days Yard Wayside Power Platform (SP-2)

END OF SECTION

SECTION 05125- STRUCTURAL STEEL MONOPOLES

PART 1 - GENERAL

1.1 DESCRIPTION

A. General:

1. Provide structural steel monopoles supporting signal and yard power distribution lines in accordance with the Contract Documents.

1.2 RELATED SECTIONS

A. 02499 – Micropiles

B. 05120 – Structural Steel

1.3 CITED STANDARD

A. Except as modified by governing codes and by the Contract Documents, comply with the applicable provisions, most recent revisions, and recommendations of the following:

1. AISC "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings, Load and Resistance Factor Design" or "Specification for Structural Steel Buildings- Allowable Strength Design" (including all supplements), AISC 360-05.

2. AISC "Code of Standard Practice for Steel Buildings and Bridges", except in Paragraph 4.2.1, delete the first and second sentences, AISC 303-05
3. AISC "Specifications for Structural Joints Using ASTM A325 or A490 Bolts".
4. AWS D1.1 "Structural Welding Code".

B. Where the language in any of the documents referred to herein is in the form of a recommendation or suggestion, such recommendations or suggestions shall be deemed to be mandatory under this Contract.

1. American Society for Testing and Materials (ASTM):

A-36	All Purpose Carbon Grade Structural Steel
A108	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
A123	Zinc (Hot-Dip Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars and Strips
A153	Zinc Coating (Hot-Dip) on Iron and Steel Hardware
A-325	High Strength Steel Bolts (for structural joints)
A-490	High Strength Steel Bolts (for structural joints)
A-563	Carbon and Alloy Steel Nuts
A572 GR 50 MIN.	High-Strength Low-Alloy Columbium Vanadium Structural Steel
A-1065	Cold-Formed Electric-Fusion (Arc) Welded High Strength Low-Alloy Structural tubing in Shapes with 50 ksi Minimum Yield Point
F-436	Hardened Steel Washers
F- 959	DTI's
F-1554 GR 105	Anchor Rods

2. American Welding Society (AWS):

D 1.1	Structural Welding Code- Steel

3. Steel Structures Painting Council (SSPC):

SP-1	Solvent Cleaning Power
SP-3	Tool Cleaning Commercial
SP-6	Blast Cleaning

4. NJ Uniform Construction Code / International Building Code- Latest Edition.
5. American Railway Engineering and Maintenance-of-Way Association (AREMA)
6. National Electrical Safety Code (NESC)

1.4 SUBMITTALS

A. Shop Drawings: Submit shop and erection drawings for all structural steel monopole components showing the following:

1. Types of materials, including sizes and weights of members.
2. Detailed drawings for each face of the structural steel monopole indicating dimensions and locations of gains, brackets, tabs, and other attachments
3. Location, types and details of connections and splices.
4. Details for gains, brackets, tabs and other attachments with locations and dimensions clearly indicated
5. Cleaning, surface preparation and galvanizing schedules.
6. Structural design calculations signed and sealed by a Professional Engineer licensed in the State of New Jersey for steel connections, splices, and attachments

B. Reports

1. Submit certified copies of mill test reports for all steel furnished. Perform mechanical and chemical tests for all material regardless of thickness or use. No part of the ASTM Specifications will be waived without written consent of the Engineer.
2. Submit copies of prequalified and other welding procedures in form prescribed in "Structural Welding Code".
3. Provide certified fastener test reports for each component lot of high-strength structural fasteners used in the project, including those for any A325 and A490 bolts, F436 washers, F959 DTI's and A563 nuts.

C. Manufacturer's Data: Submit product data or manufacturer's specifications and installation instructions for the following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).

1. High-strength bolts (each type), including nuts and washers.
    a. Include Direct Tension Indicators.

2. Provide test report or certification demonstrating that anchor bolts comply with Chardy V-Notch testing requirement specified in provision 2.7 C9.

D. United States Mill Certificates and test reports covering the chemical and physical properties of all steel and metal.

E. Procedures and details for removals and temporary supports.

1.5 PRODUCT HANDLING

A. Do not handle structural steel until galvanizing has thoroughly dried. Care shall be exercised to avoid abrasions and other damage.

B. Store materials to permit easy access for inspection and identification. Keep steel members off ground by using pallets, platforms, or other supports. Protect steel members and packaged materials from corrosion and deterioration. Prior to installation and tightening, fastener components shall be protected from dust, dirt, moisture and other jobsite conditions detrimental to their lubricants and finish. Fastener components that accumulate rust or dirt resulting from job-site conditions shall not be used unless they are cleaned and re-lubricated (Twist-off bolts shall only be re-lubricated by the original manufacturer).

C. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

D. Stack material out of mud and dirt and provide for proper drainage. Protect from damage or soiling by adjacent construction operations.

PART 2 - PRODUCTS

2.1 MATERIAL AND PERFORMACE REQUIREMENTS

A. Structural Steel Monopoles shall be manufactured by the following manufacturer or approved equal:

1. Valmont Tubing, 14631 Hwy 6, Waverly, Nebraska 68462, Phone: 800-825-6668, Ext. 3558; Fax: 402-359-4481; Email: tubing@valmont.com

2. Atlas Tube, 1855 East 122nd Street, Chicago, IL 60633; Phone: 800-733-5683; Fax: 773-646-6128; www.atlastube.com

3. Approved equal.

B. Structural Steel Monopoles shall be hollow structural HSS tubes sections that meet the dimensional requirements of ASTM A1065 and are constructed of high strength low alloy steel that meets or exceeds the requirements of ASTM A572 Grade 50 and ASTM A1065.

1. Steel material shall be of United States origin.

C. Structural Steel Monopoles shall be square hollow structural sections with minimum 1 inch wall thickness constructed in the sizes and lengths indicated on the Contract Drawings.

1. Adjacent sides may deviate from 90 degrees by a tolerance of plus or minus 2 degrees

2. Tolerance for outside dimensions, including allowance for convexity and concavity, shall be 1.5 percent of each flat dimension. Measurements shall be taken at least 2 inches from the ends.

3. Permissible variation from straightness shall be limited to 1/8 inch in five feet.

4. Maximum twist per three feet length shall be 1/8 inch. Twist shall be measured either by holding down one end of a square section parallel to the surface plates with the bottom side of the section or by measuring the difference between the heavier sections by a suitable measuring device. The difference in the height of the corners shall not exceed the values specified in ASTM A1065.

5. The outside corner bend radius shall equal three times the wall thickness (3T) or greater.

D. Where final lengths indicated on the Contract Drawings are greater than manufacturing limitations, the manufacturer shall design a welded splice detail that does not require a butt plate and maintains the full structural capacity of the structural section. Any required splices to achieve final lengths shall be performed at the manufacturer's shop prior to shipment. The Contractor and/or manufacturer shall be responsible for coordinating and/or obtaining approvals from any authorities and making any special arrangements necessary to facilitate shipment of Structural Steel Monopoles in their final lengths from the manufacturer's shop to the job site and installation location.

E. All Structural Steel Monopoles and components shall be hot-dip galvanized with the exception of stainless steel grounding tabs.

F. Structural Steel Monopoles shall be provided with steel cap plates to prevent water from collecting within the tube.

G. High-Strength Structural Fasteners:

1. Heavy hex structural bolts: Use only ASTM A325 or A490 bolts manufactured by Infasco, Vermont Fasteners, or approved equal.

2. Hardened washers: Use only through-hardened ASTM F436 washers manufactured by Infasco, Vermont Fasteners, Technical Stamping, Prestige, Wrought Washer, or approved equal.

3. Direct Tension Indicators: Use only ASTM F959 DTI's manufactured by Turnasure, Bethfast, or approved equal.

4. Heavy hex nuts: Use only ASTM A563 heavy hex nuts manufactured by Infasco, Vermont Fasteners, Unitite, or approved equal.

H. Direct Tension Indicators: ASTM F959, type as required.

1. Use on all A325 and A490 bolts in pre-tensioned connection joints that, including those using F1852 twist-off type bolts.

2. Prior to fabrication and erection, representatives of the Engineer, the Owner's testing agency, and the bolt and DTI manufacturers shall meet at the site to ensure that bolting methods and requirements (including inspection) for tensioning of high strength structural connections are fully understood and agreed to.

I. Anchor rods:

1. Shall conform to ASTM F-1554 type as shown on the Contract Drawings and be the regular hexagonal-bolt type

2.2 FABRICATION

A. Shop Fabrication and Assembly: Fabricate and assemble structural steel monopoles and assemblies in shop. Any splice connections required to achieve final monopole length shall be made in the shop prior to shipment of the monopole. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on final shop drawings. Provide camber in structural members where indicated.

1. Properly mark the monopole identification number on all four sides of the monopole and mark the North face of the monopole with an identifying marker. Fabricate for delivery sequence that will expedite erection and minimize field handling of materials.

2. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs, and other defects.

B. Drill or punch holes at right angles to the surface of the metal, not more that 1/16 in. larger than the connector diameter. Do not make or enlarge holes by burning. Drill material having a thickness in excess of the connector diameter and material thicker than 7/8 in. Holes shall be clean-cut without torn or ragged edges. Remove outside burrs resulting from drilling operations.

C. Provide holes in members to permit connection of the work of other trades. Use suitable templates for proper location of these holes. Steel requiring adjustment shall be provided with slotted holes as shown.

D. Provide holes, slots and openings required by other trades together with necessary reinforcing as shown. Use suitable templates for proper location of these opening. Where openings are shown on the Drawings or shop drawings no change in location will be permitted without prior approval.

E. Manual oxygen cutting shall be done only with a mechanically guided torch. An unguided torch may be used provide the cut is within 1/8 in. of the required line.

F. For HSS tubes manufactured by brake forming two channel sections and welding them together using longitudinal seam welds, the longitudinal seam welds shall use 100% weld penetration (complete joint penetration) with verification performed via ultrasonic testing. Ultrasonic testing reports shall be provided as a deliverable.

2.3 CONNECTIONS

A. Connections shall be of the types shown on the Drawings unless prior approval is obtained from the Engineer. Design connections for the capacities and according to the requirements shown on the Drawings. Employ a qualified Structural Engineer licensed in the State of New Jersey to perform the structural design and detailing of connections where:

1. The general details shown on the drawings are conceptual only

2. The sections or details not indicate the required number of bolts or weld sizes.

B. All connections shall be one of the following:

1. High-strength structural bolts.

2. Welds.

2.4 FABRICATION FINISHES

A. Shop Cleaning and Galvanizing.

1. Surface Preparation

a. Blast clean surfaces not otherwise specified in accordance with SSPC SP 6. Wash cleaned surfaces which become contaminated with rust, dirt, oil, grease, or other contaminants with solvents until thoroughly clean. Steel to be embedded in concrete shall be free of dirt and grease. Do not galvanize bearing surfaces, including contact surfaces within joints, but coat with rust preventative applied in the shop.

2. Galvanizing

a. Galvanize all structural shapes by hot dip method. Galvanize structural shapes in accordance with ASTM 123. Apply zinc coating as per thickness grade specified in ASTM A123. Galvanize hardware in accordance with ASTM 153.

2.5 SHOP PAINTING

A. All structural steel shall not receive a shop coat of primer.

2.6 STRUCTURAL STEEL

A. Metal Surfaces, General: For fabrication of work that will be exposed to view, use only materials that are smooth and free of surface blemishes including pitting, rust and scale seam marks, roller marks, rolled trade names, and roughness. Remove such blemishes by grinding, or by welding and grinding, prior to cleaning, treating, and applying surface finishes.

2.7 SOURCE QUALITY CONTROL

A. Testing and inspection of structural steel will be performed by a testing agency retained by the Owner. Provide the testing agency with the following:

1. A complete set of accepted documents required under Paragraph "Submittals".

2. Cutting lists, order sheets, material bills, and shipping bills.

3. Information as to time and place of all railings and shipment of material to shops.

4. Representative sample pieces as requested by the testing agency.

5. Full and ample means and assistance for testing all materials.

6. Proper facilities, including scaffolding, temporary work platforms, etc., for inspection of the work in the mills, shop and field.

B. Each person installing connections shall be assigned an identifying symbol or mark and all shop and field connections shall be so identified so that inspector can refer back to the person making the connection.

C. The Inspector will perform his duties, when possible, in such a way that fabrication and erection are not unnecessarily delayed or impeded, and as follows:

1. The inspector will make all tests and inspections as required by all applicable federal, state and local Building Laws. The inspector shall make all the tests and inspections indicated on the Drawings.

2. The technique for radiographic inspection will be in accordance with Section 6, Part B of the "Structural Welding Code". A double film technique will be used. One copy of each film will be sent to the Engineer, the other will be retained by the Inspector.

3. Ultrasonic inspection will be performed in accordance with Section 6, Part C of the "Structural Welding Code". For galvanized members with large T-joint connections, such as base plate, ultrasonic nondestructive weld testing small be performed on 100% of all such joints, not only before, but also after galvanization to ensure that no cracks have developed.

4. Shop welds will be inspected in the shop before the work is galvanized or approved for shipment.

5. The inspector will make all tests and inspections of high strength structural bolt connections as required by AISC "Specifications for Structural Joints Using ASTM A325 or A490 Bolts".

   a. Under-tensioned A325 and A490 bolts are to be further tightened until they meet acceptable inspection criteria for tension. Use of, stick-wax' lubricant can facilitate ease of tightening.

6. Where inspection reveals defects, the extent of inspection will be increased as much as necessary to assure that the full extent of the defects in a joint have been found and to assure that the same defects are not present on similar parts or under similar circumstances.

7. Work that is not acceptable will be designated by "Repair" or "Reject", as applicable.

8. The Inspector will maintain a daily record of the work he has inspected and its disposition. One copy of each of the reports will be submitted to the Engineer on a weekly basis.

   a. Welding reports of test will be made in form prescribed in the "Structural Welding Code".

9. Material for anchor bolts should be fine-grained fully killed heat-treated steel meeting a minimum Chardy V-Notch requirements at a minimum of 15 ft-lb at -20° F when tested in the longitudinal direction, test certification shall be obtained, test described in ASTM A370.

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION MEETING

A. Prior to the start of the Work, meet at the Project site to review methods and sequence of structural steel monopole erection, quality control requirements, standard of workmanship, job organization, coordination of the work with other trades, special details and conditions, testing and inspection procedures, and other pertinent topics related to the Work. The meeting shall include Owner's Representative, the Engineer, the Contractor, the Structural Steel Monopole Subcontractor, the Owner's Testing Laboratory, and any other subcontractors whose work requires coordination with this Work. The pre-installation meeting to be held a minimum of 14 days prior to start of construction. Also see requirements of Part 2.1.G.2 with regards to bolting. Submit an SSWP a minimum of 45 days prior to start of work.

3.2 CONDITION OF SURFACE

A. Examine the substrates, adjoining construction and the conditions under which the Work is to be installed. Do not proceed with the Work until unsuitable conditions have been corrected. Consider all conditions which will affect the satisfactory erection of the structural steel monopoles.

B. Visit the project site and advise Engineer of any discrepancy or conflict. Field verify existing construction requirements, existing conditions, restrictions and clearances which may affect structural steel systems erection. Assume responsibility for all errors of detailing and fabrication and for the correct fitting and erection of the structural steel systems.

C. Verify existing conditions, dimensions and sizes prior to beginning the work.

D. Beginning of installation means erector accepts existing conditions.

E. Allow for erection loads and conditions, and for sufficient temporary bracing to maintain the structure safely, plumb and in true alignment until completion of removal, erection and installation.

3.3 ERECTION

A. Surveys: Engage a Land Surveyor, holding a valid license and registration to practice in the State of New Jersey for accurate erection of structural steel monopoles. Check elevations and locations of existing steel before erection work proceeds. Report discrepancies to the Engineer. Do not proceed with erection until corrections have been made or until compensating adjustments to structural steel work have been agreed upon with the Engineer.

1. Examine adjoining construction and conditions under which the work is to be erected. Do not proceed with work until unsatisfactory conditions have been corrected.

2. Consider all conditions which will affect the satisfactory erection of the indicated structural steel systems. Field verify existing construction requirements, existing conditions, restrictions, and clearances which affect structural steel monopole erection. Assume responsibility for all errors of detailing and fabrication and for the correct fitting and erection of the structural steel monopoles.

3. Visit the premises and advise the Engineer of any discrepancy or conflicts. If any conflict occurs, necessitating departures from the Contract Drawings, details of such departures and the reasons therefore shall be submitted to the Engineer for written approval before performing any work. Departures shall not be made without the prior written approval of the

Engineer. Approved departures shall be executed at no additional cost to the New Jersey Transit.

B. General: Except as modified herein, erection shall be in accordance with the AISC manual of steel construction. Erecting equipment shall be suitable for the work and shall be in first class condition. Where parts cannot be assembled or fitted properly as a result of errors in fabrication or deformation due to handling or transportation, such condition shall be reported immediately to the controlled inspection representative and his approval of the method of correction obtained; the correction shall be made in his presence.

C. Temporary Shoring and Bracing: Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and connections when permanent members are in place and final connections are made.

D. Temporary Planking: Provide temporary planking and working platforms as necessary to safely complete the work.

E. Field Assembly: Set structural steel monopoles accurately to lines and elevations indicated. Align and adjust before permanently fastening. Provide for drainage in structural steel. Clean bearing surfaces and other surfaces that will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. All work shall be installed in correct location, in alignment, and plumb to true planes. Level and plumb individual members of structure within specified AISC tolerances, supplemented and amended as indicated in 3.8 "ERECTION TOLERANCES."

F. Connections: Except as modified in this Section, connections not detailed shall be designed in accordance with AISC. Build connections into existing work. Punch, sub-punch, and ream, or drill bolt holes. Bolts, nuts and washers shall be clean of dirt and rust, and lubricated immediately prior to installation. Unless otherwise indicated all bolted connections shall be bearing type connections.

1. High-strength ASTM A-325 bolts shall be fully tensioned to 70 percent of their minimum tensile strength. Bolts shall be installed in connection holes and initially brought to a "snug tight" fit. After the initial tightening procedure, bolts shall then be fully tensioned, progressing from the most rigid part of a connection to the free edges.

G. Oxygen cutting of structural steel for "fitting-up" purposes shall not be done except with the acceptance of the Engineer.

H. Make all necessary provisions for temporary shoring and bracing with connections of sufficient strength to bear imposed loads and for completion of erection where structural members are temporarily left out for erection at a later date. Provide temporary planking and working platforms as necessary to effectively complete the work.

I. Field Assembly: Set structural steel monopoles accurately to lines and elevations indicated. Align and adjust before permanently fastening. Clean bearing surfaces and other surfaces that will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

3.4 CONNECTIONS

A. Connections shall comply with requirements specified in Part 2 - Products. Bolts, nuts and washers shall be clean of dirt and rust and lubricated immediately prior to installation (except twist-off bolts, which if used, may not be lubricated by anyone other than the original manufacturer).

3.5 BOLTING

A. Bolts shall be of a length that will extend not less than 1/4 in. beyond the nuts. Enter bolts into holes without damaging the thread.

B. Use high-strength structural bolts installed in pre-tensioned joints unless otherwise noted on the Drawings. Bring members tightly together with sufficient high- strength "fitting-up" bolts which shall be retightened as all the bolts are finally tightened. Manual torque wrenches will not be accepted for final tightening. Protect bolt heads from damage during placing. Bolted connections that have been completely tightened and are ready for inspection shall be marked for identification.

C. Final tightening of high-strength structural bolts shall be by properly calibrated and sufficiently powerful air-impact, hydraulic or electric wrenches capable of generating ample torque for the diameter and grade of fasteners to be tensioned, unless turn-of-nut method is specifically permitted. Each wrench shall be checked for accuracy at least once daily.

3.6 WELDING

A. Do not begin structural welding until joint elements are bolted or tacked in intimate contact and adjusted to dimensions shown on Drawings, or both, with allowance for any weld shrinkage that is expected. Weld heavy sections and those having a high degree of restraint with low hydrogen type electrodes. No members are to be spliced without prior review by the Engineer.

B. Welding shall be performed by operators who have been qualified within the preceding one year period under AWS standard qualification procedure for the type of work required. All field welders shall be recertified for this project at the job site.

3.7 ERECTION TOLERANCE

A. Dimensions shown on Drawings are based on an assumed design temperature of 70 deg. F. Fabrication and erection procedures shall take into account the ambient temperature range at the time of the respective operations.

3.8 INSPECTION

A. Provide an independent testing laboratory inspector who shall make detailed reports of his inspection to the New Jersey Transit.

B. Perform a 100% visual and ultrasonic examination on repair members within repair locations to ensure their size, length and locations conform to the Contract Drawings. Replacement members shall cover all corrosion areas.

C. Perform on welds a 100% visual and ultrasonic examination to ensure that their size, length and locations conform to the Contract Drawings.

1. Nondestructive testing procedures and techniques, as well as Personnel Qualifications shall be in accordance with Section 6.7 and 6.9.3 of AWS D 1.1.

D. For testing of high strength bolts, provide onsite an approved hydraulic tester for setting and checking impact wrenches and an approved hand torque wrench (with dial gauges) together with facilities for setting and checking.

E. For shop bolted connections, test, at least 10% of the bolts in any connection, and not less than one bolt of each size in each connection at the work site.

1. Should any bolt fail to meet the requirements of this test, re-tighten all the bolts in that member by properly adjusted power wrenches before the member is erected.

F. Field bolted connections shall be checked by an independent testing laboratory for tension on at least 10% of the bolts in any connection and not less than one bolt of each size in each connection.

G. Verify that the steel has been prepared for galvanizing in accordance with the manufacturer's recommendations and the requirements of the Specifications.

H. Additional Inspections: Perform additional inspections as necessary to confirm any non- compliance of original work, to show conformance of corrected work, to show that all variances have been corrected in an acceptable manner, and to verify that completed structural steel work, including materials, installation, fabrication, assembly, erection, inspection, and testing, meet the Contract Document requirements.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Structural Steel Monopoles” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C05-011-001.0 - Structural Steel Monopoles (05125) – 20” x 20”

   a. Pole IDs: N15, N16, N17, N18, N19, N23, N24, N35, N39, N40, E1

2. C05-011-002.0 - Structural Steel Monopoles (05125) – 24” x 24”

   a. Pole IDs: N32, N38, S23

3. C05-011-003.0 - Structural Steel Monopoles (05125) – 26” x 26”

   a. Pole IDs: N20, N25, N26, N28

4. C05-011-004.0 - Structural Steel Monopoles (05125) – 28” x 28”

   a. Pole IDs: N27, N29, N30, N37, N41

5. C05-011-005.0 - Structural Steel Monopoles (05125) – 30” x 30”

    a. Pole IDs: N33, N36, S36, E2

6. C05-011-006.0 - Structural Steel Monopoles (05125) – 34” x 34”

    a. Pole IDs: N21, N34, S47, TP3

7. C05-011-007.0 - Structural Steel Monopoles (05125) – 44” x 44”

    a. Pole IDs: N22

END OF SECTION

SECTION 05500 - MISCELLANEOUS METALS

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SSECTION INCLUDES

A. Work of this Section includes all labor, materials, equipment and services necessary to complete the miscellaneous metal work as indicated on the drawings and/or specified herein, including but not limited to, the following:

1. Rough hardware.
2. Light steel framing and supports, not included as part of work of other trades.
3. Stainless steel and aluminum trims and reveals.
4. Steel framing, bracing, supports, anchors, bolts, shims, fastenings, and all other supplementary parts indicated on drawings or as required to complete each item of work of this Section.
5. Prime painting, touch-up painting, galvanizing and separation of dissimilar metals for work of this Section.
6. Cutting, fitting, drilling and tapping work of this Section to accommodate work of other Sections and of concrete, masonry or other materials as required for attaching and installing work of this Section.

1.3 RELATED SECTIONS

A. Section 05120 Structural Steel

B. Section 05511 Metal Stairs

C. Section 05521 Pipe and Tube Railings

D. Section 05531 Bar Gratings

1.4 QUALITY ASSURANCE

A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.

B. Shop Assembly: Pre-assemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation.

C. Reference Standards: The work is subject to requirements of applicable portions of the following standards:

1. "Manual of Steel Construction", American Institute of Steel Construction.

2. AWS D1-1 "Structural Welding Code", American Welding Society.

3. SSPC SP-3 "Surface Preparation Specification No. 3, Power Tool Cleaning", Steel Structures Painting Council.

4. SSPC PA-1 "Painting Application Specification", Steel Structures Painting Council.

5. "Handbook on Bolt, Nut and Rivet Standards", Industrial Fasteners Institute.

1.5 SUBMITTALS

A. Manufacturer's Literature: Submit manufacturer's specifications, load tables, dimension diagrams, anchor details and installation instructions for products to be used in the fabrication of miscellaneous metal work, including paint products.

B. Shop Drawings: Shop drawings for the fabrication and erection of all assemblies of miscellaneous iron work which are not completely shown by manufacturer's data sheets. Include plans and elevations at not less than 1" to 1'-0" scale, and include details of sections and connections at not less than 3" to 1-0" scale. Show anchorage and accessory items.

C. Welding shall be indicated on shop drawings using AWS symbols and showing length, size and spacing (if not continuous). Auxiliary views shall be shown to clarify all welding. Notes such as 1/4" weld, weld and tack weld are not acceptable.

PART 2 PRODUCTS

2.1 MATERIALS

A. Metals

1. Metal Surfaces, General: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.

2. Steel Plates, Shapes and Bars: ASTM A 36.

3. Steel Bar Grating: ASTM A 1011/A or ASTM A 36.

4. Steel Tubing: Cold formed, ASTM A 500; or hot rolled, ASTM A 501.

5. Structural Steel Sheet: Hot rolled, ASTM A 570; or cold rolled, ASTM A 611, Class 1; of grade required for design loading.

6. Galvanized Structural Steel Sheet: ASTM A 924, of grade required for design loading. Coating designation G90.

7. Steel Pipe: ASTM A 53, type and grade as selected by fabricator and as required for design loading; black finish unless galvanizing is indicated; standard weight (Schedule 40), unless otherwise indicated.

8. Gray Iron Castings: ASTM A 48, Class 30, unless another class is indicated or required by structural loads.

9. Malleable Iron Castings: ASTM A47, grade as selected by fabricator.

10. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

11. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A47, or cast steel, ASTM A27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A153.

12. Steel and Diamond Checker Plate: ASTM A786

B. Grout: Non-shrink, non-metallic grout conforming to the requirements of Section 03300.

C. Fasteners

1. General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.

2. Bolts and Nuts: Regular hexagon head type, ASTM A307, Grade A.

3. Anchor Bolts: ASTM F1554, Grade 36.

4. Lag Bolts: ASME B18.2.1.

5. Machine Screws: ASME B18.6.3.

6. Plain Washers: Round, carbon steel, ASME B18.22.1.

7. Masonry Anchorage Devices: Expansion shields, FS FF-S-325.

8. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class and style as required.

9. Lock Washers: Helical spring type carbon steel, ASME B18.21.1.

10. Stainless Steel Bolts, Hex Cap Screws and Studs – Conform to ASTM F593

11. Stainless Steel Wire and Wire Rods – Conform to ASTM A 555 / A 555M

D. Shop Paint: Shop prime all non-galvanized miscellaneous metal items using Series 88 Azeron Primer made by Tnemec or approved equal.

E. Bituminous Paint: Cold applied asphalt emulsion complying with ASTM D1187.

F. Galvanize Repair Coating: For touching up galvanized surfaces after erection, provide Z.R.C. Cold Galvanizing Compound made by Z.R.C. Chemical Products Co. or approved equal.

G. See NJTC General Provisions for Construction for substitution requirements.

2.2 PRIME PAINTING

A. Scope: All ferrous metal (except galvanized steel) shall be cleaned and shop painted with one coat of specified ferrous metal primer. No shop prime paint required on galvanized steel or aluminum work.

B. Cleaning: Conform to Steel Structures Painting Council Surface Preparation Specification SP 3 (latest edition) "Power Tool Cleaning: for cleaning of ferrous metals which are to receive shop prime coat.

C. Application

1. Apply shop prime coat immediately after cleaning metal. Apply paint in dry weather or under cover. Metal surfaces shall be free from frost or moisture when painted. Paint all metal surfaces including edges, joints, holes, corners, etc.

2. Paint surfaces which will be concealed after shop assembly prior to such assembly. Apply paint in accordance with approved paint manufacturer's printed instructions, and the use of any thinners, adulterants or admixtures shall be only as stated in said instructions.

3. Paint shall uniformly and completely cover the metal surfaces, 2.0 mils minimum dry film thickness. No work shall be shipped until the shop prime coat thereon has dried.

D. Touch-Up: In the shop, after assembly and in the field, after installation of work of this Section, touch-up damaged or abraded portions of shop prime paint with specified ferrous metal primer.

E. Apply one shop coat to fabricated metal items, except apply two (2) coats of paint to surfaces inaccessible after assembly or erection. Change color of second coat to distinguish it from the first.

2.3 GALVANIZING

A. Scope: All ferrous metal exposed to the weather, and all ferrous metals indicated on drawings or in specifications to be galvanized, shall be cleaned and then hot-dipped galvanized after fabrication.

B. Cleaning: Thoroughly clean metal surfaces of all mill scale, rust, dirt, grease, oil, moisture and other contaminants prior to galvanizing.

C. Application: Hot-dip galvanizing shall be applied in accordance with:

1. ASTM A123: Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

2. ASTM A153: Galvanized Coating on Iron and Steel Hardware - Table 1.

3. ASTM A924: Galvanized Coating on Steel Sheets.

4. Minimum weight of galvanized coating shall be two (2) oz. per square foot of surface.

D. Fabricate joints which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

E. All galvanized materials must be inspected for compliance with these specifications and marked with a stamp indicating the name of the galvanizer, the weight of the coating, and the appropriate ASTM number.

F. To minimize surface imperfection (e.g.: flux inclusions), material to be galvanized shall be dipped into a solution of Zinc Ammonium Chloride (pre-flux) immediately prior to galvanizing. The type of galvanizing process utilizing a flux blanket overlaying the molten zinc will not be permitted.

G. After galvanizing all materials not exposed to view must be chromated by dipping material in a 0.2% chromic acid solution.

H. Galvanized surfaces, where exposed to view, must have a smooth, level surface finish. Where this does not occur, piece shall be rejected and replaced to the acceptance of the Architect.

2.4 PROTECTIVE COATINGS

A. Whenever dissimilar metals will be in contact, separate contact surfaces by coating each contact surface prior to assembly or installation with one coat of specified bituminous paint, which shall be in addition to the specified shop prime paint. Mask off those surfaces not required to receive protective coating.

2.5 WORKMANSHIP

A. General

1. Miscellaneous metal work shall be fabricated by an experienced fabricator or manufacturer and installed by an experienced tradesman.

2. Materials, methods of fabrication, fitting, assembly, bracing, supporting, fastening, operating devices, and erection shall be in accordance with drawings and specifications, approved shop drawings, using new and clean materials as specified, having structural properties sufficient to safely sustain or withstand stresses and strains to which materials and assembled work will be subjected.

3. All work shall be accurately and neatly fabricated, assembled and erected.

B. Shop Assembly: Insofar as practicable, fitting and assembly of work shall be done in shop. Shop assembled work in largest practical sizes to minimize field work. It is the responsibility of the miscellaneous metal subcontractor to assure himself that the shop-fabricated miscellaneous metal items will properly fit the field condition. In the event that shop-fabricated miscellaneous metal items do not fit the field condition, the item shall be returned to the shop for correction.

C. Cutting: Cut metal by sawing, shearing, or blanking. Flame cutting will be permitted only if cut edges are ground back to clean, smooth edges. Make cuts accurate, clean, sharp and free of burrs, without deforming adjacent surfaces or metals.

D. Holes: Drill or cleanly punch holes; do not burn.

E. Connections: Make connections with tight joints, capable of developing full strength of member, flush unless indicated otherwise, formed to exclude water where exposed to weather. Locate joints where least conspicuous. Unless indicated otherwise, weld or bolt shop connections; bolt

or screw field connections. Provide expansion and contraction joints to allow for thermal movement of metal at locations and by methods approved by Architect.

1. Welding

   a. Shall be in accordance with "Standard Code for Welding in Building Construction" of the American Welding Society, and shall be done with electrodes and/or methods recommended by the manufacturer of the metals being welded.

   b. Welds shall be continuous, except where spot welding is specifically permitted. Welds exposed to view shall be ground flush and dressed smooth with and to match finish of adjoining surfaces; undercut metal edges where welds are required to be flush.

   c. All welds on or behind surfaces which will be exposed to view shall be done so as to prevent distortion of finished surface. Remove weld spatter and welding oxides from all welded surfaces.

2. Bolts and Screws: Make threaded connections tight with threads entirely concealed. Use lock nuts. Bolts and screw heads exposed to view shall be flat and countersunk. Cut off projecting ends of exposed bolts and screws flush with nuts or adjacent metal.

F. Operating Mechanism: Operating devices (i.e. pivots, hinges, etc.) mechanism and hardware used in connection with this work shall be fabricated, assembled, installed and adjusted after installation so that they will operate smoothly, freely, noiselessly and without excessive friction.

G. Built-In Work: Furnish anchor bolts, inserts, plates and any other anchorage devices, and all other items specified under this Section of the Specifications to be built into concrete, masonry or work of other trades, with necessary templates and instructions, and in ample time to facilitate proper placing and installation.

H. Supplementary Parts: Provide as necessary to complete each item of work, even though such supplementary parts are not shown or specified.

I. Coordination: Accurately cut, fit, drill and tap work of this Section to accommodate and fit work of other trades. Furnish or obtain, as applicable, templates and drawings to or from applicable trades for proper coordination of this work.

J. Exposed Work

1. In addition to requirements specified herein and shown on drawings, all surfaces exposed to view shall be clean and free from dirt, stains, grease, scratches, distortions, waves, dents, buckles, tool marks, butts, and other defects which mar appearance of finished work.

2. Metal work exposed to view shall be straight and true to line or curve, smooth arrises and angles as sharp as practicable, miters formed in true alignment, profiles accurately intersecting, and with joints carefully matched to produce continuity of line and design.

3. Exposed fastenings, where permitted, shall be of the same material, color and finish as the metal to which applied, unless otherwise indicated, and shall be of the smallest practicable size.

2.6 MISCELLANEOUS METALS ITEMS

A. Rough Hardware

1. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures.

2. Fabricate items to sizes, shapes and dimensions required. Furnish malleable iron washers for heads and nuts which bear on wood connections; elsewhere, furnish steel washers.

B. Miscellaneous Light Steel Framing

1. Light steel framing, bracing, supports, framing, clip angles, shelf angles, plates, etc., shall be of such shapes and sizes as indicated on the drawings and details or as required to suit the condition and shall be provided with all necessary supports and reinforcing such as hangers, braces, struts, clip angles, anchors, bolts, nuts, welds, etc., as required to properly support and rigidly fasten and anchor same in place and to steel, concrete, masonry and all other connecting and adjoining work.

2. All light steel framing steel shall be furnished and erected in accordance with the applicable requirements of the "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings: by the American Institute of Steel Construction and as specified herein.

C. Metal Ladders

1. General:

a. Comply with ANSU A14.3, except for pit ladders.

b. For pit ladders, comply with ASME A17.1/CSA B44.

2. Steel Ladders:

a. Provide nonslip surfaces on top of each rung, either by coating rung with aluminum-oxide granules set in epoxy-resin adhesive or by using a type of manufactured rung filled with aluminum-oxide grout.

b. Galvanize and prime ladders, including brackets.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where miscellaneous metal is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 ERECTION

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required. Fastening to be indicated on Shop Drawings.

B. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are to be built into concrete, masonry, or similar construction.

C. Fitting Connections: Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot dip galvanized after fabrication, and are intended for bolted or screwed field connections.

D. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance, and quality of welds made, and methods used in correcting welding work.

E. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.

F. Field Touch-Up of Galvanized Surfaces: Touch-up shop applied galvanized coatings damaged during handling and installation. Use galvanizing repair coating specified herein for galvanized surfaces.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Miscellaneous Metals” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C05-012-001.0 - SE3 Pole Extension

2. C05-013-001.0 - Signal 0 Location Steel Platform (SP-3)
3. C05-013-002.0 - Roof Termination Steel Structure (Steel Rack SR-1)
4. C05-014-001.0 - Monopole Hardware – SC-4 (E4.305) Secondary Power Support Assembly
5. C05-014-002.0 - Monopole Hardware – SC-5 (E4.306 Detail 1) Secondary Power Support Assembly
6. C05-014-003.0 - Monopole Hardware – SC-7 (E4.306 Detail 2 Location SS2) Secondary Power Support Assembly
7. C05-014-004.0 - Monopole Hardware – SC-7 (E4.306 Detail 2 Location SS7) Secondary Power Support Assembly
8. C05-014-005.0 - Monopole Hardware – FC-1 (E4.309 Detail 3) Signal Power Fuse Cutout Assembly
9. C05-014-006.0 - Monopole Hardware – GR-2/FE-1 (E4.314 Detail 1) Static Wire/Feeder Support Assembly
10. C05-014-007.0 - Monopole Hardware – GR-3/GR-4/FE-2/FE-3 (E4.315 Detail 1) Static Wire/Feeder Support Assembly – Deadend
11. C05-014-008.0 - Monopole Hardware – RTP-1 (E4.317 Detail 1) Roof Termination Post Connection Assemblies
12. C05-014-009.0 - Monopole Hardware – TC-1 (E4.317 Detail 1) Truss Connection Assemblies
13. C05-014-010.0 - Monopole Hardware – GRB-1 (E4.316 Detail 2) Feeder Guide Bracket
14. C05-014-011.0 - Monopole Hardware – CC-1 (E4.317) Pole Clamp Assembly
15. C05-014-012.0 - Monopole Hardware – CC-2 (E4.317) Pole Clamp Assembly
16. C05-014-013.0 - Days Yard Wayside Power Platform (SP-2)

END OF SECTION

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SECTION 05511 - METAL STAIRS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes industrial-type, straight-run stairs with steel-plated treads, railings attached to steel stringers, and pre-engineered metal ship's ladders.

1.2 ACTION SUBMITTALS

A. Product Data: For metal grating stairs and ship's ladders.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments.

C. Delegated-Design Submittal: For stairs and ladders, including analysis data signed and sealed by the qualified professional engineer licensed in the State of New Jersey responsible for their preparation.

1. Before stairs are fabricated, submit drawings indicating how performance requirements specified here in shall be met. The Contractor is responsible for the structural design and supports for these systems and must show his proposed systems on these drawings.

2. These drawings must show all load conditions and design calculations relative to connections, fastening devices and anchorage, as well as size and gauge of members. Calculations and drawings shall be prepared by a Structural Engineer licensed in the State of New Jersey and shall be signed and sealed by this Engineer.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance of Stairs: Shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Uniform Load: 100 lbf/sq. ft.

2. Concentrated Load: 300 lbf applied on an area of 4 sq. in.

3. Live load deflection shall be limited to 1/360 of the span.

4. Uniform and concentrated loads need not be assumed to act concurrently.

5. Stair Framing: Capable of withstanding stresses resulting from railing loads in addition to loads specified above.

B. Seismic Performance of Stairs: Metal stairs shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. Component Importance Factor: 1.5.

C. Structural Performance of Ship's Ladders: Engage a qualified professional engineer to design ladders.

D. Structural Performance of Ladders, including landings, shall withstand the effects of loads and stresses within limits and under conditions specified in ANSI A14.3.

2.2 METALS

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For components exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

C. Rolled-Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.

D. Steel Bars for Grating Treads: ASTM A 36/A 36M or steel strip, ASTM A 1011/A 1011M or ASTM A 1018/A 1018M.

E. Steel Diamond Plate: ASTM A786.

F. Wire Rod for Grating Crossbars: ASTM A510

G. Cast Iron: Either gray iron, ASTM A48/A 48M, or malleable iron, ASTM A47/A 47M, unless otherwise indicated.

2.3 FASTENERS

A. Provide zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 12 for exterior use, and Class Fe/Zn 5 where built into exterior walls. Select fasteners for type, grade, and class required.

2.4 MISCELLANEOUS MATERIALS

A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.

B. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

2.5 FABRICATION, GENERAL

A. Provide complete stair and ladder assemblies, including metal framing, hangers, clips, brackets, bearing plates, channels, and other components necessary to support and anchor stairs, ladders, and platforms on supporting structure.

1. Join components by welding unless otherwise indicated.

2. Use connections that maintain structural value of joined pieces.

B. Weld connections to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. Weld exposed corners and seams continuously unless otherwise indicated.

5. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 4 welds: good quality, uniform undressed weld with minimal splatter.

C. Fabricate joints that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

2.6 STEEL-FRAMED STAIRS

A. NAAMM Stair Standard: Comply with "Recommended Voluntary Minimum Standards for Fixed Metal Stairs" in NAAMM AMP 510, "Metal Stairs Manual," Industrial Class, unless more stringent requirements are indicated.

B. Stair Framing:

1. Fabricate stringers of steel plates or channels.

a. Provide closures for exposed ends of channel stringers.

2. Construct platforms of steel plate or channel headers and miscellaneous framing members as needed to comply with performance requirements indicated.

3. Weld or bolt stringers to headers; weld or bolt framing members to stringers and headers.

C. Metal Bar-Grating Stairs: Form treads and platforms to configurations shown from metal bar grating; fabricate to comply with NAAMM MBG 531, “Metal Bar Grating Manual.”

1. Fabricate treads and platforms from welded or pressure-locked steel grating with openings in gratings no more than 5/16 inch in least dimension.

2. Surface: Plain.

3. Finish: Galvanized

4. Fabricate grating treads with cast-abrasive nosing and with steel angle or steel plate carrier at each end for stringer connections. Secure treads to stringers with bolts.

2.7 STAIR RAILINGS

A. Comply with applicable requirements in Section 05521 "Pipe and Tube Railings."

1. Rails may be bent at corners, rail returns, and wall returns, instead of using prefabricated fittings.

2. Connect posts to stair framing by direct welding unless otherwise indicated for removal sections.

2.8 FIXED METAL LADDERS

A. General:

1. Comply with ANSI A14.3.

2. For elevator pit ladders, comply with ASME A17.1/CSA B44.

B. Steel Ladders:

1. Space siderails 24 inches apart unless otherwise indicated.

2. Siderails: Continuous C5x9 steel channels.

3. Floor clips: L3x3x1/4 (4-inches long)

4. Rungs: 1/8-inch bent steel plate full depth of stringers.

5. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.

6. Provide nonslip surfaces on top of each rung, either by coating rung with aluminum-oxide granules set in epoxy-resin adhesive or by using a type of manufactured rung filled with aluminum-oxide grout.

7. Provide platforms as indicated fabricated from welded or pressure-locked steel bar grating, supported by steel angles. Limit openings in gratings to no more than 1/2 inch in least dimension.

8. Support each ladder at top and bottom and not more than 60 inches o.c. with welded or bolted steel brackets.

9. Galvanize ladders, including brackets.

2.9 FINISHES

A. Finish metal stairs and ladders after assembly.

B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning."

C. Apply shop primer to uncoated surfaces of metal stair components, except those with galvanized finishes and those to be embedded in concrete or masonry unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal stairs. Set units accurately in location, alignment, and elevation, measured from established lines and levels and free of rack.

B. Field Welding: Comply with requirements for welding in "Fabrication, General" Article.

3.2 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Metal Stairs” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C05-013-001.0 - Signal 0 Location Steel Platform (SP-3)

2. C05-014-013.0 - Days Yard Wayside Power Platform (SP-2)

END OF SECTION

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SECTION 05521 - PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Steel pipe and tube railings.

1.2 ACTION SUBMITTALS

A. Product Data: For the following:

1. Manufacturer's product lines of mechanically connected railings.

2. Railing brackets.

3. Grout, anchoring cement, and paint products.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

C. Samples: For each type of exposed finish required.

D. Delegated-Design Submittal: For railings, including analysis data signed and sealed by the qualified professional engineer licensed in the State of New Jersey responsible for their preparation.

1. Before railings are fabricated, submit drawings indicating how performance requirements specified here in shall be met. The Contractor is responsible for the structural design and supports for these systems and must show his proposed systems on these drawings.

2. These drawings must show all load conditions and design calculations relative to connections, fastening devices and anchorage, as well as size and gauge of members. Calculations and drawings shall be prepared by a Structural Engineer licensed in the State of New Jersey and shall be signed and sealed by this Engineer.

1.3 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For pipe and tube railings, for tests performed by a qualified testing agency, according to ASTM E 894 and ASTM E 935.

1.4 RELATED SECTIONS

A. Section 05120 Structural Steel

B. Section 05500 Miscellaneous Metals

C. Section 05511 Metal Stairs

D. Section 05531 Bar Gratings

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Steel Pipe and Tube Railings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Wagner, R & B, Inc.

b. Julius Blum and Co.

c. McNichols.

d. Approved equal.

2.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer to design railings, including attachment to building construction.

B. Structural Performance: Railings, including attachment to building construction, shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Handrails and Top Rails of Guards:

a. Uniform load of 50 lbf/ ft. applied in any direction.

b. Concentrated load of 200 lbf applied in any direction.

c. Uniform and concentrated loads need not be assumed to act concurrently.

2. Infill of Guards:

a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft..

b. Infill load and other loads need not be assumed to act concurrently.

2.3 METALS, GENERAL

A. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.

1. Provide type of bracket with predrilled hole for exposed bolt anchorage and that provides 1-1/2-inch clearance from inside face of handrail to finished wall surface.

2.4 STEEL AND IRON

A. Tubing: ASTM A 500 (cold formed) or ASTM A 513.

B. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.

1. Provide galvanized finish.

C. Plates, Shapes, and Bars: ASTM A 36/A 36M.

2.5 FASTENERS

A. General: Provide the following:

1. Hot-Dipped Galvanized Railings: Type 304 stainless-steel or hot-dipped zinc-coated steel fasteners complying with ASTM A 153/A 153M or ASTM F 2329 for zinc coating.

B. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors capable of sustaining, without failure, a load equal to 6 times the load imposed when installed in unit masonry and 4 times the load imposed when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.

1. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.

2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 2 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.

2.6 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

B. Etching Cleaner for Galvanized Metal: Complying with MPI#25.

C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

E. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.7 FABRICATION

A. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

B. Form work true to line and level with accurate angles and surfaces.

C. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove flux immediately.

4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

D. Welded Connections for Aluminum Pipe: Fabricate railings to interconnect members with concealed internal welds that eliminate surface grinding, using manufacturer's standard system of sleeve and socket fittings.

E. Nonwelded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

F. Form changes in direction by bending or by inserting prefabricated elbow fittings.

G. For changes in direction made by bending, use jigs to produce uniform curvature for each repetitive configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

H. Close exposed ends of railing members with prefabricated end fittings.

I. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated.

J. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.

1. At brackets and fittings fastened to plaster or gypsum board partitions, provide crush-resistant fillers or other means to transfer loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.

K. For removable railing posts, fabricate slip-fit sockets from steel tube or pipe whose ID is sized for a close fit with posts; limit movement of posts without lateral load, measured at top, to not more than one-fortieth of post height. Provide socket covers designed and fabricated to resist being dislodged.

1. Provide chain with eye, snap hook, and staple across gaps formed by removable railing sections at locations indicated. Fabricate from same metal as railings.

2.8 STEEL AND IRON FINISHES

A. Galvanized Railings:

1. Hot-dipped galvanize steel railings, including hardware, after fabrication.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.

1. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.

2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.

3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.

B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1. Coat, with a heavy coat of bituminous paint, concealed surfaces of aluminum that are in contact with grout, concrete, masonry, wood, or dissimilar metals.

3.2 ANCHORING POSTS

A. Anchor posts to metal surfaces with oval flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members.

3.3 ATTACHING RAILINGS

A. Attach railings to wall with wall brackets. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.

B. Secure wall brackets and railing end flanges to building construction as follows:

1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.

2. For hollow masonry anchorage, use toggle bolts.

3. For wood stud partitions, use hanger or lag bolts set into studs or wood backing between studs. Coordinate with carpentry work to locate backing members.

4. For steel-framed partitions, use hanger or lag bolts set into fire-retardant-treated wood backing between studs. Coordinate with stud installation to locate backing members.

5. For steel-framed partitions, use self-tapping screws fastened to steel framing or to concealed steel reinforcements.

6. For steel-framed partitions, use toggle bolts installed through flanges of steel framing or through concealed steel reinforcements.

3.4 ADJUSTING AND CLEANING

A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas, and repair galvanizing to comply with ASTM A 780/A 780M.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Pipe and Tube Railing” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C05-13-001.0 - Signal 0 Location Steel Platform (SP-3)

2. C05-14-013.0 - Days Yard Wayside Power Platform (SP-2)

END OF SECTION

SECTION 05531 - BAR GRATINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes metal bar gratings and metal frames and supports for gratings.

1.2 ACTION SUBMITTALS

A. Product Data: For the following:

1. Clips and anchorage devices for gratings.

2. Paint products.

B. Shop Drawings: Include plans, sections, details, and attachments to other work.

C. Delegated-Design Submittal: For gratings, including manufacturers' published load tables.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Barnett Bates Corporation.

B. Fisher & Ludlow; a NUCOR Company

C. Ohio Gratings, Inc.

D. Approved Equal.

2.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Gratings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Floors: Uniform load of 125 lbf/sq. ft. or concentrated load of 2000 lbf, whichever produces the greater stress.

2. Walkways and Elevated Platforms Other Than Exits: Uniform load of 100 lbf/sq. ft..

3. Walkways and Elevated Platforms Used as Exits: Uniform load of 100 lbf/sq. ft..

4. Sidewalks and Vehicular Driveways, Subject to Trucking: Uniform load of 250 lbf/sq. ft. or concentrated load of 8000 lbf, whichever produces the greater stress.

5. Limit deflection to L/360 or 1/4 inch, whichever is less.

B. Seismic Performance: Gratings shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. Component Importance Factor: 1.5.

2.3 METAL BAR GRATINGS

A. Metal Bar Grating Standards: Comply with NAAMM MBG 531, "Metal Bar Grating Manual" and NAAMM MBG 532, "Heavy-Duty Metal Bar Grating Manual."

B. Welded Steel Grating:

1. Bearing Bar Spacing: 7/16 or 1/2 inch o.c.

2. Bearing Bar Depth: 1-1/2 inches.

3. Bearing Bar Thickness: As required to comply with structural performance requirements.

4. Crossbar Spacing: 4 inches o.c.

5. Traffic Surface: Applied abrasive finish consisting of aluminum-oxide aggregate in an epoxy-resin adhesive.

6. Steel Finish: Hot-dip galvanized with a coating weight of not less than 1.8 oz./sq. ft. of coated surface.

2.4 FERROUS METALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

B. Steel Bars for Bar Gratings: ASTM A 36/A 36M or steel strip, ASTM A 1011/A 1011M or ASTM A 1018/A 1018M.

2.5 FASTENERS

A. General: Unless otherwise indicated, provide Type 316 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

B. Post-Installed Anchors: Torque-controlled expansion or chemical anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.

2.6 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

B. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

2.7 FABRICATION

A. Cut, drill, and punch material cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

B. Fit exposed connections accurately together to form hairline joints.

2.8 GRATING FRAMES AND SUPPORTS

A. Fabricate from metal shapes, plates, and bars of welded construction to sizes, shapes, and profiles indicated and as necessary to receive gratings. Miter and weld connections for perimeter angle frames. Cut, drill, and tap units to receive hardware and similar items.

1. Unless otherwise indicated, fabricate from same basic metal as gratings.

2. Equip units indicated to be cast into concrete or built into masonry with integrally welded anchors. Unless otherwise indicated, space anchors 24 inches o.c. and provide minimum anchor units in the form of steel straps 1-1/4 inches wide by 1/4 inch thick by 8 inches long.

B. Galvanize steel frames and supports in the following locations:

1. Exterior.

2. Interior.

2.9 STEEL FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing gratings. Set units accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.

B. Fit exposed connections accurately together to form hairline joints.

1. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade the surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

C. Attach toeplates to gratings by welding at locations indicated.

D. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

3.2 INSTALLING METAL BAR GRATINGS

A. General: Install gratings to comply with recommendations of referenced metal bar grating standards that apply to grating types and bar sizes indicated, including installation clearances and standard anchoring details.

B. Attach removable units to supporting members with type and size of clips and fasteners indicated or, if not indicated, as recommended by grating manufacturer for type of installation conditions shown.

C. Attach nonremovable units to supporting members by welding where both materials are same; otherwise, fasten by bolting as indicated above.

3.3 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touching up shop-painted surfaces.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Bar Gratings” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C05-013-001.0 - Signal 0 Location Steel Platform (SP-3)

2. C05-014-013.0 - Days Yard Wayside Power Platform (SP-2)

END OF SECTION

SECTION 07560 - ALTERATIONS OF EXISTING ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Contract Documents: Drawings and General Provisions of the Contract, including General and Supplementary Conditions, apply to this Section and are to be included in the execution of the work of this Section.

1.2 SUMMARY

A. Work included in this Section: providing all labor, materials, tools, equipment and services necessary to complete all work of this Section, as shown on drawings, as specified herein, and as required by job conditions, including but not limited to:

1. Protecting existing roofing materials, including all areas of roofs and paths that workers will use in crossing or placing things on the roof surfaces.

2. Altering existing roofing materials, where indicated and wherever existing roofing has been damaged by any trade in the course of performing Contract Work, and to alter existing roofing for incorporation of new work or connection to new materials. Make protection and repairs as specified and as required to ensure a watertight roof upon completion of the Work.

3. Performing work to maintain existing roofing warranties.

4. Providing a new roofing warranty as specified.

1.3 RELATED SECTIONS

A. The following Sections contain requirements that relate to this Section:

1. Section 16190 Supports

1.4 SUBMITTALS

A. Product Data:

1. Submit manufacturers' instructions for protection, repair, and alteration of roofing. Submit product data from manufacturer of each type and material of roofing to be repaired or altered.

2. Submit product data from manufacturers for each new product as needed for the work. Include details of installation, joints, flashings, reinforcement, penetrations, and termination conditions.

B. Shop Drawings:

1. Submit drawings of proposed protections and alterations to roofing systems, approved and signed by the roofing system manufacturer wherever such work would affect existing warranties.

2. These shop drawings will be reviewed for general compliance with the requirements of this section, not for adequacy in keeping the roof watertight, which is the Contractor's responsibility.

C. Quality Assurance Submittals: Submit written report and photo-documented roof inspection required under Quality Assurance below.

D Certificates:

1. Manufacturer's certification, in writing and notarized, that the roofing repair work was furnished in full compliance with appropriate provisions of the existing warranties. Have such certification signed by the manufacturer's representatives authorized to make such certification on behalf of the manufacturers.

2. Installer's written certificate, signed by a duly authorized representative and notarized (and sealed if out-of-state notarization) that the Warrantor has approved the installation and that the existing warranty of the roof is still in full effect and force.

E. Letters of Approval: Submit current letter of approval for each roof contracting firm performing roofing repair work, signed by the warrantor of the original roofing system on which the work is to be performed.

F. Draft of Warranties:

1. Re-certification: For roof areas with existing warranties, submit warrantor's letter stating that the repairs performed are acceptable and there will be no adverse affects to roofing performance or to the terms of the existing warranty.

2. New Warranty: Submit draft of Contractor's warranty specified below.

1.5 QUALITY ASSURANCE

A. Roof Inspection: Have experienced roof inspection firm prepare an inspection with a written report and complete photo documentation of the conditions of each existing roof that will be utilized during the Work of this Contract. Have this inspection performed before any work requiring access to roof is performed.

B. Existing Roofing Warranties: Before beginning any work requiring access to roof, obtain a list of current roofing warranties from the Construction Manager. Contact each warranty issuer as required for the work of this Section.

C. Installer Qualification:

1. General: Where roofing repair or alteration work is necessary, have it performed by firms and workers with experience in performing the same kind of roofing repairs, and that are approved or licensed by the manufacturers of the primary roofing products.

2. Warranted Roofs: In the repair or alteration of warranted roofing present on Terminal, have work performed by firms that are approved or licensed by the warranty issuer for the roofing to which access is needed. Furnish copies of current letter of approval from each manufacturer of warranted roofing.

3. Foremen: Maintain full-time foremen on the job site during time that roofing protection, repair, and alternation work is in progress. Each foreman shall have experience in performing the same kind of roofing work being supervised, and be able to present a minimum of 3 or more projects, as the Construction Manager may require, that demonstrate the foreman's qualifications to perform this work to the Construction Manager's satisfaction. Working without a knowledgeable and experienced full-time foreman is prohibited.

D. Manufacturer's Qualifications: Provide primary products by one manufacturer for each type of roofing system. Provide secondary products only as recommended by manufacturers of primary products and complying with these specifications.

E. Pre-Application Roofing Conference:

1. As soon as possible after award of contract, but in no case less than 10 days prior to commencement of roof protection work, meet at the project site with the Architect, the Construction Manager, the roofing inspector, the roofing protection installer, installers of work needing access to roof, roofing systems manufacturer's representatives, representatives of the Warrantors, and other entities directly concerned with the performance of the work.

2. Tour representative areas of roofs and areas to be specially protected or altered: inspect and discuss condition of substrates and preparatory work performed by other trades.

3. Review foreseeable methods, procedures, and required inspections and tests relating to roofing work.

4. Record discussions of conference, decisions and agreements (or disagreements) reached, and furnish copy of record to each party attended and scheduled for attendance.

F. Environmental conditions: Install materials in accordance with manufacturer's published safety, weather, and temperature precautions.

G. Referenced Standards: Insofar as they may be made applicable, comply with the recommendations of:

1. NRCA, "Roofing and Waterproofing Manual".

2. SMACNA, "Architectural Sheet Metal Manual".

3. AAMA, "Voluntary Specifications and Test Methods for Sealants".

4. Copper and Brass Research Association, "Modern Applications of Sheet Copper".

1.6 JOB CONDITIONS

A. General:

1. The Construction Manager will furnish Contractor with documents pertaining to the contract roof areas, and the status of existing warranties.

B. Weather Limitations: Proceed with roofing work only when existing and forecasted weather conditions will permit work to be performed in accordance with the manufacturer's recommendations and the warrantor's and warranty requirements.

C. Coordination: Coordinate the work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of the work and protection of materials and finishes. Install protection in a timely manner; so as not to impede the progress of the project.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, and handle roofing materials in a manner that will ensure that there is no possibility of moisture pick-up.

B. Store roofing materials in a dry, well ventilated, weathertight place, as designated by the Construction Manager.

C. Do not leave unused material on the roof overnight or when roofing work is not in progress.

D. Store sheet materials on end and raised above possible water levels.

E. Handle and store materials and equipment in a manner to avoid significant or permanent deflection of the deck.

1.8 WARRANTY

A. General: Presently the roofs do not leak. Furnish NJ Transit with a full two-year watertightness warranty signed by Contractor and installer for all protected, altered, or repaired roofing on the entire building.

B. If during the warranty period a leak is found, Contractor shall begin repair within 48 hours, and shall work as expeditiously as possible.

C. The period of warranty begins on the date of final acceptance of all work of this Section.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Provide roofing materials, flashings, and accessories recognized to be of the same generic materials and systems that match existing roofing systems on the Train Shed.

2.2 MEMBRANE

A. Cold fluid applied reinforced membrane with a 360 degree needle punched non-woven polyester reinforcing fleece, for a finished dry film membrane thickness of .080 inch nominal per ply; colored top coat surfacing as selected by NJ Transit from Manufacturer’s standard range; conforming to ASTM C 836.

2.3 FLASHING

A. EPDM rubber, white w/ butyl tape and polyurethane seal.

2.4 EPOXY RESIN ADHESIVE

A. Two-component, moisture tolerant, high-strength penetrating sealer.

PART 3 - EXECUTION

3.1 PROTECTION OF EXISTING ROOFING

A. General: Protect areas used for working, for temporary storage, and for access to work areas.

B. Method:

1. Remove any un-affixed obstructions from area to be protected.

2. Lay protection board. Lay board over a slip sheet if recommended by roofing manufacturer. Weigh-down board as required for wind and working conditions by such means as concrete blocks; do not mechanically fasten through roofing system and do not exceed structural capacity of deck and structure.

3. Provide wood blocks as needed to distribute heavy or concentrated loads; so as not to puncture roofing material or crush insulation below roofing material.

4. Execute care and procedures to prevent any sharp or hard debris from slipping between or beneath boards.

5. Remove protection and debris at completion of work.

6. Inspect entire area to locate spots needing repair before restoring ballast, then restore ballast to a uniform thickness after required alterations and repairs are made.

3.2 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work. Verify penetration openings, curbs, and protrusions through substrate, wood cant strips and reglets are in place and solidly set. Verify substrate is supported and secure.

3.3 PREPARATION OF SUBSTRATE

A. General:

1. All substrates must be free from gross irregularities, loose, unsound or foreign material such as dirt, ice, snow, water, grease, oil, release agents, lacquers, or any other condition that would be detrimental to adhesion of the primer and/or resin to the substrate. This requires careful preparation of existing horizontal and vertical substrates; fill all surface cracks or voids greater than 1/16” wide with an acceptable fill material, expansion joints are prepared, flashings are removed or modified, and termination points are determined. Some surfaces may require scarifying, sandblasting or grinding in some cases to achieve a suitable substrate.

2. Substrate shall have a maximum moisture content of six (6) percent and 75% relative humidity, and be prepared as required to provide adhesion of the membrane to substrate with a minimum bond strength of 116 psi on asphalt or 219 psi on concrete. Determinations of surface preparation and moisture content shall be performed periodically by the Contractor throughout the course of work. Test results shall be submitted in writing to NJ Transit or his designated Representative and Membrane Manufacturer for acceptance.

3. The final substrate shall be clean, dry, and free of contaminants.

B. Concrete:

1. Areas of minor surface deterioration of 0.50 inch or greater in depth, and/or spalls, voids, bug holes and other deterioration on vertical surfaces or horizontal surfaces shall be repaired in accordance with the requirements of the roofing Manufacturer and NJ Transit or its designated Representative.

3.4 ROOFING ALTERATION

A. Make alterations to roofing as required to perform the Work of the Contract.

B. Cut and dismantle areas of roofing to be opened or removed for new work by other trades. Locate and minimize cuts as beneficially as possible for interfacing with the new work.

C. Perform roofing work in accordance with approved shop drawings.

D. Comply with manufacturers' and warrantors' recommendations and instructions for preparation of substrate at cut edges of existing roofing system where required to receive new work.

E. Remove projections and clean substrate and cut edges of existing roofing systems of dust, debris, and other matter detrimental to bonding of roofing alteration work.

F. Install preservative-treated nailers, cant strips, crickets, framing, and accessory items as may be recommend by the manufacturers and warrantors.

3.5 PRIMER APPLICATION

A. Primer is not required on steel, galvanized steel, stainless steel, aluminum, copper, zinc, or lead substrates. Primer is required on asphalt, concrete and wood. For other substrates, contact the roofing Manufacturer for recommendations.

B. For substrates requiring primer, apply two component Triflex Cryl Primer 222 or Triflex Cryl Primer 276 or equal with a lambswool roller at a minimum consumption of 0.037 kg/sf and allow to dry for a minimum of 45 minutes.

3.6 SUBSTRATE LEVELING AND REPAIR

A. Provide Triflex resin or equal combined with kiln dried quartz silica as modified repair mortars for leveling, patching and repairs. Triflex resin mortars or equal provide fast set times (45 minutes), allow application of the Triflex membrane or equal immediately after the Triflex resin mortar mixture or equal sets.

B. For leveling and smoothing applications, spread and plane the resin mortar with a squeegee and trowel to achieve a flat surface. For patching and repairs, fill cavities with resin mortar and trowel to achieve a flat surface. Triflex resin mortars or equal are recommended for trowel applied vertical and horizontal repairs as follows:

1. Repairs, patching and leveling on horizontal and low slope substrates:

    a. Triflex RS233 resin/mortar or equal.

2. Repairs, patching and leveling on sloped and vertical substrates:

    a. Triflex Cryl Paste resin/mortar or equal.

C. Triflex resin mortar or equal should be placed in lifts no greater than the maximum thicknesses indicated by the manufacturer. Trowel into place and allow to harden. If additional lifts will be required, broadcast top surface of the placed resin mortar with dry quartz silica while the resin mortar is wet. Place next lift once the resin mortar has cured.

3.7 FLASHING MEMBRANE APPLICATION

A. Flashing a minimum vertical height of 8 inches for all flashing terminations wherever possible. Flashing height shall be at least as high as the potential water level that could be reached as a result of a deluging rain and/or poor slope.

1. Do not flash over existing through-wall flashings, weep holes and overflow scuppers.

2. All Flashing shall be terminated as required by the Membrane manufacturer. Cap flashings or counter flashings may be constructed of metal, stone, tile or other materials properly installed in accordance with industry accepted practice.

B. Mix and apply cold fluid applied reinforced flashing membrane in strict accordance with written instructions of the manufacturer. Using a lambswool roller, apply an even layer of Triflex Prodetail or equal at a minimum consumption of 0.19 kg/sf.

C. Work Triflex Fleece reinforcement or equal into the wet resin, removing trapped air, using lambswool roller. Maintain a minimum 2 inch overlap at all side and butt laps of adjacent fleece rows.

D. Apply and even top coat of Triflex Prodetail or equal at a minimum consumption of 0.12 kg/sf wet-on-wet to ensure full saturation of fleece reinforcement.

3.8 MEMBRANE INSTALLATION AND STAGING

A. Provide a minimum of 4 inch overlap for all tie in locations, where work has been cleaned due to interruption of 12 hours or longer.

3.9 SURFACING AND FINISHES

A. Provide Triflex surfacing aggregate or equal in custom color to match existing.

3.10 FIELD QUALITY CONTROL

A. Use only roof-manufacturer-approved firms to perform inspection, repair and alteration work.

B. Warranty Re-certification Inspection: Provide inspection as required by each roofing manufacturer and warrantor for recertification of existing warranties.

3.11 PROTECTION

A. Upon completion of new work (including all associated work), institute appropriate procedures for surveillance and protection of finished work during remainder of construction period. Protect all areas where membrane has been installed.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Alterations of Existing Roofing” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C05-013-002.0 - Roof Termination Steel Structure (Steel Rack SR-1)

2. C16-005-007.0 - Raceways on Trainshed Roof

END OF SECTION

SECTION 09877 – MICROPILE CASING COATINGS

PART 1 - GENERAL

1.1 REFERENCES

The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only.

American Society of Testing and Materials (ASTM)

ASTM D 1186	Nondestructive Measurements of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base.
ASTM E 376	Measuring Coating Thickness by Magnetic-Field or Eddy-Current (Electromagnetic) Test Methods

Federal Specifications (FS)

FS QPL-24441	Paint, Epoxy-Polyamide

Military Specifications (MIL)

MIL-P-24441	(Rev. B; Supp. 1) Paint, Epoxy-Polyamide

Steel Structures Painting Council (SSPC)

SSPC PS11.01	Black Coal Tar Epoxy-Polyamide Painting System
SSPC PS13.01	Epoxy Polyamide Painting System
SSPC SP 1	Solvent Cleaning
SSPC SP 10	Near-White Blast Cleaning
SSPC Paint 16	Coal Tar Epoxy-Polyamide Black (or Dark Red) Paint
SSPC Paint 22	Epoxy-Polyamide Paints (Primer, Intermediate, and Topcoat)

1.2 SUBMITTALS

Contractor shall elect to use either the epoxy-polyamide coating system, or the coal tar epoxy-polyamide coating system. Submit the following in accordance with this specification.

A. Manufacturer's Catalog Data

1. Epoxy-polyamide
2. Coal tar epoxy-polyamide

Include instructions for field touchup of damaged coating.

B. Certificates

1. Epoxy-polyamide
2. Coal tar epoxy-polyamide

1.3 ENVIRONMENTAL CONDITIONS

Start work only when ambient and curing temperatures are within limits of coating manufacturer's recommendations and at least 5 degrees F above dew point temperature.

1.4 SAFETY AND HEALTH PRECAUTIONS

A. Follow safety procedures as recommended by manufacturer. Work in a well ventilated area. Provide, and requite workers to use, impervious clothing, gloves, face shields (200 mm 8-inch minimum), and other appropriate protective clothing necessary to prevent eye and skin contact with coating materials. Keep coatings away from heat, sparks and flame.

B. Promptly remove and replace materials or fabricated components which do not comply.

PART 2 – PRODUCTS

2.1 MICROPILE COATING SYSTEMS

The Contractor shall elect to use either a three-part epoxy-polyamide coating system, or a two-part coal tar epoxy-polyamide system to coat the upper portion of the micropile casing as defined in Specification Section 02499 - Micropiles. Specifications for both systems are presented below.

A. Coating:

Provide catalyst components for coatings specific for resin components. Use thinners which are compatible with the coating.

1. Epoxy-Polyamide
    a. Primer: MIL-P-24441.
    b. Intermediate Coat: MIL-P-24441.
    c. Top Coat: MIL-P-24441.
2. Coat Tar Epoxy-Polyamide
    a. System: SSPC PS11.01
    b. Paints: SSPC Paint 16 Black
3. Colors
    a. Steel Pile Casing Pipe: black

PART 3 - EXECUTION

3.1 CLEANING AND PREPARATION OF SURFACES

A. Solvent Cleaning

Remove visible oil, grease, and drawing and cutting compounds by solvent cleaning per SSPC SP1.

B. Blast Cleaning

SSPC SP10. After solvent cleaning, complete surface preparation by near-white blast cleaning. Remove residual dust from blasted surface by blowing with dry, oil-free air, vacuuming, or sweeping. Provide surface profile of at least 2 1/2-mil thickness.

3.2 PROPORTIONING AND MIXING OF COATING SYSTEM

A. Proportioning of Epoxy-Polyamide System.

Epoxy-polyamide coating consist of a two-component system that includes a pigmented polyamide resin, Component A and an epoxy resin, Component B. Mix both components in a ratio of 1 to 1 by volume. Do not thin coatings when doing so; this will result in total volatile organic compounds exceeding limits enacted by local air pollution control district. When thinning is allowed and is necessary, such as during cold temperature application or to improve application characteristics, add up to 0.5 liter 1 pint of ethylene glycol monoethyl (EGM) ether for each gallon of the coating.

B. Proportioning of Coal Tar Epoxy-Polyamide System

Coal tar epoxy-polyamide coatings consist of a two-components: Component A contains a refined coat tar pitch, polyamide resin, and a polyamine promoter to accelerate during rate. Component B is an epoxy resin. Mix both components in a ratio of four parts of Component A to one part of Component B by volume. Do not thin coatings when doing so; this will result in total volatile organic compounds exceeding limits enacted by local air pollution control districts. When thinning is allowed and is necessary for proper application, use xylene or the coating manufacturer's recommended thinner, to a maximum of 1/2 gallon to a five gallon batch.

C. Mixing of Epoxy-Polyamide System.

Mix components of coating by power stirring until a smooth, uniform consistency results. Stir coating periodically during its induction period. Follow Table 1 for induction time and pot life of mixed batches.

TABLE 1

JOB SITE AMBIENT TEMPERATURE & INDUCTION TIME FOR
EPOXY-POLYAMIDE SYSTEM

Ambient Temperature Degrees F	Induction Time (in hours)
40 to 50	2 at 70 degrees F
50 to 60	2
60 to 70	1 to 1-1/2
70 and above	1/2 to 1

D. Mixing of Coal Tar Epoxy-Polyamide System

Power stir components to a smooth, uniform consistency. Stir coating periodically during induction period. Follow coating manufacturer's requirements for induction time and pot life of mixed batches.

3.3 COATING APPLICATION

A. General

Coatings shall be shop applied. Apply primer coating to dry surfaces not more than 4 hours after near-white blast cleaning. Apply coats of each system so that finished surfaces are free from runs, sags, brush marks and variations in color.

B. Application Method for Epoxy-Polyamide System

Allow previous coat to dry to tack-free condition but not more than 72 hours before applying next coat. If more than 72 hours elapses between coats, clean surface, apply a 2 mil wet film thickness of previous coat, allow to cure to a tacky film, and apply a full thickness of next coat.

C. Application method for Coal Tar Epoxy-Polyamide System

Unless otherwise specified by manufacturer's recommendations, do not allow drying time between coats to exceed 72 hours. Under conditions of direct sunlight or elevated ambient temperatures of 90 degrees F or greater, limit intercoat drying period to a maximum of 24 hours.

D. Repair of Defects

Repair detected coating holidays, thin areas, and exposed areas damaged prior to or during installation by surface treatment and application of additional coating or by manufacturer's recommendations. Allow a period of at least 72 hours to pass following final coat before placing in immersion service.

E. Three-Coat Epoxy-Polyamide system

Apply each coat at a dry film thickness of not less than 5 mils.

F. Two-Coat Coal Tar Epoxy-Polyamide System

Apply each coat at a dry film thickness of not less than 8 mils.

G. Dry Film Thickness

Provide total system minimum dry film thickness of 16 mils.

3.4 SURFACES TO BE COATED

A. Epoxy-Polyamide – Shop coat steel pile casing pipe.

B. Coal Tar Epoxy-Polyamide – Shop coat steel pile casing pipe with coal tar epoxy-polyamide system.

3.5 TOUCH-UP PAINTING

Touch-up shall be done with the same coating as used for the original coat. The resulting minimum dry film thickness shall be the same as for the original coat.

All coated surfaces damaged during shipping, handling, or installation shall be re-prepared to base metal and re-coated as herein before specified. Touch-up painting shall include cleaning and painting of field connections, welds, and all damaged or defective paint and rusted areas.

3.6 FIELD TESTS

Conduct testing in presence of NJ Transit's representative:

A. Holiday Testing

Prior to installation, test for holidays in the total coating system Use a low-voltage holiday detector of less than 90 volts in accordance with manufacturer's instructions. After repair of holidays by surface treatment and application of additional coating or by manufacturer's recommendation, retest with a low-voltage holiday detector.

B. Dry Film Thickness

After repair of holidays, measure dry film thickness using a magnetic dry film thickness gage in accordance with ASTM D 1186 and ASTM E 376. Re-measure after an additional coat is applied. Continue to apply additional coats until the minimum thickness requirements are met.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for "Micropile Casing Coatings" and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C09-004-005.0 - Micropile Casing Coatings (09877)

END OF SECTION

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SECTION 15402 - HANGERS AND SUPPORTS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. Extent of hangers and support work is indicated by the requirements of this Section.

1.2 SUBMITTALS

A. Submit catalog cuts for each different type of hanger and rod, support and accessory.

B. Submit method of support and hanging for engineer's approval prior to installation.

1.3 QUALITY ASSURANCE

A. Structural Steel Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Pipe Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Pipe Hangers and Supports

1. Stainless-Steel Pipe Hangers and Supports:

   a. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.
   b. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.
   c. Hanger Rods: Continuous-thread rod, nuts, and washer made of stainless steel.

C. Miscellaneous Materials

1. Structural Steel: ASTM A 36/A 36M, carbon-steel plates, shapes, and bars; black and galvanized.

2. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.

   a. Properties: Nonstaining, noncorrosive, and nongaseous.
   b. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Supports shall be adequate to securely support the piping and its contents, to prevent vibration and to provide proper allowance for expansion and contraction of the piping.

B. All piping running close to or on walls shall be supported by means of hanger suspended from heavy angle iron wall brackets. No wall hooks will be permitted.

C. Hanger rods shall be of ample size to support the pipe and its contents and shall have machine cut American Standard V-threads. At a minimum hanger rod size shall be the same as that recommended by the hanger manufacturer for each sized hanger. Hangers shall be recessed to approved beam clamps, concrete inserts, steel plates or other approved devices. Expansion shields and bolts shall not be used in the ceilings of cinder concrete, but may be used where the shields and bolts are horizontal.

D. At all points of support of insulated piping and tubing a galvanized metal shield shall be installed between the hanger and pipe insulation.

E. No piping shall be supported from other pipes, ductwork, electric conduit, hung ceiling, cinder concrete or work of other trades.

F. Provide with temporary spacers to maintain spacing and allow for separate pipe covering.

G. Provide fiber shields between hangers and clamps for uninsulated brass or copper pipe and tubing.

H. Inserts

1. Piping and equipment, hung from ceilings shall be properly supported from the ceiling slabs by means of required number of inserts. Provide inserts before the pouring of the slabs.

2. The Contractor shall take every precaution to furnish and set all sleeves, wood boxes or other devices that are required for proper installation of his work, before concrete is poured.

3. The Contractor is responsible for coordination with other trades and maintaining location of sleeves and inserts during concrete pour.

I. Methods of Fastening

The following rule, except where otherwise specified, shall be observed throughout the entire work: Where fastenings are made; to brickwork, cement, stone and marble, approved long expansion bolts; to fire-proof block work, approved toggle bolts, and to iron work, approved bolts and nuts. The use of wood plugs and nailing will not be permitted. Sundries used in connection with galvanized iron shall be galvanized. Those in connection with brass work shall be of brass, finished to match the connecting work.

1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.

2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.

J. Cleaning, painting and installation of hangers and supports shall be done before the application of fireproofing material. All hanger and support assemblies in their entirety shall be painted. Painting shall consist of one (1) coat of Tnemec 10-99 or Benjamin Moore Iron Clad Retardo Rust Inhibitive paint primer or approved equal, one (1) coat of aluminum and one (1) coat of flat or enamel interior paint to match the adjoining surfaces.

K. Metal Pipe-Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from the building structure.

L. Metal Trapeze Pipe-Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping, and support together on field-fabricated trapeze pipe hangers.

1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified for individual pipe hangers.

2. Field fabricate from ASTM A 36/A 36M, carbon-steel shapes selected for loads being supported. Weld steel according to AWS D1.1/D1.1M.

3.3 METAL FABRICATIONS

A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.

B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.

C. Field Welding: Comply with AWS D1.1/D1.1M procedures for shielded, metal arc welding; appearance and quality of welds; and methods used in correcting welding work; and with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. Finish welds at exposed connections so no roughness shows after finishing and so contours of welded surfaces match adjacent contours.

3.4 HANGER AND SUPPORT SCHEDULE

A. Specific hanger and support requirements are in Sections specifying piping systems and equipment.

B. Comply with MSS SP-69 for pipe-hanger selections and applications that are not specified in piping system Sections.

C. Use hangers and supports with galvanized metallic coatings for piping and equipment that will not have field-applied finish.

D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use carbon-steel pipe hangers and supports and metal trapeze pipe hangers and attachments for general service applications. Provide galvanized metallic coatings.

F. Use stainless-steel pipe hangers and stainless-steel or corrosion-resistant attachments for hostile environment applications such as the area below the Ramped Concourse and Ferry Suites offices.

G. Use padded hangers for piping that is subject to scratching.

H. Use thermal-hanger shield inserts for insulated piping and tubing.

I. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated, stationary pipes NPS 1/2 to NPS 30.

2. Yoke-Type Pipe Clamps (MSS Type 2): For suspension of up to 1050 deg F, pipes NPS 4 to NPS 24, requiring up to 4 inches of insulation.

3. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes NPS 3/4 to NPS 36, requiring clamp flexibility and up to 4 inches of insulation.

4. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.

5. U-Bolts (MSS Type 24): For support of heavy pipes NPS 1/2 to NPS 30.

6. Pipe Saddle Supports (MSS Type 36): For support of pipes NPS 4 to NPS 36, with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate.

7. Pipe Stanchion Saddles (MSS Type 37): For support of pipes NPS 4 to NPS 36, with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate, and with U-bolt to retain pipe.

8. Single-Pipe Rolls (MSS Type 41): For suspension of pipes NPS 1 to NPS 30, from two rods if longitudinal movement caused by expansion and contraction might occur.

9. Complete Pipe Rolls (MSS Type 44): For support of pipes NPS 2 to NPS 42 if longitudinal movement caused by expansion and contraction might occur but vertical adjustment is not necessary.

J. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers NPS 3/4 to NPS 24.

2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers NPS 3/4 to NPS 24 if longer ends are required for riser clamps.

K. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.

2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.

L. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel-Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.

2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.

3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.

M. Comply with MSS SP-69 for trapeze pipe-hanger selections and applications that are not specified in piping system Sections.

N. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

1. For trapeze type hangers, powder-actuated or mechanical-expansion anchors shall not be used. Anchors for trapeze type hangers shall be Epoxy Set 1 5/8” with Hilti HIT HY-200 or approved equal. Special Inspections shall be performed in accordance with International Building Code Table 1705.3.

O. Use pipe positioning systems in pipe spaces behind plumbing fixtures to support supply and waste piping for plumbing fixtures.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Hangers and Supports” and all associated work in this section shall be included in the Division 15 lump sum bid line item C15-005-001.0 for “Plumbing & Domestic Water Systems" on the Bid Price Sheet.

END OF SECTION

SECTION 15404 - PLUMBING PIPING

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK:

A. Extent of plumbing piping work is indicated on Drawings and by the requirements of this Section including but is not limited to the following:

1. Pipe
2. Fittings
3. Piping Joints
4. Unions

1.2 CODES AND STANDARDS:

A. Comply with applicable portions of the New Jersey Building Code. Where requirements for products, materials, equipment, methods and other portion of the work specified herein exceed minimum requirements of National Standard Plumbing Code, contractor shall comply with such requirements specified herein, unless specifically approved otherwise by the NJ Transit.

B. Standards listed below are referenced in this section.

1. American Society for Testing and Materials (ASTM)

2. American Standards Association (ASA)

3. American National Standards Institute (ANSI)

4. United States of America Standards Institute (USASI)

5. Cast Iron Soil Pipe Institute (CISPI)

1.3 DELIVERY, STORAGE, AND HANDLING:

A. Deliver material properly identified as to type, size, manufacturer's name, specification code, protected, and undamaged.

B. Do not store exposed to weather; cover with suitable type material to protect from damage.

C. Properly protect all piping so as to prevent damage to the pipe or the introduction of foreign material into the pipe. For the purpose of protecting piping from pre-installation contamination, all piping shall be shipped to job site with suitable caps, sheet metal covers or plugs. Pipe caps shall not be removed until just before installation.

D. During loading, transporting and unloading, use care to prevent injury to pipes and pipe fittings. Do not drop pipe or fittings. Examine all pipe and fittings before laying. Do not install any piece that is found to be defective.

E. Store and protect all materials from injury prior to installation. Do not store any materials directly on the ground or floor. Keep materials as clean and dry as possible and free from damage or deteriorating elements.

F. Ductile iron pipe and fittings shall be subject to inspection and a hammer test at the site of the work.

1. Any fitting showing a crack and any fitting or pipe which has received a severe blow that may have caused an incipient fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the work.

2. In any pipe showing a distinct crack and in which it is believed there is no incipient fracture beyond the limits of the visible crack, the cracked portions, if so approved, may be cut off by and at the expense of the Contractor before the pipe is laid so that the pipe used is perfectly sound. The cut shall be made in the sound barrel at a point at least 12" from the visible limits of the crack.

1.4 SUBMITTALS:

A. Submit manufacturer's instructions for installation of fire stop materials for sleeves for pipes.

B. Submit Shop Drawings for all piping installations

C. Submit manufacturer's technical product data for pipe and fittings.

D. Samples, when requested.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. General

1. Only new materials may be used unless otherwise indicated on Drawings.

2. Listed Manufactures. See NJTC General Provisions for Construction for substitution requirements.

B. Piping shall conform to the following:

1. Steel Pipe:

a. Galvanized steel pipe shall be seamless or electric resistance welded and shall be made in accordance with the current Edition of the ASTM A53 Specification Grade B, Type E (also referred to as ERW) electric resistance welded or Type S Seamless. Type F Furnace butt-welded pipe is not acceptable. Pipe shall be free from scale, and rust, injurious sand marks, blisters, scale pits, laminations, imperfect welds, or other defects that might affect its strength, appearance or ability to resist corrosion. The maker's name shall be rolled or stamped in the metal at intervals of each length of pipe 2" and larger, and stamped on a metal tag secured to each bundle of pipe 1-1/2" and smaller.

b. Unless otherwise specified or indicated on Drawings, Galvanized steel pipe shall be Schedule 80-galv. pipe.

c. Available Manufacturers:

1) U.S. Steel Co.

2) Sawhill Tubular Co.

3) North Star Steel

4) Sharon Tube Co.

5) Wheatland Pipe Co.

6) Or approved equal

2. Brass Pipe:

a. Seamless drawn red-brass pipe made in accordance with the current edition of ASTM B43, Specification made of an alloy containing not less than eighty-five (85%) copper and not more than 0.05% lead, semi-annealed, regular weight. Pipe to be threaded on both ends with NPT (Taper Pipe Threads) conforming to ANSI B2.1. The maker's name shall be stamped at intervals on each length of pipe and the pipe shall be color-coded White in accordance with The Copper and Brass Research Association standards. Before any brass pipe is delivered at the site the Contractor shall file with the NJ Transit a notarized affidavit in triplicate stating that all of the brass pipe to be installed in his work is made from the alloy specified above and he shall submit the name of the manufacturers whose pipe he proposes to use, for approval by the NJ Transit.

b. Available Manufacturers:

1) Chase Brass & Copper Co.

2) Phelps Dodge Copper Products Corp.

3) Revere Copper & Brass Inc.

4) Or approved equal

C. Application: Piping located below raised floor, and buried pipe, including waste, vent, waste and pipe service piping.

D. Fittings

1. Fittings for brass water supply piping shall be cast bronze threaded fittings, Class 125 working steam pressure, conforming to ANSI B16.15. They shall be made of cast bronze containing not less than eighty-five percent (85%) copper and five

percent (5%) each of lead, tin and zinc. All connecting threads of pipes and fittings shall be NPT conforming to the requirements of ANSI B2.1. Exposed fittings for fixture connections shall be rough, plain, polished or chromium plated as specified.

2. Containment Fittings shall be Conley's filament wound fittings, or approved equal, with a 60-mil corrosion resistant inner liner, filament wound construction and a 30-mil synthetic veil reinforced corrosion / impact / UV resistant exterior. All fittings will be designed for inspection of field fabricated carrier pipe joints during hydro-test.

   a. Containment fittings shall be rated for an internal working pressure equal to the carrier piping up to a maximum of 150 psi through 10-in, and 100 psi through 30-in.

   b. The "Closure Joint" for the containment piping shall also be suitable as a "Pull point" for any leak detection system that may be required.

E. Pipe Nipples

1. All pipe nipples shall be of the same materials as the connecting piping. All nipples 6" or less in length shall be extra strong.

2. The use of close nipples is prohibited

F. Unions

1. Unions 2" and smaller shall be threaded. Unions 2-1/2" and larger shall be flanged.

2. Threaded unions on copper or brass pipe shall be brass, ground joint suitable for 300 pounds W.S.P.

3. Threaded unions on steel pipe, unless otherwise specified, shall be of malleable iron with bronze ground seats suitable for 300 pounds W.S.P.

4. Flanged unions shall be cast iron for steel pipe, and brass for copper or brass pipe, gasket type suitable for 150 pounds W.S.P.

5. Flanged unions shall be provided with the necessary steel bolts, nuts and gaskets.

6. All unions used on galvanized piping shall be galvanized.

7. All unions used on chromium plated piping shall be chromium plated.

8. Unions shall be as manufactured by Stanley G. Flagg & Co., Inc., Stockham or Dart.

G. Dielectric Fittings/Unions

1. Unions shall be rated at 250 psi at 180^{o} F. and shall meet the requirements of ANSI B16.39 and ASSE 1079. Pipe threads shall be in accordance with ANSI B2.1 and solder ends shall be suitable for brazing.

2. Flange fittings shall have a minimum rating of 175 psi and shall conform to ANSI B16.24 (Bronze), B16.42 (Iron) and ASSE 1079.

H. Bolts and nuts shall be of best quality bolt steel with square head bolts and hexagon nuts with machine cut V-threads.

I. Gaskets

Gaskets for cold and hot water services shall be full face gaskets. The retaining gasket shall be made of 1175 fabric inserted rubber sheeting and shall be pre-cut at the factory for standard 125 pound cast iron flanges and fittings and for 150 pound raised face steel flanges and fittings.

J. Escutcheon Plates types shall be as follows:

1. Galvanized cast-iron with set screw as manufactured by Grinnell, Fig. No. 395 or Carpenter & Paterson, Inc. Submit manufacturer product technical data.

2. Galvanized cast iron escutcheons with set screw shall be chrome plated for use in finished rooms or spaces.

3. Chrome plated cast brass with brass set screws as manufactured by Kohler or McGuire Mfg. Co., Catalog No. 127. Submit manufacturer product technical data.

K. Chromium: All metal parts including tubular shapes, castings, etc., shall be finely ground and polished to a smooth satin finish. Every particle of scale, rough or foreign matter shall be removed. All pieces must be thoroughly and chemically cleaned before plating. Copper plating shall be applied as a first step, then properly buffed and polished, then a heavy deposit of nickel plating meeting the requirements of the ASTM specifications shall be applied and buffed and polished to a bright finish. The final treatment shall be the application of the chromium coatings, and the buffing and polishing of the surfaces to yield the desired finish.

2.2 SOURCE, QUALITY CONTROL:

A. Tests, Inspections

Ductile iron pipe and fittings shall be inspected and tested at the Foundry as required by the Standard Specifications to which the material is manufactured. The Contractor shall furnish in duplicate to the NJ Transit, sworn certificates of such tests.

PART 3 - EXECUTION

3.1 INSTALLATION:

A. Piping (General)

1. The run and arrangements of all pipes shall be approximately as shown on drawings or specified and as directed during installation, and shall be as straight and direct as possible, forming right angles or parallel lines with building walls and other pipes, and neatly spaced. No pipe shall be installed where the headroom will be interfered with unless the conditions are such that it is unavoidable and permission is obtained from the NJ Transit. Offsets will be permitted where walls reduce in thickness or beams interfere with direct runs; offsets shall be made at an angle of 45^{o} to the vertical; in no case shall the space between the pipes, partitions, walls, etc., exceed

5". All exposed risers shall be erected plumb, standing free, close to and parallel with walls and other pipes and be uniformly spaced. All horizontal runs of piping hung from structural floor, slab or floor beams shall be erected as closely as possible to bottom of floor slabs, ceilings, or I-beams as the case may be. In no case shall the headroom, beneath the pipe, be less than (7'-0") where the pipe is installed more than (1'-0") from wall, partition, etc., except where piping is required to be installed in Mechanical spaces above floor. Horizontal piping shall be so graded as to drain to the low points and water lines to drain bibbs. All piping installed in floor shall be painted with a heavy coat of asphaltum. All piping shall be installed with ample space for pipe covering. All exposed plumbing piping shall be chrome plated brass pipe. Provide threaded fittings. Chrome (silver) paints will not be accepted.

2. Roughing under ground or concealed in the floor or wall construction shall be properly installed, tested and inspected before any of the roughing is covered up. Should any work be covered up before being inspected and tested, it shall be uncovered and recovered at the expense of the Contractor. Plugged fittings shall be installed when called for. Reducer fittings shall be used in making reductions in sizes of pipes; bushings will not be allowed. Water Hammers Arresters shall be provided as called for in other sections.

3. No defective pipe or fittings shall be laid or placed in the piping, and any piece discovered to be defective after having been laid or placed shall be removed and replaced by a sound and satisfactory piece.

4. Pipe and fittings shall be cleared of all debris and dirt before being laid and shall be kept clean by the use of caps or plugs installed in piping until accepted in the completed work.

5. The Contractor's attention is directed to the fact that the cement linings used for ductile iron pipe and fittings are comparatively brittle. Every care shall be taken in handling and laying pipe and fittings to avoid damaging the pipe and linings, scratching or marring machined surfaces, and abrasion of the pipe coating or lining.

    a. All pipes shall be cut only by means of abrasive saws, hacksaws, wheel type cutters, or milling type cutters. The use of "squeeze" type pipe cutters and cutting torches will <u>not</u> be permitted. All cut ends shall be examined for possible cracks caused by cutting.

6. Pipe damaged from handling or any cause whatsoever, whether in or out of the trench shall be removed forthwith from the site of the work by the Contractor and replaced without additional cost to the NJ Transit.

7. Tools for installing brass pipe shall be of the following type: Vises shall have special jaws without teeth. Wrenches shall be of the "Paramalee" or "Warnrock" type. Pipes installed bearing marks of vises or wrenches will not be accepted. Brass pipe to be cut with square-end cutters or hacksaws.

8. Vises used for installing copper tubing shall have special jaws without teeth. Tubing installed bearing vise marks will not be accepted. All tubing shall be cut with square-end cutters or hacksaws or wheel cutters. Bending of tubing shall not be permitted. All tubing shall be reamed after cutting.

9. All lines of piping and branches for fixtures passing through or in connection with waterproofing shall be brought to the proper locations and levels so that fixtures and piping may be installed without disturbing the waterproofing.

10. Remove and replace with a sound pipe any defective pipe and pipe fittings discovered after installation without additional expense to the Authority.

11. For work in existing buildings the following addition requirements shall be adhered to:

    a. Piping shall run as straight as possible with the fewest number of changes in direction, with such variations from the layout shown on the Drawings as conditions at the premises may require. Provide piping without sharp bends, quick changes of sections, pockets or bushings.

    b. The locations of all existing piping which are indicated on the Drawings are approximate. The Contractor shall investigate and ascertain the exact locations of such piping and make whatever minor variations in runs of new piping that may be required at no extra cost to the NJ Transit.

    c. Contractor shall consider the location of all equipment, ductwork, piping, electric conduits, supports, steel work, etc., and all new piping shall be installed without interference therewith.

    d. All new extensions and relocations of existing piping systems shall be concealed in existing or new walls, floors, ceilings, pipe chases or as otherwise specified.

    e. Unused dead ended soil, waste and vent piping shall be removed as far as each branch, main, stack, etc., and capped or plugged concealed in hung ceilings, below floors or behind walls.

    f. All individual hot and cold water branches to and from new and existing mains or risers shall be valved.

B. Piping Joints

1. The joints of steel and brass piping shall be screwed joints of full length and threads shall be NPT conforming to the requirements of ANSI B 2.1. All pipes shall be screwed close up to their shoulders. The use of lamp wick is prohibited in threaded joints. All burrs shall be removed. Pipe joint cement or Teflon tape shall be used only on male threads.

2. Joints in type "L" copper tubing and type "K" copper tubing shall be brazed joint. All surplus flux shall be wiped off immediately after completion of brazing.

3. Joints between galvanized steel and cast iron pipes shall be caulked joints as specified for cast iron piping.

4. Joints for ductile iron mechanical joint pipe shall be made by using ductile iron mechanical joint retainer glands.

5. Unions or flanges shall be used to connect equipment (pumps, circulators, tanks, etc.) to water lines. The union shall be installed as close to the equipment as practical. Where valves are adjacent to equipment, union shall be on down stream side of valves.

6. Dielectric fittings and unions shall be installed where ferrous piping joins copper tubing or brass piping.

C. Sleeves for Pipes

1. General: All plumbing pipes passing through floors, roofs, walls, partitions, furring, beams, trenches, and wherever else indicated on drawings shall be provided with sleeves installed and maintained by the Contractor. Core drilled holes shall be provided with sleeves. Where plumbing pipes pass through potentially wet floors that do not have membrane waterproofing such as toilet rooms, cafeteria kitchens, serving areas, dish washing room, janitor's sink closet, mechanical equipment rooms, pipe chases and areas that are provided with fire protection sprinkler systems, the Contractor shall install sleeves of galvanized steel pipe with welded clips or equivalent at bottom ends for securing sleeves to form work and shall project one inch above finished floors, and shall be caulked watertight.

2. For interior walls and floors and for pipes through roof, the space between each installed pipe and its sleeve shall be sealed with a three hour rated fire stop penetration material. Fire stop materials shall be installed in accordance with the instructions of the manufacturer.

3. Sheet Metal Sleeves

a. Sleeves for pipes passing through floors, partitions, hung or furred ceilings, shall be installed with 1/2" maximum clearance all around pipes. Each sleeve for a pipe passing through an interior floor slab shall be fitted with a one-inch flange, or equivalent, at the bottom end for the purpose of securing it to the form work or sheet metal deck.
The sleeve shall finish flush with the top of the finished floor. Sleeves for pipes passing through partitions, hung or furred ceilings shall be of one piece construction and shall finish flush with the finished surface.

b. Sleeves installed for pipes passing through vent ducts shall be securely fastened, soldered and made airtight.

4. Pipe Sleeve: Install pipe sleeves for pipes passing through roofs, concrete beams, brick walls, foundation walls and floor slabs on earth. Sleeves shall be installed with 1/2" maximum clearance all around pipe and shall finish flush with the surfaces penetrated. Pipe sleeves for pipes through roof shall be made of extra heavy cast iron only.

6. Sleeves through foundation walls below grade shall be provided under General Construction Work.

D. Escutcheon Plates

1. Install chrome plated solid cast iron escutcheon plates with set screw on exposed pipes passing through walls, partitions, floors and ceilings, in finished rooms and

spaces.

2. Install galvanized solid cast iron escutcheon plates with set screw on concealed pipes passing through walls, partitions, floors and on exposed piping in unfinished rooms and spaces.

3. Install chromium plated cast brass escutcheon plates with brass set screw on waste and water supply piping at all plumbing fixtures including lavatories, drinking fountains, cabinet sinks, wash sinks, etc.

4. Plates shall fit snugly around the pipes and shall be fastened in place before pipes are insulated or concealed.

5. Split type escutcheon plates are not acceptable.

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Plumbing Piping” and all associated work in this section shall be included in the Division 15 lump sum bid line item C15-005-001.0 for “Plumbing & Domestic Water Systems" on the Bid Price Sheet.

END OF SECTION

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SECTION 15411 - INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK:

A. The Work includes the providing of non-conducting insulation, including accessories, on the following piping and apparatus.

1. All concealed and exposed cold water supply piping including flanges, fittings and valves in all spaces heated and freezing spaces.

1.2 SUBMITTALS:

A. Product Data

Submit manufacturer's product data for insulation materials, adhesives, mastics, cements and heat tracing materials. Include installation details for valves, fittings, pipes and all other item to be insulated. No material shall be delivered to the site prior to being approved.

B. Schedule listing items to be insulated, description of insulation and finishing procedures.

C. Samples

Each type of insulation, including facing, jacket and fittings.

D. Certificates from the manufacturer stating compliance with the following:

Insulation, finishing facings or jackets, adhesives, mastics and cements are asbestos free and all materials installed have composite fire and smoke hazard ratings.

1.3 QUALITY ASSURANCE:

A. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products according to ASTM E 84 by a testing agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing agency.

1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.

2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

B. Comply with the following applicable standards and other requirements specified for miscellaneous components:

1. Supply and Drain Protective Shielding Guards: ICC A117.1.

C. Asbestos Prohibition

All products provided under this Section shall be asbestos free.

D. Installer's Qualifications

Firm with at least three years successful installation experience on projects with the piping and mechanical equipment insulation similar to that required for this Project.

1.4 DELIVERY, STORAGE AND HANDLING:

A. Protect insulation against dirt, water, chemical and mechanical damage. Remove damaged insulation from project site.

B. Deliver insulation, coverings, cements, adhesives and coatings to the site in factory-fabricated containers with the manufacturer's stamp, or label, affixed showing fire hazard ratings of the products and brand.

C. Store insulation in original wrappings and protect from weather and construction traffic.

1.5 TEMPERATURE REQUIREMENT:

A. Apply adhesive, sealers, coating, and all other items and accessories at the proper temperature as recommended by the manufacturer. If ambient conditions are not acceptable, provide temporary heat as required for proper installation without any delay to the Project completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Insulation, fiberglass fitting cloth, bands and casings, manufactured by Certain-Teed Corp., Johns Manville, Owens-Corning Fiberglass Corp., Knauf Fiber Glass or Armstrong World Industries, Inc., or approved equal. Adhesives manufactured by Benjamin Foster Co., Epolux Manufacturing Corp., or Insul-Coustic (Division of Birma Products Corp.), or approved equal. Pre-molded fiberglass fittings as manufactured by Hamfab Inc., or approved equal.

B. See NJTC General Provisions for Construction for substitution requirements.

2.2 MATERIALS:

A. All piping insulation shall be one-piece molded sectional fiberglass having a nominal 4-pound density. Its thermal conductivity shall not exceed 0.23 at 75 degrees F. mean temperature. It shall be suitable for use on piping up to 370 degrees F.

B. Insulation and accessories for valves, fittings, etc. for cold water piping shall include the following:

1. One pound density fiberglass blanket.

2. Segments of pipe insulation.

3. Pre-molded fiberglass fittings.

4. No. 20 gage galvanized steel annealed wire.

5. Insulating cement.

6. In lieu of using coated pre-molded fittings for insulating fittings, valves etc., Zeston premolded 20-mil thick, high impact ultraviolet-resistant one piece PVC fitting covers and precut Hi-Lo-Temp insulation inserts as manufactured by Manville or equal are acceptable.

C. Jacket and accessories over insulation for cold water piping shall include the following:

1. White kraft paper outer surface bonded to aluminum foil and reinforced with fiberglass yarn.

2. Insulation adhesive.

3. Aluminum casing, .016" thick.

D. Special protection at all points of support shall include the following:

1. Rigid calcium silicate pipe insulation having a minimum twelve (12) pound density. Blocks shall be 1-1\2" thick.

2. Galvanized metal shields as manufactured by Carpenter & Paterson, Fig. 265 P or Grinnell Fig. 167 or approved equal. Shields shall be 18 gage for pipe sizes up to and including 5" and 16 gage for larger sizes.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS:

A. Insulation shall be installed only after tests of the piping systems have been successfully completed.

B. Insulation shall be installed in a smooth, clean, workmanlike manner. Joints shall be tight and finished smooth, with a continuous unbroken vapor seal.

C. All surfaces to be insulated shall be dry and free of loose scale, dirt, oil or water when insulation is applied.

D. Insulation shall be applied in such a manner that air circulation within the insulation or between the insulation and the pipe shall be avoided.

E. Surface imperfections in the insulation, such as chipped edges, small joints or cracks and small voids or holes not over one inch square shall be filled with like material or with insulating cement.

F. Paper laminated jackets shall be permanently treated to retain its flame spread and smoke developed rating. Chemicals used for treating paper jacket laminates shall not be water soluble and shall be unaffected by water and humidity.

G. Valves shall be insulated up to the packing unit.

H. The use of pipe insulation having a "self-sealing" lap and "self-sealing" lap strips also is acceptable.

I. Unions shall not be insulated.

J. Fire Seal Application: Where pipes pass through fire walls, fire partitions, fire rated pipe chase walls or floors above grade, insulation shall be interrupted and a fire seal shall be provided as specified for this project.

K. All necessary insulating material not specified shall be as recommended by the manufacturer of the insulation.

3.2 INSTALLATION:

A. Thermal Insulation for Piping

1. Insulation for cold water piping shall be 1" thick for pipe sizes up to and including 2", and shall be 1-1/2" thick for larger pipe sizes. Insulation for horizontal runs and off-sets including fittings and vertical off-sets of soil, waste, and horizontal storm water piping shall be of the thickness specified for cold water piping.

2. Valves, fittings, etc. for hot water piping shall be insulated as follows:

a. For pipes sizes smaller than 4", one of the following ways shall be used:

1) Apply insulating cement to a thickness equal to adjoining pipe insulation and trowel to a smooth finish.

2) Wrap firmly under a minimum of a 3:1 compression, with 1 pound density fiberglass blanket, to a thickness equal to adjoining insulation. Secure with No. 20 gage galvanized steel annealed wire. Finish with a smooth coat of insulating cement.

b. For pipe sizes 4" and larger, fit segments of pipe insulation equal in thickness to adjoining insulation and secure with No 20 gage galvanized annealed steel wire. Finish with a smooth coat of insulating cement.

c. In lieu of the foregoing methods, the use of pre-molded fiberglass fittings of the same thickness as adjoining pipe insulation will be accepted, secured

with No. 20 gauge galvanized annealed steel wire and finished with a smooth coat of insulating cement.

d. In lieu of the foregoing methods, the use of preformed PVC fitting covers with factory precut Hi-Lo Temp insulation insert of the same thickness as adjoining pipe insulation will be accepted. Valves, fittings, etc. shall be insulated by applying the proper factory precut Hi-Lo Temp insulation insert to the pipe fitting, valve, etc. The ends of the Hi-Lo Temp insulation insert shall be tucked snugly into the throat of the fitting, valve etc. and the edge**s** adjacent to the pipe covering tufted and tucked in, fully insulating the pipe fitting, valve, etc. The PVC fitting cover shall then be applied and shall be secured by tack fastening, and then taping the ends to the adjacent pipe covering.

3. Valves, fittings, etc. for cold water piping shall be insulated as follows:

a. For pipe sizes smaller than 4" wrap firmly under a minimum of a 3:1 compression, with 1 pound density fiberglass blanket, to a thickness equal to adjoining insulation. Secure with No. 20 gage galvanized annealed steel wire. Finish with a smooth coat of insulating cement.

b. For pipe sizes 4" and larger, fit segments of pipe insulation equal in thickness to adjoining insulation and secure with No 20 gage galvanized annealed steel wire. Finish with a smooth coat of insulating cement.

c. In lieu of the foregoing methods, the use of pre-molded fiberglass fittings of the same thickness of adjoining pipe insulation will be accepted. Finish with a smooth coat of insulating cement.

d. In lieu of the foregoing methods, the use of preformed PVC fitting covers with factory precut Hi-Lo Temp insulation of the same thickness as adjoining pipe insulation will be accepted. Valves, fittings, etc. shall be insulated by applying the proper factory precut Hi-Lo Temp insulation insert to the pipe fitting, valve, etc. The ends of the Hi-Lo Temp insulation shall be tucked snugly into the throat of the fitting, valve etc. and the edges adjacent to the pipe covering tufted and tucked in, fully insulating the pipe fitting, valve, etc. A vapor barrier mastic compatible with the PVC shall be applied around the edges of the adjoining pipe insulation and on the fitting cover throat overlap seam. The PVC fitting cover shall then be applied and shall be secured with pressure sensitive tape along the circumferential edges. The tape shall extend over the adjacent pipe insulation and have an overlap on itself at least 2" on the downward side.

B. Facing or Jackets

1. Cold Water Piping

a. Insulation on piping shall have a vapor barrier jacket of white kraft paper outer surface bonded to aluminum foil and reinforced with fiberglass yarn. Longitudinal laps and butt strips shall be smoothly secured with insulation adhesive. Vapor barrier jackets on insulation must be applied with a

continuous unbroken vapor seal. The use of staples on vapor barrier jacketed insulation is not permitted.

b. Insulation on valves, fittings, water meter, etc., shall be vapor sealed by applying glass cloth embedded between two 1/16" thick coats of vapor barrier coating. Lap seal glass cloth at least 2" on itself and the adjoining insulation.

c. The ends of cold water pipe insulation shall be sealed off at all flanges, fittings, valves and interval of 21' on continuous runs of pipe with Foster fire resistant vapor barrier coating BF 30-35, Epolux 660 or approved equal.

C. Insulation and Protection at Points of Support

1. Install inserts made from rigid calcium silicate pipe insulation, in lieu of pipe insulation specified above, at all points of support. Inserts shall be not less than 12" long and of thickness equal to adjoining insulation. A jacket shall be installed over the insert with longitudinal laps and butt strips for circumferential joints smoothly secured with insulation adhesive. Jacket shall provide vapor barrier where required.

2. Install galvanized steel shields between supports and inserts. Shields shall be formed to fit the insulation and shall extend up to the center line of the pipe and of the length specified for the inserts. Supports shall not pierce the insulation and all vapor barriers shall be unbroken and continuous.

D. Insulation and Protection of Piping Exposed to Freezing Temperatures (Water and Fire Service)

Piping to be frost proofed (heat traced) shall be insulated with two layers of preformed polyisocyanurate closed cell insulation with a k-factor of 0.19 at 75°F mean temperature and factory applied Polyvinylidene Chloride (PVDC) vapor retarder film for use in the sanitary, domestic water supply and fire protection service lines. Rigid-foam insulation available in 2.0 lb/ft^3 and 24 psi compressive strength average value for parallel to rise (thickness), the equal to Trymer 2000 with Saran Vapor Retarder at thicknesses of 1.5” or less by The Dow Chemical Company insulation. Thickness of each layer shall be 1” thick for pipe sizes up to and including 2” and 1-1/2” thick for larger pipe sizes. The outer layer shall be jacketed as specified for cold water piping in Paragraph 3.2 B of this Section. The final insulation shall be protected with not lighter than 0.016” aluminum casing. All water piping shall have electric heat tracing cable installed on the piping prior to piping being covered by insulation.

1. Existing heat tracing cable on the water pipe shall be repaired and replaced in kind as required to suit the relocation of the water pipe.

3.3 PROTECTION AND REPLACEMENT:

A. Replace insulation damaged during construction which cannot be repaired satisfactorily, including units with vapor barrier damage and moisture saturated units.

B. Protection

Insulation worker shall advise Contractor of required protection for insulation work during remainder of construction period, to avoid damage and deterioration.

3.4 LABELING:

A. After the finished coat of paint has been applied to the insulation, this contractor shall do all pipeline identification labeling as specified in Section 15422 - "Tags, Charts and Identification."

PART 4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Insulation” and all associated work in this section shall be included in the Division 15 lump sum bid line item C15-005-001.0 for “Plumbing & Domestic Water Systems" on the Bid Price Sheet.

END OF SECTION

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SECTION 16010 - BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Basic electrical requirements applicable to the Work.

1.2 REFERENCED SECTIONS:

(None referenced)

1.3 CITED STANDARDS:

A. American Society for Testing and Materials (ASTM):

ASTM E814: Standard Test Method for Fire Tests of Through-Penetration Fire Stops

B. Factory Mutual Research Corporation (FM):

FM Approval Guide

C. InterNational Electrical Testing Association (NETA):

NETA ATS: Acceptance Testing Specifications for Electric Power Distribution Equipment and Systems

D. National Electrical Contractors Association (NECA):

NECA 1: Standard Practices for Good Workmanship in Electrical Contracting

E. National Electrical Manufacturers Association (NEMA):

NEMA 250: Enclosures for Electrical Equipment (1000 Volts Maximum)

F. National Electrical Safety Code (NESC)

G. National Fire Protection Association (NFPA):

NPFA 70: National Electrical Code (NEC)

H. Underwriters Laboratories, Inc. (UL):

UL 1479 Standard for Fire Tests of Penetration Firestops

UL Fire Resistance Directory

I. NJ Transit Rail Operations

EP2: Specifications for Pipeline Occupancy on NJ Transit Property

J. NJ Transit Commuter Rail Stations Guidelines and Standards Manual

K. NJ Transit Electrical Operating Instructions TRO-3 2011

1.4 NOTED RESTRICTIONS:

A. Contractor is not permitted to work on energized cables, equipment or devices. Work shall only be performed on de-energized connections. Coordinate timing of electrical outages with NJ Transit.

B. Connections to existing Hoboken substation only with the full coordination and assistance of NJ Transit Electrical Personnel.

C. Do not interrupt services or systems unless authorized by NJ Transit Electrical personnel.

D. The Contractor shall be held to have examined the site and to have compared it with the Drawings and Specifications, and deemed to have been satisfied as to the conditions existing at the site, as relating to the actual conditions of the site at the time estimating the Work, the storage and handling of materials, and all other matters as may be incidental to the Work under the Contract, before bidding, and no allowance will subsequently be made to the Contractor by reason of any error due to the Contractor's neglect to comply with the requirements of this clause.

E. The Contractor shall remove, relocate, replace, adjust or adapt, all existing conduit, wiring and other electric equipment or apparatus, as required, to provide a complete installation.

The Work shall include, providing all materials, all necessary extensions, connections, cuttings, repairing, adapting and other Work incidental thereto, together with such temporary connections as may be required to maintain service pending the completion of the permanent Work. All Work shall be left in good working order, and in a condition equal to the adjacent new or existing Work.

1.5 QUALITY CONTROL:

A. Comply with the requirements of General Provisions.

1.6 SUBMITTALS:

A. Comply with the requirements of General Provisions.

B. Product data for each specified product.

C. Coordination drawings in accordance with the requirements of General Provisions.

D. Dimensioned drawings showing electrical equipment layouts on all platforms and electrical rooms

1.7 DELIVERABLES:

A. Test reports.

PART 2 - PRODUCTS

2.1 GENERAL:

A. Equipment, materials, and accessories shall be furnished as necessary to complete the Work.

B. Products and materials shall comply with the requirements of the cited standards.

C. Products and materials shall be suitable for the intended application, with regard to rating, listing, and labeling. Short circuit current rating of equipment shall be as shown on drawings.

D. Conduits to be concealed in concrete or other parts of the existing structure shall be of the corrosion resistant type and shall be installed in suitable chases and openings cut by the Contractor as directed by the Engineer. Such conduits shall be properly protected and supported, to prevent their becoming injured or choked with cement during the restoration of surfaces. Concrete shall conform to and shall be mixed and placed as specified herein elsewhere.

E. Products and materials shall be new, and of recent manufacture.

2.2 CONCRETE BASES:

A. Forms and reinforcing: As specified in Division 3.

B. Concrete: 3,000 psi, 28-day compressive strength as specified in Division 3.

2.3 PROTECTIVE COATINGS:

A. Factory-applied and field-applied protective coatings shall protect materials and equipment from rust and corrosion damage.

B. Protective coatings shall be suitable for the atmospheric conditions encountered.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Transmit submittals and deliverables required by this Section.

B. Furnish products as indicated.

C. Ensure substrates are in suitable condition to receive the work of this Section.

3.2 WORK PRACTICES:

A. General work practices for electrical construction shall be in accordance with NECA 1.

3.3 PENETRATION OF WATERPROOF CONSTRUCTION:

A. Minimize penetration of waterproof construction, including roofs, pits and vaults, exterior walls and interior waterproof construction. Where such penetrations are necessary, provide curbs, sleeves, shields, flashing, fittings and caulking to make penetrations watertight.

3.4 PENETRATION OF FLOORS AND WALLS:

A. Maintain the fire resistance rating of floors and walls.

B. Provide fire stop products that are FM approved, listed in the UL Fire Resistance Directory under categories XHCR and XHEZ, and conform to ASTM E814 and UL 1479. The fire stop system shall have an F-rating of not less than the rating of the wall or floor penetrated.

3.5 EQUIPMENT ENCLOSURES:

A. Provide equipment enclosures to suit the application and environmental conditions encountered.

B. Conform to NEMA 250, unless otherwise indicated.

C. Provide submersible type and NEMA 4X stainless steel enclosures as shown on the contract drawings.

3.6 SUPPORTS, HANGERS AND FOUNDATIONS:

A. Provide supports, hangers, braces, attachments and foundations required for the Work. Support and set work without placing strains on the materials, equipment, or the building structure.

3.7 INSTALLATION:

A. Install and connect equipment and devices in accordance with manufacturers' recommendations and applicable requirements of NFPA 70 (National Electrical Code) and NECA 1.

B. Provide matching receptacles for equipment having cord and plug connections. Install strain-relief grips and clamps for cord connections.

C. Clean and touch-up protected surfaces that become scratched, marred or otherwise damaged.

D. No tie-ins to or work in the vicinity of existing services shall proceed without advance notification and release by NJ Transit.

E. Do not interrupt services of systems unless authorized by NJ Transit Electrical personnel.

3.8 FIELD TESTING AND ADJUSTMENTS PRIOR TO ACCEPTANCE TESTING:

A. Unless otherwise indicated, the party responsible for installation shall perform the following inspections and tests on each system, equipment item, and product:

1. Check wiring for continuity, shorts, and grounds.

2. Check the setting of protective devices.

3. Perform insulation tests using an electronic "Megger" tester.

4. Actuate safety devices. Verify correct operation.

B. Clean, adjust and test equipment and systems in accordance with the manufacturer's instructions prior to initial operation. Do not operate equipment unless proper safety devices and controls are operational. Provide maintenance and service for equipment that is operated during construction and protect the equipment.

3.9 ACCEPTANCE TESTING:

A. Unless otherwise indicated, perform acceptance testing in accordance with applicable sections of the “Acceptance Testing Specifications for Electric Power Distribution equipment and Systems”. The referenced publication is copyrighted by the InterNational Electrical Testing Association (NETA), P.O. Box 687, 106 Stone Street, Morrison, CO 80465. Engage the services of an independent NETA accredited 3rd party company. Where NETA testing specifications are not applicable, perform acceptance testing in accordance with the manufacturer’s recommendations.

B. Perform acceptance testing in the presence of NJ Transit Electrical personnel or their designees.

C. Deliver a test report.

3.10 INSPECTION:

A. Work will be inspected by the State of New Jersey Department of Community Affairs (DCA) as the Authority Having Jurisdiction (AHJ). Coordinate with the AHJ.

B. Obtain and pay for permits, certificates, and inspection fees.

3.11 ASBESTOS-CONTAINING AND LEAD-CONTAINING MATERIALS:

A. Unless otherwise indicated, do not disturb materials which may contain asbestos or perform work in the presence of friable materials which may contain asbestos. Report the presence of suspect materials.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Basic Electrical Requirements” and all associated work in this section shall be included in the Division 16 lump sum bid line item C16-000-001.0 for “Electrical" on the Bid Price Sheet.

END OF SECTION

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SECTION 16011 – OVERCURRENT PROTECTIVE DEVICE SHORT-CIRCUIT STUDY & ARC-FLASH STUDY

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes a computer-based, fault-current study & Arc-Flash Study to determine the minimum interrupting capacity of circuit protective devices & hazard distance and the incident energy to which personnel could be exposed during work on or near electrical equipment.

B. The short circuit/arc flash/ shall be coordinated with the switchboard, panelboard, enclosed switch, breaker, variable frequency drive, and other vendors which require protection.

C. Include a short circuit study for the entire power distribution system to assure all devices provided under this Division and devices provided under other Divisions have sufficient withstand capability to allow safe flow of fault currents if the device is not required to interrupt the fault, and sufficient fault clearing ability to safely operate under a phase to ground, phase-to-neutral and three-phase bolted fault condition for fault clearing devices. This Contractor shall be responsible to modify or change the protective devices and meet the requirements of the short circuit study at no additional cost to NJT. Series rating of device in UL approved combinations shall not be permitted.

D. The Contractor shall be responsible for performing the short circuit/arc-flash study in relationship to all equipment associated with the Days Yard Wayside Power System and coordinating the short circuit rating of all components of the Days Yard Wayside Power System including but not limited to the Substation (transformers, switchgear, switches, etc.), Wayside Power Outlets, and Wayside Power Control Stations.

1.2 DEFINITIONS

A. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

B. One-Line Diagram: A diagram which shows, by means of single lines and graphic symbols, the course of an electric circuit or system of circuits and the component devices or parts used therein.

C. Protective Device: A device that senses when an abnormal current flow exists and then removes the affected portion from the system.

D. SCCR: Short-circuit current rating.

E. Service: The conductors and equipment for delivering electric energy from the serving utility to the wiring system of the premises served.

1.3 ACTION SUBMITTALS

A. Product Data: For computer software program to be used for studies.

B. Other Action Submittals: Submit the following after the approval of system protective devices submittals. Submittals shall be in digital form.

1. Short-circuit study input data, including completed computer program input data sheets.

2. Short-circuit study and equipment evaluation report; signed, dated, and sealed by a qualified professional engineer.

a. Submit study report for action prior to receiving final approval of the distribution equipment submittals. If formal completion of studies will cause delay in equipment manufacturing, obtain approval from Engineer for preliminary submittal of sufficient study data to ensure that the selection of devices and associated characteristics is satisfactory.
b. Revised single-line diagram, reflecting field investigation results and results of short-circuit study.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For short-circuit study software, certifying compliance with IEEE 399

B. A certification letter shall be provided by an Independent Electrical Testing Agency that all fuse ratings and types, circuit breakers and types, settings of all circuit breakers, relays, electrical devices, ground fault systems, etc. are in accordance with the findings and recommendations of the approved Overcurrent Protective Device, Short Circuit Studies.

C. A certification letter shall be provided by an Independent Electrical Testing Agency that all Arc-Flash Labeling is in accordance with the findings and recommendations approved Arc-Flash Study.

D. The Independent Electrical Testing Agency will be hired by the contractor at no additional cost to the Owner.

1.5 QUALITY ASSURANCE

A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are unacceptable.

B. Short-Circuit Study Software Developer Qualifications: An entity that owns and markets computer software used for studies, having performed successful studies of similar magnitude on electrical distribution systems using similar devices.

1. The computer program shall be developed under the charge of a licensed professional engineer who holds IEEE Computer Society's Certified Software Development Professional certification.

C. Short-Circuit Study Specialist Qualifications: Professional engineer in charge of performing the study and documenting recommendations, licensed in the state where Project is located. All elements of the study shall be performed under the direct supervision and control of this professional engineer.

D. Field Adjusting Agency Qualifications: An independent agency, with the experience and capability to adjust overcurrent devices and to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 COMPUTER SOFTWARE

A. Subject to compliance with requirements, provide software by one of the following:

1. SKM Systems Analysis, Inc.
2. ETAP / Operation Technology, Inc.
3. Power Analytics, Corporation.
4. ESA Inc.
5. Or approved equal

B. Comply with IEEE 399 and IEEE 551.

C. Analytical features of fault-current-study computer software program shall have the capability to calculate "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.

D. Computer software program shall be capable of plotting and diagramming time-current-characteristic curves as part of its output.

2.2 SHORT-CIRCUIT STUDY REPORT CONTENTS

A. Executive summary.

B. Study descriptions, purpose, basis, and scope. Include case descriptions, definition of terms, and guide for interpretation of the computer printout.

C. One-line diagram, showing the following:

1. Protective device designations and ampere ratings.
2. Cable size and lengths.
3. Transformer kilovolt ampere (kVA) and voltage ratings.

4. Motor and generator designations and kVA ratings.

5. Switchgear, switchboard, motor-control center, and panelboard designations.

D. Comments and recommendations for system improvements, where needed.

E. Protective Device Evaluation:

1. Evaluate equipment and protective devices and compare to short-circuit ratings.

2. Tabulations of circuit breaker, fuse, and other protective device ratings versus calculated short-circuit duties.

3. For 600-V overcurrent protective devices, ensure that interrupting ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.

4. For devices and equipment rated for asymmetrical fault current, apply multiplication factors listed in the standards to 1/2-cycle symmetrical fault current.

5. Verify adequacy of phase conductors at maximum three-phase bolted fault currents; verify adequacy of equipment grounding conductors and grounding electrode conductors at maximum ground-fault currents. Ensure that short-circuit withstand ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.

F. Short-Circuit Study Input Data: As described in "Power System Data" Article in the Evaluations.

G. Short-Circuit Study Output:

1. Low-Voltage Fault Report: Three-phase and unbalanced fault calculations, showing the following for each overcurrent device location:

a. Voltage.
b. Calculated fault-current magnitude and angle.
c. Fault-point X/R ratio.
d. Equivalent impedance.

2. Momentary Duty Report: Three-phase and unbalanced fault calculations, showing the following for each overcurrent device location:

a. Voltage
b. Calculated symmetrical fault-current magnitude and angle.
c. Fault-point X/R ratio.
d. Calculated asymmetrical fault currents:

1) Based on fault-point X/R ratio.
2) Based on calculated symmetrical value multiplied by 1.6.
3) Based on calculated symmetrical value multiplied by 2.7.

3. Interrupting Duty Report: Three-phase and unbalanced fault calculations, showing the following for each overcurrent device location:

a. Voltage.
b. Calculated symmetrical fault-current magnitude and angle.
c. Fault-point X/R ratio.
d. No AC Decrement (NACD) ratio.
e. Equivalent impedance.
f. Multiplying factors for 2-, 3-, 5-, and 8-cycle circuit breakers rated on a symmetrical basis.
g. Multiplying factors for 2-, 3-, 5-, and 8-cycle circuit breakers rated on a total basis.

4. Incident Energy and Flash Protection Boundary Calculations:

a. Arcing fault magnitude.
b. Protective device clearing time.
c. Duration of arc.
d. Arc-flash boundary.
e. Working distance.
f. Incident energy.
g. Hazard risk category.
h. Recommendations for arc-flash energy reduction.

2.3 ARC-FLASH WARNING LABELS

A. Comply with requirements in Section 16195 "Electrical Identification" Produce a 3.5-by-5-inch thermal transfer label of high-adhesion polyester for each work location included in the analysis.

B. The label shall have an orange header with the wording, "WARNING, ARC-FLASH HAZARD," and shall include the following information taken directly from the arc-flash hazard analysis:

1. Location designation.

2. Nominal voltage.

3. Flash protection boundary.

4. Hazard risk category.

5. Incident energy.

6. Working distance.

7. Engineering report number, revision number, and issue date.

8. Labels shall be machine printed, with no field-applied markings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Obtain all data necessary for the conduct of the study.

1. Verify completeness of data supplied on the one-line diagram. Call any discrepancies to the attention of Engineer.

2. For equipment provided that is Work of this Project, use characteristics submitted under the provisions of action submittals and information submittals for this Project.

3. For equipment that is existing to remain, obtain required electrical distribution system data by field investigation and surveys, conducted by qualified technicians and engineers. The qualifications of technicians and engineers shall be qualified as defined by NFPA 70E.

B. Gather and tabulate the following input data to support the short-circuit study. Comply with recommendations in IEEE 551 as to the amount of detail that is required to be acquired in the field. Field data gathering shall be under the direct supervision and control of the engineer in charge of performing the study, and shall be by the engineer or its representative who holds NETA ETT Level III certification or NICET Electrical Power Testing Level III certification.

1. Product Data for Project's overcurrent protective devices involved. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.

2. Obtain electrical power utility impedance at the service.

3. Power sources and ties.

4. For transformers, include kVA, primary and secondary voltages, connection type, impedance, X/R ratio, taps measured in percent, and phase shift.

5. For reactors, provide manufacturer and model designation, voltage rating, and impedance.

6. For circuit breakers and fuses, provide manufacturer and model designation. List type of breaker, type of trip, SCCR, current rating, and breaker settings.

7. Generator short-circuit current contribution data, including short-circuit reactance, rated kVA, rated voltage, and X/R ratio.

8. Busway manufacturer and model designation, current rating, impedance, lengths, and conductor material.

9. Motor horsepower and NEMA MG 1 code letter designation.

10. Cable sizes, lengths, number, conductor material and conduit material (magnetic or nonmagnetic).

3.2 SHORT-CIRCUIT STUDY

A. Perform study following the general study procedures contained in IEEE 399.

B. Calculate short-circuit currents according to IEEE 551.

C. Base study on the device characteristics supplied by device manufacturer.

D. The extent of the electrical power system to be studied is indicated on Drawings.

E. Short circuit analysis shall be performed for the new Days Yard Wayside Power System and the new SL1 Signal Distribution System.

1. Begin short-circuit current analysis at the Henderson Street Substation service, extending down to the system overcurrent protective devices to Days Yard switchboard low-voltage load buses.

2. Begin short circuit analysis at 25kVA and 75kVA transformers on the overhead signal line, extending down to the system overcurrent protective devices to normal system low-voltage buses.

F. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for Project. Study all cases of system-switching configurations and alternate operations that could result in maximum fault conditions.

G. The calculations shall include the ac fault-current decay from induction motors, synchronous motors, and asynchronous generators and shall apply to low-voltage, three-phase ac systems. The calculations shall also account for the fault-current dc decrement, to address the asymmetrical requirements of the interrupting equipment.

1. For grounded systems, provide a bolted line-to-ground fault-current study for areas as defined for the three-phase bolted fault short-circuit study.

H. Calculate short-circuit momentary and interrupting duties for a three-phase bolted fault at each of the following for the Days Yard Wayside Power System:

1. Electric supply termination point.

2. Unit substation primary and secondary terminals (DYSG)

3. Low-voltage switchboard (DYSB-1 & DYSB-2)

4. Branch circuit outlets and control stations.

I. Calculate short-circuit momentary and interrupting duties for a single-phase fault at each of the following for the SL1 Signal Line System:

1. Electric supply termination point (25kVA and 75 kVA transformers)

2. Low voltage enclosed circuit breakers

3. Low voltage branch circuit panelboards

4. Disconnect Switches

3.3 ADJUSTING

A. Make modifications to equipment as required to accomplish compliance with short-circuit study.

3.4 ARC-FLASH HAZARD ANALYSIS

A. Comply with NFPA 70E and its Annex D for hazard analysis study.

B. Use the short-circuit study output and the field-verified settings of the overcurrent devices.

C. Calculate maximum and minimum contributions of fault-current size.

1. The minimum calculation shall assume that the utility contribution is at a minimum and shall assume no motor load.

2. The maximum calculation shall assume a maximum contribution from the utility and shall assume motors to be operating under full-load conditions.

D. Calculate the arc-flash protection boundary and incident energy at locations in the electrical distribution system where personnel could perform work on energized parts.

E. Include all low-voltage equipment locations operating at 50 volts and higher.

F. Safe working distances shall be specified for calculated fault locations based on the calculated arc-flash boundary, considering incident energy of 1.2 cal/sq.cm.

G. Incident energy calculations shall consider the accumulation of energy over time when performing arc-flash calculations on buses with multiple sources. Iterative calculations shall take into account the changing current contributions, as the sources are interrupted or decremented with time. Fault contribution from motors and generators shall be decremented as follows:

1. Fault contribution from induction motors should not be considered beyond three to five cycles.

2. Fault contribution from synchronous motors and generators should be decayed to match the actual decrement of each as closely as possible (e.g., contributions from permanent magnet generators will typically decay from 10 per unit to three per unit after 10 cycles).

H. Arc-flash computation shall include both line and load side of a circuit breaker as follows:

1. When the circuit breaker is in a separate enclosure.

2. When the line terminals of the circuit breaker are separate from the work location.

I. Base arc-flash calculations on actual overcurrent protective device clearing time. Cap maximum clearing time at two seconds based on IEEE 1584, Section B.1.2.

3.5 POWER SYSTEM DATA

A. Obtain all data necessary for the conduct of the arc-flash hazard analysis.

1. Verify completeness of data supplied on the one-line diagram on Drawings. Call discrepancies to the attention of Engineer.

2. For new equipment, use characteristics submitted under the provisions of action submittals and information submittals for this Project.

3. For existing equipment, whether or not relocated, obtain required electrical distribution system data by field investigation and surveys, conducted by qualified technicians and engineers.

B. Gather and tabulate the following input data to support Arc-flash study. Comply with recommendations in IEEE 1584 and NFPA 70E as to the amount of detail that is required to be acquired in the field. Field data gathering shall be under the direct supervision and control of the engineer in charge of performing the study, and shall be by the engineer or its representative who holds NETA ETT Level III certification or NICET Electrical Power Testing Level III certification.

1. Obtain electrical power utility impedance at the service.

2. Power sources and ties.

3. For transformers, include kVA, primary and secondary voltages, connection type, impedance, X/R ratio, taps measured in per cent, and phase shift.

4. For circuit breakers and fuses, provide manufacturer and model designation. List type of breaker, type of trip and available range of settings, SCCR, current rating, and breaker settings.

5. Motor horsepower and NEMA MG 1 code letter designation.

6. Low-voltage cable sizes, lengths, number, conductor material and conduit material (magnetic or nonmagnetic).

3.6 LABELING

A. Apply one arc-flash label for 600-V ac, 480-V ac, and applicable 208-V and 120-V ac distribution panelboards, panelboards, and disconnects.

3.7 APPLICATION OF WARNING LABELS

A. Install the arc-fault warning labels under the direct supervision and control of the Arc- Flash Study Specialist.

3.8 DEMONSTRATION

A. Engage the Arc-Flash Study Specialist to train Owner's maintenance personnel in the potential arc-flash hazards associated with working on energized equipment and the significance of the arc-flash warning labels

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Overcurrent Protective Device Short-Circuit Study & Arc-Flash Study” and all associated work in this section shall be included in the Division 16 lump sum bid line item C16-010-001.0 for “Overcurrent Protective Device Short-Circuit Study & Arc-Flash Study " on the Bid Price Sheet.

END OF SECTION

SECTION 16110 - RACEWAYS

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for raceways, fittings and accessories.

1.2 REFERENCED SECTIONS:

A. Section 16010 Basic Electrical Requirements

B. Section 16170 Grounding

C. Section 16190 Supports

1.3 CITED STANDARDS:

A. American National Standards Institute (ANSI):

C177 Test for Thermal Conductivity of Materials by Means of the Guarded Hot Plate

C80.1Rigid Steel Conduit, Zinc Coated

C80.3Electrical Metallic Tubing, Zinc Coated

D570 Test Method of Water Absorption of Plastic

D792 Tests for Specific Gravity and Density of Plastics by Displacement

D2583 Test for Indentation Hardness of Plastics by Means of a Barcol Impressor

B. National Electrical Contractors Association (NECA):

101 Standard for Installing Steel Conduit (Rigid, IMC, EMT)

TC14 Filament-Wound Reinforced Thermosetting Resin Conduit and Fittings

C. National Electrical Manufacturers Association (NEMA):

FB1 Fittings, Cast Metal Boxes and Conduit Bodies for Conduit and Cable Assemblies

RNI Polyvinyl Choride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.

TC2 Electrical Polyvinyl Chloride (PVC) Tubing and Conduit

TC3 Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing

TC 14.AG Aboveground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings

D. Underwriters Laboratories Inc. (UL):

1	Flexible Metal Conduit
6	Rigid Metal Conduit
360	Liquid-Tight Flexible Steel Conduit
051	Schedule 40 and 80 Rigid PVC Conduit
797	Electrical Metallic Tubing
2515	Aboveground Reinforced Thermosetting Resin Conduit

1.4 NOTED RESTRICTIONS:

(None noted)

1.5 QUALITY CONTROL:

(None listed)

1.6 SUBMITTALS:

A. Product data for each specified product.

B. Shop drawings showing routing of raceways, indicating locations of pullboxes and associated equipment, for lighting and power wiring.

1.7 DELIVERABLES:

(None listed)

PART 2 - PRODUCTS

2.1 GENERAL:

A. Manufacturers: Allied Tube and Conduit, O-Z/Gedney, Carlon Riser-Gard, Triangle Wire and Cable, Inc., Wheatland Tube Co., The Wiremold Co. Chatsworth, B-Line, Thomas and Betts, Champion Fiberglass or approved equal.

2.2 RACEWAYS:

A. PVC rigid nonmetallic conduit: Schedule 80 conforming to NEMA TC2 and UL651.

B. Coated rigid metal conduit (Type RMC): PVC-coated rigid galvanized steel conduit, hot-dip galvanized outside and inside with 40 mil thick coating confirming to NEMA RN1 dark grey color to match existing.

C. Rigid metal conduit (Type RMC): Rigid galvanized steel conduit, hot-dip galvanized outside and inside, conforming to ANSI C80.1 and UL 6.

D. Flexible metal conduit (Type FMC): Hot-dip galvanized interlocked steel construction, conforming to UL 1.

E. Liquidtight flexible metal conduit (type LFMC): Hot-dip galvanized spiral wound steel construction, coated with a liquidtight jacket of flexible polyvinyl chloride, conforming to UL 360.

F. Reinforced Thermosetting Resin Coated (type RTRC): Fiberglass conduit, manufactured using single circuit filament winding process, UV Stable, standard wall thickness, conforming to UL 2515.

G. Size raceways for the quantity and size of conductors, thickness and type of insulation, 3/4-inch nominal trade size minimum.

2.3 FITTINGS AND ACCESSORIES:

A. Conduit bodies: Malleable iron with cadmium or galvanized finish, conforming to NEMA FB1.

B. Couplings for rigid galvanized steel conduits: Galvanized threaded steel or malleable iron.

C. Locknuts and grounding locknuts: Galvanized steel or malleable iron.

D. Three-piece conduit couplings for rigid galvanized steel conduits: Galvanized steel or malleable iron.

E. Connectors for flexible metal conduits: Malleable iron, two-screw-type.

F. Liquidtight connectors for liquidtight flexible metal conduits: Malleable iron with O-ring seal.

G. Conduit expansion/contraction fittings: Longitudinal gland-type, with external bonding jumpers, O-Z/Gedney type AX, or approved equal.

H. Conduit deflection/expansion fittings: External bonding jumpers, O-Z/Gedney type DX, or approved equal.

I. Insulated bushings: Malleable iron with thermoset plastic inner lining.

J. Drag lines: ¼-inch polypropylene utility rope.

K. PVC conduit bodies and fittings: NEMA TC3.

L. PVC-coated conduit bodies and fittings: Rigid metallic with 40-mil PVC coating, color to match conduit color.

M. Conduit sealing bushings: O-Z/Gedney or approved equal.

N. Bends, fittings and accessories for RTRC conduits shall be fiberglass.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Furnish products as shown on contract drawings.

B. Ensure substrates are in suitable condition to receive the work of this Section.

3.2 RACEWAY SCHEDULE:

A. Provide rigid galvanized steel conduits as shown on contract drawings, including on steel monopoles.

B. Provide PVC schedule 80 conduits below grade in concrete encased ductbanks or direct-buried where indicated on drawings.

C. Provide RTRC through existing structural trusses.

D. Provide PVC coated rigid conduits through the slabs. Run in the center of the slab.

E. Provide short lengths of flexible metal conduit in dry locations for final termination to equipment subject to vibration or requiring adjustment.

F. Provide short lengths of liquidtight flexible metal conduit in damp or wet locations for final termination to equipment subject to vibration or requiring adjustment.

3.3 INSTALLATION:

A. Comply with the requirements of Section 16010.

B. Install conduits in accordance with manufacturer's instructions and NECA 101.

C. Install conduits concealed in finished areas. Conduits in unfinished areas may be installed exposed.

D. Arrange conduit terminations in cabinets with the ends at the same level.

E. Cut off conduit ends square. Ream conduit ends and clean off burrs.

F. Terminate conduits in boxes and cabinets using two locknuts and an insulated bushing. In damp or wet locations, use a watertight hub with an insulated throat.

G. Install conduit runs with no more than 100 feet or three 90° bends between pull points. Install conduit runs horizontal or vertical, and parallel or perpendicular to walls.

H. Ground conduits in accordance with Section 16170.

I. Provide supports in accordance with Section 16190. Support conduit systems at intervals not greater than 5 feet and within 18 inches of each conduit fitting, box, or cabinet.

J. Install conduit runs above water piping where possible, and at least 12 inches away from high temperature piping unless otherwise indicated.

K. Provide fire stopping in accordance with Section 16010.

L. Install draglines in empty conduits.

M. Install expansion fittings where conduits cross building expansion joints and every 200 feet on straight runs.

N. Provide drain fittings at the low point of conduit runs.

O. Provide seal fittings to prevent circulation of air from warmer to colder sections of conduit runs.

P. Provide conduit sealing bushings where aerial cables enter / emerge from outdoor conduits.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Raceways” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C16-005-001.0 - Raceways on Catenary Truss D8+39
2. C16-005-002.0 - Raceways on Catenary Truss D10+37
3. C16-005-003.0 - Raceways on Catenary Truss D13+21
4. C16-005-004.0 - Raceways on Catenary Truss D14+93
5. C16-005-005.0 - Raceways on Catenary Truss D17+69.15
6. C16-005-006.0 - Raceways on Catenary Truss D18+66.5
7. C16-005-007.0 - Raceways on Trainshed Roof

END OF SECTION

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SECTION 16118 – UNDERGROUND DUCTBANKS

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for underground ductbanks, manholes, handholes, and accessories.

1.2 REFERENCED SECTIONS:

A. Section 16010 Basic Electrical Requirements

B. Section 02160 Support of Excavation

C. Section 02225 Trenching and Backfilling for Utilities

D. Section 03300 Cast-In-Place Concrete

1.3 CITED STANDARDS:

A. American Society for Testing and Materials (ASTM):

A48 Specification for Gray Iron Castings

C177 Test for Thermal Conductivity of Materials by Means of the Guarded Hot Plate.

C857 Standard Practice for Minimal Structural Design Loading for Underground Precast Concrete Utility Structures.

C858 Standard Specification for Underground Precast Concrete Utility Structures.

D149 Test Methods for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies.

D257 Test methods of D.C. Resistance or Conductance of Inspection Materials.

D570 Test Method for Water Absorption of Plastic

D792 Tests for Specific Gravity and Density of Plastics by Displacement

D2583 Test for Indentation Hardness of Plastics by Means of a Barcol Impressor.

B. Underwriters Laboratories (UL):

651 Standard for Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings

C. NJ Transit Rail Operations

EP2 Specifications for Pipeline Occupancy on NJ Transit Property

1.4 NOTED RESTRICTIONS:

(None noted)

1.5 QUALITY CONTROL:

A. A Licensed Professional Engineer registered in the State of New Jersey shall seal design drawings and calculations for precast manholes.

B. The Engineer and construction manager reserve the right to make any tests or inspections that are deemed necessary at the manufacturer's plant. Grant the Engineer free entry to all parts of the plant that concern the manufacture of the pertinent material/equipment at all times while work under this Specification is being performed. Notify the construction manager when the finished material/equipment is ready for shipment.

C. Provide a two-year warranty from the date of final acceptance for materials.

1.6 SUBMITTALS:

A. Product data for each specified product.

B. Shop drawings and calculations showing intended cable pulls in underground ducts.

C. Structural calculations for precast enclosures.

D. Shop drawings for pre-cast manholes.

1.7 DELIVERABLES:

A. Compressive strength test reports for cast-in-place ductbanks as defined in Section 03300.

PART 2 - PRODUCTS

2.1 GENERAL:

A. Manufacturers: (None listed)

2.2 DUCTS:

A. PVC rigid nonmetallic conduit: Schedule 80 conforming to NEMA TC2 and UL651. Minimum 2-inch nominal trade size, unless otherwise noted. For manholes 2kV or less, minimum size shall be 4" schedule 80 PVC. For manholes 2kV to 15kV, minimum size shall be 5" schedule 80 PVC.

B. All ducts shall have a pull string 1/4" or equivalent for future use

2.3 DUCT ACCESSORIES:

A. Couplings, expansion couplings, end bells, and other miscellaneous accessories shall be of the same manufacturer and quality or gauge as the duct.

B. Join dissimilar ducts with adapter couplings manufactured by one of the vendors of the two duct types and specifically designed for the pieces being joined.

C. Join nonmetallic ducts by means of duct adhesive materials recommended by the manufacturer to create watertight joints.

D. Duct marker tape 6 inch wide, red, inscribed, "Caution-Electric Line Buried Below", detectable by a metal detector.

E. Flexible connectors to equipment subject to settlement or frost heaves.

2.4 CONCRETE ENCASEMENT:

A. Concrete: 5,000 psi @ 28 days and in accordance with Section 03300.

2.5 HANDHOLES:

A. Precast structures conforming to ASTM C858

B. Structures: E80 railroad loading.

C. Shapes and sizes: As indicated.

D. Windows or openings: As indicated.

2.6 MANHOLES (Minimum requirements):

A. 2kV – 15kV manhole size: minimum 10’ L x 10’ W x 8’ D.

B. 2kV and below manhole size: minimum 8’ L x 8’ W x 8’ D.

C. Precast structures conforming to ASTM C858.

D. Structures: E80 railroad loading.

E. Two openings: One entry / rescue at least 26" round and one opening for handling materials, air supply blower, circulation, etc.

F. Steel manhole ring shall be secure (6 point uniformed space) and finish up with concrete for smooth surface finished.

G. Manhole rings shall have 2 cadweld points with 15' grounding tails.

H. All raceways entries shall have a smooth end bell flush with manhole wall.

I. Manholes shall be space at 420' apart between pull points or at transition points whichever is less distance.

J. Accessories:

1. Pulling-in irons on all walls, opposite from duct entry locations.

2. Manhole walls shall have stainless steel 1/2" Hilti anchors or equivalent spaced at 3' from center of wall all around where possible top to bottom to install racks u/g devices.

3. Cable support racks constructed of glass reinforced non-metallic material on each wall. Maximum horizontal space between supports shall be 4'-0". Rack arms of the same material with a capacity to support 450 lbs on an 8-inch arm or 350 lbs. on a 14-inch arm.

4. Each manhole shall have a ¾" x 10 ft. copper-clad ground rod in one corner, extending 6 inches into the manhole.

5. Pitch floor draining to a sump for pumping out water. Provide non-metallic sump cover minimum 12" x 12" x 3".

6. Manholes shall have rust proof ladder built-in.

7. Manhole covers:

   I. Cast iron conforming to ASTM A48, class 30B round cover at least 100lbs heavy with raised lettering reading “ELECTRIC”.
   II. Cover shall be supplied with proper tool to remove and set in-place the cover
   III. Cover nominally 36 inches in diameter.

PART 3 - EXECUTION

3.1 GENERAL:

A. Transmit submittals and deliverables required by this Section.

B. Furnish products as indicated.

C. Ensure substrates are in suitable condition to receive the work of this Section.

3.2 UNDERGROUND DUCT SCHEDULE:

A. Unless otherwise indicated all underground conduits shall be Schedule 80 PVC, with concrete encasement.

3.3 UNDERGROUND DUCTBANK PREPARATION:

A. Excavation: Provide excavation, shoring, bracing, backfilling, and grading. See Section 02220. Trenches shall be evenly graded so that ducts will have a minimum slope of three inches per hundred feet and that they shall be free of either horizontal or vertical waves. Install ducts with a uniform slope from one manhole to the next or to each manhole from a high point between the two. Trench shall be kept well-formed and dry prior to placement of ducts, and shall be kept dry until backfilled.

3.4 MANHOLE PREPARATION:

A. Excavation: Excavate, shore, brace, backfill, and grade in accordance with Section 02220.

3.6 INSTALLATION OF UNDERGROUND DUCTS:

A. Comply with the requirements of Section 16010.

B. Establish the burial depth of underground ducts so that the cover is not less than 30 inches below the top of grade. Adjust burial depth where required to avoid interferences. Where crossing under railroad tracks, top of ducts shall be at least 60 inches below the bottom of tie.

C. Perform excavation, trenching and backfilling in accordance with the requirements of applicable Sections.

D. Provide formwork, cast-in-place concrete, and reinforcing in accordance with the requirements of applicable Sections and drawings.

E. Provide waterproofing for conduits entering manholes and building walls.

F. Install ducts in accordance with the manufacturer's instructions.

G. Install straight ducts, bends, adapters, and couplings as required for the complete underground, soil-tight ductbank systems indicated. Sweeps and bends in PVC conduit runs shall utilize factory bent PVC sections.

H. Excavate trenches and establish the appropriate elevations and directions of pitch of underground ductbanks. Pitch ductbanks at a downward slope of not less than 3 inches per 100 feet, away from buildings.

I. Lay the conduit in the trench in the recommended formation. When two or more ducts are installed in a duct bank, stagger the joints 4 inches minimum, both in a horizontal and vertical direction.

J. Support ducts with spacers every 4 feet on centers. The Engineer shall approve conduit spacers. Anchor the ducts securely to prevent floating during the concrete pouring operation.

K. Align sections of ducts as straight as possible. Install bends so that they are tangent at the point of joining.

L. Make joints using couplings and adhesive applied in accordance with the manufacturer's instructions. Wipe off excess adhesive.

M. Do not attempt to repair damaged ducts. Remove each damaged section of duct and replace.

N. Connect the lower ends of 45° and 90° bends to 4 foot lengths of duct.

O. Where indicated for medium voltage circuits install reinforcing consisting of #4 bars located approximately every 6 inches on centers on the top, sides and bottom of the ductbank, tied with #3 wire loops approximately every 8 inches on centers longitudinally.

P. Pour the concrete encasement to provide at least 3 inches of concrete cover at top, sides and bottom.

Q. Use dowels to connect to existing concrete encasement and to the walls of manholes or vaults.

R. Stub up underground ducts plumb, square and level 6 inches above finished floor elevation.

S. Install marker tape along the length of the ductbank, 12 inches below grade and within 3 inches of centerline of ductbank. Provide an additional parallel warning tape for each 12-inch increment of ductbank width over a nominal 18 inches. Space additional tapes 12 inches apart, horizontally.

3.7 CLEANING UNDERGROUND DUCTS:

A. Ensure that the underground duct system has continuity and is clean.

B. Pass a flexible duct rodding device through each duct to check for continuity and cleanliness. Following the duct rodding device, pull a wire brush and mandrel through the duct once in each direction. The mandrel shall be not less than ¼ inch smaller than the inside diameter of the duct.

C. If difficulty is encountered in passage of the duct rodding device or mandrel, draw a series of wire brushes through the duct, once in each direction, using a trailing line. The wire brushes shall be 1/8 inch diameter less than the diameter of the duct, and if the correct size cannot be passed through on the initial attempt, repeat the operation until accomplished as specified.

D. If the duct is partially or fully obstructed with mud, dirt or gravel, flush clean by use of water from a long flushing nozzle attached to a water hose. After cleaning, follow the procedure outlined above for rodding and wire brushing.

E. Select a method to clean duct interior in a manner that will not damage the smooth bore.

F. After obstructions have been removed and the ducts wire-brushed clean, pull a ¼ inch polypropylene drag line in each duct, leaving a 6 foot length at each end.

G. Immediately after pulling the drag line, install a plastic plug on both ends of the duct.

3.8 MANHOLE INSTALLATION:

A. Install manholes only after final conduit grading has been determined, incorporating any field changes necessitated by underground interferences.

B. Manholes consisting of more than a single piece or casting shall be joined with a waterproof gasketing material. Additionally, the completed structure shall be externally waterproofed.

C. Manhole shaft shall be adjustable for either negative or positive grade elevation changes. Minimum shaft clearance diameter shall be 30 inches.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Underground Ductbanks” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C16-006-001.0 - Underground Ductbank “12-12”

2. C16-006-002.0 - Underground Ductbank”13-13”

3. C16-006-003.0 - Underground Ductbank “0-0”

4. C16-006-004.0 - Underground Ductbank "1-1"
5. C16-006-005.0 - Underground Ductbank "1A-1A"
6. C16-006-006.0 - Underground Ductbank "2-2"
7. C16-006-007.0 - Underground Ductbank "2A-2A"
8. C16-006-008.0 - Underground Ductbank "3-3"
9. C16-006-009.0 - Underground Ductbank "3A-3A"
10. C16-006-010.0 - Underground Ductbank "4-4"
11. C16-006-011.0 - Underground Ductbank "5-5"
12. C16-006-012.0 - Underground Ductbank "6-6"
13. C16-006-013.0 - Underground Ductbank "7A-7A"
14. C16-006-014.0 - Underground Ductbank "7B-7B"
15. C16-006-015.0 - Underground Ductbank "8-8"
16. C16-006-016.0 - Underground Ductbank "9-9"
17. C16-006-017.0 - Underground Ductbank "3V-3V"
18. C16-006-018.0 - Underground Ductbank "4V-4V"
19. C16-006-019.0 - Underground Ductbank "4H-4H"
20. C16-006-020.0 - Underground Ductbank "FG1-FG1" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
21. C16-006-021.0 - Underground Ductbank "FG2-FG2" (Conduits extending Ductbanks "F-F" & "G-G" into Manholes HMH-11, HMH-12, HMH-13, & HMH-14)
22. C16-006-022.0 - Underground Direct Buried Conduit (Wayside Power Outlet to Control Station -2C 1" at Locations 7L, 9L, Paper, and 3 Exp East)
23. C16-007-001.0 - Handhole at Signal Transformer 23-T1 (36"Lx24"Wx30"D)
24. C16-007-002.0 - Days Yard Wayside Power Manholes (10'L x 8'W x 8'D)
25. C16-007-003.0 - 15KV Power Manholes (10'L x 10'W x 8'D)

END OF SECTION

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SECTION 16121 - MEDIUM VOLTAGE CABLE

THIS SPECIFICATION IS NOT IN CONTRACT AND FOR REFERENCE ONLY

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for aerial and underground medium voltage cables.

1.2 REFERENCED SECTIONS:

A. Section 16010 Basic Electrical Requirements

1.3 CITED STANDARDS:

A. Association of Edison Illuminating Companies (AEIC):

CS6 Specification for Ethylene Propylene Rubber Insulated Shielded Power Cable Rated 5KV through 69KV

B. American National Standards Institute (ANSI):

C2 National Electrical Safety Code

C. American Society for Testing and Materials (ASTM):

B-8 Specification for Concentric Lay Stranded Copper Conductors.

D. Insulated Cable Engineers Association (ICEA):

S-68-516 Ethylene-Propylene Rubber Insulated Wire and Cable for Transmission and Distribution of Electrical Energy.

E. Institute of Electrical and Electronics Engineers (IEEE):

404 Standard for Cable Joints for Use with Extruded Dielectric Cable Rated 5000-138.000 Volts.

F. New Jersey Transit (NJT):

Electrical and Electric Traction Department Standard 21

G. Underwriters Laboratories (UL):

1072 Medium Voltage Power Cables

1.4 NOTED RESTRICTIONS:

A. After delivery, cables found not to meet specifications shall be removed from the site at the Contractor's expense.

1.5 QUALITY CONTROL:

A. Cable shall be the product of a single manufacturer.

B. Cable shall be delivered on cable reels with a minimum diameter at least 14 times the overall diameter of the cable. Each end of each length of cable shall be hermetically sealed and securely attached to the reel. Each reel shall be shrink-wrapped in addition to other standard protection.

C. Cable shall be tagged with manufacturer's name, place, and date of manufacture. Cable more than one year old is unacceptable.

D. Each cable splicer shall have current certification from an industry recognized accreditor.

1.6 SUBMITTALS:

A. Product data, clearly marked to indicate item type and size for the following materials:

1. Conductors
2. Supports
3. Insulators
4. Cross arms/brackets
5. Lightning arrestors
6. Grounding devices

B. Shop drawing showing conductors installation details.

C. Shop drawings showing location of splices.

D. Calculations of tension and sag for all types of cables.

E. Samples: A 12 inch long piece of each cable prepared to show each layer of construction. A minimum of ¾" of each layer shall be exposed.

F. Factory test reports for each reel.

1.7 DELIVERABLES:

A. Installation, testing and maintenance manual.

B. Warranty Certificate.

C. Field Test Reports.

PART 2 - PRODUCTS

2.1 GENERAL:

1. Manufacturers: Okonite, Kerite, Aetna, Hendrix or approved equal.

2.2 CABLE:

A. Three conductor, preassembled aerial, shielded 15,000 volts, type MV-105.

1. Conductor: Class B stranded copper conforming to ASTM B-8.
2. Conductor Shield: Non-conducting stress control layer.
3. Insulation: 133% level, Ethylene Propylene Rubber (EPR)
4. Insulation Shield: extruded, free-stripping semi-conducting layer
5. Concentric Shield Wires: 100%, full neutral copper
6. Jacket: Polyvinyl Chloride (PVC)
7. Standards and Ratings
    a. Conductors listed by UL as Type MV-105 per Standard UL 1071 Medium-Voltage Power Cable.
    b. Conductors listed by UL as Sunlight Resistant.
    c. Conforms to ICEA S-93-639/NEMA WC74 Shielded Power Cable 5 – 46KV.
    d. Conforms to ICEA P-79-561 Guide for Selecting Aerial Cable Messengers and Lashing Wires.

B. Two conductor, preassembled aerial spacer cable system, covered 15,000 volts.

1. Conductor: stranded hard drawn aluminum conductors.
2. Conductor Cover: resists abrasion, electrical tracking and UV degradation. Black color.
3. Spacers: polyethylene
4. Hendrix or approved equal

C. Two conductor, shielded 5,000 volts, type MV-105. Jacketed cable suitable for underground installation in ducts.

1. Conductor: Class B stranded copper conforming to ASTM B-8.
2. Conductor Shield: Non-conducting stress control layer.
3. Insulation: 133% level, Ethylene Propylene Rubber (EPR)
4. Insulation Shield: extruded, free-stripping semi-conducting layer
5. Concentric Shield Wires: 100%, full neutral copper
6. Jacket: Polyvinyl Chloride (PVC)
7. Standards and Ratings
    a. Conductors listed by UL as Type MV-105 per Standard UL 1071 Medium-Voltage Power Cable.
    b. Conductors listed by UL as Sunlight Resistant.
    c. Conforms to ICEA S-93-639/NEMA WC74 Shielded Power Cable 5 – 46KV.
    d. Conforms to ICEA P-79-561 Guide for Selecting Aerial Cable Messengers and Lashing Wires.

D. Single conductor, 5KV and 15KV for underground / conduit installation.

1. Conductor: Single, Class B standing conforming to ASTM-B B-8.
2. Type: Provide single conductor, UL Listed type MV-105 concentric neutral able with 133 percent insulation.
3. The cable shall meet the requirements of ICEA S-94-649 and UL 1072.
4. The cable shall be suitable for installation in wet or dry locations including underground conduit with continued submergence in manholes or bundled with a messenger wire for aerial installation. The cable shall be sunlight resistant.
5. Strand screen: Provide extruded semiconducting ethyl propylene rubber (EPR) insulation qualitied for 105 degrees continuous operating temperature in wet locations, 140 degrees emergency operating temperature and 270 degrees short circuit operating temperature.

6. Insulation screen: Provide extruded semiconducting ethyl propylene rubber screen shield over insulation.
7. Shield: Provide bare copper wire 100% rated concentric neutral for conductors 350 MCM and smaller and 1/3 rated concentric neutral for conductors 500 MCM and larger.
8. Jacket: Provide a weather proof, sunlight resistant overall vulcanized chlorinated polyethylene (CPE) jacket.

2.3 SPLICES:

A. As recommended by the cable manufacturer. Splices shall be fully shielded, fully submersible with a current rating equal to the cable. The splicing material shall be the product of one manufacturer who shall furnish all components in the form of a kit that included complete installation requirements of IEEE-404.

2.4 TERMINATIONS:

A. As recommended by the cable manufacturer. Terminations in pad mount transformers shall be 15 KV, 200 amp, load-break separable connectors complete with T-body insulating plugs, caps, lugs, and cable adaptors compatible with the transformer busing wells. Terminations shall comply with IEEE Standard 386.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Transmit submittals and deliverables required by this Section.

B. Furnish products as indicated.

C. Ensure substrates are in suitable condition to receive the work of this Section.

3.2 INSTALLATION:

A. Comply with the requirements of Section 16010 and ANSI C2.

B. Follow cable manufacturer’s recommendation for handling and installation of cable, and for preparation of splices.

C. Splices shall be made per the manufacturer’s instructions and shall be supported.

D. Aerial conductor support devices shall be installed as shown on the contract drawings. All connections, nuts and bolts shall be properly tightened in accordance to the manufacturer’s instructions. After installation of support devices and final stringing cable complete final adjustments such that cable alignment is within specified design tolerances.

3.3 FIELD TESTING:

A. Test cable after installation, splices and terminations have been made, but before connection to equipment at either end.

B. Test cable for continuity, shorts and grounds.

C. Perform DC high potential test on each cable.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. No Payment will be made for “Medium Voltage Cable” and all associated work in this section. All associated work in this section is being provided by NJ TRANSIT.

END OF SECTION

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SECTION 16123 - WIRING

THIS SPECIFICATION IS NOT IN CONTRACT AND FOR REFERENCE ONLY

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for wiring.

1.2 REFERENCED SECTIONS:

A. Section 16010 Basic Electrical Requirements

B. Section 16170 Grounding

C. Section 16195 Electrical Identification

1.3 CITED STANDARDS:

A. National Electrical Manufacturers Association (NEMA):

WC5 Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.

B. Underwriters Laboratories Inc. (UL):

44 Thermoset-Insulated Wires and Cables

83 Thermoplastic-Insulated Wires and Cables

1569 Metal-Clad Cables

1.4 NOTED RESTRICTIONS:

(None noted)

1.5 QUALITY CONTROL:

(None listed)

1.6 SUBMITTALS:

A. Product data.

1.7 DELIVERABLES:

(None listed)

PART 2 - PRODUCTS

2.1 GENERAL:

A. Building Wire: American Insulated Wire Corp., Rome Cable Corp., Southwire Co., or approved equal.

B. Insulated spring wire connectors: Buchanan Construction Products B-CAP, Ideal Industries, Inc. WING-NUTS or WIRE-NUTS, 3M Scotchlok Y, R, G, B, Thomas & Betts Co. FREESPRING, or approved equal.

C. Insulated crimp connectors: Buchanan Construction Products pressure connectors, Ideal Industries, Inc. crimp connectors, Thomas & Betts Co. STA-KON connectors, or approved equal.

D. Uninsulated crimp connectors: Burndy Corp. Hydent, Thomas & Betts Co. compression connectors, or approved equal.

E. Gutter taps: Burndy Corp. Polytap KPU-C, Risertap UCU-C, H-Crimpit YE, Dossert Mfg. Co. GTC, O-Z/Gedney Co. PMX or PT, with covers PMXC or PTC, or approved equal.

F. Terminals: Burndy Corp. nylon insulated terminals, Ideal Industries RN or SN, Thomas & Betts Co. STA-KON nylon self-insulated terminals, or approved equal.

G. Lugs: Burndy Corp. Hylug YA, YA-L, YA-2LH, Ideal Industries SL cable connectors, Thomas & Betts Co. 54930, 54850, or approved equal.

H. Vinyl electrical tape: 3M Scotch No. 88, Plymouth/Bishop 85CW Premium, or approved equal.

I. Rubber electrical tape: 3M Scotch No. 23, Plymouth/Bishop W963 Plysafe, or approved equal.

J. Moisture sealing tape: 3M Scotch No. 2200, 2210, Plymouth/Bishop 4000 Plyseal-V, or approved equal.

K. Electrical filler tape: 3M Scotchfill, Plymouth/Bishop 125, or approved equal.

L. Color coding tape: 3M Scotch No. 35, Plymouth/Bishop 37, or approved equal.

M. Resin splice kits: 3M Scotchcast No. 82A, 82-B1, 90-B1, or shall be 3M Scotchcast Resin Pressure Splicing Method, or approved equal.

N. Heat-shrinkable splices: Electronized Chemicals Corp Insultite, Raychem Corp. Thermofit WCS, Thomas & Betts Co. SHRINK-KON insulators, or approved equal.

2.2 WIRING FOR POWER FEEDERS:

A. Minimum wire size: #12 AWG.

B. Exterior building wire #12 AWG to #4 AWG: Compressed concentric stranded copper conductors with 600 V type XHHW-2 insulation conforming to UL44.

C. Exterior building wire #2 to 500 MCM: Type RHW UL standard #44, copper stranded; type USE-RR UL standard #44 and 854, copper stranded; type THW UL standard #83, copper stranded.

D. Interior building wire #8 AWG: Compressed concentric stranded copper conductors with 600 volt type THHN/THWN insulation conforming to NEMA WC5 and UL83.

E. Interior building wire #10 AWG and smaller: Solid copper conductors with 600 volt type THHN/THWN insulation conforming to NEMA WC5 and UL83.

F. Type USE: Heat and moisture resistant ethylene-propylene-rubber insulation with heavy duty thermosetting chloro sulphanated polyethylene or heavy-duty neoprene jacket; multiple rated "USE-RHH-RHW"; conforming to ASTM D 2802, ICEA S-68-516, UL 44 and UL 854. Unless otherwise indicated, Type USE shall be the only wire and cable used for underground installations.

G. Three conductor, preassembled aerial, shielded 600 volts, XHHW-2 insulation. Stranded cooper conductors, UL 44 listed. Conforms to ICEA S-95-658/NEMA WC-70, Temperature Rated at 90°C Wet/Dry, Cold Temperature Rated at -40°C, Sunlight Resistant, and RoHS compliant. 3/8" Stainless steel messenger.

PART 3 - EXECUTION

3.1 GENERAL:

A. Transmit submittals and deliverables required by this Section.

B. Furnish products as indicated.

C. Ensure substrates are in suitable condition to receive the work of this Section.

3.2 INSTALLATION:

A. Comply with the requirements of Section 16010.

B. Install wiring in raceways after the raceway system is completed, cleaned, and all work that may damage wiring has been completed.

C. Pull conductors using UL listed wire pulling lubricant and ¼-inch polypropylene dragline.

D. Arrange conductors in groups of three phases and neutral (if used) in wireways and large pullboxes.

E. Install grounding conductors in accordance with Section 16170.

F. Install no more than one three-phase circuit or three single-phase circuits in each raceway, unless otherwise indicated.

G. Install splices only in accessible junction boxes.

H. Color-code all wiring in accordance with Section 16195.

3.3 SPLICES AND TERMINATIONS:

A. Make splices, taps, and terminations to carry the full capacity of conductors without perceptible temperature rise.

B. In dry locations, splice conductors #8 AWG and smaller using insulated spring wire connectors or insulated crimp connectors. For conductors #6 AWG and larger, use uninsulated crimp connectors and apply electrical filler tape to fill the indentations, and vinyl electrical tape to provide insulation equivalent to the conductor insulation. Twist wires together before installing insulated spring wire connectors.

C. In damp locations, make splices similar to dry locations, with the addition of moisture-sealing tape over the insulation.

D. In wet locations, make splices using uninsulated crimp connectors, and insulate with resin splice kits or heat-shrinkable splices.

E. For conductors #10 AWG and smaller, use terminals to connect to equipment designed for use with terminals.

F. For conductors #8 AWG and larger, use lugs to connect to flat busbars, or to equipment designed for use with lugs.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. No Payment will be made for “Wiring” and all associated work in this section. All associated work in this section is being provided by NJ TRANSIT.

END OF SECTION

SECTION 16130 - BOXES

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for outlet, junction and pull boxes.

1.2 REFERENCED SECTIONS:

A. Section 16010 Basic Electrical Requirements

B. Section 16190 Supports

1.3 CITED STANDARDS:

A. National Electrical Manufacturers Association (NEMA):

0S1 Sheet Steel Outlet Boxes, Device Boxes, Covers and Box Supports

250 Enclosures for Electrical Equipment (1000 Volts Maximum)

B. Underwriters Laboratories Inc.(UL):

50 Enclosures for Electrical Equipment

514A,B Metallic Outlet Boxes and Fittings

1.4 NOTED RESTRICTIONS:

(None noted)

1.5 QUALITY CONTROL:

(None listed)

1.6 SUBMITTALS:

A. Product data for each specified product.

B. Shop drawings for custom boxes.

1.7 DELIVERABLES:

(None listed)

PART 2 - PRODUCTS

2.1 GENERAL:

A. Manufacturers: Raco, Steel City, Crouse-Hinds, Hoffman Engineering Company, Hubbell, Inc., or approved equal.

2.2 OUTLET BOXES:

A. Size to accommodate devices and wiring.

B. Outlet boxes and accessories: Suitable for their location and intended use, conform to NEMA 0S1, UL 50, and UL 514 A, B.

C. For concealed installations in dry locations: Galvanized sheet steel with stamped knockouts and corrosion-resistant screws.

D. For exposed installations in dry locations: Cast metal type.

E. For damp or wet locations: Corrosion-Resistant cast metal type with threaded hubs and 1/8 inch rubber gasket between box and cover.

F. For locations below flood zone: NEMA 4X stainless steel boxes.

2.3 JUNCTION BOXES AND PULL BOXES:

A. Sizes of junction and pull boxes shall provide sufficient space for pulling, racking, or splicing.

B. Junction boxes, pull boxes, and accessories: Suitable for their location and intended use; conform to NEMA 250.

C. Covers shall be secured by means of captive screws or clamps unless otherwise noted on drawings.

D. For all locations: NEMA 4X stainless steel boxes.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Transmit submittals and deliverables required by this Section.

B. Furnish products as indicated.

C. Ensure substrates are in suitable condition to receive the work of this Section.

3.2 INSTALLATION:

A. Comply with the requirements of Section 16010.

B. Install outlet, junction, and pull boxes in accordance with manufacturer’s instructions, where shown on Contract Drawings and as required, plumb, square and level.

C. Locations on Contract Drawings are approximate unless dimensioned.

D. Provide supports in accordance with Section 16190.

E. In damp or wet locations, install watertight conduit hubs on junction and pull boxes.

F. Support boxes independently of the raceway system.

G. Provide separate boxes for wiring of different voltages.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Boxes” and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C16-005-001.0 - Raceways on Catenary Truss D8+39
2. C16-005-002.0 - Raceways on Catenary Truss D10+37
3. C16-005-003.0 - Raceways on Catenary Truss D13+21
4. C16-005-004.0 - Raceways on Catenary Truss D14+93
5. C16-005-005.0 - Raceways on Catenary Truss D17+69.15
6. C16-005-006.0 - Raceways on Catenary Truss D18+66.5
7. C16-005-007.0 - Raceways on Trainshed Roof
8. C16-008-001.0 - Transition Pole Pull Boxes (60”H x 42”W x 18”D)

END OF SECTION

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SECTION 16170 - GROUNDING

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for system and equipment grounding and bonding.

1.2 REFERENCED SECTIONS:

A. Section 16010 Basic Electrical Requirements

B. Section 16123 Wiring

1.3 CITED STANDARDS:

A. Institute of Electrical and Electronic Engineers (IEEE):

81 Guide for Measuring Earth Resistance, Ground Impedance, and Earth Surface Potentials of a Ground System

142 Recommended Practice for Grounding of Industrial and Commercial Power Systems ("IEEE Green Book")

B. American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE):

C2 National Electrical Safety Code

837 Qualifying Permanent Connections Used in Substation Grounding

C. American National Standards Institute/National Fire Protection Association (ANSI/NFPA):

70 National Electrical Code

D. American National Standards Institute/Underwriters Laboratories, Inc (ANSI/UL):

467 Grounding and Bonding Equipment

486A Wire Connectors and Soldering Lugs for Use with Copper Conductors

E. American Society for Testing and Materials (ASTM):

B3 Standard Specification for Soft or Annealed Copper Wire

B8 Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft

B33 Standard Specification for Tinned Soft or Annealed Copper Wire for Electrical Purposes

1.4 NOTED RESTRICTIONS:

(None noted)

1.5 QUALITY CONTROL:

(None listed)

1.6 SUBMITTALS:

A. Product data with installation recommendations.

B. Procedures and equipment for testing resistances and electrical continuity.

1.7 System Requirements:

A. The grounding and bonding system shall be as indicated on the Contract Documents and shall meet the requirements of NEC Article 250.

B. The grounding electrode system shall provide a resistance to earth of five (5) ohms or less.

1.8 DELIVERABLES:

A. Acceptance test report certifying that ground resistance and electrical continuity.

PART 2 - PRODUCTS

2.1 GENERAL:

A. Manufacturers: Erico; FCI; Ilsco; O-Z/Gedney; Thomas and Betts, or approved equal.

B. Grounding systems, conductors, components, and installation methods shall conform to IEEE 81, ANSI/IEEE C2, ANSI/IEEE 837, ANSI/NFPA 70, ANSI/UL 467, ANSI/UL 486A, ASTM B3, ASTM B9, ASTM B33, as appropriate.

2.2 GROUNDING CONDUCTORS:

A. Size of conductors shall be as required by the National Electrical Code.

B. Material: Copper, bare or insulated, solid or stranded, tinned or untinned, as indicated.

C. Equipment grounding conductors: 600 volt green color insulation. #10 AWG may be solid or stranded. #8 AWG and larger shall be stranded.

D. Ground bus: Bare, annealed copper bars of rectangular cross section, with insulators as shown on drawings.

2.3 CONNECTORS, LUGS, AND TERMINALS:

A. Copper, suitable for the intended use. Conforming to the requirements of Section 16123 where used on equipment grounding conductors.

B. Bolted connectors: Bolted-pressure type connectors, or compression type.

C. Welded connections: Exothermic-welded type, in kit form, and selected in accordance with the manufacturer's written instructions.

2.4 GROUNDING ELECTRODES:

A. Copper-clad steel or other materials subject to the approval of the Engineer. Minimum dimensions 3/4-inch diameter by 10-feet long.

B. Test wells: Provide handholes.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Transmit submittals and deliverables required by this Section.

B. Furnish products as indicated.

C. Ensure substrates are in suitable condition to receive the work of this Section.

3.2 GENERAL:

A. Ground and bond non-current-carrying metallic parts.

3.3 APPLICATION:

A. Use insulated copper equipment grounding conductors for all feeders and branch circuits.

B. Use exothermic welds for connections to structural steel and for underground connections.

C. Use bolted pressure clamps for terminations of equipment grounding conductors.

3.5 INSTALLATION:

A. Comply with the requirements of Section 16010 and National Electrical Code Article 250.

B. Metal raceways: Make all metal raceways electrically and mechanically continuous. Install bonding jumpers at expansion joints.

C. Equipment grounding conductors: Run insulated equipment grounding conductors with the circuit conductors of feeders and branch circuits.

D. Bonding straps and jumpers: Install bonding straps and jumpers so that vibration by equipment is not transmitted to rigidly mounted equipment. Install straps in locations accessible for maintenance.

3.6 CONNECTIONS:

A. General: Make connections so that the possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.

1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer to order of galvanic series.

2. Make connections with clean, bare metal at points of contact.

3. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

B. Exothermic-Welded Connections: Comply with manufacturer's written instructions. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.

C. Equipment Grounding Conductor Terminations: For #8 AWG and larger, use pressure-type grounding lugs. For #10 AWG and smaller, grounding conductors may be terminated with winged pressure-type connectors.

D. Noncontact Metal Raceway Terminations: Where metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing. Bond electrically non-continuous conduits at entrances and exits with grounding bushings and bare grounding conductors, unless otherwise indicated.

F. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A.

3.7 ACCEPTANCE TESTING:

A. After installing ground system but before permanent electrical circuitry has been energized, test for compliance with requirements. Perform acceptance testing in accordance with Section 16010, using the fall-of-potential method specified in IEEE 81. Deliver a test report.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Grounding” and all associated work in this section shall be included in the Division 16 lump sum bid line item C16-000-001.0 for “Electrical" on the Bid Price Sheet.

END OF SECTION

SECTION 16180 - OVERCURRENT PROTECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for overcurrent protection.

1.2 REFERENCED SECTIONS:

A. Section 16010 Basic Electrical Requirements

1.3 CITED STANDARDS:

A. National Electrical Manufacturers Association (NEMA):

AB1 Molded Case Circuit Breakers

B. Underwriters Laboratories Inc. (UL):

489 Molded-Case Circuit Breakers, Molded Case Switches, and Circuit Breaker Enclosures

1.4 NOTED RESTRICTIONS:

(None noted)

1.5 QUALITY CONTROL:

(None listed)

1.6 SUBMITTALS:

A. Product data for each specified product. Include manufacturer's literature, technical specifications, applications instructions and similar data for each product specified herein. Clearly indicate the proposed usage of each product: Circuit breakers, enclosures, accessories.

B. Shop Drawings: Include wiring diagrams for shunt-tripped circuit breakers.

1.7 DELIVERABLES:

(None listed)

PART 2 - PRODUCTS

2.1 GENERAL:

A. Circuit breakers: Cutler-Hammer, Siemens Energy and Automation, Square-D Co., or approved equal.

2.2 MOLDED CASE CIRCUIT BREAKERS:

A. Thermal-magnetic, current-limiting, bolt-on type, conforming to NEMA AB1 and UL 489.

B. Constructed of high dielectric glass reinforced insulating material with current carrying components completely isolated from the handle and the accessory mounting area.

C. Common tripping of all poles and trip-free.

D. Quick-make, quick-break with an overcenter toggle operating mechanism. Mechanism shall not be capable of being teased into a neutral position.

E. Where in outdoor locations, circuit breakers shall be in NEMA 4X stainless steel, watertight, and dust tight enclosure.

F. Factory-sealed with a date code on the face. Poles labeled with respective phase designations.

G. Handle or faceplate indicating rated ampacity. Faceplate indicating UL certification standards with applicable voltage systems and corresponding interrupting capacity ratings.

H. Handle position shall provide local trip indication.

I. Escutcheon shall have ON/OFF markings and may also have international I/O markings. Handle accessories with provisions for locking handle in the ON or OFF position.

J. Capable of interrupting the available short circuit current on the line side of the device.

K. Permanent trip unit containing individual thermal and magnetic trip elements in each pole.

L. Factory sealed thermal trip elements. The thermal trip system shall be true RMS sensing and thermally responsive to protect circuit conductors in a 40°C ambient temperature. Thermal element shall be ambient compensating above 40°C to provide consistent protection to circuit conductors.

M. Circuit breakers with frame sizes greater than 100 amps shall have variable magnetic trip elements, which are set by a single adjustment to simultaneously adjust the instantaneous trip point in all poles.

N. UL listed for use with the following accessories, as applicable: Shunt trip; under voltage trip; ground fault shunt trip; under voltage trip; auxiliary switch; alarm switch; mechanical lug kits; compression lug kits.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Transmit submittals and deliverables required by this Section.

B. Provide products as indicated.

C. Ensure substrates are in suitable condition to receive the work of this Section.

3.2 APPLICATION:

A. Provide overcurrent protection to suit the conductors and equipment being protected.

3.3 INSTALLATION:

A. Comply with the requirements of Section 16010.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Overcurrent Protection” and all associated work in this section shall be included in the Division 16 lump sum bid line item C16-000-001.0 for “Electrical" on the Bid Price Sheet.

END OF SECTION

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SECTION 16190 - SUPPORTS

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for supports for electrical work.

1.2 REFERENCED SECTIONS:

A. Section 16010 Basic Electrical Requirements

1.3 CITED STANDARDS:

A. American Society for Testing and Materials (ASTM):

A123 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

A153 Zinc Coating (Hot-Dip) on Iron and Steel Hardware

A283 Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars

A307 Carbon Steel Bolts and Nuts

1.4 NOTED RESTRICTIONS:

(None noted)

1.5 QUALITY CONTROL:

(None listed)

1.6 SUBMITTALS:

A. Product data for each specified product.

1.7 DELIVERABLES:

(None listed)

PART 2 - PRODUCTS

2.1 GENERAL:

A. Manufacturers: Appleton Electric Co., B-Line Systems, Inc., Hilti, Inc., O-Z/ Gedney, Thomas & Betts, Unistrut Corp., Versabar Corp., or approved equal.

B. Products for use in dry locations shall be hot-dip galvanized in accordance with ASTM A123.

C. Products for use in damp or wet locations, or in contact with concrete, shall be hot-dip galvanized in accordance with ASTM A123, and shall be 40 mil PVC coated.

2.2 SUPPORTS:

A. Anchors and fasteners for:

1. Concrete structural elements: Continuously slotted or spot precast inserts, expansion anchors, or powder-actuated anchors.

2. Steel structural elements: Beam clamps or spring steel clips.

3. Concrete surfaces: Self-drilling anchors or expansion anchors.

4. Solid masonry walls: Expansion anchors or preset inserts.

5. Sheet metal: Sheet metal screws.

6. Wood: Wood screws.

B. Steel channels: Hot-dipped Galvanized, roll-formed from minimum 12-gauge steel, conforming to ASTM A283, Unistrut, Eaton/Cooper B-Line, Thomas & Betts Superstrut, or approved equal.

C. Hanger rods: 1/2-inch diameter minimum, hot-dipped galvanized.

D. Bolts, nuts, screws, and washers: Type, grade, and class required for the application. Hot-dip galvanized in accordance with ASTM A153.

1. Bolts and nuts: Hex-type in inch sizes, conforming to ASTM A307.

E. PVC coated street, hangers and clamps; right angle beam clamps and U-bolts shall be specially formed and sized to snugly fit the outside diameter of the PVC coated conduit. Support products such as ferrous strut, beam clamps, pipe straps, clamp back spacers, conduit clamp hangers and all thread rods shall have a minimum 15 mil PVC coating by the manufacturer of the electric rigid metal conduit and system components.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Transmit submittals and deliverables required by this Section.

B. Furnish products as indicated.

C. Ensure substrates are in suitable condition to receive the work of this Section.

D. Verify locations of installed supports before concrete is poured.

3.2 INSTALLATION:

A. Comply with the requirements of Section 16010.

B. Install supports in accordance with manufacturer's instructions. Do not exceed the manufacturer's recommended loads.

C. Install supports with sufficient rigidity to prevent vibration and movement, or loads from being imposed on electrical equipment.

D. Provide supplementary supports where required.

E. Provide supports for electrical work separate from supports for other work.

F. Install surface-mounted cabinets and enclosures with four anchors, minimum. Install steel channels vertically to provide approximately 1-inch clearance behind cabinets and enclosures.

G. Install junction and pull boxes with four anchors, minimum. Install spacers to provide clearance from the supporting surface.

H. Do not drill or puncture structural steel, or cantilever a load off structural steel.

I. Support enclosures in stud walls by bridging studs, top and bottom.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Supports” and all associated work in this section shall be included in the Division 16 lump sum bid line item C16-000-001.0 for “Electrical" on the Bid Price Sheet.

END OF SECTION

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SECTION 16195 - ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for electrical identification.

1.2 REFERENCED SECTIONS:

A. Section 16010 Basic Electrical Requirements

1.3 CITED STANDARDS:

A. Occupational Safety and Health Administration (OSHA):

29 CFR 1910 Safety and Health Standards

1.4 NOTED RESTRICTIONS:

(None noted)

1.5 QUALITY CONTROL:

(None listed)

1.6 SUBMITTALS:

A. Product data for each specified product.

B. Sample of each product.

1.7 DELIVERABLES:

(None listed)

PART 2 - PRODUCTS

2.1 GENERAL:

A. Manufacturers: Tech. Products, Inc., Brady USA, Inc., Ideal Industries, Inc., National Band and Tag Co., or approved equal.

2.2 IDENTIFICATION PRODUCTS:

A. Color coded plastic tape: Self-adhesive, flame-retardant, weather-resistant, vinyl electrical tape, minimum 7 mils thick by 3/4 inches wide, of the color specified.

B. Cable and wire markers: Vinyl cloth marking labels.

C. Conduit markers: Pressure-sensitive polyester markers with black letters on orange background, sized to fit conduit.

D. Plastic signs: Self-adhesive or pressure-sensitive, pre-printed, flexible vinyl for operation instructions or warnings, sized for adequate visibility, with suitable wording for each application.

E. OSHA standard "DANGER" signs: Baked enamel aluminum; red, black and white graphics; 14 inches by 10 inches, with suitable wording for each application.

F. Plastic nameplates: Three-layer, laminated melamine with engraved black letters on white background, unless otherwise indicated, with beveled edges, peel-and-press adhesive backing, and small mounting holes for stainless steel fasteners.

G. Lettering and graphics: As required for operation and maintenance of systems and equipment.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Transmit submittals and deliverables required by this Section.

B. Furnish products as indicated.

C. Ensure substrates are in suitable condition to receive the work of this Section.

3.2 APPLICATION:

A. Comply with the requirements of Section 16010.

B. Apply color-coded plastic tape to identify conductors of lighting and power circuits. The color-coding shall be consistent with established practice per NJT Power Standards.

C. Apply cable and wire markers on conductors in boxes, enclosures, or cabinets, where more than one circuit is present. Apply cable and wire markers on conductors in handholes and manholes for all circuits present.

D. Apply conduit markers on conduits run exposed and above hung ceilings. Indicate service. The conduit identification shall be consistent with established practice at the facility.

E. Apply self-adhesive plastic signs on electrical equipment enclosures to warn unauthorized personnel.

F. Apply danger signs where required by OSHA. Apply appropriate danger signs on electrical equipment enclosures, cabinets, and boxes. Indicate the voltage level present.

G. Apply plastic nameplates on electrical equipment including panelboards, transformers, self-contained circuit breakers, disconnect switches, junction boxes and pull boxes identifying the equipment or function.

1. Attach nameplates to the outside of enclosures with small-size stainless steel screws in addition to the adhesive backing.

2. In offices and public areas, attach nameplates to the inside of equipment enclosure doors with adhesive backing only.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Electrical Identification” and all associated work in this section shall be included in the Division 16 lump sum bid line item C16-000-001.0 for “Electrical" on the Bid Price Sheet.

END OF SECTION

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SECTION 16271 - MEDIUM VOLTAGE SIGNAL TRANSFORMERS

THIS SPECIFICATION IS NOT IN CONTRACT AND FOR REFERENCE ONLY

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for 25kVA and 75kVA, single-phase 2400V/120V, 100 Hz overhead distribution transformers.

B. Requirements for 25 kVA, single-phase 2400/120V, 100Hz pad-mounted distribution transformer.

1.2 REFERENCED SECTIONS:

A. Section 16010 Basic Electrical Requirements

1.3 CITED STANDARDS:

A. IEEE Std C57.12.90™ standard – IEEE Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers and IEEE Guide for Short-Circuit Testing of Distribution and Power Transformers.

B. IEEE Std C57.12.91™ standard – Guide for Loading Mineral-Oil-Immersed Transformers.

C. NEMA TR 1-1993 (R2000) – Transformers, Regulators and Reactors, Table 0-2 Audible Sound Levels for Liquid-Immersed Power Transformers.

D. 10 CFR Part 431 – Department of Energy – Energy Conservation Program for Commercial Equipment: Distribution Transformers Energy Conservation Standards; Final Rule.

1.4 NOTED RESTRICTIONS:

(None noted)

1.5 QUALITY CONTROL:

A. Comply with the requirements of General Provisions.

1.6 SUBMITTALS:

A. Comply with the requirements of General Provisions.

B. Product data for each specified product.

C. Coordination drawings, including for platform-mounted equipment, in accordance with the requirements of General Provisions.

1.7 DELIVERABLES:

A. Test reports.

1.8 CLOSEOUT SUBMITTALS:

A. APPROVAL AND FINAL DRAWINGS:

1. The manufacturer shall furnish approval and final drawings in AutoCAD .DWG format via e-mail. The name and e-mail address of the individual to whom the drawings shall be submitted will be specified in the purchase order.

B. INSTRUCTION BOOKS:

1. The manufacturer shall furnish an electronic copy of each applicable instruction book in Adobe acrobat .PDF format via e-mail. The name and e-mail address of the individual to whom the instruction books shall be submitted will be specified in the purchase order.

1.9 WARRANTY:

A. The overhead distribution transformers furnished under this specification shall be covered by a five-year warranty from date of final acceptance against failure due to design or to defects in workmanship or material.

PART 2 – PRODUCTS

2.1 GENERAL:

A. Approved Manufacturer: VanTran Industries, Inc. or approved equal.

2.2 SERVICE CONDITIONS:

The overhead distribution transformer shall be suitable for outdoor installation on a steel monopole pole. The pad mounted distribution transformer shall be suitable for outdoor installation on steel platform. Both under the following conditions:

Elevation	Less than 3300 feet above sea level
Ambient Temperature Range	-40°C to 40°C
Seismic Zone	2A

2.3 OVERHEAD DISTRIBUTION TRANSFORMER RATINGS:

A. The overhead distribution transformers shall have the following ratings and electrical characteristics:

Type	CSP-D
kVA Rating	25 kVA and 75 kVA
Voltage Rating	2400/120 Volt, ONAN, 65°C rise
Phasing	Single Phase
Frequency Rating	100 Hz

BIL	60 / 30 kV HV/LV
Insulating Liquid	Mineral Oil (non-PCB)
Frequency	100 Hz
Impedance	3.5% @ 100 Hz, 85°C
Conductor Material	Cu / Cu HV/LV
Taps	±2 x 2-1/2% above & below nominal
Lightning Arresters	2 – 3 kV
Paint Color	ANSI-70 Grey
System Considerations	Railroad application

B. Additional accessories and provisions:
   a. Two cover mounted high voltage bushings
   b. Two sidewall mounted low voltage bushings
   c. Diagrammatic corrosion resistant nameplate
   d. Tank grounding boss
   e. Externally operated no-load tap changer
   f. Pole mounted hangers
   g. Lifting lugs
   h. Pressure relief valve
   i. Internal LV circuit breaker with overload and signal light

2.4 PAD-MOUNTED DISTRIBUTION TRANSFORMER RATINGS:

A. The pad-mounted transformer shall have the following ratings and electrical characteristics:

Type	CP
kVA Rating	25 kVA
Voltage Rating	2400/120 Volt, ONAN, 65°C rise
Phasing	Single Phase
Frequency Rating	100 Hz
BIL	125 / 30 kV HV/LV
Insulating Liquid	Mineral Oil (non-PCB)
Frequency	100 Hz
Impedance	5.0 ±7.5% @ 75°C
Conductor Material	Cu / Cu HV/LV
Taps	±2 x 2-1/2% above & below nominal
Paint Color	ASA-24 Grey
System Considerations	Railroad application

B. Additional accessories and provisions:
   a. Four lifting hooks.
   b. Filled with high fire point FR-3 oil at time of manufacture.
   c. Tank grounding bosses (1/2-13 tap) (each compartment).
   d. One inch drain valve with oil sampler.
   e. Transformer base with provisions for rolling.
   f. Two low voltage bushings with NEMA 4 hole spade terminals. One each low voltage neutral bushing with NEMA 4 hole spade terminal and removable ground strap.

g. Oil level gauge.
h. Pressure vacuum gauge.
i. Diagrammatic corrosion resistant stainless steel nameplate.
j. Steel barrier between high voltage and low voltage compartments.
k. Four high voltage bushing wells with two 15kV class load break bushing inserts and two feed thru inserts arranged for loop feed.
l. Tamperproof removable bolted cabinet with three point latching lift off doors with stainless steel hinges and open bottom for conduit for cable entrance. Low voltage compartment door with provisions for padlocking. Low voltage compartment door overlapping high voltage compartment door to prevent access to high voltage compartment until low voltage compartment door is opened. Provide with rea ½" captive penta head safety bolt. Compartment supplied with removable bottom sill and special pad lock provisions on high and low voltage doors.
m. Tamperproof removable cover for access to bolted on inspection plate.
n. Tank lid welded on.
o. One inch fill plug with Schrader valve.
p. Bolted on inspection plate under cover.
q. Automatic pressure relief valve.
r. One externally operated no-load tapchanger.
s. Dial type thermometer.
t. Bottom of transformer undercoated to prevent corrosion.
u. Transformer winding all copper wound.
v. Two Cooper 3238018CO3M – 15kV class – 3kV metal oxide varistor elbow arresters.
w. Two Cooper 3533008M11M – 8 Amp els bayonet fuses.
x. One Cooper 175 volt, 2 pole low voltage arrester.
y. Danger high voltage sign on the outside of the low voltage door.
z. Two loadbreak elbows with test points.
aa. 60AT, 240V, 2P circuit breaker mounted to inside of transformer case.

PART 3 – EXECUTION

3.1 PREPARATION:

A. Transmit submittals and deliverables required by this Section.

B. Provide products as indicated.

C. Ensure substrates are in suitable condition to receive the work of this Section.

3.2 PRODUCT TESTING:

The distribution transformers shall be design tested in accordance with IEEE Std. C57.12.90-2010, **IEEE Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers**.

All units shall be tested for the following:

- No-Load losses at rated current *
- Total losses at rated current**
- Percent Impedance at rated current
- Excitation current (100% voltage) test
- Winding resistance measurement tests
- Ratio tests using all tap settings

- Polarity and phase relation tests
- Induced potential tests
- Full wave and reduced wave impulse test

*No load losses will be reported at 95 °C or 20 °C for 75 °C AWR units, and 85 °C or 20 °C for 65 °C or 65/75 °C AWR units.
**Total losses and impedance values will be reported at 95 °C for 75 °C AWR units, and 85 °C for 65 °C AWR units.

3.3 SPARE PARTS:

No spare parts shall be required at the time of purchase. Contractor shall identify long lead spare items that require more than 10 days to receive delivery.

3.4 SHIPPING AND DELIVERY:

The distribution transformers shall be shipped filled with oil and shall include all required mounting hardware.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. No Payment will be made for “Medium Voltage Signal Transformer” and all associated work in this section. All associated work in this section is being provided by NJ TRANSIT.

END OF SECTION

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SECTION 16275 - MEDIUM VOLTAGE OVERHEAD LOAD BREAK SWITCH

THIS SPECIFICATION IS NOT IN CONTRACT AND FOR REFERENCE ONLY

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for 15/25kV min, 2-pole, group operated load interrupter switch.

1.2 REFERENCED SECTIONS:

A. Section 16010 Basic Electrical Requirements

1.3 CITED STANDARDS:

The group-operated distribution load interrupter switch shall be designed, manufactured, assembled, and tested in accordance with the latest applicable ANSI, NEMA, IEEE, and ASTM standards and guidelines. If there are any conflicts between the ANSI, NEMA, IEEE, or ASTM standards and this specification, the specification shall govern.

1.4 NOTED RESTRICTIONS:

(None noted)

1.5 QUALITY CONTROL:

A. Comply with the requirements of General Provisions.

1.6 SUBMITTALS:

A. Comply with the requirements of General Provisions.

B. Product data for each specified product.

C. Coordination drawings in accordance with the requirements of General Provisions.

D. Detailed erection diagram.

1.7 DELIVERABLES:

A. Test reports.

1.8 CLOSEOUT SUBMITTALS:

A. APPROVAL AND FINAL DRAWINGS:

The manufacturer shall furnish approval and final drawings in AutoCAD .DWG format via e-mail. The name and e-mail address of the individual to whom the drawings shall be submitted will be specified in the purchase order.

B. INSTRUCTION BOOKS:

The manufacturer shall furnish an electronic copy of each applicable instruction book in Adobe acrobat .PDF format via e-mail. The name and e-mail address of the individual to whom the instruction books shall be submitted will be specified in the purchase order.

1.9 WARRANTY:

The interrupting switch and its accessories furnished under this specification shall be covered by a five-year warranty from date of shipment against failure due to design or to defects in workmanship or material.

PART 2 – PRODUCTS

2.1 GENERAL:

A. Approved Manufacturer: Siemens – Vector series NJ973X-30, S&C Electric Company, Hubbell Power Systems, or approved equal.

2.2 SERVICE CONDITIONS:

The load interrupter switch shall be suitable for outdoor installation on a steel monopole pole under the following conditions:

Elevation	Less than 3300 feet above sea level
Ambient Temperature Range	-40°C to 40°C
Seismic Zone	2A

2.3 RATINGS:

The load interrupter switch shall have the following ratings and electrical characteristics:

Switch Type	• Outdoor Distribution Two-Pole Gang-Operated Load-Break Switch. • Manual Operation via pipe / handle. • Horizontal crossarm style.
Application	Line Sectionalizing
Voltage Class	25 kV (min 15kV)
BIL	150 kV
Continuous Current Capability	900 A
Load-Break Capability	600/630 A
Frequency	100 Hz
Momentary Amps	40,000 A
Ice-Breaking	¾", opening and closing
Full Load Operations	2000

2.4 CONSTRUCTION MATERIALS:

The following materials shall be used for switch construction:

Insulators	Porcelain. A porcelain operating shaft insulator shall also be provided
Switches	Horizontal break, copper, with silver-to-silver hinge and jaw contacts.
Operating Pipe and Handle	• Galvanized steel. • Approximately 28 feet of pipe is required. • Padlocking provisions at the handle shall be included.
Base	Galvanized steel. To be mounted on a steel monopole with additional bracing. The vendor shall provide all mounting hardware.
Interrupters	• No external arc. • ANSI 70 gray composite or epoxy insulator that will not degrade with exposure to solar UV radiation

PART 3 – EXECUTION

3.1 PREPARATION:

A. Transmit submittals and deliverables required by this Section.

B. Provide products as indicated.

C. Ensure substrates are in suitable condition to receive the work of this Section.

3.2 PRODUCT TESTING:

A. The load interrupter switch shall be design tested in accordance with IEEE Std. 1247-1998, Standard for Interrupter Switches for Alternating Current Rated Above 1000 Volts. The testing shall include dielectric tests, power tests, an environmental test, and a mechanical endurance test. The dielectric tests shall include 100 Hz power frequency, lightning impulse withstand, and visual corona. The power tests shall demonstrate the capability to perform load breaking. The power tests and the dielectric tests shall be performed at full voltage on the complete interrupter assembly. Testing individual modules is not acceptable. The environmental test shall demonstrate the load interrupter switch's capability to perform over a temperature range of - 40°C to 40°C. The load interrupter shall be endurance tested to 2000 operations.

B. The load interrupter switch shall be fully assembled at the factory, adjusted, and tested per IEEE Std. 1247-1998.

- Mechanical Operations Test: There shall be at least 25 mechanical operations performed at the factory.
- Resistance Test: A micro-ohm resistance check shall be performed on each interrupter using a 100 A DC source and the values shall be recorded.
- Dielectric Test: Each complete interrupter assembly shall pass a 100 Hz power frequency withstand test for one minute.

3.3 SPARE PARTS:

No spare parts shall be required at the time of load interrupter purchase. Stock shall be maintained at the manufacturer and available for rush shipment in the event of an emergency need.

3.4 SHIPPING AND DELIVERY:

The interrupter switch / base assembly shall be shipped fully assembled to minimize field installation time. The operating pipe, mounting hardware, and handle shall be included in the same shipment as the switch / base assembly.

3.5 INSTALLATION:

A. Comply with the requirements of Section 16010.

B. Install load interrupter switch in accordance with manufacturer's instructions.

C. Install load interrupter switch on steel monopole as shown on drawings.

D. Provide grounding and bonding in accordance with Section 16170.

E. Check connections before closing switch.

F. Provide all required accessories for a complete installation

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. No Payment will be made for “Medium Voltage Overhead Load Break Switch” and all associated work in this section. All associated work in this section is being provided by NJ TRANSIT.

END OF SECTION

SECTION 16321 – LIQUID-FILLED DISTRIBUTION TRANSFORMER

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for three-phase dead front liquid-filled outdoor, elevated platform mounted, distribution transformers rated 1,500 KVA.

B. Requirements for primary medium voltage load interrupter switchgear.

1.2 REFERENCED SECTIONS:

A.	Section 16010	Basic Electrical Requirements
B.	Section 16170	Grounding
C.	Section 16180	Overcurrent Protection
D.	Section 16190	Supports

1.3 CITED STANDARDS:

A. American National Standards Institute/Institute of Electrical and Electronics Engineers (ANSI/IEEE):

C57.12.26	Pad-Mounted, Compartmental-Type, Self-Cooled, Three-Phase Distribution Transformers for Use with Separable Insulated High-Voltage Connectors (34500 Grounded Y/19920 Volts and below, 2500 kVA and Smaller)
C57.12.28	Switchgear and Transformers – Pad-mounted Equipment - Enclosure Integrity.
C57.12.00	Standard General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers
C57.12.90	Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers and Guide for Short-Circuit Testing of Distribution and Power Transformers

B. Factory Mutual Research Corporation (FM):

Approval Standard Class 3990

D. 10 CFR Part 431 – Department of Energy – Energy Conservation Program for Commercial Equipment: Distribution Transformers Energy Conservation Standards; Final Rule.(DOE 2016 Energy Efficiency)

1.4 NOTED RESTRICTIONS:

(None noted)

1.5 QUALITY CONTROL:

A. Perform factory test in accordance with ANSI/IEEE C57.12.90.

B. Three-phase liquid filled transformers from 15kVA to 2500kVA shall be certified as meeting energy-efficient values listed in the DOE Code of Federal Regulations 10 CFR PART 431.196.

1.6 SUBMITTALS:

A. Product data including weights and dimensions.

B. Product performance data including efficiency at 100%, 75%, 50% and 25% rated loads, no-load losses, percentage regulation at 1.0 and 0.8 power factors, exciting current at 100% and 110% rated voltage, percentage impedance at rated temperature, sound level in decibels, temperature rise at rated load.

C. Schematic diagram

D. Nameplate diagram

E. Component list, including accessories.

F. List of tests to be performed at the factory.

G. Scaled detailed drawings including all distribution equipment.

H. Coordination drawings, including for platform-mounted equipment, in accordance with requirements of General Provisions.

1.7 DELIVERABLES:

A. Factory test report conforming to ANSI/IEEE C57.12.90.

B. Operation and maintenance manuals.

C. Acceptance test report.

PART 2 - PRODUCTS

2.1 GENERAL:

A. Manufacturers: Square D by Schneider Electric, Eaton “Envirotran”, ABB, or approved equal.

B. Transformers: Liquid-immersed, Pad-mounted types conforming to ANSI C57.12.26 and ANSI/IEEE C57.12.00. Transformers shall be Factory Mutual (FM) approved and listed and labeled as per the National Electrical Code for less-flammable liquid-insulated transformers.

C. Enclosures: Tamper-resistant sheet steel construction painted ANSI 49 to provide uniform coating of edges and surfaces.

D. Insulating liquid: High fire point biodegradable seed-oil based coolant. “Envirotemp FR3” or approved equal.

2.2 RATINGS:

A. 13,800-volt delta (ring connected) primary, 480/277-volt wye (star) secondary. Voltage and KVA ratings as indicated on the Contract Drawings. Impedance 5.75% nominal or as indicated on contract drawings.

B. High voltage Basic Impulse Level (BIL) shall be 95 KV.

2.3 CORE AND COIL:

A. The core shall be manufactured from burr-free, high-grade, non-aging, grain-oriented, silicon steel and shall be precisely stacked to eliminate gaps in the corner joints. The core shall have high magnetic permeability and low hysteresis and eddy current losses.

B. Magnetic flux density below saturation level to allow at least 10% overvoltage excitation.

C. The core and coil shall be vacuum processed to ensure maximum penetration of insulating fluid into the coil insulation system. While under vacuum, the windings shall be energized to heat the coils and drive out moisture, and the transformer filled with preheated filtered degassed insulating fluid. The coil shall be insulated with epoxy coated, diamond pattern, insulating paper that is thermally cured under pressure to ensure proper bonding of conductor and paper.

D. Windings shall be copper.

E. The transformer shall have full capacity high-voltage taps, two 2½% above normal (FCAN) and two 2½% below normal (FCBN) rated voltage. The tap changer shall be clearly labeled to indicate that the transformer must be de-energized before operating the tap changer. The tap changer switch shall be an externally operated, snap action switch with a lever handle with padlocking provisions.

F. The average winding temperature rise above ambient temperature shall not exceed 65°C when tested at the transformer rating.

G. The percent impedance voltage, as measured on the rated voltage connection, shall be per ANSI C57.12.26, paragraph 5.1. Tolerance to impedance values shall be per ANSI/IEEE C57.12.00, Table 19.

2.4 DIELECTRIC COOLANT:

A. The dielectric coolant shall be a listed less-flammable (high fire point) fluid meeting the requirements of the National Electrical Code and having a fire point not less than 300°C. The coolant shall be a seed-oil-based fluid that is biodegradable, non-toxic, Factory Mutual approved, and UL Classified. The coolant shall be Cooper Power “Envirotemp FR3”, or approved equal.

2.5 HIGH VOLTAGE BUSHINGS AND TERMINALS:

A. Transformer primary connections shall be cover mounted, live front bushings with NEMA spades or eyebolt terminals suitable for cable sizes shown on the drawings.

B. Bushing heights shall be in accordance with ANSI C57.12.26.

2.6 LOW VOLTAGE BUSHINGS AND TERMINALS:

A. Low voltage bushings shall be cover mounted, molded epoxy and provided with blade type spade terminals with NEMA standard hole spacing arranged for vertical take-off.

B. Low voltage neutral shall be a fully insulated X_0 bushing with a removable ground strap.

2.7 PROTECTION:

A. Primary overcurrent protection shall be provided by load interrupter switchgear with current-limiting fuses with minimum interrupting rating of 50,000 Amperes.

B. Secondary overcurrent protection shall be provided at the load end of the secondary conductors.

C. Primary overvoltage protection shall be provided by externally mounted, dead front, heavy- duty distribution class metal-oxide varistor elbow (MOVE) arresters.

2.8 TANK AND TERMINAL COMPARTMENT:

A. The terminal compartment depth shall be sized to accommodate all accessories.

B. In addition to the regular locking provision, all access doors or hood shall be secured by a recessed, captive, pentahead bolt that meets the dimensions set forth in ANSI C57.12.28.

C. The tank shall be welded using precision cut cold-rolled steel plate and equipped with extra-heavy duty, welded-in-place lifting lugs and jacking pads. The tank base shall be designed to allow skidding or rolling in any direction.

D. The transformer shall be of sealed tank construction of sufficient strength to withstand a pressure of 7 psig without permanent distortion, and 15 psig without rupturing or affecting cabinet security per ANSI C57.12.26, paragraph 7.5.2. The tank shall include a pressure relief valve with a flow of 35 SCFM minimum at 15 psig.

E. The tank shall be cleaned with an alkaline cleaning agent to remove grease and oil. An iron phosphate coating shall then be chemically bonded to the metal to ensure coating adhesion and retard corrosion. The tank shall be primed with an electrodeposited powder epoxy to provide a barrier against moisture, salt, and corrosives. The tank shall then be coated with an electrostatically applied, oven-cured polyester powder coat to enhance abrasion and impact resistance. The topcoat shall be liquid polyurethane coating to seal and add ultraviolet protection. The tank coating shall meet all requirements in ANSI C57.12.28 including:

Salt Spray Test
Crosshatch Adhesion Test
Humidity Test
Impact Test
Oil Resistance Test
Ultraviolet Accelerated Weathering Test
Abrasion Resistance - Taber Abraser

F. The pad mounted equipment shall meet the requirements for tamper resistance set forth in ANSI C57.12.28 including but not limited to the pry test, pull test, and wire probe test.

G. The tank shall be complete with an anodized aluminum laser engraved nameplate in accordance with ANSI C57.12.00 Table 9 for Nameplate B.

2.9 ACCESSORIES:

A. The following accessories shall be provided:

Lifting lugs (4)
Bolted gasketted cover with nut guard (45-1,000 KVA)
Welded cover with gasketted handhole (1,500-3,000 KVA)
1.0” upper fill plug
1.0” drain plug in high voltage compartment
1.0” drain/sampling filter valve in low voltage compartment
Automatic pressure relief valve
20” deep cabinet (45-1000 KVA)
24” deep cabinet (1,500-3,000 KVA)
Stainless steel NEMA 2-hole ground pads (750-3,000 KVA)
Stainless steel cabinet hinges and mounting studs
Nameplate Diagrams per ANSI
Liquid level gauge with alarm contacts
Pressure/vacuum gauge with bleeder valve
Dial type thermometer with alarm contacts
Loadbreak sectionalizing switch
High voltage warning signs
Ground connectors
Touch-up paint

2.10 FACTORY TESTS:

A. Perform factory tests on the equipment in accordance with ANSI/IEEE C57.12.90.

B. NJ Transit reserves the right to inspect the equipment at the factory. However, this inspection shall not be for the purpose of a witness test. Give 14 days prior notice of scheduled inspection.

C. Perform all acceptance, startup and operating tests in the presence of the Engineer, Owner, and/or designated authorized witness.

D. Certified report of factory test, as outlined above, shall be available at the time of factory inspection. Manufacturer shall notify the Engineer and NJT fourteen (14) days prior to the date equipment is ready for witness testing.

2.11 PRIMARY MEDIUM VOLTAGE LOAD INTERRUPTER SWITCHGEAR

A. Ratings

1. Switchgear assembly ratings shall be as follows:
   a. Nominal System Voltage: 13.8 kV three-phase, three wire
   b. System Grounding: solid
   c. Maximum Design Voltage: 15 kV

d. Basic Impulse Level: 95 kV
e. Bus Continuous Current: 600 Amperes
f. Momentary Current: 40 kA Asym.
g. Two Second Current: 25 kA Sym.
h. Switch Fault Close 40 kA Asym.
i. Switch Continuous/Load Break 600 Amperes
j. UL listed

B. Construction

1. The type NEMA 3R outdoor non-walk-in metal enclosed load interrupter switchgear shall consist of dead front, completely metal enclosed vertical sections containing load interrupter switches and fuses (where shown) of the number, rating and type noted on the drawings or specified herein.

2. The following features shall be supplied on every vertical section containing a three pole, two-position open-closed switch:
   a. A high impact viewing window that permits full view of the position of all three switch blades through the closed door.
   b. The door shall be interlocked with the switch so that:
      1) The switch must be opened before the door can be opened.
      2) The door must be closed before the switch can be closed.
   c. A grounded metal barrier in front of every switch to prevent inadvertent contact with any live part, yet allow for a full-view inspection on the switch blade position.
   d. Provision for padlocking the switch in the open or closed position.
   e. Permanent "Open-Closed" switch position indicators.
   f. Provide a full height, glass polyester, vertical barrier, top to bottom, separating cable compartment from switch and fuse compartment.
   g. Where bus or cabling pass between adjacent sections of the 15 kV switchgear or between 15kV switchgear and adjacent compartments, porcelain, feed-thru bushings shall be provided.

3. Vertical section construction shall be of the universal frame type using die formed and bolted parts. All enclosing covers and doors shall be fabricated from not less than 11 gauge steel. To facilitate installation and maintenance of cables and bus in each vertical section, a removable top cover and a removable, padlockable rear cover shall be provided.

4. Each vertical section containing a switch shall have a single, full length, flanged front door and shall be equipped with two rotary latch type padlockable handles. Provision shall be made for operating the switch and storing the removable handle without opening the full length door.

5. Each load interrupter switch shall have the following features:
   a. Three pole gang operated.
   b. Manual quick-make quick-break over toggle type mechanism utilizing a heavy duty coil spring to provide opening and closing energy.
   c. Medium voltage switches that utilize a chain drive assembly to connect the stored energy mechanism to the operating handle shall provide sufficient vertical and horizontal phase barriers between the operating area of the chain and the live parts to prevent a broken chain from coming in contact with the live parts of the switch. In addition, each medium voltage switch shall come complete with a spare chain located within each medium voltage switch.
   d. The speed of opening and closing the switch shall be independent of the operator, and it shall be impossible to tease the switch into any intermediate position under normal operation.
   e. Separate main and break contacts to provide maximum endurance for fault close and load interrupting duty.

f. Insulating barriers between each phase and between the outer phases and the enclosure.

C. Bus

1. All phase bus conductors shall be silver plated copper and be mounted on NEMA rated porcelain or epoxy insulators.

2. Ground bus shall be silver plated copper and be directly fastened to a bare metal surface of each vertical section, and be of a size sufficient to carry the rated 2 second current of the switchgear assembly. The ground bus shall be extended to within 18" of the incoming conductor conduit entrance.

D. Fuses

1. Fault protection shall be furnished by fuses rated as shown in the contract documents. The high-voltage fuses shall be general purpose type current limiting fuses. The fuses shall be designed to operate with the load interrupter switchgear and shall be tested and rated in accordance with the latest ANSI standards. Provide three (3) spare fuses for each fused switch.

2. High-Voltage fuses shall be stored in a non-condensing environment between 10 degrees C and 40 degrees C.

3. Ratings shall be as follows:

a. Fuse ANSI Designation: E
b. Fuse Type: Current Limiting
c. Nominal System Voltage: 13.8 kV
d. Maximum Design Voltage: 15 kV
e. Current Rating: as shown on drawings
f. Minimum Interrupting Rating: 50 kA RMS Sym

4. The following features shall be included on every Current Limiting fuse:

a. High purity, graded silica-sand filler with pure silver (0.999 fine) elements encased in a glass-epoxy casing.

5. Furnish and install a wall mounted, heavy duty, steel spare fuse cabinet, size as required, with the capacity for 3 spare fuses for each fused switch.

E. Accessories
a. Strip heaters

PART 3 - EXECUTION

3.1 PREPARATION:

A. Transmit submittals and deliverables required by this Section.

B. Furnish products as indicated.

C. Ensure substrates are in suitable condition to receive the work of this Section.

D. Coordinate with associated distribution equipment.

3.2 INSTALLATION:

A. Comply with the requirements of Section 16010.

B. Install transformers in accordance with the manufacturer's instructions.

C. Install transformers on top of an elevated steel platform. Anchor in accordance with Section 16190.

D. Provide grounding and bonding in accordance with Section 16170.

E. Provide overcurrent protection for secondary conductors in accordance with Section 16180.

F. Check connections before energizing transformer.

G. Seal all openings with waterproof and fire resistance sealants.

3.3 FIELD TESTING AND ADJUSTMENTS PRIOR TO ACCEPTANCE TESTING:

A. Perform inspections and tests in accordance with the requirements of Section 16010.

B. Measure primary and secondary voltages and make appropriate tap adjustments.

3.4 ACCEPTANCE TESTING:

A. Perform acceptance testing in accordance with Section 16010. Deliver a test report within fourteen (14) days after completion of all testing.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for “Liquid-Filled Distribution Transformer” and all associated work in this Section shall be included in the unit price bid line item C16-009-001.0 for “Days Yard Wayside Power Substation” on the Bid Price Sheet.

END OF SECTION

SECTION 16440 – ENCLOSED SWITCHES AND CIRCUIT BREAKERS

THIS SPECIFICATION IS NOT IN CONTRACT AND FOR REFERENCE ONLY

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for enclosed switches and circuit breakers.

1.2 REFERENCED SECTIONS:

A. Section 16010 Basic Electrical Requirements

B. Section 16170 Grounding

C. Section 16180 Overcurrent Protection

D. Section 16190 Supports

E. Section 16195 Electrical Identification

1.3 CITED STANDARDS:

A. National Electrical Manufacturers Association (NEMA):

250	Enclosures for Electrical Equipment (1000 Volts Maximum)
AB 1	Molded Case Circuit Breakers
KS 1	Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum)

B. Underwriters Laboratories Inc. (UL):

98	Enclosed and Dead-Front Switches
198 E	Class R Fuses
489	Molded Case Circuit Breakers, Molded Case Switches, and Circuit Breaker Enclosures

1.4 NOTED RESTRICTIONS:

(None listed)

1.5 QUALITY CONTROL:

(None listed)

1.6 SUBMITTALS:

A. Product data for each specified product.

1.7 DELIVERABLES:

A. Acceptance test report.

B. Maintenance manual.

PART 2 - PRODUCTS

2.1 GENERAL:

A. Manufacturers: Square-D Co., Cutler-Hammer, Siemens Energy and Automation, or approved equal.

B. Equipment ratings shall be as indicated.

2.2 SWITCHES AND FUSES:

A. Non-fusible switches: Heavy-duty, quick-make, quick-break, load interrupter type, with externally-operable handle, conforming to NEMA KS1 and UL98. Interlocked to prevent opening the front cover with switch in the ON position. Handle lockable in the OFF and ON positions.

2.3 CIRCUIT BREAKERS:

A. Thermal magnetic, molded case type, rated 600 amps or less, conforming to NEMA AB1, UL 489, and the requirements of Section 16180.

2.4 ENCLOSURES:

A. In accordance with UL 489, with ground lug welded to the box. Conform to NEMA 250 and the requirements of Section 16010.

B. Enclosures in outdoor locations shall be NEMA 4X stainless steel, watertight, and dust tight.

C. Provide hookstick handle accessory for pole mounted switches. Eaton DH800HSH or approved equal.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Transmit submittals and deliverables required by this Section.

B. Furnish products as indicated.

C. Ensure substrates are in suitable condition to receive the work of this Section.

3.2 APPLICATION:

A. Provide horsepower-rated switches to suit the application where switches are used on motor circuits.

3.3 INSTALLATION:

A. Conform to the requirements of Section 16010.

B. Install enclosed switches and circuit breakers in accordance with manufacturer's instructions, plumb, square and level.

C. Provide watertight conduit hubs in damp or wet locations.

D. Provide an auxiliary contact where required for interlocking.

E. Provide grounding in accordance with Section 16170.

F. Provide supports in accordance with Section 16190.

G. Provide nameplates in accordance with Section 16195.

3.4 FIELD TESTING AND ADJUSTMENTS PRIOR TO ACCEPTANCE TESTING:

A. Perform inspections and tests in accordance with the requirements of Section 16010.

3.5 ACCEPTANCE TESTING:

A. Perform acceptance testing in accordance with Section 16010. Deliver a test report within fourteen (14) days after completion of all testing.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. No Payment will be made for “Enclosed Switches and Circuit Breakers” and all associated work in this section. All associated work in this section is being provided by NJ TRANSIT.

END OF SECTION

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SECTION 16470 - PANELBOARDS

THIS SPECIFICATION IS NOT IN CONTRACT AND FOR REFERENCE ONLY

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Requirements for lighting, and power distribution panelboards.

1.2 REFERENCED SECTIONS:

A. Section 16010 Basic Electrical Requirements

B. Section 16180 Overcurrent Protection

C. Section 16190 Supports

D. Section 16195 Electrical Identification

1.3 CITED STANDARDS:

A. American National Standards Institute/Institute of Electrical and Electronics Engineers (ANSI/IEEE):

C62.11 Metal-Oxide Surge Arresters for Alternating Current Power Circuits

C62.41 Surge Voltages in Low-Voltage AC Power Circuits

C62.45 Guide on Circuit Testing for Equipment Connected to Low-Voltage AC Power Circuits

B. National Electrical Manufacturers Association (NEMA):

AB 1 Molded Case Circuit Breakers

LS 1 Low Voltage Surge Protection Devices

PB 1 Panelboards

PB 1.1 General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less

C. Underwriters Laboratories Inc. (UL):

50 Enclosures for Electrical Equipment

67 Panelboards

489 Molded Case Circuit Breakers, Molded Case Switches, and Circuit Breaker Enclosures

1449 Transient Voltage Surge Suppressors

1.4 NOTED RESTRICTIONS:

(None noted)

1.5 QUALITY CONTROL:

(None listed)

1.6 SUBMITTALS:

A. Product Data: Manufacturer's technical data for each type of panelboard, overcurrent protective device, accessory, and component indicated. Include dimensions and technical data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop drawings showing front and side elevations with dimensions; conduit entrance locations; nameplate legends; location of busbars for phases, neutral and ground; busbar material; electrical characteristics, location and type of main.

C. Floor or site plans – to scale indicating equipment layout and all clearances.

D. Panelboard Schedules: For installation in panelboards

E. Nameplate schedules

F. As-builts

1.7 DELIVERABLES:

A. Acceptance test reports.

B. Maintenance manual.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Panelboard manufacturers: Cutler-Hammer, Siemens Energy and Automation, Square-D Co., or approved equal. All panelboards shall be the products of one manufacturer.

2.2 RATINGS:

A. Panelboards shall be NEMA 4X construction as appropriate for the mounting location, arranged for the voltage and current capacity ratings indicated on the Drawings and in conformance with the Contract Documents, and assembled complete with spares, spaces and circuit protective devices as indicated on the Drawings.

B. Panelboards shall have a short-circuit interrupting rating which exceeds the available RMS symmetrical fault current values indicated on Short Circuit Study. All devices, including branch devices, shall be fully rated to interrupt symmetrical short circuit current available at terminals, as indicated on drawings. All devices shall be fully rated for the available fault current, no series ratings will be allowed.

C. Conform to NEMA PB1, UL 67 and UL 489.

D. Panelboards marked with UL listed Short Circuit Current Rating (SCCR) not less than the maximum short circuit current available at the line terminals.

2.3 PANELBOARD CONSTRUCTION:

A. Panelboard cabinets shall be formed from Code gauge galvanized steel with master-keyed flush door locks. Cabinet fronts shall be finished with two (2) coats of ANSI 61 gray enamel over a rust-inhibiting primer coat, or protected by an electro-deposition or powder coat paint process.

B. All unused spaces shall be provided with blank-off plates.

C. Wet location enclosures shall meet the applicable requirements of UL for NEMA 4X type construction.

D. Cardholders and directory cards shall be provided in Circuit arrangement shall correspond to the arrangement indicated on the Panel Schedules on the Drawings. Alternate phases shall be used in consecutive circuit numbering. If arrangement of circuits is modified to achieve load balance on the phases, panel schedules and “as-built” drawings shall be modified accordingly.

E. Cabinets shall be of sufficient size to allow a gutter space of at least four inches on all sides around lighting and utility panels, and six inches for power and distribution panelboards. Conduit entry points shall be coordinated so additional gutter space is allowed for proper cable terminations at mains to avoid short radius bends on cable. Where gutter taps, multiple lugging provisions, installation of metering current transformers or increased feeder size provisions are required, gutter spaces shall be increased accordingly.

F. Doors and trim shall be door-in-door construction, in one piece so designed that doors will close without a rabbet. Doors shall be fastened to cabinet with flush butt concealed hinges. Trims shall be fastened to cabinet by means of captive screws or clamps and flush butt concealed hinge.

G. Plated copper busbars of sufficient cross-sectional area to meet UL 67 temperature rise requirements. Include a neutral bus and equipment ground bus. Bus shall be arranged to accommodate copper bodied, compression connectors at the main lug, main overcurrent device and feed-through lug connections for #6 AWG or larger copper conductors. Attach these lugs to the panel bus with two bolts per lug or one bolt with anti-turn device. Use of rough-edged washers will not be acceptable as an anti-turn device. Bolts shall be captive or shall be studs to facilitate re-installation of the lugs with the wire attached.

H. Bus bars shall be designed, supported and braced for a minimum short circuit equal to the short circuit interrupting rating of the panelboard as described herein.

I. Bus bars shall be sized to limit the temperature rise within the panelboard to 50°C over a 40°C ambient temperature. Bus bars shall be 98% conductivity round edge copper with bolted joint connections. Bolted joint connections shall be readily accessible for inspection and proper maintenance.

J. Ground Bus: Ground bus in each panelboard section, with a minimum of one (1) termination point per pole and additional termination points where additional equipment grounding conductors are required on the drawings or elsewhere.

K. Neutral Bus (Where Required): Neutral bus in each section panelboard section, fully rated unless otherwise noted herein or on the Drawings, with a minimum of one (1) termination point per pole and additional termination points where additional conductors are required on the drawings or elsewhere.

L. Bolted joint connection surfaces for copper bus shall be silver-plated.

M. All two-section panelboards shall be connected with conductors of a capacity equal to or greater than the panelboard main bus amperage capacity. Conductor connections shall be as specified hereinbefore.

N. All spares and spaces shall be fully bussed, including bus straps for sizes indicated on drawings.

O. Bus shall have sequentially phased branch circuit connectors suitable for bolt-on circuit breakers.

P. Field-convertible interior for top or bottom incoming feed. Vertically mounted main breaker or main lugs only, as indicated. Main lug interiors field-convertible to main breaker.

Q. Dead-front interior construction with pre-formed twistouts covering unused mounting spaces.

R. Flush-mounted panelboards shall have interior leveling provisions.

2.4 DISTRIBUTION PANELBOARD:

A. 208Y/120 volt, 3 phase, 4 conductor or 3 phase, 3 conductor, or 120V 1 phase as indicated on the Drawings. Panelboards shall conform to standards and bear the label of the Underwriters Laboratories, Inc., and shall be of dead-front construction. Cabinets and fronts shall be constructed as specified hereinbefore and shall be provided with hinged type doors.

B. Doors: Secured with Vault type latch with tumbler lock; keyed alike.

C. Mains: Thermal-magnetic molded-case, bolt-on type, conforming to NEMA AB1, UL 489, and the requirements of Section 16180.

D. Overcurrent protective devices for circuit-Breaker all frame sizes: UL 489, Molded Case Bolted-in, circuit breakers with integral thermal and instantaneous magnetic trip in each pole. Furnish circuit breakers UL listed as Type HACR for air conditioning equipment branch circuits.

2.5 LIGHTING AND UTILITY PANELBOARDS:

A. All panelboards shall conform with the standards and bear the label of the Underwriters Laboratories.

B. The panelboards shall be assembled complete with molded case bolted-on circuit breakers, spares and spaces as indicated on the Drawings.

C. Certain panels shall be provided in a split bus arrangement with the indicated quantity of multipole circuit breakers or fusible switches provided in section one. All devices in section one shall feed transformers or mechanical equipment or act as the main for the branch devices of section two. The ampacity of section one shall be equal to or exceed the ampacity

of the distribution device feeding the panel, but in no case be less than 200 amperes. Provide main lugs only on both sections as specified and include either bus or cable connections to subfeed the second section for the protective device provided in section one.

D. Where two (2) section panelboards are indicated, each section shall be provided with a main circuit breaker.

E. Overcurrent and Disconnecting Devices:

1. Multi-pole breakers shall be interchangeable with single-pole breakers, operate all poles with a single action, and have common trip action.

2. Molded Case Circuit Breakers: UL 489, bolt-on type thermal magnetic trip circuit breakers, operate all poles with a single action, and have common trip action with common trip handle for all poles, listed as Type SWD for lighting circuits, Type HID for lighting other than fluorescent or incandescent, Type HACR for air conditioning equipment circuits, Class A ground fault circuit interrupter breakers as indicated on Drawings. Do not use tandem circuit breakers.

3. Current-Limiting Molded Case Circuit Breakers: UL 489, circuit breakers with integral thermal and instantaneous magnetic trip in each pole, coordinated with automatically resetting current-limiting elements in each pole. Interrupting rating 100,000 symmetrical amperes, let-through current and energy level less than permitted for same size NEMA FU 1, Class RK-5 fuse.

4. Where no schedule is provided, 42 poles shall be assumed.

2.6 NEMA 4X ENCLOSURES:

A. Conform to NEMA 250.

B. Type 316 Stainless steel.

C. High quality foam-in-place door gasket to prevent ingress of water, solid foreign objects (windblown dust) and corrosive agents, and reduce panel failure due to moisture/corrosion.

D. Cylindrical tumbler-type lock and two additional trunk latches.

E. Clear plastic directory cardholder mounted on the inside of door.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Transmit submittals and deliverables required by this Section.

B. Furnish products as indicated.

C. Ensure substrates are in suitable condition to receive the work of this Section.

3.2 INSTALLATION:

A. Comply with the requirements of Section 16010.

B. Install panelboards in accordance with the manufacturer's instructions and NEMA PB1.1, plumb square and level.

C. Provide grounding in accordance with Section 16170.

D. Provide supports in accordance with Section 16190.

E. Provide nameplates in accordance with Section 16195.

F. Measure steady state load currents at each panelboard feeder. Rearrange branch circuits to balance the phase loads within 10%. Maintain proper phasing for multiwire branch circuits.

G. Type and insert the panelboard circuit directory.

3.3 FIELD TESTING AND ADJUSTMENTS PRIOR TO ACCEPTANCE TESTING:

A. Perform inspections and tests in accordance with the requirements of Section 16010.

3.4 ACCEPTANCE TESTING:

A. Perform acceptance testing in accordance with Section 16010. Deliver a test report within fourteen (14) days after completion of all testing.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. No Payment will be made for “Panelboards” and all associated work in this section. All associated work in this section is being provided by NJ TRANSIT.

END OF SECTION

SECTION 16617 – 480VAC WAYSIDE POWER SYSTEM

PART 1 - GENERAL

1.1 SUMMARY:

A. The Work specified in this section consists of designing, furnishing, installing, connecting, testing and energizing 480 VAC wayside power systems used to provide lay over power to NJ Transit trains in their yards and shops.

B. The 480VAC wayside power system shall consist of:

1. Remotely located 480VAC switchboard:

a. The 480VAC switchboard shall be a low-voltage switchboard with dead-front type construction. The switchboard shall use individually mounted, insulated case circuit breakers installed in-series with a suitable power contactor as specified herein or a suitable design approved “as equal” by NJ Transit.

b. The 480VAC switchboard is typically supplied power via a local NJT medium-voltage distribution source, feeder, and a step-down power transformer. Depending on the area, typical NJT distribution voltages will be classified as either 15kV or 38kV class.

c. The 480VAC switchboard shall be close-coupled with an appropriately rated power transformer or as indicated. The transformer shall be designed and sized to support the full rating of the 480VAC switchboard.

d. The primary side of the power transformer shall be protected using the appropriate size fused disconnect switch or controllable power circuit breaker.

2. Wayside Power Outlet Assembly:

a. Only terminal blocks, voltage sensors, and other electrical equipment necessary to supply 480VAC to the train shall be installed within the power distribution box.

b. The wayside Power Outlet Assembly shall be installed outside the dynamic envelope of the NJ Transit vehicles and adjacent to the track it will service.

3. Wayside Power Control Station:

a. All control cables, relays, and other electrical devices necessary to control the 480VAC wayside power system shall be installed within the wayside power control station.

b. The wayside power control station shall be installed next to the wayside power outlet assembly, outside the dynamic envelope of the NJ Transit vehicles, and adjacent to the track it will service.

C. The wayside power system shall supply and control power to all receptacles connected to the train. The wayside power control system shall prohibit the switchboard from distributing 480VAC to the power outlets unless all power cords are securely connected to the train that activates the permissive circuitry.

1.2 REFERENCES:

A. American National Standards Association (ANSI)
ANSI Z55.1 Gray Finishes for Industrial Apparatus and Equipment

B. American Society for Testing and Materials (ASTM):

Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar for Structural Applications.

C. National Electrical Manufacturers Association (NEMA):

NEMA AB-1 Molded Case Circuit Breakers and Molded Case Switches

NEMA FU-1 Low Voltage Cartridge Fuses

NEMA ICS2 Industrial Control and Systems: Controllers, Contactors, and Overload Relays, Rated Not more than 2,000 Volts AC or 750 Volts DC.

NEMA ICS-4 Application Guidelines for Terminal Blocks

NEMA ICS-6 Industrial Control and Systems-Enclosures

NEMA PB-2 Deadfront Distribution Switchboards

NEMA 250 Enclosures for Industrial Equipment

D. National Fire Protection Association (NFPA):

NFPA 70 – National Electrical Code

E. Underwriters Laboratories, Inc. (UL):

508 – Industrial Control Equipment

489 - Molded Case Circuit Breakers

891 – Dead Front Switchboards

1.3 RESTRICTIONS AND QUALITY CONTROL:

A. To ensure the intended function of the system, the manufacturer shall completely factory assemble the equipment. At the manufacturer's facility, the manufacturer shall test the system and demonstrate to the Engineer that the system complies with the specifications.

1. For the Engineer's review and approval, the manufacturer shall submit a copy of the wayside power system test plan prior to scheduling the system tests.

2. After the Engineer has approved the test plan, the manufacturer may schedule the system testing date(s). The manufacture shall notify the Engineer, in writing, at least fourteen (14) days in advance of the system testing date(s) so the Engineer can make arrangements to witness the tests.

3. If any equipment fails to meet requirements or function properly, the defects shall be rectified by readjusting, or removing and replacing, the faulty equipment until the requirements are met and accepted by the Engineer. After successful testing, the equipment shall be disassembled and delivered to the site for final installation.

B. The wayside power switchboard and power circuit breaker manufacturer must be the same.

1.4 SUBMITTALS:

A. All Submittals are to be in accordance with the Submittal requirements of the contract. At a minimum the contractor shall submit information listed in this specification.

B. Design calculations and equipment arrangement scaled drawings for the entire system.

C. Product data for all assemblies and major components.

D. Bills of materials.

E. Shop drawings for wayside power system including:

1. Plans and elevations.

2. Schematic diagrams of wayside power system and sub-systems.

3. Control wiring diagrams.

4. Main circuit breaker and MCC assembly construction details.

5. Wayside power box and control station fabrication details.

6. Nameplate schedules.

F. As-built drawings of main circuit breaker and MCC assembly, including load circuit breakers and contactors, prepared after final assembly and factory test.

G. As-built drawings of power boxes and control stations.

H. Operation and Maintenance Manual of all components.

I. Certified test reports.

J. Certified field-commissioning reports.

K. Shop drawings for low voltage insulated case switchboard including:

1. Front view and plan view of the assembly with MCC.

2. Single line or three line diagram.

3. Schematic diagram.

4. Nameplate schedule.

5. Conduit space locations within the assembly.

6. Assembly ratings including:

   a. Short circuit rating, voltage and continuous current.

7. Major component ratings including:

   a. Voltage, continuous current, interrupting ratings and grounding.

8. Cable terminal sizes.

9. Busway connection.

10. Connection details between close-coupled assemblies of MCB and MCC.

11. Composite floor plan of close-coupled assemblies.

12. Descriptive bulletins.

13. Product sheets.

14. Final as-built drawings and information.

15. Wiring diagrams.

16. Certified production test reports.

17. Installation information including equipment anchorage provisions.

PART 2 - PRODUCTS

2.1 LOW VOLTAGE SWITCHBOARD RATING:

A. The switchboard shall be 600-volt class suitable for operation on a three-phase, 60-hertz system. The system operating voltage and number of wires connected to the equipment shall be as indicated on the contract drawings.

B. The switchboard and bus shall be braced for amperes RMS symmetrical rating as indicated on drawings.

C. The switchboard shall be equipped with a fully rated neutral and ground bus.

D. The switchboard shall be UL listed or labeled by a Nationally Recognized Testing Laboratory (NRTL).

2.2 SWITCHBOARD CONSTRUCTION:

A. Acceptable manufacturers:

1. Square D brand, Schneider Electric Select Partner program and Gavan-Graham Electrical Product Corp. (Contact info: John Robak 751 Rahway Ave Union, NJ 07083 Phone 908-729-9000), or Square-D type QED-2

2. Eaton/Cutler Hammer

3. Siemens

4. Approved substitution

B. Submit requests for substitutions in accordance with the General Provisions.

C. The type of enclosure shall be in accordance with NEMA standards for type 3R nonwalk-in.

1. All enclosing sheet steel, wireways and unit doors shall be gasketed.

2. Each vertical section shall have 1-150 Watt, 120 V space heater supplied from a control power transformer rated at least two times the connected load.

a. The Contractor shall be responsible for providing temporary power for the space heaters until NJ TRANSIT can either provide a temporary power feeder for the space heaters. The Contractor shall notify NJ TRANSIT a minimum of six weeks in advance of when the temporary power feeder for the space heaters will be needed and the load that the temporary power feeder will need to serve.

D. Structures shall be totally enclosed deadfront, free-standing assemblies. They shall be 90 inches high and 48” inches deep for front-mounted units.

1. Structures shall contain a horizontal wireway at the top and shall be readily accessible through a hinged cover.

2. Adequate space for conduit and wiring to enter the top or bottom shall be provided without structural interference.

E. A vertical wireway with a minimum of 70 square inches (8” wide wireway) of cross sectional area shall be adjacent to each vertical unit and shall be covered by a hinged door. Wireways shall contain steel rod cable supports.

F. Each unit compartment shall be provided with an individual front door.

G. An operating mechanism shall be mounted on the primary disconnect of each starter unit. It shall be mechanically interlocked with the unit door to prevent access unless the disconnect is in the OFF position. A defeater shall be provided to bypass this interlock. With the door open, an interlock shall be provided to prevent inadvertent closing of the disconnect.

2.3 SWITCHBOARD BUS:

A. Each structure shall contain an insulated vertical copper silver-plated bus feeding the unit compartment, with minimum ampacity of 1600 amperes or as shown on the drawings. The vertical bus shall be rated at 50 degrees C temperature rise over a 40 degree C ambient in compliance with UL standards. All joints shall be front accessible for ease of maintenance.

B. The vertical bus shall be completely isolated and insulated by means of a labyrinth design barrier. It shall effectively isolate the vertical busses to prevent any fault-generated gases to pass from one phase to another.

C. All primary and secondary busses shall be insulated with 600V heat shrinkable tubing with all joints wrapped or approved equal. Insulation covering shall be in addition to, and not as a primary means of insulation. Busses are to be insulated with proper standoff insulators.

D. A full-length tin-plated copper ground bus shall be provided.

2.4 SWITCHBOARD CONTROL EQUIPMENT AND INDICATION DEVICES:

A. All relays, meters, and indications shall be furnished as shown on the contract drawings. See section 2.13 of this specification for additional requirements for control and indication devices.

B. See section 2.12 for wire, cable and termination requirements.

C. A phase sequence relay (ANSI 47) device shall be mounted inside each wayside power distribution section to protect against phase loss, phase reversal, phase unbalance, under-voltage and over-voltage. The relay shall be connected to each phase (A, B, & C). Neutral connection is not necessary.

D. Three (3) single-phase under-voltage control relays shall be mounted inside each wayside power distribution section to monitor the incoming voltage. The relays shall be connected phase to ground and their contacts shall be wired to the wayside power control circuit as is shown on the contract drawings.

E. Each wayside power distribution section shall be equipped with two LED-type indicating lights (open and close) and an emergency stop pushbutton (mushroom head style).

F. At a minimum all relays and push buttons shall be provided with two NO and two NC contacts.

G. The manufacturer shall supply a 600V, 3-Pole, 15A, 100kAIC rated molded case circuit breaker to protect the relaying equipment within the wayside power distribution section.

1. Breaker shall be equipped with (2) standard auxiliary switches; 2a and 2b contacts.

2. Use breaker model Square-D HLL36015AA or approved equal.

H. Each wayside power distribution section shall be equipped with the appropriate equipment to supply 125VDC control power to the wayside power control system.

1. Equipment shall be fused as shown on the contract drawings. The manufacturer shall determine all fuse ratings.

2. The manufacturer shall supply a 480VAC to 125VDC AC/DC conversion equipment to support the wayside power control circuit. This equipment shall be rugged, rated for industrial use, and insulated for voltage spikes up to 1000V.

2.5 OVERCURRENT DEVICES:

A. Main and Feeder overcurrent devices shall be 100% rated, fixed mount, insulated case circuit breakers with inverse time and instantaneous tripping characteristics. Acceptable manufacturers are:

1. Square-D/ Schneider Electric
2. Eaton/Cutler Hammer
3. Siemens
4. Approved substitution

B. Submit requests for substitutions in accordance with the General Provisions.

C. Circuit breakers shall have a single, toggle-type operating handle that acts directly through the operating mechanism against the contact blades.

1. The 3-pole circuit breaker shall have a common trip bar for positive action of all poles on manual and automatic operation.
2. The circuit breakers shall have a trip-free mechanism that allows the breaker to trip even if the operating handle is restricted (by a handle operating mechanism or padlock attachment).
3. Contacts shall be non-welding silver alloy and arc extinction shall be accomplished by means of DE-ION arc chutes.
4. A push-to-trip button on the front of the circuit breaker shall provide a local-manual means to exercise the trip mechanism.
5. The breaker shall be equipped with a shunt trip device that can be controlled from the 125VDC control system supplied by the full-wave diode rectifier.

D. All wayside power circuit breakers shall be equipped with a microprocessor-based RMS sensing trip units.

1. The microprocessor-based RMS sensing trip units shall be Square D Micrologic, Eaton OPTIM, or approved equal.
   a. Each circuit breaker microprocessor-based tripping system shall consist of current sensors, a trip unit and a flux-transfer shunt trip or a tripping solenoid. The trip unit shall use microprocessor-based technology to provide the adjustable time-current protection functions.
   b. Interchangeable rating plugs shall establish the continuous trip ratings of each circuit breaker. Rating plugs shall be fixed-type as indicated.
   c. System coordination shall be provided by the following microprocessor-based programmable time-current curve shaping adjustments:
      1) Programmable long-time setting.
      2) Programmable long-time delay with selectable I^2t or I^4t curve shaping.
      3) Programmable short-time setting (dependent on long-time setting).
      4) Programmable short-time delay with selectable flat or I^2t curve shaping

and zone selective interlocking.

5) Instantaneous pickup with an adjustable setting of 200% to 1400% and shall include an "OFF" setting for the instantaneous trip.
6) Programmable ground fault setting trip or alarm.
7) Programmable ground fault delay with selectable flat or I^2t curve shaping and zone selective interlocking.

a) If the Micrologic 5.0P trip unit is used one hand-held test kit unit shall be provided. The hand-held test unit shall be self-powered by an internal battery.
b) If the OPTIM 750 trip unit is used one hand-held programmer unit shall be provided. The hand-held programmer shall be self-powered by an internal battery.

2. Microprocessor based trip units shall be provided with energy metering functions.

E. Main Circuit Breakers

1. The main circuit breakers shall be provided with an Arc Flash Maintenance Switch to allow temporary change to the circuit breaker trip settings for reduction of incident energy while maintaining energized equipment, and improved coordination during normal, non-maintenance operation.

F. Circuit breaker shall be UL listed for applications at 100% of its continuous ampere rating in the intended enclosure.

G. If applicable all feeder breakers shall be zone selective with the upstream breakers.

2.6 NEMA MAGNETIC CONTACTORS:

A. Contactors shall be NEMA sizes as indicated on the Contract Drawings, Square-D Class 8502Type S Series or approved equal.

B. Contactors shall meet the latest sections of Underwriters Laboratories (UL) and National Electrical Manufacturers Association (NEMA).

C. Contactors shall have UL certification to achieve IEC 947, Type 2 coordination when subjected to the available short-circuit fault currents.

D. Magnetic contactors shall be equipped with double break silver alloy contacts.

E. Coils shall be of molded construction.

F. Coils shall be permanently marked with voltage, frequency and part number.

G. NEMA contactors shall be suitable for the addition of up to eight external auxiliary contacts of any combination of normally open or normally closed contacts.

H. Contactors shall have replaceable fixed and movable contacts. Auxiliary contacts shall be provided to permit indication functions.

I. Contactor Accessories

1. Contactor to be designed to accommodate two auxiliary contact blocks, each

capable of a combination of up to four normally closed or four normally open auxiliary contacts.

2. Contacts to be color-coded, black designating NC and silver designating NO. Contacts to be rated 10 amperes continuous, 7,200 VA make, 720 VA break for 120 through 600 VAC and 69 VA make and break for 125 through 300 VDC.

3. Provide a minimum of one spare NO contact and one spare NC contact in addition to any auxiliary contacts required.

J. All required lug kits shall be provided.

K. Square-D/ Schneider Electric, Cutler-Hammer or approved equal.

2.7 DIGITAL POWER METER (DPM):

A. Digital Power Meters shall include:

1. The information displayed by the Digital Power Meter shall include the following quantities:

a. RMS voltage per phase
b. RMS current per phase
c. kW per phase
d. kVAR per phase
e. Power factor per phase
f. Total kW
g. Total kVAR
h. Total kVA
i. Frequency
j. Neutral Current
k. Total power factor
l. Voltage and current unbalance.
m. Ampere and volt demand per phase
n. Ampere maximum demand per phase
o. kW demand
p. kVA demand
q. kW maximum demand
r. kVA maximum demand
s. Total kWhr
t. Voltage THD per phase
u. Current THD per phase
v. Time stamped min/max logging:

1) Amperes
2) Voltage
3) kW
4) kVAR
5) kVA
6) power factor

2. The Digital Power Meter shall be meet ANSI C12.20, Class 10, 0.5% accuracy requirements.

3. The Digital Power Meter metering inputs shall utilize current transformers for the current inputs. It shall be rated 5A nominal and 10A full scale. In addition, it shall be industrially and utility hardened to have an overload withstand rating of 15A continuous and 300A for 1 second. Wiring shall be 4-wire, 3-element using three (3) current transformers.

4. The device shall not require potential transformers when applied at 600V or less. When applied at voltages in excess of 600 volts, input voltage wiring shall accommodate connection to 3-voltage transformers connected wye-wye.

5. Control power shall be 120 VAC.

6. The Digital Power Meter shall be provided with a real time clock and calendar functions and include integral battery backup.

7. Each Digital Power Meter shall be equipped with a 3.5-inch LCD display.

8. The display shall scale readings automatically without the need for multipliers.

9. The power meter shall be mounted in the switchboard no more than sixty (60) inches to the center line of the device above the bottom of the switchboard.

B. The Digital Power Meter shall be Satec PM 135 or approved substitution.

2.8 WAYSIDE POWER OUTLET ASSEMBLY:

A. The contractor shall furnish and install wayside power outlet assemblies as shown on the contract drawings. Enclosures shall be Clements National, Pentair, Hoffman or approved equal
with dimensions as shown on the drawings.

1. The box sides shall be ¼ inch thick hot rolled steel plate, bottom shall be 3/8 inch thick hot rolled steel plate.

2. Box sides and bottom shall be seam-welded 5/16 inch in width all around (watertight construction) with all corners rounded.

3. Covers shall be 3/8-inch thick hot rolled steel plate and held to box with not less than 14 copper alloy studs, brass cadmium plated acorn nuts, and Everdur lock-washers.

4. The gasket between box and cover shall be 1/8-inch thick navy stock packing with one-piece construction.

5. The entire box finish shall be hot-dip galvanized.

B. Pre-drilled holes for two 4” conduit and two 1” conduit shall be provided on the bottom of the box as shown on the drawings.

C. Each standby receptacle outlet shall be 3 phase and rated for 400 amperes at 600 volts maximum. Receptacle bodies shall be cast aluminum and contacts shall be silver-plated copper, Anderson Cat. No. R87 or approved equal. Receptacle shall have a six-pin configuration, three for power and three for control wiring. Receptacle shall be able to accept the R86B female plug.

D. Provide solderless copper ground lugs for each box.

E. All boxes shall pass a watertightness test per Anderson Spec. 1S1008 complying with Coast Guard spec. MIL-023641(CG).

F. All box identification plates shall be brass.

G. A 3-phase through-door voltage indicator, Voltage Vision Cat. No. R-3W2-KB or approved equal, shall be mounted on top of the box as shown on the drawings.

1. The voltage indicator shall be connected phase to ground.

2. The manufacturer shall adequately seal and gasket around the through-door voltage indicating device.

H. All box connectors shall be water tight as manufactured by Anderson Power Products, Pyle-National, Nabson or approved equal.

I. Power terminal blocks shall be fully rated for use with 800 ampere circuits. Power terminal blocks shall be Marathon Type 135X703CH class T rated or approved equal.

J. See section 2.12 for wire, cable and termination requirements.

K. Manufacture shall size any fuses within the wayside power enclosure. Size and rating shall ensure safe operation and protection of the equipment.

2.9 PRE-FABRICATED CONCRETE PAD FOR WAYSIDE POWER OUTLET ASSEMBLY:

A. A concrete pad (approximately 54”x24”) with openings for two four-inch and two one-inch conduits at each wayside power enclosure shall be provided by the structural sub-contractor. Openings to correspond to the pre-drilled holes in the bottom of the wayside power enclosure.

2.10 PORTABLE JUMPER PLUG/CABLE ASSEMBLY:

A. Each portable jumper plug/cable assembly shall be supplied in twenty-five feet lengths with molded construction female plugs on each end, Anderson Cat. No. R86B or approved equal. Plug shall have a six-hole configuration, three for power and three for control wiring. Plug shall be able to connect to the male R87 box receptacle and the train-line receptacle on the car body.

2.11 CONDUIT SEAL:

A. Provide one pint of Polysulfide Compound, Products Research Cat. No. PR-1201-Q or approved equal for each wayside power enclosure.

B. Provide 4” conduit sealing bushing, OZ Gedney (CSBG-400P3) or approved equal for each 4” conduit penetration.

2.12 CONTROL STATIONS:

A. Provide control stations consisting of a straight pedestal column, a pedestal base and a sloping push button enclosure. The control stations shall be assembled and prewired prior to delivery. The control station shall have lockable cover
able to accept NJ Transit padlock to accommodate NJ Transit lockout and tag-out

requirements.

B. The control station shall meet the latest applicable sections of Underwriters Laboratories (UL) and National Electrical Manufacturers Association (NEMA). The control stations shall be Hoffman, Saginaw, or approved equal having the specified features listed in this section of the specification.

C. Pedestal:

1. Provide 6" X 6" NEMA 4X 304 stainless steel pedestals with lugs for ground wire. The pedestal heights shall be not less than 35 inches and conform to the dimensions of Hoffman part number A-66CCOL but in SS (Stainless Steel).

2. Provide a NEMA 4X hand-hole opening that is waterproof, with gasket and cover to serve as access to the wires on the lower portion of the pedestal as shown on the plans.

D. Base:

1. Provide NEMA 4X 304 stainless steel bases as shown on plans. The base shall not be less than 18 inches squared and one inch thick and conform to Hoffman part number A0-18SBASE or an approved equal.

2. Provide an adequate opening, that is water-tight and gasket sealed in each base.

E. Sloping Enclosure:

1. Provide NEMA 4X 304 stainless steel sloping enclosures positioned at 30 degrees angle as shown on contract drawings. The enclosure shall be fabricated steel with all seams continuously welded; use Saginaw (SCE-16C20ELJ), Hoffman (C-12C12SS), or approved equal.

2. The enclosures shall be completely pre-wired and terminated on the right side of the terminal block located on the right side of the enclosure back plate.

3. Each enclosure shall include one each NEMA type 4/4X/13, corrosion resistant/ watertight/oil-tight Allen-Bradley pilot light unit 800H series with 120 volt DC light emitting diodes as required per the contract drawings.

4. Each enclosure shall include one each NEMA type 4/4X/13, corrosion resistant/ watertight/oil-tight Allen-Bradley push button unit 800H pushbuttons and operators as required per the contract drawings.

5. See section 2.13 of this specification for additional requirements for control and indication devices.

6. Each enclosure shall include one (1) 180W (minimum) variable power resistor vertically mounted on the left side of the enclosure back plate. The variable power resistor shall offer a variable resistance ranging from 5 to 30 ohms (minimum).

   a. The contractor shall determine applicable resistance value in the field and set the power resistor accordingly.
   b. Resistor tolerance shall not exceed 10%

c. Resistor shall be set to limit the voltage at the train set between 50 and 75VDC. Use VISHAY Model RBEA0180 or approved equal.

7. Each enclosure shall be wired in accordance with the contract drawings.

8. See section 2.12 for wire, cable and termination requirements.

9. Electrical interlock shall exist between the remote control station and its contactor to prevent the contactor from closing at the switchboard if the remote control station is in the open position.

F. Prefabricated concrete slabs to support the control stations shall be provided by structural sub-contractor. All concrete slabs to be four inches above grade. Slab to have an entry for two (2) one-inch conduits that will align with the pedestal base.

G. The control console shall be equipped with a stainless steel type access enclosure as shown on the contract documents. The access enclosure shall protect the control hardware (lights and pushbutton) from rain, snow and sleet. The access enclosure shall be equipped with locking hardware that will accept NJ Transit standard padlock hardware.

H. All hardware shall be stainless steel.

I. Control station and access enclosure shall be provided by Saginaw, Hoffman or approved equal.

2.13 WIRING, TERMINAL BLOCK AND TERMINATIONS:

A. Wayside power cables shall comply with NJ Transit minimum requirements.

1. Cable shall be 600V rated (minimum), 600kcmil copper cable.

2. Cable should be rated for use in wet or dry locations, indoors or outdoors, in raceways, underground ducts, directly buried in earth, or lashed to a messenger for aerial installation.

3. Insulation shall be composed of a layer of EPR covered with a chlorinated polyethylene thermoset compound (CPE). Cable and insulation shall be listed by Underwriters Laboratories, Inc. (UL) as type RHH or RHW-2.

4. Cables shall be uncoated soft copper per ASTM B-3.

5. Use Okonite Okoguard-Okolon TS-CPE cable or approved equal.

B. Control wiring within the switchboard or enclosures shall be shall be NEMA Class I, Type B. All control wiring shall be adequately sized for its use and shall be 14 gauge minimum SIS type. All power wiring shall be SIS.

C. Control cables routed between the switchboard and electrical enclosures shall be 600V rated (minimum) 90 degree Celsius (wet or dry) and sized per the contract drawings. Control cables shall be 14 gauge minimum.

1. All cables shall be copper.

2. Control cables shall be TC rated cables conforming to the requirements of UL. Cables shall be permitted for use on power, lighting, control, and signal circuits; indoors or outdoors; in cable trays, raceways, and direct burial in ground.

3. Insulation shall be composed of EPR. It shall be mechanically rugged and be resistant to heat, moisture, flame and chemicals.

4. Cable shall be uncoated soft copper per ASTM B-3.

5. Use Okonite-FMR Okolon TP-CPE Type TC cable or approved equal.

D. Control cable terminations and terminal blocks shall comply with NJ Transit minimum requirements.

1. All control cable terminal blocks shall be 600V rated, type GE EB-25 or approved equal. Terminal strips shall come in sections of 12 terminals and shall be equipped with a protective cover.

2. All control cables shall be terminated using PVC insulated, ring tongue terminals. Terminations shall be rated for use with 600V circuits. Use Burndy VINYLUG Type TP or approved equal.

2.14 MISCELLANEOUS DEVICES:

A. All control relays and indication relays shall be furnished as shown on the contract drawings.

1. At a minimum all relays shall be provided with two NO and two NC contacts unless otherwise stated in this specification.

2. Contacts shall be rated for 5Amp at 125VDC at a minimum unless otherwise stated in this specification.

3. Relay contacts shall be convertible and bifurcated double break (at a minimum) to help prolong relay life when used in 125VDC control circuits unless otherwise stated in this specification.

4. At a minimum all relays shall have an electric service life of 500,000 operations at 120VAC.

B. ANSI 01 (Master Element) shall be Allen Bradley industrial relay Series 700-P or approved equal. Each relay will be connected phase to neutral and the coil shall be rated for 277VAC. Use model 700DC-P600DZ1 or approved equal.

C. ANSI 02 (Time Delay, Pick-Up Relay) shall be an Agastat industrial electro-pneumatic timing relay 7010 series or approved equal. This timer relay is used to delay control power to the control station for a set period of time after connecting the power cable to the train car. The relay shall be equipped with four double throw contacts (4 form C) and the coil shall be rated for 125VDC. Use model 7014RD or approved equal.

1. Time delay shall range from 2 to 20 seconds (minimum)

2. Coil shall be rated for the system operating approximately 50 to 75VDC

3. Agastat model offer special DC coils upon request

D. ANSI 47 (Phase Sequence Relay) shall be MACROMATIC PMDU Series relay with one single-pole, double-throw and one single-pole, normally closed contacts or approved equal. Relay shall be compatible with 480VAC and shall have contacts rated for 10Amps continuous at 240VAC.

E. ANSI 27 (Under-voltage Relay) shall be Allen Bradley industrial relay Series 700-P or approved equal. Each relay will be connected phase to neutral and the coil shall be rated for 277VAC. Use model 700-P400A27 or approved equal.

1. Relay contacts shall be convertible and bifurcated double break (at a minimum) to help prolong relay life when used in 125VDC control circuits.

F. ANSI 62 (Time Delay Relay) shall be Allen Bradley industrial relay Series 700-P or approved equal. This timer relay is used to block the shunt-trip device when the switchboard contactor is in the open position and the 47 device is de-energized. The coil shall be rated for 125VDC. Use model 700DC-PT400DZ1 or approved equal.

1. Time delay shall range from .5 to 10 seconds (minimum)

2. All relay contacts shall be reversible.

G. All equipment mounted indicating lights shall be NEMA type 4/4X/13, corrosion resistant/ watertight/oil-tight Allen-Bradley pilot light unit 800H series with 120 volt light emitting diodes or approved equal.

1. Lights shall fit into a standard 30.5 mm mounting hole and shall be rated for its intended operation. The LED's shall be the 28-cluster type rated at 120VDC

2. Indicating light color, make and model for use with the wayside power electrical equipment are:

a. Amber - Allen Bradley Cat. No. 800H-QRH2A
b. Red – Allen Bradley Cat. No. 800H-QRH2R
c. Green - Allen Bradley Cat. No. 800H-QRH2G
d. Approved Equal.

H. All equipment mounted push buttons shall be NEMA type 4/4X/13, corrosion resistant/ watertight/oil-tight Allen-Bradley push button unit 800H series or approved equal.

1. All push buttons shall come equipped with one normally-open and one normally closed contact.

2. Push buttons shall fit into a standard 30.5 mm mounting hole and shall be rated for its intended use.

3. Push button color, make and model for use with the wayside power equipment are:

a. Red flush head with legend plate labeled "CLOSE" – Allen Bradley Cat. No. 800H-AR6A.
b. Green mushroom head with legend plate labeled "OPEN" – Allen Bradley Cat. No. 800H-DR1A.

c. Red mushroom head with legend plate labeled “EMER. STOP” – Allen Bradley Cat. No. 800H-DR-6A (emergency stop at the 480VAC switchboard).
d. Approved Equal.

2.15 INCOMING FEEDER TERMINATIONS AND DEVICE:

A. Incoming cable shall terminate within the switchboard on a main breaker termination point. Main breakers shall be provided as indicated on the drawings and shall be molded case.

B. Power cables to the wayside power enclosure shall terminate on the power terminal block.

C. Consult with NJ Transit if additional terminations or splices are required.

2.16 NAMEPLATES:

A. Each unit shall have a 1.0 x 2.5-inch hot stamped nameplate. The lettering shall be white 3/16-inch high, in a black background.

2.17 FINISH:

A. The control center shall be given a phosphatizing pretreatment. The paint finish shall be an anionic, thermoset acrylic. Manufacturer's standard color shall be used.

B. The control center finish shall pass 600 hours of corrosion resistance testing per ASTM B 117.

PART 3 – EXECUTION

3.1 PREPARATION:

A. Transmit submittals required by this Section.

B. Furnish products as indicated.

C. Ensure that substrates are in suitable condition to receive the work.

3.2 FACTORY TESTING:

A. Switchboard:

1. The following standard factory tests shall be performed on the equipment. All tests shall be in accordance with the latest version of ANSI and NEMA standards.

2. Completely test the swtichboards for operation under simulated service conditions to assure the accuracy of the wiring and the functioning of all equipment.

3. The bus system shall be given a dielectric test of 2,200 volts for one minute between live parts and ground, and between opposite polarities.

4. The wiring and control circuits shall be given a dielectric test of 1,500 volts for one minute or 1,800 volts for one second between live parts and ground in

accordance with ANSI C37.20.1.

5. The manufacturer shall provide certified copies of factory test reports.

B. System:

1. Test each component to assure accuracy of the wiring and the functioning of all hardware and subassemblies.

2. Perform complete functional testing. Functional testing will be witnessed by NJ TRANSIT and/or NJ TRANSIT's representative(s) and the Engineer.

3. NJ TRANSIT reserves the right to inspect the contactors and the Wayside Power Boxes and Control Stations at their respective places of manufacture.

4. Provide fourteen (14) day notice prior to functional testing.

D. Perform all acceptance, startup and operating tests in the presence of the Engineer, Owner, and/or designated authorized witness at no additional cost.

E. Certified report of factory test, as outlined above, shall be available at the time of factory inspection. Manufacturer shall notify the Engineer and NJT fourteen (14) days prior to the date equipment is ready for witness testing. All costs for witness testing shall be provided by the manufacturer for two engineers.

3.3 INSTALLATION:

A. Install equipment in accordance with the manufacturer's instructions and product listing requirements.

B. Provide grounding and bonding in accordance with Section 16170.

C. Provide interconnecting wiring as indicated, in accordance with NFPA 70 and NEC.

D. Commission contactors by a manufacturer's representative who will provide technical guidance and assist with connections, adjustments and wire check, sequence, and calibration testing.

3.4 FIELD TESTS:

A. The Owner reserves the right for the Owner, Owner's Representative or Engineer to witness any testing at no additional cost to the Owner.

B. Field test of the wayside power system shall be performed after the installation is ready to be operated as a complete and fully functional system.

C. All acceptance tests specified in Section 16080, Acceptance Testing of Electrical Systems shall be completed.

D. The Contractor shall perform full functional testing to demonstrate that the controls and protective relaying operates properly and as intended. The functional testing plan is subject to the review of the Owner's Commissioning Agent.

E. A manufacture's authorized technician shall be present for all functional testing.

3.5 TRAINING:

A. The Contractor shall provide the services of an authorized manufacturer's representative(s) to train NJ TRANSIT personnel in the operation and maintenance of the equipment.

B. Provide a minimum of two (2) eight-hour days of training for up to 10 people at the Owner's facility plus one (1) eight-hour day for onsite demonstration of the operation of the installed equipment.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. All work required to complete the specific tasks in this section shall not be measured.

4.2 PAYMENT

A. Payment for 480VAC Wayside Power System and all associated work in this Section shall be included in the following unit price bid line items on the Bid Price Sheet:

1. C16-009-001.0 - Days Yard Wayside Power Substation
2. C16-009-002.0 - Days Yard Wayside Power Outlets & Control Stations
3. C16-009-003.0 - Temporary Power for Days Yard Wayside Power Substation Switchboard Space Heaters

END OF SECTION

Philip D. Murphy, Governor
Sheila Y. Oliver, Lieutenant Governor
Diane Gutierrez-Scaccetti, Commissioner
Kevin S. Corbett, President & CEO

NJTRANSIT
One Penn Plaza East
Newark, NJ 07105-2246
973-491-7000

April 30, 2021

ADDENDUM NO. 1

Re: NJ TRANSIT's IFB No. 21-004X
Hoboken Signal and Yard Power Repairs Projects

To Whom It May Concern:

Bidders are hereby advised of the following clarifications, additions and/or revisions to the above referenced Invitation for Bid:

1. PRE-BID CONFERENCE

A pre-bid conference will be held utilizing a telephone and video conference, via Microsoft Teams, and is scheduled for **Wednesday, May 12, 2021** at **10:00 A.M.** local time. For access information, participants should contact Faith Blair, by e-mailing fblair@njtransit.com by or before **Tuesday, May 11, 2021.** Interested parties are urged to participate.

FOR PROSPECTIVE BIDDERS ONLY

In accordance with NJ TRANSIT's Instructions to Bidders - Article B.3, an authorized representative of your organization shall electronically acknowledge receipt of this Addendum on the Bid Form in the space provided with its bid. Failure to acknowledge receipt of all Addenda may cause the rejection of the Bid as non-responsive.

Sincerely,

fblair

Faith Blair
Managing Contract Specialist
Procurement Department

Philip D. Murphy, Governor
Sheila Y. Oliver, Lieutenant Governor
Diane Gutierrez-Scaccetti, Commissioner
Kevin S. Corbett, President & CEO

NJTRANSIT
One Penn Plaza East
Newark, NJ 07105-2246
973-491-7000

May 14, 2021

ADDENDUM NO. 2

Re: NJ TRANSIT's Invitation For Bid (IFB) No. 21-004X
Hoboken Signal and Yard Power Repairs Projects

To Whom It May Concern:

Bidders are hereby advised of the following clarifications, additions and/or revisions to the above referenced Invitation for Bid:

1. IFB PRE-BID CONFERENCE PRESENTATION

The Pre-Bid Presentation summarizing information discussed at the Pre-Bid Conference held on Wednesday, May 12, 2021 is enclosed as Attachment A.

2. IFB PRE-BID CONFERENCE ATTENDANCE LIST

The Attendance Sheet from the Pre-Bid Conference held on Wednesday, May 12, 2021 is included as Attachment B.

3. IFB REQUEST FOR CLARIFICATIONS / QUESTIONS

All inquiries and requests for clarifications regarding the Contract Documents shall be submitted in the space provided for Questions and Answers (Q&A) in Bid Express.

Firms can submit multiple questions using a single Q&A text box by typing all questions in a numbered list and clicking submit only after all of their questions have been entered. NJ TRANSIT will provide responses to all questions received in an addendum that will be issued via the Bid Express website.

FOR PROSPECTIVE BIDDERS ONLY

In accordance with NJ TRANSIT's Instructions to Bidders - Article B.3, an authorized representative of your organization shall electronically acknowledge receipt of this Addendum on the Bid Form in the space provided with its bid. Failure to acknowledge receipt of all Addenda may cause the rejection of the Bid as non-responsive.

Sincerely,



Faith Blair
Managing Contract Specialist
Procurement Department

Enc.

ATTACHMENT A

INVITATION FOR BID (IFB) NO. 21-004X

HOBOKEN SIGNAL POWER SYSTEM and YARD-WAYSIDE POWER REPAIR PROJECTS

IFB PRE-BID CONFERENCE PRESENTATION

NJ TRANSIT
INVITATION FOR BID (IFB) NO. 21-004X

SIGNAL POWER SYSTEM
&
YARD POWER REPAIRS PROJECTS
HOBOKEN, HUDSON COUNTY, NEW JERSEY

May 12, 2021
Pre-Bid Conference

Faith Blair
Managing Contract Specialist

PRE-BID CONFERENCE AGENDA

- Introduction
- Bidders Process & Requirements
- Disadvantaged Business Enterprise (DBE) Goal Assignment and DBE Program Compliance Requirements
- Project Overview & Technical Requirements
- Question and Answer Session

KEY DATES

Deadline to submit Standard Prequalification	**Thursday, May 27, 2021 @ 5:00 p.m.**
Deadline to submit inquiries and requests for clarifications	**Thursday, May 27, 2021 @ 5:00 p.m.**
Bid Due Date	**Thursday, July 8, 2021 @ 2:00 p.m.**

COMMUNICATIONS

- Communications regarding this Invitation for Bid are solely to be conducted through NJ TRANSIT's Procurement Department.

- All other contacts are considered improper and are prohibited. Violation of this prohibition may cause removal of a proposer from consideration for award of this contract.

COMMUNICATIONS (CONT'D)

- Proposers are also advised that any discussions held during this meeting are considered informal and are not binding. The only means for modifying this bid is through a formal written Addendum. Therefore, any inquiries or requests for clarification must be submitted in the space provided for Questions and Answers (Q & A) in Bid Express no later than **5:00 p.m.** on **Thursday, May 27, 2021**.

- Any response NJ TRANSIT elects to make will be made by a written Addendum and sent to all listed plan holders.



OBTAINING BID DOCUMENTS

- This Project is being bid by use of an electronic bidding process. Electronic bidding information is available on NJ TRANSIT's electronic bidding website: https://bidexpress.com. Registration and a subscription fee are required to access the Bid Documents. The Bidder shall download the bidding software. The Bidder shall not alter or in any way change the software.
- **Bidders need to apply for a digital ID at least seven (7) business days prior to the Bid Due Date.**

PREQUALIFICATION REQUIREMENT

All Bidders **must** be prequalified by NJ TRANSIT prior to submitting a Bid for this Project.

Bidders must be prequalified for **"HR" Heavy Construction (Operating Railroad Environment)** in a classification of **"GC" General Contractor** and for an amount of work that is equal to or greater than their bid amount. NJ TRANSIT suggests a minimum rating amount of "R" over $25,000,000.00.

Prequalification questionnaires are available for download from the Bid Express. Completed prequalification questionnaires must be emailed to **Faith Blair** at fblair@njtransit.com no later than **5:00 p.m.** on **Thursday, May 27, 2021.**

PREQUALIFICATION REQUIREMENT (CONT'D)

Late submissions of prequalification questionnaires or submission of incomplete prequalification questionnaires may result in the Contractors not being prequalified to Bid.

The prequalification classifications are valid for **thirty-six (36) months**.

Bids received from Contractors that are not prequalified or are prequalified with a rating insufficient to support its bid will be rejected.

BID SECURITY

- Bids shall be accompanied by Bid Security in the form of a Bid Bond, Cashier's Check, Certified Check or irrevocable Letter of Credit. Cash is not considered an acceptable form of security.
- The amount of the Bid Security shall equal to ten percent (10%) of the total bid amount. A Bid shall be rejected as non-responsive if it is not accompanied by satisfactory Bid Security.
- **Please Note**: Your Bid Security can be obtained electronically via Bid Express or you may submit a hard copy from your bonding company. However, the hard copy of your bid security must be uploaded in Bid Express and received by the Bid Desk prior to 2:00 pm for the Bid opening.

BID OPENING

Consistent with Governor Murphy's Executive Orders 103, 104 and 107, included as Attachment G, on COVID 19, NJ TRANSIT is committed to continue procurement operations to the maximum extent practicable.

Accordingly, in consideration of the health, safety, and welfare of the agency employees and the bidding community alike, NJ TRANSIT will not hold an in-person Bid Opening for this IFB. The Bid Opening Scheduled for **2:00 pm, Thursday, July 8, 2021** will be conducted by Conference Call Only.

The bids will be read aloud on the conference call. Conference call details are as follows:

Dial-in Number: 1-862-294-4371

Conference ID: 771 881 178#



BID OPENING (CONT'D)

For any bidder who wishes to participate, conference call access will be open five (5) minutes prior to the Bid Opening and remain open until all bids have been read.

The apparent bid results will be made available for viewing electronically on Bid Express (www.bidexpress.com) and on NJ TRANSIT's Procurement Calendar (https://www.njtransit.com).

Late bids cannot be accepted.

NJ TRANSIT's
OFFICE OF BUSINESS DEVELOPMENT (OBD)

Disadvantaged Business Enterprise (DBE)

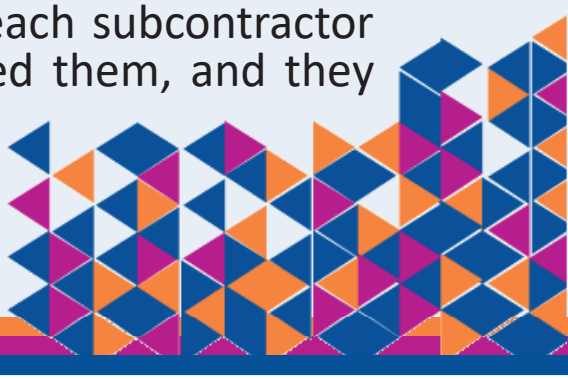
Assigned Goal and DBE Program Compliance Requirements

Jacquelin Rush-Gilbert
Senior Business Development Specialist
973-491-8575
JRush-Gilbert@njtransit.com

Presenter: Mariane Ibrahim

ROLE OF OFFICE OF BUSINESS DEVELOPMENT (OBD)

- Administer NJ TRANSIT's DBE and SBE program in accordance with the State and Federal requirements.
- Provide guidance and direction to potential Bidders/Proposers, NJ TRANSIT's project team, and DBE and SBE firms.
- Answer questions, issues, or concerns regarding DBE and SBE requirements of the contract and meeting the assigned contract goal.
- Conduct DBE and SBE Program compliance review of bid/proposal submission. OBD shall contact each subcontractor firm you listed to ensure they were contacted them, and they know they will perform on this project.



DBE GOAL ASSIGNMENT

NJ TRANSIT is committed to its Disadvantaged Business Enterprise (DBE) Program and has assigned a **twenty-three percent (23%) Race Conscious** goal on the gross sum amount of the bid for DBE subcontracting utilization.

OBD has identified subcontracting opportunities in this contract for DBE firms to participate and encourages bidders to identify areas for utilization as well.

The bidders can refer to **https://njucp.dbesystem.com/** which provides a searchable database of all registered and approved Disadvantaged Business Enterprise firms certified by the New Jersey Department of Transportation, New Jersey Transit Corporation and the Port Authority of New York and New Jersey.

DBE PROGRAM COMPLIANCE REQUIREMENTS

- The Mandatory Forms are the **Form A, A1, A2, B** and a **copy of the DBE's Certified Profile page** from the NJUCP DBE Directory.

- Bidders are requested to review carefully and complete the forms entirely, with no blank fields.

- **Notwithstanding the date of submission of the mandatory DBE forms, all negotiations between a bidder and any potential DBE subconsultant, or supplier shall be completed prior to the bid due date.**

- Failure to submit all mandatory DBE documentation with the bid **within five (5) calendar days after the bid due date** shall result in a rejection of a bid as non-responsible.

DBE PROGRAM COMPLIANCE REQUIREMENTS (CONT'D)

A firm must be certified in the NJUCP by the bid due date to receive DBE credit toward the contract's assigned DBE goal. Firms pending NJUCP DBE certification will not count toward meeting the assigned goal.

For technical guidance and/or assistance identifying active DBE firms listed in the NJUCP DBE directory at **https://njucp.dbesystem.com/**, you may contact the OBD representative identified on this Invitation for Bid.



DBE PROGRAM COMPLIANCE REQUIREMENTS (CONT'D)

Bidders **should not** accept a DBE's Certification Letter as **sole evidence** that its DBE status is current and valid.

Bidders must check the NJUCP DBE Directory at https://njucp.dbesystem.com/. Click on the firm's name to view the Certified Profile page and the DBE designation located in the Certification Information box.

Bidders must print the NJUCP DBE Certified Profile page and submit with all other required DBE forms.

NJUCP DIRECTORY

https://njucp.dbesystem.com



NJUCP DIRECTORY (CONT'D)

Search Certified Directory

Search results may be downloaded to Excel, by clicking the "Download Results to Excel" button after your search results are displayed. To download the full Certification Directory do not enter search criteria, scroll to the bottom of the page and click the "Download Entire Directory to Excel" button.

NOTE: This online directory lists firms that are DBE certified by the NJDOT, NJ Transit or The Port Authority of NY/NJ on behalf of the New Jersey Unified Certification Program (NJUCP). Firms that appear in the directory are currently certified and approved to be utilized toward meeting established contract goals in their displayed certification type(s). Firms that are noted as suspended cannot be utilized for-credit in new contracts until the suspension is removed. For additional details please reference the US DOT Regulations or contact the firm's certifying agency: NJDOT at DOT.DBE_ESBEPrograms@dot.nj.gov. NJ Transit at OBDP@njtransit.com; or The Port Authority of NY/NJ at certhelp@panynj.gov

Search by Certification Type

Certifications

- ☑ Disadvantaged Business Enterprise (DBE)
- ☑ Airport Concessionaire Disadvantaged Business Enterprise (ACDBE)

Search by Business Name or DBA

Business Name/DBA

Tip: Try just a few letters of the firm's name.

Search by Business Description

Business Description

Tip: Try just a few letters of a keyword.

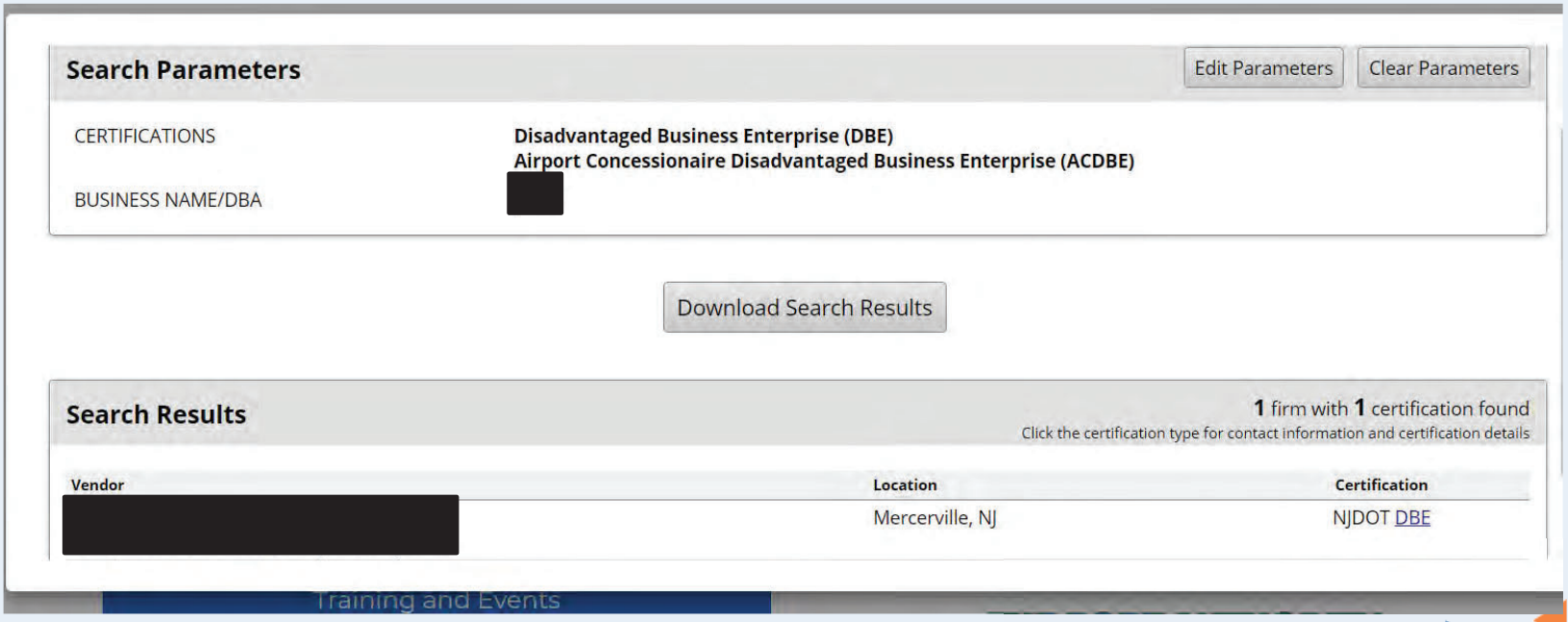
Search by Commodity Code

Commodity Codes

Click to Lookup Commodity Codes

Search by Contact Person

NJUCP DIRECTORY (CONT'D)



Search Parameters

Edit Parameters | Clear Parameters

CERTIFICATIONS: **Disadvantaged Business Enterprise (DBE)**
Airport Concessionaire Disadvantaged Business Enterprise (ACDBE)

BUSINESS NAME/DBA: [redacted]

Download Search Results

Search Results

1 firm with **1** certification found
Click the certification type for contact information and certification details

Vendor	Location	Certification
[redacted]	Mercerville, NJ	NJDOT DBE

Training and Events

NJUCP VENDOR INFORMATION PAGE
DBE BUSINESS PROFILE

Business & Contact Information

BUSINESS NAME	[redacted]& Associates
OWNER	Ms. [redacted]
ADDRESS	[redacted] Map This Address Pelham, NY 10803
PHONE	[redacted]
FAX	[redacted]
EMAIL	[redacted]
WEBSITE	[redacted]

Certification Information

CERTIFYING AGENCY	**New Jersey Transit**
CERTIFICATION TYPE	**DBE - Disadvantaged Business Enterprise**
CERTIFIED BUSINESS DESCRIPTION	**Historical preservation; environmental consulting; and cultural resource assessment.**

Commodity Codes

Code	Description
NAICS 541340	Drafting services
NAICS 541620	Environmental consulting services
NAICS 541690	Other Scientific and Technical Consulting Services
NAICS 541720	Research and Development in the Social Sciences and Humanities
NAICS 541990	All Other Professional, Scientific, and Technical Services

MANDATORY FORM FOR BIDDER/PROPOSER/PRIME: COMPLETE ENTIRELY FORM A (Fed)

First Tier DBE UTILIZATION - FORM A

Project Name: _____ NJT Contract No: _____

Assigned DBE Goal %:_____ NJT Procurement Specialist: _____ Contract Value ($):_____

First Tier DBE must perform at least 51% of its subcontract value if subcontracting to a Second -Tier DBE or Non-DBE. Do not count Non-DBE portion toward the goal.

Name, Address and Telephone # of DBE Subcontractor/Subconsultant	Provide Detailed Scope of Work to be Performed (Identify all suppliers)	Dollar Value of Subcontract/Sub-consultant Work ($) Awarded	Percentage of Subcontract Work (%)
			%
			%
			%
			%
			%
For DBE suppliers, show original subcontract value multiplied by 60% ($2,000*60%=$1200). For DBE portion of work, subtract Non-DBE portion of work from original subcontract value.	TOTALS	$	%

The undersigned will enter into a formal agreement with the DBE(s) listed in this schedule conditioned upon execution of a contract with NJ TRANSIT for the above referenced project. The undersigned understands that removal/replacement of the DBE(s) listed is NOT PERMISSIBLE for any reason (pre or post-award), without submitting a written request to the Office of Business Development and receiving WRITTEN APPROVAL from the Office of Business Development. Failure to obtain written approval shall result in the breach of contract and subject to corrective action to be determined by NJ TRANSIT.

Company Name: _____ Authorized Signature: _____

Company Address: _____ Print Name: _____

_____ Title: _____

Federal Tax ID #: _____ Prime Contractor's DBE Liaison Officer: _____

Company Tel #: _____ Date Signed: _____

To Add Subs Use Additional Forms

NJT Fed Form A rev June 2010

MANDATORY FORM: COMPLETE ENTIRELY Form A1 (Fed)

BIDDER SOLICITATION & CONTRACTOR INFORMATION - FORM A1

Project Title:_____ Date: _____

Prime Contractor/Consultant:_____ Telephone #: _____

Complete the information below for Bidder/Proposer/Prime(s) working on this project. Use Page 2 for all subcontractors/subconsultants

	Bidder/Proposer/Prime	Bidder/Proposer/Prime	Bidder/Proposer/Prime
Company's Full Name			
Address			
City and State			
Zip			
County			
Phone			
Fax			
E-mail			
Owner			
Date Established			
Date Certified			
Ethnicity			
Gender			
Certification Status: **DBE or Non-DBE**			
Federal Tax ID # / SSN #			
Annual Gross Receipts: A – Less than $500K B - $500K to $1M C - $1M to $2M D - $2M to $5M E - $5M and over **indicate the letter that applies**			
Primary NAICS Code:			

MANDATORY FORM: COMPLETE ENTIRELY Form A1 (Fed)

BIDDER SOLICITATION & CONTRACTOR INFORMATION - FORM A1

Project Title: _____ Date: _____

Prime Contractor/Consultant: _____ Telephone #: _____

COMPLETE THE INFORMATION BELOW FOR "ALL" FIRMS INCLUDING SUPPLIERS SOLICITED; INCLUDING THOSE THAT WILL WORK ON THIS PROJECT.

	Subcontractor/Subconsultant	Subcontractor/Subconsultant	Subcontractor/Subconsultant
Company's Full Name			
Address			
City and State			
Zip			
County			
Phone			
Fax			
E-mail			
Owner			
Date Established			
Date Certified			
Ethnicity			
Gender			
Certification Status: **DBE or Non-DBE**			
Federal Tax ID # / SSN #			
Annual Gross Receipts: A – Less than $500K B - $500K to $1M C - $1M to $2M D - $2M to $5M E - $5M and over **indicate the letter that applies**			
Primary NAICS Code:			

To Add Subs Use Additional Forms

MANDATORY FORM FOR BIDDER/PROPOSER/PRIME: COMPLETE ENTIRELY FORM A2 (Fed)

NON-DBE SUBCONTRACTOR UTILIZATION - FORM A2

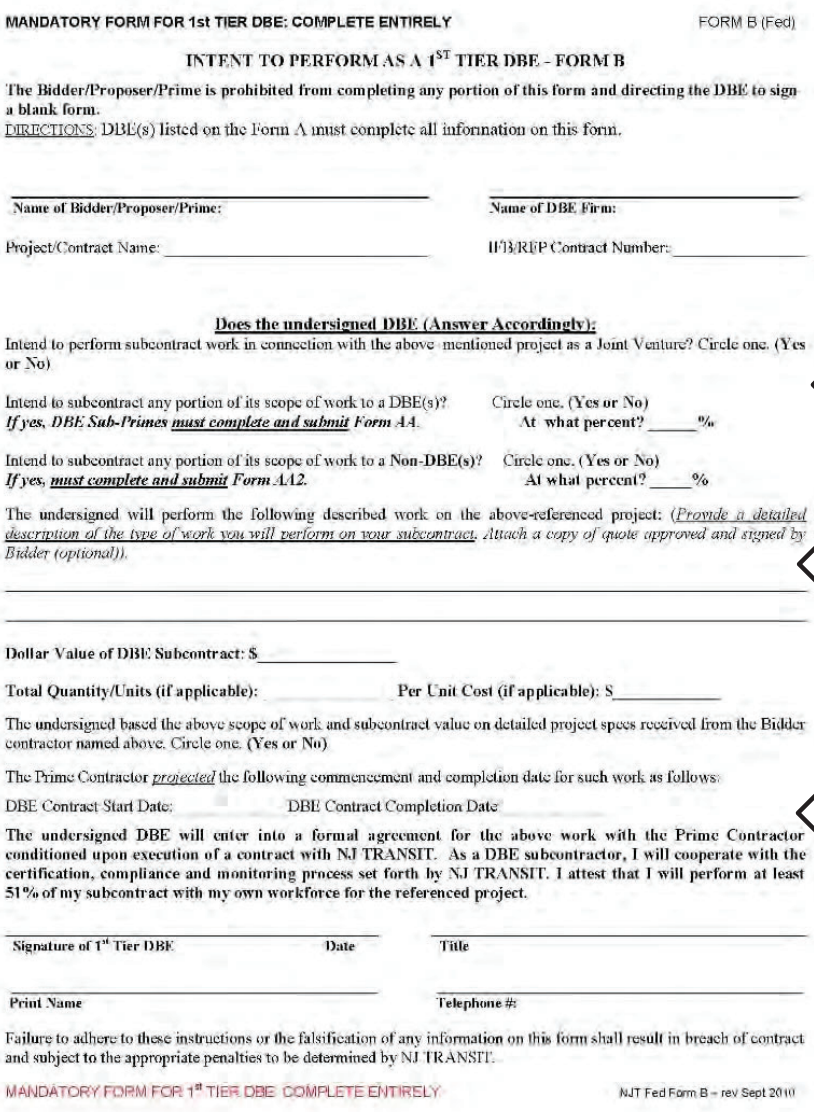
Directions: To be completed by any Bidder/Proposer/Prime for "all" subs including suppliers participating on this contract.

Bidder/Proposer Prime Name: _____ Project Title: _____

Date: _____ Prime Contract Value: _____

Name, Address and Telephone # of all Subcontractor/Subconsultants	FEIN #	Provide Detailed Scope of Work to be Performed	Dollar Amount of Subcontractor/Sub-consultant Work ($) Awarded	Percentage of Subcontract or Work (%)
			$	%
			$	%
			$	%
			$	%
			$	%
Must provide a detailed scope of work; one-word descriptions are not acceptable.		TOTALS	$	%

To Add Subs Use Additional Forms



MANDATORY FORM FOR 1st TIER DBE: COMPLETE ENTIRELY FORM B (Fed)

INTENT TO PERFORM AS A 1ST TIER DBE - FORM B

The Bidder/Proposer/Prime is prohibited from completing any portion of this form and directing the DBE to sign a blank form.

DIRECTIONS: DBE(s) listed on the Form A must complete all information on this form.

Name of Bidder/Proposer/Prime: _____ Name of DBE Firm: _____

Project/Contract Name: _____ ITB/RFP Contract Number: _____

Does the undersigned DBE (Answer Accordingly):

Intend to perform subcontract work in connection with the above mentioned project as a Joint Venture? Circle one. (Yes or No)

Intend to subcontract any portion of its scope of work to a DBE(s)? Circle one. (Yes or No)
If yes, DBE Sub-Primes must complete and submit Form AA. At what percent? _____%

Intend to subcontract any portion of its scope of work to a Non-DBE(s)? Circle one. (Yes or No)
If yes, must complete and submit Form AA2. At what percent? _____%

The undersigned will perform the following described work on the above-referenced project: *(Provide a detailed description of the type of work you will perform on your subcontract. Attach a copy of quote approved and signed by Bidder (optional)).*

_____

_____

Dollar Value of DBE Subcontract: $_____

Total Quantity/Units (if applicable): _____ Per Unit Cost (if applicable): $_____

The undersigned based the above scope of work and subcontract value on detailed project specs received from the Bidder contractor named above. Circle one. (Yes or No)

The Prime Contractor *projected* the following commencement and completion date for such work as follows:

DBE Contract Start Date: _____ DBE Contract Completion Date _____

The undersigned DBE will enter into a formal agreement for the above work with the Prime Contractor conditioned upon execution of a contract with NJ TRANSIT. As a DBE subcontractor, I will cooperate with the certification, compliance and monitoring process set forth by NJ TRANSIT. I attest that I will perform at least 51% of my subcontract with my own workforce for the referenced project.

Signature of 1st Tier DBE Date Title

Print Name Telephone #:

Failure to adhere to these instructions or the falsification of any information on this form shall result in breach of contract and subject to the appropriate penalties to be determined by NJ TRANSIT.

MANDATORY FORM FOR 1st TIER DBE: COMPLETE ENTIRELY NJT Fed Form B – rev Sept 2010

Understanding the Form B

- The Bidder is not permitted to pre-fill **any** portion of the Form B on behalf of their DBE team. (*A pre-filled Form B shall be deemed as* ***Fraud***)
- The DBE firm must be doing a minimum of 51% of their work to be serving a Commercial Useful Function on the contract.
- Only the DBE firm is permitted to complete a Form B and they must complete the document in their own words.
- Should a DBE require to sublet work to another firm, then it's recommended to seek out an additional DBE firm to preserve the Proposer's DBE utilization credit.
- The Form B must be signed and dated by an authorized member of the DBE firm.

PROJECT OVERVIEW & TECHNICAL REQUIREMENTS

Rafael Duran
Project Manager

Jeff Messinger
Design Project Manager



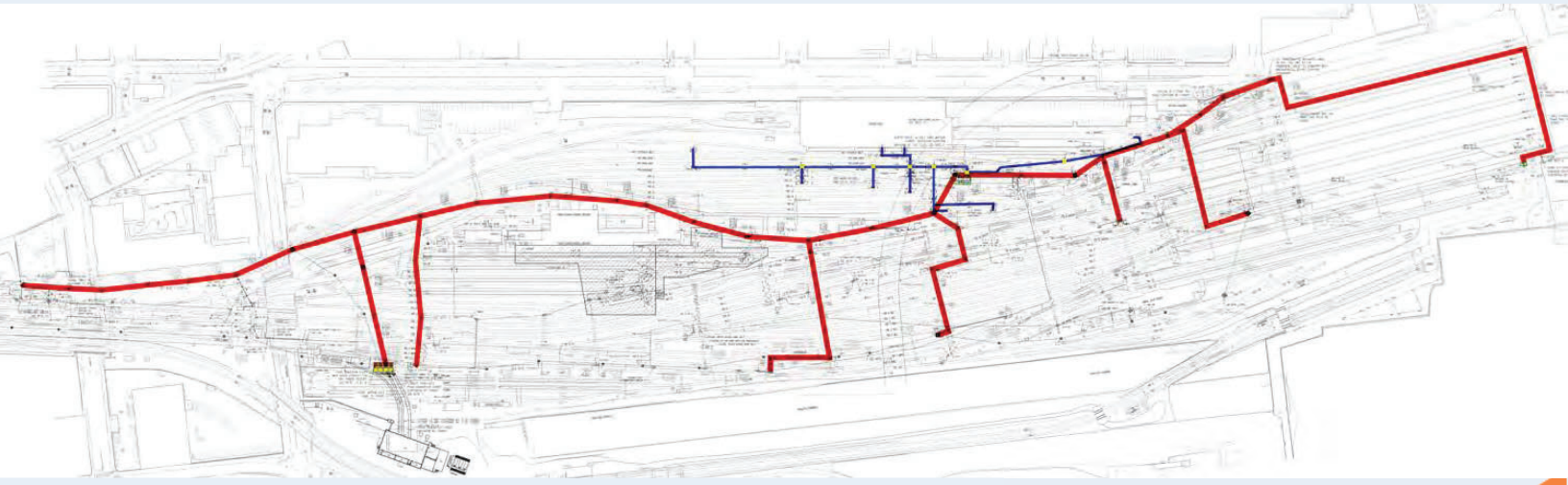
PROJECT OVERVIEW

- Construction contract will consist of two projects:
- Signal Power Distribution Systems Repairs (Signal Power Project). Project goal is to make the entire Signal Power Distribution System resilient by converting one of the underground 2.4kV feeder to an overhead aerial distribution system mounted on steel monopoles.
- Yard-Wayside Power Systems Repairs (Yard Power Project) The project goal is to construct the aerial distribution of the 15kV Yard Power feeders from the new Henderson Street Substation to the Days Yard Wayside Power Substation and the Depot Substation via the monopoles on the north pole line including the underground ductbanks and manholes required to transition all 15kV feeders from underground to the aerial transition poles. This Contract will also construct the Days Yard Wayside Power system which includes the installation of the Substation, ductbanks, manholes, Wayside Power Outlets and Control Stations.

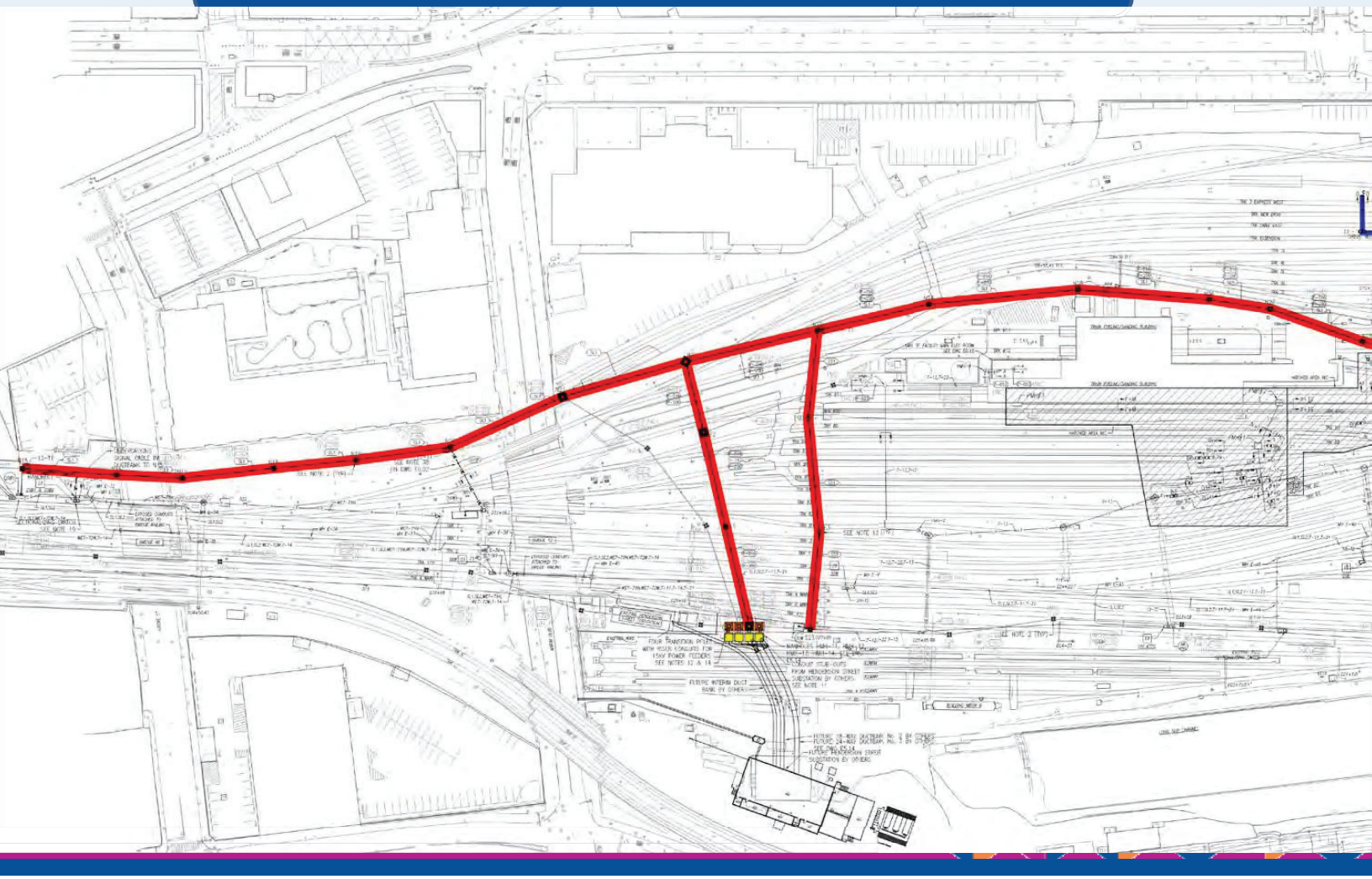
REQUIREMENTS

- Description of bid form unit price pay items – Special Provisions.
- Division of work by contractor/force account – Technical Specs
- Use of Premises - The work is within the confines of a very active and congested rail yard vital to the operations of NJ TRANSIT, and that the Contractor's access to and use of the premises may be restricted by NJ TRANSIT without advance notice to ensure continued operations or the security/safety of said yard and maintenance facilities.
- Time of completion – 4 years for contractor work.
- Work Window – Track & Catenary Outages will occur on the weekends between 7 a.m to 7 p.m. No work will be allowed when football games are scheduled at Met Life Stadium.
- Hoboken Yard is listed on State and National Register of Historic Places. SHPO will have oversight of archaeological and vibration monitoring.

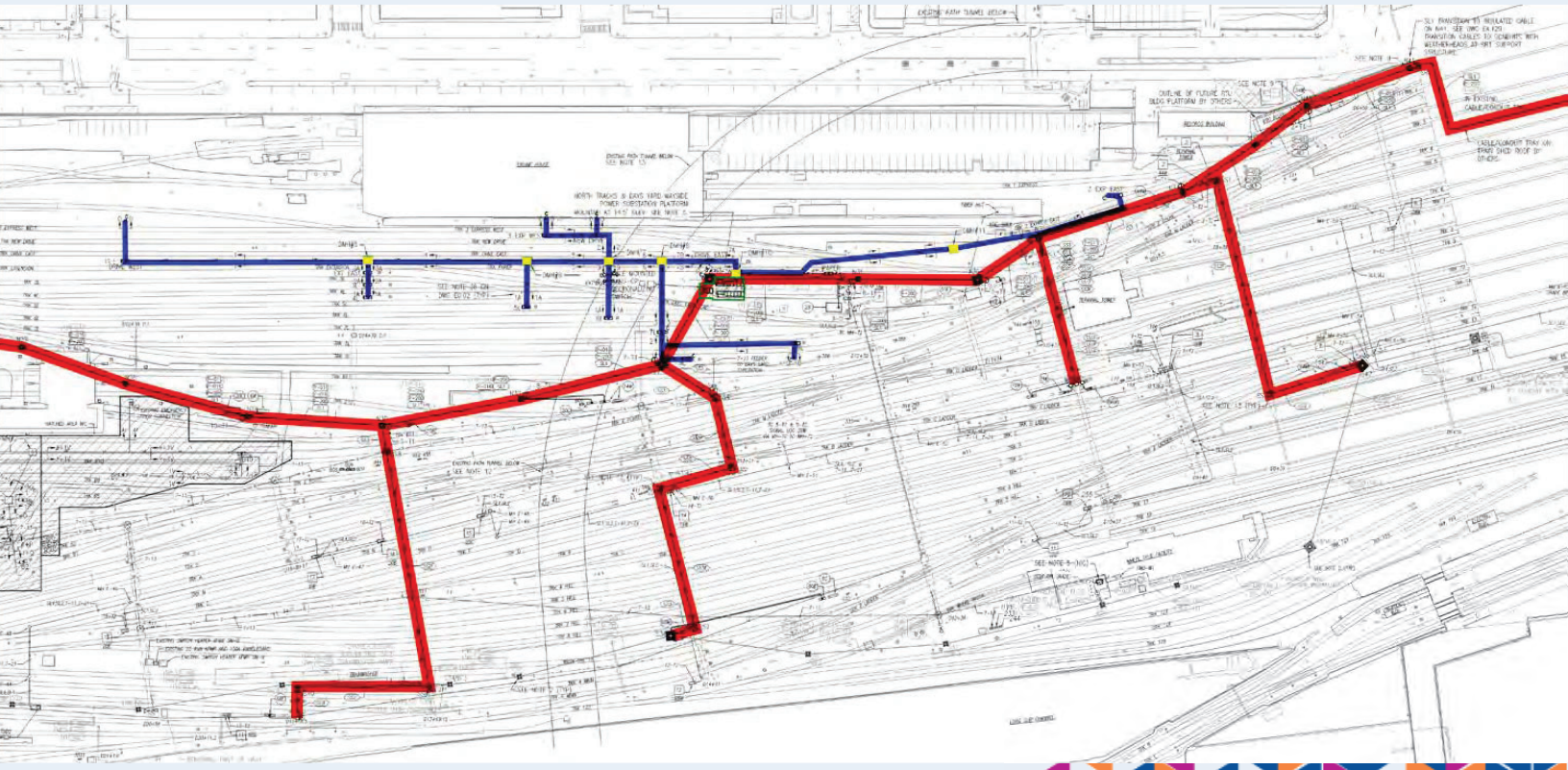
PROJECT OVERVIEW



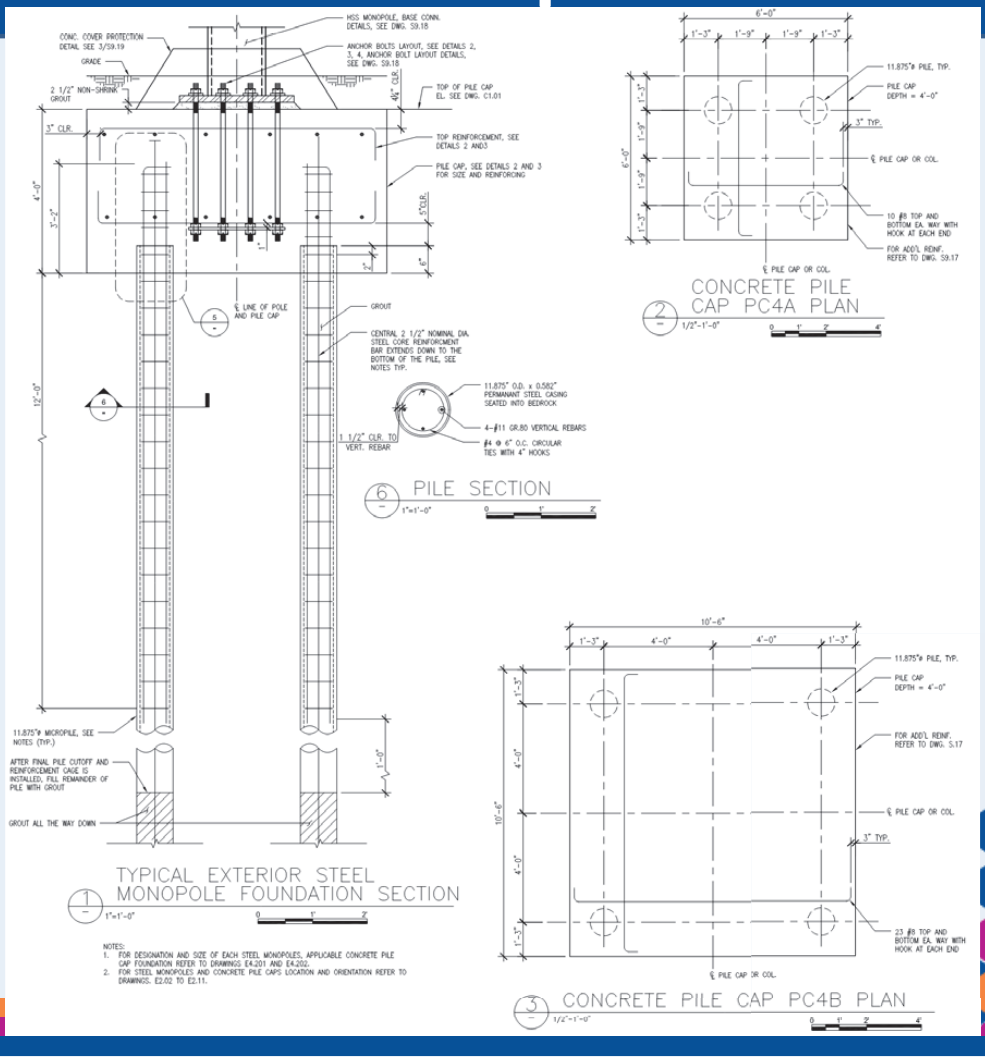
PROJECT OVERVIEW



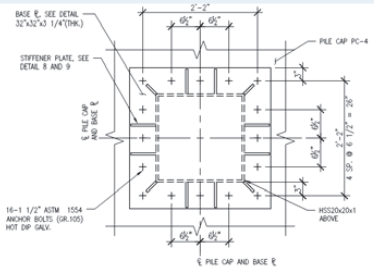
PROJECT OVERVIEW



Monopoles

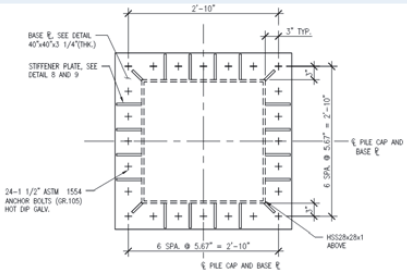

TYPICAL EXTERIOR STEEL MONOPOLE FOUNDATION SECTION
PILE SECTION
CONCRETE PILE CAP PC4A PLAN
CONCRETE PILE CAP PC4B PLAN
NOTES:
1. FOR DESIGNATION AND SIZE OF EACH STEEL MONOPOLES, APPLICABLE CONCRETE PILE CAP FOUNDATION REFER TO DRAWINGS E4.201 AND E4.202.
2. FOR STEEL MONOPOLES AND CONCRETE PILE CAPS LOCATION AND ORIENTATION REFER TO DRAWINGS. E2.02 TO E2.11.

Monopoles



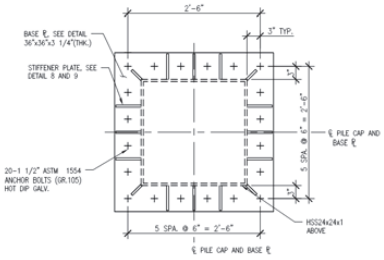
BASE CONNECTION DETAIL FOR MONOPOLES HSS20x20

1 — 1"=1'-0"



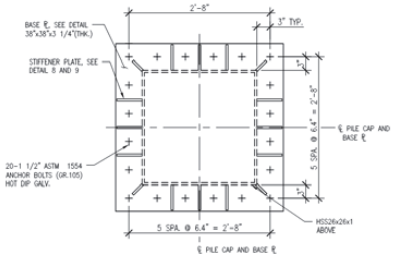
BASE CONNECTION DETAIL FOR MONOPOLES HSS28x28

2 — 1"=1'-0"



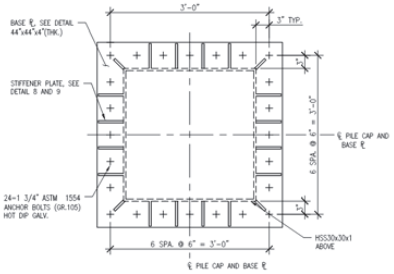
BASE CONNECTION DETAIL FOR MONOPOLES HSS24x24

3 — 1"=1'-0"



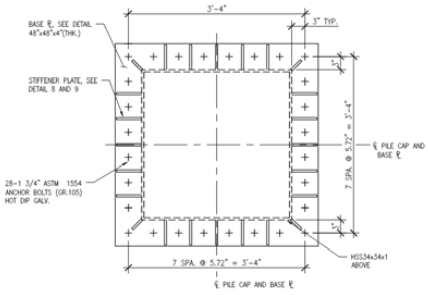
BASE CONNECTION DETAIL FOR MONOPOLES HSS26x26

4 — 1"=1'-0"



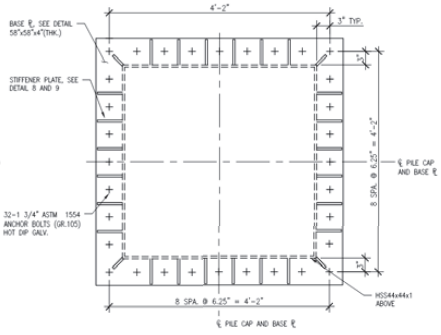
BASE CONNECTION DETAIL FOR MONOPOLES HSS30x30

5 — 1"=1'-0"



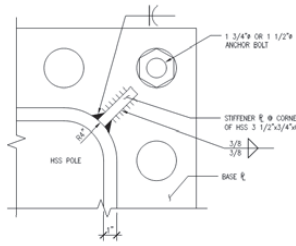
BASE CONNECTION DETAIL FOR MONOPOLES HSS34x34

6 — 1"=1'-0"



BASE CONNECTION DETAIL FOR MONOPOLES HSS44x44

7 — 1"=1'-0"



TYPICAL STIFFENER PLATES DETAIL AT CORNER OF HSS

8 — NOT TO SCALE

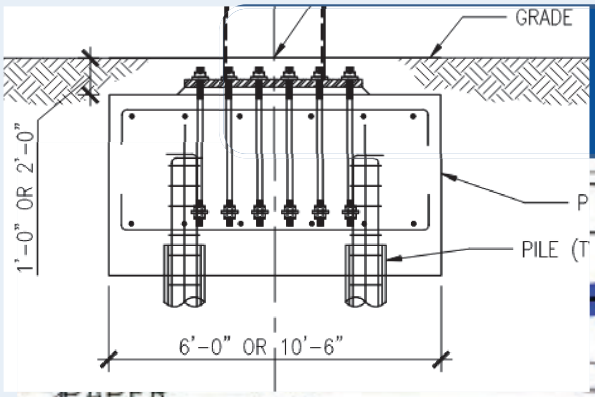
ANCHOR BOLTS PLACEMENT AND TOLERANCES:

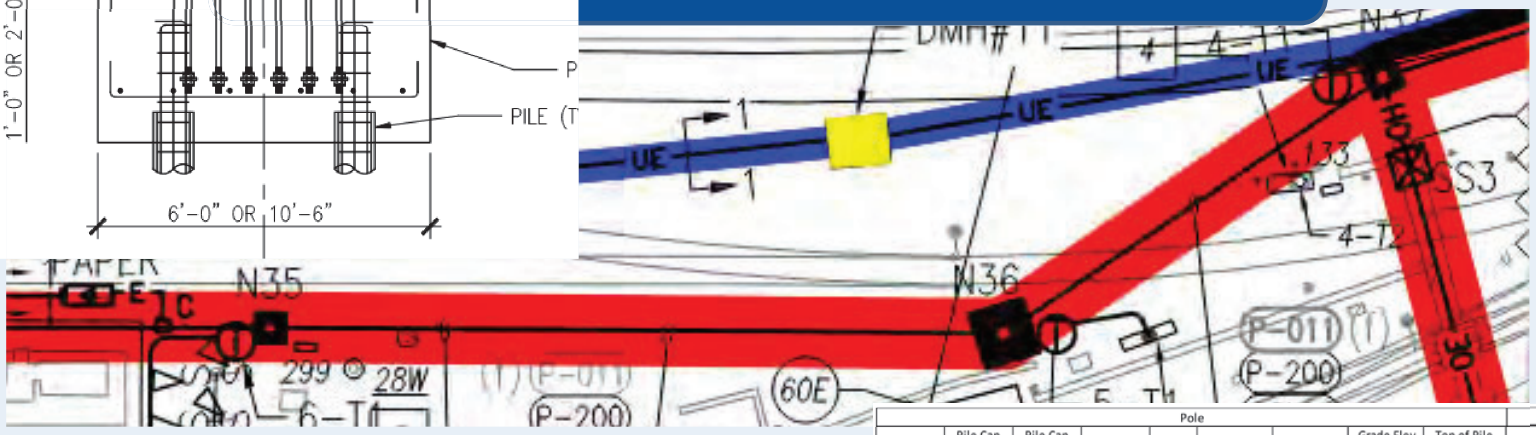
1. ALLOWABLE TOLERANCE FOR ANCHOR BOLTS IN CONCRETE:

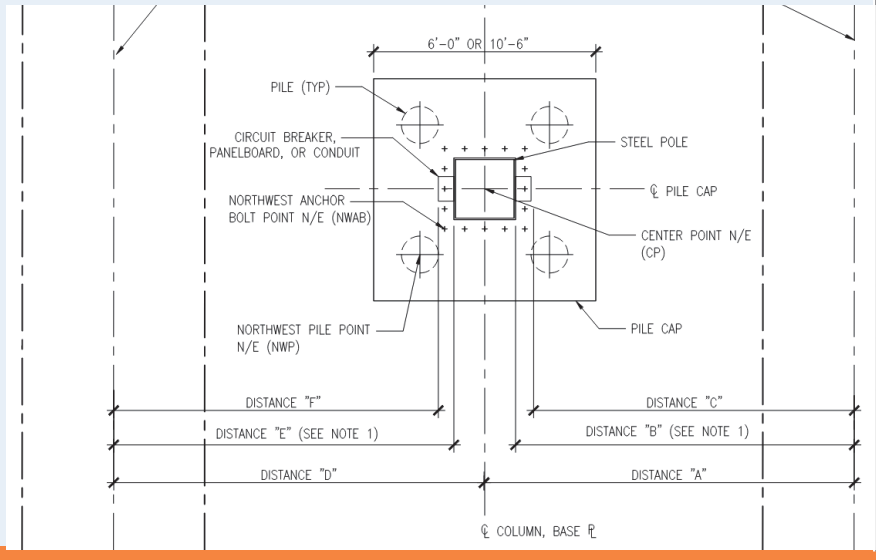
   TOP OF ANCHOR BOLT FROM SPECIFIED ELEVATION:
   VERTICAL DEVIATION ±1/2 IN.

   CENTERLINE OF INDIVIDUAL ANCHOR BOLTS FROM SPECIFIED LOCATION:
   HORIZONTAL DEVIATION

Monopoles

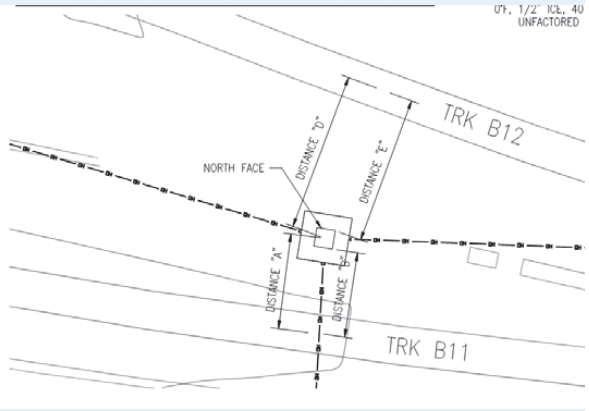


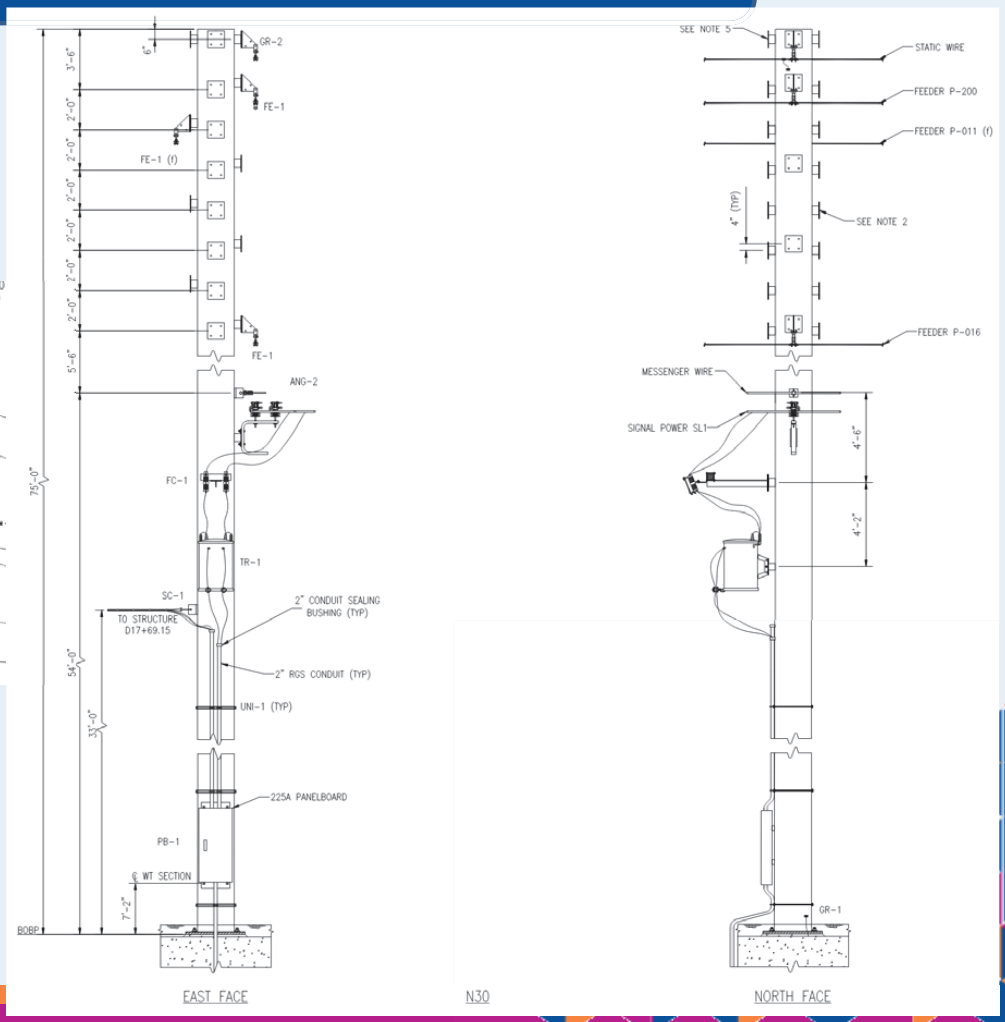




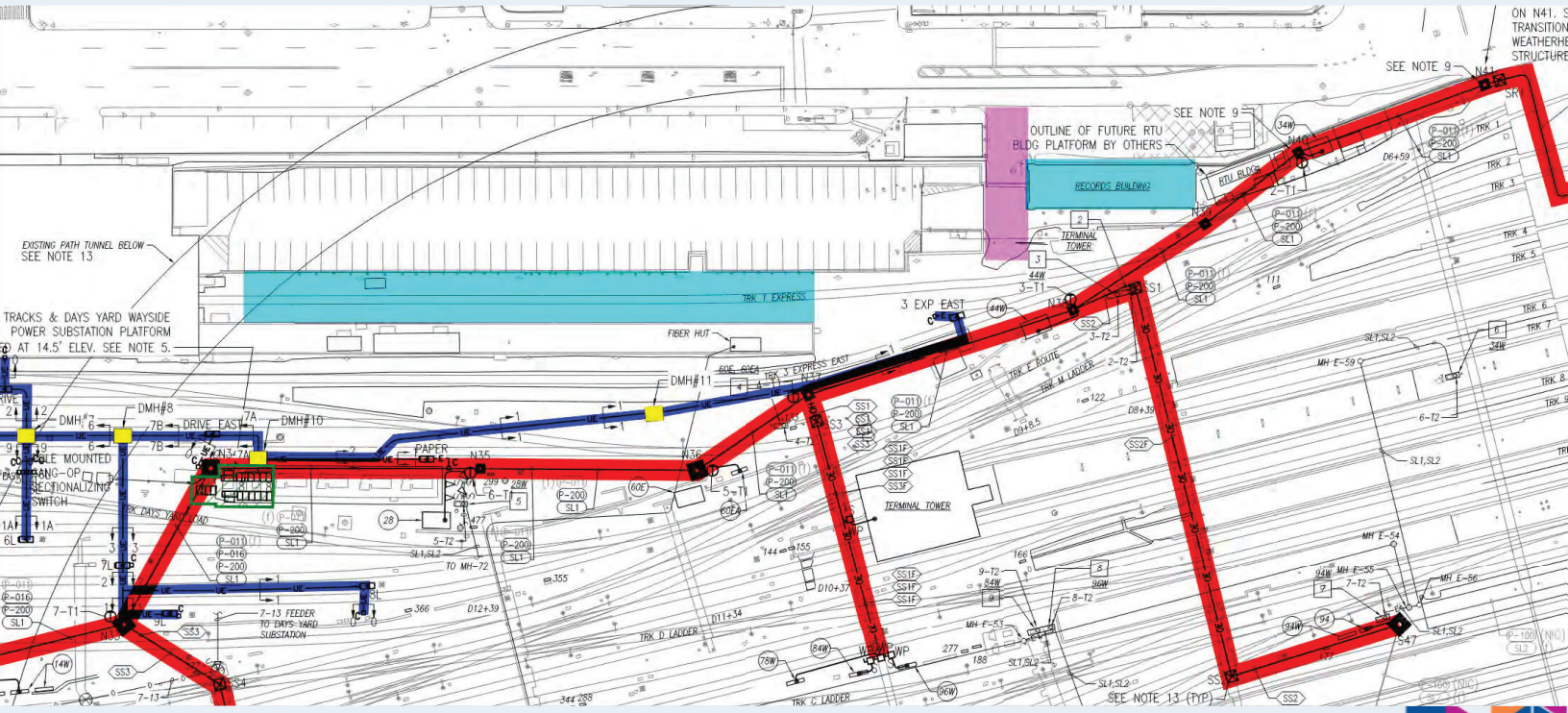
Pole No	Pile Cap Mark	Pile Cap Size	Pole Size	Pole POINT	Pole Northing	Pole Easting	Grade Elev At Center	Top of Pile Cap Elev	BOBP Elev.
N11 (NIC)	PC-4B	10'-6"x10'-6"	30x30x1	CP	693412.8959	618858.1145	21.29	20.29	20.54
				NWP	693417.8240	618855.3372			
				NWAB	693414.7439	618857.0730			
N12 (NIC)	PC-4A	6'x6'	20x20x1	CP	693386.5511	618952.4978	20.64	19.64	19.89
				NWP	693388.7105	618951.2887			
				NWAB	693387.8879	618951.7493			
N13 (NIC)	PC-4A	6'x6'	24x24x1	CP	693350.9735	619077.5324	20.00	19.00	19.25
				NWP	693352.9957	619076.1056			
				NWAB	693352.4179	619076.5132			
N14 (NIC)	PC-4A	6'x6'	24x24x1	CP	693342.5825	619207.1797	8.10	7.10	7.35
				NWP	693344.5976	619205.7430			
				NWAB	693344.0218	619206.1535			
N15	PC-4A	6'x6'	20x20x1	CP	693310.5260	619324.1896	7.95	6.95	7.20
				NWP	693312.7045	619323.0153			
				NWAB	693311.8746	619323.4626			
N16	PC-4A	6'x6'	20x20x1	CP	693278.4279	619431.6601	3.97	2.97	3.22
				NWP	693280.5953	619430.4653			
				NWAB	693279.7696	619430.9204			
N17	PC-4A	6'x6'	20x20x1	CP	693257.3912	619506.8098	5.55	4.55	4.80
				NWP	693259.4454	619505.4295			
				NWAB	693258.6628	619505.9553			
N18	PC-4A	6'x6'	20x20x1	CP	693244.8983	619615.4018	5.66	4.66	4.91
				NWP	693246.8440	619613.8723			
				NWAB	693246.1028	619614.4550			
N19	PC-4A	6'x6'	20x20x1	CP	693232.7323	619713.1623	5.53	4.53	4.78
				NWP	693234.6579	619711.6076			
				NWAB	693233.9244	619712.1999			
N20	PC-4A	6'x6'	26x26x1	CP	693222.7422	619825.6707	5.73	4.73	4.98
				NWP	693224.4139	619823.8457			
				NWAB	693224.0159	619824.2803			

Monopoles

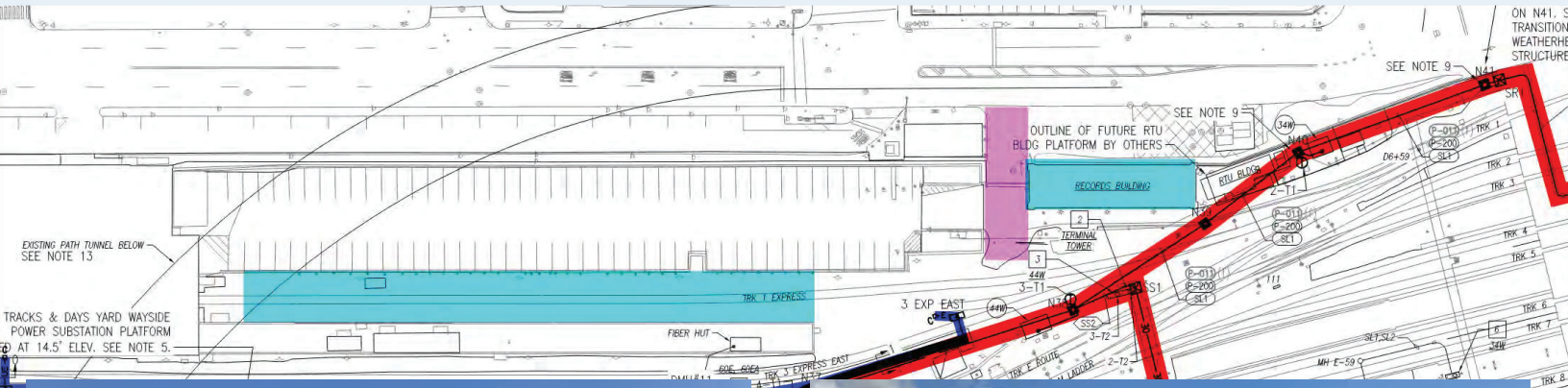

0", 1/2" ICE, 40
UNFACTORED
TRK B12
NORTH FACE
DISTANCE "D"
DISTANCE "E"
DISTANCE "A"
DISTANCE "B"
TRK B11


GR-2
FE-1
FE-1 (f)
FE-1
ANG-2
FC-1
TR-1
SC-1
TO STRUCTURE D17+69.15
2" CONDUIT SEALING BUSHING (TYP)
2" RGS CONDUIT (TYP)
UNI-1 (TYP)
225A PANELBOARD
PB-1
℄ WT SECTION
BOBP
75'-0"
54'-0"
33'-0"
EAST FACE
N30
SEE NOTE 5
STATIC WIRE
FEEDER P-200
FEEDER P-011 (f)
4" (TYP)
SEE NOTE 2
FEEDER P-016
MESSENGER WIRE
SIGNAL POWER SL1
4'-6"
4'-2"
GR-1
NORTH FACE

SITE ACCESS & STORAGE



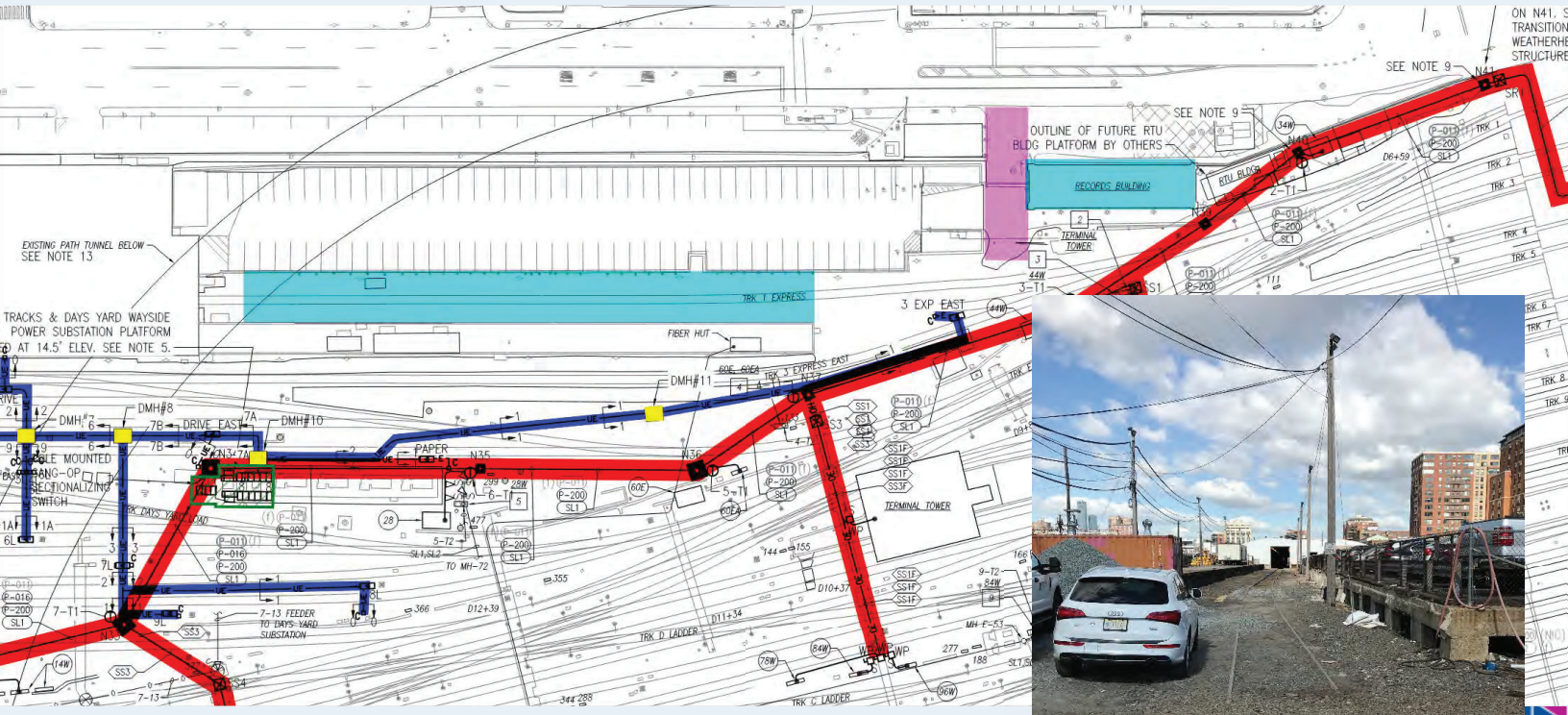
SITE ACCESS & STORAGE

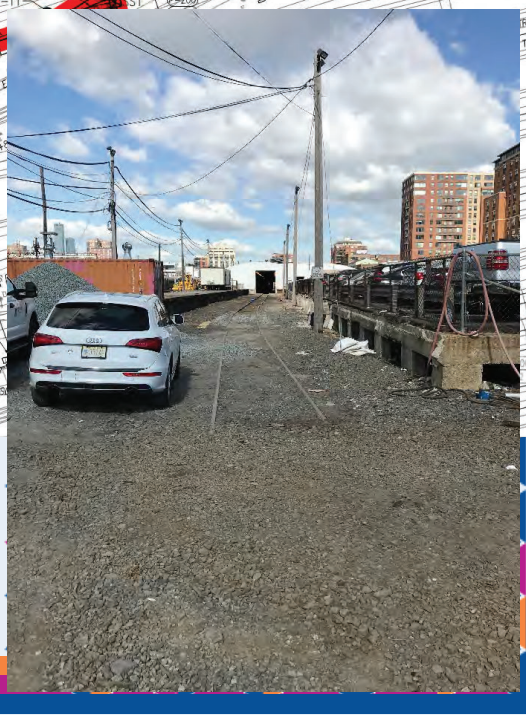




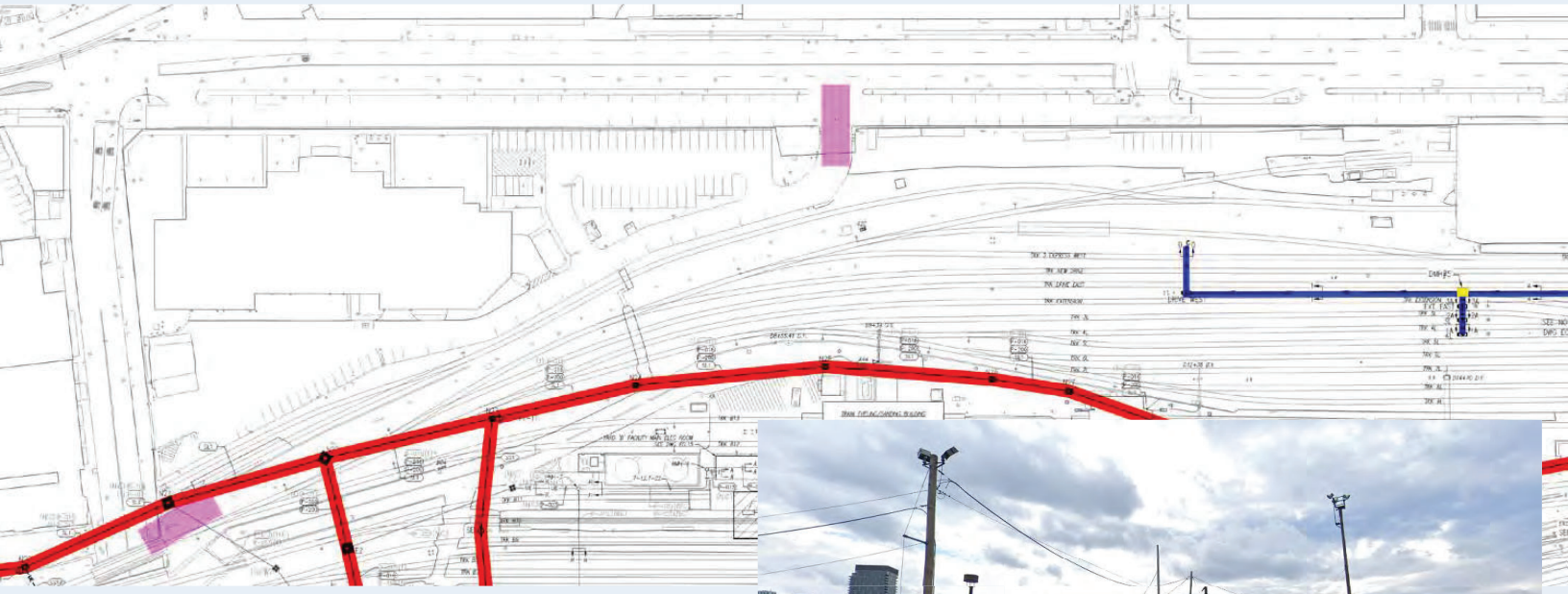


SITE ACCESS & STORAGE



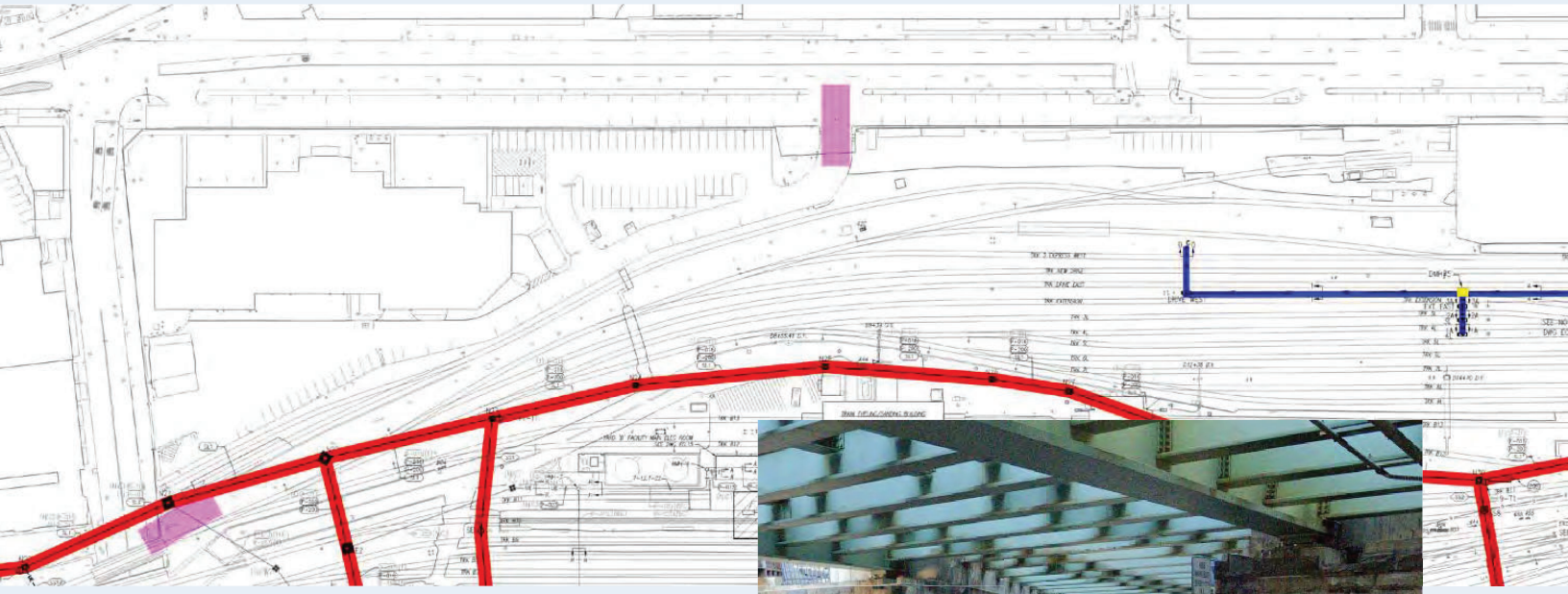


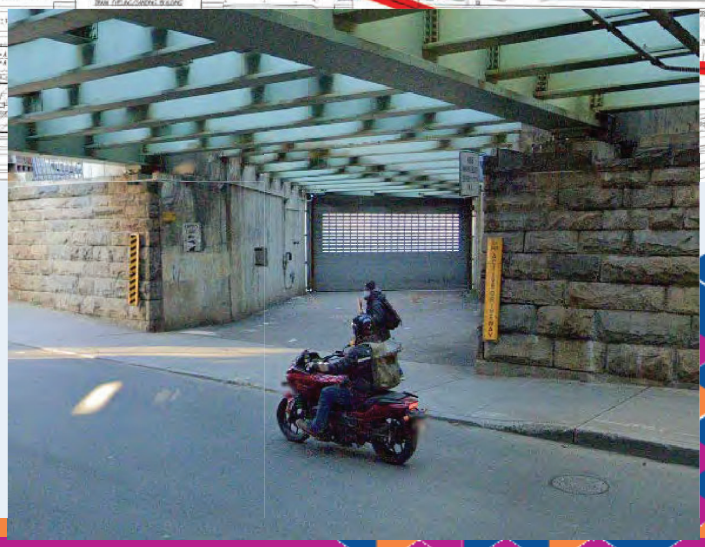
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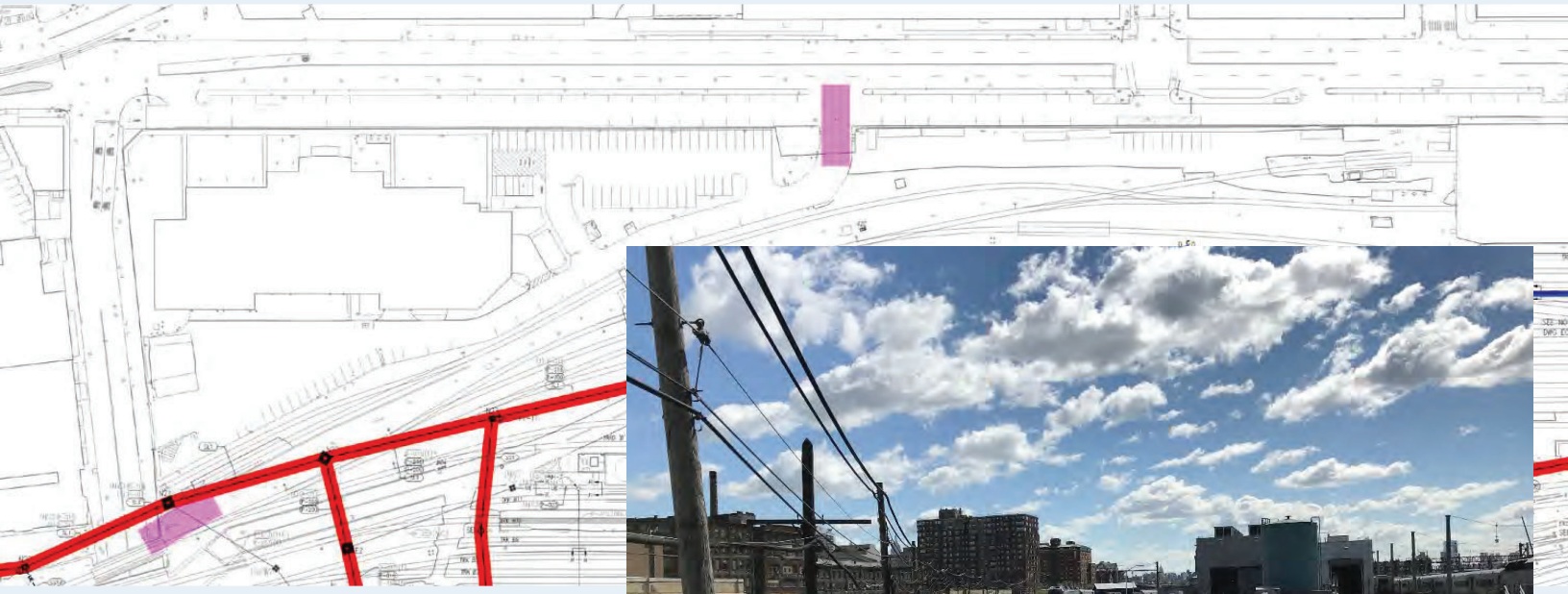


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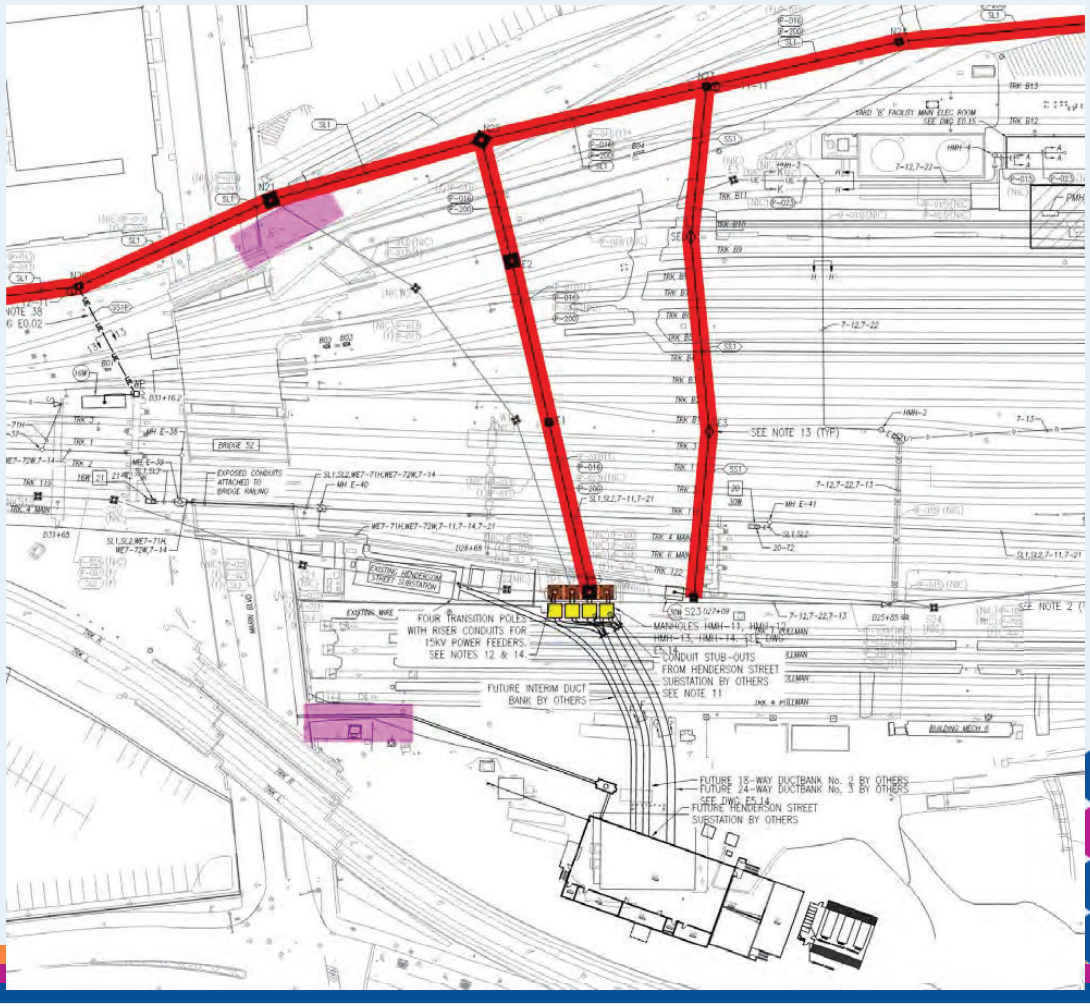


SITE ACCESS & STORAGE

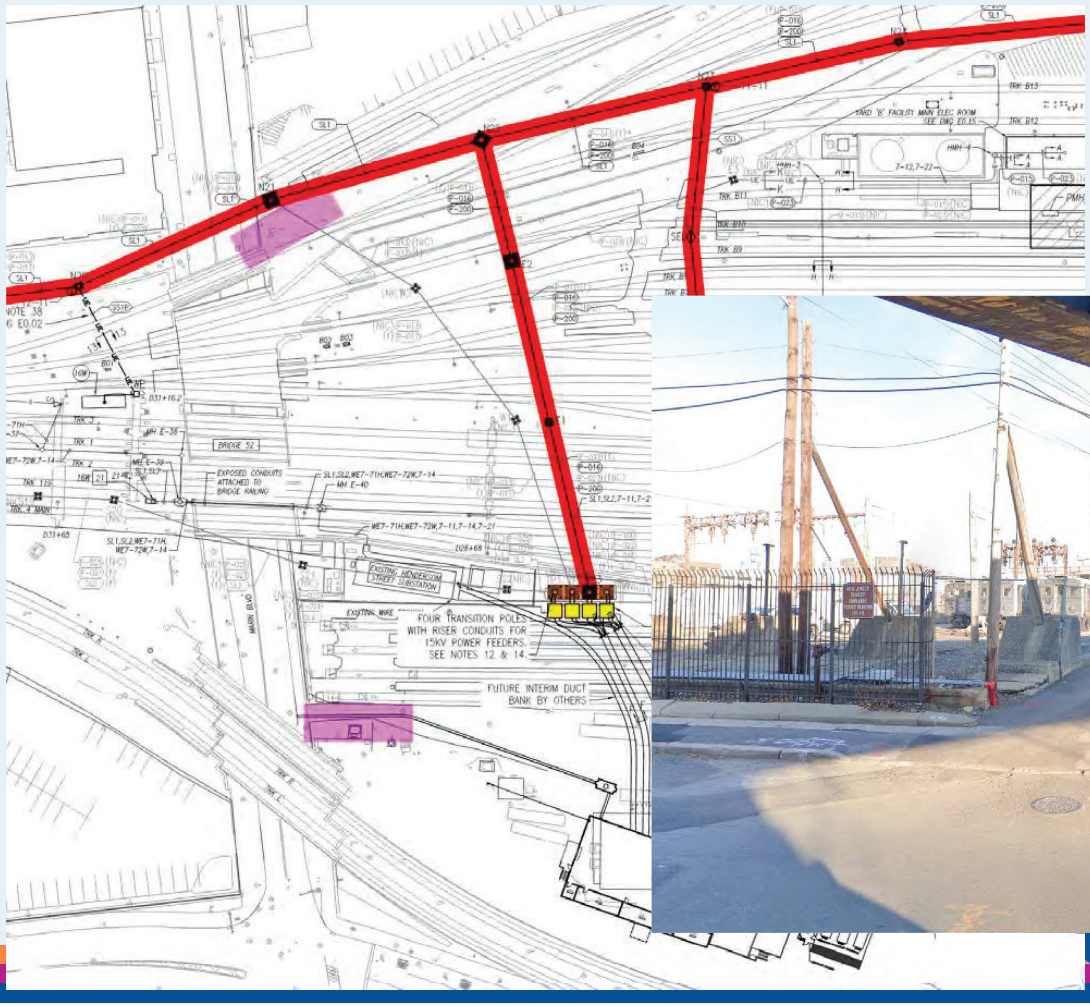


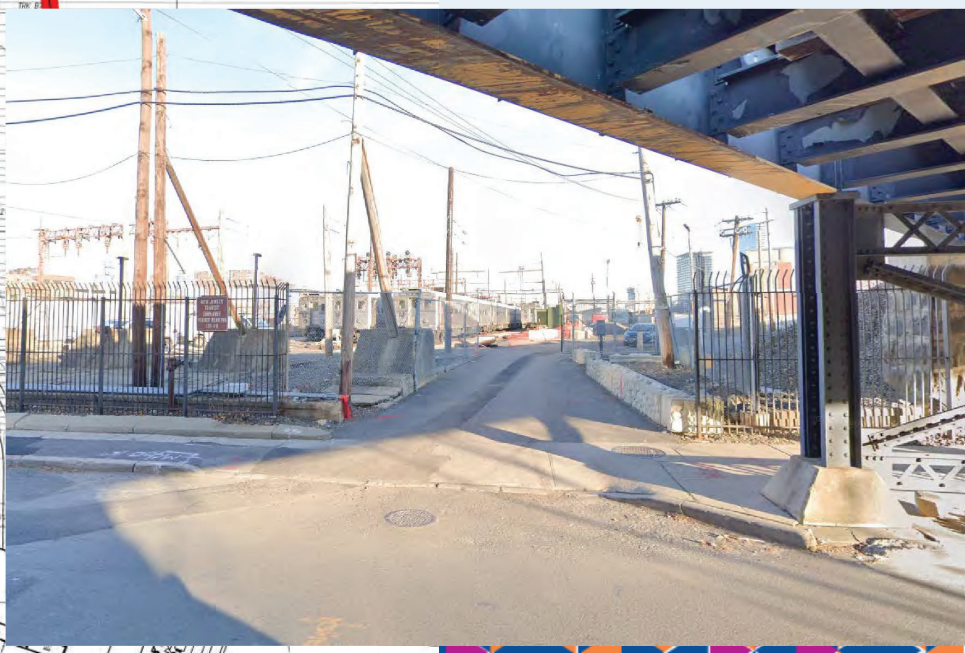


SITE ACCESS & STORAGE

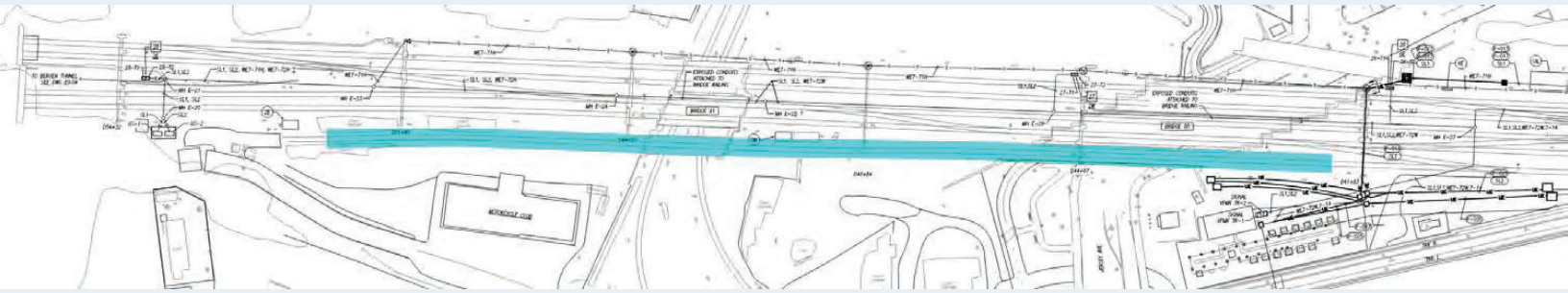


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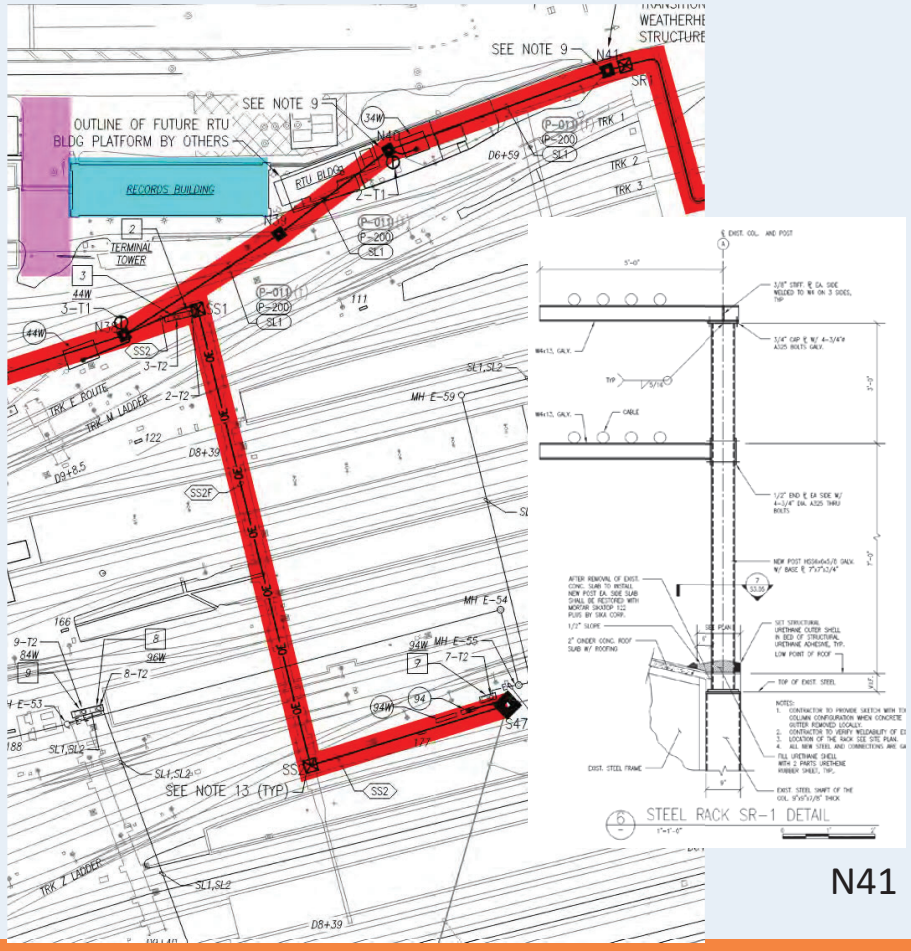




SITE ACCESS & STORAGE



Monopole Locations



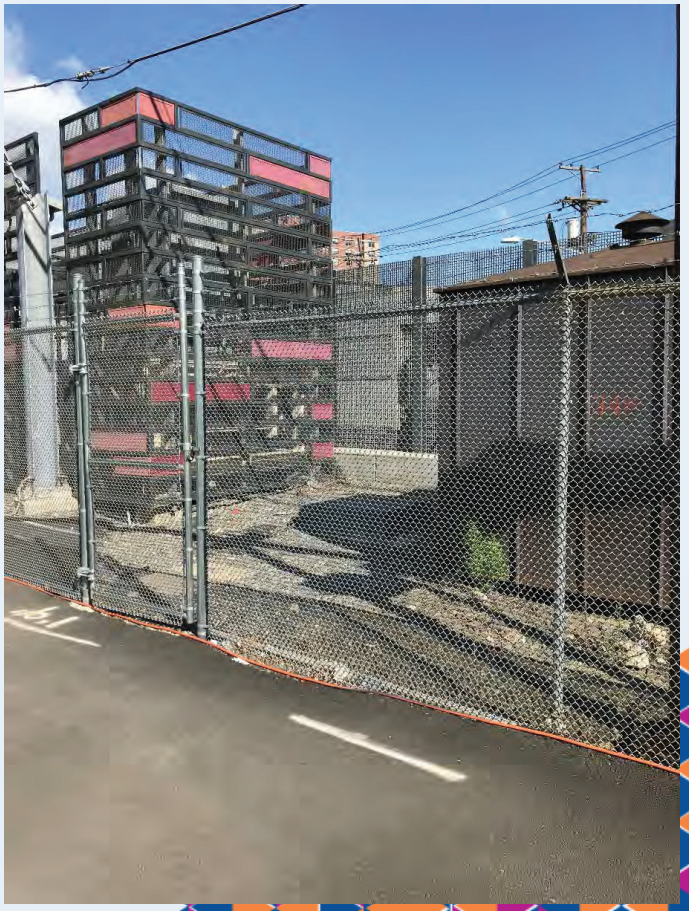
N41



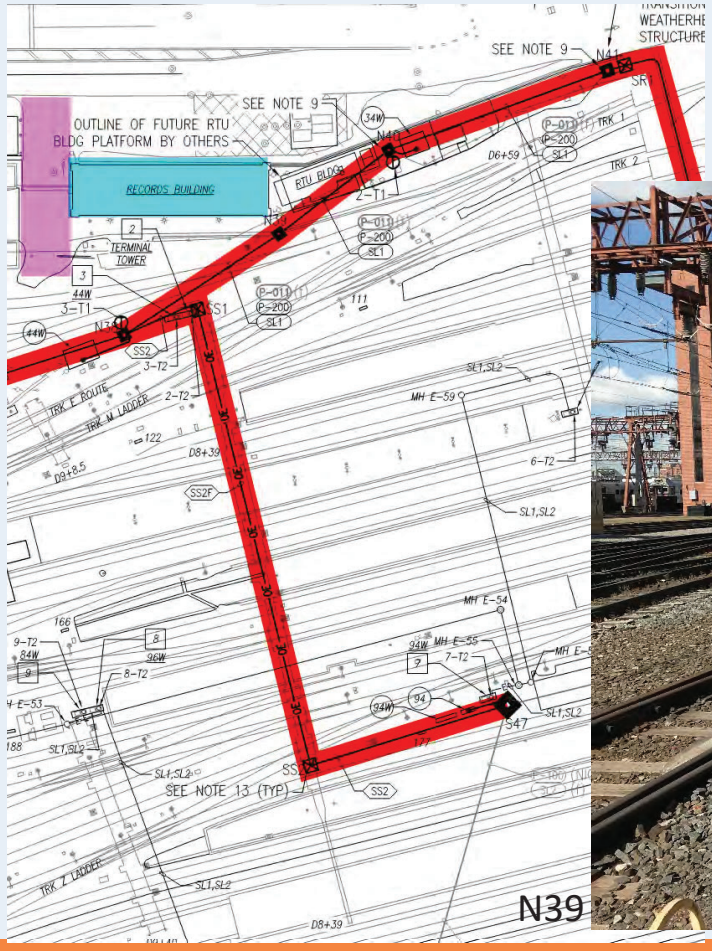
Monopole Locations

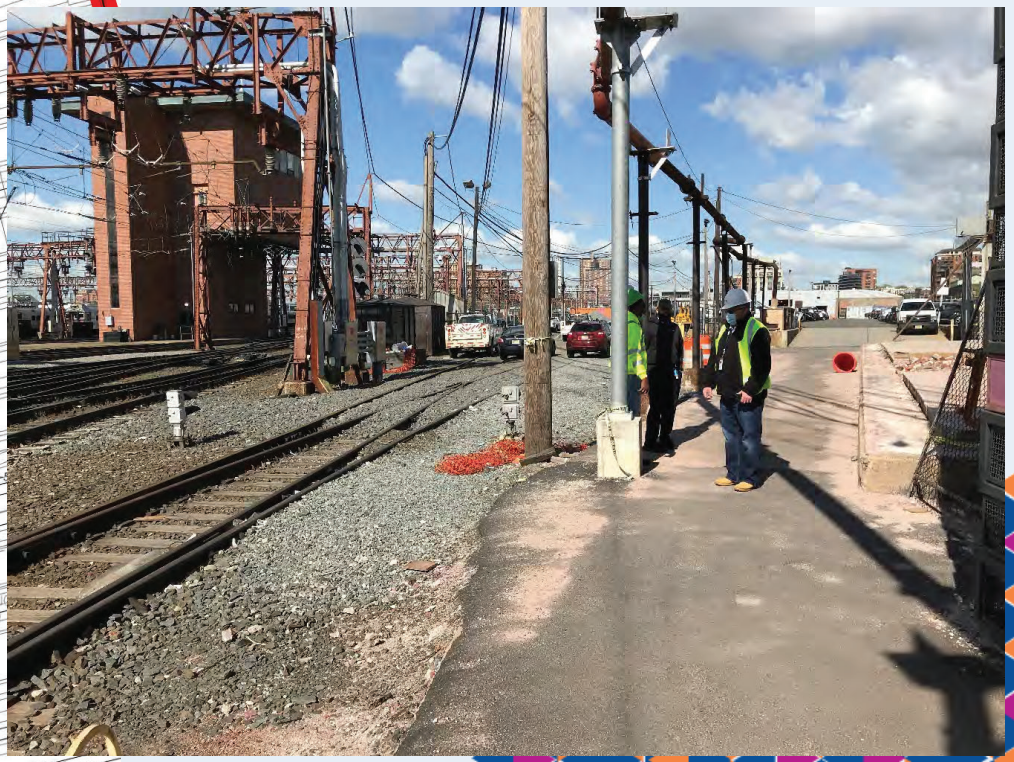


N40

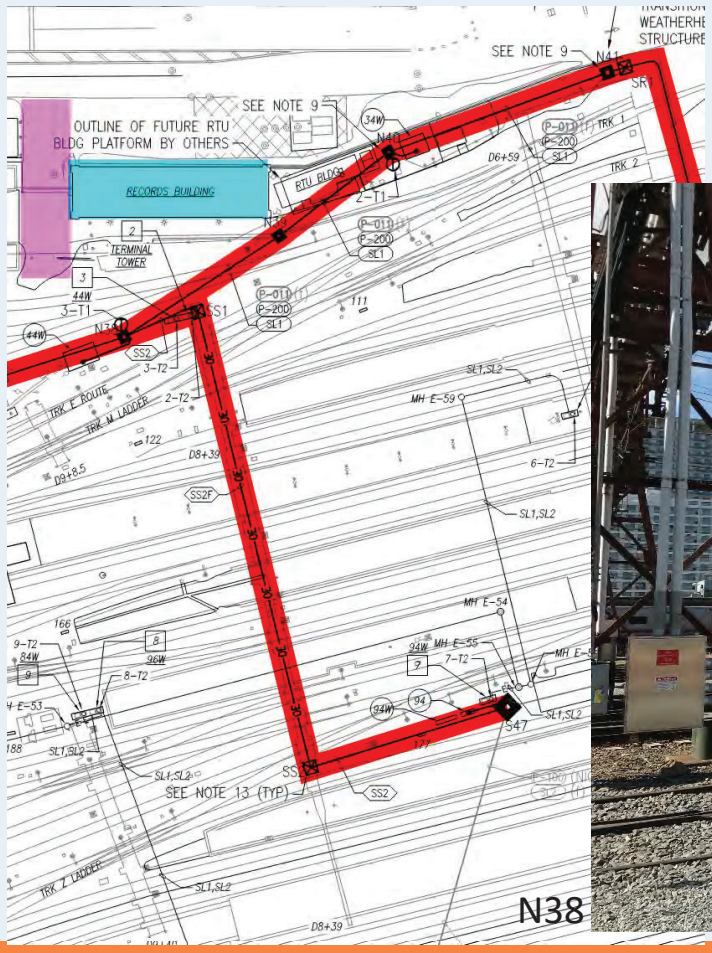


Monopole Locations



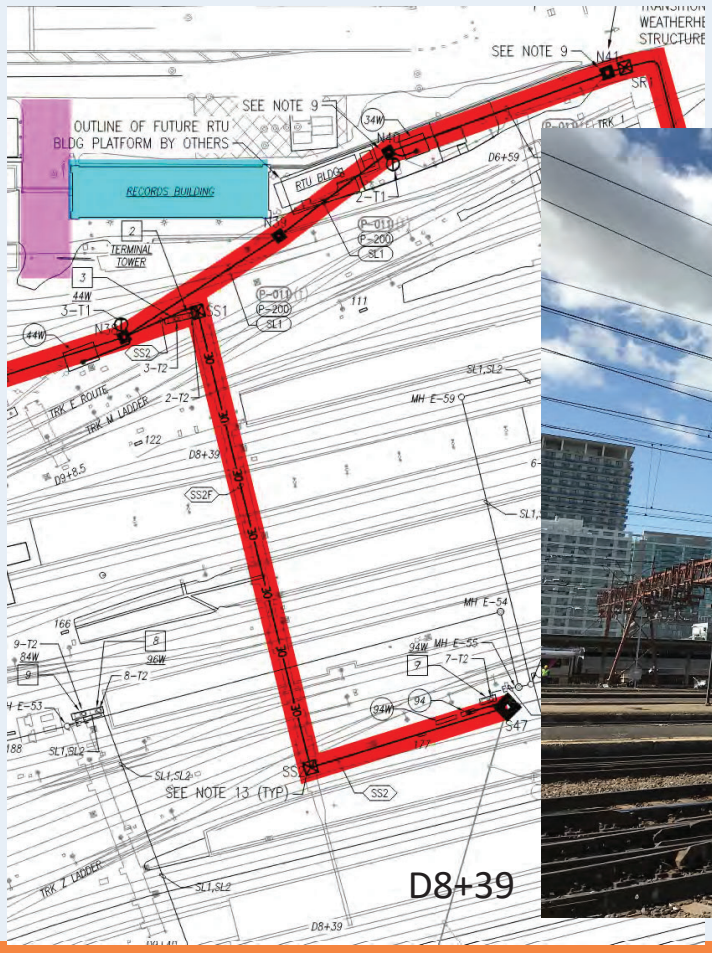


Monopole Locations



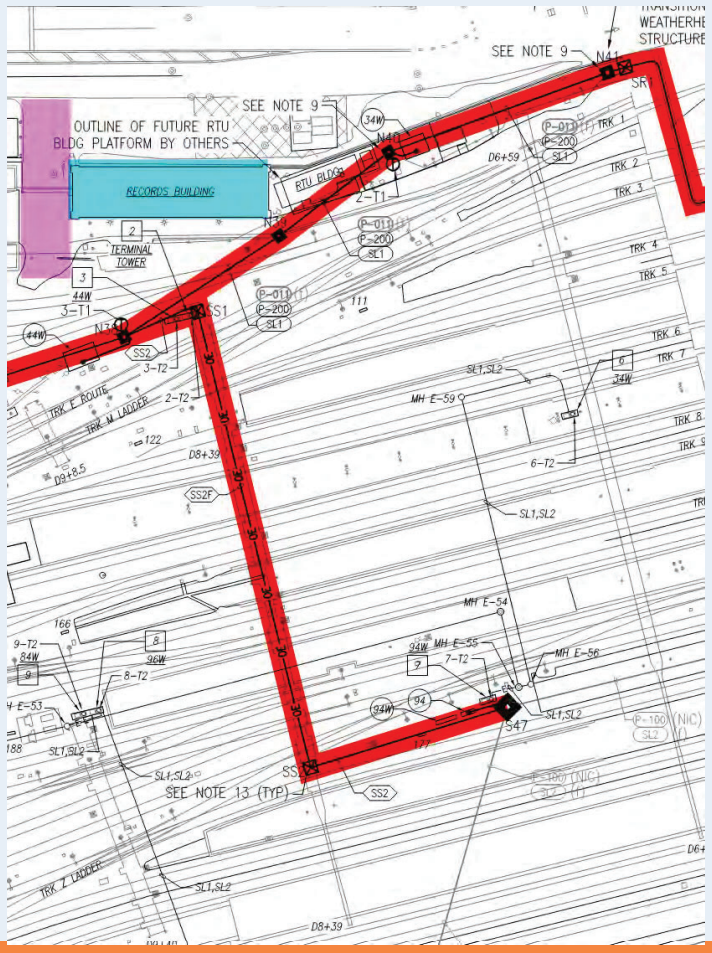


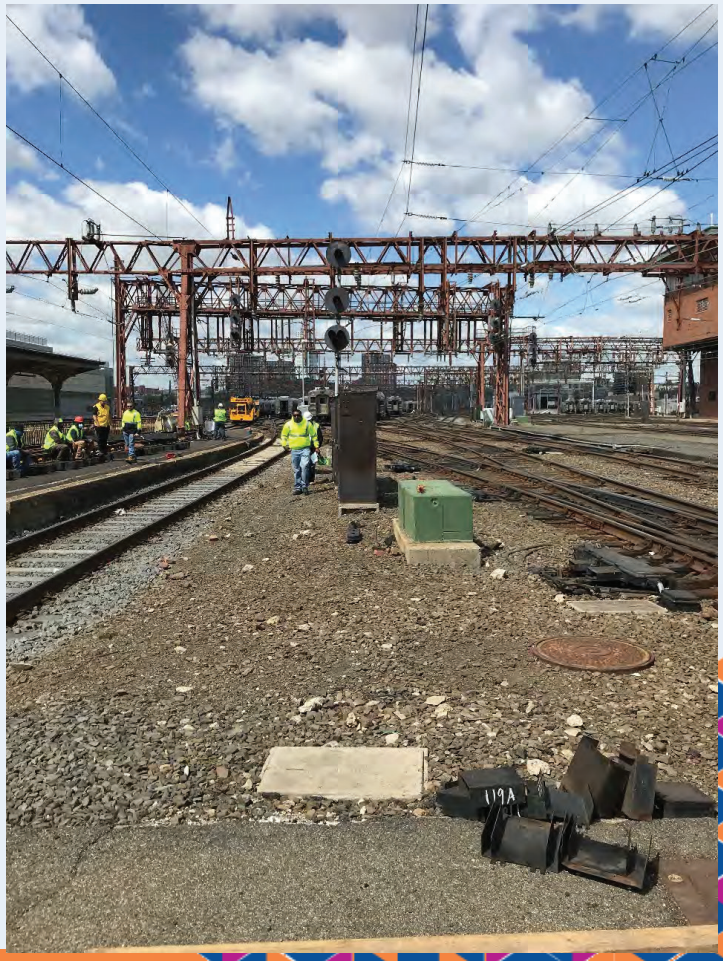
Monopole Locations





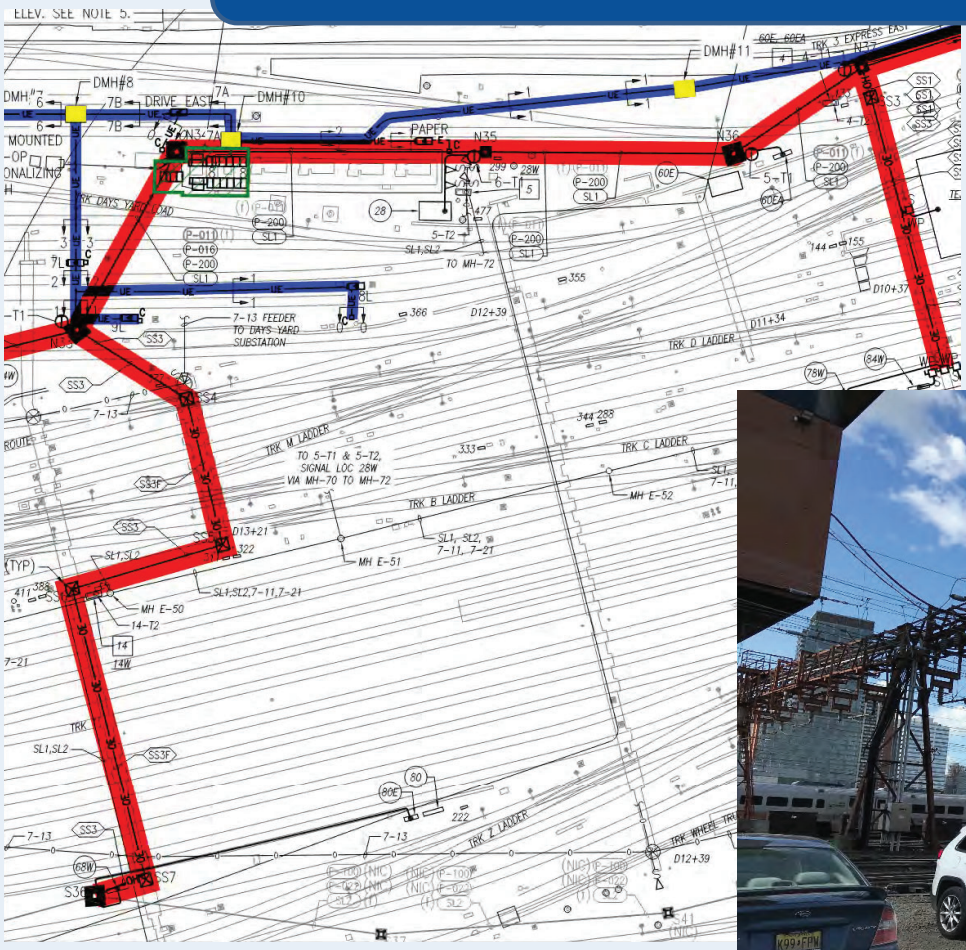
Monopole Locations





S47

Monopole Locations



N37 and D10+37



Monopole Locations





N35

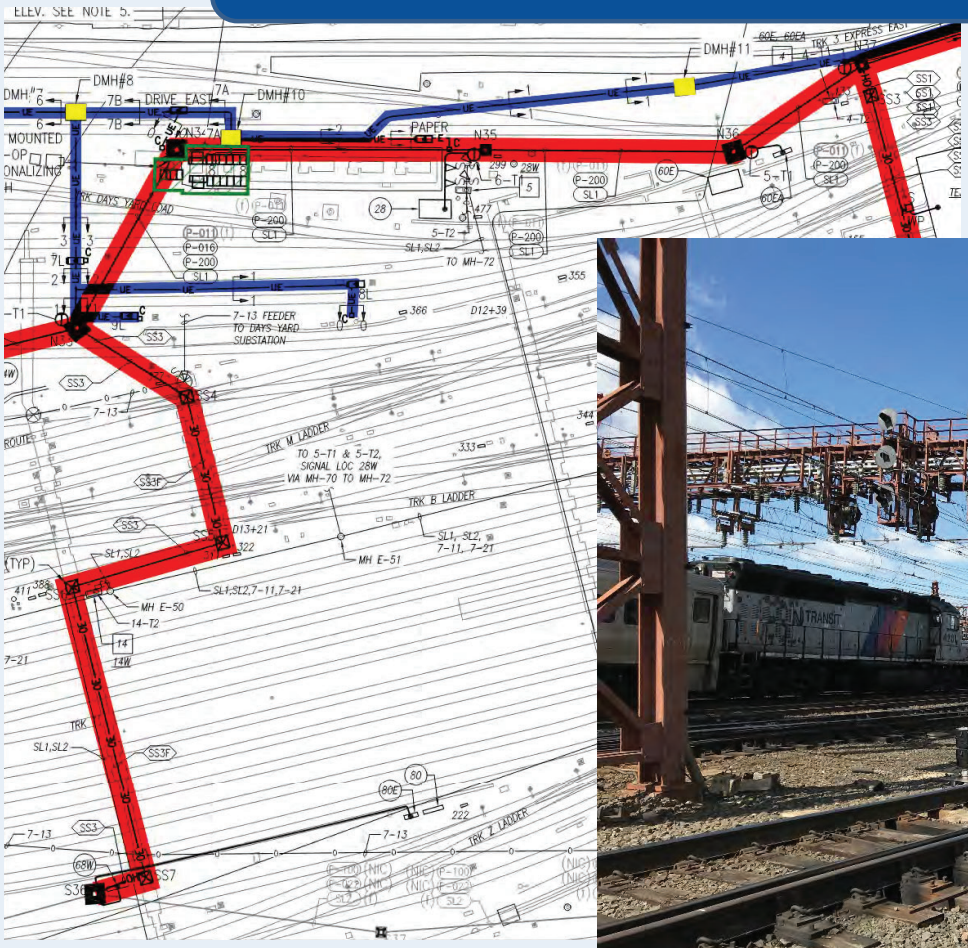
Monopole Locations





N34

Monopole Locations

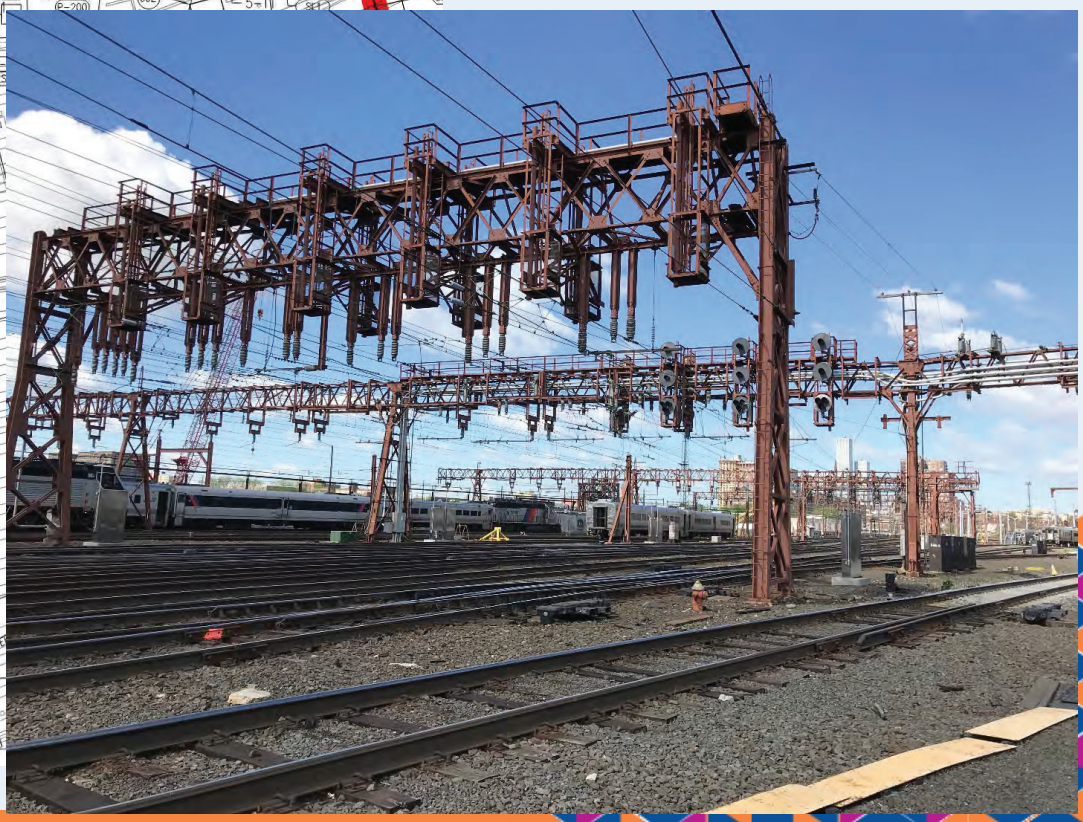


N33



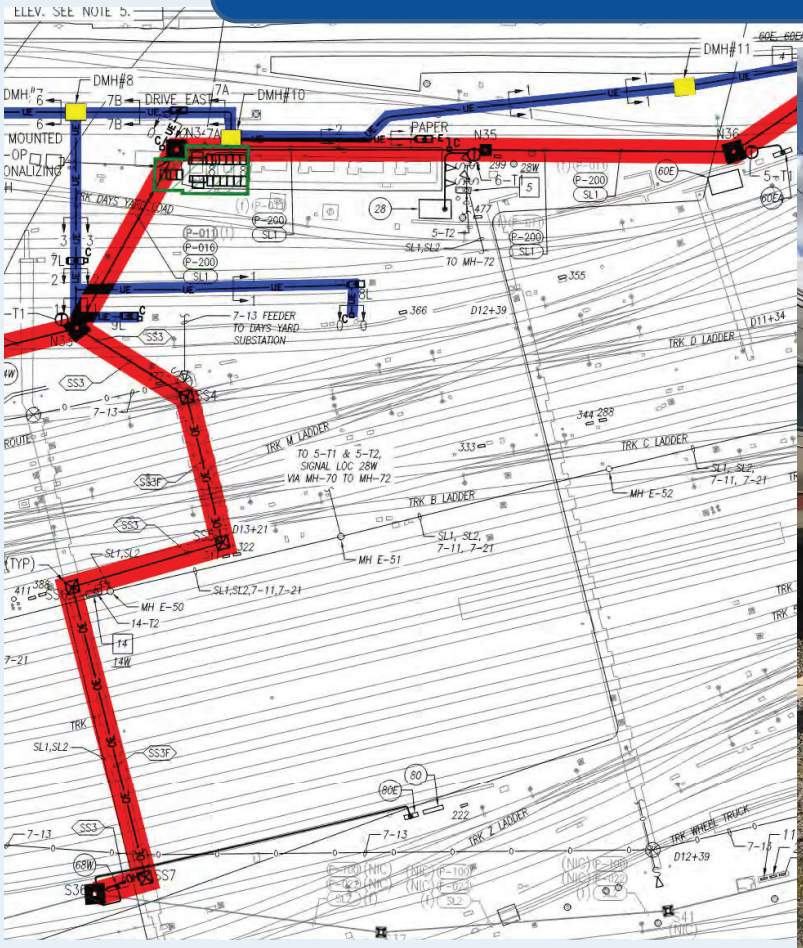
Monopole Locations





D13+21 and D14+93

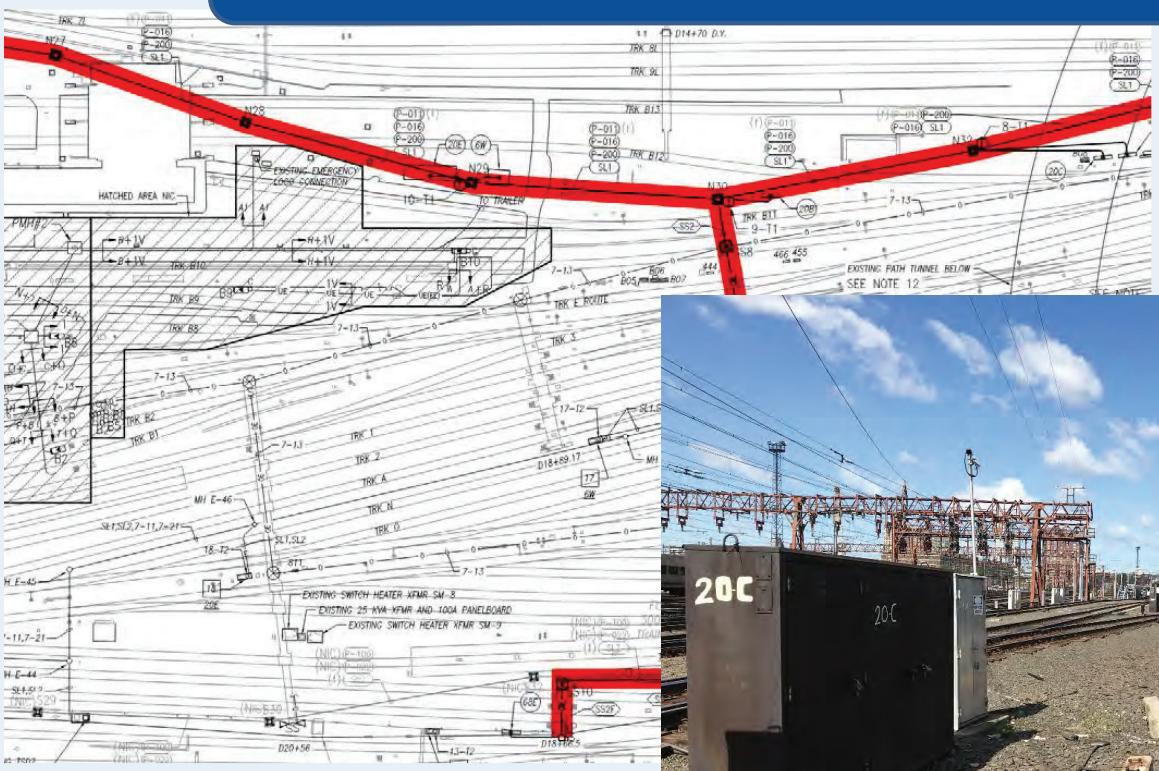
Monopole Locations





S36

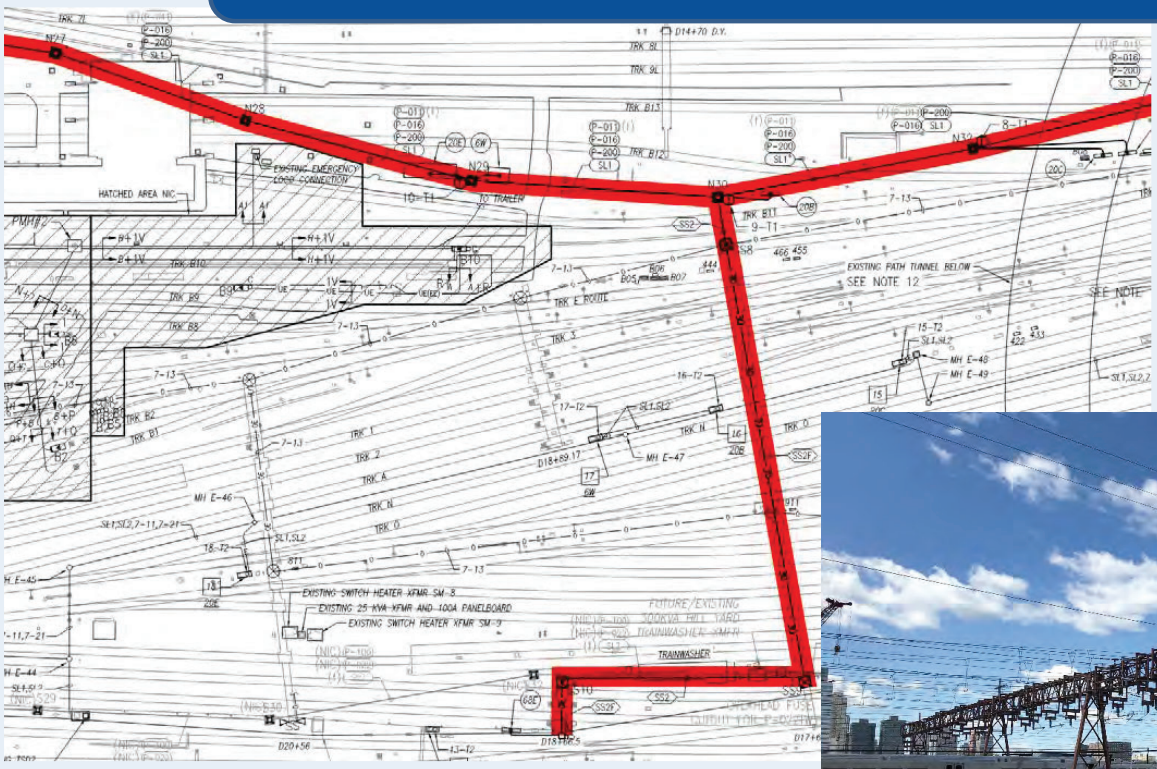
Monopole Locations





N32

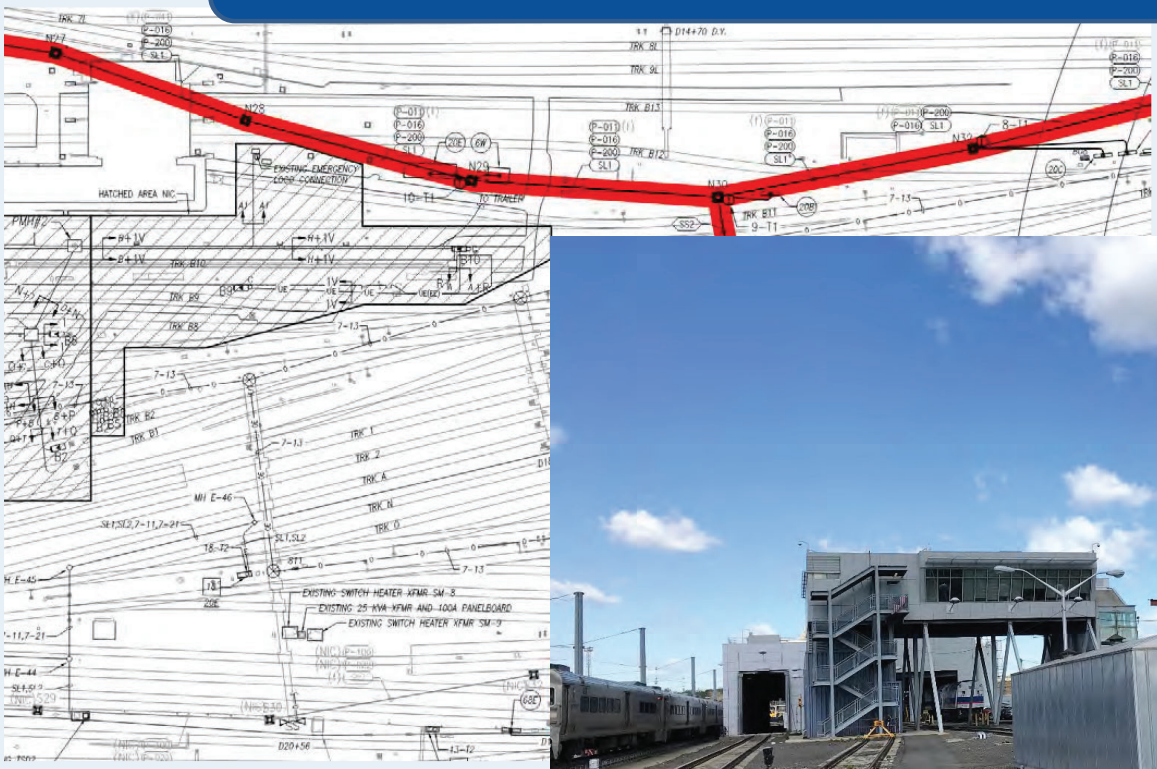
Monopole Locations





N30, D17+69.15, and D18+66.5

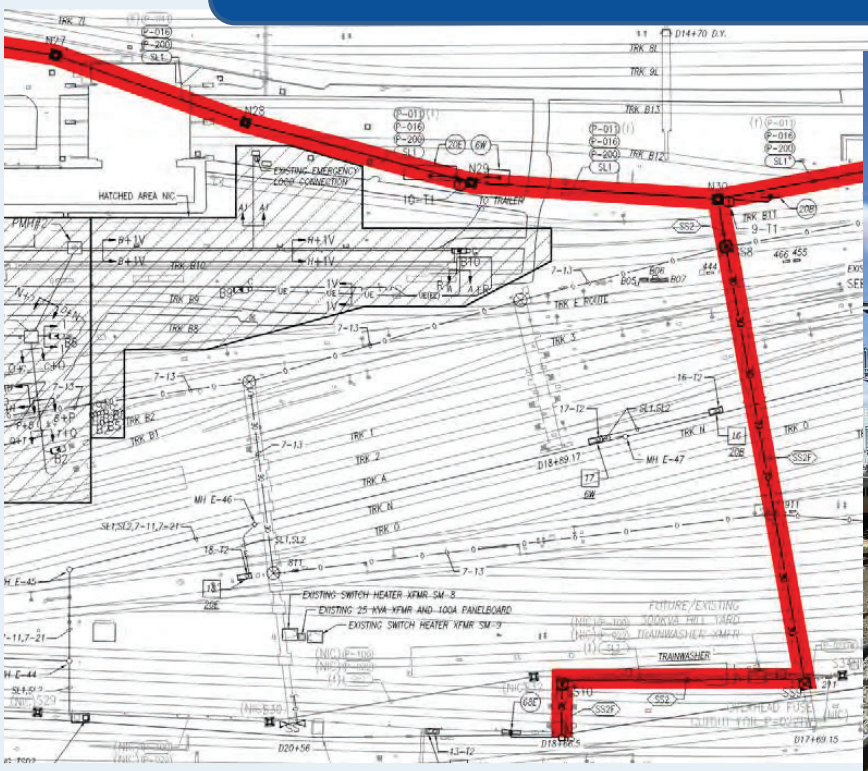
Monopole Locations

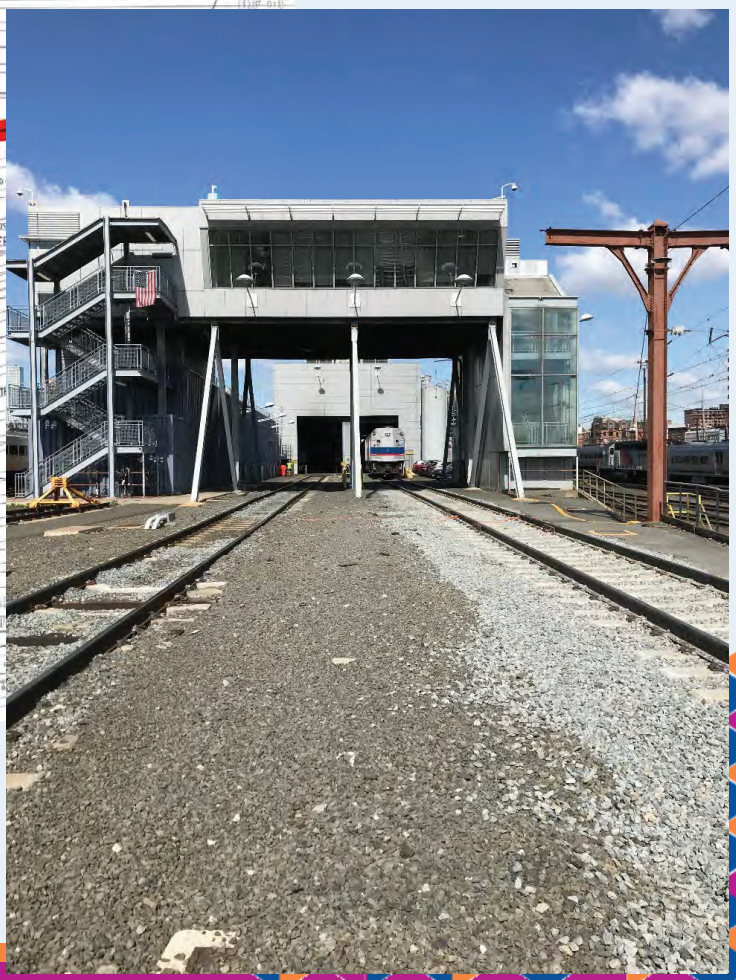




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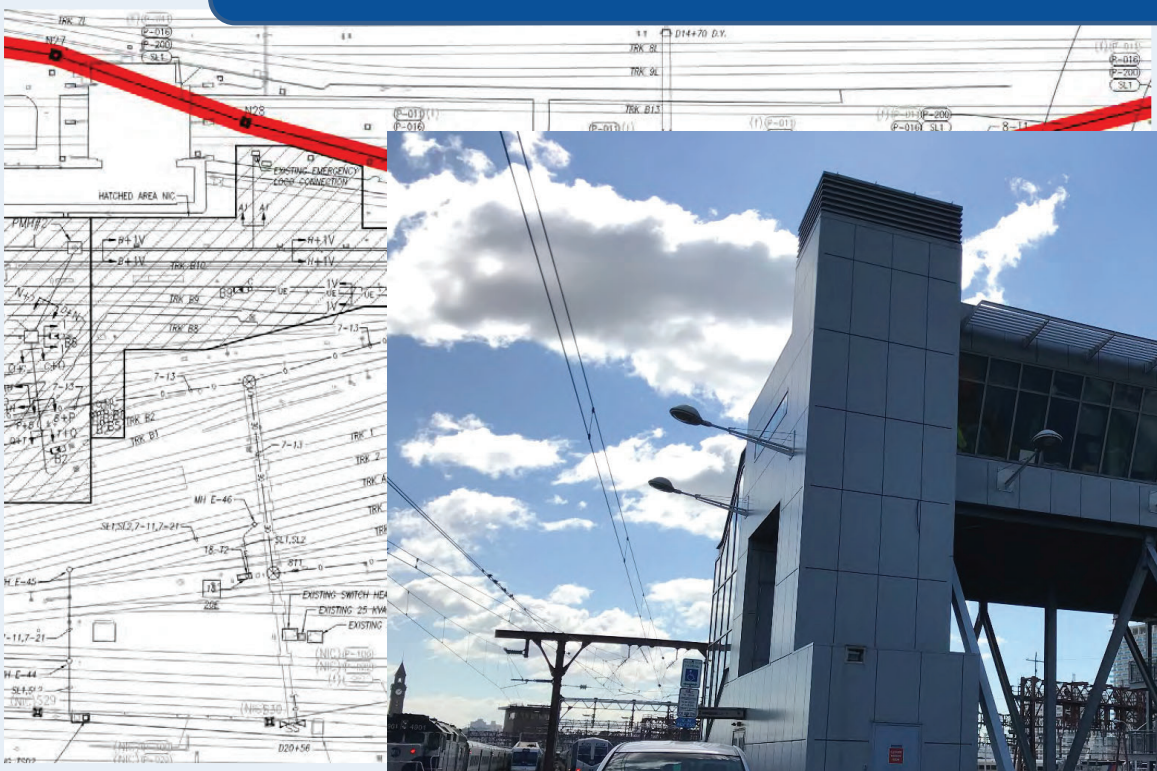
Monopole Locations





N28

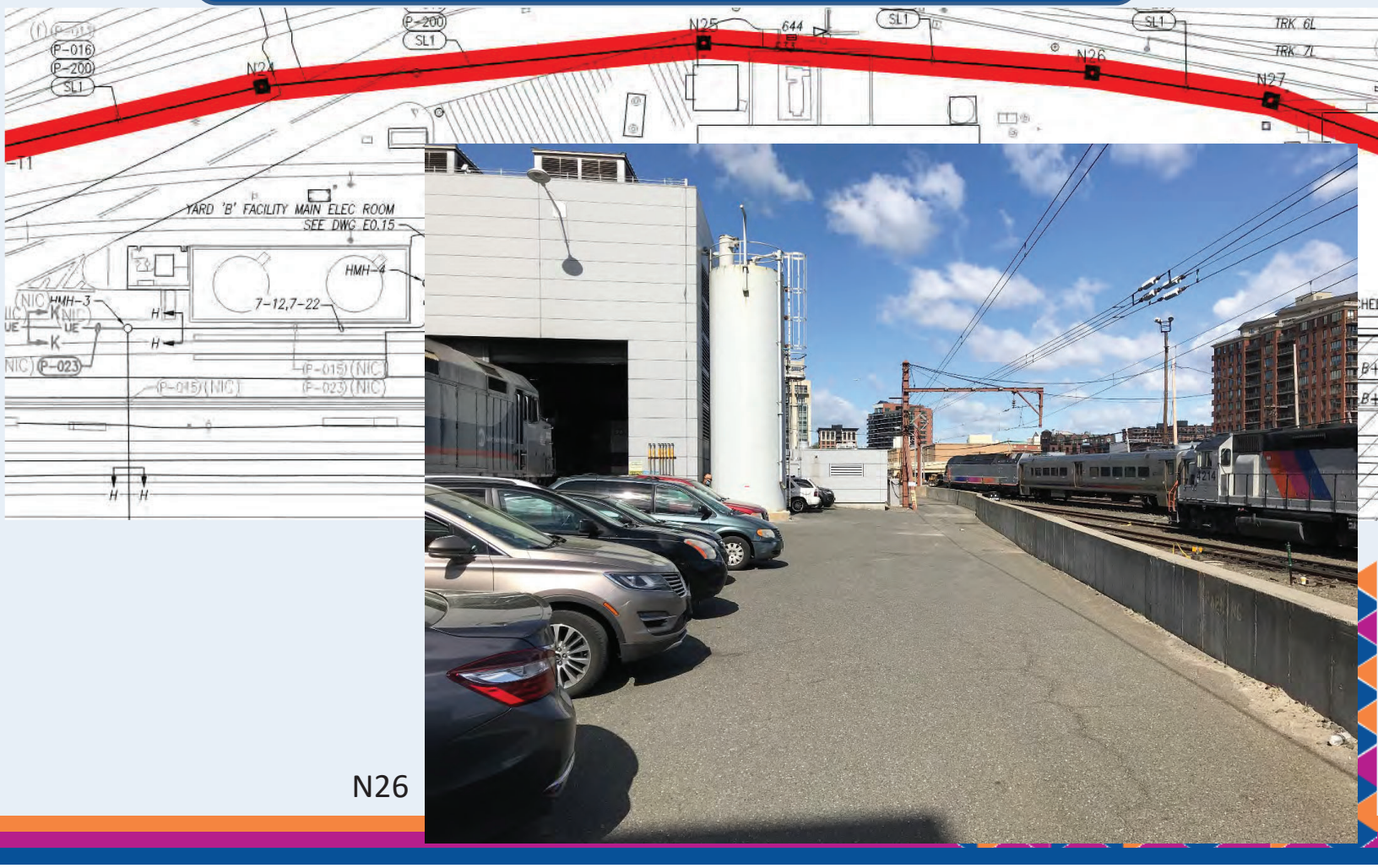
Monopole Locations





N27

Monopole Locations



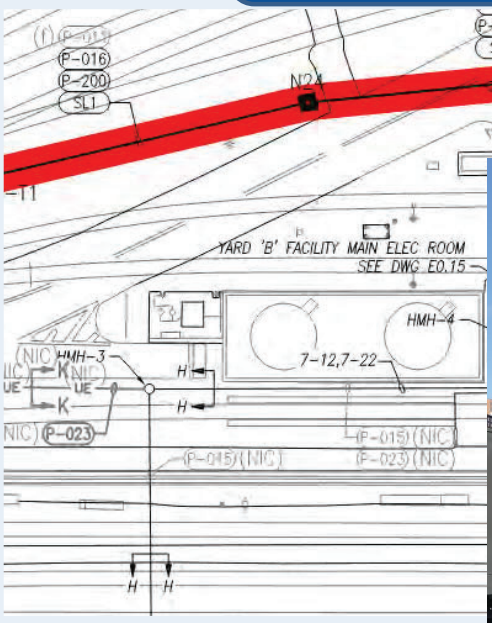
N26

Monopole Locations



N25

Monopole Locations



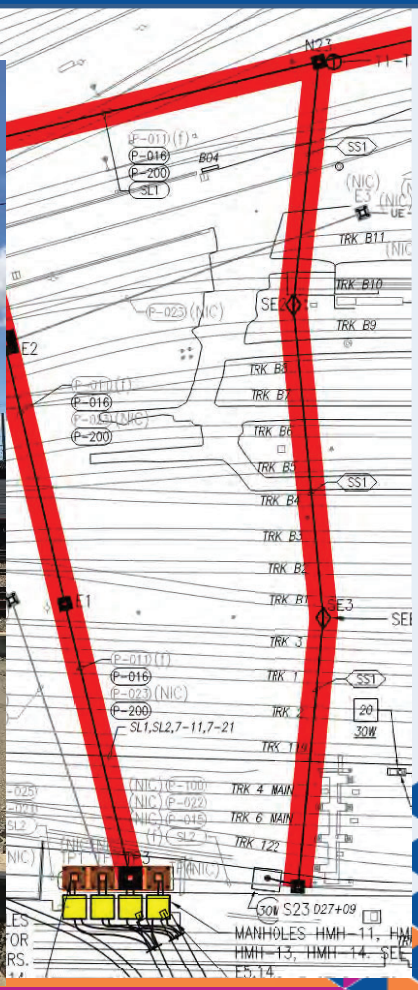


N24

Monopole Locations

SE2 and SE3

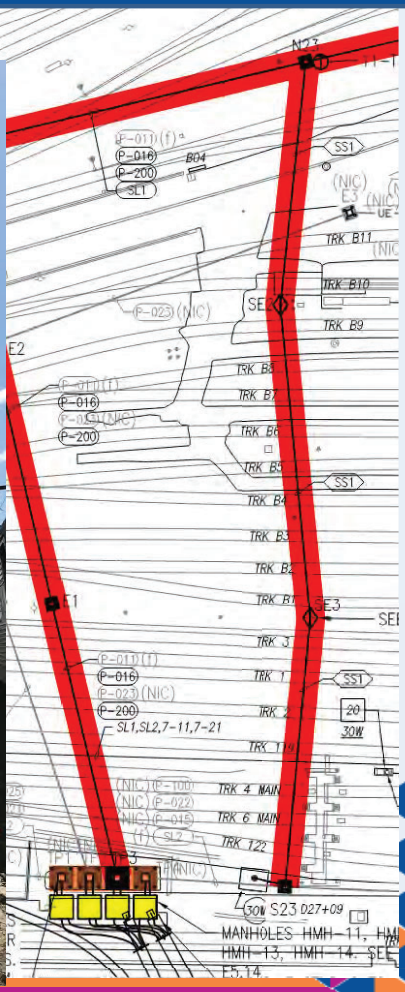




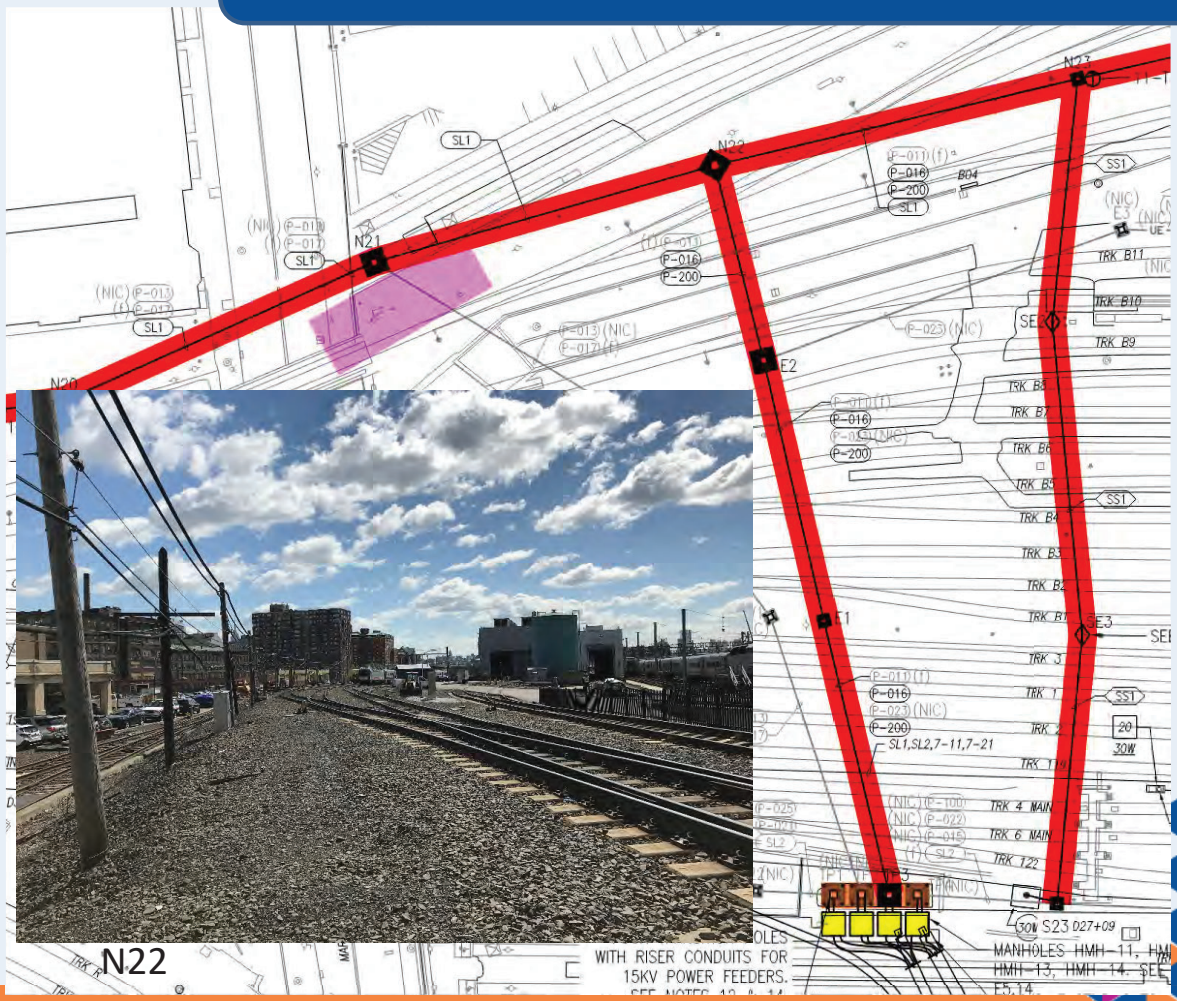
Monopole Locations

S23



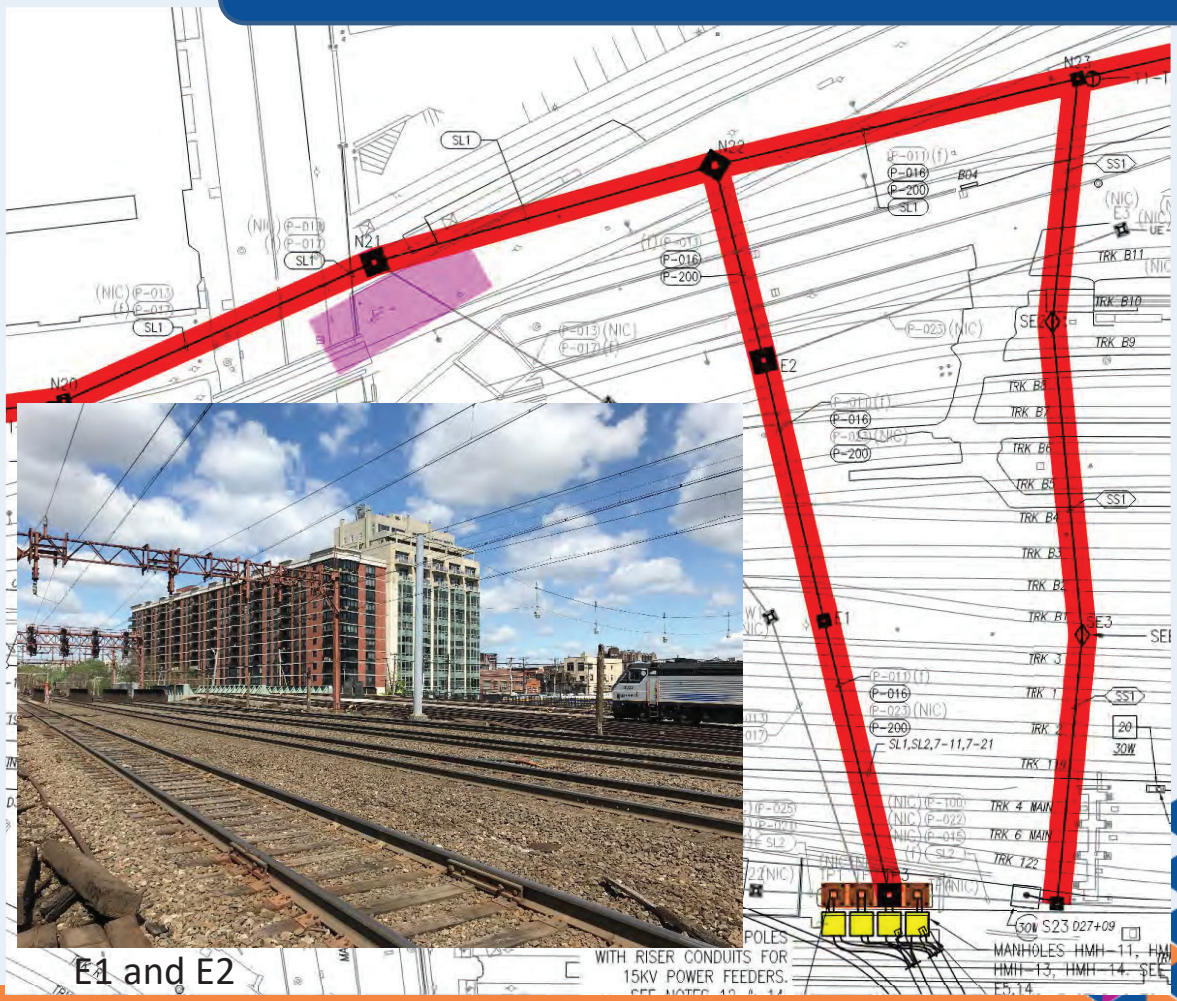


Monopole Locations



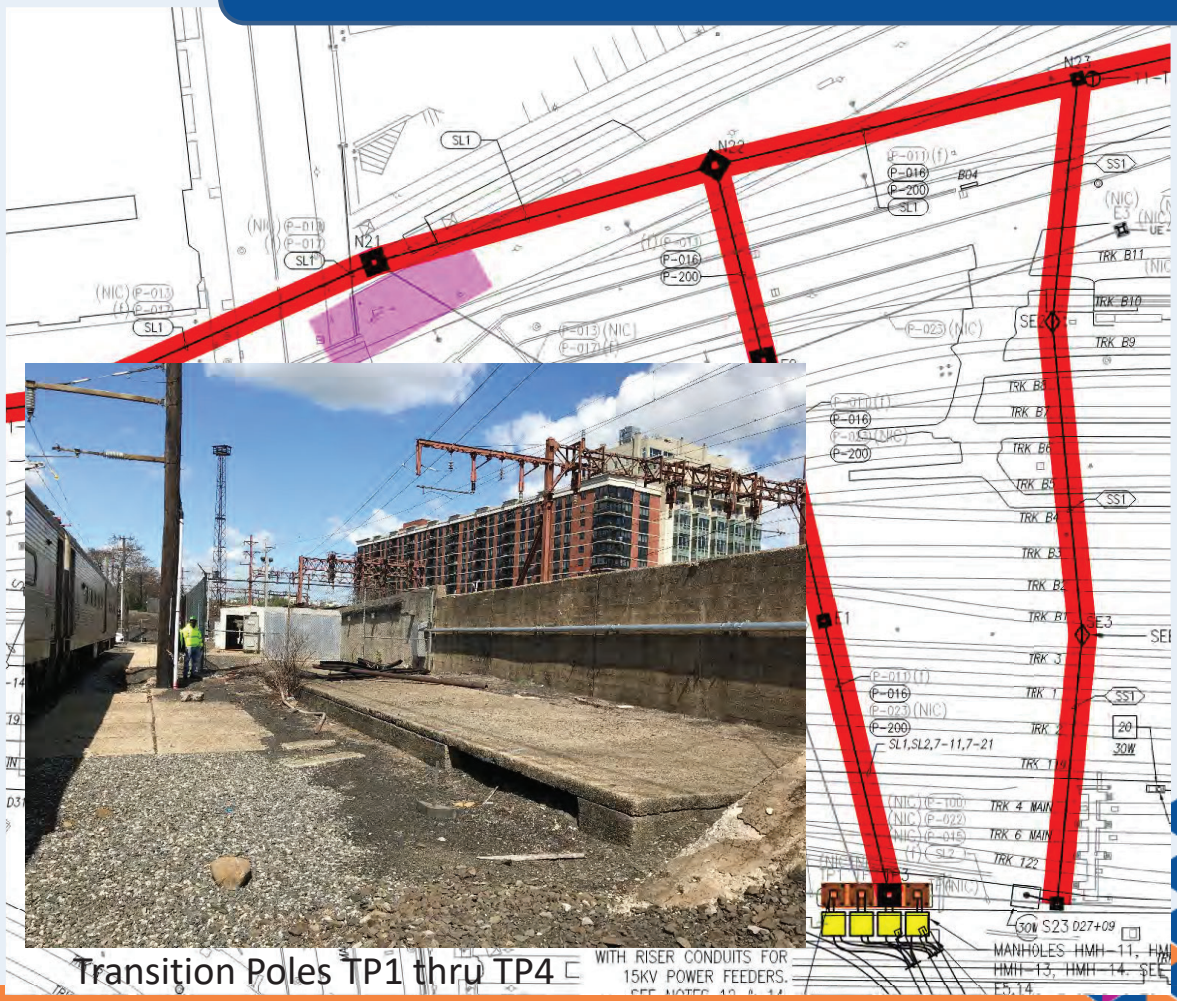
N22

Monopole Locations



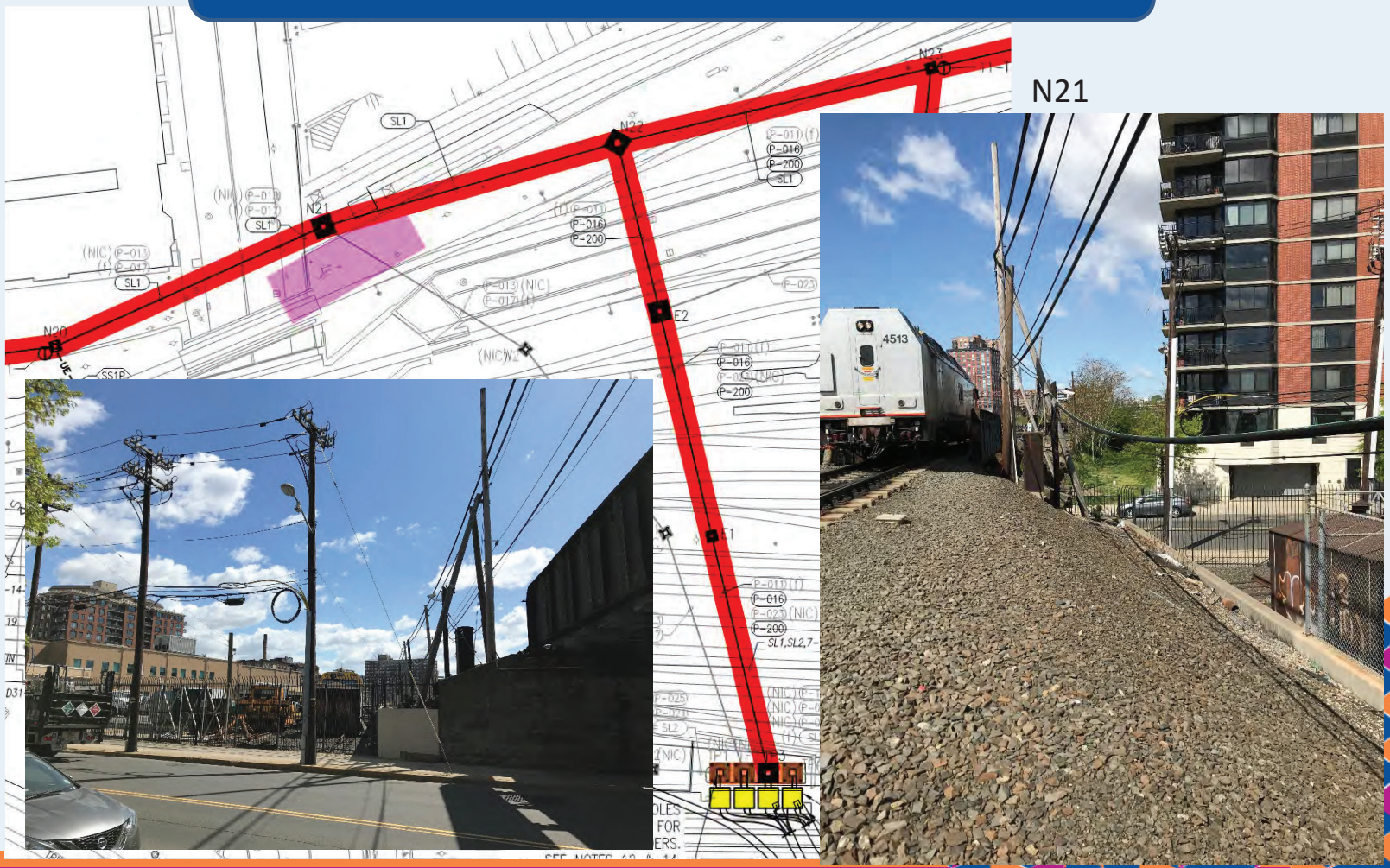
E1 and E2

Monopole Locations



Transition Poles TP1 thru TP4

Monopole Locations



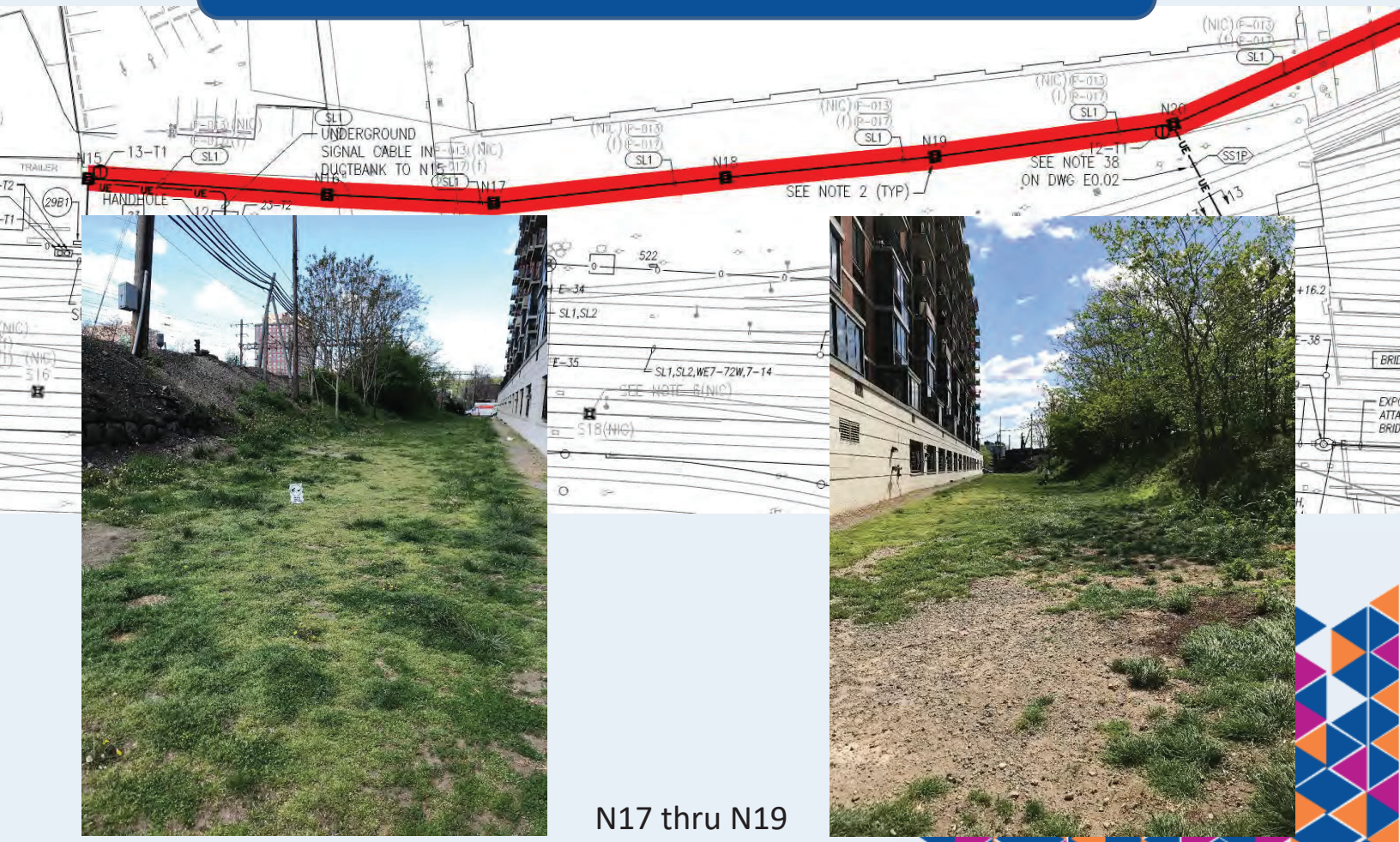
Monopole Locations



N20

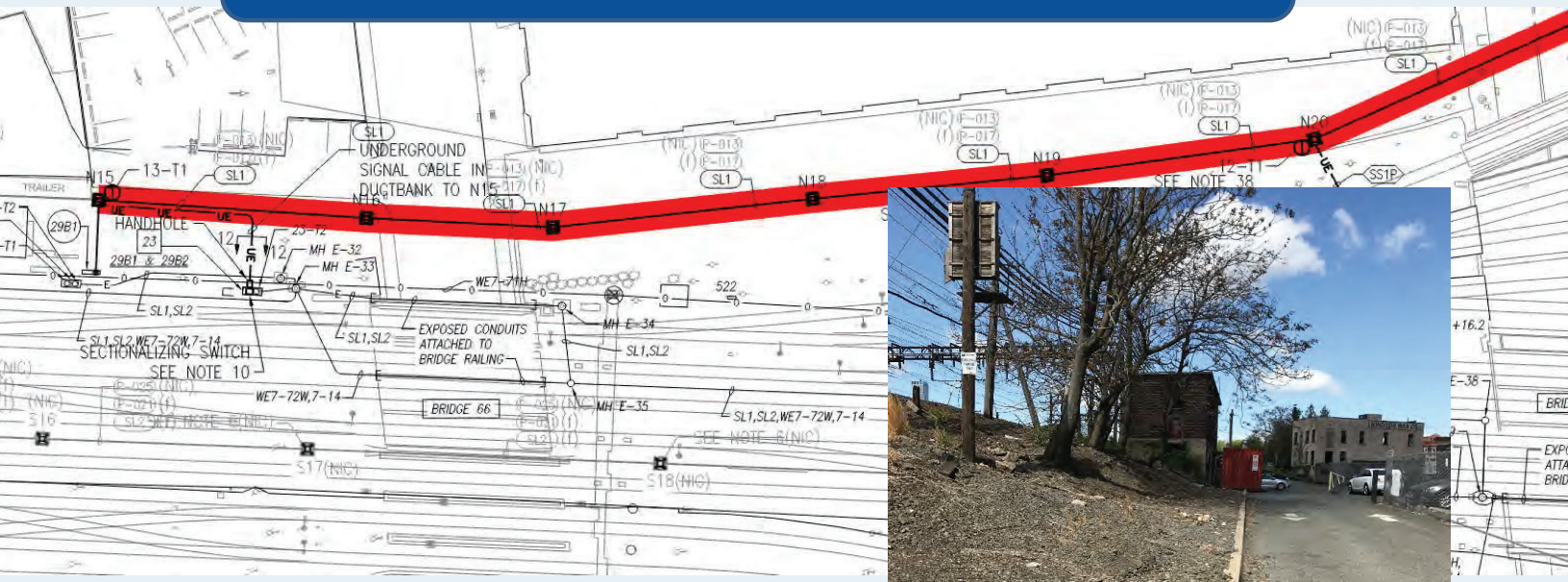


Monopole Locations



N17 thru N19

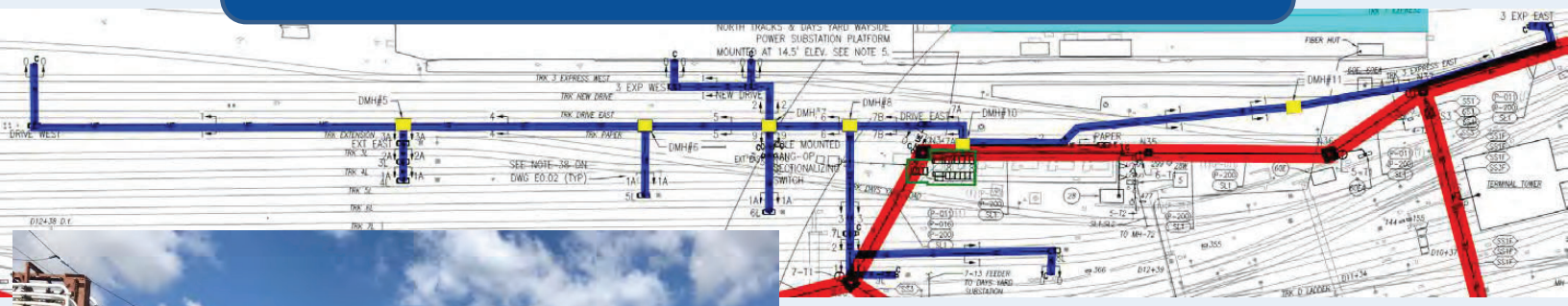
Monopole Locations

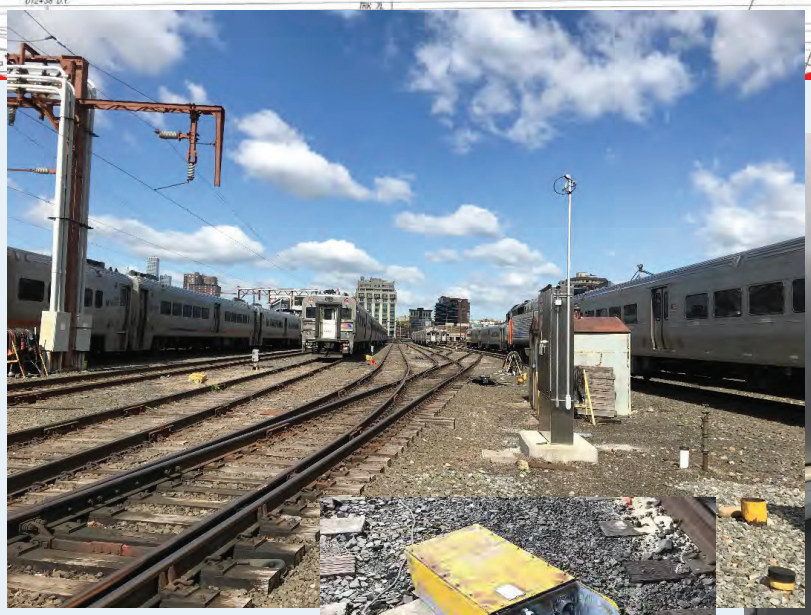




N15 and N16

Days Yard Wayside Power

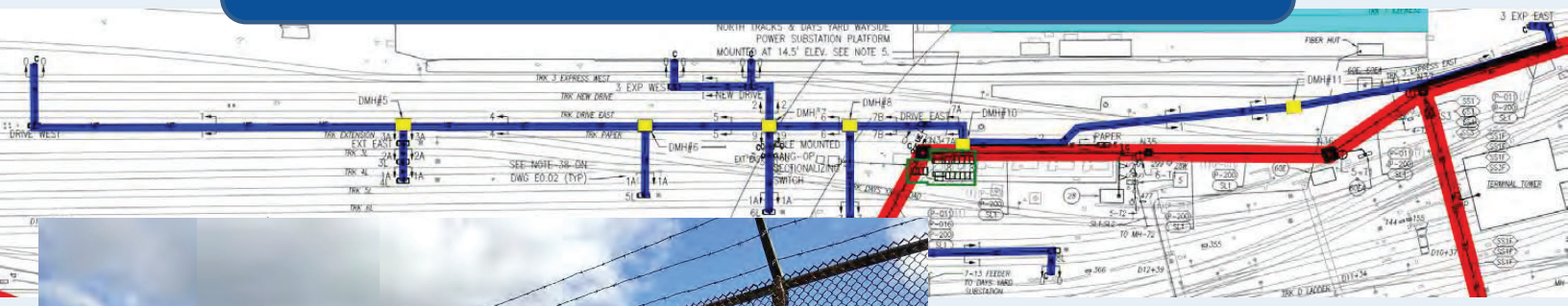








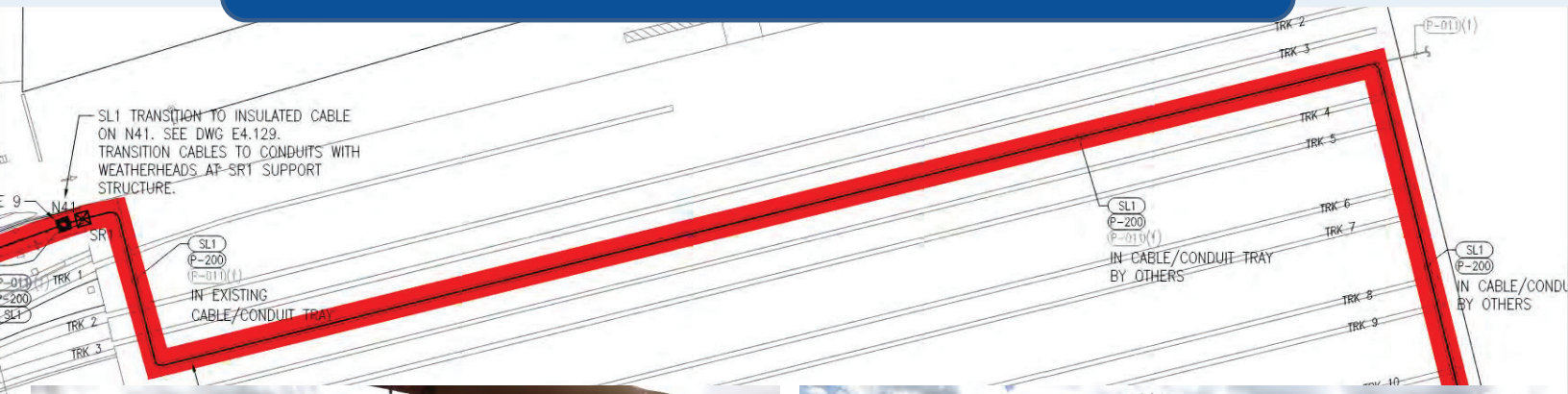
Days Yard Wayside Power







Signal 0 Platform







Signal 0 Platform





Questions?
Comments?

KEY DATES

Deadline to submit Standard Prequalification	**Thursday, May 27, 2021 @ 5:00 p.m.**
Deadline to submit inquiries and requests for clarifications	**Thursday, May 27, 2021 @ 5:00 p.m.**
Bid Due Date	**Thursday, July 8, 2021 @ 2:00 p.m.**

ATTACHMENT B

INVITATION FOR BID (IFB) NO. 21-004X

HOBOKEN SIGNAL POWER SYSTEM and YARD-WAYSIDE POWER REPAIR PROJECTS

IFB PRE-BID CONFERENCE ATTENDANCE LIST

21-004X - Hoboken Signal and Yard Power Repairs Projects
Pre-Bid Conference
May 12, 2021 @ 10:00 A.M.

Attendance List

	Name	Firm	Email Address	Phone #
1	Esther Gagliano	**HALL CONSTRUCTION CO., INC.**	[redacted]	[redacted]
2	Peter Egan	**HALL CONSTRUCTION CO., INC.**	[redacted]	
3	Drew Ferris	**HALL CONSTRUCTION CO., INC.**		
4	Kristina Ifkovits	**Forte Construction Corp / TAP Electrical Contracting Service, Inc.**		
5	Dispanshu Gupta	**Forte Construction Corp / TAP Electrical Contracting Service, Inc.**		
6	Dan Healey	**George Harms Construction Co., Inc.**		
7	Chris Carter	**George Harms Construction Co., Inc.**		
8	Robert Sceles	**L.K. Comstock & Co., Inc.**		
9	Gary Guild	**L.K. Comstock & Co., Inc.**		
10	Luis Nieves	**L.K. Comstock & Co., Inc.**		
11	John McLaughlin	**L.K. Comstock & Co., Inc.**		
12	Chetan Patel	**CRC Associates, Inc. (MBE/DBE)**		
13	Michael Cicotta	**Michels**		
14	Matt Gassner	**Michels**		
15	Mark Dietrich	**Michels**		
16	Brandon Stillo	**Michels**		
17	David Brummel	**Michels**		
18	Michael Dunn	**Daidone Electric, Inc.**		
19	Victor Daidone	**Daidone Electric, Inc.**		
20	Sertac Erdinc	**RailWorks Track Services, Inc.**		
21	Richard Jordan	**RailWorks Track Services, Inc.**		
22	Markus Kraemer	**RailWorks Track Services, Inc.**		

21-004X - Hoboken Signal and Yard Power Repairs Projects
Pre-Bid Conference
May 12, 2021 @ 10:00 A.M.

Attendance List

23	David Cesani	**American Electrical Testing/Asplundh Construction**	[redacted]	[redacted]
24	Michael Harvey	**Asplundh Construction**		
25	Chris Pasqualichio	**BOND Civil & Utility**		
26	Faith Blair	**NJ TRANSIT Procurement**		
27	Rafael Duran	**NJ TRANSIT Project Management**		
28	Jeffrey Messinger	**STV**		
29	Jason Wormeck	**NJ TRANSIT Project Management**		
30	Lenora Isaac	**NJ TRANSIT Project Management**		
31	Maggie Sotolongo	**NJ TRANSIT Procurement**		
32	Samantha Chavanga	**NJ TRANSIT Procurement**		
33	Jansy Escobar	**NJ TRANSIT Procurement**		
34	Mariane Ibrahim	**NJ TRANSIT Office of Business Development (OBD)**		
35	Elizabeth Perdomo	**NJ TRANSIT Office of Business Development (OBD)**		
36	Adonis Abreu	**NJ TRANSIT Office of Business Development (OBD)**		

Philip D. Murphy, Governor
Sheila Y. Oliver, Lieutenant Governor
Diane Gutierrez-Scaccetti, Commissioner
Kevin S. Corbett, President & CEO

NJTRANSIT
One Penn Plaza East
Newark, NJ 07105-2246
973-491-7000

June 11, 2021

ADDENDUM NO. 4

Re: NJ TRANSIT's Invitation For Bid (IFB) No. 21-004X
Hoboken Signal and Yard Power Repairs Projects

To Whom It May Concern:

Bidders are hereby advised of the following clarifications, additions and/or revisions to the above referenced Invitation for Bid:

1. IFB BID DUE DATE

The due date for Bids is being revised. Bids are due at **2:00 pm, Thursday, July 22, 2021** and the Bid Opening will be conducted by Conference Call Only.

The bids will be read aloud on the conference call. Conference call details are as follows:

- Dial-in Number: 1-862-294-4371
- Conference ID: 771 881 178#

2. SITE VISIT

A site visit is scheduled for **Monday, June 21, 2021**. Due to the ongoing Covid-19 restrictions, potential bidders who are interested in attending the site visit are required to inform NJ TRANSIT of their intent to attend by emailing **Faith Blair** at fblair@njtransit.com on or before **Wednesday, June 16, 2021**. Once your intent to attend the site visit is received by NJ TRANSIT, you will receive a confirmation email specifying the time slot that your firm is scheduled and the meeting location.

NJ TRANSIT is limiting the number of attendees to the site visit to one (1) representative per firm.

Bidders must bring and wear their own safety apparatus including hard hats, reflective vests, and hard toed shoes/boots in order to go on the site visit. Additionally, Bidders must bring and wear a mask as instructed by NJ TRANSIT personnel. Failure to bring the required PPE and mask will result in denial of a Bidder to walk the site.

Bidders are advised that attendance at the site visit is strongly recommended.

FOR PROSPECTIVE BIDDERS ONLY

In accordance with NJ TRANSIT's Instructions to Bidders - Article B.3, an authorized representative of your organization shall electronically acknowledge receipt of this Addendum on the Bid Form in the space provided with its bid. Failure to acknowledge receipt of all Addenda may cause the rejection of the Bid as non-responsive.

Sincerely,



Faith Blair
Managing Contract Specialist
Procurement Department

Philip D. Murphy, Governor
Sheila Y. Oliver, Lieutenant Governor
Diane Gutierrez-Scaccetti, Commissioner
Kevin S. Corbett, President & CEO

NJTRANSIT
One Penn Plaza East
Newark, NJ 07105-2246
973-491-7000

June 30, 2021

ADDENDUM NO. 5

Re: NJ TRANSIT's Invitation For Bid (IFB) No. 21-004X
Hoboken Signal and Yard Power Repairs Projects

To Whom It May Concern:

Bidders are hereby advised of the following clarifications, additions and/or revisions to the above referenced Invitation for Bid:

1. IFB SITE VISIT QUESTION AND NJ TRANSIT RESPONSE

Question
During our site visit Monday, I had asked about the possibility of using NJT's rail to transport the mono poles to the Hoboken yard. The proposed event would be with contractor own rail equipment, approved by NJT and loaded onto NJT's tracks at a remote location, Mono poles (95' long) loaded onto the rail vehicle, and transported into the Hoboken terminal. The objective of this is to eliminate the need to formulate a massive roadway transportation event, which would include, police, multiple no parking areas to allow for trailer swing, permitted transportation and staging. I was instructed to deliver this question to you.

Response
It is possible if the loads being transported meet NJ TRANSIT Rail Operations approval. NJ TRANSIT Rail Operations would need to see all specifications of the rail cars with the poles loaded on the cars to determine if the height, weight, and width have proper clearances. In addition, NJ TRANSIT would need to know the number of cars, who the shipper is and if the shipper is qualified to operate in this territory. Only after all requirements are satisfied will the shipment be allowed to proceed.

2. IFB TECHNICAL SPECIFICATION UPDATES

Monopoles N17 and N20
The Locations of monopoles N17 and N20 will be slightly modified but will still remain within the general vicinity of the current locations shown on the Contract

Drawings. These locations are inter-related with work that will be performed under another contract, and the Contractor is to be advised that the locations for monopoles N17 and N20 will not be available for the Contractor to construct until March 2023. The Contractor shall take this constraint into account when developing their construction schedule and sequencing of the work.

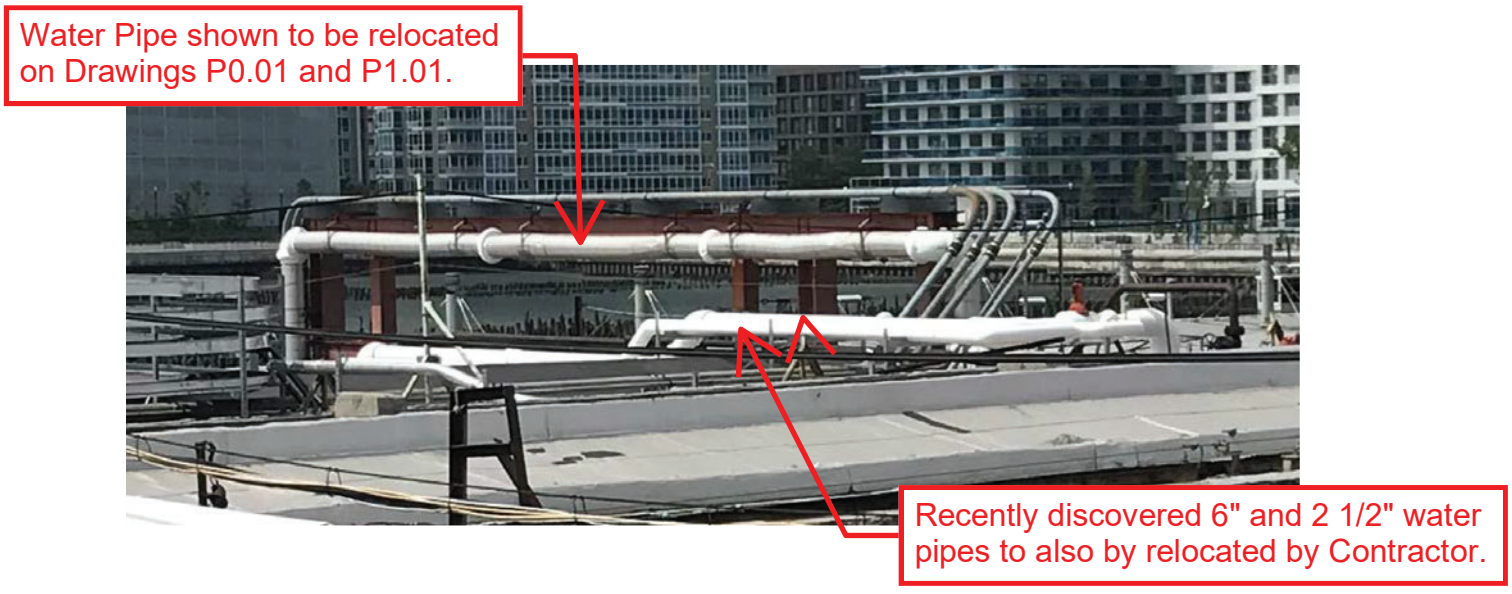
Water Pipes

During a recent visit to the site it was discovered that there are two new water pipes (a 6" DIP pipe and a 2 ½" DIP pipe with heat tracing) that have been installed above the roof on the east side of the catenary structure located at the end of Tracks 15 and 16, providing fire water and domestic water for the new Depot Substation (Pullman Immigrant Building).

It is believed that these pipes will interfere with the construction of the Signal 0 Location Platform constructed on the east side of this catenary structure (See Drawings E2.11 and S2.10).

In addition to the water pipe relocation work shown on P0.01 and P1.01, the Contractor shall relocate these recently discovered two additional water pipes and restore/repair the heat tracing and insulation as required to allow for the installation of the Signal 0 Location Platform. Routing shall be determined by the Contractor and materials shall match existing materials in-kind.

The recently discovered 6" and 2 ½" water piping details can be found on the attached reference Drawing C-100.



All work associated with the relocation of all three water pipes shall be included in lump sum bid item C15-005-001.0 – Plumbing & Domestic Water Systems.

FOR PROSPECTIVE BIDDERS ONLY

In accordance with NJ TRANSIT's Instructions to Bidders - Article B.3, an authorized representative of your organization shall electronically acknowledge receipt of this Addendum on the Bid Form in the space provided with its bid. Failure to acknowledge receipt of all Addenda may cause the rejection of the Bid as non-responsive.

Sincerely,



Faith Blair
Managing Contract Specialist
Procurement Department

Philip D. Murphy, Governor
Sheila Y. Oliver, Lieutenant Governor
Diane Gutierrez-Scaccetti, Commissioner
Kevin S. Corbett, President & CEO

NJTRANSIT
One Penn Plaza East
Newark, NJ 07105-2246
973-491-7000

July 9, 2021

ADDENDUM NO. 6

Re: NJ TRANSIT's Invitation For Bid (IFB) No. 21-004X
Hoboken Signal and Yard Power Repairs Projects

To Whom It May Concern:

Bidders are hereby advised of the following clarifications, additions and/or revisions to the above referenced Invitation for Bid:

1. IFB SITE VISIT QUESTION AND NJ TRANSIT RESPONSE

1. Question
I wanted to raise another issue brought by the Tubing division of Valmont, specifically having to do with the thickness of the HSS tubes. As you can read on the email below, Valmont no longer offers 1" thick HSS sections, the max they now offer is 0.875". Please advise if this would be acceptable.

   Response
   While the technical specifications named two potential manufacturers, the specifications also specify "or equal". It is the Contractors' responsibility to perform the required due diligence research and find manufacturers that are capable and willing to manufacture and provide products that are in compliance with the specification requirements. There are other manufacturers who are capable of providing the square HSS Steel monopoles with 1" wall thicknesses in the sizes needed for this project and in accordance with the project requirements. An alternate manufacturer is:

   H.W. Metals
   19480 SW 118th Ave.
   Tualatin, Oregon, 97062
   Phone: 503-692-1690
   www.hwmetals.com

   There may be other manufacturers that are also able to perform this work.

2. Question
   Valmont Utility, a division of Valmont Industries has the capacity to fabricate the monopoles for this project, but they can fabricate them as a 12- sided shaft. Please confirm that the 12-sided shaft poles would be a viable option.

   Response
   Twelve (12) sided steel poles are not acceptable as this will require all of the attachment details to be revised. This change would also impact pole sizes and may impact required track clearances.

FOR PROSPECTIVE BIDDERS ONLY

In accordance with NJ TRANSIT's Instructions to Bidders - Article B.3, an authorized representative of your organization shall electronically acknowledge receipt of this Addendum on the Bid Form in the space provided with its bid. Failure to acknowledge receipt of all Addenda may cause the rejection of the Bid as non-responsive.

Sincerely,



Faith Blair
Managing Contract Specialist
Procurement Department