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January 30, 2018

Department of Treasury  
Division of Property Management and Construction  
Contracts & Procurement Unit  
33 West State Street, 9<sup>th</sup> Floor, Plan Room  
Attn: Bill Mahan  
PO Box 034  
Trenton, New Jersey 08625-0034

Re: Invitation to Submit "Technical Proposal" for Boundary Survey for Land Acquisition for Various Parcel, Woodbridge, Middlesex County, NJ (P1178-00)

Dear Mr. Mahan:

Dewberry Engineers Inc. (Dewberry) is pleased to submit one (1) original and four (4) copies of our response to the above stated proposal. We are extremely interested in performing the surveying work in accordance with "DEP's Green Acres Program, Scope of Survey Services and Standard Detail Requirements," noted in the RFP. We are pleased to submit our qualifications after past success with the Division of Property Management and Constructions, multiple agencies and Counties. Work for this project will be performed in our Mount Laurel, NJ office.

Leading the survey effort will be Keith Ludwig, PLS, our proposed Project Manager. Mr. Ludwig brings over 30 years of survey experience. Supporting Mr. Ludwig will be Robert Telschow, Jr., CST IV, Benjamin Giordano, Hans Rikson, CST II, Louis Trefz, Jr., CST II, and Michael Tighe, CST II from our Mt. Laurel, NJ office.

Dewberry has six full-time, fully equipped field survey crews for New Jersey related survey projects, with back-up equipment for related survey tasks. We can commit a survey crew to your project with the reasonable notice noted in the RFP and would have additional field crews available for overflow or as back-up, if necessary, on short notice.

With our depth of resources, we can commit to the DPMC that we can complete this work assignment within the required time limits, considering our current and projected workload. Please be advised that we will be available for contract execution and will be ready to start work as required. Dewberry has a proven track record for delivering quality projects on schedule to our clients.

Sincerely,

Dewberry Engineers Inc.

Craig R. Johnson, PE  
President, Northeast

Keith M. Ludwig, PLS  
Associate/NE Regional Survey Operations Manager

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2018 JAN 31 P 2:06  
PROCUREMENT

Department of the Treasury  
Division of Property Management & Construction (DPMC)  
Boundary Survey for Land Acquisition (P1178-00)

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# 1. Firm/Project Team Experience

Dewberry Engineers Inc. (Dewberry) is a leading market facing firm with a proven history of providing professional services to a wide variety of public and private-sector clients. Established in 1956, Dewberry is headquartered in Fairfax, Virginia with 50 locations and 2,300 professionals, including 220 surveyors, of which 37 are licensed professionals, and 41 GIS specialists, nationwide.

Dewberry's survey capabilities are best of breed. We are continually growing our survey practice and maintain relevance for our clients by taking active roles in professional organizations as well as regularly partnering with internationally recognized developers and manufacturers of survey technology and equipment. We have served as a beta test site for advanced survey and mapping software and are involved with the development and use of VRS networks. We have fully integrated our surveying field and office technologies, creating company-wide standardization of work procedures, field data collection formats, and CAD standards. This standardization has allowed us to mobilize our geographically based survey resources to deliver on large, fast-tracked survey projects. From its founding, Dewberry has provided comprehensive surveying services ranging from individual property line surveys to large-scale boundary and topographical surveys, construction stakeout, and global positioning system (GPS) surveys. Responsiveness to clients' requirements and schedules, advanced training for survey personnel, and an integrated approach to the survey process based on the firm's multidisciplinary expertise in planning and engineering are among the hallmarks of our surveying and computing services.

With our available in house inventory of survey equipment, software, survey staff, and geographic coverage, we are able to respond rapidly to the survey needs of our clients. We utilize the latest version of Autodesk products and Bentley Microstation/In-Roads, and associated software for mapping and engineering design; and sophisticated cartographic and reprographic resources. Services include:

- Topographic / Existing Conditions Surveys
- Roadway Cross Sections
- Geodetic Horizontal and Vertical Control

- Boundary / Right of Way Surveys
- Wetlands Delineation and Location
- Hydrographic surveys
- Fee and Easement Routes
- Foundation Surveys
- Boring and Test Pit Locations
- Flood Plain Limits
- Stream Boundaries
- Utility Locations
- Drafting and Related Services in AutoCAD / Civil 3D and Microstation / In-Roads

Dewberry has provided several of these services to various Federal, State and local agencies throughout the country. We have worked on hundreds of projects for NJDOT and various counties throughout New Jersey. Below is a brief listing of some of these projects:

- Camden County Tansboro Road
- NJDOT Route 40 Woodstown Improvements
- NJDOT I-295/I-76/Route 42 Direct Connection
- NJDOT I-295/I-76/Route 42 Missing Moves
- NJDOT Pulaski Skyway Rehabilitation
- NJDOT Route 70 Red Lion Road to Dakota Trail
- DVRPC Hanover Street Bridge replacement
- Passaic County Fair Lawn (Fifth) Avenue Bridge replacement
- NJDOT Route 206 Bypass
- NJDOT Route 280 Ramp 2P over CR 577
- NJDOT Route 22 Eastbound, I-78 to Routes 202/206
- NJTP Interchange 8 Improvements
- NJTP Exits 6-9 Widening Project



**Project Manager:** For this

contract we propose Keith M. Ludwig, PLS, as the Project Manager (PM). Mr. Ludwig is a Professional Land Surveyor with over 30 years of experience. He is licensed to practice Land Surveying in NJ, PA, DE, MA, MD, NY, VA and NC.



He holds a Bachelor of Science degree in Land Surveying from the New Jersey Institute of Technology. He serves as the Northeast Region Survey Operations Manager and additionally functions as our Mt. Laurel, NJ, Survey Department Manager. He has successfully managed numerous projects throughout his extensive career. He has current a current license to practice land surveying in New Jersey and has never been suspended or revoked. A few of the similar projects that Mr. Ludwig has worked on in his career are listed below:

**Reconstruction, Rehabilitation, Elevation and Mitigation (RREM) Program – America's Home Place, Statewide, NJ:** Survey Department Manager for turn-key design and permitting services as the preferred vendor to one of the State of New Jersey's program management firms leading the Reconstruction, Rehabilitation, Elevation and Mitigation (RREM) Program for Block Grant Disaster Recovery for Super Storm Sandy damaged homes. The State of NJ modified the program in late 2013 to a design-build program; whereas, Dewberry's turn-key design services were provided to the State's preferred builders and resulted in providing services on over 350 homes to date. We provided land surveying, civil design, geotechnical investigation, foundation design (shallow and deep foundations), architectural design and land use and construction permitting services for homes to be rebuilt with program prototype designs and for existing homes that were required to be elevated to meet new FEMA base flood elevations. Dewberry's scope of services for a typical project included:

1. Land Survey of property and existing conditions.
2. Completion of an initial elevation certificate.

3. Zoning and environmental constraints analysis, including preparation of plot plans and grading/drainage designs.
4. Structural assessment of existing foundation support system and structure.
5. Geotechnical soil boring and preparation of a geotechnical report presenting foundation recommendations and design parameters.
6. Foundation design incorporating shallow spread footings/CMU block walls, driven timber piles or helical piers.
7. Structural design services associated with repairs of flood damaged flooring systems and walls.
8. Architectural design services included the modification of State approved prototype home designs to fit on individual building lots or as per builder and homeowner revisions.

**USACE New York District Picatinny Arsenal: Boundary Survey/GIS Database, U.S. Army Garrison Picatinny Arsenal, Picatinny Arsenal, NJ:** Survey Department Manager for boundary surveying services along with Geographic Information System (GIS) database compilation in conjunction with Contract W912DS-10-D-0004-DT07 for USACE New York District. This project involved extensive records research dating back to the 1890s that included retracement of the Real Estate Tract Maps, original deeds of conveyance and takings throughout 70 years and the Real Property Transactional Registers. We obtained plans, maps and deeds, prior surveys, road returns and documents on file with Morris County Clerk's office, NJDOT, local municipal records, public utilities, FEMA and additional data sources dealing with freshwater wetlands. We compiled a database listing tracts that were acquired and sold off and easements obtained for the benefit and servient estate. Once this information was gathered, tax maps and aerial imagery were downloaded and geo-referenced into the New Jersey State Plane Coordinate System (NJSPCS) using Esri ArcGIS software. We gathered property records for the surrounding parcels to aid in the boundary analysis as well and geo-referenced this information to the aerial imagery to comprise a deed mosaic of the subject parcels.



In order to establish an accurate control network that would be capable of delivering high accuracy over such a large area, Dewberry researched the database of the National Geodetic Survey to retrieve the data sheets for existing horizontal and vertical control located near the Arsenal and the surrounding region. We prepared control diagrams for the existing control to be used as reference marks to make ties to the National Spatial Reference System along with the proposed new control points that were set for the project.

Dewberry uses established methods and procedures on survey projects that were designed to take full advantage of the technology and instrumentation in our inventory to produce 3D survey control. We routinely combined GPS observations with total station measurements and digital leveling to produce one seamless data set of 3D control values that are consistent and homogenous across the entire project. This was primarily achieved through the use of Real Time Kinematic (RTK), aka VRS, which enabled our numerous survey crews to work separately anywhere on the project at any time and still produced coordinates and elevations that were consistent with one another within the accuracy specification for the project. This means that different crews can be assigned to cover different sections of the whole project and work simultaneously on the same coordinate system, thus enabling the project schedule to include multiple lines of data flow at the same time. As the project progressed and the crews eventually work towards each other, they made the required measurements to tie their respective sections together. Once the fieldwork was completed, a final adjustment was performed to include the control network observations that were made from the beginning of the project to the end, resulting in one single set of 3D control values for the entire project with positional accuracies that met the project specification.

Using the procedures and technical approach described above, Dewberry completed the "on-ground" outbound field survey. Control for the outbound survey was continuously tied into our previously-set GPS control network points.

Property line analysis and boundary determinations were made by a Professional Land Surveyor. Through a process of filtering recovered evidence and applying the rules of construction for boundary location, we determined the property lines of the parcels. In the event that a discrepancy was discovered, i.e., gap or overlap, our Professional Land Surveyor was prepared to perform a further analysis of the property. We investigated intent of the parties, recorded

monuments, lines of possession, senior and junior rights as well as patent and latent ambiguities. We noted any deviation from the record documents to the surveyed boundary. Upon the completion of the boundary analysis for the property, our Professional Land Surveyor provided information to the survey technicians to draft the final plats. Plans were drafted in accordance with Dewberry's CADD standards, which are based upon the National CADD Standards, version 4.0. Plans were prepared under the supervision of a Professional Land Surveyor. During the drafting stage of this project, we calculated coordinates for missing property corners. The New York District had no requirements for this data to be delivered in SDSFIE format, though Dewberry frequently delivers data in that format for other USACE Districts.

This project also involved survey, geo-referenced photo documentation and mapping of fence lines found to be vulnerable to outside encroachment or trespassing. We located the fences using GPS and took photos that recorded the location of the photo relative to the NJSPCS. We later provided this information in a geo-database that could be accessed through Esri ArcGIS software.

Once final plans were reviewed and approved by the New York District Engineers office, the CADD files was exported into a GIS Shape File and Geodatabase along with supporting documentation for implementation into the facility's GIS.

**ALTA/ACSM Land Title Boundary/Topographic Survey DuPont Chambersworks, DuPont USA, Deepwater, NJ:** Survey Department Manager for the preparation of an ALTA/ACSM survey of 2,635 acres comprised of the holding of the DuPont Corporation in Salem County, NJ. Included the necessary field collection, data reduction, title research, description of property and aerial topographic mapping. A GPS control network was utilized to establish NJSPCS NAD83 throughout the project area. Benchmark elevations were related to NAVD 1988 and established using first order digital leveling techniques. This survey also involved the establishment of the corporate boundary between the Township of Carneys Point and the Township of Pennsville in Salem County.



**I-295/Route 42 Missing Moves, New Jersey**  
**Department of Transportation, NJ:** Survey Department Manager for one of the largest, and most congested, in southern NJ. It was also operationally deficient in that it lacks direct connection between I-295 and Route 42. Therefore, motorists utilized the adjacent local roadway network to accomplish this movement.

To rectify this situation, Dewberry was engaged to provide the engineering services needed to construct these "Missing Moves", enhancing overall operation of the Interchange and alleviating congestion on the local roads. As a result of the project's Feasibility Assessment (FA), it was initially planned to construct the connecting ramp system across the inactive landfill located between I-295 and Route 42 to minimize impacts on surrounding properties. In fact, the contract documents for this alignment were advanced to 95% completion.

However, in early 2012, it was decided that construction within the limits of the landfill property, which were also studied for future private development. We avoided to eliminate the State's assumption of any long-term environmental liability for the re-developed property. Accordingly, we were asked to review the alternative alignments studied earlier under the FA and redesigned the connection to avoid the landfill property. At the same time, it was recognized that certain improvements designed for Route 42 SB would not be impacted by the shift in alignment to avoid the landfill, and as such an Advance Contract to construct these improvements was prepared.

Currently we are advancing design of the Missing Moves Project based on the landfill avoidance alignment depicted above. The bridge design work on the contract involves nine bridges: four new bridges; widening or modification of four existing bridges; and the complete replacement of an existing bridge under staged construction. Two of the new bridges will be multi-span, horizontally curved structures utilizing composite welded steel I-girder construction. The bridge carrying Ramp A over I-295 will be a three-span structure, approximately 665' long. The bridge carrying Ramp A over Ramps C & D and Route 42 will be an eight-span structure approximately 1,650' long. Both bridges will provide a curb-to-curb width of 31' to satisfy future re-decking requirements. The substructure units will consist of pile-supported stub abutments perched behind MSE walls, single-column reinforced concrete hammerhead piers, or

steel box girder straddle bents founded on pile-supported footings.

**State Agriculture Development Committee Surveys, Various Counties, NJ:** Under multiple 1 year agreements with the New Jersey State Agriculture Development Committee (SADC), Mr. Ludwig performed the following surveys to SADC/NJDEP Green Acres Standards:

- Still Run Farm, Upper Pittsgrove, Salem County (128 acres) (2017)
- Lustgarten Farm, Upper Freehold, Monmouth County (128 acres) (2016)
- Hom Farm, East Windsor / Mercer / Monmouth Counties (94 acres) (2016)
- Myers Farm, Upper Pittsgrove Twp, Salem County (110 acres) (2016)
- Milo Farm, Bethlehem Twp, Hunterdon County (119 acres) (2015)
- Oberly Farm, Alpha Boro/Pohatcong Twp, Warren County (89 acres) (2015)
- Johnson Farm, Upper Deerfield Twp., Salem County (95 acres) (2014)
- Ballinger Farm, Mantua Twp., Gloucester County (156 acres) (2014)
- Sickler & Sons Farm, Upper Pittsgrove Twp., Salem County (118 acres) (2014)

#### **A. KEY PROJECT TEAM MEMBERS:**

We propose several in-house staff to work with Mr. Ludwig as part of the Dewberry Team's key personnel. Mr. Robert Telschow, Jr, CST IV will serve as Project Surveyor, Mr. Lou Trefz, CST II will serve as Survey Technician and Mr. Ben Giordano, Mr. Hans Rikson, CST II and Mike Tighe, CST II will serve as Survey Crew Chiefs. Mr. Gary Simpson, PLS will be assigned as the QA/QC manager. An organizational chart and resumes have been provided for all key personnel.

Dewberry agrees to make the PM, Mr. Keith M. Ludwig and Key Staff members available to the Division of Property Management and Construction to enable timely and accurate delivery of any task assigned.



## B. OFFICE LOCATION / CAPACITY:

For this contract Dewberry will provide services from its office located in Mount Laurel, NJ where we have 4 survey field crews, 2 office technicians and 1 survey project manager. Additional resources are available from our Bloomfield, NJ office where we have 3 survey field crews, 2 survey technicians and 1 survey project manager. Our companywide resources include 220 surveyors, of which 37 are professionally licensed, with 60 survey field crews and 25 survey technicians.

## C. QUALITY CONTROL/QUALITY ASSURANCE:

Our commitment to excellence is achieved by the use of our **NJDOT approved**, written project-specific Project Management Plan (PMP).

An integral part of the PMP is the project specific Quality Assurance Plan (QAP) where, we identify and implement quality control measures to carefully plan, check, and

review work before it is delivered to our client. Quality Control (QC) will be the responsibility of the Survey Office Supervisor, and the Project Manager. The following is a description of the various levels of review that we will perform:

- **Design/ Document Check** – Land Surveyors are responsible for ensuring that their work product has necessary references and is based on the project-specific criteria. They also review the work and deem it complete prior to passing it on to others. Senior Land Surveyors then perform a thorough check of calculations, deed and title report information, and references used in the plan preparation.
- **Document Review** – Our Discipline/Task Lead Surveyors review plans or reports to confirm that they meet the client's expectations. These reviews will be performed periodically throughout the project to facilitate consistency and direction.
- **CADD Review** – We have a full-time CADD Manager and it is his responsibility to verify that

*A detailed review by an impartial and experienced review team is a key to our success.*

the CADD operators follow the project-specific standards. Our CADD Manager will perform monthly audits of the CADD files to confirm everyone, including subconsultants, is in compliance.

- **Detailed Check** – An impartial Professional Land Surveyor will perform an independent, detailed review of a preliminary or final plan. The detailed checker will review the project documents and confirm information is transferred properly from the computation/calculation books to the final drawings.
- **Management Review** – The Project Manager will perform a management review of plans and reports prior to submission to the Division of Property Management and Construction.

Our **PM** will facilitate seamless coordination and communication between the Survey Team and Quality Assurance Team through project team meetings. In order to deliver a quality project, we will develop project requirements and quality procedures early and communicate those to each person through the project-specific PMP and QAP. Using our QMS procedures as a guide, our Project Manager and Quality Assurance Manager will develop the QAP so the quality of the design for this project is consistent with The Division of Property Management and Construction's quality expectations, standards and procedures. Quality Assurance/Quality Control Measures to be in our QAP include:

- Roles and Responsibilities,
- Document and Data Control,
- Corrective and Preventive Action,
- Internal Quality Audits
- Project Close-out

The QAP will be maintained and updated by our Project Manager in conjunction with the Quality Assurance Manager; and a copy will be made available for each member of the team.

Several important QA/QC measures that will be part of our QAP for this project include:

- Perform thorough and detailed review of documents needed for the project. This will include

deeds, maps, road returns and any other information provided or obtained during the project.

- Perform field files and notes review for accuracy and adequate coverage of the project area.
- Meet the requirements of the project and expedite the schedule if/when necessary.
- Communicate continuously with The Division of Property Management and Construction's project manager or appointed individual.
- Verify accuracy, completeness and thoroughness of the final documents.





# Reconstruction, Rehabilitation, Elevation and Mitigation Program

Statewide, New Jersey

Dewberry provided turn-key design and permitting services as the preferred vendor to one of the State of New Jersey's program management firms leading the Reconstruction, Rehabilitation, Elevation and Mitigation (RREM) Program for Block Grant Disaster Recovery for Super Storm Sandy damaged homes. The State of NJ modified the program in late 2013 to a design-build program; whereas, Dewberry's turn-key design services were provided to the State's preferred builders and resulted in providing services on over 350 homes to date. We provided land surveying, civil design, geotechnical investigation, foundation design (shallow and deep foundations), architectural design and land use and construction permitting

services for homes to be rebuilt with program prototype designs and for existing homes that were required to be elevated to meet new FEMA base flood elevations.

Dewberry's scope of services for a typical project included:

- Land Survey of property and existing conditions.
- Completion of an initial elevation certificate.
- Zoning and environmental constraints analysis, including preparation of plot plans and grading/drainage designs.
- Structural assessment of existing foundation support system and structure.
- Geotechnical soil boring and preparation of a geotechnical

**COMPLETION:** Ongoing

**CONTACT:**



report presenting foundation recommendations and design parameters.

- Foundation design incorporating shallow spread footings/CMU block walls, driven timber piles or helical piers.
- Structural design services associated with repairs of flood damaged flooring systems and walls.





# USACE New York District Picatinny Arsenal Boundary Survey/GIS Database

Townships of Rockaway and Jefferson, Morris County, NJ

Dewberry was selected to provide boundary surveying services along with Geographic Information System (GIS) database compilation in conjunction with Contract W912DS-10-D-0004-DT07 for USACE New York District. This project involved extensive records research dating back to the 1890s that included retracement of the Real Estate Tract Maps, original deeds of conveyance and takings throughout 70 years and the Real Property Transactional Registers. We obtained plans, maps and deeds, prior surveys, road returns and documents on file with Morris County Clerk's office, NJDOT, local municipal records, public utilities, FEMA and additional data sources dealing with freshwater wetlands. We gathered property records for the surrounding parcels to aid in the boundary analysis as well and geo-referenced this information to aerial imagery to comprise a deed mosaic of the subject parcels.

Dewberry uses established methods and procedures on survey projects that are designed to take full advantage of the technology and instrumentation in our inventory to produce 3D survey control. We routinely combine GPS observations with total station measurements and digital leveling to produce one seamless data set of 3D control values that are consistent and homogenous across the entire project. This is

primarily achieved through the use of Real Time Kinematic (RTK), aka VRS, which enables our numerous survey crews to work separately anywhere on the project at any time and still produce coordinates and elevations that are consistent with one another within the accuracy specification for the project.

Using the procedures and technical approach described above, Dewberry completed the "on-ground" outbound field survey.

Property line analysis and boundary determinations were made by a Professional Land Surveyor.

Through a process of filtering recovered evidence applying the rules of construction for boundary location, we determined the property lines of the parcels. In the event that a discrepancy was discovered, i.e., gap or overlap, our Professional Land Surveyor performed a further analysis of the property.

We investigated intent of the parties, recorded monuments, lines of possession, senior and junior rights as well as patent and latent ambiguities. Dewberry attempted to resolve discrepancies that were attributable to another Professional Land Surveyor. We noted any deviation from the

**TASKS:**  
ALTA/ACSM Survey  
Control Survey

**CONTACT:**

This project was completed on time and on budget.

record documents to the surveyed boundary. Upon the completion of the boundary analysis for the property, our Professional Land Surveyor provided this information to the survey



technicians to draft the final plats. Plans were drafted in accordance with Dewberry's CADD standards, which are based upon the National CADD Standards, version 4.0.





# ALTA/ACSM Survey DuPont Chambersworks Facility

Salem County, New Jersey

This project included the necessary field collection, data reduction, title research, description of property and aerial topographic mapping for the preparation of an ALTA/ACSM survey of 2,635 acres comprising the holding of the DuPont Corporation in Salem County, NJ. Axis Geospatial provided aerial mapping. A GPS control network

ALTA Survey  
Aerial Mapping  
Gross Land Area  
Property Corners  
Site Separation Plans / Descriptions  
Utility Transfer Points

was utilized to establish NJSPCS NAD83 throughout the project area. Benchmark elevations were related to NAVD 1988 and established using first order digital leveling techniques. This survey also involved the establishment of the corporate boundary between the Township of Carneys Point and the Township of Pennsville in Salem County along with the determination of Mean Low Water along the Delaware River, and establishing site separation boundaries for parcel to be retained by DuPont and those to be sold to Chemours. Additional utility transfer points were mapped to facilitate new easements to

## CONTACT:

This project was completed on time and on budget

allow the use of existing infrastructure between both entities. Zoning information was noted and property corners were set in accordance with NJAC 13:40-5.1.

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## I-295/Route 42 Missing Moves

Camden County, New Jersey

The I-295/Route 42/Route 76 Interchange is one of the largest, and most congested, in southern NJ. It is also operationally deficient in that it lacks direct connection between I-295 and Route 42. Therefore, motorists utilize the adjacent local roadway network to accomplish this movement.

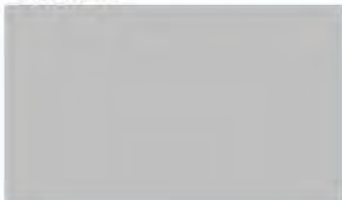
To rectify this situation, Dewberry was engaged to provide the engineering services need to construct these "Missing Moves", enhancing overall operation of the Interchange and alleviating congestion on the local roads. As a result of the project's Feasibility Assessment (FA), it was initially planned to construct the connecting ramp system across the inactive landfill located between I-295 and Route 42 to minimize impacts on surrounding properties. In fact, the contract documents for this alignment were advanced to 95% completion.

However, in early 2012, it was decided that construction within the limits of the landfill property, which were also being studied for future private development, should be avoided to eliminate the State's assumption of any long-term environmental liability for the re-developed property. Accordingly, we were asked to review the alternative alignments studied earlier under the FA and redesign the connection to avoid the landfill property. At the same time, it was recognized that certain improvements designed for Route 42 SB would not be impacted by the shift in alignment to avoid the landfill, and as such an Advance Contract to construct these improvements was prepared.

**COST:** \$70,000,000

**COMPLETION:** 2017 (Est.)

**CONTACT:**



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Currently we are advancing design of the Missing Moves Project based on the landfill avoidance alignment depicted above. The bridge design work on the contract involves 9 bridges: 4 new bridges, widening or modification of 4 existing bridges, and the complete replacement of an existing bridge under staged construction. Two of the new bridges will be multi-span, horizontally curved structures utilizing composite welded steel I-girder construction. The bridge carrying Ramp A over I-295 will be a

three-span structure, approximately 665-feet long. The bridge carrying Ramp A over Ramps C & D and Route 42 will be an eight-span structure approximately 1,650 feet long. Both bridges will provide a curb-to-curb width of 31 feet to satisfy future re-decking requirements. The substructure units will consist of pile-supported stub abutments perched behind MSE walls, single-column reinforced concrete hammerhead piers or steel box girder straddle bents founded on pile-supported footings.



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## 2. Organizational Chart

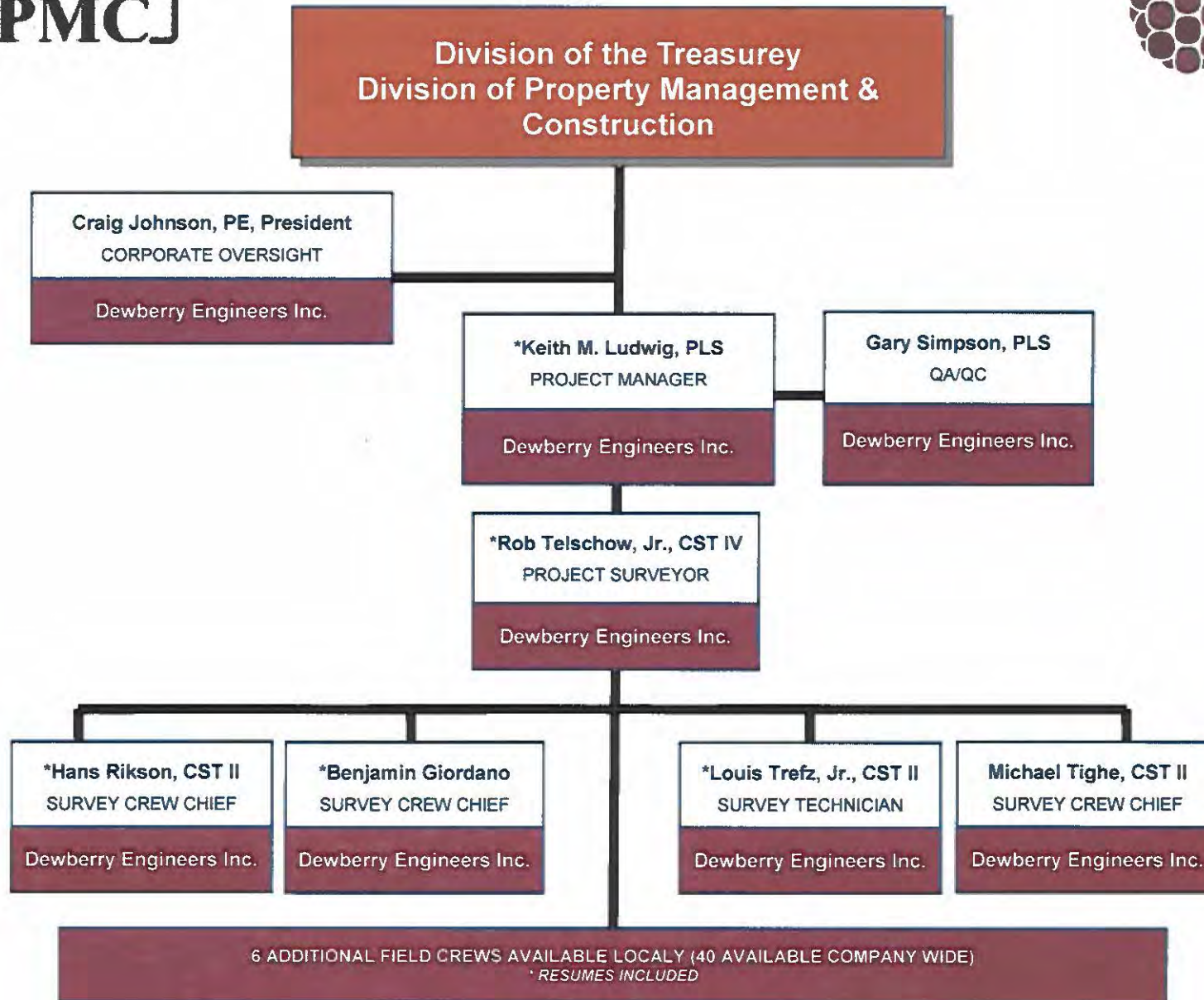
Please find the organizational chart on the following page.

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**Boundary Survey for Land Acquisition  
For Various Parcel, Woodbridge, Middlesex County**



### 3. Resumes of Key Team Members

Please find the resumes, project experience data sheets, and project personnel list of the key team members on the following pages.

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**EDUCATION:**

BS, Land Surveying, New Jersey  
Institute of Technology, 2004

**REGISTRATIONS:**

Professional Land Surveyor: NJ, PA,  
NC, VA, DE, NY, MA, MD

Transportation Worker ID Credential,  
TWIC: US

OSHA, HAZWOPER Supervisor, 8  
Hour: US

e-RAILSAFE: US

**YEARS OF EXPERIENCE:**

Dewberry: 5

Prior: 30

**AFFILIATIONS:**

New Jersey Society of Professional  
Land Surveyors

Delaware Association of Land  
Surveyors

New York Association of Professional  
Land Surveyors

# Keith Ludwig PLS

Associate; Northeast Region Survey Manager

Mr. Ludwig is responsible for the day-to-day operations of our Mount Laurel, New Jersey, survey department in addition to coordination of survey activities throughout the Northeast offices. He provides supervision of field crews and CADD technicians. He has over 30 years of surveying experience in boundary/property line analysis, state plane, Universal Transverse Mercator (UTM) and geographic coordinate computations, commercial and residential development, wetlands, tidelands, riparian, hydrographic surveys, highway surveys, road and stream cross-sections, topography, GPS both static and Real Time Kinematic (RTK), aerial control networks, GIS mapping, 3-D laser scanning, geomatics and tax map preparation.

## RELEVANT EXPERIENCE

**Reconstruction, Rehabilitation, Elevation and Mitigation (RREM) Program - America's Home Place, America's Home Place, Statewide, NJ.** Survey Manager for turn-key design and permitting services as the preferred vendor to one of the State of New Jersey's program management firms. Typically included land survey, civil design, geotechnical investigation, foundation design (shallow and deep foundations), architectural design and land use and construction permitting services for homes to be rebuilt with program prototype designs and for existing homes that were required to be elevated to meet new FEMA base flood elevations.

**NJDEP Green Acres Surveys, Various Counties, NJ.** Survey Manager. Under multiple 3 year agreements with the New Jersey Department of Environmental Protection (NJDEP), Mr. Ludwig performed the following surveys to NJDEP Green Acres Standards:

- Cole Farm, Belvidere Twp., Warren County (1 acres) (2015)
- Cluen Farm, Lacey Twp., Ocean County (626 acres) (2015)
- Appel Farm, Upper Pittsgrove Twp., Salem County (108 acres) (2013)
- Bowman Tract, Pemberton Twp., Burlington County (176 acres) (2013)
- Paglee Tract, Pemberton Twp., Burlington County (156 acres) (2013)

**USACE New York District Picatinny Arsenal: Boundary Survey/GIS Database, U.S. Army Garrison Picatinny Arsenal, Picatinny Arsenal, NJ.** Survey Manager for boundary survey of the 7,500-acre arsenal, real estate tract maps records research, deeds and property transactional register research to determine boundary extents, fence locations to determine vulnerabilities, property corner recovery and setting, producing survey plans and property description. Upon completion of the plan, develop boundary survey GIS database, along with photos of each property corner recovered or set.

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## Keith Ludwig PLS

Associate, Northeast Survey  
Manager

### **ALTA/ACSM Land Title Boundary/Topographic Survey DuPont**

**Chambersworks, DuPont USA, Deepwater, NJ.** Survey Manager for the preparation of an ALTA/ACSM survey of 2,635 acres comprising the holding of the DuPont Corporation in Salem County, NJ. Included the necessary field collection, data reduction, title research, description of property and aerial topographic mapping. A GPS control network was utilized to establish NJSPCS NAD83 throughout the project area. Benchmark elevations were related to NAVD 1988 and established using first order digital leveling techniques. This survey also involved the establishment of the corporate boundary between the Township of Carneys Point and the Township of Pennsville in Salem County.

### **I-295/Route 42 Missing Moves, New Jersey Department of Transportation,**

**NJ.** Survey Manager, Responsible for review of survey control for the aerial mapping and preparation of the supplement to the projects Survey Control Report. Also responsible for the preparation of right-of-way layout maps (including GPPM, ETM and IPM) and writing deeds/parcel descriptions (metes and bounds) for right-of-way acquisitions. Responsible for obtaining original ground cross-sections prior to construction, final cross-sections after construction for determining as-built quantities, pavement grade checks, inverting elevations, drainage structure elevations and bridge and sign clearance elevations.

### **State Agriculture Development Committee Surveys, Various Counties, NJ.**

Survey Manager. Under multiple 1 year agreements with the New Jersey State Agriculture Development Committee (SADC), Mr. Ludwig performed the following surveys to SADC/NJDEP Green Acres Standards:

- Still Run Farm, Upper Pittsgrove, Salem County (128 acres) (2017)
- Lustgarten Farm, Upper Freehold, Monmouth County (128 acres) (2016)
- Hom Farm, East Windsor / Mercer / Monmouth Counties (94 acres) (2016)
- Myers Farm, Upper Pittsgrove Twp, Salem County (110 acres) (2016)
- Milo Farm, Bethlehem Twp, Hunterdon County (119 acres) (2015)
- Oberly Farm, Alpha Boro/Pohatcong Twp, Warren County (89 acres) (2015)
- Johnson Farm, Upper Deerfield Twp., Salem County (95 acres) (2014)
- Ballinger Farm, Mantua Twp., Gloucester County (156 acres) (2014)
- Sickler & Sons Farm, Upper Pittsgrove Twp., Salem County (118 acres) (2014)

**Farmland Preservation Surveys, Morris County, NJ.** Survey Manager. Under agreements with Morris County, Mr. Ludwig performed the following surveys to NJDEP Green Acres Standards:

- TINC Farm, Mt. Olive Twp, Morris County (13 acres) (2016)
- Scheller Farm, Washington Twp., Morris County (46 acres) (2015)

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**State Of New Jersey  
New Jersey Office of the Attorney General  
Division of Consumer Affairs**

THIS IS TO CERTIFY THAT THE  
**Board of Prof. Engineers & Land Surveyors**

HAS LICENSED

**Keith M. Ludwig  
23 Auriga Lane  
Sewell NJ 08080**

FOR PRACTICE IN NEW JERSEY AS A(N): **Professional Land Surveyor**

**04/01/2016 TO 04/30/2018**  
VALID

*Keith M. Ludwig*

Signature of Licensee/Registrant/Certificate Holder

**24GS04324400**

LICENSE/REGISTRATION/CERTIFICATION #

*Steve C. L.*

ACTING DIRECTOR

New Jersey Office of the Attorney General  
Division of Consumer Affairs  
THIS IS TO CERTIFY THAT THE  
Board of Prof. Engineers & Land Surveyors  
HAS LICENSED  
Keith M. Ludwig  
Professional Land Surveyor

04/01/2016 TO 04/30/2018

VALID

**24GS04324400**

LICENSE/REGISTRATION/CERTIFICATION #

SIGNATURE

*Steve C. L.*

ACTING DIRECTOR

PLEASE DETACH HERE  
IF YOUR LICENSE/REGISTRATION/  
CERTIFICATE ID CARD IS LOST  
PLEASE NOTIFY:

Board of Prof. Engineers & Land Sur  
P.O. Box 45015  
Newark, NJ 07101

PLEASE DETACH HERE



**EDUCATION:**

AAS, Civil Engineering/Land Survey  
Option, Gloucester County College,  
2011

BA, Theatre, Drew University, 2000

**REGISTRATIONS:**

Professional Land Surveyor: DE

Professional Land Surveyor: CT

Professional Surveyor: WV

Certified Survey Technician, Level 4:  
US

OSHA, Construction Safety and  
Health, 10 Hour: US

**YEARS OF EXPERIENCE:**

Dewberry: 4

Prior: 9

**AFFILIATIONS:**

Camden County Chamber of Commerce

New Jersey Society of Professional  
Land Surveyors

Society of American Military  
Engineers (SAME)

# Robert Telschow Jr. CST IV

## Project Surveyor

Robert Telschow is responsible for the supervision of field crews and CADD technicians. He has over a decade of surveying experience in boundary/property line analysis, commercial and residential development, wetlands, tidelands, riparian, hydrographic surveys, highway surveys, road and stream cross-sections, topography, GPS (both static and RTK), and remediation projects. He is also responsible for the preparation of proposals, field crew scheduling, planning and reduction of GPS data, mapping and legal description preparation, State Plane and Geographic Coordinate computations, boundary line analysis, preparation and mapping of engineering surveys, topographic survey surface creation and analysis, legal research (deed research and protraction, filed maps, archive records, etc.), volume calculations, billing and client contact. Robert has also been responsible for creating points for stake-out (construction and property corners), and point translation and transformation.

## RELEVANT EXPERIENCE

**Reconstruction, Rehabilitation, Elevation and Mitigation (RREM) Program - America's Home Place, America's Home Place, Statewide, NJ.** Project Surveyor for turn-key design and permitting services as the preferred vendor to one of the State of New Jersey's program management firms. Typically included land survey, civil design, geotechnical investigation, foundation design (shallow and deep foundations), architectural design and land use and construction permitting services for homes to be rebuilt with program prototype designs and for existing homes that were required to be elevated to meet new FEMA base flood elevations.

**NJDEP Green Acres Surveys, various Counties, NJ.** Project Surveyor. Under multiple 3 year agreements with the New Jersey Department of Environmental Protection (NJDEP), Mr. Telschow performed the following surveys to NJDEP Green Acres Standards:

- Cole Farm, Belevidere Twp., Warren County (1 acres) (2015)
- Cluen Farm, Lacey Twp., Ocean County (626 acres) (2015)
- Appel Farm, Upper Pittsgrove Twp., Salem County (108 acres) (2013)
- Bowman Tract, Pemberton Twp., Burlington County (176 acres) (2013)
- Paglee Tract, Pemberton Twp., Burlington County (156 acres) (2013)

**USACE New York District Picatinny Arsenal: Boundary Survey/GIS Database, U.S. Army Garrison Picatinny Arsenal, Picatinny Arsenal, NJ.** Project Surveyor for boundary survey of the 7,500-acre arsenal, real estate tract maps records research, deeds and property transactional register research to determine boundary extents, fence locations to determine vulnerabilities,

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## Robert Telschow

**Jr. CST IV**

Project Surveyor

property corner recovery and setting, producing survey plans and property description. Upon completion of the plan, develop boundary survey GIS database, along with photos of each property corner recovered or set and fence vulnerabilities locations.

**State Agriculture Development Committee Surveys, Various Counties, NJ.** Project Surveyor. Under multiple 1 year agreements with the New Jersey State Agriculture Development Committee (SADC), Mr. Ludwig performed the following surveys to SADC/NJDEP Green Acres Standards:

- Still Run Farm, Upper Pittsgrove, Salem County (128 acres) (2017)
- Lustgarten Farm, Upper Freehold, Monmouth County (128 acres) (2016)
- Hom Farm, East Windsor / Mercer / Monmouth Counties (94 acres) (2016)
- Myers Farm, Upper Pittsgrove Twp, Salem County (110 acres) (2016)
- Milo Farm, Bethlehem Twp, Hunterdon County (119 acres) (2015)
- Oberly Farm, Alpha Boro/Pohatcong Twp, Warren County (89 acres) (2015)
- Johnson Farm, Upper Deerfield Twp., Salem County (95 acres) (2014)
- Ballinger Farm, Mantua Twp., Gloucester County (156 acres) (2014)
- Sickler & Sons Farm, Upper Pittsgrove Twp., Salem County (118 acres) (2014)

**ALTA/ACSM Land Title Boundary/Topographic Survey DuPont Chambersworks, DuPont USA, Deepwater, NJ.** Project Surveyor for the preparation of an ALTA/ACSM survey of 2,635 acres comprising the holding of the DuPont Corporation in Salem County, NJ. Included the necessary field collection, data reduction, title research, description of property and aerial topographic mapping. A GPS control network was utilized to establish NJSPCS NAD83 throughout the project area. Benchmark elevations were related to NAVD 1988 and established using first order digital leveling techniques. This survey also involved the establishment of the corporate boundary between the Township of Carneys Point and the Township of Pennsville in Salem County.

**I-295/Route 42 Missing Moves, New Jersey Department of Transportation, NJ.** Project Surveyor for construction of the connecting ramp system between I-295 and Route 42. In early 2012, it was decided that construction within the limits of a landfill property, which were also being studied for future private development, should be avoided to eliminate the State's assumption of any long-term environmental liability for the re-developed property. Accordingly, Dewberry was asked to redesign the connection to completely avoid the landfill property. Dewberry is currently advancing design of the Missing Moves Project based on the "Landfill Avoidance" alignment. The bridge design work on the contract involves nine bridges: four new bridges; widening or modification of four existing bridges (two curved girder bridges); and the complete replacement of an existing bridge under staged construction.

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**EDUCATION:**

AA, Civil Engineering, Mercer County  
Community College, 2004

Certificate, Boating Safety #45767,  
New Jersey State Police

**REGISTRATIONS:**

Transportation Worker ID Credential,  
TWIC

AMTRAK Safety Trained: NJ

OSHA, Haz Waste Operations &  
Emerg Response: US

New Jersey Transit Rail Worker  
Safety Training

**YEARS OF EXPERIENCE:**

Dewberry: 3

Prior: 12

# Hans Rikson CST II

## Survey Crew Chief

Mr. Rikson has extensive experience in boundary and topographic surveys, mapping, right-of-way, sub-divisions, site plans, site surveys for subsurface soils and groundwater contamination, wetlands location, GPS control surveys, as well as construction layout and extensive experience in highway survey.

## RELEVANT EXPERIENCE

**Reconstruction, Rehabilitation, Elevation and Mitigation (RREM) Program - America's Home Place, America's Home Place, Statewide, NJ.** Survey Party Chief for turn-key design and permitting services as the preferred vendor to one of the State of New Jersey's program management firms. Typically included land survey, civil design, geotechnical investigation, foundation design (shallow and deep foundations), architectural design and land use and construction permitting services for homes to be rebuilt with program prototype designs and for existing homes that were required to be elevated to meet new FEMA base flood elevations.

**ALTA/ACSM Land Title Boundary/Topographic Survey DuPont**

**Chambersworks, DuPont USA, Deepwater, NJ.** Survey Party Chief for the preparation of an ALTA/ACSM survey of 2,635 acres comprising the holding of the DuPont Corporation in Salem County, NJ. Included the necessary field collection, data reduction, title research, description of property and aerial topographic mapping. A GPS control network was utilized to establish NJSPCS NAD83 throughout the project area. Benchmark elevations were related to NAVD 1988 and established using first order digital leveling techniques. This survey also involved the establishment of the corporate boundary between the Township of Carneys Point and the Township of Pennsville in Salem County.

**State Agriculture Development Committee Surveys, Various Counties, NJ.**

Survey Party Chief. Under multiple 1 year agreements with the New Jersey State Agriculture Development Committee (SADC), Mr. Rikson performed the following surveys to NJDEP Green Acres Standards:

- Tranquility Farm, Kingwood & Alexandria Twps., Hunterdon County (154 acres) 2017
- Still Run Farm, Upper Pittsgrove, Salem County (128 acres) (2017)
- Lustgarten Farm, Upper Freehold, Monmouth County (128 acres) (2016)
- Hom Farm, East Windsor / Milstone Twps, Mercer / Monmouth Counties (94 acres) (2016)
- Myers Farm, Upper Pittsgrove Twp, Salem County (110 acres) (2016)
- Milo Farm, Bethlehem Twp, Hunterdon County (119 acres) (2015)
- Oberly Farm, Alpha Boro/Pohatcong Twp, Warren County (89 acres) (2015)
- Johnson Farm, Upper Deerfield Twp., Salem County (95 acres) (2014)

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## **Hans Rikson** CST II

Survey Crew Chief

- Ballinger Farm, Mantua Twp., Gloucester County (156 acres) (2014)
- Sickler & Sons Farm, Upper Pittsgrove Twp., Salem County (118 acres) (2014)
- Hall Farm, Pittsgrove Twp., Salem County (154 acres) (2014)
- Cramer/Green Acres, Mannington Twp, Salem County (2013)
- Droppa Farm, Salem County (2012)
- Bonaccorso Farm, Salem County (2011)
- Nelson Farm, Salem County (2010)
- Cervini Farm, Cumberland County (2010)
- Kelly Farm, Salem County (2010)
- Richman Farm, Salem County (2010)
- Hitchner Farm, Salem County (2010)

**Harris Farm, New Jersey Department of Agriculture, Quinton, NJ.** Survey Party Chief. Provided a SADC survey for the project site located on New Jersey State Highway Route 49. The property is approximately 121 acres in size. Completed extensive deed research, produced a deed mosaic of the subject property and adjoiners, established project control, based on NJSPCS NAD83 (2011), using a GPS Virtual Reference System (VRS); field reconnaissance to locate existing monuments, boundary analysis and setting new concrete monuments and/or iron pins at all missing property corners. This project included two exception areas; one non-severable containing 3.0 acres and one severable containing 0.6 acres. The severable exception was an old cemetery dating back to the early 1800's. A Plan of Survey, in accordance with NJDEP Green Acres Standards (SADC), depicting the subject parcels, a metes and bounds deed description and Surveyor's Certification Form were also prepared.

**Brown Farm, Salem County Farmland Preservation Trust, Upper Pittsgrove, NJ.** Survey Party Chief. Provided a SADC survey for the project site located between Jefferson Road and NJ State Highway Route 40. The property is approximately 35 acres in size. Produced a deed mosaic of the subject property and adjoiners, established project control, based on NJSPCS NAD83 (2011), using a GPS Virtual Reference System (VRS); field reconnaissance to locate existing monuments and boundary analysis. The setting of property corners was not required on this property. A Plan of Survey, in accordance with NJDEP Green Acres Standards (SADC), depicting the subject parcels, a metes and bounds deed description and Surveyor's Certification Form were also prepared.

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**EDUCATION:**

CPR/First Aid Training, American Red Cross

OSHA, HazWaste Site Operations, 40 Hour: US

OSHA, HazWaste Site Operations, 8 Hour: US

Transportation Worker ID Credential, TWIC: US

AMTRAK Safety Trained: US

Pipe Safety Management (PSM) Training

CSX Roadway Worker Protection Contractor Safety

Norfolk Southern Roadway Worker Protection Contractor Safety

**YEARS OF EXPERIENCE:**

Dewberry: 5

Prior: 19

# Benjamin Giordano

## Survey Crew Chief

Mr. Giordano has extensive experience in boundary and topographic surveys, mapping, right-of-way, sub-divisions, site plans, site surveys for subsurface soils and groundwater contamination, wetlands location, GPS control surveys, as well as construction layout and extensive experience in highway survey.

### RELEVANT EXPERIENCE

**Reconstruction, Rehabilitation, Elevation and Mitigation (RREM) Program - America's Home Place, America's Home Place, Statewide, NJ.** Survey Party Chief for turn-key design and permitting services as the preferred vendor to one of the State of New Jersey's program management firms. Typically included land survey, civil design, geotechnical investigation, foundation design (shallow and deep foundations), architectural design and land use and construction permitting services for homes to be rebuilt with program prototype designs and for existing homes that were required to be elevated to meet new FEMA base flood elevations.

**ALTA/ACSM Land Title Boundary/Topographic Survey DuPont**

**Chambersworks, DuPont USA, Deepwater, NJ.** Survey Party Chief for the preparation of an ALTA/ACSM survey of 2,635 acres comprising the holding of the DuPont Corporation in Salem County, NJ. Included the necessary field collection, data reduction, title research, description of property and aerial topographic mapping. A GPS control network was utilized to establish NJSPCS NAD83 throughout the project area. Benchmark elevations were related to NAVD 1988 and established using first order digital leveling techniques. This survey also involved the establishment of the corporate boundary between the Township of Carneys Point and the Township of Pennsville in Salem County.

**NJDEP Green Acres Surveys, Various Counties, NJ.** Survey Party Chief.

Under multiple 3 year agreements with the New Jersey Department of Environmental Protection (NJDEP), Mr. Giordano performed the following surveys to NJDEP Green Acres Standards:

- Cole Farm, Belevidere Twp., Warren County (1 acres) (2015)
- Cluen Farm, Lacey Twp., Ocean County (626 acres) (2015)
- Appel Farm, Upper Pittsgrove Twp., Salem County (108 acres) (2013)
- Bowman Tract, Pemberton Twp., Burlington County (176 acres) (2013)
- Paglee Tract, Pemberton Twp., Burlington County (156 acres) (2013)

**Farmland Preservation Surveys, Gloucester County, NJ.** Survey Party Chief.

Under multiple 1 year agreements with Gloucester County, Mr. Giordano performed the following surveys to NJDEP Green Acres Standards:

- James Butch Property, Gloucester County, NJ (2012)
- Hoagland Property, Gloucester County, NJ (2011)
- W.W. Heritage & Sons, Gloucester County, NJ (2011)

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## Benjamin Giordano

Survey Crew Chief

- Loveland Property, Gloucester County, NJ (2011)
- Stefka Property, Gloucester County, NJ (2010)
- Caccavale Property, Gloucester County, NJ (2010)
- Five Points Survey, Gloucester County, NJ (2010)

### **State Agriculture Development Committee Surveys, Various Counties, NJ.**

Survey Crew Chief. Under multiple 1 year agreements with the New Jersey State Agriculture Development Committee (SADC), Mr. Giordano performed the following surveys to NJDEP Green Acres Standards:

- Still Run Farm, Upper Pittsgrove, Salem County (128 acres) (2017)
- Lustgarten Farm, Upper Freehold, Monmouth County (128 acres) (2016)
- Hom Farm, East Windsor / Mercer / Monmouth Counties (94 acres) (2016)
- Myers Farm, Upper Pittsgrove Twp, Salem County (110 acres) (2016)
- Milo Farm, Bethlehem Twp, Hunterdon County (119 acres) (2015)
- Oberly Farm, Alpha Boro/Pohatcong Twp, Warren County (89 acres) (2015)
- Johnson Farm, Upper Deerfield Twp., Salem County (95 acres) (2014)
- Ballinger Farm, Mantua Twp., Gloucester County (156 acres) (2014)
- Sickler & Sons Farm, Upper Pittsgrove Twp., Salem County (118 acres) (2014)

**I-295/Route 42 Missing Moves, New Jersey Department of Transportation, NJ.** Survey Party Chief for construction of the connecting ramp system between I-295 and Route 42. In early 2012, it was decided that construction within the limits of a landfill property, which were also being studied for future private development, should be avoided to eliminate the State's assumption of any long-term environmental liability for the re-developed property. Accordingly, Dewberry was asked to redesign the connection to completely avoid the landfill property. Dewberry is currently advancing design of the Missing Moves Project based on the "Landfill Avoidance" alignment. The bridge design work on the contract involves nine bridges: four new bridges; widening or modification of four existing bridges (two curved girder bridges); and the complete replacement of an existing bridge under staged construction.

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**EDUCATION:**

As, Photography, Burlington County College, 2004

**REGISTRATIONS:**

Certified Survey Technician, Level 2:

**YEARS OF EXPERIENCE:**

Dewberry: 3

Prior: 20

# Louis Trefz, Jr. CST II

## Survey Technician

Mr. Trefz has a wide range of experience in surveying, civil site improvement, drafting and design. His experience covers drafting and design of survey, civil, architectural and structural, in both manual drafting and with AutoCAD. Mr. Trefz also has experience in individual wastewater (septic) design.

### RELEVANT EXPERIENCE

**Reconstruction, Rehabilitation, Elevation and Mitigation (RREM) Program - America's Home Place, America's Home Place, Statewide, NJ.** Survey Technician for turn-key design and permitting services as the preferred vendor to one of the State of New Jersey's program management firms. Typically included land survey, civil design, geotechnical investigation, foundation design (shallow and deep foundations), architectural design and land use and construction permitting services for homes to be rebuilt with program prototype designs and for existing homes that were required to be elevated to meet new FEMA base flood elevations.

**USACE New York District Picatinny Arsenal: Boundary Survey/GIS Database, U.S. Army Garrison Picatinny Arsenal, Picatinny Arsenal, NJ.** Survey Technician for boundary survey of the 7,500-acre arsenal, real estate tract maps records research, deeds and property transactional register research to determine boundary extents, fence locations to determine vulnerabilities, property corner recovery and setting, producing survey plans and property description. Upon completion of the plan, develop boundary survey GIS database, along with photos of each property corner recovered or set and fence vulnerabilities locations.

**ALTA/ACSM Land Title Boundary/Topographic Survey DuPont Chambersworks, DuPont USA, Deepwater, NJ.** Survey Technician for the preparation of an ALTA/ACSM survey of 2,635 acres comprising the holding of the DuPont Corporation in Salem County, NJ. Included the necessary field collection, data reduction, title research, description of property and aerial topographic mapping. A GPS control network was utilized to establish NJSPCS NAD83 throughout the project area. Benchmark elevations were related to NAVD 1988 and established using first order digital leveling techniques. This survey also involved the establishment of the corporate boundary between the Township of Carneys Point and the Township of Pennsville in Salem County.

**I-295/Route 42 Missing Moves, New Jersey Department of Transportation, NJ.** Survey Technician for construction of the connecting ramp system between I-295 and Route 42. In early 2012, it was decided that construction within the limits of a landfill property, which were also being studied for future private development, should be avoided to eliminate the State's assumption of any long-term environmental liability for the re-

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## **Louis Trefz, Jr.**

CST II  
Survey Technician

developed property. Accordingly, Dewberry was asked to redesign the connection to completely avoid the landfill property. Dewberry is currently advancing design of the Missing Moves Project based on the "Landfill Avoidance" alignment. The bridge design work on the contract involves nine bridges: four new bridges; widening or modification of four existing bridges (two curved girder bridges); and the complete replacement of an existing bridge under staged construction.

**State Agriculture Development Committee Surveys, Various Counties, NJ.** Survey Technician. Under multiple 1 year agreements with the New Jersey State Agriculture Development Committee (SADC), Mr. Trefz performed CADD services for the following surveys to NJDEP Green Acres Standards:

- Tranquility Farm, Kingwood & Alexandria Twps., Hunterdon County (154 acres) 2017
- Still Run Farm, Upper Pittsgrove, Salem County (128 acres) (2017)
- Lustgarten Farm, Upper Freehold, Monmouth County (128 acres) (2016)
- Hom Farm, East Windsor / Milstone Twps, Mercer / Monmouth Counties (94 acres) (2016)
- Myers Farm, Salem County, NJ (110 acres) (2016)
- Oberly Farm, Salem County, NJ (89 acres) (2015)
- Milo Farm, Salem County, NJ (11 acres) (2015)
- Harris Farm, Salem County, NJ (117 acres) (2015)
- Johnson Farm, Salem County, NJ (95 acres) (2014)
- Ballinger Farm, Gloucester County, NJ (156 acres) (2014)
- Sickler & Sons Farm, Salem County, NJ (118 acres) (2014)
- Hall Farm, Salem County, NJ (154 acres) (2014)
- Cramer/Green Acres, Salem County, NJ (2014)

**Farmland Preservation Surveys, Morris County, NJ,** Survey Technician. Under agreement with Morris County, Mr. Trefz performed CADD services for the following survey to NJDEP Green Acres Standards:

- TTNC Farm, Mt. Olive Township, NJ (2016)
- Scheller Farm, Washington Township, NJ (2015)

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**EDUCATION:**

Certified Survey Technician, Level 2  
Trimble Trained GPS Specialist

**REGISTRATIONS:**

Transportation Worker ID Credential,  
TWIC

AMTRAK Safety Trained: NJ

OSHA, Haz Waste Operations &  
Emerg Response: US

**YEARS OF EXPERIENCE:**

Dewberry: 2

Prior: 39

**AFFILIATIONS:**

National Society of Professional  
Surveyors (NSPS)

# Michael Tighe CST II

## Survey Crew Chief

Mr. Tighe has extensive experience in boundary and topographic surveys, mapping, right-of-way, sub-divisions, site plans, site surveys for subsurface soils and groundwater contamination, wetlands location, GPS control surveys, as well as construction layout and extensive experience in highway survey.

### RELEVANT EXPERIENCE

**Reconstruction, Rehabilitation, Elevation and Mitigation (RREM) Program - America's Home Place, America's Home Place, Statewide, NJ.** Survey Party Chief for turn-key design and permitting services as the preferred vendor to one of the State of New Jersey's program management firms. Typically included land survey, civil design, geotechnical investigation, foundation design (shallow and deep foundations), architectural design and land use and construction permitting services for homes to be rebuilt with program prototype designs and for existing homes that were required to be elevated to meet new FEMA base flood elevations.

**I-295/I-76/Route 42 Direct Connection, New Jersey Department of Transportation, Camden and Gloucester Counties, NJ.** Survey Party Chief for this \$900-million project consisting of one of the largest and most congested interchanges in southern New Jersey. From 26 alternatives, one alternative with a six-lane direct connection overpass alignment was chosen which includes the realignment of six ramps including one in a depressed section under I-76, 13 bridges, two culverts, 22 retaining walls, 42 sign structures and numerous noise walls. Environmental issues include eight stormwater management basins, and the creation of four acres of wetlands.

**I-295/Route 42 Missing Moves, New Jersey Department of Transportation, NJ.** Survey Party Chief for construction of the connecting ramp system between I-295 and Route 42. In early 2012, it was decided that construction within the limits of a landfill property, which were also being studied for future private development, should be avoided to eliminate the State's assumption of any long-term environmental liability for the re-developed property. Accordingly, Dewberry was asked to redesign the connection to completely avoid the landfill property. Dewberry is currently advancing design of the Missing Moves Project based on the "Landfill Avoidance" alignment. The bridge design work on the contract involves nine bridges: four new bridges; widening or modification of four existing bridges (two curved girder bridges); and the complete replacement of an existing bridge under staged construction.

**ALTA/NSPS Land Title Survey, Waretown Seniors Center, Waretown, NJ.** Survey Party Chief. Mr. Tighe worked with the PLS / Project Surveyor for the completion of an ALTA/ACSM Land Title Survey. He provided field survey data

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## **Michael Tighe** CST II

Survey Crew Chief

collection, setting of control points, field notes and record keeping.

**PSE&G Survey and Mapping Blanket Ordering Agreement, Statewide, NJ.** Survey Party Chief. Under a blanket ordering agreement with PSE&G Corporate Survey and Mapping Department, Dewberry has provided various survey and mapping services since 2015. Due to our quick response and quality work, the initial purchase order value has been doubled. To date, we have completed 16 assignments including topographic survey, utility survey, and pipe inverts. Our 3D laser scanning capabilities have been key to meeting schedule and safety requirements.

**Sunoco Boyd's Farm Site, Chester County, PA.** Survey Party Chief. Responsible for the topographic survey, client interaction, data-collection and field note keeping for the capping of two contaminated pits. Mr. Tighe worked as a one man field crew working directly with the on-site engineer to set surveying schedule and needs along with prioritization of work.

**Riverview Medical Center, Red Bank Borough, Monmouth County NJ.** Survey Party Chief. Responsible for boundary survey, title research, field processing, utility mapping, roadway cross sections, intersection details and topographic mapping for 6.0 acres. Plan was produced in New Jersey State Plane Coordinates NAD83-2011 and NAVD-88 (Geoid 12B). Project included the vacation of a portion of Union Street. Also included the location and mapping of riparian lands and cross access easements for adjoining parcels.

**Jersey Shore Medical Center, Neptune Township, Monmouth County NJ.** Survey Party Chief. Responsible for boundary survey, title research, field processing, utility mapping, roadway cross sections, intersection details and topographic mapping for 36.0 acres. Plan was produced in New Jersey State Plane Coordinates NAD83-2011 and NAVD-88 (Geoid 12B). This project also included detailed surveys for intersection improvements for ADA design and compliance.

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## KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

NAME Keith M. Ludwig, PLS

TITLE Associate / Survey Dept. Manager

FIRM Dewberry Engineers

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT ( IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTRACT PERSON AND PHONE NUMBER
RREM Program / Statewide / \$3M+ (fee) \$600M+ Const	Dewberry Eng	Land Surveying, Engineering, Structural	Land Surveyor	50	20.00%	Nov 2013 to Pres	
Cole Property / Warren County / \$2,690 (fee)	Dewberry Eng	Land Surveying	Land Surveyor	1	20.00%	Jul-15	
Tranquility - Mase / Hunterdon / \$8,870 (fee)	Dewberry Eng	Land Surveying	Land Surveyor	2	20.00%	Jun-17	
Still Run Farm / Salem / \$5,080 (fee)	Dewberry Eng	Land Surveying	Land Surveyor	2	20.00%	Dec-16	
Harris Farm / Salem / \$7,100 (fee)	Dewberry Eng	Land Surveying	Land Surveyor	2	20.00%	Oct-16	
Lustgarten Farm / Monmouth / \$7,975 (fee)	Dewberry Eng	Land Surveying	Land Surveyor	2	20.00%	Jun-16	
Hom Farm / Monmouth / \$6,210 (fee)	Dewberry Eng	Land Surveying	Land Surveyor	2	20.00%	Jun-16	

\* A KEY TEAM MEMBER IS A TECHNICAL OR MANAGEMENT PERSON DEVOTING 20% OR MORE OF THEIR TIME TO ANY PHASE OF THE PROJECT



## KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

NAME Robert W. Telschow Jr., CST IV

TITLE Project Surveyor

FIRM Dewberry Engineers

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT ( IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTRACT PERSON AND PHONE NUMBER
RREM Program / Statewide / \$3M+ (fee) \$600M+ Const	Dewberry Eng	Land Surveying, Engineering, Structural	Project Surveyor	42	33.00%	Nov 2014 to Pres	
Cole Property / Warren County / \$2,690 (fee)	Dewberry Eng	Land Surveying	Project Surveyor	1	30.00%	Jul-15	
Tranquility - Mase / Hunterdon / \$8,870 (fee)	Dewberry Eng	Land Surveying	Project Surveyor	2	30.00%	Jun-17	
Cluen Property / Lacey Twp / \$35K	Dewberry Eng	Land Surveying	Project Surveyor	2	30.00%	Dec-16	
Harris Farm / Salem / \$7,100 (fee)	Dewberry Eng	Land Surveying	Project Surveyor	2	30.00%	Oct-16	
Lustgarten Farm / Monmouth / \$7,975 (fee)	Dewberry Eng	Land Surveying	Project Surveyor	2	30.00%	Jun-16	
Hom Farm / Monmouth / \$6,210 (fee)	Dewberry Eng	Land Surveying	Project Surveyor	2	30.00%	Jun-16	

\* A KEY TEAM MEMBER IS A TECHNICAL OR MANAGEMENT PERSON DEVOTING 20% OR MORE OF THEIR TIME TO ANY PHASE OF THE PROJECT

## KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

NAME Hans Rikson, CST II

TITLE Survey Crew Chief

FIRM Dewberry Engineers

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT ( IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTRACT PERSON AND PHONE NUMBER
RREM Program / Statewide / \$3M+ (fee) \$600M+ Const	Dewberry Eng	Land Surveying, Engineering, Structural	Survey Crew Chief	42	50.00%	Nov 2014 to Pres	
Cole Property / Warren County / \$2,690 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	1	20.00%	Jul-15	
Tranquility - Mase / Hunterdon / \$8,870 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Jun-17	
Still Run Farm / Salem / \$5,080 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Dec-16	
Harris Farm / Salem / \$7,100 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Oct-16	
Lustgarten Farm / Monmouth / \$7,975 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Jun-16	
Hom Farm / Monmouth / \$6,210 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Jun-16	

\* A KEY TEAM MEMBER IS A TECHNICAL OR MANAGEMENT PERSON DEVOTING 20% OR MORE OF THEIR TIME TO ANY PHASE OF THE PROJECT



## KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

NAME Ben Giordano

TITLE Survey Crew Chief

FIRM Dewberry Engineers

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT ( IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTRACT PERSON AND PHONE NUMBER
RREM Program / Statewide / \$3M+ (fee) \$600M+ Const	Dewberry Eng	Land Surveying, Engineering, Structural	Survey Crew Chief	50	50.00%	Nov 2013 to Pres	
Cole Property / Warren County / \$2,690 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	1	20.00%	Jul-15	
Tranquility - Mase / Hunterdon / \$8,870 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Jun-17	
Still Run Farm / Salem / \$5,080 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Dec-16	
Harris Farm / Salem / \$7,100 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Oct-16	
Lustgarten Farm / Monmouth / \$7,975 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Jun-16	
Horn Farm / Monmouth / \$6,210 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Jun-16	

\* A KEY TEAM MEMBER IS A TECHNICAL OR MANAGEMENT PERSON DEVOTING 20% OR MORE OF THEIR TIME TO ANY PHASE OF THE PROJECT

## KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

NAME Lou Trefz, CST II

TITLE Survey Technician

FIRM Dewberry Engineers

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT (IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTRACT PERSON AND PHONE NUMBER
RREM Program / Statewide / \$3M+ (fee) \$600M+ Const	Dewberry Eng	Land Surveying, Engineering, Structural	Survey Technician	36	33.00%	Nov 2015 to Pres	
Cole Property / Warren County / \$2,690 (fee)	Dewberry Eng	Land Surveying	Survey Technician	1	20.00%	Jul-15	
Tranquility - Mase / Hunterdon / \$8,870 (fee)	Dewberry Eng	Land Surveying	Survey Technician	2	50.00%	Jun-17	
Still Run Farm / Salem / \$5,080 (fee)	Dewberry Eng	Land Surveying	Survey Technician	2	50.00%	Dec-16	
Harris Farm / Salem / \$7,100 (fee)	Dewberry Eng	Land Surveying	Survey Technician	2	50.00%	Oct-16	
Lustgarten Farm / Monmouth / \$7,975 (fee)	Dewberry Eng	Land Surveying	Survey Technician	2	50.00%	Jun-16	
Hom Farm / Monmouth / \$6,210 (fee)	Dewberry Eng	Land Surveying	Survey Technician	2	50.00%	Jun-16	

\* A KEY TEAM MEMBER IS A TECHNICAL OR MANAGEMENT PERSON DEVOTING 20% OR MORE OF THEIR TIME TO ANY PHASE OF THE PROJECT



## KEY TEAM MEMBER PROJECT EXPERIENCE DATA SHEET

NAME Michael Tighe, CST II

TITLE Survey Crew Chief

FIRM Dewberry Engineers

PROJECT TITLE LOCATION AND TOTAL CONSTRUCTION COST OR FEE	A/E OF RECORD FOR THIS REFERENCED PROJECT	SPECIFIC TYPE OF WORK EXPERIENCE (STUDY, SCHEMATIC, CONSTRUCTION ADMINISTRATION)	TEAM MEMBERS SPECIFIC ROLE OR TITLE ON THE REFERENCED PROJECT	DURATION OF TEAM MEMBER'S INVOLVEMENT OF THE REFERENCED PROJECT ( IN MONTHS)	% OF TIME DURING DURATION BASED UPON A 40 HOUR WEEK	DATES OF THE TEAM MEMBER'S INVOLVEMENT IN THE REFERENCED PROJECT	CLIENT NAME CONTRACT PERSON AND PHONE NUMBER
RREM Program / Statewide / \$3M+ (fee) \$600M+ Const	Dewberry Eng	Land Surveying, Engineering, Structural	Survey Crew Chief	42	50.00%	Nov 2014 to Pres	
Cole Property / Warren County / \$2,690 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	1	20.00%	Jul-15	
Tranquility - Mase / Hunterdon / \$8,870 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Jun-17	
Still Run Farm / Salem / \$5,080 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Dec-16	
Harris Farm / Salem / \$7,100 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Oct-16	
Lustgarten Farm / Monmouth / \$7,975 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Jun-16	
Hom Farm / Monmouth / \$6,210 (fee)	Dewberry Eng	Land Surveying	Survey Crew Chief	2	66.00%	Jun-16	

\* A KEY TEAM MEMBER IS A TECHNICAL OR MANAGEMENT PERSON DEVOTING 20% OR MORE OF THEIR TIME TO ANY PHASE OF THE PROJECT

FIRM NAME	KEY PERSONNEL & TITLE	PERCENTAGE OF TIME ASSIGNED TO PROJECT	
		SURVEY SERVICES	HOURLY WAGE LEVEL 1-7
Dewberry Engineers	Keith M. Ludwig, PLS / Associate, Survey Dept Mgr.	20%	Level 7
Dewberry Engineers	Robert W. Telschow, Jr., CST IV / Project Surveyor	25%	Level 6
Dewberry Engineers	Lou Trefz, CST II / Survey Technician	50%	Level 5
Dewberry Engineers	Hans Rikson, CST II / Survey Crew Chief	75%	Level 4
Dewberry Engineers	Ben Giordano / Survey Crew Chief	50%	Level 4
Dewberry Engineers	Michael Tighe / Survey Crew Chief	50%	Level 4

INSERT THE WAGE LEVEL FROM 1 TO 7 OF EACH KEY PERSON. **DO NOT** INSERT ANY HOURLY RATE



## 4. Project Approach

### Company Overview:

For over a half-century, Dewberry has been a leader in providing land surveying and mapping, planning, engineering, architecture, program management along with a myriad of technical support. With over 50 locations, Dewberry's 2,300 professionals work collaboratively with public and private-sector clients including government agencies, the military community, municipalities, institutions, developers and corporations.

Since its inception in 1956 by Sidney Dewberry, surveyor and engineer and Joe Nealon, surveyor, Dewberry has made land surveying an important part of its core businesses. Surveying remains to this day an important facet of Dewberry and is ingrained with Sidney Dewberry's passion for quality and on time completion of projects. Responsiveness to clients' requirements and schedules, advanced training for survey personnel, and an integrated approach to the survey process are among the hallmarks of our surveying services. An uncompromising commitment to clients for quality products on time and within budget has lead to the continuing success and growth at Dewberry.

Dewberry has 3 offices situated within New Jersey. They are located in Mount Laurel, Bloomfield, and Parsippany. The Mount Laurel and Bloomfield offices maintain fully equipped and staffed survey departments with multiple survey crews able to access the entire state. Dewberry field crews have state-of-the-art survey equipment and field-to-finish software to complete the projects assigned to them, including 3D Laser Scanning, Trimble Static and RTK (VRS) GPS systems, Robotic and Reflectorless Total stations, Wifi and bluetooth enabled data collectors and electronic levels.

Dewberry survey field crews operate with all applicable safety features in place, such as work signs, cones and safety vests and our crews have successfully completed safety training for OSHA 40 Hr HazWoper, road, rail and construction site work, confined space entry and rooftop safety. With offices throughout the country and having a large survey presence in the Maryland and Virginia area Dewberry has a large pool of survey professionals to draw upon on short notice when needed.

Dewberry has recently completed boundary surveys, descriptions, corner setting and plan preparation for Green Acres surveys in Lacey Township, Ocean County

and Belvidere Town, Warren County. In addition, we have prepared numerous surveys for the New Jersey State Agriculture Development Committee (SADC) along with the counties of Salem and Morris for Farmland Preservations. These surveys required coordination with the NJDEP Green Acres personnel and knowledge of the Green Acres land surveys practices and procedures to successfully lead to additional lands added to the Green Acres inventory.

The Mount Laurel and Bloomfield survey departments are staffed with five (5) full time New Jersey Licensed Professional Land Surveyors, four (4) survey technicians and seven (7) full time experienced survey field crews. The New Jersey Licensed Professional Land Surveyors and survey crew chiefs individually have a minimum of twenty years of experience and all survey personnel have completed Green Acres land surveys and are knowledgeable with the NJDEP Green Acres Program rules and regulations governing land surveys.

### Project Overview:

This project is for the NJDEP/DPMC Blue Acres acquisition of 33 residential parcels in Woodbridge Township, Middlesex County, NJ. Boundary surveys are required for each parcel or group of parcels under common ownership. These surveys are to be prepared in accordance with N.J.A.C. 13:40 5, Land Surveyors preparation of land surveys and NJDEP Green Acres "Scope of Survey Services Standard Detail Requirements". Property corners are to be set as directed by the DMPC project manager after demolition of the properties which could occur 3 – 36 months after the completion of the boundary survey.

### Preliminary Phase:

Upon notice to proceed, Dewberry will conduct an in-house staff meeting to determine schedule and tasks to be performed for each lot. Office staff will begin the research and property owner notification for the project. Tax maps and aerial imagery will be downloaded and geo-referenced into the New Jersey State Plane coordinate system utilizing ESRI Geographic Information System (GIS) software. Property records, from both public and private entities, consisting of deeds, filed maps, roadway vacations, easements; lease agreements, etc., will be



gathered for the subject properties as well as necessary surrounding parcels to aid in the boundary analysis. We will perform a search of our internal database for prior surveys that have been completed by Dewberry that may aid in the boundary determination and existence of easements. Any deed mis-closure will be noted and plotted with the deeds. All of this information will be geo-referenced to the aerial imagery to comprise a deed mosaic of the subject parcels. Aerial imagery from the New Jersey Geographic Information Network (NJGIN) will be initially used as a background. All property corners will be assigned coordinate values for subsequent use in the field survey reconnaissance portion of this project. This information will be coupled into one drawing to comprise the deed mosaic for the project.

Property block, lot, owner and deed information will be input into the GIS Database for tracking properties completed and property corners recovered. This will aide in subsequent properties to be scheduled as existing corners previously recovered can be sent to the field crews to limit duplicate work being performed.

Research will be done in-house, on-line and at the Middlesex County Courthouse as needed. We will request copies of any prior surveys from the current property owners. Field crews will be given instructions from our project manager and scheduled to start after the required time has passed for property owner notification.

#### Field Surveying:

These projects will involve the same methods and procedures that Dewberry currently employs on a daily basis. At the project inception the limits of the subject parcel(s) will be substantially defined based on the title reports supplied by DMPC and the records research performed by Dewberry. Once the deed mosaic is substantially complete as previously outlined, this information will be provided to our survey party chief(s) to perform the field surveying.

Utilizing the procedures and technical approach described above, Dewberry will complete the "on-ground" outbound field surveys. Improvements along / near the boundary line that could influence the property line or title location will be accurately located; such as, fence lines, driveways, concrete, walls and garages. Care will be taken to determine if an improvement may be owned by the adjoining land owner. Suspected encroachments will be reported to DPMC on a daily basis via email with a draft copy of the plan.

Features internal to the lot will be shown in a general location from field observations. Vacant parcels will be noted as such. Control for the outbound survey will be continuously tied into previously set GPS control networks.

#### Office Surveying:

Property line analysis and boundary determinations will be made by the Project Manager and Professional Land Surveyor. Through a process of filtering recovered evidence and applying the rules of construction for boundary location, the property lines of the parcels will be determined. In the event that a discrepancy is discovered, i.e. gap or overlap, the Professional Land Surveyor will perform a further analysis of the property. Intent of the parties, recorded monuments, lines of possession, senior and junior rights as well as patent and latent ambiguities will be investigated. Should the discrepancy be attributable to another Professional Land Surveyor, Dewberry will attempt to resolve the issue with them. Any deviation from the record documents to the surveyed boundary will be noted. Upon the completion of the



boundary analysis for the property, the Professional Land Surveyor will provide this information to the survey technicians for the drafting of the final plats. Plans will be drafted in accordance with NJDEP Survey Requirements, latest revision. All plans will be prepared under the direct supervision of the Professional Land Surveyor. During the drafting stage of this project, final coordinates will be calculated for all missing property corners to be set at a later date as directed by DPMC. A draft copy of the survey and description will be provided by Dewberry for review by DPMC.

As individual properties are completed they will be added to the composite plan which will include the requisite information per the Scope of Work.

Throughout the project duration quality checks and oversight will be observed and maintained. Mathematical checks of field work will be performed and all property boundaries will be verified to close mathematically. Field work and computations will be checked by office staff. The survey crew chief actually having done the field work will review the plotted field data for accuracy and correctness. All maps, reports and deliverables will undergo a quality review process prior to submission to the DPMC. Our PLS will review the maps and documents to ensure adherence to DPMC/Green Acres Standards.

#### Final Deliverables:

Upon review comments received from the DPMC, the addressed comments will be completed and a final QA/QC review by the PLS prior to the delivery of the final documents and maps. Deliverables will be prepared in accordance with Section VI of the Scope of Work for this project.

#### On Call contract experience:

Currently Dewberry is under contract with several agencies to provide Land Surveying Services including the New Jersey Department of Environmental Protection, Green Acres Program, SADC, Amtrak (including weekend and emergency response), Conrail, Warren County Agriculture Board, Monmouth County Agriculture Board, Monmouth County Park System and Salem County.

#### Staffing and Capacity:

Dewberry has the local resources and personnel depth to provide the necessary experienced professionals to staff this contract – that may require multiple, concurrent assignments – to deliver responsive service, and to provide the expertise required. We have a staff of 220 surveyors corporate-wide. In addition, cell phone numbers are provided to clients for emergencies.

Our survey inventory includes, 4 HDS Leica Scanners, 4 Trimble VX Scanner/Robotic Total Stations, 120 Dual Frequency GPS Receivers (Trimble R-8 or R-10), 65 fully Robotic Total Stations, 30 Conventional Total Stations, 7 First Order Digital Levels, 50 Auto Levels, 100 Data-collectors, 80 survey vehicles and the ability to equip 75 two (2) man survey field crews. Dewberry has the software and CADD inventory to quickly take on any assignment. Currently we have 588 Microstation/Inroads installations and 583 AutoCAD/Civil 3D installations company wide. Dewberry easily possess the necessary equipment and manpower to respond to any DPMC assignment.

#### Knowledge of DPMC/Green Acres policies and procedures:

Dewberry is very familiar with DPMC's policies and procedures. We are currently under an On-Call contract with DPMC for the Blue Acres demolition contract where we have received an interim performance summary from DPMC of 90%.

In addition, we are contracted with DPMC for Land Surveying services related to the Green Acres Program where we are on our 2<sup>nd</sup> three year term agreement and were recently selected by DPMC for Statewide Land Surveying services for the State Agriculture Development Committee (SADC).



## 5. Project Schedule

Upon Notice to Proceed (NTP) by the Client, representatives from Dewberry will initiate research activities by obtaining deeds, maps, and other records for the property to be surveyed, adjoining properties and public roads from available sources on-line. The research portion, including receipt of title report by others, is expected to take less than two weeks from date of NTP. Notice to property owners for right of entry will be sent within 2 days of NTP. During this same time period the police department having jurisdiction will be notified.

Field surveys will commence within 7 days of NTP to allow the statutory time for right of entry letters to be delivered. For this project, we have assumed an average of 2-3 properties per day for the boundary retracement and evidence locations. This will allow the field work to be completed in 2 weeks or less. In the event we determine the schedule could be impacted, additional field surveyors will be dispatched to the project and crews will be instructed to work additional hours and/or weekends. With over 75 survey field crews within Dewberry, we have ample resources to draw from should the need arise. Upon completion of field survey, the anticipated document preparation schedule is as follows:

- Process field data – 1 hour
- Boundary review and analysis of research and field data- 1 hours
- Prepare boundary survey – 3 hours
- Prepare metes and bounds descriptions – 1 hour
- Internal review QA/QC – 1 hour
- Submit to DPMC for review
- Address review comments – as received
- Prepare final plans, descriptions, and documents – 5 days
- Project Composite Plan – 2 days
- Final Deliverables – 3 days

Our specific schedule for this project includes the mobilization of multiple field crews to complete the field portion of the project. We will utilize multiple one man survey crews with robotic instruments to survey the

boundary of the parcel and locate any improvements that influence the boundary location; i.e. fence, wall, driveway or adjoining garage or an improvement within 2 feet of the property line. Our field and office procedures are very stream lined as shown in our project approach. We have completed surveys very similar to this while working on the NJ RREM program for the past 4+ years. Our field procedures allow us to produce a field to finish product that virtually draws itself. This allows our drafting to operate on an assembly plant style where the prior days' work is processed and drafted the next business day. With multiple survey crews and technicians, this is easily accomplished allowing us to complete more surveys in less time without sacrificing accuracy.

As plans and descriptions are completed, they are moved to the Project Manager for review against our survey field crew notes and photos. After the Project Manager's comments are addressed, the plans are moved to the Professional Land Surveyor in charge of QA/QC. We plan to use the same procedures and checklist that we've implemented for the RREM program to insure consistency between all surveys and descriptions prepared under this contract.

Once the PLS has performed the QA/QC of the plans and descriptions, any necessary revisions will be made and review copies will be sent to the client in accordance with the 'Scope of Work' provided.

After the client's review, revisions will be made and the final deliverables will be prepared in accordance with Section VI of the Scope of Work, along with the composite location map. All plans, photos and files, including CAD and DXF, will be completed in the New Jersey State Plane Coordinate System, NAD-83 (2011).




**Dewberry®**

## Anticipated Schedule for P1178-00

Days

[illegible]

# ORIGINAL

**PROFESSIONAL SERVICES FEE PROPOSAL  
DIVISION OF PROPERTY MANAGEMENT & CONSTRUCTION**

THIS FEE PROPOSAL TO BE RETURNED  
IN A SEPARATELY SEALED ENVELOPE TO:

DATE: January 30, 2018  
PROJECT NO.: P1178-00

*Division of Property Management & Construction  
33 WEST STATE ST 9TH FLOOR, PLAN ROOM  
P.O. Box 034  
Trenton, NJ 08625-0034  
Attention: Bill Mahan*

**Final/Accepted  
Fee Proposal**

**THIS PROPOSAL DUE DATE, NO LATER THAN 2:00 PM, TUESDAY, JANUARY 30, 2018**

FIRM NAME Dewberry Engineers Inc.

THE UNDERSIGNED PROPOSES TO PROVIDE ALL PROFESSIONAL SERVICES AS STATED  
IN THE REQUEST FOR PROPOSAL AND SCOPE OF WORK

CONSULTANT SURVEY SERVICES	\$ \$33,032.22
SUB CONSULTANT SURVEY SERVICES	\$ \$0.00
TOTAL LUMP SUM FEE FOR SURVEY SERVICES	\$ \$33,032.22
CORNER MARKER SETTING ALLOWANCE	\$ \$8,000.00
<b>TOTAL CONTRACT AMOUNT</b>	<b>\$ \$41,032.22</b>

**PROPOSAL TO HOLD GOOD FOR 60 DAYS AFTER THE DUE DATE.**

**Signature and Title of Principle or Individual of the firm authorized to sign contractual documents:**

*Signature of the consultant below attests that the Consultant has read, understands and agrees to all terms, conditions and specifications set forth in the Request for Proposal (RFP) and Consultant Proposal Package.*

Signature: 

Print Name: Keith M. Ludwig, PLS

Title: Associate / Survey Dept. Mgr.

Date: 1/29/18

Witness Signature: 

Print Name: Keith M. Ludwig

**ATTACH PROOF OF REQUIRED INSURANCE COVERAGE**

See attached requirements per "General Conditions to Consultant Agreement" Section 27, pp. 18-19

PROFESSIONAL LIABILITY INSURANCE  
(\$100,000 MIN LIMIT/\$25,000 MAX DEDUCTIBLE)

RECEIVED  
2018 FEB 12 A 11:10  
TREASURY DPMC  
PROCUREMENT



Final/Accepted  
Fee Proposal

# CONSULTANT TASK/LABOR/FEE SHEET

A/E: Dewberry Eng.

Project #: P1178-00

Project Name: Boundary Surveys for Land Acquisition, Various Parcels

Project Location: Woodbridge Township, Middlesex County, NJ

PROJECT PHASE OR TASK	CONSULTANTS LEVEL OF EFFORT IN HOURS/FEE								REPROD. COST	TOTALS
	LEVEL	7	6	5	4	3	2	1	PER PHASE INCLUD.	PER TASK
	*HOURLY RATE	\$190.66	\$113.75	\$67.60	\$89.05	\$	\$	\$	SUB CONSULTANT DOCUMENTS	HOURS \$ AMOUNT
SURVEY SERVICES HUD/CDBG/UN	HOURS	20	40	140	140					
	AMOUNT	\$3,813.20	\$4,550.00	\$9,464.00	\$12,467.00	\$	\$	\$	200	\$ 30,494.20
SURVEY SERVICES HUD/CDBG/LMI	HOURS	1	2	6	5					
	AMOUNT	\$190.66	\$227.50	\$405.60	\$445.25	\$	\$	\$	0	\$ 1,269.01
SURVEY SERVICES STATE BLUE ACRES	HOURS	1	2	6	5					
	AMOUNT	\$190.66	\$227.50	\$405.60	\$445.25	\$	\$	\$	0	\$ 1,269.01
TOTAL	HOURS	22	44	152	150					
	AMOUNT	\$	\$	\$	\$	\$	\$	\$	\$	\$
PROFESSIONAL SERVICES GRAND TOTALS									HOURS AMOUNT	\$ 33,032.22



Dewberry Engineers Inc.  
1015 Briggs Road, Suite 210  
Mount Laurel, NJ 08054

856.802.0843  
856.802.0846 fax  
www.dewberry.com

## Final/Accepted Fee Proposal

February 15, 2018

### DPMC P-1178 Woodbridge, NJ Blue Acres Proposal

Corner allowance breakdown based upon 50 monuments / 50 rebar:

\$120 per monument	\$6,000
\$40 per rebar	\$2,000
Total:	\$8,000

Corners to be set post demolition which could occur 3 – 36 months after notice to proceed.

Thank you,

Keith M. Ludwig, PLS  
Associate / Survey Dept. Manager

RECEIVED  
2018 FEB 15 A 10:54  
TREASURY DPMC  
PROCUREMENT