

Sussex County Land Development Standards

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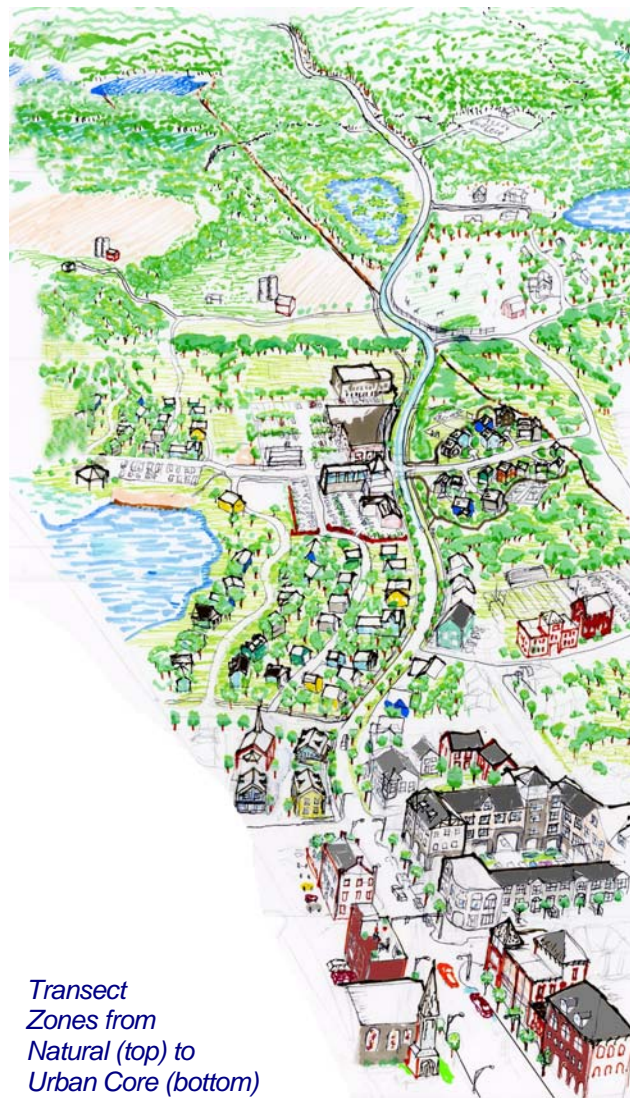


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Website References and Resources

The following resources are endorsed by the Sussex County Department of Engineering and Planning:

- www.sussex.nj.us: The official County Website containing forms, applications, engineering standards, deed templates for dedications, Strategic Growth Plan, GIS mapping of geographical features, and the following:
 - County Map(s)
 - County Route Intersection Mile Post Data
 - Work Zone Safety Setup Guide
 - Design Exceptions Manual
 - Traffic Data Summary
 - Sight Distance Standards
 - Standard Construction Details
 - Access Permit Application Package
 - Road Opening Permit Application Package

For Centers:

Flexible Design of New Jersey's Main Streets

<http://www.state.nj.us/transportation/publicat/pdf/FlexDesign/toc.pdf>

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I - TITLE, PURPOSE, APPROVING AGENCY

A. TITLE

This Ordinance shall be known as “Sussex County Land Development Standards”

B. PURPOSE

The purpose of this Ordinance is:

- a. To provide rules, regulations, and standards for site plans and subdivisions and procedures for review of site plans and subdivisions within the County’s jurisdiction to allow land development that is compatible and harmonious with the existing, planned, and contemplated infrastructure base of the County and to protect the public health, safety, and welfare.
- b. To communicate the process of development review to Applicants and Municipalities.
- c. To promote Villages and Centers with a pedestrian realm as a preferred land development type in order to implement the Sussex County Strategic Growth Plan.
- d. To internalize external costs.

C. APPROVING AGENCY

The approval provisions of this Ordinance shall be administered by the Sussex County Planning Board in accordance with the County Planning Act (reference N.J.S.A. 40:27-1 et seq.)

The County Planning board, by the adoption of appropriate resolution, has vested its power to review and approve subdivision and site plan development plans in the Development Review Committee. The Development Review Committee may meet as necessary according to the meeting schedule adopted by the Sussex County Planning Board. Meetings are held in accordance with the Open Public Meetings Act.

D. LANGUAGE

The terms “shall”, “need(s) to”, “is required”, and “must” indicate mandatory requirements

The term “should” indicates a recommendation to address on the part of the Applicant (or Municipal planning board)

The term “may” indicates permissive action

II - DEFINITIONS

As used in this Ordinance, the following definitions shall have the meanings hereinafter set forth,

AASHTO - American Association Of State Highway Transportation Officials, 444 North Capital Street, N.W., Suite 249 Washington, D.C. 20001; www.transportation.org, an organization which sets standards for highway design.

ABUTTING COUNTY ROAD - Any existing county road or proposed county road as shown in the County Master Plan, or on the County Official Road Map as adopted by Resolution of the Board of Chosen Freeholders which adjoins the Lot or Parcel of land for which a Development Application has been submitted.

ACCELERATION LANE - An auxiliary lane within the Right of Way of a road for use by vehicles entering the traveled way at a lower speed in order to match and mingle with traffic traveling at a higher speed.

ACCESS CURBLINE SPACING – The distance measured along the curbline between curbline openings of two adjacent access points.

ACCESS DENSITY - The number of access points located along a section of county route, expressed as number of access points per mile. Calculation shall be based upon on a minimum one-half mile of county route, but may be extended to include longer typical sections.

ACCESS PERMIT – A permit issued by the Division of Engineering for the construction, maintenance and use of an Access Point connecting to a County Route.

ACCESS POINT – The location of intersection of a road, street, or driveway with a County Route.

ACCESS POINT OFFSET – the distance between the centerlines of access points along opposite sides of a County Route.

ADJACENT/ADJOINING - Proximity defined. Adjacent property is that property, within 200 feet of the subject premise and includes adjoining properties. Adjoining property is property that actually touches or is contiguous to the subject premise.

ADT – Average Daily Traffic; the highest estimated or observed two-way traffic volume during a 24-hour period.

ADVERSE DRAINAGE CONDITION - The absence or inadequacy of present drainage facilities or drainage easements in a drainage-way that would be affected, or that would have an impact upon a proposed subdivision or site development including; but not limited to:

- a. Drainage facilities of such location, size, design, construction or condition that may not provide adequately for storm drainage.
- b. Drainage conditions which may cause either flooding, erosion, silting or other damaging effects to a County Road or County drainage structure.
- c. Drainage conditions which threaten to damage property as a result of storm drainage from, along or through a County Road or from a County Drainage structure.
- d. Any development or modification of surface runoff which causes an increase in discharge from a county culvert, channel, or collection system.

AGRICULTURE PURPOSES - Farming and related pursuits not including the erection, alteration, enlargement, occupancy or use of any building designed for or suitable for residential, commercial or industrial use.

AGRICULTURE SUBDIVISION - The division of a lot, tract, or parcel of land into two or more lots, tracts, parcels or other provisions of land for agricultural purposes only.

APPLICANT - A Developer submitting an application for development.

APPLICATION FOR DEVELOPMENT – means the application form provided by the County Planning Board and all accompanying documents required by this Ordinance and by local ordinance for approval of a subdivision plat or site plan. It includes all forms required by a Municipal Reviewing Agency to be submitted by a developer to initiate approval of a proposed site plan, subdivision and/or variance.

MUNICIPAL FORMS - All forms required by a Municipal Reviewing Agency to be submitted by an Applicant to initiate approval of a proposed site plan, subdivision and/or variance.

AUXILIARY LANE – a lane striped for use, such as an acceleration lane, deceleration lane, two-way-common left turn lane or a dedicated left turn lane, not used for through traffic.

BARRIER FREE DESIGN - The design of facilities to eliminate physical obstacles which inhibit the mobility of the physically disadvantaged.

BEST MANAGEMENT PRACTICES (BMPs) - methods, measures, designs, performance standards, maintenance procedures, and other management practices which prevent or reduce adverse water quality impacts associated with

stormwater management methodology thereby resulting in reduced pollution of freshwater wetlands and open waters. BMP recommendations can be found within this Ordinance as well as the New Jersey Stormwater Best Practices Management Manual.

BRIDGE - A structure including supports and retaining walls erected over a depression or an obstruction, such as water or a highway, and having a passageway for carrying traffic, vehicular or pedestrian, and having an opening measured along the center of the travel way of more than five (5) feet between abutment faces or spring lines of arches.

BUILDING PERMIT - A permit issued by the Municipal Construction Official in accordance with the New Jersey State building codes authorizing specified construction to commence on a specific parcel of land.

CASH BOND – A certified check for the project amount made payable to the County of Sussex.

CD & PAPER PACKAGE: Single Copy paper submittals which include electronic files submitted on an optical compact disc (preferably CD-ROM) enclosed in a sleeve and attached to the inside back cover of the bound hardcopy application package, submittal or report.

CENTER – An area generally conforming to or planned to conform to the mixed use provisions of the State Development and Redevelopment Plan.

CLEARING - Any activity which removes the vegetation surface cover including the stripping, grubbing, and storage or removal of top soil.

CLEAR ZONE: - as defined in the AASHTO Roadside Design Guide, the total roadside border area, starting at the edge of the traveled way, available for safe use by errant vehicles. This area may consist of a shoulder, a recoverable slope, a non-recoverable slope, and/or a clear run-out area. The desired width is dependent upon the traffic volumes, speeds, and on the roadside geometry, as determined by the County Engineer in conformance with AASHTO guidelines.

COMPLETE APPLICATION - A copy of the County Application for Development form and all accompanying documents for any land development, site plan and/or subdivision approval required by this ordinance together with a copy of all documents required by the Municipal review agency for their review of the application.

CONCEPTUAL PLAN - A sketch of a proposed development submitted to the Development Review Committee for informal review, comments and suggestions. Neither the Applicant nor the Development Review Committee shall be bound by any such review.

COUNTY DRAINAGE FACILITY - Any drainage facility or stormwater conveyance device for which the County of Sussex is responsible in whole or in part.

COUNTY EASEMENT - An easement to the County of Sussex of an interest in Land for the purpose of the installation of utilities; the construction, reconstruction, widening, improving, repair, or maintenance of a County Road or County Bridge; the construction, reconstruction or alterations of facilities or amenities related to the safety, convenience or carrying capacity of the County Road/Bridge including items such as curbing, guide-rail, pedestrian walkway, lighting, drainage facilities, and traffic control devices; and for the purpose of maintaining a stable slope or a clear sight area or maintaining or altering stormwater drainage patterns.

COUNTY MASTER PLAN - A composite of the written goals and policies of the Master Plan for the physical development of the County, with the accompanying maps, plats, charts and descriptive and explanatory matter adopted by the County Planning Board pursuant to Revised Statute N.J.S.A. 40:27-2 and N.J.S.A. 40:27-4.

COUNTY PLANNING BOARD - The Planning Board, as established by the Sussex County Board of Chosen Freeholders Pursuant to N.J.S.A. 40:27-1, to exercise the duties set forth in that chapter with regard to the review and approval, where applicable, of all subdivisions of land (N.J.S.A. 40:27-6.2) and the review and approval of site plans for land development along County Roads or affecting County drainage facilities (N.J.S.A. 40:27-6.6)

COUNTY RIGHT-OF-WAY LINE – the outer most edge of the County property, separating County Right-of-Way from the abutting lots.

COUNTY ROAD/BRIDGE - A Public road or bridge under the jurisdiction of Sussex County where the County has an easement, is the owner in fee, or maintains the traveled right of way as shown on the Official County Road Map and the Official County Bridge Map adopted and amended by the Sussex County Board of Chosen Freeholders.

CULVERT – Any structure not classified as a bridge that provides an opening to carry water under a roadway.

CURBLINE - A line, whether curbing exists or not, which is the edge of the pavement or shoulder of the road or driveway.

CURB RETURN - The curb line along the curved or flared radius of a driveway opening or at a road intersection.

DAM – Any artificial dike, levee or other barrier, together with appurtenant works, which is constructed for the purpose of impounding water on a permanent or temporary basis, that raises the water level five feet or more above the usual,

mean, low water height when measured from the downstream toe-of-dam to the emergency spillway crest or, in the absence of an emergency spillway, the top of dam.

DECELERATION LANE - An auxiliary lane within the Right of Way of a road that permits vehicles to reduce speed and leave the adjacent traveled way of the road.

DEVELOPER - The legal or beneficial owner or owners of a lot or any land proposed to be included in a proposed development, including the holder of an option or contract to purchase, or other person or entity having an enforceable proprietary interest in such land, or the express written consent of the owner to file an application for development.

DEVELOPMENT – The division of a parcel of land into two (2) or more parcels; The construction, reconstruction, conversion, structural alteration, relocation or enlargement of any building or other structure; and any use or change in the use of any building or other structure, or land or extension of use of land, for which approval may be required pursuant to the Municipal Land Use Law, local municipal ordinance and/or this Ordinance.

DEVELOPMENT REVIEW COMMITTEE - The Committee of the Sussex County Planning Board vested with the power to review, approve or disapprove site plan and subdivision applications.

The Development Review Committee shall consist of any two (2) of the citizen members of the Planning Board, together with the County Planning Director or his appointed designee, and the County Engineer or his appointed designee.

DRAINAGE BASIN - All that area of land enclosed by a ridge line or underground structures that collect surface water runoff at a single point along a brook, stream, water course, drainage facility or easement.

DRAINAGE FACILITY – Those facilities comprised of lands or structures intended to actively or passively change the hydrologic conditions of wetlands or State Open Water, or to collect surface water runoff at a single point along a brook, stream, water course, or easement, by means of pumping, ditching, or otherwise altering water flow patterns.

DRAINAGE RIGHT OF WAY OR DRAINAGE EASEMENT – An enforceable interest in, or restriction to land (a “Right of Way”) or an easement, for the installation and/or maintenance of storm water sewers, culverts, bridges, retention/detention basins, drainage ditches or swales, and/or for the maintenance of natural drainage patterns and surface water sheet flow, and/or with regard to a natural stream or water course for preserving the channel and providing for the flow therein in order to safeguard the public against harm from flooding, sedimentation and erosion, or for similar storm drainage purposes.

DRIVEWAY – a private roadway providing access to a county route. A driveway is not a road, street, boulevard, highway, or parkway.

EASEMENT - A dedicated easement is a non-possessing interest held by one person or government entity in land of another whereby the first person or government entity is accorded partial use of such land for a specific purpose. An easement **RESTRICTS** but does not abridge the rights of the fee owner to the use and enjoyment of his land. (See Sight Easement)

ELECTRONIC COPY: Digital or electronic document and file submittals

EMERGENCY ACCESS - a driveway which shall only be used by qualified emergency response vehicles responding to an emergent situation.

EMERGENCY SPILLWAY – a spillway capable of passing the spillway design storm in the event that the principal and/or auxiliary spillway is blocked. No emergency spillway shall be designed such that its discharge will enter upon or negatively impact any county infrastructure. Emergency Spillways discharging upstream of county roadways must be conveyed safely below any county roadway.

E-PACKAGE – Plans and documents that are encapsulated in an electronic media accompanied by descriptive supporting documentation. This may be a CD-ROM with a hardcopy explanation of its contents.

FHWA – Federal Highway Administration, U.S. Department of Transportation.

FINAL SUBDIVISION PLAT - The Final Map of all or a portion of a subdivision, meeting all of the Standards and Regulations of this Ordinance, and meeting all the conditions established by the Development Review Committee and the Municipal Approving Authority in granting final subdivision approval. Plats shall comply with the New Jersey Map Filing Law (N.J.S.A. 46:23-9.9 et seq.).

FINAL SITE PLAN - The plan or plat of an approved Site Plan incorporating all the preliminary and final conditions of that approval granted by the Development Review Committee and the Municipal Approving Authority.

FLOODING - A general and temporary condition of partial or complete inundation of normally dry land areas from: an overflow of inland waters, and/or an unusual and rapid accumulation of runoff of surface waters and/or mud slides. The collapse or subsidence of land along the shore of a lake or other body of water caused by erosion and unusually high water level shall also be deemed flooding.

FLOOD PLAIN – As used in this Ordinance “Flood Plain” shall mean the area inundated by the “Flood hazard area design flood”, as is defined in the Flood Hazard Area Control Act Rules at N.J.A.C. 7:13-1.2.

FLOODWAY – As used in this Ordinance “Floodway” shall have that meaning set forth in the Flood Hazard Area Control Act Rules at N.J.A.C. 7:13-1.2.

GENERAL DEVELOPMENT PLAN - Any Applicant of a parcel of land greater than 100 acres in size may submit a General Development Plan of the entire parcel to the Municipal Planning Board for initial approval pursuant to N.J.S.A. 40:55D-45.2, et seq.

HARD COPY – Submittal on traditional paper.

HISTORIC SITE - Any real property, man-made structure or natural object or any group of the foregoing of historical, archaeological, cultural, scenic or architectural significance to this State, its communities or the Nation.

INSIDE TURNING RADIUS - The innermost encroachment line of a vehicle's wheels movement including any portion of the vehicle which overhangs beyond the wheelbase.

LOADING AREA, OFF-STREET - Designated area reserved for the sole purpose of loading and unloading vehicles, including the necessary vehicle maneuvering area. Loading areas must be designed to prevent vehicle encroachment into a county right-of-way.

LOT - A designated parcel, tract or area of land established by a plat or otherwise as permitted by law and to be used, developed or built upon as a unit.

MAINTENANCE GUARANTEE - Any security acceptable to the County Counsel to assure the maintenance of approved installations by Applicants for a period of two (2) years after acceptance of such improvements. All maintenance guarantees shall be in conformance with Sussex County Board of Chosen Freeholder resolutions.

MAJOR SUBDIVISION - Any subdivision not classified as a minor subdivision.

MARGINAL ACCESS - Access to a lot or lots from a right-of-way paralleling a County road.

MINOR SUBDIVISION - A subdivision of land for the creation of a number of lots specifically permitted by Municipal ordinance as a minor subdivision; generally having requirements that such subdivision does not involve (1) a planned development, (2) any new street or (3) the extension of any off-tract improvement, the cost of which is to be prorated pursuant to N.J.S.A. 40:55D-42). For the purposes of this Ordinance, the definition of “minor subdivision” employed in the municipality where the development is located shall apply.

MUNICIPAL AGENCY - A Planning Board, Board of Adjustment, or governing body when acting pursuant to the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq, as amended.

MUNICIPALITY - Any city, borough, town, township or village.

MUTCD - Manual On Uniform Traffic Control Devices; The Manual on Uniform Traffic Control Devices (MUTCD) is approved by the Federal Highway Administrator as the National Standard in accordance with Title 23 U.S. Code, Sections 109(d), 114(a), 217, 315, and 402(a), 23 CFR 655, and 49 CFR 1.48(b)(8), 1.48(b)(33), and 1.48(c)(2).

NEW JERSEY RESIDENTIAL SITE IMPROVEMENTS STANDARDS - Technical standards for streets, parking, water supply, sanitary sewers, and stormwater management relating to residential development. The standards are the minimum requirements for site improvements that must be adhered to by all Applicants for residential subdivision and site plans before planning boards and zoning boards of adjustment. They also represent the maximum that municipal boards can require of an Applicant.

OFFICIAL COUNTY MAP - The map, with changes and additions thereto, adopted and established, from time to time, by resolution of the Sussex County Board of Chosen Freeholder of the County pursuant to N.J.S.A. 40:27-5.

OFF-SITE - Located outside the lot lines of the lot in question but within the property (of which the lot is a part) which is the subject of a development application or contiguous portion of an abutting street or right-of-way.

OFF-SITE DRAINAGE EASEMENT - See "Right to discharge".

OFF-STREET PARKING AREA - An area providing vehicle parking spaces and aisles off the street and outside the county right-of-way.

OFF-TRACT - not located on the property which is the subject of a development application or on a contiguous portion of an abutting street or right-of-way.

OFFICE DOCUMENTS - include all application paperwork and reports exclusive of large format design plans commonly prepared within a CAD platform. Typical documents would include, letter correspondence, submittal checklists, traffic impact reports, stormwater reports, design exception reports, engineer's estimates, deeds and easements.

ON-SITE - Located on the lot in question.

ON-TRACT - Located on the property which is the subject of a development application or on a contiguous portion of an abutting street or right-of-way.

OUTSIDE SWEEP PATH - The outermost encroachment line of a vehicle when making a turning movement including any portion of the vehicle which overhangs beyond the wheelbase.

OWNER - The person, corporation, government or other entity having a legally enforceable ownership interest in the property.

OWNER AUTHORIZATION - Consent in writing permitting Applicant to seek subdivision or site plan approval. Owner authorization is required for all applications to the County Planning Board.

PEAK HOUR – the 60 consecutive minutes during which the highest traffic volumes occur along a roadway or access point.

PEDESTRIAN REALM —A network of public sidewalks, pathways, and plazas that provide social, health, aesthetic, economic and/or historical benefits to pedestrians and provide access to jobs, entertainment, shopping, and homes.

PERFORMANCE GUARANTEE - Any security approved by the County Counsel and in conformance with Sussex County Bonding requirements determined to be acceptable in lieu of a requirement that certain improvements be made before the County Planning Board grants Final Approval to an Application for Development.

PRELIMINARY APPROVAL - The conferral of certain rights pursuant to N.J.S.A. 40:55D-46; N.J.S.A. 40:55D-48; and N.J.S.A. 40:55D-49) prior to final approval after specific elements of a development plan have been agreed upon by the planning board and the Applicant.

PRELIMINARY PLAT - A map indicating the proposed layout of the subdivision showing or being accompanied by all of the information required by these Standards.

PRELIMINARY SITE PLAN - A plan of an existing lot or lots showing proposed development with all of the details required by these Standards.

PRINCIPAL SPILLWAY - the primary or first used spillway during normal inflow and flood flows.

PUBLIC RIGHT-OF-WAY – A strip or area of land including overhead, surface or underground, for which the public at large has a legal “ways of passage” or a right to use in some specified manner or utilize said lands as deemed beneficial to the public good..

PUBLIC ROAD - A road that is open to common use by the general public, generally existing within a right-of-way.

RETENTION BASIN - A pond, pool or basin used for the permanent storage of stormwater runoff.

REVERSE ACCESS - Access to the rear lot area where the structure faces on a County Road.

REVERSE FRONTAGE – when access is provided via a local street or access road for lots fronting along a county route. No access for these lots is permitted directly into the county route. It is not uncommon for buildings located on these lots to front the county route.

RIGHT-TO-DISCHARGE - A legally recordable instrument granting to the County the right to discharge collected or surface waters upon lands exterior to the county right-of-way.

ROAD - any public way, whether open or improved or not, including any public thoroughfare such as a; street, avenue, boulevard, road, land parkway or freeway which is an existing or planned State, County or Municipal roadway, or a street or way shown upon a plat heretofore approved pursuant to law and including the land between the right-of-way lines, whether improved or unimproved, and comprising all pavement, shoulders, gutters, curbs, sidewalks, parking areas and other improvements within the right-of-way lines.

ROAD OPENING PERMIT – a permit issued by the Division of Engineering required for any work proposed to be completed within a county right-of-way.

SET-BACK LINE - A line established parallel to and a specified distance from the existing or proposed right-of-way sideline of a road by local zoning ordinances which restrict the placement of buildings and structures within such distance as specified.

SIGHT EASEMENT - A dedicated easement across property generally along the inside of a horizontal curve of a County or Municipal road which is required to provide the minimum Sight Distance

SIGHT DISTANCES are those distances specified in this Ordinance for the purpose of establishing a clear line of sight at road intersections or other points of access to County roads and Rights of Way. Sight distances shall be accommodated within areas whereby the County is granted rights to enter and remove obstructions to the clear line of sight, including County Right of Way, Sight Easement(s), and Sight Triangle Easement(s).

SIGHT TRIANGLE EASEMENT - A triangular shaped area established at all intersections or at a major driveway entrance, in accordance with the requirements of these standards, in which nothing shall be erected, placed, planted or allowed to

grow in such a manner as to obstruct vision between a height of two (2) feet and ten (10) feet above the center line grade of either intersecting street or driveway entrance.

Within this sight easement nothing shall be erected, placed, planted or allowed to grow in such a manner as to obstruct sight distance as defined herein.

SHOULDER - That portion of the roadway that lies between the edge of the traveled way and the curblineline; excluding auxiliary lanes.

SOIL CONSERVATION DISTRICT - a political subdivision of the State of New Jersey authorized under N.J.S.A. 4:24-1 et seq.

STORMWATER - water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, or is captured by separate storm sewers or other sewage or other drainage facilities or conveyed by snow removal equipment.

STORMWATER RUNOFF – water flow on the surface of the ground or in storm sewer systems, resulting from precipitation.

STORMWATER MANAGEMENT BASIN - an excavation or embankment and related areas designed to retain stormwater runoff. A stormwater management basin may either be normally dry (that is, a detention basin or infiltration basin), retain water in a permanent pool (a retention basin), or be planted mainly with wetland vegetation (most constructed stormwater wetlands).

STORMWATER MANAGEMENT MEASURE - means any structural or nonstructural strategy, practice, technology, process, program, or other method intended to control or reduce stormwater runoff and associated pollutants, or to induce or control the infiltration or groundwater recharge of stormwater or to eliminate illicit or illegal nonstormwater discharges into stormwater conveyances.

STRUCTURE - A combination of materials to form a construction for occupancy, use or ornamentation whether installed on, above, or below the surface of a parcel of land.

SUBDIVIDER – See “Applicant”

SUBDIVISION - The division of a lot, tract or parcel of land into two or more lots, tracts, parcels or other divisions of land for sale or development. The following shall not be considered subdivisions, if no new streets are created: (1) divisions of land found by the planning board or subdivision committee thereof appointed by the chairman to be for agricultural purposes where all resulting parcels are 5 acres or larger in size, (2) divisions of property by testamentary or intestate provisions, (3) divisions of property upon court order, including but not limited to judgments of

foreclosure, (4) consolidation of existing lots by deed or other recorded instrument and (5) the conveyance of one or more adjoining lots, tracts or parcels of land, owned by the same person or persons and all of which are found and certified by the administrative officer to conform to the requirements of the Municipal development regulations and are shown and designated as separate lots, tracts or parcels on the tax map or atlas of the Municipality. The term "subdivision" shall also include the term "resubdivision".

TECHNICAL MAJOR SUBDIVISION – A subdivision classified as a major subdivision by the Municipality due to variances or other matters rather than exceeding the number of lots that defines a minor subdivision.

THROUGH STREET -- Every road or portion thereof at the entrance to which vehicular traffic from intersecting access points are required by law to stop before entering or crossing the same and when stop signs are erected as provided by law.

TRAFFIC IMPACT REPORT – a study analyzing anticipated roadway conditions, on and off tract, with and without an Applicant's development. Reports shall contain an analysis of mitigation measures.

TRANSECT ZONE – One of a number of land use zones lying on a continuum from undeveloped to substantial urban density. General New Urban transect classifications (from highest to lowest density) are: urban core, urban center, general urban, suburban, rural, and natural.

TRAVELED WAY – the portion of the road provided for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

VARIANCE - Permission to depart from the literal requirements of a zoning ordinance pursuant to N.J.S.A. 40:55D-40b., N.J.S.A. 40:55D-70c., N.J.S.A. 40:55D-70d., of the Municipal Land Use Law.

WATER COURSE - Any natural swale, ditch, gully, stream, brook or river wherein water flows ordinarily, frequently or infrequently, but not necessarily continuously. This definition includes water courses which have been artificially treated, realigned or improved.

WAIVER – A means by which the Planning Board, for specific reasons, may reduce or eliminate a requirement.

WETLANDS – areas as defined within New Jersey Department of Environmental Protection Freshwater Wetlands Protection Rules found in N.J.A.C. 7:7A, including "Freshwater Wetlands".

III - APPLICATIONS—WHEN AND WHAT TO SUBMIT

A. ALL APPLICATIONS

1. By New Jersey Municipal Land Use Law (MLUL), there are two general types of land developments that must be submitted to the County Planning Board for review or approval: Site Plans, which do not alter property boundaries, and Subdivisions, which alter property boundaries. Subdivisions have two subcategories as defined by Municipalities; minor subdivisions require no construction of infrastructure and involve very few new lots; major subdivisions encompass the remainder. The types of site plans required to be submitted to the County for review or approval are described below. Submission materials for all applications follow.
2. One CD & Paper Package is required for all applications, as defined in section II - Definitions above. Revisions with changes for review by the County Department of Engineering and Planning approval may be submitted with either a hardcopy or e-package. The revision which addresses and resolves all conditions, comments, and requirements of the County Department of Engineering and Planning must also be submitted as a CD & Paper Package.
3. Any submission to the Planning Board must include a hardcopy cover letter. If submitting a revision that specifically addresses items in a review letter by the County Department of Engineering and Planning or Planning Board, changes must be described by their corresponding item number. These changes must also state the location of any plan revisions by sheet number and any revisions in reports by page number. The cover letter shall also provide the locations of any other revisions to plans or reports that are not items of this review letter. There shall also be a statement confirming that no additional revisions have been made to the plans or reports other than those listed.
4. Minimum necessary submissions include:
 - a. Application fee and County application form,
 - b. Drawings signed and sealed by a licensed professional in accordance with State Statutes,
 - c. Copy of Municipal application for subdivision or site plan review,
 - d. Sussex County Subdivision or Site Plan Checklist,
 - e. ROW Source Document Worksheet for sites fronting a County Road
 - f. Stormwater Management Plan for sites where stormwater can flow on or into County infrastructure,

- g. A detailed intersection plan if a new access is being proposed along a County road, maximum plans scale of 1 in. = 20 ft, refer to Sussex County Standard Details SC-4, SC-5, and SC-5a.
- h. Traffic Report for site plans or major subdivisions if development meets the criteria for requiring a traffic report as listed herein.

B. CONCEPT

An informal Conceptual Plan review can save the Applicant considerable expense. By requesting a meeting for Conceptual Plan review before engineering plans are complete, valuable engineering time can be saved. Most Applicants do not foresee all impediments to approval, so the Conceptual Plan Review should be the first interaction with the County regarding any development that requires County Planning Board approval. During a conceptual review, the County might provide the following information:

- Provide awareness to the Applicant of state regulations.
- Provide comments regarding stormwater standards that are specific to County stormwater infrastructure.
- Provide comments regarding existing or proposed access to County roads.
- How requirements to accommodate pedestrians as per the Strategic Growth Plan can be incorporated into the site.

Any fee charged for a concept plan review will be credited towards the fee for a complete application.

C. SITE PLAN APPLICATIONS

1. When Required

Applications and subsequent revisions thereto shall be submitted to the County Planning Board for review of all Site Plan developments which include any proposed commercial, industrial, and/or multifamily structures containing five or more units, or any other land development requiring off-street parking or increasing impervious surface in excess of 1 acre, and for approval by the Board of those Site Plans located along county roads or affecting county drainage facilities.

Site plans for single family or duplex homes or land development not along a county road that include less than 1 acre of impervious surfaces which are exempt from county site plan review.

2. Application

- a. Before submitting any site plans, Applicants are strongly encouraged to schedule an early field meeting, which is required for any site that has access onto a County Road or is proposing access onto a County Road.
- b. Site plan applications shall be submitted for formal review or approval in two (2) stages: Preliminary Site Plan and Final Site Plan.

3. Preliminary Site Plan Detail Requirements

The Preliminary site plan application shall be submitted to the County Planning Board by the Applicant prior to the issuance of a Municipal zoning or building permit. One CD + Paper Package as described in Section IV.C below and data as required to show conformance with the standards established by this Ordinance herein shall be submitted to the County Planning Board. All engineering and surveying aspects of the preliminary site plan must be prepared and certified by a licensed professional engineer and surveyor as required by statute. In the event that some of the required items do not apply, a written request for waiver with supporting reasons shall be included.

4. Final Site Plan Detail Requirements

- a. The Final Site plan application plat shall show all proposed amendments, modifications, or deviations from the terms and conditions of Preliminary Site Plan approval, together with all “as-built” conditions, if any, from any previously completed phase of an application for those developments being developed in phases. A copy of the approved Final Site Plan and “as-built” drawing(s) shall be submitted to the County Planning Board by the Applicant prior to the issuance of a Municipal certificate of occupancy.
- b. One + CD Paper Package, which includes one copy of prints of the final site plan, copies of all supporting documentation and data (as required to show conformance with this Ordinance) and filing fee shall be submitted to the County Planning Board. All engineering and architectural aspects of the final site plan must be prepared and certified by a licensed professional engineer, surveyor and architect as required by statute. In the event that some of the required items do not apply, a written request for waiver with supporting reasons shall be included.
- c. After the final site plan is approved, a CAD file of the final plats shall also be filed in electronic format meeting the standards developed by the Division of Engineering e-package described in section IV - C below.

5. Revisions Of A Previously Approved Site Plan Or Subdivision

Any proposal that involves revisions in a site plan or subdivision previously approved by the County Planning Board shall require submission of a complete site plan or subdivision application and payment of fees in accordance with all of the requirements of Section IV of this Ordinance, except as follows:

- a. Where minor changes in the site plan or subdivision are requested by the Municipal planning board or other governmental agencies, no fees need to be paid and only a sufficient number of copies of those portions of the site plan or subdivision depicting or describing the proposed changes as may be necessary for distribution and a cover letter explaining what changes have been made and why, need to be submitted.

or

- b. Where there are only minor changes in the site plan or subdivision proposed by the Applicant, which do not involve any significant changes in the layout of the site as determined by the County Planning Director, no fee will be required, but sufficient copies of the site plan or subdivision incorporating the changes as may be necessary for distribution will be required. A cover letter explaining what changes have been made and why, will also be required. Where such changes are technical in nature and do not affect the basis upon which the Planning Board approval was given, the County Planning Director, in consultation with the County Engineer, may administratively approve the changes and forward a copy of the approval letter to the Planning Board for informational purposes.

or

- c. Where revisions in the site plan or subdivision only involve additional information required as a condition of a previous approval or where revisions in the site plan or subdivision are in accordance with a site plan or subdivision being approved in stages, no additional fees shall be required. A cover letter explaining what changes have been made and why will also be required.

D. SUBDIVISIONS

1. Application

All subdivisions of land within the County shall be submitted to the County Planning Board for review and/or approval prior to recording.

All Subdivisions affecting a County road or County drainage facility shall require approval by the County Planning Board prior to recording.

2. Subdivision Detail Requirements

Major subdivisions and minor subdivisions are defined in the New Jersey MLUL (N.J.S.A. 40:55D-1 et seq.). Whether a subdivision is minor or major is determined by the Municipalities' land use ordinance in which the development is proposed. Lot line adjustments are considered minor subdivisions.

a. MINOR SUBDIVISION

Minor Subdivisions may be filed by deed or by final plat as provided by N.J.S.A. 40:55D-47. Legible prints of the plat and of the minor subdivision application form shall be submitted to the County Planning Board. Minimum details required for review by the County Planning Board are listed in Appendix B-Forms (see Minor Subdivision Checklist). Approved Plats must be submitted in an e-package and a copy of property deeds signed by the Municipality prior to being recorded.

b. PRELIMINARY MAJOR SUBDIVISION

A CD + Paper Package including a legible print of the plat and of the application form shall be submitted to the County Planning Board. All preliminary plats and accompanying drawings shall be of a size to conform with the specifications of the attached checklists and shall be prepared and sealed, by a professional land surveyor licensed by the State of New Jersey. (See Appendix B):

c. FINAL MAJOR SUBDIVISION

Before approval of a final major subdivision, all improvements specified by the County Planning Board in granting approval for the preliminary plat shall have been installed and approved by the County Engineer. Alternatively, the Applicant may post adequate performance guarantees as set forth hereinafter at Section IV.F, to assure installation of the required improvements. The Applicant shall also make any required payment in lieu of improvements to County roads and/or a proportionate share of the cost of future installation of County drainage facilities or other improvements. All payments in lieu of improvements shall be in the form of a Certified Check. Any monies or guarantees received by the County shall not duplicate bonds or other guarantees required by Municipalities for Municipal purposes. A copy of bonds or guarantees given to the Municipality or joint bond, where two or more parties are concerned, shall be submitted to the County Engineer.

A CD & Paper package shall be submitted to the County Planning Board. When the Applicant has been informed that the final plat is approved, the Applicant shall submit an engineering epackage as described herein.

E. FILING REQUIREMENTS

After approval by the Sussex County Department of Engineering and Planning, Applicants must file subdivisions with the Sussex County Clerk.

1. Minor Subdivision

Minor Subdivisions may be perfected by filing them as a deed or a final plat with the County Clerk in accordance with N.J.S.A. 40:55D-47. If filed by plat, the plat shall comply with the applicable provisions of the "New Jersey Map Filing Law", N.J.S.A. 46:23-9.9 et seq.

1. After approval of the minor subdivision plat by the County Planning Board, CAD files must be submitted to the Department in an e-package that meets the Division of Engineering standards described in section IV.C below.

2. Final Major Subdivision

1. Two (2) signed mylar copies, certified and approved by the Municipality or Municipalities concerned, shall be presented to the County Planning Board office, and the County Planning Director shall sign the plat or, in his absence, it shall be signed by an alternate representative designated by the County Planning Board.

2. The Municipality or Municipalities in which the lands are situated may request additional copies.

3. The sizes of all maps and plans and any proposed land development shall be consistent with the sizes permitted under the "New Jersey Map Filing Law Act", as follows:

- a. 8-1/2 x 13 inches
- b. 15 x 21 inches
- c. 24 x 36 inches
- d. 30 x 42 inches

4. A CAD file of the final plats shall also be filed in electronic format meeting the standards developed by the Division of Engineering e-package described in section IV.C below.

3. Major Subdivision Revisions

One copy of all revised plats, including sketch plats, preliminary plats, or final plats shall be submitted to the County Planning Board by the Applicant or by the Municipal approving authority for County review and/or approval prior to approval by the Municipal approving authority.

IV - APPLICATION PROCESS – HOW TO SUBMIT AND GET APPROVED

A. FIELD MEETINGS

1. Field Meetings: Field meetings are required when a site plan or subdivision has an existing access onto a County Road, is proposing a new access onto a County Road, or if the site may need an access onto a County road in the future. The last instance particularly applies to minor subdivisions in which lot(s) are created upon which a current or future owner may expect to build a home, and such development may require or anticipate access to the County Road for which a safe access may be impeded by geographical or property line constraints.
2. Applicants must call the planning office to request a meeting, with information about the project at hand. Furthermore, the Applicant must provide the following at all field meetings:
 - a. Sight distance measurements, to be provided at or before the field meeting, by measuring distances shown in the diagrams in Appendix D. This includes the following:
 - i. Left turn-out sight distance
 - ii. Right turn-out sight distance
 - iii. Left turn-in sight distance
 - iv. Tail lamp stopping sight distance
 - b. Provide for a means of confirming sight distance measurements at the field meeting. A surveyor's transit with appropriate personnel is the only sure means.
 - c. One set of plans, if not already submitted to the Planning office

B. TIMING

Applications must be submitted with a CD + Paper Package.

1. An application will be administratively incomplete if any component needed for a complete review is not provided as listed in III - A.4. An application will be administratively disapproved if all the required elements of an application are not submitted. Any statutory requirements for action within a particular time frame by the County Planning Board shall not run until an application is deemed complete.

2. Within thirty (30) days of receipt of a complete application, the County Planning Board shall either:
 - a. Approve the site plan or subdivision as concerns existing and/or proposed County roads, bridges, culverts and drainage systems, and County owned property if all requirements are met, subject to such conditions as may be required.
 - b. Disapprove the site plan or subdivision, stating reasons for the disapproval.
3. If the County Planning Board fails to report to the Municipal agency within thirty (30) days of receipt of any complete application for site plan or subdivision approval, any such site plan or subdivision application shall be deemed to have been approved by the County Planning Board unless an extension is requested and granted. An extension may be granted for an additional thirty (30) day period upon mutual agreement between the County Planning Board and the Municipal approving authority, with approval of the Applicant.
4. The action taken by the County Planning Board on all site plan and subdivision plats shall be duly set forth in writing, with a copy of the report and any subsequent resolution to be submitted to the Municipal agency and to the Applicant. The report and any subsequent resolution shall set forth all conditions required for County approval, and if disapproved, all reasons for disapproval.
5. There is no limit to the number of times that a submission may be disapproved. To prevent administrative delays with application revisions, the Applicant is required to submit a cover letter for each revision that describes how each planning or engineering condition is being met in the revision AND that indicates at which page or sheet each revision is shown. Additionally, the letter must certify that no other modifications have been made to the application documents or include a narrative for each modification.
6. No approved site plan or subdivision plat shall be altered without approval of the County Planning Board.

C. DATA STANDARDS

1. This data standard has been established to manage both hardcopy (paper) and electronic data submittals required by the County of Sussex. These standards are part of the comprehensive County initiative to best manage, inventory and utilize information. This section contains the submittal standards for planning application data. The data submittals will be divided into the following two categories, Office Documents and Design Documents. Within these groups data will be submitted in either paper copy or electronic copy as outlined in these standards.

2. The County intends to move toward the elimination of paper copy documents and as such intends to eliminate paper processes which are obsolete or redundant in an electronic process.
3. Standard Electronic Format for Office Documents
 - a. File type: The required format is an Archival standards compatible Portable Document Format (PDF/A) file generated directly from document files. They should be compatible with the latest Adobe Acrobat Version Readers. Scanned images of report text are not acceptable as the text cannot be searched. Scanned correspondence bearing the original signature and seal shall be included. Scanned documents will only be accepted when the native electronic files are not available or developed for the application.
 - b. File naming: Application documents and report file names should be formatted as follows:
 - i. The application number (SCP/B#) i.e. 42X(PMS)06, where X is the revision letter.
 - ii. A document descriptor prefixed with the following and a short narrative, such as: "Letter", "Report", "Est", "Plan", and/or "SW" for Stormwater
 - iii. The document date shall be the final entry in the file name and shall be keyed as "YYYYMMDD", as such January 2, 2006 would be represented as "20060102".
 - c. Font should be those commonly available such as Times New Roman or Arial. Other fonts may not readily open or print from all computers. Less common fonts that are used (for instance ESRI symbols) must be embedded to allow printing in all environments.
 - d. Security settings must be set so as to allow searching of text, printing at full resolution, adding comments (to facilitate electronic comment by reviewers, and for users to annotate their own copies if they wish), content copying and extraction (to facilitate preparation of management direction, and quoting of materials in other documents), making changes related to document assembly to allow users to rotate pages and create bookmarks and thumbnails to facilitate use of the document.
 - e. Settings should not allow other modifications or utilize password protection of the document.
 - f. Resolution: Minimum resolution should be 300 dpi for graphics and text, 400 dpi for graphics is preferable, 400 dpi for CAD documents, but file size should be kept down.
 - g. File Size: file size shall not exceed what can be emailed to the County.
 - h. Cartography: information on maps should be easily understood when reproduced in black and white – sole reliance on color to convey information means maps cannot be faxed or usefully printed in black and white. Where color is necessary or useful, combine it with techniques like line coding and patterned

fills to ensure all users can extract the information. This principle applies also to labels and other layers added to images.

- i. Submissions must be on CD-ROM Read-only electronic media
- j. All digital media shall be provided with the following label data on both the CD and Case:
 - i. SCPB Number if known, and Municipality, Tax Block, and Lot number
 - ii. Applicant Name
 - iii. Submittal Date
 - iv. Revision number

4. CAD FILE STANDARDS:

- a. Computer-Aided Design (CAD) is a tool used for producing design documentation and plan sets required for the planning application process. It can also provide a common medium of information exchange. In fact, the true power and potential of CAD is the ability to re-use and share the information contained within the CAD document. The key to realizing this potential is common organizing principles and standards for the production and dissemination of CAD information. The standard organization of files, layers and entities, as well as standardized software applications is essential for effective work and communication.
- b. This section establishes performance standards for CAD data provided to the County of Sussex with the application package. The County does not intend to influence the methods or means of practice of outside consultants. Consultants may use any CAD system to develop design documents as long as the delivered data conforms to the County's CAD data standards.
- c. Much of the CAD data created through the planning process will be brought into the Sussex County GIS parcel data system. Data received by the County must follow these CAD data standards to be readily useful within that system
- d. All Applicants must provide electronic copies of their design data with the application; application revisions shall be accompanied by revised electronic data submissions. In order to protect the Applicants and their professionals, CAD files shall be accompanied by a limited license form which states that the CAD files are for County purposes Pursuant to the application only. Information from the CAD file will be on public record, but electronic source files will not be maintained nor made publicly available.
- e. Electronic CAD files for Minor Subdivisions, Final Site Plans and Final Subdivision shall be submitted in conformance with the standards listed below.
- f. CAD Drawings: Consultants shall deliver at minimum, a CAD document in electronic format to the county. The document(s) must include all supporting CAD data and must be delivered as follows:
 - i. In the Native CAD format as read only

- ii. In the CAD “dxr” file format.
- iii. Using the data structure defined these standards.
- iv. File naming shall comply with the standards established for Office Documents.
- v. Files shall be purged of extraneous information.
- g. Standard Minimum Information Required: Each Applicant shall provide, on separate layers, the following data: (Submittals may contain other data provided it is organized on easily identifiable layers.)
 - i. Right-of-way with descriptors.
 - ii. Property Lines (Existing and Proposed) with descriptors.
 - iii. Lot and Block descriptors.
 - iv. Easements
 - v. Utilities, (existing and proposed) each type on an individual layer.
 - vi. Monumentation with State Plane Coordinates.
 - vii. Roadway pavement markings with descriptors.
 - viii. Traffic control devices with descriptors.
 - ix. Topographic data including contours at appropriate elevations.
 - x. Wetlands and Flood Plain delineation limits.
 - xi. Technical Requirements for the CAD data:
 - (1) Blocks shall not be exploded.
 - (2) Drawings shall be purged.
 - (3) Drawings shall be zoomed to the project extents.
 - (4) All layers shall be on.
- h. Text and Fonts: Utilize only industry wide supported fonts, no custom fonts can be accepted. All fonts shall be provided with CAD file.
- i. Layers: Specific layers shall be created and drawings organized such that the following data is isolated to the respective layer. Layer naming shall be readily discernible and generally follow the naming convention provided below. Layer naming deviating from the convention below will require layer name definitions and contents.
 - i. COS_PRPL: layer containing all proposed property line data
 - ii. COS_EXPL: layer containing all existing property line data
 - iii. COS_PRRROW:
 - iv. COS_EXROW:
 - v. COS_Easements:
 - vi. COS_UTL_”TYPE”
 - vii. COS_TOPO
 - viii. COS_TXT_”Associated Item Descriptor”
 - ix. COS_WETLANDS
 - x. COS_FLOODPLAINS

- j. Drawing creation:
 - i. All lines shall intersect.
 - ii. When possible, proposed lots, easements and rights-of-ways shall be comprised of closed polygons.
 - iii. All drawings shall be created at 1 to 1 "full scale".
- k. Coordinate Reference: All submittals shall be in NAD 83 New Jersey Plane Coordinates in U.S. feet and North American Vertical Datum 1988. The County Engineer may accept other coordinate data formats, on a case by case basis, if requested by the Applicant.

D. CONFORMANCE TO CONDITIONS OF APPROVAL

1. Failure to submit and comply with any of the conditions of minor subdivision or of either preliminary or final major subdivision or site plan approval subsequent to the receipt of Municipal final approval or a building permit shall be conditions for:
 - a. Refusal of the County to issue a road opening and/or Access Permit for said development.
 - b. A request to the local approval authority to revoke or to withhold the local Building Permit and/or Certificate of Occupancy for said development.
 - c. Forfeiture of any performance bond or other payment guarantee required by the County to cover the costs of improvements over which the County has control.
 - d. Appropriate court action initiated by the County Planning Board.
2. A written Notice of Noncompliance shall be forwarded by Certified Mail to the Municipal approval authority and Applicant requesting compliance with the conditions of subdivision or site plan approval within a period of time of not less than five (5) working days from the date such noncompliance is determined.

E. FEE SCHEDULE

Fees are established and amended from time to time by resolution of the Board of Chosen Freeholders. Fees shall be paid to the Sussex County Planning Board at the time of submission of the application. The most recent available resolution at the time of publication is provided in Appendix **Error! Reference source not found.** Most recent fees are provided on the County website. Checks shall be made payable to "Sussex County Planning Division."

1. When site plan or subdivision plans are revised to comply with Municipal or County requirements, the revised plat or plats will be subject to such further fees as established by the Freeholder resolution which sets such fees.

2. Subdivision or site plan plats received by the County Planning Board more than one year after the reception of a prior submission will be subject to payment of those fees then applicable as if the same were a first submission of such plat.
3. All required fees shall be paid at the time of submission of the application in accordance with the provisions of the duly adopted fee schedule available at the Planning Division or on the Sussex County web site. The omission of payment shall be cause for the application to be deemed administratively incomplete and disapproved for County Planning Board consideration. Checks shall be made payable to "Sussex County Planning Division".

F. WAIVER PROCEDURE

Waivers are a means by which the Planning Board, for specific reasons, may reduce or eliminate a requirement. The process of a waiver begins when an Applicant requests a waiver in writing in the form of a cover letter, sent to the Division of Planning, stating reasons for the request and providing supporting diagrams or information to support the argument for obtaining a waiver from a County standard.

Waiver requests shall include a narrative statement from a licensed professional planner, engineer, surveyor or architect as appropriate indicating the reasons for deviation from the standard. Such narrative shall incorporate an analysis of each standard from which the waiver is sought along with an opinion as to the effect of any waiver on public health, safety and welfare with particular emphasis on the impact of the proposed development on usage of the County road or facility by motorists, cyclists and pedestrians.

That request is then reviewed by Planning and/or Engineering staff and scheduled to be heard by the Planning Board. The engineering reviews are sent to the Applicant and board members prior to the Planning Board Meeting. This procedure can take over a week, and the Applicant should be aware of the deadline imposed by the planning division before waivers can be placed on the agenda.

The Board shall consider all waiver requests including all reports and recommendations from Board professionals. Matters deemed relevant by the Board (e.g. character of adjacent land use, proposed land use, actual and statutory speed limits, road geometry, location within or without a center identified in the Sussex County Strategic Growth Plan as amended, and the degree to which the standard is to be waived) shall constitute the basis for action on a waiver request. The Board shall make its determination, setting forth its findings and conclusions by resolution.

Wherever in these Standards reference is made to acceptance or approval by the County Engineer of a proposed amendment or alternative to any design standard specified herein, the request to the Engineer for such amendment or modification shall comply with the requirements of this waiver procedure, and the Engineer's

acceptance or approval shall not constitute a waiver, but it shall be reported to the Board for its consideration as provided above.

At the developer's request, and for good cause shown, the County Engineer shall have the discretion, after the Board has granted preliminary or final approval, to grant minor "field changes" to address unanticipated conditions arising at the time of actual construction.

G. PERFORMANCE GUARANTEES AND OTHER PAYMENTS

Performance Guarantees or Posting of a bond may be required as described in the ordinance in the Appendix, IX - A.7.

1. After approval of an application and prior to construction (or filing of a final plat) the Applicant must submit to the County Planning Board performance guarantees to insure the construction of all physical improvements as may have been required by the County Planning Board's approval. After acceptance of such improvement(s) the applicant shall provide a maintenance bond which shall remain in effect for not more than two years from the date of such acceptance.
2. The amount of performance guarantees and maintenance bonds, together with the amount of the applicant's payments in lieu of construction of County road, bridge or infrastructure improvements, and the applicant's proportionate share of the costs of future installation of same shall be provided by the Applicant's engineer for review and approval by the County Engineer. After review and approval by the County Engineer the estimates shall be provided to the County Planning Board for its review and consideration for acceptance. Such estimates shall include the costs of all improvements and infrastructure required by the approval, and at a minimum shall include the costs of all proposed work items within the county right-of-way and traffic maintenance costs. The amount of Performance Guarantee and Maintenance Bond for shade trees along County roads (when applicable) shall follow the same procedure.
3. Performance Guarantee and Maintenance Bonding shall be provided in conformance with the Sussex County Policy entitled "Procedure Governing Bonding Requirements for Division of Engineering Permits and Sussex County Planning Board Approvals" adopted by the Sussex County Board of Chosen Freeholders on August 23, 2006, as amended. Non-cash bonds must be reviewed and approved as to form by County Counsel prior to approval of the associated development application.
4. Performance Guarantee and Maintenance Bonding shall be provided as needed to concurrently satisfy requirements of the planning application process as well as conditions set forth within Road Opening or Access Permits issued by the Sussex County Division of Engineering. Release shall require acceptance by the County Engineer confirming that all obligations have satisfactorily been met by the Applicant.

5. The Performance Guarantee shall be retained until all improvements have been completed to the satisfaction of the County Engineer and the County has received as-built plans for the improvements, and has formally accepted the improvements.
6. In cases where the County has a capital improvement project scheduled which would encompass the required infrastructure modifications and the county project has been funded within the County's 5-year Capital Improvement Program, the county may accept a contribution of monies in lieu of all or part of the improvements mandated by the Land Development Standards and/or required by the County Engineer from the Applicant. In instances when the County accepts a contribution in lieu of improvements, the approval of a subdivision or site plan shall be further conditioned on the receipt of such contributions in the form of a Certified Check made out to the "Treasurer, County of Sussex", and deposited in an account reserved for such improvements.
7. Fair Share Financial Contributions: At the written request of the applicant the County may accept a proportionate share contribution toward the cost of constructing capacity improvements of infrastructure attributable to the proposed development. These improvements may include roadway and structure widening, intersection improvements, and structures.
 - a. Alternately, the County may require the Applicant to construct the improvement at the Applicant's expense and under County supervision as follows:
 - i. Those improvements which are made necessary by the new development shall be entirely the Applicant's responsibility and not considered in the fair share determination. Examples of these improvements would include acceleration lanes, deceleration lanes, left turn lanes and traffic signals located at the Applicant's access point.
 - ii. Those improvements or amenities intended or needed to facilitate the desirable safe operation of an infrastructure system shall be entirely the Applicant's responsibility and not considered in the fair share determination. Examples of these improvements and amenities would include things such as, pavement crosswalks, lane markings, signs, walkways, bikeways and shoulders.
 - b. The fair share proportion at a location shall be the Mitigation Costs multiplied by the Contribution Factor (Mitigation Costs)x(Contribution Factor), determined as follows:
 - i. Contribution Factor: Based upon system capacity impacts:

$$(1) \text{ Transportation Contribution Factor} = \frac{ADTp}{ADTe + ADTp}$$

Where: ADTe = existing two way ADT
 ADTp = project generated ADT (two-way, no splits)
 - (2) Stormwater contribution factor shall be computed on the basis of the applicant's acreage as a proportion of the total acreage of the drainage

basin involved plus 10% for contingencies, in accordance with N.J.S.A. 40:27-6.2.

- (3) Impacts to facilities not governed by ADT or stormwater, including but not limited to pedestrian access, shall be handled by the County on a case-by-case basis. The County will generally follow the formula:

$$\text{Contribution Factor} = \frac{X_D}{X_D + X_E}$$

Where: X_D = Additional quantity resulting from proposed development

X_E = Existing quantity

- ii. Mitigation Costs: Costs reflective of the entirety of the required improvements, including:
 - (1) Design and permitting
 - (2) Right-of-way acquisition
 - (3) Construction
 - (4) Construction Management
 - c. When the County has accepted a fair share contribution in lieu of completion of the identified improvements the following condition shall apply to the approval:
 - i. Improvements needed to offset negative impacts to the public health and safety MUST be completed prior to commencement of any development activities related thereto. No development activity shall commence until such time as the required infrastructure improvements have been completed. When the Applicant opts, with the County's consent, to contribute a proportionate share contribution in lieu of completion of the required upgrades or improvements the Applicant accepts and understands that commencement of the proposed project is contingent upon completion of said upgrades or improvements. Additionally, the Applicant accepts and understands that projects programmed into the County Capital Project Improvement Program schedule are contingent upon completion of required project design and permitting as well as predicated upon availability of project funding. As such, although the County may have the project scheduled into the Capital Project Improvement Program, completion dates are subject to modification reflective of actual time frames for design and permitting process and the allocation of adequate funding.
 - ii. At the Applicant's request and sole expense, the County will consider allowing the Applicant to design and construct required infrastructure improvements under County supervision in advance of a planned capital improvement.
8. Contributions shall only be considered by the County when:
- i. There is a reasonable expectation by the County that the programmed capital project will be completed within a 5 year period.

- ii. Postponement of the infrastructure improvements will not jeopardize public safety or welfare.

Any improvement not meeting the above parameters shall be installed by the Applicant prior to completion of the proposal.

9. The County Treasurer shall provide a suitable depository for the following described kinds of monetary transactions with the County:
 - a. Proportionate Share Infrastructure Payments - Proportionate share of infrastructure payments shall be made payable to the "Treasurer, County of Sussex" and shall be submitted to the County Planning Board for record and transmittal to the County Treasurer. Such funds shall be used only for the specified County improvement unless such project is not initiated for a period of ten (10) years, pursuant to N.J.S.A. 40:27-.2, at which time those funds for each specific project reaching that time limit shall be transferred to the general fund of the County, provided that no assessment by the County for such facilities shall be thereafter levied against the owners of the land upon which the Applicant's prior contribution has been based.
 - b. Performance Guarantee Payments - Shall be in conformance with the Sussex County Policy entitled "Procedure Governing Bonding Requirements for Division of Engineering Permits and Sussex County Planning Board Approvals" adopted by the Sussex County Board of Chosen Freeholders on August 23, 2006, as amended. Performance Guarantee payments shall be made payable to the "Treasurer, County of Sussex" and shall be submitted to the County Planning Board, with referral to the County Engineer, and transmission to the County Treasurer. Such payment shall be based upon and submitted with the written statement by the County Engineer that specifies the applicable construction standards for the required improvement.
 - c. Maintenance Bonds - Maintenance Bonds shall be in conformance with the Sussex County Policy entitled "Procedure Governing Bonding Requirements for Division of Engineering Permits and Sussex County Planning Board Approvals" adopted by the Sussex County Board of Chosen Freeholders on August 23, 2006, as amended. All payments and bonds shall be submitted to the County Planning Board, referral to the County Engineer, and Transmittal to the County Treasurer.
 - d. All performance and maintenance payment and bond forms shall be approved by the County Planning Board Attorney and/or by County Counsel.
10. Guarantees shall not duplicate Municipal Bonds. Any monies or guarantees received by the County under this paragraph shall not duplicate bonds or other guarantees required by Municipalities for Municipal purposes.
11. All work within a county right-of-way must be bonded with the County; bonds or guarantees held by Local Governments will not be accepted for work items within or impacting a county right-of-way.

12. Release of Performance and Maintenance Bond Guarantees

Regarding releasing of bonds, refer to the Department of Engineering and Planning Administrative Procedure entitled, "Procedure Governing Bonding Requirements for Division of Engineering Permits and Sussex County Planning board Approvals" in Appendix, Chapter IX - A.7

V - DESIGN STANDARDS

A. GENERAL

1. All developments subject to County jurisdiction pursuant to the County Planning Enabling Act, N.J.S.A. 40:27-1 et seq., which adjoin, include, or impact County roads, County bridges or other structures, or County drainage facilities shall be designed in accordance with the standards and requirements set forth in this Ordinance.

B. IMPROVEMENTS

1. The County Planning Board, upon recommendation by the County Engineer, shall require developments to include physical improvements for the safety and convenience of the traveling public. Improvements shall include but are not limited to: the dedication of additional rights-of-way for roads or drainage-ways, adequate drainage facilities and easements, additional pavement widths, grading of rights-of-way, curbs, sidewalks, crosswalks, bicycle facilities, shade trees, soil erosion and sediment control, stream protection, stormwater management, marginal access streets, reverse frontage, off-street parking facilities, plus on or off tract highway and traffic safety improvements necessary to correct potential traffic and safety hazards which would be created by an increase in traffic volumes or impediments to traffic flows caused by the development.
2. Off tract improvements will be required by the County Planning Board to remediate any degradation of service or negative impact to county roads or county drainage facilities resulting from the proposed development or subdivision.
3. Appropriate traffic calming facilities and techniques shall be incorporated into all designs. Designs should be tailored to promote conformance with target operating speeds which have been deemed safe and appropriate by the Sussex County Planning Board for adjacent land use Transect Zones as described herein.

C. ACCESS STANDARDS

1. General: The following design standards shall govern design of any existing or proposed roads, streets or driveways or other access connecting with any County road system. Sussex County Standard Design & Construction Details are included in Appendix C.

2. **Roadway Type Classification:** Roadway Type Classification describes both the function and the character of a roadway. The two primary classifications used within this manual include:
 - a. **Functional Classification:** Roadways function as arterials, collectors, or local streets. A Functional Classification Map is available for reference on the County Web Site. A roadway of a specific functional classification may contain various transect segments dependent upon the environment through which the roadway traverses.
 - b. **Character Classifications: (Transect Zones)** Transects are a system of ordering human habitats in a range from the most natural to the most urban. There are six Transect Zones (T-Zones) which describe the physical character of place at any scale according to the intensity of land use, as determined by the Smartcode model integrated development code. Land use types are of somewhat lesser importance in T-Zones. The County has adapted the Transect-based planning descriptions from the Smartcode. The design elements and criteria in this manual have been correlated to the T-Zone through which a road runs. The variation of standards according to the T-Zones will balance the needs of travelers with the needs of the community, thereby producing an optimal human environment. For example, design elements applicable to a T-5 or T-6 transect zone emphasize pedestrian safety and mobility. Transect Zones are defined as follows:
 - i. **T-1 Natural Zone:** Consists of lands approximating or reverting to a wilderness condition, including lands unsuitable for settlement due to topography, hydrology or vegetation. An example of this zone would be County Route (CR) 650, Deckertown Turnpike, located within the Highpoint State Park. Generally speaking, transect zone T-1 is rare for Sussex County Roads and will not apply to development review applications.
 - ii. **T-2 Rural Zone:** Consists of open space, farmland, or generally sparsely settled areas. Access densities will generally be at or below 15 access points per mile. Examples of these environments would include CR 642, CR 521 north of SR 206 and most of CR 635 south of CR 637.
 - iii. **T-3 Sub-Urban Zone:** Consists of low density residential subdivisions with possible retail and public use. These are typically the newer developed areas with residences situated on large lots with increased access spacing. Often access densities will be found in a range of 20 to 30 access points per mile. Marginal roads and reverse access roads are often incorporated into the development schemes. An example of this would include CR 626 between CR 519 and SR 206.
 - iv. **T-4 General Urban Zone:** Includes various residential, commercial and public uses, possibly intermixed. Residential uses are typically developed on smaller lots which are generally less than one acre in size. In Sussex County this would include the typical "Lake Community". This transect zone will often include pedestrian facilities and activity. The areas will have high access densities often between 30 to 50 access points per mile. Examples

would include CR 613 between the Plaza and CR 671, CR 607 between SR 206 and CR 605, CR 669 just north of the intersection with CR 616, CR 622 within the Town of Newton and again in the village of Swartswood and CR 639 south of the Sussex Airport.

- v. T-5 Urban Center Zone: Consists of mixed use building types that accommodate retail, offices and apartments with compact site plans. In Sussex County they will include our more traditional villages such as can be found in the Borough of Branchville in addition to more isolated commercially developed areas. T-5 segments of County Roads represent existing or planned “Main Street” or village environments and include many of the following features: small lots, minimal building setbacks, adjacent sidewalks, on street parking, and streetscapes that encourage pedestrian movements. They will have a high access density along the roadway frontage, often between 50 to 75 access points per mile. Examples would include; CR 616 in the Township of Andover, CR 613 near the Mohawk Plaza, CR 630 in the Borough of Branchville, CR 607 between River Styx Bridge and CR 602, CR 517 in the Borough of Ogdensburg, CR 560 in Layton between the Sandyston Twp. Elementary School and CR 614, and CR 639 north of the Sussex Airport.
- vi. T-6 Urban Core: these are the most vibrant urban places with the greatest variety of mixed use buildings. T-6 zones generally have continuous visually interesting building facades that transform a street into a true public space. This ambiance, sometimes referred to as a “Streetscape”, will include common Center amenities such as minimal building setbacks, walking distance between buildings, sidewalks, on street parking, street furniture such as decorative lampposts and public seating; and a strong sense of place. All movement must feel at home to the pedestrians, such that movements of vehicles can be a steady flow, but be compatible with a walking pace. In Sussex County, T-6 zones are small, such that even a 1000 foot length is reasonable. The Town of Newton has localized sections bordering between the T-5 and T-6 Transect zones.
- vii. SD: Special Districts: Includes sections of County Routes not contained within the previous transect zones or those sections specifically defined by the County as having other requirements or alternate importance. This would include restricted access sections of County Routes in which access densities are typically below 10 access points per mile. Examples would include the CR 517 bypass and CR 565 between SR 206 and Lynn Smith Road.

While these T-Zones are found to be intuitively recognizable, streets will be officially assigned with T-Zones by County staff in the development of its Circulation Plan, or with new applications if needed. Note that T-Zones are NOT determined for each individual lot, but rather determined by the character of the neighborhood, with the character of the proposed development being taken into strong consideration.

Figure V.C.1—Illustration of a gradient development pattern related to the various Transect Zones

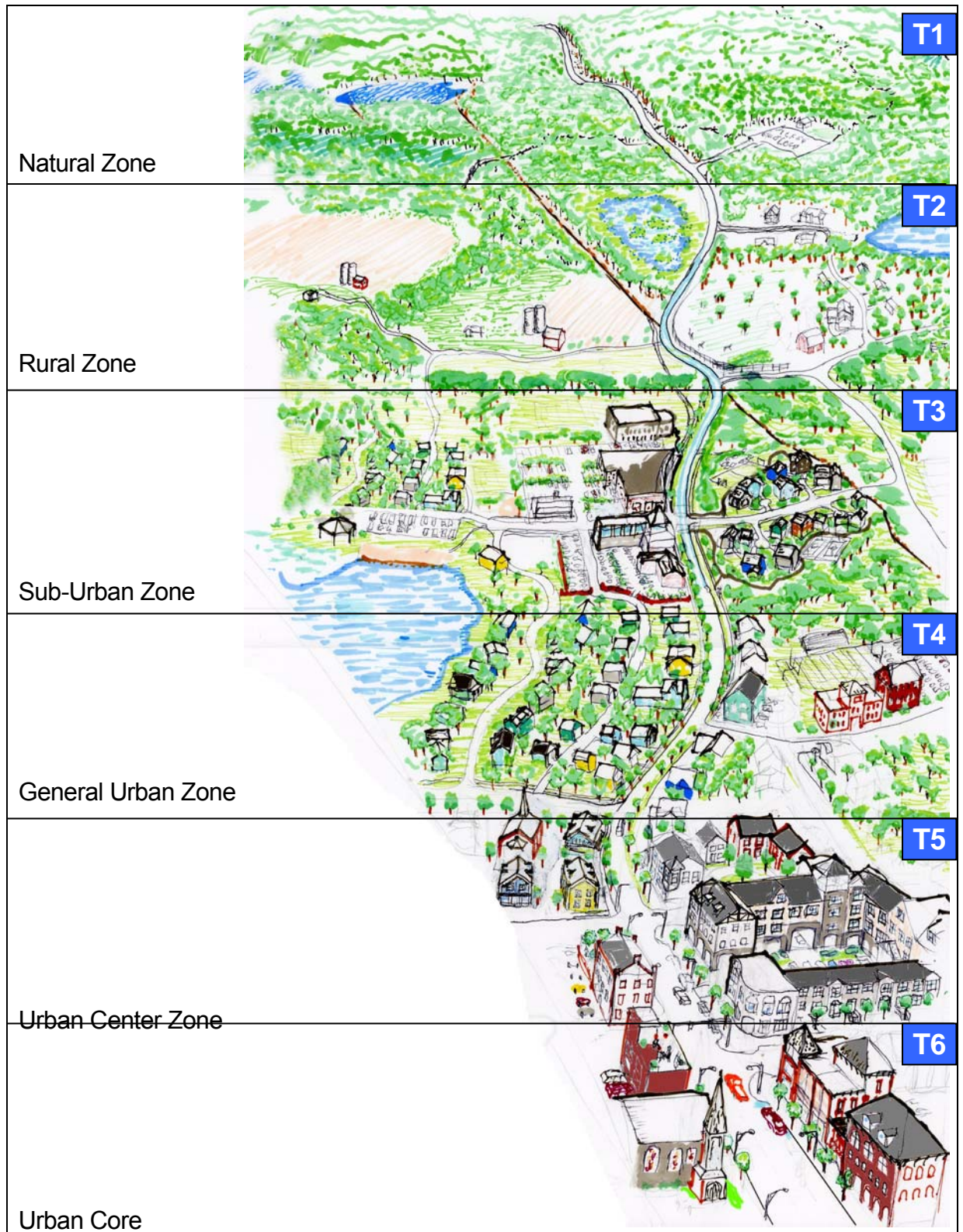


Figure V.C.2—Photographic Examples of Transect Zones



T-1: Natural Zone



T-2: Rural Zone
CR 650 in Montague



T-3: Sub-Urban Zone
CR 616 in Andover Twp.



T-4: General Urban Zone
CR 630 South of Branchville



T-5: Urban Center Zone
Branchville Center



T-6: Urban Core Zone
Downtown Newton

3. Speed: The County has investigated numerous reference sources and collaborated with other governmental agencies in developing a policy on establishing appropriate design speeds. Design speed impacts numerous roadway design elements and has a potential to reinforce a desired operating speed. From the standpoint of highway safety, a stronger relationship between the posted speed, design speed and operating speed is desired.
- a. Definitions specific to Speed
- i. Design Speed: The speed selected to determine the various design elements of a roadway.
 - ii. Desired Operating Speed or Target Speed: The desired operating speed is the speed of traffic that, in the opinion of the highway designer and planner, best reflects the function of the roadway and the surrounding land use
 - iii. Posted Speed: The legal speed limit on the roadway, typically not self enforcing.
 - iv. Operating Speed: the speed at which a vehicle is observed to operate along the roadway typically measured at the 85th percentile speed.
 - v. 85th Percentile Speed: The speed at which 85 percent of the roadway users are traveling at or below. Alternately, this is the speed at which 15 percent to the drivers are exceeding.
 - vi. Pace Speed: the 10 MPH speed range within which most drivers travel, typically found to include 70 percent (70%) of all drivers and the 85th percentile speed.
- b. Design speeds utilized within these standards shall be in conformance with one of the following:
- i. The observed 85th percentile speed plus ten percent (10%) will apply where such data is available. The County maintains 85th percentile data along various county routes and the County Engineer will determine applicability of this data to specific applications. When 85th percentile data is available, the Applicant may verify and/or provide data more specific or current to a project location. 85th percentile studies shall comply with the following minimum guidelines:
 - Radar or pneumatic road tube data collection.
 - Minimum of 100 vehicles for each direction.
 - Favorable weather conditions
 - Weekday, off peak (9:00 a.m. to 4:00 p.m.)
 - Free Flowing traffic via a platoon gap of 8 seconds
 - Unmarked vehicle data collection
 - Submit with report, Map of location, data, worksheet calculations,
 - NJDOT has data collection sheets available.Data shall be submitted to the County Engineer for review and acceptance, or
 - ii. If there is no 85th percentile data available the design speed shall be based upon the legally posted speed adjusted in conformance with the following:

- (1) Posted speed of 30 MPH or below: Use posted speed
 - (2) Posted speed of 35 or 40 MPH: Use posted speed plus 5 MPH
 - (3) Posted speed of 45 MPH or above: Use posted speed plus 10 MPH
 - (4) Unposted section of roadway: 50 MPH plus 10 MPH
- iii. In order to improve safety, especially to users of non-motorized transportation, such as in Centers, residential areas, and roads with designated bicycle lanes, a Desired Operating Speed may be used if permitted by the County Engineer. The design speed may in limited situations be defined, also constrained by posted speeds, according to specific Transect Zones as outlined in the following table:

Table V.C.1 - Desired Operating Speeds					
MPH (See Notes 1,2)					
Transect Zone:	T-1,T-2 (Natural)	T-3 (Rural)	T-4 (Sub-Urban)	T-5 (General Urban)	T-6 (Urban Core)
Arterial	Up to 50	35-45	30-35	30-35	25
Collector	Up to 50	35-45	30-35	30-35	25
Local	Up to 50	30	25-30	25	25

Notes:

(1) *The Desirable Operating Speed shall have the same adjustment factors as defined under 3.b.ii above.*

(2) *In no case should the design speed be selected below the legally posted speed limit. Use of a design speeds as contained within the Desirable Operating Speed table below the legally posted speed cannot be permitted until such time as a speed survey is completed in accordance with the requirements of and certified by NJDOT Traffic Engineering and Safety as required to adjust the legally posted speed along the county route.*

4. Standard Design Elements: Below are guidelines in preparing a geometric design, however, deviations may be necessitated from time to time due to the many variables encountered in the course of preparing a design. The Applicant should be aware, therefore, that although the intersection layout may conform to these guidelines, The County Engineer may find that conditions dictate deviations in order to safeguard the public. The County Planning Board may consider any such recommendation of the County Engineer in making it's decision on an application. The County Engineer may approve design modifications which deviate from the standards contained herein provided the modifications will not degrade the underlying safety to the public. The Applicant shall provide verification data which demonstrates the design can safely accommodate the design maneuver. AASHTO turning templates for the design vehicle shall be used to demonstrate the adequacy of the design. Design vehicles shall not encroach into other lanes or impede the safe flow of traffic.

a. Standard Design Vehicles

- i. Residential Access: AASHTO Type "P" vehicle.
- ii. Multi-Family Residential Access: AASHTO Type "SU" vehicle.

- iii. Commercial Access: AASHTO Type "SU" vehicle, unless proposed facility warrants use of a larger design vehicle. Facilities serviced by larger vehicles shall be designed for the AASHTO Type "WB-62" with a regular cab tractor, unless the Applicant verifies that an alternate design vehicle is applicable.
- iv. Street Access:
 - (1) Residential: AASHTO Type "SU" vehicle, the design shall be configured to accommodate larger vehicles (AASHTO "WB-50") within the pavement area.
 - (2) Streets in Centers with a Pedestrian Realm, provided that trucks are directed towards alternative route(s) such as loading alleys and/or a truck route: Type "P" vehicle. Such alternative route(s) for trucks shall accommodate WB-62 vehicles as per paragraphs iii above or iv(3) below.
 - (3) All other: AASHTO Type "WB-62" vehicle with a regular cab tractor
- b. Access Alignment: The angle of intersection shall be measured at the intersection of the centerline of the intersecting access with the centerline of the County Route. The geometric design of an intersection connecting to a County Route should be governed by sound traffic engineering principles. Unless otherwise approved by the County Engineer, all accesses shall intersect the County Route in conformance with the following:
 - i. Two-Way Operation: Access points used for two-way operation will intersect the County Route at an angle as near to ninety (90) degrees as site conditions will permit. No exception will be granted for less than sixty (60) degrees.
 - ii. One-Way Operation: Access points used by vehicles in one (1) Direction of travel (exit only) shall intersect at an angle to as near ninety (90) degrees as site conditions will permit. No exception will be granted for an angle smaller than forty-five (45) degrees with a County Route.
 - iii. Or radial, in the cases where the roadway alignment is a horizontal curve.
 - iv. All access point angles shall be noted on the design plans.
- c. Roadway Width and Corner Radii
 - i. Streets: All proposed roads shall have intersections with county roads designed in accordance with the current AASHTO standards as noted and modified in the Table V.C.2. The table is representative of the design parameters used for ninety (90) degree intersections, other angles may require adjustment to provide safe access movements. Lane and Shoulder widths shall reflect design values for actual ADT and Design Speed.

Table V.C.2 – Edge-of-Traveled-Way Designs for Intersections

(See Note 3)

All Transect Zones Except as Noted Below - Angle of Turn: 90 Degrees					
Design Vehicle ¹	Width (feet) Minimum Lane/Shoulder ²	Simple Curve Radius (feet)	Simple curve radius with taper		
			Radius (feet)	Offset (feet)	Taper H:V
P	11/4	30	20	2.5	10:1
SU	11/4	50	40	2.0	10:1
WB-40	11/4		45	4.0	10:1
WB-50	11/4		60	4.0	15:1
Transect Zones T-5 or T-6 - Angle of Turn: 90 Degrees					
	Travel Lane/Shoulder (feet)	On-Street Parking lane on Main Street	On-Street Parking lane on Side Street	Radius (feet)	
P	13	0	0	15	
P	13	0	8	10	
P	12	8	8	5	
SU	13	0	0	45	
SU	12	8	0	40	
SU	12	8	8	15	

(1) At minimum, all intersections to county routes shall be designed in accordance with the SU design vehicle standard. When bus or truck traffic from the minor street exceeds five percent (5%) of the total traffic from the minor street, curb radii shall conform to the critical turning radius of the design vehicle.

(2) Lane and Shoulder width variations are possible as noted within other sections of these standards. Modification to lane, Shoulder or Parking Dimensions will require supporting data by the Applicant verifying modifications to the radii provide for the safe flow of traffic through the intersection. Refer to Section O "Road Improvements" for more detail.

(3) County Route widening at proposed intersections (shoulders and as applicable, lanes) shall be designed to comply with the dimensions provided in Section O, "Road Improvements".

ii. Driveways:

- (a) The County has jurisdiction over driveways within the limits of its right-of-way; however, the County is not responsible for maintaining driveways.
- (b) The dimensions of driveways shall be designed to adequately accommodate the volume and character of vehicles anticipated to be attracted daily onto the land development for which a site-plan is prepared. Table V.C.5 contains the maximum and minimum dimensions for driveways connecting to a County road at ninety (90) degrees. Driveways serving large volumes of daily traffic or traffic over twenty-five (25) percent of which is truck traffic shall be required to utilize high to maximum dimensions. Driveways serving low daily traffic volumes or traffic less than twenty-five (25) percent of which is truck traffic will be permitted to use low to minimum dimensions.
- (c) Curb return radii included in Table V.C.5 are specific to the indicated lane configurations. Applicants shall submit design data supporting radii tailored to a specific design. The County Engineer will consider

and may accept modifications of the return radii shown under certain circumstances, for example, left-turn-in curb return radii may be reduced when entrance ways are designed for one way traffic flow. The following must be provided for review and evaluation of reduced or modified curb radii:

- (i) Curb returns must be designed to accommodate the safe and efficient flow of traffic through the proposed intersection specific to the design vehicle.
- (ii) Radii shall be consistent with the design vehicle swept path buffered by at least 2 feet. The Applicant shall provide verification data which demonstrates the design can safely complete the Design Vehicle maneuver. AASHTO turning templates for the design vehicle shall be used to demonstrate the adequacy of the access point.
- (d) Restricted Movement Access points (right-in right-out) shall include design elements tailored specifically for the intended design vehicle. These access points shall at minimum:
 - (i) Include restrictive widths and sweep curves intended to deter unpermitted and unintended movements.
 - (ii) Include concrete vertical curb.
 - (iii) Include proper signage.

d. Vertical Alignment:

- i. Any vertical curve on a driveway shall be flat enough to prevent the dragging of any vehicle undercarriage. The profile dimensions given beyond the sidewalk are maximum for grades and minimum for grade lengths, if Municipal gradients are less they shall apply.
- ii. Should the sidewalk be so close to the curb at a depressed curb driveway as to cause the ramp to be too steep and be likely to cause undercarriage drag, the sidewalk shall be appropriately lowered to provide a suitable ramp gradient.
- iii. Approach Grades:
 - (a) All development streets or non-residential intersections with a County road shall be designed so that the grade of the access does not exceed two percent (2%), either negative or positive, for a distance of 100 feet measured from the County Route existing/future right-of-way line. For good cause shown the County Engineer may adjust an access grade not to exceed three percent (3%) for a distance of 50 feet behind the proposed stop bar.
 - (b) All residential driveways servicing four (4) or less residences shall be designed so that the grade of the driveway does not exceed two percent (2%), either negative or positive, for a distance of 25 feet measured from the edge line of the County road. Residential

accesses serving more than four (4) residences shall be designed in accordance with non-residential standards above.

e. Wearing Surface and Pavement Box:

- i. All Streets and driveways shall be paved in accordance with Municipal standards and Sussex County Standard Design & Construction Details.
- ii. All access points shall be paved in accordance with Municipal standards. Residential access points shall at minimum provide an asphalt wearing surface extending a minimum of 25 feet from the edge of the County Route asphalt. Paving shall not alter the drainage patterns along the county route.
- iii. All intersections exceeding a 20 vehicle Average Daily Traffic count (ADT) shall be paved to the finish grade top course no less than 100 feet from the edge of the county road extended as needed to provide a fully functional drainage system such that there are no drainage impacts to the county road. Extensions shall, at minimum, include the high point of the vertical roadway alignment sloping toward the county road.
- iv. Pavement box configuration shall be in conformance with Municipal standards or at minimum provide a 3 inch dense graded aggregate subbase and 2 inch asphalt wearing surface.
- v. Shoulder pavement shall be replaced such that new asphalt includes the area beginning at the existing white edge line extending into the driveway.

f. All accesses shall be designed with on-site turnaround.

5. Access Location Management: The standards in this subsection are to be used by the site designer to weigh considerations when locating new access driveways. Properties that are too small to accommodate the access spacing defined in this subsection shall not require an access spacing waiver provided the access location selected optimizes safety of the traveling public. When this situation occurs it is strongly recommended that an Applicant meet with the County prior to advancing designs.

a. Permitted Access Points:

- i. Access Points: Unless otherwise approved by the Planning Board only one access point shall be permitted for each site plan or subdivision with frontage along a County road.
 - (a) Redevelopment of existing properties are subject to consolidation of multiple access points unless otherwise approved.
 - (b) All proposed lots of a subdivision shall provide indirect access through use of marginal or reverse frontage roads.
- b. All plans and deeds of perfection shall include the following notation unless otherwise approved by the Sussex County Planning Board: "The County Engineer shall issue no permits for direct access to the county road other than those approved by this application from any of the lots of this subdivision or subsequent subdivisions thereof"

- c. No new access point shall connect on the following portions of a County road; a rotary; a ramp of an interchange; within 250 feet of the beginning of any ramp or other portion of an interchange, signal or street intersection.
- d. Future traffic volumes shall be considered in determining acceptable access criteria for all locations. Traffic projections shall be based upon a minimum duration of 10 years. Growth rates shall be in conformance with NJDOT standards for the County, currently 2 ¼ percent per year. By no means shall the growth rate be less than observed County census data growth rates or those identified in the County Transportation Master Plan.
- e. Traffic Generator Classifications:
 - i. Minimum Use Generator: a single family residence or other activities which will generate less than 50 vehicle trips per day or five (5) peak hour trips.
 - ii. Minor Use Generator: A use generating between 50 and 1,000 vehicle trips per day or less than 120 peak hour trips.
 - iii. Major Use Generator: A use generating in excess of 1,000 vehicle trips per day or more than 120 peak hour trips.
 - iv. Signalized Generators: Generally, signals would be required for use exceeding 5,000 vehicle trips per day or 500 peak hour trips. Other warrants may necessitate the need for a signal installation. Ultimately, installation of a signal will be at the recommendation of the County Engineer as may be deemed appropriate and required to adequately protect the safety and welfare for users of the transportation system and adjacent infrastructure.
- f. Access Category as Keyed to Roadway Type: The County has adopted the national standard of keying access to roadway classification. This standard will only include those levels related to the County Road system. Access Category:

Table V.C.3– Access Categories Keyed to Roadway Type			
Access Level	Roadway Classification	Direct Property Access (a)(c)	General Design Features
4	Minor Arterial	Restricted (b)	Multi-Lane Median may exist (b)
5	Major Collector	Yes	Multi-Lane
6	Minor Collector	Yes	Multi-Lane
7	Rural Local	Yes	Multi-Lane

(a) Access shall be limited to no more than one full access point as per item a above in this subsection, any proposal with multiple access locations including restricted movement (right-in and right-out) access, will require a waiver from the Sussex County Planning Board.

(b) Access along divided sections of County Routes shall be limited to restricted movement access (right-in and right-out), no left turn access shall be permitted.

(c) Whenever possible access shall first be provided from secondary roads and reverse frontage roads as per item a above in this subsection

- g. Access denial criteria: Access will generally be denied under the following circumstances:

- i. When reasonable alternative access can be provided from a roadway with a lower classification.
 - ii. When the denial does not significantly compound problems at nearby intersections of public roads.
 - iii. When the access is located within the functional boundary of an adjacent intersection.
 - iv. When the denial does not undesirably increase travel on residential streets or through neighborhoods.
 - v. When the proposed access does not meet spacing requirements.
 - vi. When the proposed access cannot meet design or safety requirements.
 - vii. When the proposal calls for more than one access per existing land parcel or contiguous parcels with less than 200 feet of frontage.
 - viii. When the access cannot provide safe levels of sight distance.
- h. Location:
- i. Access Curbline Spacing standards will be used to determine the minimum acceptable spacing between access points along a curbline as defined within table V.C.4 – Non-signalized Access Spacing.
 - ii. Access Point Offset - Consideration shall be given to the location of existing access points along the opposite side of the County Route. Where the access point does not connect with the County Route opposite an existing access point, the proposed access point shall be offset from the existing point by:
 - (a) Major Generators: Major generators shall maintain 400 feet between access centerlines. Major generator shall maintain at minimum 300 feet centerline separation between all other access points.
 - (b) Minor Generators shall maintain at minimum 200 feet between all other access points unless otherwise required.
 - (c) Minimum use generators shall maintain at minimum 150 feet between all other minimum use generators.
 - (d) Residential driveways are encouraged to be within 25 feet of a residential driveway on an adjacent property, measured between centerlines, as such a pair of closely spaced residential driveways is considered to be a “common access point”.
 - iii. Access Type:
 - (a) Access along divided sections of County Routes shall be limited to restricted movement access (right-in and right-out), no left turn movements shall be permitted.
 - (b) If an undivided highway becomes divided left-turn access shall be subject to closure.
 - iv. Driveways located along the same side of a County Route shall comply with the following minimum spacing standards contained in Table V.C.4– Nonsignalized Access Spacing:

Table V.C.4– Nonsignalized Access Spacing (feet)

Access Level	Type of Generator		
	Minimum	Minor	Major
4	4 to 5 x DS (a)	7 to 8 x DS	9 to 10 x DS
5	3 to 4 x DS	5 to 6 x DS	7 to 8 x DS
6	2 to 3 x DS	4 to 5 x DS	5 to 6 x DS
7	2 to 3 x DS	3 to 4 x DS	4 to 5 x DS

(a) DS: Roadway Design Speed

(b) Bottom of Range should be applied to lower ADT accesses and upper should be applied toward ADT is the upper ranges

(c) Refer to Nomograph in Appendix F

6. A table of general design element requirements is shown below:

Table V.C.5– Standard Design Elements Non-Street Intersections

(all distance measurements are in feet)

One-Way Operation					
Driveway Type	Width	Depressed Curb Flare ¹	Curb Return Radii ^{1,3}	Sight Triangle	Approach Grade
Residential	12 min 15 max	3	5 min 15 max	Na	+/- 2% for 25 feet
Multi Family Residential	15 min 18 max	3 min 5 max	35 std	60x300 (4)	+/- 2% for 100 feet
Commercial	15 min 20 max	3 min 5 max	35 min 45 max	60x300 (4)	+/- 2% for 100 feet
Two-Way Operation					
Residential	12 min 15 max	3 min 5 max	5 min 15 max	Na	+/- 2% for 25 feet
Multi Family Residential	22 min 32 max	3 min 5 max	35 std	60x300 (4)	+/- 2% for 100 feet
Commercial	24 min 36 max	3 min 5 max	35 min 45 max	60x300 (4)	+/- 2% for 100 feet

(1) Depressed Curb Flares can be used in town center areas and as approved by the County Engineer along other curbed County Routes. All other designs shall include curb return radii unless otherwise approved by the County Engineer.

(2) Driveways connecting to a County road at an angle other than ninety (90) degrees shall have the same widths as shown in the Table above. The width of depressed curb and the radius of curb returns shall provide for the sharpest turning radii of vehicles using the driveway, keeping said vehicles within their prescribed lanes.

(3) Refer to Table V.C.2 for alternate radii correlated with various context areas. Variations in lane widths or Curb Return Radii must be supported by the Applicant with turning template data, refer to section V.C.4.b for submittal requirements.

All Applications must be supported by turning template data verifying proposed design.

(4) Streets designated as T-5 or T-6 may use V.C.D.2.d. Streets in T-4, T-5, or T-6 zones with on-street parking may conform to Figure V.D.1.

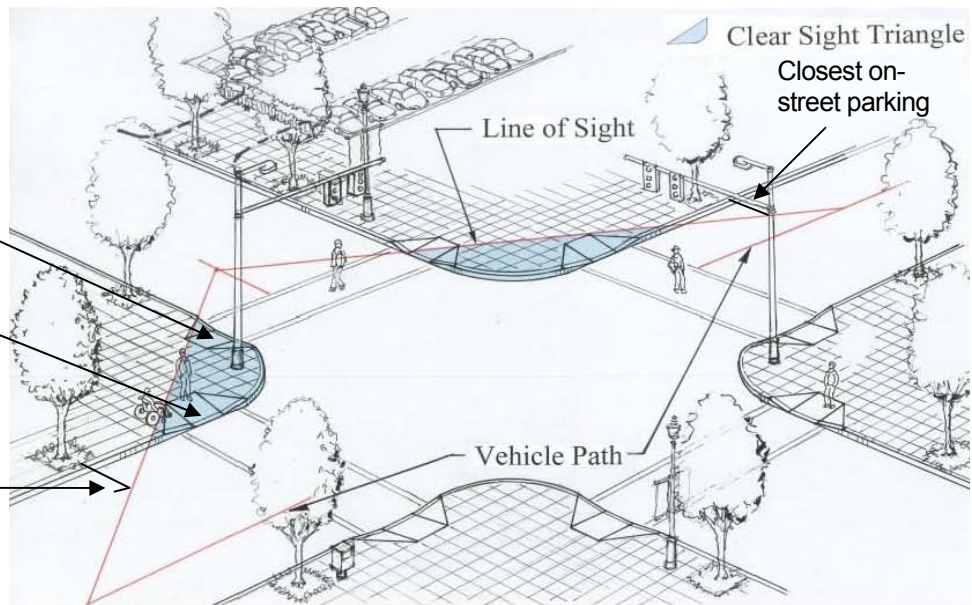
D. EASEMENTS

1. In addition to the rights-of-way dedications required under “DEDICATION AND RESERVATION OF ROAD RIGHT-OF-WAY” in section V.I of this Ordinance, easements shall be dedicated to the County of Sussex or other entity/person as noted herein.
2. Sight Triangle Easements (refer to Figure V.D.2) shall be provided to the County based upon one of the following categories;
 - a. Where any street intersects a County road, 90 feet back on the collector or minor and 300 feet on the arterial.
 - b. When an arterial road intersects an arterial road and either road is in the County road system, two overlapping sight triangles shall be required, formed by 300 feet and 90 feet on each arterial road.
 - c. Sight triangle easements measuring 60 feet back on the access point and 300 feet along the county route centerline shall be provided to the property owner for all non-residential or multi family residential access points.
 - d. Within Transect Zone T-5 and T-6, sight triangle easements measuring 15 feet along the minor street offset from the curb line for access points, and a length equal to the design speed stopping sight distance along the county route centerline shall be provided to the County for all non-residential or multi family residential access points, provided that pedestrian accesses onto crosswalks are included in such triangle, as shown in Figure V.D.1. Note that an additional sight line(s) may be needed for pedestrians accessing a crosswalk onto a street without a stop control.
 - e. Sight Triangle easements shall be cleared and graded to prevent sight obstructions by connecting points 2 feet above the County highway and the intersecting street prior to Access Permit approval or approval of the Final Plat or Final Site Plan. Refer to Standard Detail SC-3 in Appendix C.

Figure V.D.1 -- Sight Triangle with On-Street Parking in T-4, T-5, and T-6

Locations of probable pedestrian & wheelchair access points (perpendicular to slope or ramp, behind rear of curb, using ADA standard of 3' for wheelchair, or behind curb and likely crossing point for pedestrian.)

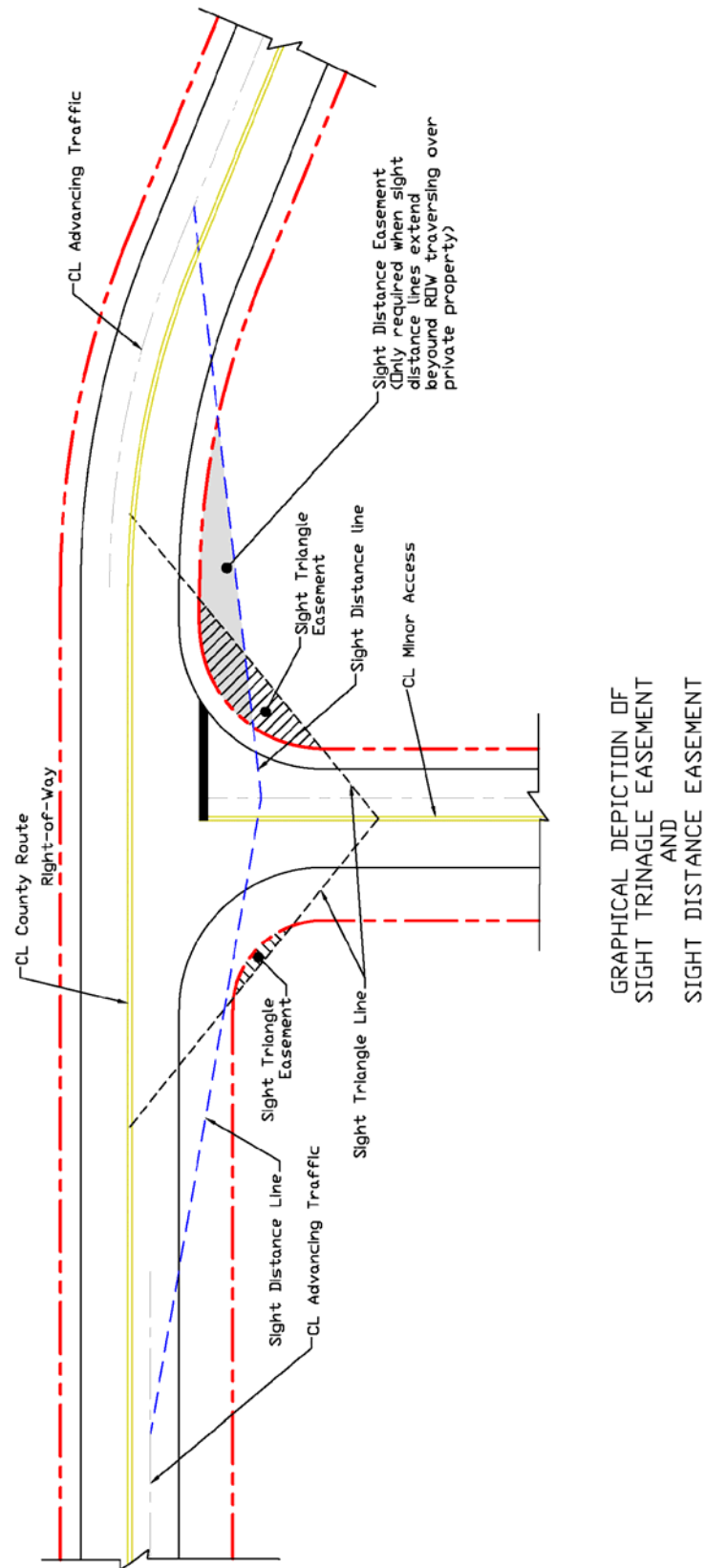
Closest on-street parking space



Credit for illustration:

Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities, Institute of Transportation Engineers
(parallel parking lines & notation added by Sussex County Division of Planning)

3. Sight Distance Easements (refer to diagram V.D.2) are required from adjacent property owners when required sight line traverses outside the Applicant's property over adjacent properties.
 - a. Sight distance easements shall be cleared and graded to prevent sight obstructions in accordance with the sight distance details.
 - b. All easements shall be cleared prior to Access Permit approval or approval of the Final Plat or Final Site Plan. Refer to Standard Detail SC-3 or a similar diagram.
 - c. Sight Distance Easements shall be dedicated to the County, unless the sight easement is for the benefit of an access for one to four single family residence(s), in which case the Sight Distance Easements shall be dedicated to the owners of the lots of said residence(s).
4. Sight Triangle and Sight Distance Easements shall comply with the following:
 - a. Clearing of all easements shall include removal of all tree stumps unless otherwise approved by the County Engineer.
 - b. Slope easements shall be provided in conjunction with Sight Triangle or Sight Distance easements in cases where grading outside the sight easement is required to provide and maintain clear sight lines through the sight easement.



GRAPHICAL DEPICTION OF
SIGHT TRIANGLE EASEMENT
AND
SIGHT DISTANCE EASEMENT

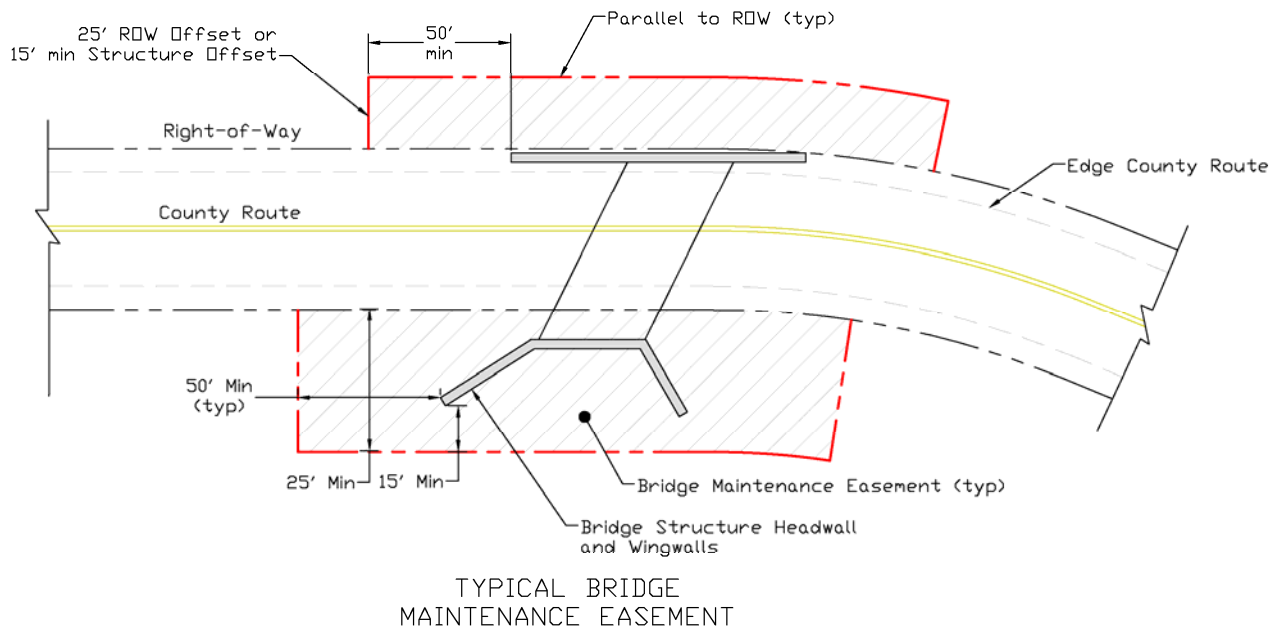
Figure V.D.2 – Sight Distance Easement

5. Discharge Easements: In addition to the rights-of-way dedications required under "DEDICATION AND RESERVATION OF ROAD RIGHT-OF-WAY" in Section V.I of this Ordinance, discharge easements including either (or both) Point Discharge or Sheet Flow shall be dedicated to the County of Sussex by the Applicant based upon any of the following categories;
 - a. All developments over which the County Planning Board has approval jurisdiction which are traversed by a water course, drainage-way channel or stream shall provide a storm-water drainage easement or drainage right-of-way of such width as may be deemed necessary and adequate for the purpose of maintaining and preserving the drainage facility. The existing natural drainage features shall be preserved wherever possible in the design of the development. Drainage Easements shall be of the following type:
 - i. Sheet Flow
 - ii. Point Discharge
 - iii. Other type as may be directed by the County Engineer.
 - b. Any final development plat which is to be recorded in the Office of the Sussex County Clerk shall bear the notation "dedicated to the (Town, Township, Borough of _____,) or County of Sussex, (whichever is appropriate) for storm drainage purposes" along with deed book and page on/or adjacent to the area being dedicated. In addition the Applicant shall furnish the proper official body with a written deed for the area dedicated.
 - c. Where it is determined that a development that will affect a county road or county drainage facility must by necessity, design, or both, discharge storm drain runoff or alter the course of a stream to flow onto or across lands for which there is no drainage easement of record, the Applicant shall secure the necessary easement and/or release and file a copy of the easement and/or release with the proper Municipal body and/or the County of Sussex before final approval is granted to the development.
 - d. Where a development alters the existing flow conditions by way of increased flow rates or flow volumes within an existing County stormwater collection system discharging onto other than a State Open Water, the Applicant shall provide a discharge easement for the altered flow.
6. Bridge Maintenance Easements (See Figure V.D.3): In addition to the rights-of-way dedications required under "DEDICATION AND RESERVATION OF ROAD RIGHT-OF-WAY" in Section V.I of this Ordinance, bridge maintenance easements shall be dedicated to the County of Sussex by the Applicant based upon any of the following;
 - a. The bridge maintenance easements shall generally be of adequate size to provide ample access to the county for maintenance of the bridge or structure.

The maintenance easement shall, unless otherwise required by the County Engineer, be configured as follows:

- i. Side lines perpendicular to the existing (or dedicated) right-of-way lying at a distance of 50 feet distant from the outer most point of the structure in each direction along the right-of-way and extending for a distance of 25 feet away from the existing (dedicated) right-of-way sideline. The sidelines shall be connected with a line parallel to the existing (or dedicated) right-of-way line offset from the right-of-way a distance of 25 feet. At minimum, the line offset parallel to the right-of-way line shall be no closer than 15 feet to the outermost point of the bridge or structure.

Figure V.D.3 – Bridge Easement



E. SIGHT DISTANCES:

1. All new access points connecting to a County road shall be located to meet the adopted sight distance standards. See Appendix D. All Access Points will be:
 - a. Analyzed for intervisibility of oncoming vehicles for the controlling turn movements from the minor and major intersection legs.
 - b. Access points shall not be located at the crests of hills.
 - c. All new access points connecting to a County road shall be located to provide minimum sight distances measured in each direction along the County road using sight distance standards in Appendix D

- d. Where 25 percent or more of traffic using the access point is comprised of single-unit trucks or tractor-trailer trucks, the above required sight distances shall be increased in accordance with Appendix D
2. All applications having or proposing an access to a County road shall include:
 - a. Measured sight distance values for each proposed access point.
 - b. Sight lines depicted in plan view.
 - c. Sight line profiles, and when grading is required, 25 -foot cross sections along with limits of proposed work.
3. Sight distances shall provide the following clearances:
 - a. Minimum of 6 inches above asphalt.
 - b. Minimum of 24 inches clearance from non asphalt surfaces.
4. Location of point from which sight distance is measured.
 - a. Sight distances shall be measured from a point 5 feet behind the proposed stop bar in the case of new streets and site plan driveways.
 - b. Sight distance shall be considered as the least sight distance that is available from a point 5 feet behind the proposed stop bar and a point 5 feet behind the existing white edge line of the county road.
 - c. For minor subdivisions, the sight distance to be considered shall be measured at the most restrictive point at a location that is from 5 feet to 15 feet behind the existing white edge line of the county road.
5. Formulas: All formulas are based upon AASHTO published standards, or as amended by AASHTO and accepted by the County Engineer. Following are the AASHTO formulas for the primary turning movement sight distances impacting County Roadways. Formulas are available from AASHTO for other movements as well as adjustment factors for the formulas provided when criteria deviates from that stated. As permitted by the County Engineer, the below formulas may be used to calculate required design sight distances in lieu of the tabular values provided in the Sussex County Sight Distance Standards.
 - a. Primary analysis shall be provided for the controlling turning movements including at minimum:
 - i. Left Turn from Stopped condition leaving Intersecting Access (Minor) onto Major Road
 - ii. Left Turn from Stopped condition leaving Major Road into intersecting Access.
 - iii. Right turn from intersecting Access (Minor) onto Major Road when controlling.
 - iv. Intervisibility Distance as defined within the Sussex County Sight Distance Standards.

v. Intersection Sight Distance

Table V.E.1 - Intersection Sight Distance - US Customary		
$ISD = 1.47V_{Major}t_g$		
Where: t_g = time gap for vehicle to complete maneuver, see below (seconds) V_{Major} = design speed of Major Road, MPH (refer to section V.C.3) ISD = intersection sight distance (feet)		
Maneuver	Time Gap (Design Vehicle)	
	P	SU
Left Turn from Minor onto Major (Stopped, 2-Lane no median)	7.5	9.5
Right Turn from Minor onto Major (Stopped, 2-Lane no median)	6.5	8.5
Left Turns from Major Road (Stopped, crossing one lane of traffic)	5.5	6.5

vi. Stopping Sight Distance:

- Continuous within the intersecting Access Point area of influence (when required by the County Engineer).
- Stopping sight distance for a vehicle approaching from behind a vehicle stopped along the Major Road awaiting an opportunity to execute a Left Turn from the Major Road into the intersecting Access.

Table V.E.2- Intersection Sight Distance - Equations	
Tangent sections of roadway:	$d = 1.47Vt + 1.075 \frac{V^2}{a}$
Highways on Grades:	$d = \frac{V^2}{30 \left(\left(\frac{a}{32.2} \right) \pm G \right)}$
Where: t = brake reaction time, 2.5s V = design speed, MPH (refer to section V.C.3) a = deceleration rate, 11.2 ft/s ² G = percent grade/100 d = stopping sight distance in feet	

6. Sight Distance Waiver evaluation and denial criteria: Sight Distance Waivers will generally be evaluated using following:

- Does the requested location optimize the available sight distances available along the property frontage?
- Is access possible from a lower classification roadway?
- Can the proposed access meet minimum AASHTO Sight Distance for the legally posted speed?

- iv. Can the location provide AASHTO minimum Stopping Sight Distances for the project design speed?
- v. Are there more than one accesses proposed per existing land parcel or existing lot?
- vi. Does the proposal include sight distance improvements for adjacent existing substandard access points?
- vii. Does the proposal eliminate existing substandard access points?
- viii. Does the proposal incorporate on or off tract improvements that will facilitate conformance with the legally posted speed?

F. PERMITS

- 1. Access Permits shall be obtained from the Office of the County Engineer for all new or modified access points.
- 2. Road Opening Permits shall be obtained from the Office of the County Engineer for all work within the County's right-of-way.
- 3. The Applicant shall provide the County with Permit Numbers, Dates and Expirations from all agencies for which permits are required for the proposed work.

G. ROAD WORK AND WORK WITHIN A COUNTY RIGHT-OF-WAY

- 1. All work within the County's right-of-way shall be completed in accordance with New Jersey Department of Transportation Standard Details and Construction Specifications as modified by Sussex County, unless otherwise permitted by the County Engineer.
- 2. All roadway improvements shall be designed in accordance with the American Association of State Highway and Transportation Officials A Policy on Geometric Design of Highways and Streets latest edition, New Jersey Department of Transportation Design standards, either of which may be modified by the Sussex County Division of Engineering.
- 3. Proposed improvements not in compliance with these industry design standards shall require a Design Exception Report for acceptance by the Sussex County Engineer. The Sussex County Design Exception Manual is available for download from the Sussex County Web Site.
- 4. All road modification or alteration shall include appropriate traffic control and traffic control devices as defined by the MUTCD.

H. TRAFFIC CONTROL AND MAINTENANCE

1. Traffic control and traffic control devices shall conform with the Manual on Uniform Traffic Control Devices and with requirements of the County Engineer or the State of New Jersey, Department of Transportation, Bureau of Traffic Engineering.
2. The Applicant/property owner shall be responsible for all traffic control devices; which may include signals, pavement markings, signs, curbing, and other similar devices. Devices shall utilize the following materials:
 - a. Signs shall have prismatic high intensity sheeting.
 - b. Permanent Pavement Strips shall be long life epoxy; Temporary Strips shall be latex or other removable materials.
 - c. Permanent Pavement Markings shall be high intensity wet reflective tape or thermoplastic, as directed by the County Engineer.
 - d. Signals shall be camera controlled and have LED lenses. All signal designs shall be provided to the County Engineer for review and acceptance. All designs shall be in accordance with County Signal Standards.
3. All work within the County right-of-way shall include appropriate traffic maintenance and work zone safety. All Traffic Maintenance and Work Zone Safety shall be developed in compliance with the Sussex County Division of Engineering Work Zone Safety Set-up Guide, Manual on Uniform Traffic Control Devices and New Jersey Department of Transportation standards. All applications made to the County of Sussex Division of Engineering for Road Opening permits shall be accompanied by the Traffic Maintenance and Work Zone Safety Plan(s).
4. The Applicant may be required to construct or install all traffic related off-tract improvements made necessary by the development. Where applicable, the Applicant may be required to contribute their fair share of the costs for such improvements. Improvements will also include safety related design features such as, but not limited to, bridge improvements, guide rail improvements, sidewalks or bike paths, and sight triangle clearing.
5. If a degradation of service is deemed to be significant by the County Engineer the construction of the proposed application shall be predicated upon implementation of the related safety upgrades by the County or the Applicant. As the County may not have these improvements scheduled or funded, the Applicant, in an effort to expedite the proposed project, may solicit the county for permission to design and construct necessary improvements at their sole expense. Such design and construction shall be coordinated with the Sussex County Division of Engineering.

I. DEDICATION AND RESERVATION OF ROAD RIGHT-OF-WAY

1. All proposed developments which adjoin or include County roads, along which the existing rights-of-way of which do not conform to the right-of-way widths in the following schedule or County Master Plan or Official County Map when adopted, shall dedicate the required additional right-of-way width for the full frontage along the County road or roads.

Table V.I.1--Right of Way Dedication Schedule	
Type – Context Zone	Right of Way ¹
2 Lane – T5 or T6	56 feet (5' Walk, 3' Buffer, 8' Parking, 12' Lane)
2 Lane – T1 to T4	66 feet (8' Grading Buffer, 5' Walk, 3' Buffer, 5' Shoulder, 12' Lane)
4 Lane - T5 or T6	78 feet (56' section plus 11' Lane)
3 Lane Rural - T1 to T4	82 feet (66' section plus 16' center lane)

1. Right Of Way Width and typical half-section roadway description

2. Where the total additional right-of-way is to be secured from just one side of a County road, only one-half (1/2) of the required additional right-of-way shall be dedicated by the development as a condition of approval of the development. The development shall reserve the remaining area of right-of-way for future acquisition and shall so designate the area on the development maps. The building setback line shall be measured and shown from the future right-of-way line.
3. In addition to the above right-of-way requirements, slope right easements shall be provided when deemed necessary by the County Engineer. The additional right-of-way shall be that portion of the property which adjoins an existing or proposed County road or roads and which lies between the existing right-of-way or proposed future right-of-way line of the County road or roads and the limits of slope work.
4. Where either road or both roads are in the County road system, the intersection of right-of-way lines shall be designed to accommodate the curve radii as necessitated by the design standards.
5. Where any road classified as an arterial or collector road intersects with an arterial in the County Master Plan, Official County Map or Functional Classification Map, the right-of-way dedication shall be increased an additional 12 feet along the development frontage or frontage on both roads for a distance of 250 feet from the intersection of the centerline of the roads.
6. The construction of and/or the conveyance of land to the County for left turn lanes, jughandles, and overpasses to a development may be required by the County Planning Board upon recommendation of the County Engineer if one or more of the following conditions pertain:

- a. Where the County Master Plan, County Transportation Master Plan, or Official County Map for a particular County road or County-Wide Traffic Plan exists which sets forth the proposed location of jughandles, left turn lanes, realignments, and/or overpasses.
- b. Where the sight-distance is below that recommended in this Resolution
7. The final development plat which is to be recorded in the Office of the County Clerk of Sussex County shall bear the notation "Dedicated to the (Town, Township, Borough of) or County of Sussex for Road Purposes" which ever is appropriate along with the Deed book and page on the area to be dedicated which shall further be defined by metes and bounds or referenced to the filed map. In addition, the Applicant shall furnish the proper official body with a deed for the area dedicated as defined by metes and bounds.
8. When dedications are required, where no development map is to be filed with the County Clerk, the Applicant shall furnish the proper official body with a deed of the area to be dedicated as defined by metes and bounds. All final plans shall include the dedication book and page.
9. No subdivision with frontage on a County road showing lands controlling access onto County roads shall be approved with reserved strips.
10. No access on a county road shall be designed such that a vehicle will encroach onto the county road to complete any turning maneuvers. All turning maneuvers shall be completed on the subject property.
11. All accesses on a county road shall be designed with on-site turn around of vehicles. No access shall be approved which requires a vehicle to back into a county road.
12. RIGHT-OF-WAY ENCROACHMENTS PROHIBITED: No development which adjoins or includes a County road or roads shall be designed to permit any of the following uses with the County road right-of-way: conduct of private business; erection of buildings, permanent or temporary; sales or merchandising displays, unless located entirely on, but not blocking, a sidewalk in a T-5 or T-6 zone as designated by the Sussex County Engineering and Planning Department; vehicular parking areas, excepting on-street parking, where permitted as described in Section V.X and approved by the Sussex County Planning Board; servicing of vehicles, service equipment and appurtenances thereto; fencing of any kind, to include living and artificial or fabricated types; walls of timber, stone, concrete, metal or other materials, except in T-5 or T-6 zones in Centers as approved by the Sussex County Planning Board and meeting requirements in Section V.X.6.1.h, signs of all types, excepting traffic and regulatory and street signs, or entry or welcome signs in Centers as described in Section V.X and approved by the Sussex County Planning Board; shrubbery and horticultural materials, excepting trees designated to remain or to be planted as a requirement under these regulations.

J. REVERSE ACCESS

1. Reverse Access: For a major subdivision with frontage on a County road, the following is required:
 - a. The access shall be on the reverse side of the County Road, utilizing an internal street or alley, thereby having no direct access to the County road.
2. Where access is available from more than one road or street, the access to any proposed development shall be from the road or street with the lower classification.
3. Waiver Consideration Criteria:
 - a. Where a subdivision involves lands with frontage on a County Route, which due to its size, slope or other peculiar or unusual circumstances makes the provision of a marginal road or reverse access impractical or unnecessary
 - b. Environmental constraints.

K. OFF-STREET PARKING

1. Number of Off-Street Parking Spaces: Each land development subject to County site-plan approval shall provide on its lot the number of off-street parking spaces required by any ordinance of the Municipality in which the land development is to be located. In addition, the standards specified below shall be applied.
2. Off-street parking areas shall be designed to prevent the maneuvering of vehicles into or out of parking spaces or the storage of vehicles within any portion of an entrance driveway in the County right-of-way in accordance with the following schedule:

Table V.K.1 - Entrance Driveway Length	
Number of parking stalls on Site	Minimum distance along entrance driveway from present or where applicable, future right-of-way line of the County road to parking space any parking aisle that has direct access
1 through 20	20 feet
21 and over	30 feet for each 100 spaces or fraction thereof

If the minimum distance required is more than 100 feet, and if more than one inbound lane is provided at the entrance in question, the length of the entrance driveway may be considered as the required length divided by the number of inbound lanes, provided each inbound lane is at least 50 feet long.

3. Off-street parking space, including adjacent parking across lanes or maneuvering space, shall be designed to prevent encroachment by vehicles on or over the

existing or proposed right-of-way of the County road, including the sidewalk area by means of curbing, fencing, or other methods approved by the County Engineer.

L. OFF-STREET LOADING

1. Each land development subject to County site-plan approval shall provide on its lot the number of off-street truck loading or unloading spaces required by any zoning, subdivision, site-planning or other ordinance of the Municipality in which the land development is to be located. In addition, the standards specified below shall be applied.
2. No part of any off-street truck loading or unloading space shall be located within the right-of-way of the County road including the sidewalk area. Off-street truck loading and unloading spaces shall be located and designed to permit any truck to maneuver from a driveway into and out of such space without encroaching upon any portion of a County road existing or proposed right-of-way including the sidewalk area by means of curbing, fencing or other methods approved by the County Engineer.

M. CUSTOMER SERVICE AREAS

1. Temporary stopping space or maneuvering space for customer's vehicles at a roadside business establishment (such as a roadside grocery stand, filling station or drive-in-bank) shall be located so that the stopping or maneuvering space is at least 5 feet back of the existing or (where applicable) future right-of-way line of the County road. Backing out onto street shall be prevented by use of curb devices and wheel stops along frontage except for the driveway or curb cut.

N. SHADE TREES

The following standards apply to trees planted near a County Road ROW, such that the growth of trees by their proximity are reasonably expected to impact the County Road ROW, County property, or County infrastructure after reaching maturity.

1. Shade trees may be required by the County Planning Board with recommendations from the County Shade Tree Commission and the County Engineer. Situations that warrant Shade Trees include, but are not limited to: Creating sufficient traffic calming to induce Desired Operating Speeds as described herein, enhancing a pedestrian realm in T-4 through T-6 Transect Zones, and preventing faster induced vehicle speeds that can result from visual cues from proposed development, such cues often being wider pavement and/or wider clearings adjacent to the roadway.

2. Species of trees must be selected that are suitable to thrive in the soil conditions on the site, have root growth and crown shape that will not be physically intrusive to surrounding utilities or County roads and structures.
3. Trees may not be planted such that their future growth will interfere with utility wires or other interference. If planting under wires, smaller tree species must be selected as appropriate.
4. No trees shall be planted within the right-of-way of any County highway unless a T-Zone and Clear Zone have been designated for the section of road in question by the County Planning and Engineering Department. Designated T-Zones are provided on the Sussex County Website, www.sussex.nj.us.
5. Where a T-Zone is designated and Clear Zone established by the County Planning and Engineering Department, trees must be planted in the County Road ROW but outside the Clear Zone where the Clear Zone does not extend past the ROW boundary. Plantings must follow guidelines in Appendix H.
6. Placement of shade trees shall be minimum of 1 foot outside the Clear Zone or County Road ROW as determined above, or at that point which would allow for proper root and trunk development without encroaching inside the Clear Zone or ROW. As a general rule, trees should be centered between the outer edge of the Clear Zone and ROW boundary if no sidewalk or bike path is proposed. Proposed tree locations are subject to approval of the County Planning Board with recommendations from the County Shade Tree Commission and the County Engineer.
7. The planting distance between trees shall be a minimum of 50 feet and a maximum of 70 feet as required by branch-spread at maturity, except that some flowering trees may be planted a minimum distance of 30 feet apart. Special purpose trees are only to be used as directed by the County Shade Tree Commission.
8. The minimum caliper of the trees shall be 2 inches measured at 3 feet above the ground.
9. The minimum height of the trees shall be 11 feet except flowering trees which may be of lesser height while conforming to the minimum caliper requirements in 4 above.
10. The trees shall be balled and burlapped (B & B) nursery-grown stock except for wild or field-collected types. Burlap shall be removed prior to planting.
11. Planting shall be in accordance with the tree planting diagrams depicted in Appendix H.
12. The soil for back-filling the hole shall be a mixture of three (3) parts loamy soil, two (2) parts coarse sand and one (1) part humus.

13. If the flare-out at the bottom of the trunk is not visible, the soil at the base of the trunk should be brushed out to expose the flare-out at the bottom of the trunk.
14. The surface of the planting area shall be mulched with wood-chips, hay, straw, or other suitable material.
15. Each tree shall be staked. Stakes shall be locust, oak, cedar or other material that will last 2 years. Stakes shall be 2 in. by 2 in. and 6 to 8 feet long.
16. Fastening and support shall be by means of 1-1/2 inch to 2 inch wide canvas tape or other material that will not harm the tree.
17. General methods, advice, and recommendations can be found in "Trees for New Jersey Streets", New Jersey Federation of Shade Tree Commission, Blake Hall - Rutgers College of Agriculture and Environmental Science, New Brunswick, New Jersey, 1965.
18. All planted material shall be properly protected from wildlife.

O. ROAD IMPROVEMENTS

1. Roadway Improvements: All roadway improvements shall be designed in accordance with the current edition of the American Association of State Highway and Transportation Officials Policy on Geometric Design of Highways and Streets. Any deviation from these standards shall be accompanied by a Design Exception Report. Design Exception Reports shall be in conformance with the Sussex County Division of Engineering Design Exception Manual.
2. All proposed improvements shall be in conformance with the New Jersey Department of Transportation (NJDOT) Standard Roadway Construction – Traffic Control – Bridge Construction Details, 2001 as amended by NJDOT or supplemented by the Sussex County Standard Construction Details.
3. Traffic Control Devices shall conform to the Manual on Uniform Traffic Control Devices.
4. Lane and Shoulder widths: At minimum, road widening shall be in conformance with the following table or as required by other sections of standards or design references listed. Note that roadways without a bike path within the ROW or fronting property, or sidewalk of at least 5 feet that can legally accommodate cyclists by local ordinance, must use Table V.P.1 - Bicycle Compatible Roadway Pavement Width.

Table V.O.1 - Lane and Shoulder Widths (feet)

See Notes 1-3 below

Functional Classification: Arterial					
Transect	T-1 or T-2		T-3 or T-4		T-5 or T-6
ADT Speed	< 2000	>2000	<2000	>2000	All
25	na	na	10-4	10-4	10-4
30	na	na	10-4	11-3	11-4
35	11-6	12-8	11-3	11-4	11-4
40	11-6	12-8	11-4	11-6	12-6
45	11-6	12-8	11-4	12-6	12-6
50	11-6	12-8	11-4	12-8	12-8
55	11-6	12-8	12-4	12-8	12-8
Dedicated Median Lanes					
All	12		11		11
Functional Classification: Collector					
Transect	T-1 or T-2		T-3 or T-4		T-5 or T-6
ADT Speed	< 2000	>2000	<2000	>2000	All
25	10-4	10-4	10-4	10-4	10-3
30	10-4	10-4	10-4	10-4	10-3
35	11-4	11-4	10-4	11-4	10-4
40	11-4	11-4	10-4	11-4	11-4
45	12-4	12-4	11-4	11-6	11-6
50	12-6	12-6	12-4	11-6	N.a
Dedicated Median Lanes					
All	12		11		10
Functional Classification: Local					
Transect	T-1 or T-2		T-3 or T-4		T-5 or T-6
ADT Speed	< 2000	>2000	<2000	>2000	All
25	10-3	10-3	10-3	10-3	10-3
30	10-3	11-3	10-3	10-4	10-3
35	11-3	11-3	11-3	11-4	10-3
40	11-4	12-4	11-4	11-6	11-4
45	12-4	12-6	11-4	11-6	Na
50	12-4	12-6	na	na	Na
Dedicated Median Lanes					
	12		11		11 ⁴

1) On Street Parking, when permitted by the County Engineer, can be provided in lieu of the minimum required shoulder width. Minimum of 8 feet parking isle shall be provided in lieu of the shoulder.

2) Shoulder widths may be increased as needed to accommodate other desirable characteristics such as pedestrian or bicycle compatibility.

3) The table denotes lane width and shoulder width as follows: 11-4 is descriptive of an 11 foot lane and 4 foot shoulder.

4) Eleven foot desirable, 10-foot minimum.

P. SIDEWALKS AND BIKEWAYS

1. Sidewalks:

- a. Each land development subject to County approval shall provide a sidewalk paralleling the County road right-of-way if such is required by any zoning, subdivision, site-planning or other ordinance of the Municipality in which the land development is to be located. Additionally, sidewalks will be required within the following context areas: T-5 and T-6, and as directed, T-4. Where no local ordinance requires a sidewalk, the County Planning Board may require the installation of a sidewalk in the County right-of-way in order to protect pedestrian traffic while facilitating vehicular traffic. If a sidewalk is required as a condition of approval under this Resolution or is required by a Municipality, such sidewalk shall be located in accordance with local specifications. The County of Sussex does not maintain sidewalks; sidewalks are usually built and maintained by Municipalities or in accordance with Municipal requirements within County rights of way.
- b. In the event that no local specifications exist the Sussex County Standard Details and NJDOT Standard Details shall apply. The County may, if not required by the Municipality require that all sidewalks built within the County right-of-way include a buffer between the curb and the inside edge of the sidewalk as depicted in Standard Detail SC-11.
- c. Whenever possible, sidewalks shall be a minimum of 4 feet in width and include a minimum 3 foot buffer between the curb and the inside edge of the sidewalk. Sidewalks adjacent to the curb line or in T-4 through T-6 zones shall be a minimum of 5 feet in width.
- d. Where the setback of buildings from the roadway exceeds 20 feet, sidewalk placement is encourage that takes the most direct and shortest route between building entrances on-site, existing sidewalks, and street or driveway crosswalks. Furthermore, sidewalks along the most direct and shortest route between Applicant's building entrances and building entrances in adjacent sites are encouraged, if arrangements can be made between the Applicant and those owners of the adjacent properties.

2. Bikeways

- a. Each land development subject to County approval shall provide a bikeway within or alongside the County road right-of-way if such is required by any zoning, subdivision, site-planning or other ordinance of the Municipality or County Transportation Master plan in which the land development is to be located.
- b. Incorporation of bikeways shall be designed in accordance with NJDOT Bicycle Compatible Roadways and Bikeways.

- c. At minimum, all roadways shall be widened to provide a sufficient width of smooth asphalt to permit the shared use of the roadway by bicycles and motor vehicles. Actual widths for roadways without a bike path in the ROW or fronting property, or sidewalk of at least 5 feet in width that can legally accommodate bicycles by local ordinance, shall be in conformance with the preferred or minimum dimensions in the following Table V.P.1 - Bicycle Compatible Roadway Pavement Width. Note that roads which are significantly wider as a result of improvements due to new development may necessitate traffic calming to prevent an increase in actual vehicle travel speeds, as described in Section V.X below, or by planting shade trees (see Section V.N) as determined by the Department of Planning and Engineering.

Table V.P.1 - Bicycle Compatible Roadway Pavement Width			
Preferred, (Minimum)			
Design Speed	T-4, T-5, T-6 With On-Street Parking	T-4, T-5, T-6 Without On-Street Parking	T-1, T-2, T-3
ADT below 2000			
30 or below	(12 ft SL)	14 ft SL, (11 ft SL)	10ft SL (11 ft SL)
31-40	(14 ft SL)	5 ft BL, (14 ft SL)	4 ft SH (12 ft SL)
41-50	(15 ft SL)	5 ft BL, (15 ft SL)	6 ft SH (3 ft SH)
Over 50	Na	6 ft BL, (6 ft SH)	6 ft SH (4 ft SH)
ADT of between 2000 and 10,000			
30 or below	14 ft SL, (12 ft SL)	12 ft SL, (12 ft SL)	4 ft SH (12 ft SL)
31-40	6 ft BL, (14 ft SL)	5 ft SH, (14 ft SL)	4 ft SH (3 ft SH)
41-50	6 ft BL, (15 ft SL)	6 ft SH, (15 ft SL)	6 ft SH (4 ft SH)
Over 50	Na	6 ft SH, (6 ft SH)	8ft SH (6 ft SH)
ADT above 10,000 or Trucks over 5%			
30 or below	5 ft SH, (14 ft SL)	5 ft SH, (14 ft SL)	4 ft SH (14 ft SL)
31-40	6 ft BL, (14 ft SL)	5 ft BL, (4 ft SH)	6 ft SH (4 ft SH)
41-50	6 ft BL, (15 ft SL)	6 ft BL, (6 ft SH)	6 ft SH (6 ft SH)
Over 50	Na	6 ft BL, (6 ft SH)	8 ft SH (6 ft SH)

Key: SL = Shared Lane, SH = Shoulder, BL=Bike Lane

Source: NJDOT Bicycle Compatible Roadways and Bikeways, Planning and Design Guidelines.

Numbers before parenthesis are the standard for bike routes and otherwise used whenever possible.

Table widths may warrant increases as needed to accommodate substandard sight distances, truck traffic or steep grades.

- d. Other larger lane or shoulder widths as warranted by other portions of these standards will control.

Q. CURBING

- Curbing shall be installed on each land development requiring site plan approval as determined by the County Engineer, including but not limited to the following conditions:
 - Along any County road designated by the County Engineer, County Master Plan or Official County Map as an Urban Street or Road.

- b. Along any County Road within Transect Zones T-5, T-6, and as directed by the County Engineer, T-4.
 - c. In any site development that includes the installation of sidewalks.
 - d. At any proposed street intersection.
 - e. Non-residential (serving 4 or more residences) and non-agricultural site access points.
 - f. Any access located within a curbed section of a County Route.
 - g. Along any other frontage where the Planning Board upon recommendation of the County Engineer finds that curbing is necessary by reason of a drainage condition or for reasons of public safety.
2. The alignment and grade of curbing is to be determined by that established or existing in the area and subject to the approval of the County Engineer.
3. Curbing shall:
 - a. Be located at minimum, 17 feet from the centerline of a standard two-lane county route. This may be modified as needed to accommodate alternate roadway widths. The offset distance may be reduced by the County Engineer as needed to match existing adjacent curbing centerline offset distances.
 - b. Be designed to provide a minimum 5 foot roadway shoulder or as defined under table V.O.1.
 - c. Terminate with a 10 foot taper curb parallel to the county road traveled way.
 - d. Be transitioned from the curb offset width to the existing edge road using a minimum 50 foot asphalt tapered shoulder to transition from the curb line offset to the existing edge of asphalt.
4. Where a proposed driveway is to serve any land development providing fifty (50) or more parking spaces, curbing shall not be carried across the driveway opening as a depressed curb; but swept back as curb returns as in the case of a street intersection. If the driveway serves a facility having less than fifty (50) parking spaces, a depressed curb driveway may be permitted or required.
5. Where depressed curbs are used at driveways, the following specifications shall apply:
 - a. Flares shall be in conformance with Table V.C.5 – Standard Design Elements
 - b. The union of existing to proposed curb shall occur at the nearest existing curb joint location.
 - c. The horizontal transition of depressed curb from full curb height to depressed curb height shall not exceed 18 inches, except where the sidewalk is narrow and close to the curb so that a portion of the sidewalk 4 feet or less from its outer edge has a slope exceeding 6:1. In this case, the depressed curb

transition may be modified to prevent the outer 4 feet of sidewalk from exceeding a slope of 6:1.

6. Any existing curb openings not required by or approved for use by the development shall be closed with the construction of new curbing.

R. SHOULDER PAVING

1. Each land development requiring County site plan approval shall install paving:
 - a. In the area between the edge of existing pavement and proposed curbing. All existing pavement shall be removed and replaced in accordance with the standard paving details between the road white edge line and proposed edge of pavement or curb line.
 - b. In the pavement taper area which transitions from the end of the taper curb to the existing edge road.
2. All paving shall be designed and constructed in conformance with the Sussex County Standard Design & Construction Details.

S. SPEED-CHANGE LANES

1. Speed-change lanes are auxiliary lanes, including tapered areas, primarily for the acceleration and deceleration of vehicles entering or leaving the through-traffic lanes. The need for a speed-change lane(s) will be evaluated by the County Engineer on a case-by-case basis and construction may be required by the Applicant. Criteria for evaluation will include, but is not limited to factors such as, traffic speeds, volume and character of both the through street and development street or site access. Speed-change lanes can include the use of either or both an Acceleration Lane or a Deceleration Lane. Deceleration lanes have been found to always be advantageous because the driver of a vehicle leaving the flow of traffic has no choice but to slow down. Failure to brake by following drivers because of a lack of alertness cause many rear-end collisions. Acceleration lanes are not as advantageous at stop controlled intersections because the exiting driver has opportunity to merge without disrupting traffic flow.
2. Where a new street or site access warrants acceleration and/or deceleration lanes they shall be provided by the Applicant and designed in accordance with table V.S.1

Table V.S.1 – Speed Change Lanes and Pavement Tapers		
Acceleration Lanes		
Design Speed	Full Width Lane	Taper Length
25 MPH to 39 MPH	200 feet	150 feet
40 MPH to 50 MPH	350 feet	200 feet
Over 50 MPH	450 feet	250 feet
Deceleration Lanes		
Design Speed	Full Width Lane	Taper Length
25 MPH to 39 MPH	150 feet	200 feet
40 MPH and Over	200 feet	250 feet

3. In all cases the full width widened roadway shall be preceded or terminated with an uncurbed, paved taper having a length set forth in the above schedule measured from the end of curb to the existing pavement.
4. Minimum Speed-Change Lane Width shall be 10 feet.

T. MEDIAN LANES

1. The Construction of dedicated median left turn lanes shall be required by the County Planning Board if one or more of the following conditions pertain:
 - (a) Where the County Master Plan or an Official County Map calls for a designated left turn lane.
 - b. Where the development proposes 100 parking spaces or more.
 - c. Where a development proposes less than 100 parking spaces, but generates warrants for a left turn lane as per "Highway Research Record, Number 211, Aspects of Traffic Control Devices, Volume Warrants for Left Turn Storage Lanes at Unsignalized Grade Intersections."
 - d. Design Speed shall be in conformance with section V.C.3.
 - e. Design Hour Volume
 - i. Based on ultimate build-out of the development
 - ii. Projected to 20 years from date of construction of project
 - iii. Either 15 percent% of projected ADT or highest measured peak volume (whichever is greater) shall be used for design hour traffic volumes on county highway.
 - f. Directional splits
 - i. County highway
 - (1) 50/ 50 split
 - (2) 60/40 split
 - (3) 40/ 60 split
 - (4) 75/25 split
 - (5) 25/75 split

- (6) 70/30 split
 - (7) 30/70 split
 - ii. Site trip generation to be analyzed for each of the directional splits listed using the following directional splits for site trip.
 - (1) 50/ 50 split
 - (2) 60/40 split
 - (3) 40/ 60 split
 - (4) 75/25 split
 - (5) 25/75 split
 - (6) 70/30 split
 - (7) 30/70 split
- g. On any County Highway with a Functional Classification as a Rural Minor Arterial or as an Urban Minor Arterial.
- h. On any County Highway with a Functional Classification as a Rural Major Collector or as an Urban Major Collector, where the County Highway has a 20-year projected Average Daily Traffic of 10,000 vehicles per day or greater.
- 2. Design parameters: All median lanes shall be designed in accordance with the Sussex County Standard Design & Construction Details and the following:
 - a. Minimum Lane widths in conformance with Table V.O.1 unless otherwise approved by the County Engineer or required by design volumes.
 - b. Taper lengths:
 - i. Design Speed < 40 MPH

$$TaperLength = DesignSpeed \times ShiftWidth$$
 - ii. Design Speed equal to or greater than 40 MPH

$$TaperLength = \frac{(DesignSpeed)^2 \times ShiftWidth}{60}$$
 - c. Radius: refer to Sussex County Standard Details SC-17 and SC-18
 - d. Stack Length: Minimum of 50 feet or as required by design (refer to Highway Research Record 211 or other applicable design standard.)
 - e. Pavement Markings: refer to Sussex County Standard Details SC-17 and SC-18.

U. TRAFFIC IMPACT REPORT

1. Any land development located along or affecting a County Route will be required (unless otherwise waived by the County Engineer) to submit a comprehensive Traffic Impact Report to the Planning Board if any of the following conditions exist:

- a. Any proposed development which will generate in excess of 100 vehicle trips during the weekday, morning, evening or weekend peak hours using the latest "Institute of Transportation Engineering Trip Generation Rates."
2. The scope of the Traffic Impact Report shall be determined in consultation with the County Engineer and may include off-tract intersections and highway links that may be affected by the development.
3. The following items will be included in the Traffic Impact Report:
 - a. Existing traffic volumes for adjacent and surrounding roadways and intersections, including ADT and Peak Hour weekday and weekend traffic.
 - b. Existing level of service calculations based upon the latest edition of the Highway Capacity Manual.
 - c. Morning & Afternoon peak hour trips generated by the proposed development and any other significant peak. Supporting information must be provided for the estimations.
 - d. Schematic drawing(s) showing development generated trip distribution on surrounding roadway system. Full distribution of the distribution rational must be provided.
 - e. Developed traffic volumes including level of service projections. Levels of service below "C" shall be mitigated.
 - f. Improvements proposed to mitigate traffic impacts. Impacts shall be designed to meet or exceed a Level of service "C".
 - g. Assessment of existing or anticipated traffic safety impacts.
 - h. All data work sheets.

V. DRAINAGE STANDARDS

1. All subdivisions, minor and major, and site plans subject to County approval shall provide for the management of stormwater runoff in a manner consistent with the requirements established by the New Jersey Department of Environmental Protection and the Policies of the County of Sussex.
2. All subdivisions, minor or major, and site plans requiring Sussex County Planning Board approval and proposing a connection to or proposing site stormwater discharge which will be conveyed into a county stormwater collection system shall comply with the provisions of N.J.A.C. 7:8 "Stormwater Management" subchapter 5 "Design and Performance Standards for Stormwater Management Measures". N.J.A.C. 7:8-5.1 Scope term "Major Development" shall be herein after redefined to include all applications meeting the above noted conditions.

3. Any application proposing connection to a County Stormwater collection system shall include on the submitted plan all information relative to the system being connected to. This shall include any structures, grates, inverts, pipe type and size, flow arrows, and the type and location of outfall.
4. All developments shall be required to provide adequate drainage facilities along County roads, and improve existing County drainage structures and facilities requiring enlargement, modification or reconstruction as a result of the runoff or concentration of runoff from the development. New facilities shall be designed to conform to New Jersey Stormwater standards as promulgated by the Department of Environmental Protection. To facilitate the review of proposed drainage facilities for a development, design calculations prepared by the development engineer shall accompany the preliminary plat.
5. Calculations shall include computation of the basin area and the area of the development and the percent of the total basin area occupied by the development. Any application proposing connection to a county stormwater collection system shall include on the plans submitted all information relative to the county stormwater collection system. Information shall include
 - structure type, grate and inverts
 - pipe type, size, slope inverts and flow arrows
 - outfall type, invert and scour counter measures.
6. Designs should be submitted to the County for approval by the County Engineer for new bridges to be constructed on roads to be placed under Municipal jurisdiction, refer to section V.V.18.
7. The design of storm water runoff systems, structures and facilities shall be based on no less than the minimum standards enumerated herein and the requirements of the NJDEP. The minimum standards herein do not preclude high design standards being used.
8. Runoff Design Criteria:
 - a. Calculation of stormwater runoff shall be based upon the USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless Unit Hydrograph, as described in Section 4, National Engineering Handbook (NEH-4), dated July 2002, incorporated herein by reference as amended and supplemented. This methodology is additionally described in Technical Release 55 - Urban Hydrology for Small Watersheds (TR-55), dated June 1986, incorporated herein by reference as amended and supplemented. Information regarding the methodology is available from the Natural Resources Conservation Service website at <http://www.wcc.nrcs.usda.gov/water/quality/common/neh630/4content.html> or at Natural Resources Conservation Service, 220 Davidson Avenue, Somerset, New Jersey 08873; (732) 537-6040. Any other methodology shall require approval by the County Engineer.

- b. For the purpose of calculating runoff curve numbers and groundwater recharge, there is a presumption that the pre-construction condition of a site or portion thereof is a wooded land use with good hydrologic condition. The term "runoff coefficient" applies to both the methodologies. A runoff coefficient or a groundwater recharge land cover for an existing condition may be used on all or a portion of the site if the design engineer verifies that the hydrologic condition has existed on the site or portion of the site for at least five years without interruption prior to the time of application. If more than one land cover have existed on the site during the five years immediately prior to the time of application, the land cover with the lowest runoff potential shall be used for the computations. In addition, there is the presumption that the site is in good hydrologic condition (if the land use type is pasture, lawn, or park), with good cover (if the land use type is woods), or with good hydrologic condition and conservation treatment (if the land use type is cultivation), and with the best rotational crop state (with agricultural crops.)
- c. In computing pre-construction stormwater runoff, the design engineer shall account for all significant land features and structures, such as ponds, wetlands, depressions, hedgerows, or culverts that may reduce pre-construction stormwater runoff rates and volumes.
- d. In computing stormwater runoff from all design storms, the design engineer shall consider the relative stormwater runoff rates and/or volumes of pervious and impervious surfaces separately to accurately compute the rates and volume of stormwater runoff from the site. To calculate runoff from unconnected impervious cover, urban impervious area modifications as described in the NRCS Technical Release-55, Urban Hydrology for Small Watersheds or other methods may be employed.
- e. If the invert of the outlet structure of a stormwater management measure is below the flood hazard design flood elevation as defined at N.J.A.C. 7:13, the design engineer shall take into account the effects of tailwater in the design of structural stormwater management measures. Where open channel flow and inlet control exist. In cases where outlet control, tailwater, and pressure flow exist, piping shall be analyzed using appropriate methodology for pressure flow conditions.
- f. Design Parameters:
 - i. Sussex County New Jersey 24 Hour Rainfall Frequency Data shall be as follows, or as updated by USDA Natural Resources Conservation Services

Table V.V.1 - Sussex County 24-Hour Rainfall Data							
	Design Return Frequency (year)						
	1	2	5	10	25	50	100
Rainfall (inches)	2.7	3.2	4.0	4.7	5.7	6.6	7.6

- ii. Standard Curve Numbers as published by NRCS and included within the appendix of these standards.

- iii. Hydrologic Soils Groups shall be per NRCS definitions.
- iv. Hydrographs shall be SCS Type III 24-hour storms
- v. No increase in volume of runoff to county structures for 2,10,25,100 year storms without respective updates to discharge easements
- vi. Reduction of peak runoff flows to county structures
 - (a) 2 year; 50 percent of pre-development tributary from the subject property
 - (b) 10 year; 75 percent of pre-development tributary from the subject property
 - (c) 25 year; 75 percent of pre-development tributary from the subject property
 - (d) 100 year; 80 percent of pre-development tributary from the subject property
- vii. No diversion from pre-development water sheds
- viii. Existing recharge areas shall remain and not be diverted or altered to run off the site
- ix. NRCS Dimensionless Unit Hydrograph Model: Standard Unit Hydrograph

9. Design of Open Drainage Channels:

- a. The size and shape of open channels must be designed to meet the requirements of runoff, depth, side slopes, gradient, and velocity imitations in accordance with site conditions. HEC-15 provides a detailed presentation of stable channel design concepts related to the design of roadside and median channels which convey a design discharge less than 50 cfs.
- b. Channel Stabilization shall comply with the requirements established by the New Jersey Standards for Soil Erosion and Sediment Control. Manning Formula shall be used in the hydraulic design of open channels. Where open channel flow and inlet control exist. In cases where outlet control, tailwater, and pressure flow exist, piping shall be analyzed using appropriate methodology for pressure flow conditions.
- c. Allowable soil velocities shall not exceed those stated in the following table, as may be amended by Soil Erosion and Sediment Control in New Jersey, or other appropriate standard:

Table V.V.2 - Allowable Velocity for various soil textures (Source NJ Soil Erosion and Sediment Control Standards)	
Soil Texture	Allowable Velocity (ft/sec)
Sand	1.8
Sandy Loam	2.5
Silt loam, loam	3.0
Sandy Clay loam	3.5
Clay Loam	4.0
Clay, fine gravel, graded loam to gravel	5.0
Cobbles	5.5
Shale (non weathered)	6.0
Concrete	12.0

- d. Channel banks shall be protected by use of vegetation, rip-rap or paving, as design velocity dictates, subject to approval of the Soil Conservation District.
- e. Use of side slopes steeper than 1:3 (V:H) is not encouraged for flexible linings other than rip rap or gabions because of the potential for erosion of the side slopes.
- f. The values of "n" in the Manning Formula shall be taken from the following Tables or as derived using procedures defined within HEC-15:

Table V.V.3 - Typical Roughness Coefficients for Selected Linings See note 3				
		Manning's n ¹		
Lining Category ²	Lining Type	Maximum	Typical	Minimum
Rigid	Concrete Finished	0.015	0.013	0.011
	Concrete Rough	0.017		
	Grouted Riprap	0.040	0.030	0.028
	Stone Masonry	0.042	0.032	0.030
	Soil Cement	0.025	0.022	0.020
	Asphalt	0.018	0.016	0.016
Concrete bottom with sides of:	Dressed Stone		0.017	
	Random Stone		0.020	
	Cement Rubble masonry		0.025	
	Dry Rubble Rip-Rap		0.030	
Unlined	Earth – Straight, Uniform	0.025	0.020	0.016
	Earth – Winding, Rough	0.060		0.040
	Earth – Weeds/Brush	0.10		0.80
	Rock Cut (smooth, uniform)	0.045	0.035	0.025
Natural Stream Channels	Clean, Straight		0.030	
	Sluggish, weeds/brush		0.10	
Gravel Bottom with sides of:	Random Stone		0.023	
	Rip-Rap		0.033	
Flood Plains	Pasture – no brush		0.030	
	Pasture with Brush	0.10		0.050
Rolled Erosion Control Products RECP	Open-weave textile	0.028	0.025	0.022
	Erosion control blankets	0.045	0.035	0.028
	Turf reinforcement mat	0.036	0.030	0.024

¹Based on data from Kouwen, et al. (1980), Cox, et al. (1970), McWhorter, et al. (1968) and Thibodeaux (1968).

²Minimum value accounts for grain roughness. Typical and maximum values incorporate varying degrees of form roughness.

³Table Values based upon data contained within HEC-15, designers should verify and adjust “n” values as recommended by HEC-15 and needed to accurately model channel.

Table V.V.4 - Typical Roughness Coefficients for Riprap, Cobble, and Gravel Linings

See Note 3

Manning's n for Selected Flow Depths¹

Lining Category	Lining Type	0.5 ft	1.6 ft	3.3 ft
Gravel Rip-Rap	D50 = 1 inch.	0.040	0.033	0.031
	D50 = 2 inch	0.056	0.042	0.038
Cobbles	D50 = 4 inch	-2	0.055	0.047
Rock Riprap	D50 = 6 inch	-2	0.069	0.056
	D50 = 8 inch	-2	-2	0.080

¹Based on HEC-15 Equation 6.1 (Blodgett and McConaughy, 1985). Manning's n estimated assuming a trapezoidal channel with 1:3 side slopes and 0.6 m (2 ft) bottom width.

²Shallow relative depth (average depth to D50 ratio less than 1.5) requires use of Equation 6.2 (Bathurst, et al., 1981) and is slope-dependent. See HEC-15 Section 6.1.

³Table Values based upon data contained within HEC-15, designers should verify and adjust "n" values as recommended by HEC-15 and needed to accurately model channel.

⁴Refer to HEC-15 for more specific data and to determine other roughness coefficients.

10. Drainage Systems on County Roads

- a. Adequate drainage facilities shall be required along any County road or within any county right-of-way where an Applicant would create an adverse drainage condition as a result of the construction of the development.
- b. When a proposed development:
 - i. Includes a drainage system, or
 - ii. The proposed development produces an increase in stormwater runoff which enters onto or impacts a county road, county right-of-way, and/or a county drainage system; the following procedure shall be followed:
 - (1) Provide an analysis of the system drainage area analyzing pre-developed and post-developed conditions in accordance with these standards. Design points of interest shall be County structures and drainage systems including the system outfall.
 - (2) Determine impacts to existing facilities specifically:
 - (a) Identify capacity of existing system and its ability to accommodate additional storm water runoff from the proposed development.
 - (b) Design new systems as may be required for proper stormwater management such that adverse impacts are mitigated. System shall be designed such that they comply with the following:
 - (i) Identify capacity of existing system and utilization of capacity.
 - (ii) Identify impacts to existing system by proposed development.
 - (iii) Upgrading of existing systems as may be required to provide adequate conveyance of emergency spillway.

- (iv) Uncontrolled discharge of stormwater runoff into a county right-of-way will not be permitted.
- (v) Unless otherwise approved by the County Engineer, all stormwater flow within a county right-of-way must be managed through the use of underground piped collection systems.
- iii. The Applicant shall provide plans signed by a professional engineer licensed in the State of New Jersey detailing required improvements for the applicable design storm such that the capacity and design of the County road drainage system will accommodate storm water runoff from the development, these plans shall be presented to the County Engineer for review and acceptance.
- iv. The Applicant shall obtain all applicable discharge easements and provide same to county.
- v. Prior to the commencement of construction or any connection to a drainage system in any County right-of-way, the Applicant shall obtain a Road Opening permit for said connection and/or work from the County Engineer.
- vi. The Applicant shall not proceed with his development until the drainage system has been installed/upgraded and all easements secured.

11. Design of Stormwater Collection System Piping:

- a. The hydraulic characteristics of storm drain pipelines shall be calculated using the Manning Formula where open channel flow and inlet control exist. In cases where outlet control, tailwater, and pressure flow exist, piping shall be analyzed using appropriate methodology for pressure flow conditions.
- b. Pipes shall be designed to carry the maximum runoff when "flowing full".
- c. The minimum design velocity shall be 2.5 feet per second.
- d. The maximum design velocity shall be 10 feet per second
- e. Piped stormwater collections systems shall be designed for a 25 year storm unless they accept discharge from a stormwater management facility. System accepting discharge from or integral to a stormwater management facility discharge shall be designed to carry the peak design storm outflow. Systems receiving discharge from an emergency spillway shall be designed to accommodate flows as defined under section V.V.15
- f. The values of "n" in the Manning Formula for pipe shall be in conformance with the following table:

Table V.V.5 - Manning Formula Values	
Concrete	0.013
HDPE	0.013
Plastic	0.012
Corrugated Metal	0.025
Cast Iron	0.013

- g. Minimum pipe diameter shall be 15 inches.

- h. Minimum pipe slopes shall be 0.5 percent
- i. A drop of 0.1 foot shall be provided across each inlet or manhole between pipe inverts.
- j. Transitions in pipe size, changes in pipe slope, changes in horizontal direction and/or junctions shall be located in an inlet structure designed to accommodate same.
- k. Pipe of 30 inches in diameter and larger may be laid on a radius provided the radius is no less than twenty (20) pipe diameters.
- l. Ends of pipes starting or ending in ditches or streams shall be encased in headwalls or flared end sections.
- m. All pipe outfalls shall incorporate riprap aprons or scour holes designed in accordance with soil erosion and sediment control design standards published by NRCS.
- n. Pipe used in county right-of-way shall be class III reinforced concrete, wall B, or HDPE equivalent pipe if accepted by the County Engineer.

12. Design of Inlets

- a. Inlet spacing shall be such that the white edge line is not flooded during the 25-year storm; inlet spacing shall not exceed 300 feet.
- b. On grades in excess of 5 percent, inlets shall be paired or separated by 5 feet along the slope.
- c. Inlets shall be located at the PC and PT of curb radius, not within any curves.
- d. Shall be located to intercept stormwater before water crosses the intersection, crosswalk or enters the county road.
- e. Constructed in accordance with current NJDOT standards as modified by the County Engineer.
- f. Roadside inlets shall include a paved apron a minimum of 2.5 feet from the edge of the inlet. The apron shall be graded to direct sheet flow into the inlet.
- g. All but water quality sump inlets shall be constructed with flow-through bottoms.
- h. Hooded sump inlets shall be incorporated into the drainage design such that the hooded/sump inlet is located just prior to a connection with the county's system and when improvements include the county system a hooded/sump inlet shall be included just upstream of the system discharge or as directed by the County Engineer. All hooded sump inlets shall be designed to obtain maximum water quality, design shall conform with the hood manufacturers recommendations and as approved by the County Engineer.
- i. Bicycle safe grates and heads in compliance with NJDEP standards shall be used on all inlets. All inlets shall include the notation "No Dumping Drains to Waterway"

13. Design of Manholes

- a. Manhole spacing shall not exceed four hundred feet.
- b. On grades in excess of 8 percent or where hydraulic characteristics show need, pressure-type manhole covers shall be installed on all manholes.
- c. Construct in accordance with current NJDOT standards as modified by the County Engineer.
- d. All but water quality sump manholes shall be constructed with flow-through bottoms.

14. Detention, Retention, Infiltration, Water Quality and Ground Water Recharge

- a. All Detention, Retention, Infiltration, Water Quality and Groundwater Recharge shall be designed in accordance with applicable NJDEP standards and NJDEP Best Management Practices Manual as may be modified herein or by the County Engineer.
- b. Where required by these standards, state standards, Municipal standards or as determined by the County Engineer, developments must construct detention/retention, ground water recharge or water quality facilities to control the volume of runoff, rate of discharge and/or quality of water being discharged from the site. If more than one set of standards exist the more stringent shall apply.
- c. Increases to site runoff volumes or discharge rates must be accompanied by an easement from the downstream point of discharge property owner allowing same.
- d. All water quality requirements shall be met by maximizing the use of non-structural management practices.
- e. All infiltration devices shall be designed to provide complete infiltration within 72 hours. Infiltration shall also consider and provide for infiltration when ground is frozen.
- f. All stormwater management facilities shall include maintenance and operation plans. Responsibility for maintenance of these facilities shall be clearly noted on the plans, and a document that is signed by the responsible party shall be provided.
- g. All basins shall be designed with pretreatment to maximize the functional life of the stormwater facility. Pretreatment is typically accomplished through use of a grass filter strip, forebay, or a manufactured treatment device.
- h. All basin design shall include soil parameters, seasonal high groundwater table observations, and as appropriate soil permeability rates.
- i. Specific Requirements for Detention Facilities:
 - i. Shall include principal and emergency spillways that are pipes.
 - ii. Outlet Structures shall

- (a) Include a primary outfall conduit no less than 15 inches in diameter.
 - (b) Include anti-seep collars or filter diaphragms.
 - (c) Incorporate self cleaning trash racks.
- iii. Shall not discharge directly over the pond berm.
- iv. Pond side slopes shall not exceed 3:1. All fill sections of berms shall be armored for a minimum 6 inches in depth. Armoring shall extend a minimum of 10 feet beyond beginning of fill sections.
- v. Length to width ratio should be at minimum 2:1 and maximize the distance between the pond inlet and pond outlet.
- vi. Discharge through orifices and over weirs shall consider tailwater conditions. The system shall be analyzed for tailwater and outlet control conditions. Standard formulae shall be used only when open channel flow and inlet control exist downstream of the control structure to the point of discharge. In cases where outlet control, tailwater, and pressure flow exist, piping shall be analyzed using appropriate methodology for pressure flow conditions considering the backwater conditions for the design storm at the point of discharge of the principal or emergency spillway.
- j. Specific requirements for Retention and Infiltration facilities:
 - i. Shall be designed to store entire volume of tributary area without discharge.
 - ii. Shall provide 2 feet minimum freeboard for the high-water design storm which shall be the emergency spillway design storm unless otherwise approved by the County Engineer.
 - iii. Shall provide a piped emergency spillway set at 1 foot above the 100-year design storm high water elevations.
 - iv. Retention facilities should only be utilized to treat the stormwater quality design storm or smaller. Retention and Infiltration may not be used to manage larger design storms unless incorporated with additional management methodologies.
 - v. Refer to Appendix G for additional requirements and general concepts of infiltration basins.

15. Emergency Spillways

- a. Emergency spillways shall be designed to accommodate the following:
 - i. Ponds constructed in cuts except when meeting the requirements of a class IV Dam: 100 year design storm
 - ii. Ponds constructed using fill and Class IV Dams: 150 percent of the one hundred year design storm.
- b. Increases to site runoff volumes or discharge rates must be accompanied by an easement from the downstream point of discharge property owner allowing the same.

- c. Ponds shall be designed with at minimum 1 foot of freeboard between the emergency spillway design storm high water elevation and the top berm of the pond.
- d. High-water elevation shall be established assuming the principal spillway is blocked.
- e. Emergency Spillways shall not be located such that they will discharge or have a potential of discharging into a public right-of-way.
- f. When emergency spillways discharge into a county stormwater collection system the county system shall be analyzed and upgraded as needed to adequately carry the emergency spillway design flow.
- g. Emergency spillway design shall assume failure of the primary outlet structure. It shall be assumed that all lower orifices of the control structure are blocked, and that all flow is weir flow through the top grate of the outlet structure. The emergency spillway design storm shall be routed through the basin.
- h. Primary emergency spillway outlet conduit shall:
 - (a) Have a minimum diameter of 18 inches.
 - (b) Include anti-seep collars or filter diaphragms.
 - (c) Incorporate self cleaning trash racks.
- i. In cases where outlet control, tailwater, and pressure flow exist, piping shall be analyzed using appropriate methodology for pressure flow conditions.

16. Outfalls:

- a. Erosion protection is required when the storm drain outfall velocity at the surface adjacent to a channel, ditch, stream or at any open discharge point exceeds the allowable stable soil velocity. If the natural channel is subject to flooding, the outfall shall be protected from erosion by a headwall, gabions, or other suitable means. Riprap used for erosion control at outfalls shall be evenly graded stones with a top size based on the outfall velocity.
- b. Conduit outfall protection shall be designed in accordance with soil erosion standards published by NRCS. Aprons shall be utilized whenever possible to reduce standing waters.
- c. Rip-Rap sizing and installation shall be in accordance with soil erosion standards.

17. Water Quality:

- a. The County goals for stormwater discharge are to reduce sediments to the maximum extent practicable, to minimize oil and grease impacts, and to trap buoyant debris. Water quality devices shall be incorporated into the design of stormwater collections systems for all sites in accordance with the current edition of the New Jersey Best Management Practices Design Manual.

- b. All connections to a county stormwater collection system shall incorporate upstream stormwater management techniques designed to reduce post-construction load of total suspended solids by 80 percent of the anticipated load from the developed site. Design parameters shall be in compliance with NJDEP N.J.A.C. 7:8 except there is no minimum amount of impervious cover or disturbed area needed to trigger the regulation.

18. Bridges and Culverts

a. Structure Modifications and Construction

- i. Where existing bridges and/or culverts are to be replaced, modified or enlarged, or where a new culvert or bridge is to be constructed which may at a later date be taken over by the County of Sussex, the Applicant and their professionals shall confer with the County Engineer before starting any development or construction plans.
- ii. All bridge and culvert designs shall be completed in conformance with current County Policies.
- iii. The County Engineer may require the Applicant to contribute funds toward the modification, enlargement or upgrading of an existing structure in lieu of completing the required modifications, enlargement or upgrade. This will be at the sole discretion of the County Engineer.
- iv. A Municipality may petition the County to accept a bridge or culvert structure into the County's system. Only structures meeting the requirements of the County policies governing the acceptance of structures shall be eligible. All bridge and culvert designs must be completed in conformance with County Policies established by the County Engineer to be eligible for acceptance into the County Bridge and Culvert System.
- v. The Applicant shall prepare plans for review and acceptance by the County Engineer. Structures not designed in collaboration with the County Engineer shall not be eligible for inclusion into the County Bridge and Culvert System.
- vi. The Applicant shall secure all required Federal, State, and Local permits required for the proposed structure or modifications to existing structures. The County shall be provided all permits and support data as required by County Policy or directed by the County Engineer.
- vii. All designs shall be completed in conformance with current regulations as published by AASHTO, NJDOT and modified by the County Engineer.
- viii. Prior to commencement of construction, the Applicant will be required to coordinate construction activities with the County Division of Engineering. Any specific requirements will be identified by the County Engineer.
- ix. Construction Inspection of existing structures will be under the direction of the County Engineer, inspection of new structures contained within the proposed street network of the application shall be inspected and certified by the Municipal Engineer. All certifications will accompany any Municipal

request for acceptance of a structure into the County's system. All inspections and work will be coordinated with the County Engineer.

- x. Prior to commencement of any work within the County right-of-way or related to County owned bridge structures the Applicant shall secure all necessary permits for the work from the Sussex County Division of Engineering.

b. Impacts to County Bridges or Culverts

- i. All developments, regardless of size, above an existing County bridge or culvert will be considered to directly increase the hydraulic requirements of that structure. Residential subdivisions of three (3) lots or less, not involving any other subdivision action within the prior 3 years, and not involving addition of pavement, are exempted from this requirement. The Applicant shall provide the County with hydraulic calculations evaluating impacts of the downstream structure by the submitted proposal.
- ii. The Applicant's engineer shall perform all calculations of stormwater runoff based on consideration of the physical features of the drainage basin and the future development of the area based on the existing local zoning ordinances. All designs shall utilize the impacted bridge or culvert as the design point. The County Engineer shall on behalf of the County Planning Board review said calculations.
- iii. The County Engineer shall investigate and as necessary require the Applicant to provide Traffic Impact Reports for any structure potentially impacted by the proposal. Potential impacts could include, but are not limited to either vehicular or pedestrian. The County Engineer shall determine the extent or impact to any structure affected by the Applicants proposal.
- iv. An Applicant shall be required to fund or complete any design and construction required to correct any adverse impact to any structure as may be identified:
 - (a) When it will create an immediate or potential affect on a County drainage structure (bridge).
- v. Modifications to structures shall comply with the requirements found within section 18.a above.
- vi. The County Engineer may require a proportionate cost contribution for remediation of any impacts the proposal may be found to have on an existing impacted structure. The proportionate cost shall be equivalent to the Applicant's proportion or the impact as determined fair and reasonable by the Sussex County Planning Board, under advisement by the County Engineer using section IV - G.7.b.

19. Drainage Reports:

- a. All applications shall include a Stormwater Drainage Analysis Report comparing the pre-developed conditions to the post developed conditions. All Reports shall include:
 - i. Table of Contents with appropriate page numbering.
 - ii. Calculations for volume, flow, recharge, peak flows and water quality.
 - iii. Identification labels of structures that are consistent throughout the application (i.e. reports and plans must use the same identification.)
 - iv. Include a separate section in the report detailing impacts to county structures. This section shall include:
 - (1) Analysis using the county structure(s) or system(s) as the design point.
 - (2) Separate analysis for each structure or system impacted.
 - (3) Table of predeveloped curve numbers, assuming good conditions.
 - (4) Tabulation of composite curve numbers.
 - (5) Post-development curve numbers should not be less than pre-developed curve numbers, should this case exist designer shall include detailed explanation.
 - (6) Summary table for pre-developed and post-developed conditions for each storm to each structure or system, including:
 - (a) Event volumes
 - (b) Peak flows
 - (c) Composite curve number
 - (d) Time of concentration
 - (e) Subwatershed area
 - (7) Pre and Post Development hydrographs based upon, SCS Type III 24-hour
 - (8) Basin routings
 - (9) Detention Facilities shall include:
 - (a) Stage-Volume tables
 - (b) Stage-discharge tables
 - (c) Working curves for outflow, water elevation and volume discharge.
 - (d) Primary Spillway data
 - (e) Emergency Spillway data
 - (10) Separate drainage Area Maps for pre and post conditions delineating:
 - (a) Sub-watershed boundaries
 - (b) Soil types
 - (c) Land cover types
 - (d) Time of concentration paths
 - (e) Proposed and existing topography
 - (f) Proposed and existing topology
 - (11) Maintenance procedures and responsibilities.

- (a) The entity that will be responsible for maintenance of any Stormwater Facility shall be clearly designated on the plans. In the case of major subdivisions, this shall be clearly stated on the Final Plat.
- (b) Maintenance responsibility shall be clearly designated as a covenant in any deeds for the subject property where the Stormwater Facility is located.
- (c) A signed document that clearly delineates maintenance responsibility for the Stormwater Facility shall be executed prior to approval of minor subdivisions, preliminary site plans, or preliminary major subdivisions.
- (d) Maintenance procedures and schedules shall be clearly defined.
- (e) The format and frequency of inspection reports shall be clearly defined
- (f) Fiscal responsibility shall be clearly defined.
- (g) Responsible contact person shall be clearly defined.
- (12) Designer's liability
 - (a) The following shall be included in the report:

"It is specifically noted herein that the planning board review process is intended to be a review of the documents in a general manner only. Review submissions and comments shall not be construed as a comprehensive review or detailed checking of the Consultant's work by the County or its representatives. It remains the Consultant's professional responsibility to design and prepare the documents in accordance with proper engineering criteria and sound professional engineering judgment. The Consultant is completely responsible for all design documents, reports, supporting documentation, etc., that they prepare and it remains their responsibility to insure the integrity of the design and their work. I, the undersigned, accept full responsibility for the analysis and design of the Stormwater management system and accept responsibility for any damages, or modifications that are required that come about as errors or defects of this design that may be discovered at a later date."

 Signature

 P.E.

 License No.

 Date

W. SURVEY DATA AND ESTABLISHING RIGHT-OF-WAY

1. Purposes of Section

The principal purposes of this section are:

- a. To establish and maintain survey standards for Planning Application Submissions.
 - b. To improve the overall efficiency of the Sussex County review and approval process.
 - c. To define surveying policies, procedures, and application submittal data requirements.
 - d. To secure an optimum degree of County wide uniformity in surveying.
 - e. To receive accurate information establishing public rights-of-way and easements.
 - f. This Section, in general, covers surveying policies, procedures, and standards.
2. Importance of Surveys
- a. Surveying is basic to all civil engineering works, providing the foundation and continuity for route location, land design, land acquisition, and all other preliminary engineering. A survey sets up a basic "framework" of control that is use in all land development applications.
3. Requirements:
- a. All Maps and Documents shall be in conformance with the New Jersey Map Filing Law and the requirements set forth herein.
 - b. A New Jersey Licensed Land Surveyor is responsible for obtaining all records, measurements, and evidence to prepare a correct and accurate land survey, for providing a reproducible copy and paper copies of the land survey plats that depict the results of the survey, and for preparing and providing the corresponding Description of Property, prepared on company letterhead for all deeds.
 - c. All boundaries must be defined by mathematical survey expressions (with angular units being degrees, minutes and whole seconds of arc and horizontal distances, vertical elevations, radii of curves, lengths of arc, and New Jersey Plane Coordinate values of Northing and Easting stated in feet to two decimal places.
 - d. Accuracy: whether conventional surveying methods (traversing, triangulation or trilateration) or Global Positioning System (GPS) methods are used, shall meet or exceed Third Order, Class I accuracy as specified above.
 - e. The basis of bearings for all surveys will be the New Jersey Plane Coordinate System NAD 1983. NAD 1927 Datum may be projected/converted to NAD 1983 Datum using the Federal CORPCON, or better, software to make this conversion.
 - f. Control /GPS surveys provide the basis of bearings for the parcel survey in a given project area. In addition to labeling the north arrow, the plan must contain a factual note that explains the Establishment of the Bearing System or similar

title with language that explains how the bearing system for the project area was established and identifies the state or federal control stations used.

g. Route Surveys:

i. When route surveys and corresponding descriptions of roadways corridor or bicycle/walking/hiking trails are specifically required as part of any site specific engagement, the survey will be performed using conventional or GPS surveying methods that, as a minimum, meet or exceed Third Order, Class I accuracy and shall be rotated into published NJGCS NAD 1983 and shown on the final survey plan.

ii. Horizontal curve data to be included on plans and in descriptions:

- (1) Radius
- (2) Central or deflections angle (delta)
- (3) Chord bearings
- (4) All horizontal curves in road centerlines and sidelines shall be tangent curves

iii. The area of the corridor shall be provided in acres to three decimal places (0.001 acre).

h. A metes and bounds Description of Property shall be provided if the purpose of the survey is for a conveyance.

i. Monumentation

i. Right-of-way monumentation is required on all new property subdivisions. Right-of-way monuments shall be set by the Applicant in accordance with the New Jersey Map Filing Law along with these standards and shall be called for in the legal descriptions. Monuments will be set along County ROW at PC's, PT's, POT's and will be stamped "R/W" and company name in accordance with NJAC 13:40-5.1(d)3. Reduced state plane coordinate and combined scale factor for each monument shall be provided on the plat. Proposed monumentation to be shown on Preliminary Major Subdivision plans. Monuments approved in the Preliminary Major Subdivision shall be installed prior to filing the Final Plat or monuments shall be bonded as approved by the County Engineer prior to the Final Major Subdivision plat being filed.

j. MATHEMATICAL CLOSURE:

i. All property surveys must form closed polygons with all sides defined by mathematical survey expressions (bearings and distances on all straight-line segments/tie lines; radius, arc length, delta, chord bearing and chord distance on all curved lines.) General calls along roads or waterways are unacceptable. Tie lines are to be provided along waterways. A computer printout of the coordinate geometry for the surveyed parcel shall be

submitted to demonstrate mathematical closure and verification of areas. Last course shall be closing course. Also refer to NJDOT survey manual for additional references.

k. AREA:

- i. The area of a parcel being surveyed is generally to be stated in acres. The area is to be rounded to the nearest one one-thousandth acre (0.001 ac.) unless said parcel is bounded, all or in part, by a waterway or a riparian claim in which case the area will be rounded to the nearest one tenth acre (0.1 ac.). If the entire parcel is less than 1 acre, the area shall be stated in square feet as well as acres. If the total area surveyed is less than one one-thousandth acre (0.001 ac.), then the area is to be stated in square feet only and rounded to the nearest square foot. Areas must be stated for the total surveyed area, the areas within road rights-of-way, areas of easements, areas of each lot within the surveyed tract.

l. Road Rights-of-Way:

- i. Road rights-of-way and the principles of dedication of land for road purposes shall not be taken lightly by the surveyor. The lines of surveys prepared for the dedication of land are to run with the lines of the deed description as written in the record. If the fee title extends to the center of a public road, the survey lines should run to the center of the public road. The survey must also provide the bearings and distances of the right-of-way sidelines, as well as the area of the public right-of-way. The area in the right-of-way is subject to the paramount rights of the public and possible private rights and the area shall be stated as a separate item on both the plat and in the description. If there has been no dedication to define the sidelines of the right-of-way, the area of the right-of-way is defined as the area of the paved or traveled portion of the roadbed.
- ii. In cases where senior road returns are in place as well as subsequent deeds or registered maps, right-of-way width in accordance with the road return, using geometry established by subsequent documents is generally the procedure for establishing the right-of-way.

4. Documentation:

- a. Research: The New Jersey Licensed Land Surveyor is responsible for obtaining sufficient documentation and evidence to render a survey plat that is correct as well as accurate.
- b. The survey shall indicate recording information for maps, deed book number and page number, or other pertinent information regarding the dedication of public ways or private easements.
- c. Copies of source document(s) shall be provided for County Road Rights-of-Way. Source documents include turnpike documents that are filed with the State of New Jersey, Road Returns filed in the County Clerk's Office, Registered Maps filed in the County Clerk's Office, or deeds of dedication to the County of

Sussex or the Municipality that granted the right-of-way to the County of Sussex that are filed in the County Clerk's Office. Tax maps are not acceptable source documents for the purposes of establishing ROW.

Copies of these documents shall be provided with the Planning Board Application. Notes on the plan shall include the following:

Table V.W.1 - Required Plan Reference Notes				
Document	Names	Dates	File Numbers	Width Data
Turnpike	Turnpike Name	Filing Date	Drawer Number	Right-of-way width
Road Return	N/A	-Date of Execution -Date of Filing	-Book of Roads -Page Number	Right-of-way width
Registered Map	Map Title	-Original Drawing Date -Revision Date -Date of Filing	Filed Map Number in Clerk's Office	Right-of-way width
Deed of Dedication	-Grantor -Grantee	-Date of Execution -Date of Filing	-Deed Book -Page Number	Right-of-way width

- d. Plotting of coordinate geometry, showing point numbers used in survey analysis shall be provided for all dedications.
- e. Coordinate geometry closure sheets, giving point numbers, coordinates, and inverses (in bearings and distances) between points, raw closure, and closure expressed as ratio shall be provided for all dedications. Last Course shall be closure error.
- f. Where required, New Jersey State Plane Coordinates (NAD 83), and methodology used in computing them shall be provided. Also see NJDOT survey manual for additional references.
- g. In all cases, existing monuments, such as iron pipes and iron pins, etc., shall be noted on the plats with offsets, if applicable. These monuments shall also be noted in the descriptions.
- h. Descriptions and plats shall reference the source documents of existing rights of way.
- i. Descriptions shall call out existing right-of-way lines and include source document references as noted below.
- j. Descriptions for Final Major Subdivision plats shall be based on the lots that are in existence prior to the subdivision. Descriptions may reference the unfilled plat and lot designations as shown on the Final Plat. Deeds of dedication shall be executed by the Applicant prior to submitting the Final Plat for review. The Final Plat shall contain all deed references.
- k. Source Document Checklist to be submitted with each application:

ROW Source Documents for Surveys Worksheet

FOR SUSSEX COUNTY ROUTE No. _____ Nearest Mile Marker to site: _____
 Municipality _____ Tax Block _____ Lot _____

<input type="checkbox"/> Found <input type="checkbox"/> Not Found	TURNPIKE For portions of (but not limited to) Routes: 517 in Vernon, 519, 565, 639, 645, 650, 655 Name _____ File No. _____ Date _____ ROW Width _____ Relevant Courses Or Calls _____
<input type="checkbox"/> Found <input type="checkbox"/> Not Found	ROAD RETURN Date Of Writing _____ Date Of Filing _____ Book Of Roads _____ Page _____ ROW Width _____ Municipalities _____ Relevant Courses Or Calls _____
<input type="checkbox"/> Found <input type="checkbox"/> Not Found	FILED MAP Date Of Map _____ Filing Date _____ Registered Map Number _____ ROW Width _____ Preparer Of Map _____ License Number _____ Right-Of Way Map _____ Subdivision Map _____ Deed References _____ Other Document References _____ Station: From _____ To _____
<input type="checkbox"/> Deed <input type="checkbox"/> Mortgage <input type="checkbox"/> Not Found For Help Searching, See list of GRANTEE NAMES on next page	DEED or MORTGAGE: Book _____ Page _____ ROW Width= _____, Grantor _____ Grantee _____ Date Of Execution _____ Filing Date _____ Other Document References: _____ _____ _____ Map Stationing Reference _____ _____
Enter additional deed references below:	
DEED Book _____ Page _____ ROW= _____, Grantor _____ Grantee _____ Dates: Execution: _____ Filing: _____ Other Document References: _____ _____ _____ Map Stationing Reference _____ _____	DEED Book _____ Page _____ ROW= _____, Grantor _____ Grantee _____ Dates: Execution: _____ Filing: _____ Other Document References: _____ _____ _____ Map Stationing Reference _____ _____

Note: Resolutions from governing bodies may also specify ROW widths survey courses, and references to the above items

 Name of Professional Land Surveyor License No. Signature (affix seal)
 ROW Source Documents for Surveys

<p>To be filled-out by Sussex County Division of Engineering</p> <p><input type="checkbox"/> Found</p> <p><input type="checkbox"/> Not Found</p>	<p>Deed Book _____ Page _____ Width _____</p> <p>Grantor _____</p> <p>Grantee _____ (County Of Sussex)</p> <p>Date Of Execution _____ Filing Date _____</p> <p>Other Document References _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>MAP STATIONING REFERENCE _____</p>
<p>To be filled-out by Sussex County Division of Engineering</p> <p><input type="checkbox"/> Found</p> <p><input type="checkbox"/> Not Found</p>	<p>Deed Book _____ Page _____ Width _____</p> <p>Grantor _____</p> <p>Grantee _____ (County Of Sussex)</p> <p>Date Of Execution _____ Filing Date _____</p> <p>Other Document References _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>MAP STATIONING REFERENCE _____</p>

POSSIBLE GRANTEE NAMES FOR RIGHT-OF-WAY DEDICATIONS

<p>BOARD OF FREEHOLDERS</p> <p>BOARD OF CHOSEN FREEHOLDERS</p> <p>FREEHOLDER BOARD</p> <p>COUNTY OF SUSSEX</p> <p>SUSSEX COUNTY</p> <p>SUSSEX COUNTY BOARD OF CHOSEN</p> <p>FREEHOLDERS</p> <p>DEPARTMENT OF TRANSPORTATION</p> <p>NEW JERSEY</p> <p>NEW JERSEY DEPARTMENT OF</p> <p>TRANSPORTATION</p> <p>NEW JERSEY, STATE OF</p> <p>STATE OF NEW JERSEY</p> <p>STATE OF NEW JERSEY, COMMISSIONER</p> <p>OF TRANSPORTATION</p> <p>TRANSPORTATION DEPARTMENT</p> <p>(MUNICIPALITY WHERE ROAD LIES)</p> <p>Note: this list is not exhaustive.</p>

Right-of-Way Analysis Table to be submitted with each application:

BLOCK	LOT	SOURCE DOCUMENT(S)	RIGHT-OF-WAY WIDTH(S)	MONUMENTS FOUND IN SUPPORT OF SOURCE DOCUMENTS	PAROLE EVIDENCE	WIDTHS OF PAROLE EVIDENCE CALLS	MONUMENTS FOUND IN SUPPORT OF PAROLE EVIDENCE CALLS

LOCATION					TURNPIKE				ROAD RETURN				FILED MAP			DEED							TOTAL WIDTH
CR	MM	MUNI	BL	LOT	NAME	DATE	DRAW- ER	W I D T H	BOOK OF ROADS	PAGE	DATE	W I D T H	No.	DATE	W I D T H	DEED BOOK	PAGE	DATE EXEC.	DATE FILED	GRANTOR	GRANTEE	W I D T H	

5. Plan Data:

- a. **SIGNATURE AND SEAL OF THE NEW JERSEY LICENSED LAND SURVEYOR:** The separate metes and bounds Description of Property must bear the original ink signature and embossed seal of the surveyor who prepared the survey plan. A rubber stamp facsimile or mechanically reproduced signature is not acceptable.
- b. **ORIGINAL SIGNATURE AND SEAL:** All survey plans and the original description must be signed and sealed by a New Jersey Licensed Professional Land Surveyor responsible for the work. To insure that the plan is the product of the licensee, the signature must be the original signature in ink on each copy of the plan of survey and original description. A rubber stamp or computer generated signature is unacceptable.
- c. **POINT OF BEGINNING**
 - i. The point of beginning used in the metes and bounds description must be clearly labeled Description Point of Beginning or P.O.B. (or similar) and must be tied into a corner of record or road intersection. The NJPCS NAD 1983 Northing and Easting coordinate values stated in feet to two decimal places must be labeled on the plan and stated in the description. The surveyor must set a concrete monument at the point of beginning for each parcel, unless this requirement is waived or modified by the using agency at the time that the bids for a site-specific engagement are solicited.

6. DEED DESCRIPTION FORMAT

- a. The New Jersey Licensed Land Surveyor is responsible for preparing an original metes and bounds type description of the property that has been surveyed. The description shall be separate and apart from the prepared final plan of survey and must be submitted on an original company letterhead 8 ½ inch in width by 11, 13 or 14 inches in length. The media is to be a good quality paper; not legal left edge lined paper or plain paper. This description is to agree with the results of the survey in every particular and for that reason, the description must not include any information that does not appear either graphically or factually stated in note form on the plan. All courses of the description must be numbered in sequence. One description may include several contiguous dedications in common ownership grouped together into one or more survey tracts. The description must be labeled "DESCRIPTION OF PROPERTY", contain a heading, describe the beginning point, (including its New Jersey State Plane Coordinates in NAD 1983) and will continue in the said bearing system. The total area of the survey and of each lot within the surveyed dedication must be clearly stated in the description.

Qualifying and augmenting clauses if used shall also state particular areas: specifically the area within public road rights-of way.

- b. All Dedications Identified On The Survey Must Be Stated.
- c. The areas of all dedications and within the surveyed parcel must be clearly stated in the description as well as on the plan of survey. If there is more than one dedication included in the surveyed parcel, state the total area of the survey and the area for each included dedication according to the categories indicated on the Surveyor's Certification and Summary Form. Additionally, provide separate areas for other possible situations, if any, as previously indicated.
- d. Final Paragraph Of Description:
 - i. To provide a uniform closing call for survey the final paragraph in all descriptions must read as follows:

The above description was written pursuant to a survey of property designated as Block _____, Lot _____, on the Municipal tax map of Municipality name, County of Sussex, State of New Jersey. Said survey was prepared by your firm's name and address, date, revised through (___last revision date, if any___) and is marked as file No. _____.

- e. Prototype deeds are available on the County's Web Site for use by Applicants.

7. CORNER MARKING

- a. The New Jersey Licensed Land Surveyor is responsible for determining the ultimate user of the survey, the survey plat and the corresponding description(s) as defined by the New Jersey State Board of Professional Engineers and Land Surveyors. For the purposes of this State Board rule, the Ultimate User of any ROW of Easement dedications shall be considered the County of Sussex. To clearly define where corner markers must be set and where they may be omitted, the following shall apply:
 - i. Corner markers must be set at the limits of a project area where the limits adjoin private lands not being dedicated as a part of the project. This shall apply to dedication and easement area for public access and public use rights
 - ii. Corner markers shall be omitted when corner or the corners fall within a waterway bed, unless, in the professional judgment of the surveyor, the corners should be set. Corner markers that are omitted must be identified on the plan as omitted by contractual agreement using the language required by the State Board of Professional Engineers and Land Surveyors. (See N.J.A.C. 13:40-5.1/d).

- iii. A detail of the stamping or casting of each type of cap, disk, shiner, etc., actually set to mark corners shall be drawn on the survey plan and shall be stamped with the name of the survey firm and include the month and year set.
- iv. At the time of the survey, any corner location that is found to be inaccessible must be set as an offset on line. The marker must be set on line as near to the corner as is practical, stamped "OFFSET" on the cap, and clearly identified on the plan as having been set back from the corner, with the actual distance to the corner clearly labeled.
- v. To maintain the coordinate system for potential future surveys or resurveys, the surveyor must set a minimum of two concrete monuments, visible from one to another whenever possible, at each grouping of contiguous parcels in a project area. One monument is to be selected as a description point of beginning and the NJSPCS Northing and Easting values must be stated. If the corner selected to be the Description Point of Beginning was previously marked, then a monument must be set on an alternate corner to maintain the two monument minimum requirement.
- vi. Corner markers that are found in the field to be within a radius of 1.5 feet of the true corner, shall be presumed to mark the corner and no new corner marker shall be set. The plan of survey shall clearly indicate the offset distances (north/south and east/west) of the found marker from the true corner.

X. CENTER STANDARDS

1. Introduction

Planning approaches in New Jersey have evolved over the years as we have learned more about the impact of development on the natural and cultural landscape. While we now have a much greater understanding of the natural capacity of our communities to sustain the physical demands of development, e.g. water supply, waste treatment and stormwater management, we have also continued land development using an old paradigm that assumed that resources were unlimited. The County took the lead in reaching a consensus for development that balances quality of life with efficient use of resources, through efforts culminating in the Sussex County Strategic Growth Plan (SCSGP). The SCSGP proposes, as its centerpiece, the redistribution of development from sprawl to compact, mixed-use Centers. This new blueprint for the future comes with the need to reflect on the development standards long used by the County in evaluating the impact of development on county roads and drainage facilities.

2. Why The County Has Different Standards For Centers

It has long been the contention of the County that County roadways principally function to convey motor vehicles quickly and efficiently through the County. Very little consideration was given to the impact on this function by the historic Centers served by the network. The premise was that they had been Centers for decades or centuries and the changes brought about by development around them were simply to be accommodated. In fact, efforts were made to move County roads out of Centers (e.g. the CR 517 by-pass in Sparta) as it was not considered possible to simultaneously address Municipal concerns for traffic calming, parking, street furniture, etc. and the overarching County objective of motor vehicle movement. The period of constructing by-pass roads has passed. We must now turn our attention to the necessary compromises between the two, often conflicting functions of a Main Street and an arterial highway. In their most pure forms, the two are diametrically opposed to each other. Whereas highways are generally friendly to motorists by allowing them fast passage, Main Street must be primarily pedestrian friendly and provide amenities to the community. It must offer parking, street lights, litter baskets, parking meters, mailboxes, and other elements that cannot be installed outside of traditional sight triangle and intervisibility easements. As motorists must yield the right-of-way to pedestrians in crosswalks, speed controls, “bumpouts”, landscaped islands and the like are desirable elements of a Main Street. Pedestrians and bicyclists, by virtue of their vulnerability and the specific objective of facilitating movement in and around the center by non-motorized means shall be provided safe

and convenient access even where it requires inconvenience to motorists. For example, Road widths must be carefully calibrated with the urban design elements of the buildings and other facilities along the Main Street.

3. Paradigm Shifts And Their Concepts

The following separate set of design considerations are to be applied by County review professionals and Planning Board members in considering development along County roads in Centers. These design elements are critical to the maintenance of a low-speed, vibrant, and mixed-use environment that does not cater to rushing motor vehicles. They are, however, quite straightforward and are designed to implement the Center Design Standards found in the Sussex County Strategic Growth Plan.

4. Site Standards And The Pedestrian Realm

County standards in this document function most effectively if they are combined with site standards which are compatible with a pedestrian realm. Municipalities are strongly encouraged to allow and even adopt site standards that make walking the standard form of mobility for all people.

Centers and villages have Transect zones which vary from T-4 to T-6. For a description of Transect Zones (T-Zones), refer to Roadway Type, section V.C.2. Higher T-Zones must give transportation priority to the pedestrian realm.

The most important character of a site to accommodate pedestrians is the layout of its buildings. Building layout affects how short and direct a route we can take by walking from one building or public space to another. Building front entrances must be closer together than the style of development that we are used to seeing get built. Rather than being surrounded by parking spaces, buildings must link to the pedestrian realm.

In order to accomplish this, the most common constraints on land uses must be reconsidered. The front and side setback must be reduced to allow for short walking distances. The allowable height of structures should be given more analysis. For example, landmarks such as church steeples make the most endearing visual points of a town and provide a “sense of place”. The simple fact that higher density increases land value must not be overlooked, nor should providing short walking distances between destinations. Municipalities are encouraged to analyze where the peak density can be permitted, and what design standards are appropriate. One should also consider how such zones would permit development that allows people to walk between shops, retail, and office.

5. Elements Of Transportation

1. Vehicle speeds must be controlled by creating an environment in which people tend to slow their vehicles. In fact, speed in T-5 or T-6 zones should be kept to a “snail’s pace” to provide safety for pedestrians of all ages—from baby strollers to the elderly. Slow vehicle speeds are also compatible with on-street parallel or angled parking.
2. Controlling Vehicle speed is crucial for the safety and general welfare of Centers. While high traffic flow can add to the vitality of the street, high vehicle speeds are detrimental for the following reasons:

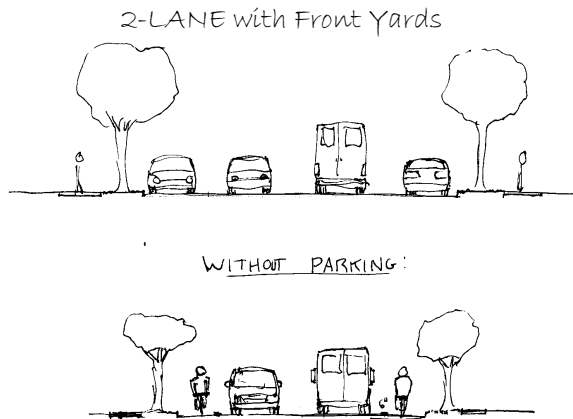
Noise: Studies have shown that quality of life for residents is dramatically reduced for people residing close to a road, and the detrimental effects were proportional to vehicle speed.

Safety: The fatality rate of motor-vehicle accidents with pedestrians increases dramatically above 20 MPH. Two studies report that the chance of a pedestrian in an accident being killed goes from 5% at 20MPH to 37%-45% at 30 MPH.

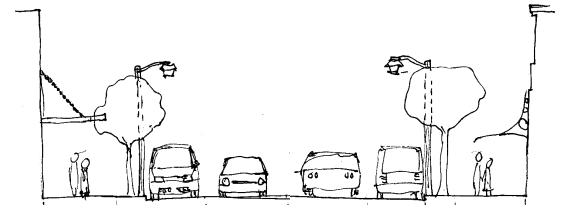
Fear: People perceive faster-traveled streets as being more dangerous, and are unwilling to bring children or themselves onto sidewalks where they may feel vulnerable to out-of-control, high-speed vehicles.

Low design and measured speeds have historically been achieved with streetscapes with a combination of narrower lane widths, on-street parallel or angled parking, and/or streetscapes. Illustrative cross sections are shown below.

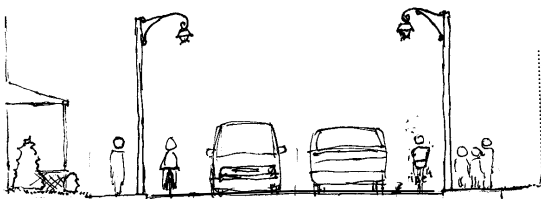
Figure V.X.1 – Illustrative Cross-Sections for Streets in Centers

T-4 ZoneT-6 Zones

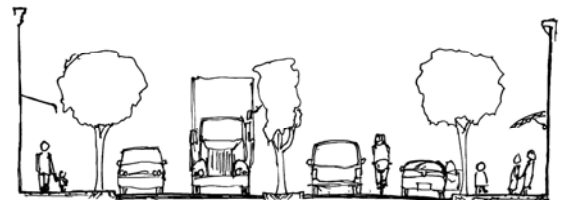
"Main Street", 2-LANE

T-5 Zone

2-LANE with small or Zero Setback

T-6 Zone with Median

with bicycle-compatible lane width



These cross-sections illustrate streets that are friendly to pedestrians. The lampposts and shade trees add to the experience and overall character of the street, which also induce drivers to slow down. In-street temporary pedestrian warning yield signs, wider painted lines on the edge of the traveled way, and variations in pavement texture can be used in conjunction with street character to induce lower vehicle speeds.

3. Cross-Connections: Traditional centers rely on a tight street grid that provides more intersections, which in turn provides drivers and pedestrians with more routes. More intersections also improve pedestrian access and interest. Connectivity is improved

because actual walking routes tend to be shorter, and perceived distances are even more manageable. Walking along an unchanging roadway for 1000 feet feels arduous for anyone not seeking physical fitness, but a 1000 feet walk with street crossings, window shopping or front-yard gardens and other streetscape features comes naturally to a broad spectrum of personalities. (A. Nelessen, Visions For A New American Dream)

Cross-Connector Criteria: The planning board ought to consider that cross-connector roads be required in new developments in Centers under the following conditions:

Such connector roads link to existing intersections, thereby creating a more-organized street grid with multiple travel routes.

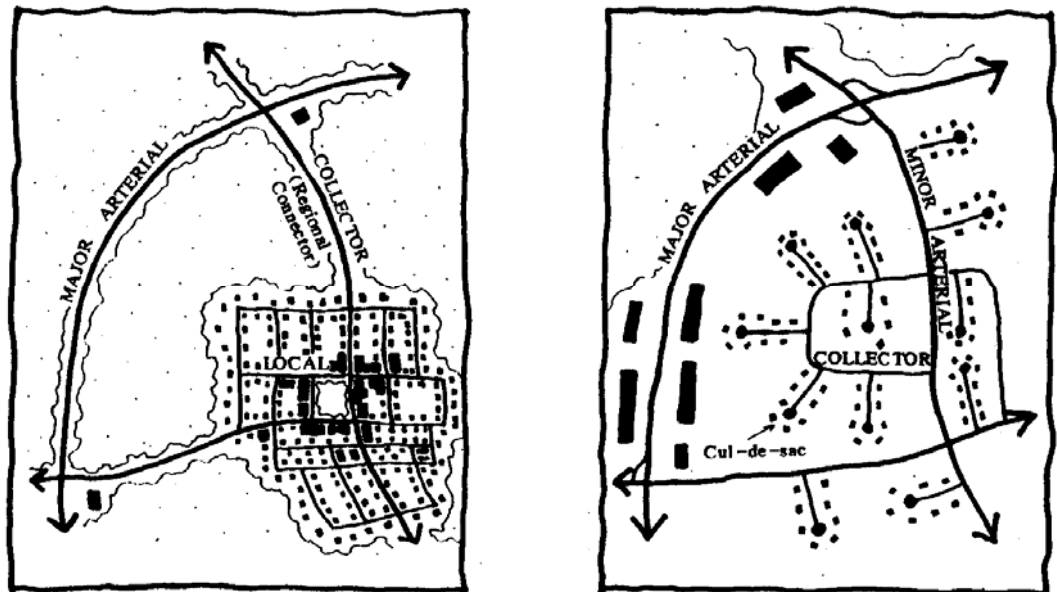
The connector creates blocks with roughly 1600 feet of perimeter. (Peter Calthorpe, "Centers: the Missing Element of New Urbanism".) This translates to an average block length of 400 feet, which can vary, but should be no more than 700 feet in any situation.

Note that in Centers, new sites still would not have more than one driveway entrance or exit for each site along a county road without a waiver from the County Planning Board.

Figure V.X.2 - Comparison of Street Grids Diagrams

a. Desired Street Organization in Centers

b. Avoid mobility-limiting street layouts like the conventional one shown below



Source: *The County Strategic Growth Plan, Appendix D, Principal 6*

4. Sight Clearances: Where extensive traffic-calming streetscapes are planned or built in Centers, sight distance requirements may be based on Stopping Sight Distances, instead of the more stringent Turn-Out Sight Distances, in T-5 or T-6 zones. Sight triangles are not needed if the sight distance line is behind pedestrian entrance points as illustrated in Figure V.D.1. See the section on Traffic-Calming Streetscapes below to paint a picture of what a traffic-calming streetscape in a commercial T-5 or T-6 Zone in a Center could resemble.
5. Pedestrian Accessibility: Building Main Entrances must front the pedestrian-oriented streetscape. Generally, buildings should have a zero front yard setback. Sidewalks must be pleasing to walk on and provide direct, short linkages between public spaces and building entryways. Furthermore, the sidewalk itself should be an open public space with the help of street furniture.
6. Street Furniture: Although freestanding signage is not typically an issue in Centers, street lights, benches, mail and newspaper boxes will be located in what would otherwise be considered sight lines to be cleared.
7. Gateways: “Welcome” signs to Center entrances may be constructed in the County ROW, provided they are not in the direct path of sight lines. (See the section regarding Gateways below.)
8. Obstacles: to free flow of traffic are appropriate as traffic calming devices and parking protection elements. Appropriate obstacles described in the next section are required in T-5 or T-6 Zones, with consideration given to context.
9. Large-Vehicle Turning: Large curb radii required to accommodate large vehicles create large gaps in sidewalks and require longer street crossings. As a result, large vehicles that infrequently enter a site or an intersection should be given more freedom to encroach upon oncoming traffic lane(s), based on V.C.4.a above.
10. Parallel or Angled On-street Parking: is permitted as a part of traffic-calming streetscapes
11. Stormwater Management: Regional drainage provisions requiring off-site mitigation or attenuation may be substituted at the Planning Board’s sole discretion for immediate or on-site provisions.

6. Traffic-Calming Streetscapes

Traffic Calming methods are popular for reducing the speed that motorists naturally tend to drive. Case studies have revealed that traffic calming methods are most effective when combined with one another and not isolated features in the roadway. The statement, “The whole is greater than the parts” applies to traffic calming features in that a strong overall character that can be seen from a distance makes

even the most aggressive drivers feel uncomfortable to continue speeding. This strong visual effect is referred to as a traffic calming “streetscape”.



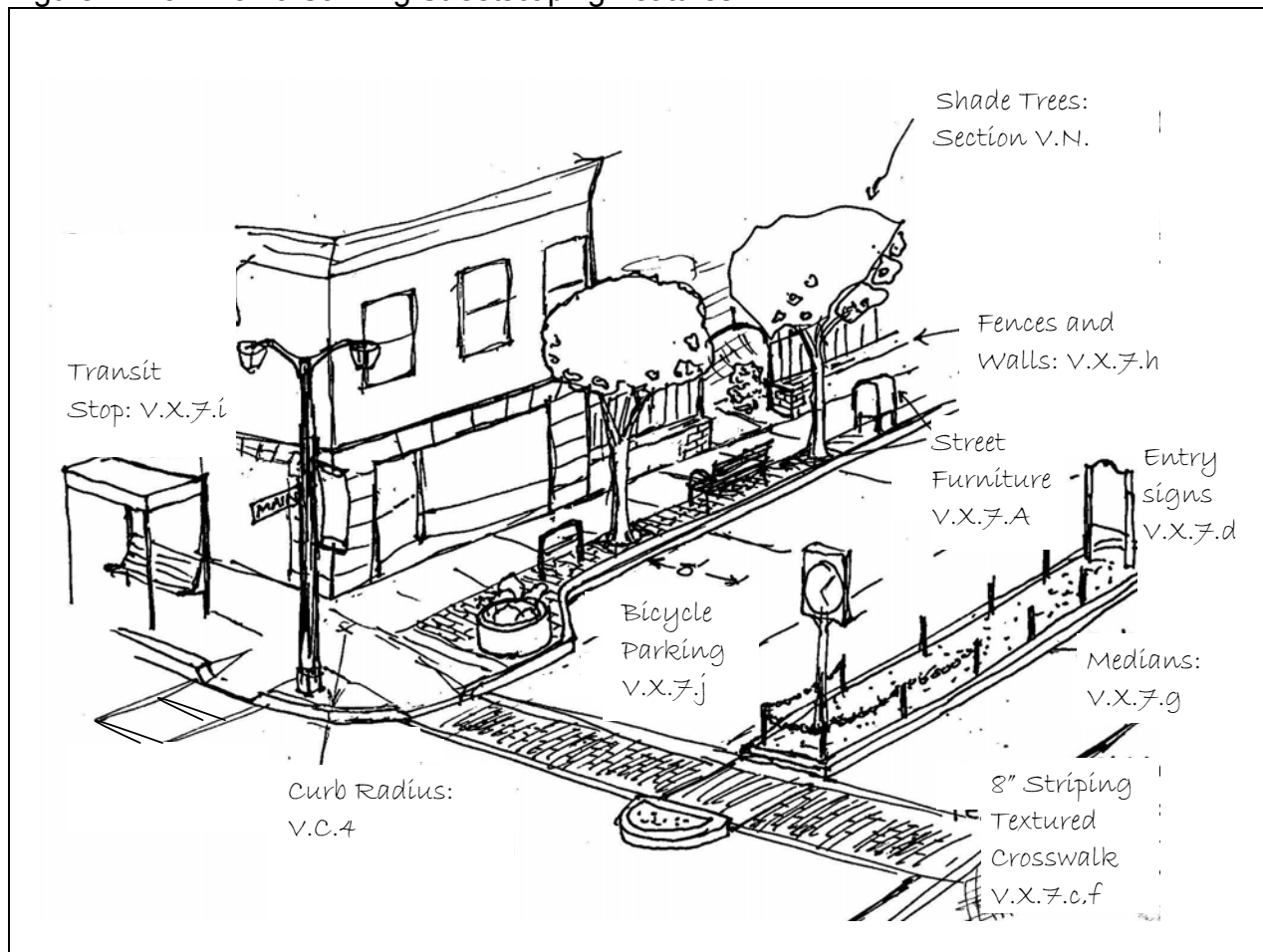
1. Introduction to Streetscape Features:

The following streetscaping measures are permitted within Center-designated County road ROWs by the County of Sussex:

- a. Street furniture (i.e. lampposts with banners, benches, etc.)
- b. Curbed bulb-outs
- c. Textured (brick, or color-impregnated and stamped) crosswalks
- d. Signage that is unique to the location, such as welcome signs to the Center
- e. Gateways & Cross-Street banners
- f. Lane striping
- g. Medians
- h. Walls and fences
- i. Transit Stops
- j. Bicycle Racks
- k. Shade Trees

The County encourages many of these features to be built simultaneously when possible. However, property owners and/or other responsible entities shall be responsible for the installation of streetscaping features. The county will only maintain crosswalks that are within County road ROW. Otherwise, all features must be maintained by the Municipality or property owners.

Traffic-calming features are described in greater detail below.
 Figure V.X.3 - Traffic-Calming Streetscaping Features



7. Traffic-Calming Streetscape Features

a. Street furniture

Street Furniture, such as benches, tables, trash receptors, mailboxes, lampposts, above-ground planters, information kiosks, etc. are required to be installed along pedestrian routes in or near the County Road ROW. The following guidelines apply:

- i. Location of Street furniture shall be outside the carpath and relate to the function. For example, benches should face storefront windows or a common area where people gather. Bicycle racks should be placed near major entrances to buildings.
- ii. Different items of street furniture should relate to each other in terms of design and color.
- iii. Protect street furniture from vehicles with a distance of 2 feet from the face of the curb.

- iv. Railings are discouraged.
- v. See bicycle parking standards below.
- b. Curbed bulb-outs
 - i. Dimensions: Bulb-outs shall be used where there is on-street parking or heavy lane-striping to keep the flow of traffic directed away from the bulb-out. The angle of the curb when transitioning from a wide to narrower carpath width shall be a minimum of 40 degrees and a maximum of 60 degrees from the direction of travel.
 - ii. Curb Radius Shall be a minimum of 25 feet to 30 feet, or based on a demonstration by the design engineer that the largest common vehicle can negotiate the turn with at least a 2 feet buffer from the wheel tracks.
- c. Textured Crosswalks:

Textured crosswalks shall be paved with stamped and stained pavement texture. Textured crosswalks shall also have white borders at least 8 inches wide to make them visible to approaching motorists.



- d. Entry signs:

Welcome signs to the Center are permitted in the County road ROW, provided that they do not block sight lines. They should be placed near the entrance to the town center to assist with traffic calming.



- e. Banners:

Lampposts should have mounting points for vertical banners. High-mounted temporary banners that span the entire street shall allow 16 feet of clearance from the roadway for large vehicles.

- f. Lane striping:

Striping should be wider, at 8 inches wide, white and painted 10 to 11 feet from the road centerline.
- g. Medians: Shall be aesthetic, with low-maintenance



plantings and other decorative items such as stones, bollards, lampposts, etc. Medians and crosswalks should be integrated to refuges for pedestrians. The median provides a spot for slow-walking pedestrians (or anybody crossing high-volume streets) to rest and turn their heads to watch for one direction of vehicular traffic at a time.

h. Fences and Walls:

These regulations are for aesthetic purposes and are not to impinge on Municipal ordinances:

Table V.X.1 - Fences in County Road ROW		
Fence Type	Max. height (in feet)	Min distance to sidewalk (in feet)
Masonry, post-and-chain	3	0.3
Masonry	4	1.5
Wrought-iron gating	6	1.5

No chain-link fences are permitted along County roads in centers.

i. Transit:

Transit stop shelters shall not block sidewalks and should include at least one bench, a transit schedule, and some degree of protection from the elements. Shelter design must meet NJ Transit standards. Included in those standards are TCRP report 19 titled, "Guidelines for the Location and Design of Bus Stops" and Technical Specifications IFB No. 06-056X titled, "Purchase and Installation of 150 Bus Shelters".

j. Bicycle Racks:

In T-5 or T-6 zones, bicycle racks that are specifically designed to fit between sidewalks and curbs should be provided in front of storefronts and main entrances to buildings. They should be located at least 4 feet from other street furniture.

k. Shade Trees

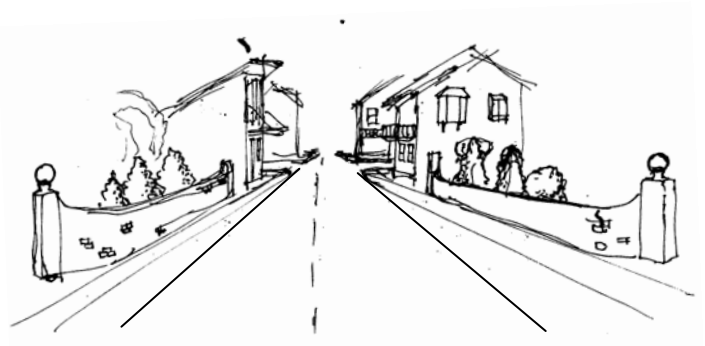
Shade Trees (sometimes called street trees) are typically located within the right-of-way and need to be appropriately spaced, sized, selected, and positioned such that future growth will not interfere with existing or proposed utilities, vehicle traveled way, headroom for pedestrians, sight triangles, or crowd each other. See section N for requirements and Appendix H for tree planting guidelines.

8. Gateways

- a. Gateways are entrances to regions that provide the following functions:
 - i. Heighten the awareness of a “sense of place” or emotion
 - ii. Calm traffic, if combined with adjacent improved streetscape character
 - iii. Promote small-scale development that is integrated with the community
- b. Sussex County Gateways may consist of the following elements:
 - i. Narrower lane striping, 10 feet wide with a 5 feet shoulder
 - ii. Change in pavement microchannel to affect vibration in vehicles
 - iii. Large signs that “welcome” travelers into the community.
 - iv. Landscaping or decorative walls on opposite sides of the road
 - v. A pair of modest-scale Buildings with architectural emphasis meeting Center Core design guidelines



This example gateway in Sussex County has a pair of mirror-image decorative stone walls.



Walls can add architectural emphasis in a village or center as well.

Gateways must be designed by a licensed architect, landscape architect, or urban designer.

VI - SEVERABILITY

If any section, subsection, paragraph, clause, phrase, or provision of this Ordinance shall be adjudged invalid or held unconstitutional, such section, paragraph, clause, phrase, or provision shall be severed from this Ordinance and such adjudication shall not effect the validity of the remaining sections, subsections, paragraphs, clauses, phrases, or provisions of this Resolution.

VII - REPEAL OF CONFLICTING RESOLUTIONS

All resolutions or parts of resolutions which are inconsistent with the provisions of this Ordinance are hereby repealed to the extent of such inconsistency.

VIII - EFFECTIVE DATE

This Ordinance shall take effect as provided by law.
Passed and adopted at a regular meeting of the Board of Chosen Freeholders of the County of Sussex held at the County Administration Building, Newton, New Jersey.

IX - ANNUAL REVIEW OF LAND STANDARDS

The Land Development Standards adopted by the Board of Chosen Freeholders are subject to review and amendment from time to time. Such review shall consider changes in statewide policy and procedure, advances in transportation safety analysis and design, land use decisions by Municipalities (e.g. designation of centers) and the like. The Board shall require an annual report by the Planning and Engineering and legal staff that shall review changes in approach to land use and the impact of those changes on county road and drainage facilities. The report shall make recommendations for amendments to the Land Development Standards as deemed appropriate by the professional staff. Any recommended changes to the Land Development Standards shall be consistent with the adopted Strategic Growth Plan.

A. Appendix A – Development Application Documentation

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1. Application Worksheets

WORKSHEET

Date (fill-in) <i>(some or all of these steps may be required)</i>	Action	Description
_____	PRE-APPLICATION MEETING	The Applicant is encouraged to meet with County staff early in the process, for concept plan discussion.
_____	FIELD MEETING: Required if there is an existing OR proposed access onto the County road.	Staff must meet with the Applicant's surveyor to measure sight distances, other issues. Call 973-579-0500 x0 to set an appointment.
_____	COMPLETE APPLICATION WITH CHECKLIST	A complete application and fee is submitted with the checklist by Monday, two weeks before Dev. Review Committee meeting.
(Fill in SCPB # :) _____	Applicant receives notification of complete application with SCPB# for later reference	Applicant will be notified if additional information is required on plans. If complete, a date of DEVELOPMENT REVIEW committee meeting will be set. Staff will review in the meantime.
_____	DEVELOPMENT REVIEW COMMITTEE MEETING	Public meeting held with some County Planning Board members, approval or disapproval is decided by Committee.
_____	In special situations: WAIVER REQUESTS TO COUNTY PLANNING BOARD	Waivers from some County standards may be requested in writing, along with specific reasons. Refer to IV.F
_____	SUBMIT REVISED PLANS WITH COVER LETTER	Revised plans are submitted with a cover letter that outlines the changes made, and addresses the County reports by line item number.
(See separate sheet.)	DEEDS TO COUNTY	Deeds to the County are needed for easements and dedications
_____	Applicant receives PRELIMINARY APPROVAL	Once Applicant receives letter of approval, Entrance Permit and Road Opening Permit can be issued for construction based on approved plans, and local Building Permit can be issued.

COUNTY PLANNING BOARD APPROVAL PROCESS

WORKSHEET

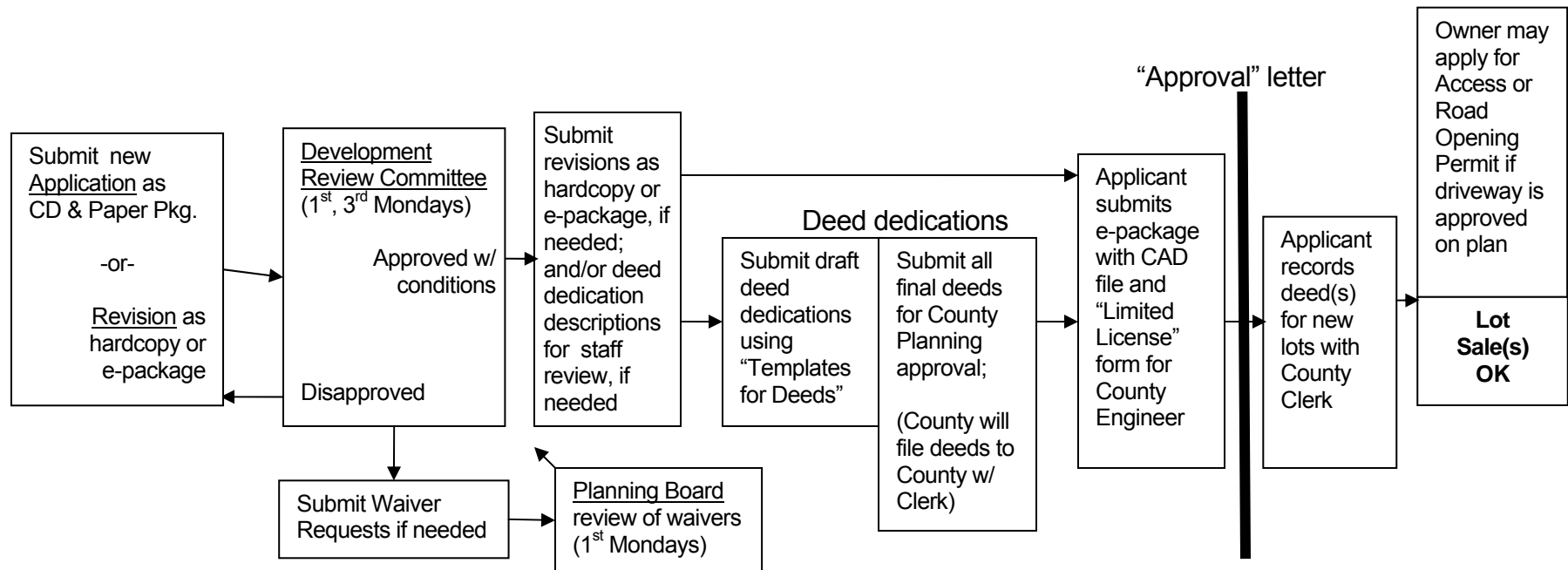
_____	DEEDS TO COUNTY	For deeds being granted to the County of Sussex: deed descriptions are submitted for approval and deed templates are provided to the Applicant's attorney for them to prepare the deeds, using correct owner certification.
_____	DEEDS SUBMITTED TO COUNTY RECORDING	Signed deeds to County are submitted to County Planning office and we record them. This must be done before Final Plat mylars are signed, and before any lots for Minor Subdivision are perfected.
_____	FINAL PLAN AND APPROVAL	After conditions of preliminary are met, a Final Subdivision or Site Plan is submitted.

FOR MORE INFORMATION:

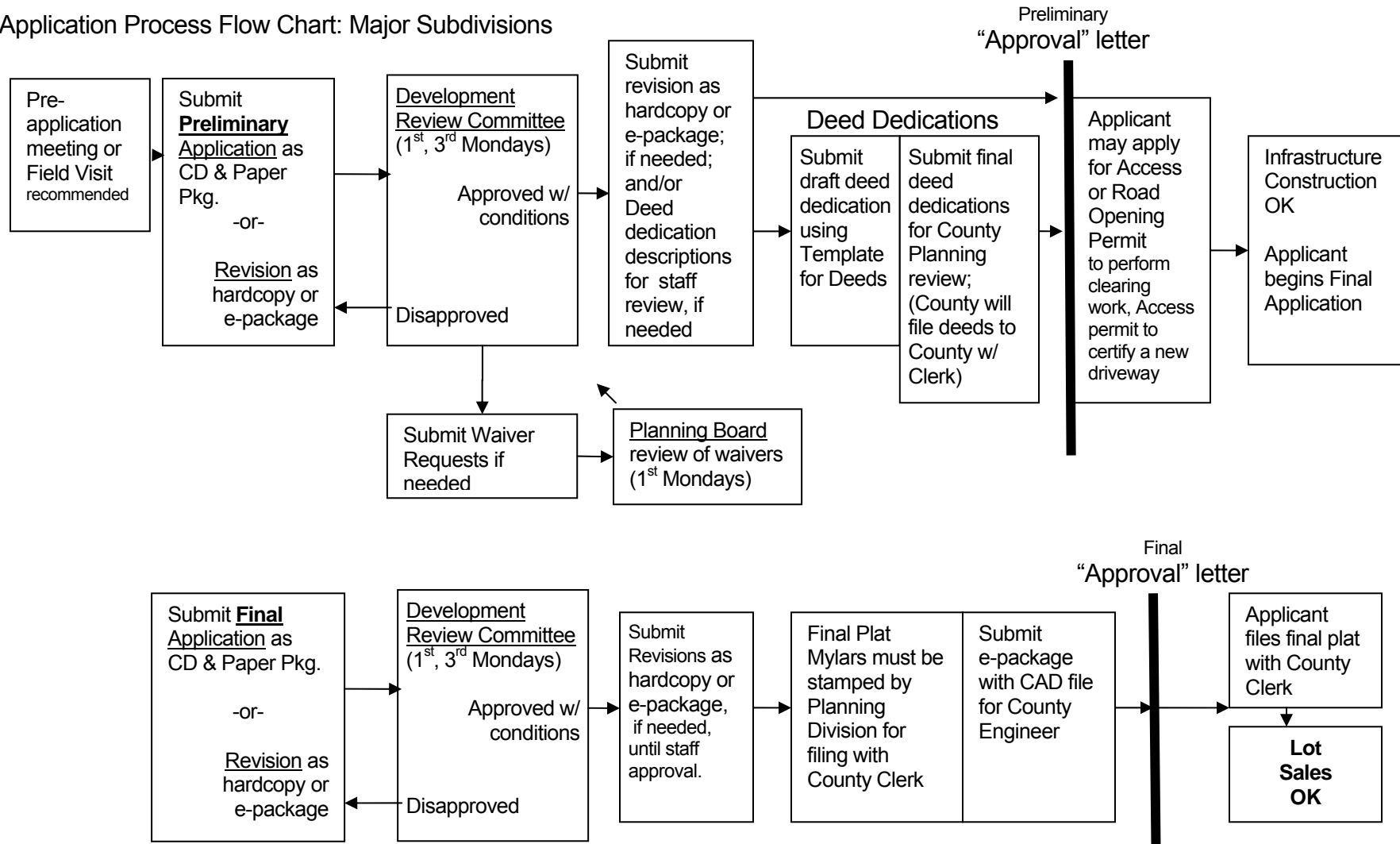
Contact the Sussex County Planning Division,
(973) 579-0500 or check the website www.sussex.nj.us

2. Application Flow Charts

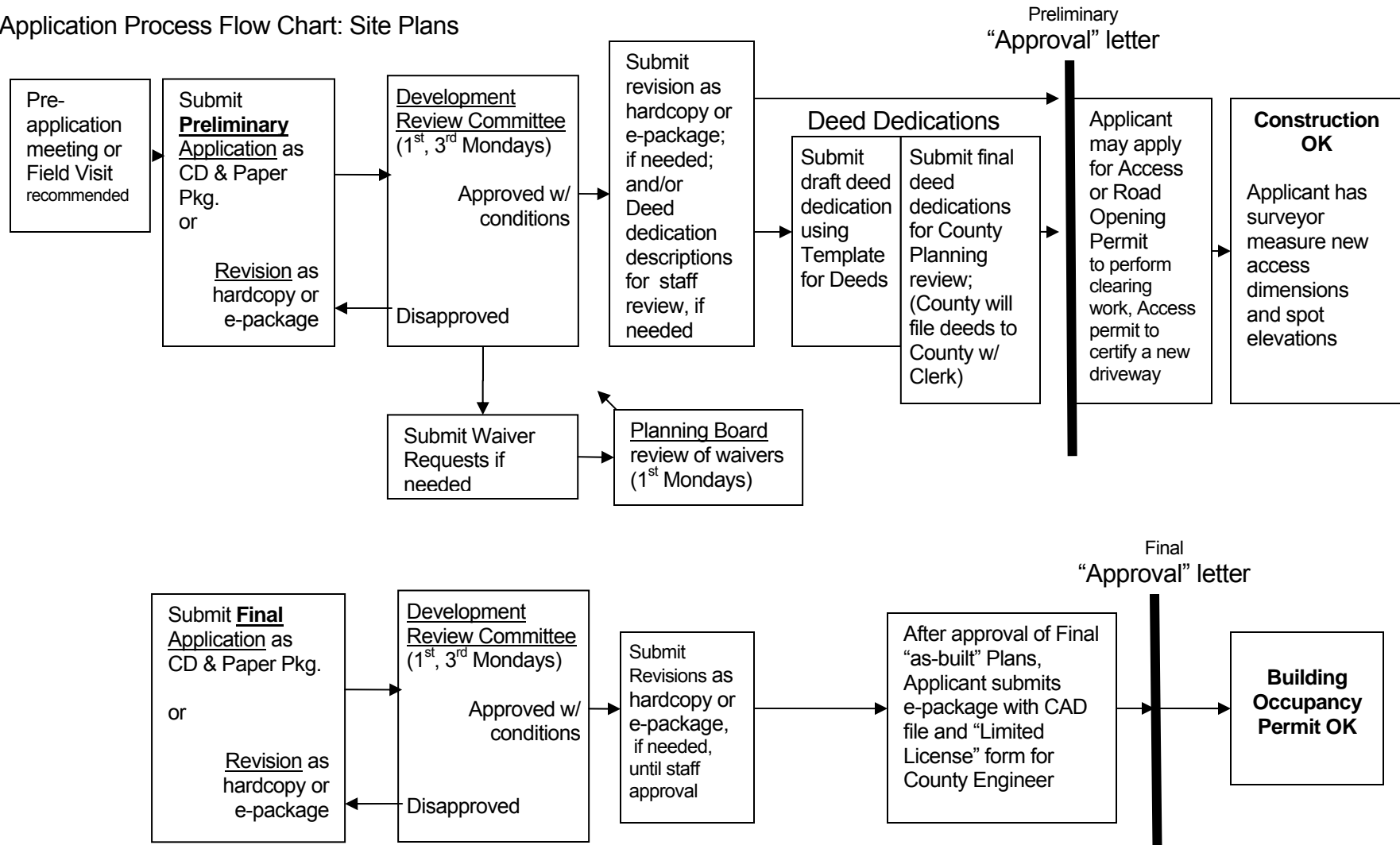
Application Process Flow Chart: Minor Subdivisions



Application Process Flow Chart: Major Subdivisions



Application Process Flow Chart: Site Plans



3. New Jersey County Planning Enabling Act

40:27-1. Planning board; members; appointment and term; expenses

The board of chosen freeholders may create a county planning board of not less than five nor more than nine members. The members of such planning board shall be the director of the board of chosen freeholders, one member of the board of chosen freeholders, to be appointed by the director, the county engineer, if the board exceed six in number, and other citizens who may not hold any other county office and who shall be appointed by such director of the board of chosen freeholders with the approval of that body. One of the remaining members shall be appointed for two years, two shall be appointed for three years, and all additional remaining members shall be appointed for four years, and thereafter their successors shall be appointed for the term of three years from and after the expiration of the terms of their predecessors in office. All members of the county planning board shall serve as such without compensation, but may be paid expenses incurred in the performance of duties.

40:27-1.1. Alternate members; appointment; resolution

The board of chosen freeholders may, by resolution, provide for the appointment of alternate members to the county planning board in accordance with the following:

- a. Where the county planning board consists of six members or less, the director of the board of chosen freeholders, with the approval of a majority of the board of freeholders, may appoint one alternate citizen member;
- b. Where the county planning board consists of more than six members, the director of the board of chosen freeholders, with the approval of a majority of the board of freeholders, may appoint two alternate citizen members. These members shall be designated by the director as "Alternate No. 1" and "Alternate No. 2" and shall participate in the planning board's decision in rotation during the absence or disqualification of any citizen member;
- c. Where the county engineer is a member of the planning board, the director of the board of chosen freeholders, with the approval of a majority of the board of freeholders, may appoint the assistant or deputy county engineer to serve as an alternate to the county engineer;
- d. The director of the board of chosen freeholders, with the approval of a majority of the board of freeholders, may appoint a member of the board of chosen freeholders to serve as an alternate to the two freeholder members.

Alternate members shall be appointed for terms to expire at the same time as the terms of the regular members for whom they are alternates. An alternate member shall be entitled to sit with and participate as a member in any hearing before the board. Any alternate member who has attended the full hearing or hearings may participate in the board's decision during the absence or disqualification of any regular member for whom he is an alternate.

L.1975, c. 186, s. 1, eff. Aug. 16, 1975.

40:27-2. Duties of board; master plan; Municipal co-operation

The county planning board shall make and adopt a master plan for the physical development of the county. The master plan of a county, with the accompanying maps, plats, charts, and descriptive and explanatory matter, shall show the county planning board's recommendations for the

development of the territory covered by the plan, and may include, among other things, the general location, character, and extent of streets or roads, viaducts, bridges, waterway and waterfront developments, parkways, playgrounds, forests, reservations, parks, airports, and other public ways, grounds, places and spaces; the general location and extent of forests, agricultural areas, and open-development areas for purposes of conservation, food and water supply, sanitary and drainage facilities, or the protection of urban development, and such other features as may be important to the development of the county.

The county planning board shall encourage the co-operation of the local Municipalities within the county in any matters whatsoever which may concern the integrity of the county master plan and to advise the board of chosen freeholders with respect to the formulation of development programs and budgets for capital expenditures.

40:27-3. Employees; experts; master plan part of improvement; bonds

The county planning board may employ experts and pay for their and such other expenses as may be deemed necessary for the making of the master plan and for the carrying out of such other duties as are herein prescribed, except that such board may expend only such sums as may be appropriated by the board of chosen freeholders or be placed at its disposal through gift. The making of the master plan shall be regarded as essential preliminary studies incidental to the later carrying out of capital improvement projects over an indefinite period of years and may be funded by serial notes or bonds to be issued by the county, the terms of which shall not exceed five years.

40:27-4. Hearing before plan adopted; notice of hearing; resolution; vote required; Municipal master plan, official map or ordinance

a. Before adopting the master plan or any part thereof or any amendment thereof the board shall hold at least one public hearing thereon, notice of the time and place of which shall be given by one publication in a newspaper of general circulation in the county and by the transmission by delivery or by certified mail, at least 20 days prior to such hearing, of a notice of such hearing and a copy of the proposed master plan, or part thereof or any proposed amendment thereof to the Municipal clerk and secretary of the planning board of each Municipality in the county. The adoption of the plan or part or amendment thereof shall be by resolution of the board carried by the affirmative vote of not less than 2/3 of the members of the board. The resolution shall refer especially to the maps and descriptive and other matter intended by the board to form the whole or part of the plan or amendment and the action taken shall be recorded on the map and plan and descriptive matter by the identifying signature of the secretary of the board. An attested copy of the master plan or any amendments thereof shall be certified to the board of chosen freeholders, to the county park commission, if such exists, and to the legislative body of every Municipality within the county.

b. In order to maximize the degree of co-ordination between Municipal and county plans and official maps, the county planning board shall be notified in regard to the adoption or amendment of any Municipal master plan, official map or ordinance under the "Municipal Planned Unit Development Act (1967)." A copy of any such proposed plan, map or

amendment shall be forwarded to the county planning board for review and report at least 20 days prior to the date of public hearing thereon.

c. Within 30 days after the adoption of a zoning ordinance, subdivision ordinance, master plan, official map, capital improvement program, or amendments thereto, a copy of said document shall be transmitted to the county planning board for its information and files.

Amended by L.1968, c. 285, s. 2, eff. July 1, 1969.

40:27-5. Adding to county map; changes submitted to board; map considered binding

The board of chosen freeholders in any county after receiving the advice of the county planning board is hereby empowered to adopt and establish and thereafter as often as the board may deem it for the public interest, to change or to add to an official county map, showing the highways, roadways, parks, parkways, and sites for public buildings or works, under county jurisdiction, or in the acquisition, financing or construction of which the county has participated or may be called upon to participate. Such map shall be deemed to have been established to conserve and promote the public health, safety, convenience, and welfare. Before acting thereon in the first instance and before adopting any amendments thereto such board of chosen freeholders, after notice of time and place has been given by one publication for each of 3 successive weeks in a newspaper of general circulation in the county and after written notice to the county engineer, county planning board, county park commission, if such exists, and such other county officers and departments as the board shall designate and to the Municipal clerk and secretary of the planning board of each Municipality in the county, shall hold a public hearing or hearings thereon at which such representatives entitled to notice and such property owners and others interested therein as shall so desire shall be heard.

Before holding any such public hearing such board of chosen freeholders shall submit such proposed change or addition to the county planning board for its consideration and advice and shall fix a reasonable time within which such county planning board may report thereon, not, however, less than 20 days; upon receipt of such report from the county planning board or upon the failure of such board to report within the time limit so fixed such board of chosen freeholders may thereupon act upon the proposed change, but any action adverse to the report of the county planning board shall require the affirmative vote of the majority of all the members of such board of chosen freeholders.

When approved in whole or part by the board of chosen freeholders in any county, such county official map or part thereof shall be deemed to be binding upon the board of chosen freeholders of the county and the several county departments thereof, and upon other county boards heretofore or hereafter created under special laws, and no expenditure of public funds by such county for construction work or the acquisition of land for any purpose enumerated in section 40:27-2 of this Title shall be made except in accordance with such official map.

Nothing herein prescribed shall be construed as restricting or limiting the powers of boards of chosen freeholders from repairing, maintaining and improving any existing street, road, viaduct, bridge or parkway not shown on such official maps, which does not involve the acquisition of additional land or of park commissions as otherwise provided by law.

Amended by L.1964, c. 239, s. 1, eff. Dec. 23, 1964; L.1968, c. 285, s. 3, eff. July 1, 1969.

40:27-6. Buildings and highways; permits; hearing; penalty; enjoining construction

No building shall be erected in the bed of any highway adopted and shown as a part of the official county map unless a permit therefore is issued by the board of chosen freeholders. For such purpose such board is hereby created a discretionary administrative body, and shall when so acting be deemed an independent statutory body and all its transactions when so acting shall be separately recorded in minutes independent of the minutes of the board of chosen freeholders when acting as a legislative body. When so acting it shall have power by a vote of a majority of all its members to grant or withhold such a permit.

In such a meeting the board shall have power in considering the application for a permit for a specific building, by a vote of a majority of all its members, to grant a permit for a building in such a highway, which will as little as practicable increase the cost of opening such highway, or tend to cause a change of such official map, and such board shall impose reasonable requirements as a condition of granting such permit, which requirements shall be designed to promote the health, convenience, safety and general welfare of the public and shall inure to the benefit of the county. Before taking such action the board shall give a public hearing at which parties in interest and others shall have an opportunity to be heard. At least ten days' notice of the time and place of such hearing shall be published in a newspaper of general circulation in the county. The board shall refuse a permit where the land of the Applicant within the mapped highway is already earning a fair return, or where he is in no way injured by placing his building outside of the mapped highway.

Whoever shall construct or begin the construction of such a building without a permit shall forfeit and pay a penalty of not more than one hundred dollars (\$100.00) for each day that work on such structure continues. The county may bring an action to enjoin such construction and may also recover the penalty by a civil action in any court of competent jurisdiction.

Amended by L.1953, c. 37, p. 646, s. 53, eff. March 19, 1953.

40:27-6.1. Definitions

As used in this act and in chapter 27 of Title 40 of the Revised Statutes, unless the context otherwise requires:

"County master plan" and "master plan" means a composite of the master plan for the physical development of the county, with the accompanying maps, plats, charts and descriptive and explanatory matter adopted by the county planning board pursuant to Revised Statutes 40:27-2;

"County planning board" means a county planning board established by a county pursuant to R.S. 40:27-1 to exercise the duties set forth in such chapter, and means, in any county having adopted the provisions of the "Optional County Charter Law" (P.L.1972, c. 154; C. 40:41A-1 et seq.), any department, division, board or agency established pursuant to the administrative code of such county to exercise such duties, but only to the degree and extent that the requirements specified in such chapter for county planning boards do not conflict with the organization and structure of such department, division, agency or board as set forth in the administrative code of such county;

"Official county map" means the map, with changes and additions thereto, adopted and established, from time to time, by resolution of the board of chosen freeholders of the county pursuant to R.S. 40:27-5;

"Site plan" means a plan of an existing lot or plot or a subdivided lot on which is shown topography, location of all existing and proposed buildings, structures, drainage facilities, roads, rights-of-way, easements, parking areas, together with any other information required by and at a scale specified by a site plan review and approval resolution adopted by the board of chosen freeholders pursuant to this act;

"Subdivision" means the division of a lot, tract, or parcel of land into two or more lots, tracts, parcels or other divisions of land for sale or development. The following shall not be considered subdivisions within the meaning of this act, if no new streets are created: (1) divisions of land found by the planning board or subdivision committee thereof appointed by the chairman to be for agricultural purposes where all resulting parcels are 5 acres or larger in size, (2) divisions of property by testamentary or intestate provisions, (3) divisions of property upon court order, including but not limited to judgments of foreclosure, (4) consolidation of existing lots by deed or other recorded instrument and (5) the conveyance of one or more adjoining lots, tracts or parcels of land, owned by the same person or persons and all of which are found and certified by the administrative officer to conform to the requirements of the Municipal development regulations and are shown and designated as separate lots, tracts or parcels on the tax map or atlas of the Municipality. The term "subdivision" shall also include the term "resubdivision."

"Subdivision applications" means the application for approval of a subdivision pursuant to the "Municipal Land Use Law" (P.L.1975, c. 291; C. 40:55D-1 et seq.) or an application for approval of a planned unit development pursuant to the "Municipal Land Use Law" (P.L.1975, c. 291; C. 40:55D-1 et seq.).

L.1968, c. 285, s. 1, eff. July 1, 1969. Amended by L.1979, c. 216, s. 27.

40:27-6.2. Review and approval of all subdivisions of land; procedures; engineering and planning standards

The board of freeholders of any county having a county planning board shall provide for the review of all subdivisions of land within the county by said county planning board and for the approval of those subdivisions affecting county road or drainage facilities as set forth and limited hereinafter in this section. Such review or approval shall be in accordance with procedures and engineering and planning standards adopted by resolution of the board of chosen freeholders. These standards shall be limited to:

- a. The requirement of adequate drainage facilities and easements when, as determined by the county engineer in accordance with county-wide standards, the proposed subdivision will cause storm water to drain either directly or indirectly to a county road, or through any drainage way, structure, pipe, culvert, or facility for which the county is responsible for the construction, maintenance, or proper functioning;
- b. The requirement of dedicating rights-of-way for any roads or drainage ways shown on a duly adopted county master plan or official county map;
- c. Where a proposed subdivision abuts a county road, or where additional rights-of-way and physical improvements are required by the county planning board, such improvements shall be subject to recommendations of the county engineer relating to the safety and convenience of the traveling public and may include additional pavement widths, marginal access streets, reverse frontage and other county highway and traffic design features necessitated by an

increase in traffic volumes, potential safety hazards or impediments to traffic flows caused by the subdivision;

d. The requirement of performance guarantees and procedures for the release of same, maintenance bonds for not more than 2 years duration from date of acceptance of improvements and agreements specifying minimum standards of construction for required improvements. The amount of any performance guarantee or maintenance bond shall be set by the planning board upon the advice of the county engineer and shall not exceed the full cost of the facility and installation costs or the Applicant's proportionate share thereof, computed on the basis of his acreage related to the acreage of the total drainage basin involved plus 10% for contingencies. In lieu of providing any required drainage easement a cash contribution may be deposited with the county to cover the cost or the proportionate share thereof for securing said easement. In lieu of installing any such required facilities exterior to the proposed plat a cash contribution may be deposited with the county to cover the cost of proportionate share thereof for the future installation of such facilities. Any and all moneys received by the county to insure performance under the provisions of this act shall be paid to the county treasurer who shall provide a suitable depository therefore. Such funds shall be used only for county drainage projects or improvement for which they are deposited unless such projects are not initiated for a period of 10 years, at which time said funds shall be transferred to the general fund of the county, provided that no assessment of benefits for such facilities as a local improvement shall thereafter be levied against the owners of the lands upon which the Applicant's prior contribution had been based. Any moneys or guarantees received by the county under this paragraph shall not duplicate bonds or other guarantees required by Municipalities for Municipal purposes.

e. Provision may be made for waiving or adjusting requirements under the subdivision resolution to alleviate hardships which would result from strict compliance with the subdivision standards. Where provision is made for waiving or adjusting requirements criteria shall be included in the standards adopted by the board of chosen freeholders to guide actions of the county planning board.

Notice of the public hearing on a proposed resolution of the board of chosen freeholders establishing procedures and engineering standards to govern land subdivision within the county, and a copy of such resolution, shall be given by delivery or by certified mail to the Municipal clerk and secretary of the planning board of each Municipality in the county at least 10 days prior to such hearing.

L.1968, c. 285, s. 4, eff. July 1, 1969.

40:27-6.3. Submission of subdivision application to board for review and approval; report to Municipal authority

Each subdivision application shall be submitted to the county planning board for review and, where required, approval prior to approval by the local Municipal approving authority. County approval of any subdivision application affecting county road or drainage facilities shall be limited by and based upon the rules, regulations and standards established by and duly set forth in a resolution adopted by the board of chosen freeholders. The Municipal approval authority shall either defer taking final action on a subdivision application until receipt of the county planning board report thereon or approve the subdivision application subject to its timely receipt of a favorable report

thereon by the county planning board. The county planning board shall report to the Municipal authority within 30 days from the date of receipt of the application. If the county planning board fails to report to the Municipal approving authority within the 30-day period, said subdivision application shall be deemed to have been approved by the county planning board unless, by mutual agreement between the county planning board and Municipal approving authority, with approval of the Applicant, the 30-day period shall be extended for an additional 30-day period, and any such extension shall so extend the time within which a Municipal approving authority shall be required by law to act thereon.

L.1968, c. 285, s. 5, eff. July 1, 1969. Amended by L.1971, c. 371, s. 1, eff. July 1, 1971.

40:27-6.4. Review of subdivision application; withholding of approval

The county planning board shall review each subdivision application and withhold approval if said proposed subdivision does not meet the subdivision approval standards previously adopted by the board of chosen freeholders, in accordance with section 4 of this act. In the event of the withholding of approval, or the disapproval of, a subdivision application, the reasons for such action shall be set forth in writing and a copy thereof shall be transmitted to the Applicant.

L.1968, c. 285, s. 6, eff. July 1, 1969.

40:27-6.5. Certification of subdivision plat; acceptance for filing

The county recording officer shall not accept for filing any subdivision plat unless it bears the certification of either approval or of review and exemption of the authorized county planning board officer or staff member indicating compliance with the provisions of this act and standards adopted pursuant thereto, in addition to all other requirements for filing a subdivision plat including compliance with the provisions of "The Map Filing Law" (P.L.1960, c. 141). In the event the county planning board shall have waived its right to review, approve or disapprove a subdivision by failing to report to the Municipal approval authority within the 30-day period or the mutually agreed upon 30-day extension period, as outlined in section 5 above, the subdivision shall be deemed to have county planning board approval, and at the request of the Applicant, the secretary of the county planning board shall attest on the plat to the failure of the county planning board to report within the required time period, which shall be sufficient authorization for further action by the Municipal planning board and acceptance thereof for filing by the county recording officer.

L.1968, c. 285, s. 7, eff. July 1, 1969.

40:27-6.6. Review and approval of site plans for land development along county roads or affecting county drainage facilities

The governing body of any county having a county planning board may provide for the review of site plans for land development along county roads or affecting county drainage facilities as provided in subsection e. of this section and for the approval of such development as hereinafter set forth and limited for the purpose of assuring a safe and efficient county road system. Such review and approval shall be in conformance with procedures and standards adopted by resolution or ordinance as appropriate of the governing body. Notice of the public hearing on a proposed resolution or ordinance of the governing body establishing procedures and standards to govern the review and regulation of land development along county roads or affecting county drainage facilities as provided in subsection e. of this section, and a copy of such resolution or ordinance, shall be given by delivery or by certified mail to the Municipal clerk, secretary of the planning board and secretary of

the board of adjustment of each Municipality in the county at least 10 days prior to such hearing. These procedures and standards shall be limited to:

- a. The submission of a site plan, prior to the issuance of a Municipal building permit, drawn in accordance with standards in the resolution or ordinance for any proposed land development, excluding single family residential development but including proposed commercial, industrial, multifamily structures containing five or more units, or any other land development requiring off-street parking area or producing surface runoff in excess of standards set forth in the site plan review and approval resolution or ordinance of the governing body.
- b. The requirement of dedication of additional right-of-way in accordance with the county master plan adopted by the county planning board or an official county map adopted by the governing body. Where by reason of special or unusual conditions said total additional right-of-way is to be secured from just one side of an existing road, only one-half of the additional right-of-way may be required to be dedicated.
- c. The requirement of physical improvements subject to recommendations of the county engineer relating to the safety and convenience of the traveling public, including drainage facilities, or other highway and traffic design features as may be deemed necessary on such county road or roads in accordance with the engineering and planning standards established in the site plan review and approval resolution or ordinance of the governing body.
- d. The requirement of performance and payment guarantees and procedures for the release of same, maintenance bonds of not more than 2 years' duration from the date of acceptance of improvements, cash contributions, and agreements specifying minimum standards of construction for required improvements. Procedures for, and limitations on the requirement of such guarantees or cash contributions shall be governed by the provisions of this act.
- e. The requirement of adequate drainage facilities and easements when, as determined by the county engineer in accordance with county-wide standards, the proposed site plan will cause storm water to drain either directly or indirectly to a county road or through any drainage-way, structure, pipe, culvert or facility for which the county is responsible for the construction, maintenance or proper functioning.

Site plans for land development not along a county road that include less than 1 acre of impervious surfaces are exempt from county site plan review.

L.1968, c. 285, s. 8, eff. July 1, 1969. Amended by L.1981, c. 50, s. 1, eff. Feb. 25, 1981.

40:27-6.7. Report of approval or disapproval to local authority; time limit; extension

The Municipal or other local agency or individual with authority to approve the site plan or issue a building permit shall defer action on any application requiring county approval pursuant to section 7 of this act until the same shall have been submitted to the county planning board for its approval of the site plan. The county planning board shall have 30 days from the receipt of a site plan to report to the appropriate local authority. In the event of disapproval, such report shall state the specific reasons therefore. If the county planning board fails to report to the Municipal approving

or issuing authority within the 30-day period, said site plan shall be deemed to have been approved by the county planning board. Upon mutual agreement between the county planning board and the Municipal approving authority, with approval of the Applicant, the 30-day period may be extended for an additional 30-day period.

L.1968, c. 285, s. 9, eff. July 1, 1969.

40:27-6.8. Resolution vesting power to review and approve subdivisions and site plans with director

The county planning board may by resolution vest its power to review and approve subdivisions, pursuant to the provisions of sections 4 through 6 of this act, and the power to review and approve site plans pursuant to the provisions of sections 8 and 9 of this act with the county planning director and a designated committee of members of said county planning board.

L.1968, c. 285, s. 10, eff. July 1, 1969.

40:27-6.9. Appeal by aggrieved persons; hearing; decision

If said action is taken by the planning director and a committee of the board, said Applicant may file an appeal in writing to the county planning board within 10 days after the date of notice by certified mail of the said action. Any person aggrieved by the action of the county planning board in regard to subdivision review and approval or site plan review and approval may file an appeal in writing to the board of chosen freeholders within 10 days after the date of notice by certified mail of said action. The county planning board or the board of chosen freeholders to which an appeal is taken shall consider such appeal at a regular or special public meeting within 45 days from the date of its filing. Notice of said hearing shall be made by certified mail at least 10 days prior to the hearing to the Applicant and to such of the following officials as deemed appropriate for each specific case: the Municipal clerk, Municipal planning board, board of adjustment, building inspector, zoning officer, board of chosen freeholders and the county planning board. The board to which appeal is taken shall render a decision within 30 days from the date of the hearing.

L.1968, c. 285, s. 11, eff. July 1, 1969.

40:27-6.10. Filing copy of planning and zoning ordinances with boards; notice of proposed revision of ordinance

In order that county planning boards shall have a complete file of the planning and zoning ordinances of all Municipalities in the county, each Municipal clerk shall file with the county planning board a copy of the planning and zoning ordinances of the Municipality in effect on the effective date of this act and shall notify the county planning board of the introduction of any revision or amendment of such an ordinance which affects lands adjoining county roads or other county lands, or lands lying within 200 feet of a Municipal boundary, or proposed facilities or public lands shown on the county master plan or official county map. Such notice shall be given to the county planning board at least 10 days prior to the public hearing thereon by personal delivery or by certified mail of a copy of the official notice of the public hearing together with a copy of the proposed ordinance.

L.1968, c. 285, s. 12, eff. July 1, 1968.

40:27-6.11. Application to board of adjustment involving land fronting county road, adjoins other county lands or is within 200 feet of Municipal boundary; notice

The county planning board shall be notified of any application to the board of adjustment under Revised Statute 40:55-39 in such cases where the land involved fronts upon an existing county road or proposed road shown on the official county map or on the county master plan, adjoins the other county land or is situated within 200 feet of a Municipal boundary. Notice of hearings on such applications shall be furnished by the appellant in accordance with P.L.1965, c. 162 (C. 40:55-53).

L.1968, c. 285, s. 13, eff. July 1, 1969.

40:27-6.12. Continuation of board's authority to review and approve land subdivision

Any county planning board exercising the authority of review and approval of land subdivision pursuant to the provisions of chapter 27 of Title 40 of the Revised Statutes and chapter 412 of the laws of 1948 supplementary thereto is authorized to continue to exercise such authority thereunder for the period of 1 year after the effective date of this act or until the board of chosen freeholders of the county adopts a resolution governing land subdivision pursuant to this act, whichever occurs first.

L.1968, c. 285, s. 14, eff. July 1, 1969.

40:27-6.13. Notice of hearing on granting variance or establishing or amending official Municipal map; contents

Whenever a hearing is required before a zoning board of adjustment or the governing body of a Municipality in respect to the granting of a variance or establishing or amending an official Municipal map involving property adjoining a county road or within 200 feet of an adjoining Municipality, and notice of said hearing is required to be given, the person giving such notice shall also, at least 10 days prior to the hearing, give notice thereof in writing by certified mail to the county planning board. The notice shall contain a brief description of the property involved, its location, a concise statement of the matters to be heard and the date, time and place of such hearing.

L.1968, c. 285, s. 15, eff. July 1, 1969.

40:27-8. Existing boards continued in conformity with this chapter

County planning boards lawfully in existence on June eighth, one thousand nine hundred and thirty-five, if continued after January first, one thousand nine hundred and thirty-six, shall be reconstituted in accordance with the provisions of this chapter.

4. Map Filing Law

46:23-9.8. Effective date

This act shall take effect January first, one thousand nine hundred and fifty-four. L.1953, c. 358, p. 1941, s. 8.

46:23-9.9. Short title

This act shall be known and may be cited as "the map filing law. L.1960, c. 141, p. 662, s. 1, eff. Jan. 1, 1961.

46:23-9.10. Definitions

2. Definitions. As used in this act:

a. "Map" means a map, plat, condominium plan, right of way parcel maps of the State, county or Municipality, chart, or survey of lands presented for approval to the proper authority as hereinafter defined or presented for filing in accordance with the provisions of this act, but does not mean a map, plat or sketch required to be filed or recorded under the provisions of P.L.1957, c.130 (C.48:3-17.2).

b. "Municipal Engineer" means the official licensed professional engineer appointed by the proper authority of the Municipality wherein the territory shown on a map is situate.

c. The term "Professional Engineer" means a person who is legally authorized to practice professional engineering in this State in accordance with the provisions of P.L.1938, c.342 (C.45:8-27 et seq.).

d. The term "Land Surveyor" means a person who is legally authorized to practice land surveying in this State in accordance with the provisions of P.L.1938, c.342 (C.45:8-27 et seq.).

e. "Proper authority" means the chief legislative body of a Municipality or any other agencies to whom the authority for the approval of maps may be duly designated by ordinance.

f. "Right of way parcel map" means any general property parcel map of the State, county or Municipality which shows highways, roads or street acquisitions and any associated easements for highway, road or street rights of way.

g. "Entire tract" means all of the property that is being subdivided including lands remaining after subdivision.

h. "Condominium plan" means a survey of the condominium property in sufficient detail to show and identify common elements, each unit and their respective locations and appropriate dimensions, which shall be filed in accordance with the requirements of section 3 of P.L.1960, c.141 (C.46:23-9.11). A condominium plan shall bear a certification by a land surveyor, professional engineer or architect authorized and qualified to practice in this State setting forth that the plan constitutes a correct representation of the improvements described.

i. "General property parcel map" means any right of way parcel map showing a grouping of parcel and easement acquisitions for part of a section of a highway, road or street project. L.1960,c.141,s.2; amended 1997, c.211, s.1; 1998, c.23, s.2.

46:23-9.11. Requirements for approval

3. Requirements for Approval.

All subdivision plats, both major and where required minor, right of way parcel maps of the State, county or Municipality, shall be filed in accordance with the provisions of P.L.1960, c.141 (C.46:23-9.9 et seq.). Right of way parcel maps shall meet the requirements of subsections a. through d., subsections f. through i., subsection m. and paragraph 12 of subsection r. of this section. Minor subdivision maps shall meet the requirements of subsections a. through i., and k. through q., and subsection j. except for the outside tract line monuments, and paragraph 13 of subsection r. of this section. A condominium plan shall be filed in accordance with the requirements of subsections a. through c., subsections f. through i., and subsection m. of this section. No map requiring approval by law or that is to be approved for filing with a county recording officer, shall be approved by the proper authority unless it shall conform to the following requirements:

- a. It shall be clearly and legibly drawn, and where required endorsed and presented either as an original drawing in black ink on translucent tracing cloth, translucent mylars at least 4 mils thick or its equivalent, of good quality, with signatures in ink, or as an equivalent reproduction on photographic fixed line mylar 4 mils thick with signatures in black ink or its equivalent and shall be accompanied by a cloth print or photographic fixed line mylar 4 mils thick duplicate thereof.
- b. It shall be one of six standard sizes namely, 8 1/2" x 13", 30" x 42", 24" x 36", 11" x 17", 18" x 24" or 15" x 21" as measured from cutting edges. If one sheet is not of sufficient size to contain the entire territory, the map may be divided into sections to be shown on separate sheets of equal sizes, with references on each sheet to the adjoining sheets.
- c. It shall show the scale, which shall be inches to feet and be large enough to contain legibly written data on the dimensions, bearings and all other details of the boundaries, and it shall also show the graphic scale.
- d. It shall show the dimensions, square footage of each lot to the nearest square foot or nearest one hundredth of an acre, bearings and curve data to include the radius, delta angle, length of arc, chord distance and chord bearing sufficient to enable the definite location of all lines and boundaries shown thereon, including public easements and areas dedicated for public use. Non-tangent curves and non-radial lines shall be labeled. Right of way parcel maps shall show bearings, distances and curve data for the right of way or the center line or base line and ties to right of way lines if from a base line.
- e. Where lots are shown thereon, those in each block shall be numbered consecutively. In Municipalities where tax maps exist, block and lot designations shall conform therewith, if the Municipal regulations so require. In counties which have adopted or shall adopt the local or block system of indices pursuant to sections 46:24-1 to 46:24-22 of the Revised Statutes, it shall have delineated and shown thereon the block boundary or boundaries and designations

established by the board of commissioners of land records of such counties respecting the territory intended to be shown on such map.

f. The reference meridian used for bearings on the map shall be shown graphically. The coordinate base, either assumed or based on the New Jersey Plane Coordinate System, shall be shown on the plat.

g. All Municipal boundary lines crossing or adjacent to the territory intended to be shown shall be shown and designated.

h. All natural and artificial watercourses, streams, shorelines and water boundaries and encroachment lines shall be shown. On right of way parcel maps all easements that affect the right of way shall be shown and dimensioned, including but not limited to slope easements and drainage.

i. All permanent easements shall be shown and dimensioned including but not limited to sight right easements and utility easements.

j. The map shall clearly show all monumentation as required by this act, including monuments found, monuments set, and monuments to be set. An indication shall be made where monumentation found has been reset. For purposes of this subsection "found corners" shall be considered monuments. A minimum of three corners distributed around the tract shall indicate the coordinate values. The outbound corner markers shall be set pursuant to regulations promulgated by the State Board of Professional Engineers and Land Surveyors.

k. It shall conform to such other technical design controls as may be required by the provisions of local ordinances, including but not limited to minimum street widths, minimum lot areas and minimum yard dimensions and should be shown as a chart on the plat.

l. The name of the subdivision, name of the last property owner or owners, Municipality and county shall be shown.

m. The date of the survey shall be shown and the map shall be in accordance with the minimum survey detail requirements as promulgated by the State Board of Professional Engineers and Land Surveyors.

n. There shall be endorsed thereon a certificate of a land surveyor or surveyors, as follows:

(1) I hereby certify that to the best of my knowledge and belief this map and land survey dated meets the minimum survey detail requirements, with outbound corners marked, as promulgated by the State Board of Professional Engineers and Land Surveyors and has been made under my supervision, and complies with the provisions of "the map filing law" and that the outbound corner markers as shown have been found, or set. (Include the following, if applicable)

I do further certify that the monuments as designated and shown hereon have been set.

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.....

Licensed Professional Land Surveyor and No.

(Affix Seal)

(2) If the land surveyor who prepares the map is different than the land surveyor who prepared the outbound survey, the following two certificates shall be added in lieu of the certificate above.

I hereby certify to the best of my knowledge information and belief that this land survey dated has been made under my supervision and meets the minimum survey detail requirements, with outbound corners marked, promulgated by the State Board of Professional Engineers and Land Surveyors and that the outbound corner markers as shown have been found, or set

.....

Licensed Professional Land Surveyor and No.

(Affix seal)

I hereby certify that this map has been made under my supervision and complies with the provisions of the "map filing law." (Including the following if applicable) I do further certify that the monuments as designated and shown hereon have been set.

.....

Licensed Professional Land Surveyor and No.

(Affix seal)

(3) If monuments are to be set at a later date, the following requirements and endorsement shall be shown on the map. The monuments shown on this map shall be set within an appropriate time limit as provided for in the "Municipal Land Use Law," P.L.1975, c.291 (C.40:55D-1 et seq.) or local ordinance.

I certify that a bond has been given to the Municipality, guaranteeing the future setting of the monuments shown on this map and so designated.

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.....

Municipal Clerk

(4) If the map is a right of way parcel map the project surveyor need only to certify that the monuments have been set or will be set.

o. There shall be endorsed thereon a certificate of the Municipal engineer as follows:

I have carefully examined this map and to the best of my knowledge and belief find it conforms with the provisions of "the map filing law" resolution of approval and the Municipal ordinances and requirements applicable thereto.

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.....

Municipal Engineer(Affix Seal)

p. There shall be submitted to the proper authority an affidavit setting forth the names and addresses of all the record title owners of the lands subdivided by said map and the consent in writing of all such owners to the approval of such map shall be required.

q. If the map shows streets, avenues, roads, lanes or alleys, there shall be endorsed thereon a certificate by the Municipal clerk that the Municipal body has approved such streets, avenues, roads, lanes or alleys, except where such map is prepared and presented for filing by the State of New Jersey or any of its agencies. The map shall show all of the street names as approved by the Municipality.

r. Monuments are required on one side of the right of way only and shall be of metal detectable durable material at least 30 inches long. The top and bottom shall be a minimum of 4 inches square; if concrete, however it may be made of other durable metal detectable material specifically designed to be permanent, as approved by the State Board of Professional Engineers and Land Surveyors. All monuments shall include the identification of the professional land surveyor or firm. They shall be firmly set in the ground so as to be visible at the following control points; provided that in lieu of installation of the monuments, the Municipality may accept bond with sufficient surety in form and amount to be determined by the governing body, conditioned upon the proper installation of said monuments upon the completion of the grading of the streets and roads shown on the map.

- (1) At each intersection of the outside boundary of the whole tract, with the right-of-way line of any side of an existing street.
- (2) At the intersection of the outside boundary of the whole tract with the right-of-way line on one side of a street being established by the map under consideration.
- (3) At one corner formed by the intersection of the right-of-way lines of any 2 streets at a T-type intersection.
- (4) At any two corners formed by the right-of-way lines of any two streets in an "X" or "Y" type intersection.
- (5) If the right-of-way lines of two streets are connected by a curve at an intersection, monuments shall be as stipulated in (3) and (4) of this subsection at one of the following control points:
 - (a) The point of intersection of the prolongation of said lines.
 - (b) The point of curvature of the connecting curve or,
 - (c) The point of tangency of the connecting curve.
- (6) At the beginning and ending of all tangents on one side of any street.
- (7) At the point of compound curvature or point of reversed curvature where either curve has a radius equal to or greater than 100 feet. Complete curve data as indicated in subsection d. of this section shall be shown on both sides.
- (8) At intermediate points in the sidelines of a street between two adjacent street intersections in cases where the street deflects from a straight line or the line of sight between the adjacent intersections is obscured by a summit or other obstructions which are impractical to remove. This requirement may necessitate the setting of

additional monuments at points not mentioned above. Bearings and distances between the monuments or coordinate values shall be indicated.

(9) In cases where it is impossible to set a monument at any of the above designated points, a nearby reference monument shall be set and its relation to the designated point shall be clearly designated on the map; or the plate on the reference monument shall be stamped with the word "offset" and its relation to the monument shown on the filed map.

(10) In areas where permanency of monuments may be better insured by off-setting the monuments from the property line, the Municipal engineer may authorize such procedure; provided, that proper instrument sights may be obtained and complete off-set data is recorded on the map.

(11) By the filing of a map in accordance with the provisions of "the map filing law," reasonable survey access to the monuments is granted, which shall not restrict in any way the use of the property by the landowner.

(12) On right of way parcel maps, the monuments shall be set at the points of curvature, points of tangency, points of reverse curvature and points of compound curvature or the control base line or center line, if used, and be intervisible with a second monument.

(13) On minor subdivisions a monument shall be set at each intersection of an outside boundary of the newly created lot(s) with the right of way line of any side of an existing street. L.1960,c.141,s.3; amended 1997, c.211, s.2; 1999, c.258.

46:23-9.12. Time for approval

The proper authority shall approve or disapprove such map within 45 days from the receipt thereof.

L.1960, c. 141, p. 667, s. 4.

46:23-9.13. Approval of map by Municipality not acceptance of roads, streets or highways

The approval of any map under this law by the proper authority shall in no way be construed as acceptance of any road, street or highway indicated thereon; nor shall any such approval in any way obligate the State of New Jersey or any county or Municipality therein, to maintain or exercise jurisdiction over such roads, streets or highways.

L.1960, c. 141, p. 667, s. 5.

46:23-9.14. Prerequisites to filing

The county recording officer shall not accept for filing any map unless it has endorsed thereon a certificate signed and sealed with the Municipal seal by the Municipal clerk or secretary of the planning board as the case may be, stating that the proper authority has approved the map or stating its exemption from approval which certificate shall state that said map complies with the provisions of this law and shall designate the day on or before which said map is required to be filed by the provisions of the applicable law and provided that said map is filed on or before said designated day.

Said map shall also comply with the provisions of section 3, paragraphs a. and b. of this act in order to be accepted for filing.

L.1960, c. 141, p. 667, s. 6.

46:23-9.15. Filing and indexing of maps, fee

The county recording officer of each county shall, when received by him for that purpose in accordance with the provisions of this law in folios, slides, cabinets or other receptacles, maps of land lying in whole or in part in the county where the same are offered to be filed; provided that he shall retain the original tracing on translucent tracing cloth or its equivalent unmounted in an appropriate file or container, for preservation and use for reproduction purposes only, prints of which may be made available to the public at a reasonable cost. He shall endorse on the tracing and cloth print duplicate the date of the filing thereof in his office, and he shall provide and keep a proper index of all maps on file in his office. The county recording officer shall, for filing and indexing each map receive such fee as may be provided by law, except that when any map shall be presented for filing by the State of New Jersey, or any of its agencies no fee shall be charged for the filing thereof.

L.1960, c. 141, p. 669, s. 7.

46:23-9.16. Repeals

Sections 1 to 6, both inclusive, of chapter 358 of the laws of 1953 entitled "An act concerning the approval and filing of maps, supplementing chapter 23 of Title 46, and repealing sections 46:23-1, 46:23-2, 46:23-3, 46:23-4, 46:23-5, 46:23-6, 46:23-7, 46:23-8 and 46:23-9, of the Revised Statutes" (approved August 10, 1953, P.L.1953, c. 358) are hereby repealed.

5. Deed Templates

Bridge Maintenance Easement

Drainage Easement-- Point Discharge

Drainage Easement—Sheet Flow

ROW dedication

Sight Easement

Sight Triangle Easement

Deed Language For Sight Triangle Restriction

Slope Easement

Prepared by:

Dennis R. McConnell, Esq.

DEED OF EASEMENT

This Deed is made on _____, 20____,

BETWEEN _____, whose address is

referred to as the Grantor,

AND **THE COUNTY OF SUSSEX**, a political subdivision of the State of New Jersey, with administrative offices located at One Spring Street, Newton, New Jersey 07860.

referred to as the Grantees

The words "Grantor" and "Grantee" shall mean all Grantors and all Grantees listed above.

Transfer of Ownership. The Grantor grants and conveys (transfers ownership of) an easement in the property described below to the Grantee. This transfer is made without monetary consideration.

Tax Map Reference. (N.J.S.A. 46:15-1.1) Municipality of the _____ of _____, Block _____, Lot _____.

Property. The property consists of the land in the _____ of _____, County of Sussex and State of New Jersey. The legal description is:

ATTACHED HERETO AS SCHEDULE A.

It is the intent and purpose of this Deed to grant unto The County of Sussex an absolute and exclusive easement including the right to maintain, repair, rebuild and/or install a bridge and bridge maintenance area within the above described premises including the right to maintain, repair, rebuild and/or install slopes surrounding said bridge or any replacement of same along with appurtenances on, over and around County Bridge No. _____ on the above described premises. The County of Sussex, its agents, subcontractors, representatives and employees shall have the right to enter into and upon so much of the herein described premises as shall be reasonably necessary to effectuate the purposes of the easement herewith granted in order to conduct such inspections, maintenance and repairs as shall be reasonably necessary in order to assure the continuing efficient functioning of the bridge on and across the herein described premises. However, nothing

contained in this Deed of Easement in any way obligates or requires the County of Sussex to maintain or improve said bridge or the surrounding slopes to the benefit of Grantor or other Third Parties.

Promises by Grantor. The Grantor promises that the Grantor has done no act to encumber the property. This promise is called a "covenant as to grantor's acts" (N.J.S.A. 46:4-6). This promise means that the Grantor has not allowed anyone else to obtain any legal rights which affect the property (such as by making a mortgage or allowing a judgment to be entered against the Grantor).

Signatures. The Grantor signs this Deed as of the date at the top of the first page.

Witnessed by:

By: _____

By: _____

STATE OF NEW JERSEY)

SS:

COUNTY OF)

I CERTIFY that on _____, 20____, _____, personally came before me and acknowledged under oath, to my satisfaction, that this person (or if more than one, each person);

- (a) is named in and personally signed this document; and
- (b) signed, sealed and delivered this document as his or her act and deed; and
- (c) made this Deed for \$0.00 as the full and actual consideration paid or to be paid for the transfer of title. (Such consideration is defined in N.J.S.A. 46:15-5).

I.

STATE OF NEW JERSEY)

SS :

COUNTY OF)

I Certify that on _____, 20__

personally came before me and this person acknowledged under oath, to my satisfaction, that:

- (a) this person is the _____ secretary of the corporation named in this Deed;
- (b) this person is attesting witness to the signing of this Deed by the proper corporate officer who is the _____ President of the corporation;
- (c) this Deed was signed and delivered by the corporation as its

voluntary act duly authorized by a proper resolution of its Board of Directors;

- (d) this person signed this proof to attest to the truth of these facts; and
- (e) the full and actual consideration paid or to be paid for the transfer of title is \$0.00 (Such consideration is defined in N.J.S.A. 46:15-5)

Signed and sworn to before me
on _____, 20__.

Secretary

II.

STATE OF NEW JERSEY)

SS:

COUNTY OF _____)

I CERTIFY that on _____, 20__, _____, _____, personally came before me and acknowledged under oath, to my satisfaction, that this person (or if more than one, each person);

- (a) was the maker of the attached Deed;
- (b) was authorized to and did execute this Deed as President and Secretary of _____ Corporation, the entity named in this Deed;
- (c) made this Deed for \$0.00 as the full and actual consideration paid or to be paid for the transfer of title. (Such consideration is defined in N.J.S.A. 46:15-5); and
- (d) executed this Deed as the act of the entity

Notary

Prepared by:

Dennis R. McConnell, Esq.

DEED OF EASEMENT FOR DRAINAGE

This Deed is made on _____, 20____,

BETWEEN _____, whose address is

referred to as the Grantor,

AND **THE COUNTY OF SUSSEX**, a political subdivision of the State of New Jersey, with administrative offices located at One Spring Street, Newton, New Jersey 07860.

referred to as the Grantees

The words "Grantor" and "Grantee" shall mean all Grantors and all Grantees listed above.

Transfer of Ownership. The Grantor grants and conveys (transfers ownership of) an easement in the property described below to the Grantee. This transfer is made without monetary consideration.

Tax Map Reference. (N.J.S.A. 46:15-1.1) Municipality of the of _____, Block No. _____, Lot No..

Property. The property consists of the land in the _____ of _____, County of Sussex and State of New Jersey. The legal description is:

AS REFLECTED IN DEED BOOK _____ at PAGE _____

It is the intent and purpose of this Deed to grant unto the County of Sussex an absolute and exclusive easement, in perpetuity, for discharge onto and conveyance of storm water over all or any portion of the above described property from an existing _____ pipe or crossdrain, flow of which is being directed across and through the premises described herein, where the County of Sussex, its agents and assigns are authorized to enter on said premises at any time for the express purpose of installing or to otherwise establish, improve and maintain any storm water drainage system thereon. The County of Sussex further reserves the right to upgrade the diameter of said _____ to _____ diameter. Nothing herein shall require the County of Sussex to maintain, improve or install a storm drainage system hereon.

Promises by Grantor. The Grantor promises that the Grantor has done no act to encumber the property. This promise is called a "covenant as to grantor's acts" (N.J.S.A. 46:4-6). This promise means that the Grantor has not allowed

anyone else to obtain any legal rights which affect the property (such as by making a mortgage or allowing a judgment to be entered against the Grantor).

Signatures. The Grantor signs this Deed as of the date at the top of the first page.

Witnessed by:

By: _____

By: _____

STATE OF NEW JERSEY)

SS:

COUNTY OF _____)

I CERTIFY that on _____, 20____, _____, personally came before me and acknowledged under oath, to my satisfaction, that this person (or if more than one, each person);

- (a) is named in and personally signed this document; and
- (b) signed, sealed and delivered this document as his or her act and deed; and
- (c) made this Deed for \$0.00 as the full and actual consideration paid or to be paid for the transfer of title. (Such consideration is defined in N.J.S.A. 46:15-5).

Prepared by:

Dennis R. McConnell, Esq.

DEED OF EASEMENT FOR DRAINAGE

This Deed is made on _____, 20____,

BETWEEN _____, whose address is

referred to as the Grantor,

AND **THE COUNTY OF SUSSEX**, a political subdivision of the State of New Jersey, with administrative offices located at One Spring Street, Newton, New Jersey 07860.

referred to as the Grantees

The words "Grantor" and "Grantee" shall mean all Grantors and all Grantees listed above.

Transfer of Ownership. The Grantor grants and conveys (transfers ownership of) an easement in the property described below to the Grantee. This transfer is made without monetary consideration.

Tax Map Reference. (N.J.S.A. 46:15-1.1) Municipality of the _____ of _____, Block _____, Lot _____.

Property. The property consists of the land in the _____ of _____, County of Sussex and State of New Jersey. The legal description is:

(ANNEXED HERETO AS SCHEDULE "A")

It is the intent and purpose of this Deed is to grant unto the County of Sussex an absolute and exclusive easement, in perpetuity, for discharge onto and conveyance of surface and storm water emanating from Sussex County Route _____, flow of which is being directed across the adjoining premises of Grantor as described in Deed Book _____, at page _____. Nothing herein shall require the County of Sussex to maintain, improve or install a storm drainage system hereon.

Promises by Grantor. The Grantor promises that the Grantor has done no act to encumber the property. This promise is called a "covenant as to grantor's acts" (N.J.S.A. 46:4-6). This promise means that the Grantor has not allowed anyone else to obtain any legal rights which affect the property (such as by making a mortgage or allowing a judgment to be entered against the Grantor).

Signatures. The Grantor signs this Deed as of the date at the top of the first page.

Witnessed by:

By: _____

By: _____

STATE OF NEW JERSEY)

SS:

COUNTY OF)

I CERTIFY that on _____, 20____, _____, personally came before me and acknowledged under oath, to my satisfaction, that this person (or if more than one, each person);

- (a) is named in and personally signed this document; and
- (b) signed, sealed and delivered this document as his or her act and deed; and
- (c) made this Deed for \$0.00 as the full and actual consideration paid or to be paid for the transfer of title. (Such consideration is defined in N.J.S.A. 46:15-5).

Prepared by:

Dennis R. McConnell, Esq.

DEED

This Deed is made on _____, 20____,

BETWEEN _____, whose address is

referred to as the Grantor,

AND **THE COUNTY OF SUSSEX**, a political subdivision of the State of New Jersey, with administrative offices located at One Spring Street, Newton, New Jersey 07860.

referred to as the Grantees

The words "Grantor" and "Grantee" shall mean all Grantors and all Grantees listed above.

Transfer of Ownership. The Grantor grants and conveys (transfers ownership of) the property described below to the Grantee. This transfer is made without monetary consideration.

Tax Map Reference. (N.J.S.A. 46:15-1.1) Municipality of the _____ of _____, a portion of Block _____, Lot _____.

Property. The property consists of the land in the _____ of _____, County of Sussex and State of New Jersey. The legal description is:

ATTACHED HERETO AS SCHEDULE A.

It is the intent and purpose of this Deed to grant unto the County of Sussex the right of way in fee, in perpetuity, for road purposes thereby authorizing the County, its agents and assigns, and general public to pass in, over and upon all or a portion thereof for travel and maintenance of the public roadway now designated as County Route _____.

Promises by Grantor. The Grantor promises that the Grantor has done no act to encumber the property. This promise is called a "covenant as to grantor's acts" (N.J.S.A. 46:4-6). This promise means that the Grantor has not allowed anyone else to obtain any legal rights which affect the property (such as by making a mortgage or allowing a judgment to be entered against the Grantor).

Signatures. The Grantor signs this Deed as of the date at the top of the first page.

Witnessed by:

By: _____

By: _____

STATE OF NEW JERSEY)

SS:

COUNTY OF)

I CERTIFY that on _____, 20____, _____, personally came before me and acknowledged under oath, to my satisfaction, that this person (or if more than one, each person);

- (a) is named in and personally signed this document; and
- (b) signed, sealed and delivered this document as his or her act and deed; and
- (c) made this Deed for \$0.00 as the full and actual consideration paid or to be paid for the transfer of title. (Such consideration is defined in N.J.S.A. 46:15-5).

I.

STATE OF NEW JERSEY)

SS :

COUNTY OF)

I Certify that on _____, 20__

personally came before me and this person acknowledged under oath, to my satisfaction, that:

- (a) this person is the _____ secretary of the corporation named in this Deed;
- (b) this person is attesting witness to the signing of this Deed by the proper corporate officer who is the _____ President of the corporation;
- (c) this Deed was signed and delivered by the corporation as its voluntary act duly authorized by a proper resolution of its Board of Directors;
- (d) this person signed this proof to attest to the truth of these facts; and
- (e) the full and actual consideration paid or to be paid for the transfer of title is \$0.00 (Such consideration is defined in N.J.S.A. 46:15-5)

Signed and sworn to before me

Secretary

on _____, 20__.

II.

STATE OF NEW JERSEY)

SS:

COUNTY OF _____)

I CERTIFY that on _____, 20__, _____, _____, personally came before me and acknowledged under oath, to my satisfaction, that this person (or if more than one, each person);

- (a) was the maker of the attached Deed;
- (b) was authorized to and did execute this Deed as President and Secretary of _____ Corporation, the entity named in this Deed;
- (c) made this Deed for \$0.00 as the full and actual consideration paid or to be paid for the transfer of title. (Such consideration is defined in N.J.S.A. 46:15-5); and
- (d) executed this Deed as the act of the entity

Notary

Prepared by:

Dennis R. McConnell, Esq.

DEED FOR SIGHT EASEMENT

This Deed is made on _____, 20____,

BETWEEN _____, whose address is

referred to as the Grantor,

AND THE COUNTY OF SUSSEX, a political subdivision of the State of New Jersey, with administrative offices located at One Spring Street, Newton, New Jersey 07860.

referred to as the Grantees

The words "Grantor" and "Grantee" shall mean all Grantors and all Grantees listed above.

Transfer of Ownership. The Grantor grants and conveys (transfers ownership of) an easement in the property described below to the Grantee. This transfer is made without monetary consideration.

Tax Map Reference. (N.J.S.A. 46:15-1.1) Municipality of the _____ of _____, Block _____, Lot _____.

Property. The property consists of the land in the _____ of _____, County of Sussex and State of New Jersey. The legal description is:

ATTACHED HERETO AS SCHEDULE A.

It is the intent and purpose of this Deed to grant unto The County of Sussex an absolute and exclusive easement, in perpetuity, to establish a permanent restriction against the use of any portion thereof for any structure, growth, or physical impediment that would in any manner infringe upon a free and open line of sight over the same.

Promises by Grantor. The Grantor promises that the Grantor has done no act to encumber the property. This promise is called a "covenant as to grantor's acts" (N.J.S.A. 46:4-6). This promise means that the Grantor has not allowed anyone else to obtain any legal rights which affect the property (such as by making a mortgage or allowing a judgment to be entered against the Grantor).

Signatures. The Grantor signs this Deed as of the date at the top of the

first page.

Witnessed by:

By: _____

By: _____

STATE OF NEW JERSEY)

SS:

COUNTY OF _____)

I CERTIFY that on _____, 20____, _____, personally came before me and acknowledged under oath, to my satisfaction, that this person (or if more than one, each person);

- (a) is named in and personally signed this document; and
- (b) signed, sealed and delivered this document as his or her act and deed; and
- (c) made this Deed for \$0.00 as the full and actual consideration paid or to be paid for the transfer of title. (Such consideration is defined in N.J.S.A. 46:15-5).

I.

STATE OF NEW JERSEY)

SS :

COUNTY OF _____)

I Certify that on _____, 20__

personally came before me and this person acknowledged under oath, to my satisfaction, that:

- (a) this person is the _____ secretary of the corporation named in this Deed;
- (b) this person is attesting witness to the signing of this Deed by the proper corporate officer who is the _____ President of the corporation;
- (c) this Deed was signed and delivered by the corporation as its voluntary act duly authorized by a proper resolution of its Board of Directors;
- (d) this person signed this proof to attest to the truth of these facts; and
- (e) the full and actual consideration paid or to be paid for the transfer of title is \$0.00 (Such consideration is defined in N.J.S.A. 46:15-5)

Signed and sworn to before me
on _____, 20__.

Secretary

II.

STATE OF NEW JERSEY)

SS:

COUNTY OF)

I CERTIFY that on _____, 20____, _____, _____,
personally came before me and acknowledged under oath, to my satisfaction, that
this person (or if more than one, each person);

- (a) was the maker of the attached Deed;
- (b) was authorized to and did execute this Deed as President and
Secretary of _____ Corporation, the entity named in
this Deed;
- (c) made this Deed for \$0.00 as the full and actual consideration paid or
to be paid for the transfer of title. (Such consideration is defined
in N.J.S.A. 46:15-5); and
- (d) executed this Deed as the act of the entity

Notary

Prepared by:

Dennis R. McConnell, Esq.

DEED FOR SIGHT TRIANGLE EASEMENT

This Deed is made on _____, 20____,

BETWEEN _____, whose address is

referred to as the Grantor,

AND **THE COUNTY OF SUSSEX**, a political subdivision of the State of New Jersey, with administrative offices located at One Spring Street, Newton, New Jersey 07860.

referred to as the Grantees

The words "Grantor" and "Grantee" shall mean all Grantors and all Grantees listed above.

Transfer of Ownership. The Grantor grants and conveys (transfers ownership of) an easement in the property described below to the Grantee. This transfer is made without monetary consideration.

Tax Map Reference. (N.J.S.A. 46:15-1.1) Municipality of the _____ of _____, Block _____, Lot _____.

Property. The property consists of the land in the _____ of _____, County of Sussex and State of New Jersey. The legal description is:

ATTACHED HERETO AS SCHEDULE A.

It is the intent and purpose of this Deed to grant unto The County of Sussex an absolute and exclusive easement, in perpetuity, to establish a permanent restriction against the use of any portion thereof for any structure, growth, or physical impediment that would in any manner obstruct vision [sight line] between a height of two (2) feet and ten (10) feet through the easement area described herein, as measured above the center line grade of the County road and the intersecting road or driveway.

Promises by Grantor. The Grantor promises that the Grantor has done no act to encumber the property. This promise is called a "covenant as to grantor's acts" (N.J.S.A. 46:4-6). This promise means that the Grantor has not allowed anyone

else to obtain any legal rights which affect the property (such as by making a mortgage or allowing a judgment to be entered against the Grantor).

Signatures. The Grantor signs this Deed as of the date at the top of the first page.

Witnessed by:

By: _____

By: _____

STATE OF NEW JERSEY)

SS:

COUNTY OF)

I CERTIFY that on _____, 20____, _____, personally came before me and acknowledged under oath, to my satisfaction, that this person (or if more than one, each person);

- (a) is named in and personally signed this document; and
- (b) signed, sealed and delivered this document as his or her act and deed; and
- (c) made this Deed for \$0.00 as the full and actual consideration paid or to be paid for the transfer of title. (Such consideration is defined in N.J.S.A. 46:15-5).

I.

STATE OF NEW JERSEY)

SS :

COUNTY OF)

I Certify that on _____, 20__

personally came before me and this person acknowledged under oath, to my satisfaction, that:

- (a) this person is the _____ secretary of the corporation named in this Deed;
- (b) this person is attesting witness to the signing of this Deed by the proper corporate officer who is the _____ President of the corporation;
- (c) this Deed was signed and delivered by the corporation as its voluntary act duly authorized by a proper resolution of its Board of Directors;
- (d) this person signed this proof to attest to the truth of these facts; and
- (e) the full and actual consideration paid or to be paid for the transfer

of title is \$0.00 (Such consideration is defined in N.J.S.A. 46:15-5)

Signed and sworn to before me
on _____, 20__.

Secretary

II.

STATE OF NEW JERSEY)

SS:

COUNTY OF _____)

I CERTIFY that on _____, 20__, _____, _____, personally came before me and acknowledged under oath, to my satisfaction, that this person (or if more than one, each person);

- (a) was the maker of the attached Deed;
- (b) was authorized to and did execute this Deed as President and Secretary of _____ Corporation, the entity named in this Deed;
- (c) made this Deed for \$0.00 as the full and actual consideration paid or to be paid for the transfer of title. (Such consideration is defined in N.J.S.A. 46:15-5); and
- (d) executed this Deed as the act of the entity

Notary

DEED LANGUAGE FOR SIGHT TRIANGLE RESTRICTION

The following deed restriction language should appear in the property deed(s) for sight triangles associated with driveway which access the County Road:

There is hereby established a permanent restriction in perpetuity against the use of any portion of the premises described in Schedule _____ for any structure, growth, or physical impediment that would in any manner infringe upon a free and open line of sight over the same at an elevation of between 2 feet and 10 feet measured above the centerline of the County Road and centerline of the driveway. This restriction is created for the benefit and safety of the public and shall run with the land and shall be binding on the Grantee, their heirs, successors and assigns.

Prepared by:

Dennis R. McConnell, Esq.

DEED FOR SLOPE EASEMENT

This Deed is made on _____, 20____,

BETWEEN _____, whose address is

referred to as the Grantor,

AND **THE COUNTY OF SUSSEX**, a political subdivision of the State of New Jersey, with administrative offices located at One Spring Street, Newton, New Jersey 07860.

referred to as the Grantees

The words "Grantor" and "Grantee" shall mean all Grantors and all Grantees listed above.

Transfer of Ownership. The Grantor grants and conveys (transfers ownership of) an easement in the property described below to the Grantee. This transfer is made without monetary consideration.

Tax Map Reference. (N.J.S.A. 46:15-1.1) Municipality of the _____ of _____, Block _____, Lot _____.

Property. The property consists of the land in the _____ of _____, County of Sussex and State of New Jersey. The legal description is:

ATTACHED HERETO AS SCHEDULE A.

It is the intent and purpose of this Deed to grant unto The County of Sussex an absolute and exclusive easement including the right to maintain, repair, rebuild and/or install slopes over, through and across premises delineated on Schedule A. The County of Sussex, its agents, subcontractors, representatives and employees shall have the right to enter into and upon so much of the herein described premises as shall be reasonably necessary to effectuate the purposes of the easement herewith granted in order to conduct such inspections, maintenance and repairs as shall be reasonably necessary in order to assure the continuing efficient functioning of the slope into and across the herein described premises. However, nothing contained in this Deed of Easement in any way obligates or requires the County of Sussex to maintain or improve said slope to the benefit of Grantor or other Third Parties.

Promises by Grantor. The Grantor promises that the Grantor has done no act to encumber the property. This promise is called a "covenant as to grantor's acts" (N.J.S.A. 46:4-6). This promise means that the Grantor has not allowed anyone else to obtain any legal rights which affect the property (such as by making a mortgage or allowing a judgment to be entered against the Grantor).

Signatures. The Grantor signs this Deed as of the date at the top of the first page.

Witnessed by:

BY: _____

BY: _____

STATE OF NEW JERSEY)

SS:

COUNTY OF _____)

I CERTIFY that on _____, 20____, _____, personally came before me and acknowledged under oath, to my satisfaction, that this person (or if more than one, each person);

- (a) is named in and personally signed this document; and
- (b) signed, sealed and delivered this document as his or her act and deed; and
- (c) made this Deed for \$0.00 as the full and actual consideration paid or to be paid for the transfer of title. (Such consideration is defined in N.J.S.A. 46:15-5).

I.

STATE OF NEW JERSEY)

SS :

COUNTY OF _____)

I Certify that on _____, 20__

personally came before me and this person acknowledged under oath, to my satisfaction, that:

- (a) this person is the _____ secretary of the corporation named in this Deed;
- (b) this person is attesting witness to the signing of this Deed by the proper corporate officer who is the _____ President of the corporation;
- (c) this Deed was signed and delivered by the corporation as its voluntary act duly authorized by a proper resolution of its Board of

Directors;

- (d) this person signed this proof to attest to the truth of these facts;
and
- (e) the full and actual consideration paid or to be paid for the transfer
of title is \$0.00 (Such consideration is defined in N.J.S.A. 46:15-
5)

Signed and sworn to before me
on _____, 20__.

Secretary

II.

STATE OF NEW JERSEY)

SS:

COUNTY OF _____)

I CERTIFY that on _____, 20__, _____,
personally came before me and acknowledged under oath, to my satisfaction, that
this person (or if more than one, each person);

- (a) was the maker of the attached Deed;
- (b) was authorized to and did execute this Deed as President and
Secretary of _____ Corporation, the entity named in
this Deed;
- (c) made this Deed for \$0.00 as the full and actual consideration paid or
to be paid for the transfer of title. (Such consideration is defined
in N.J.S.A. 46:15-5); and
- (d) executed this Deed as the act of the entity

Notary

6. County Ordinances

Protection of County Roads

RESOLUTION RE: PROHIBITING DUMPING, DISCHARGE, OR PLACING OBSTRUCTIONS UPON OR ACROSS COUNTY ROADS OR DRAINAGE

WHEREAS, N.J.S.A. enables the Board of Chosen Freeholders of the County of to enact regulations to protect roads and road services by Resolution; and

WHEREAS, the Board of Chosen Freeholders deems it advisable to enact regulations to protect the County roads and road surfaces to ensure the safety of the traveling public; and

WHEREAS, N.J.S.A. 40:24-2 prescribes penalties for violations of County Resolutions.

NOW THEREFORE BE IT RESOLVED by the Board of Chosen Freeholders of the County of and State of New Jersey, as follows:

1. No person shall obstruct or damage any County road by depositing, placing, dumping, throwing or spilling stones, earth, debris, snow, ice, leaves, brush, or hazardous waste (as defined by N.J.S.A. 13:1e-51(K) as amended, or by any applicable state or federal law) or other materials or things thereon, nor shall any person place any of the above upon a County road so as to create a hazard to the traveling public.

2. Any person who, while in the process of shoveling, plowing or otherwise removing snow or ice from a driveway or other accessway abutting a County road, causes any of said snow or ice to accumulate upon the paved portion of any County road shall immediately remove said snow or ice while giving due regard to the safety of those persons using the County road.

3. The discharge of waters or other liquids or semiliquids upon any County road, or into any gutter, drainage ditch, catch basin or portion thereof, in any manner whatsoever, shall be unlawful, but this shall not apply to waters that may flow or pass upon a County road by virtue of natural drainage or because of the slope or topography of the land.

4. The running of pipe or swale onto any County road,

or into any gutter, drainage ditch or catch basin is prohibited and shall be deemed a violation of this Resolution until written permission is secured from the County Engineer or his designee and the County Road Supervisor.

5. No structure, equipment or materials of any kind may be placed or stored upon any County road at any time or for any purpose unless expressly permitted by law or ordinance and placed in such a manner as not to impede or divert the natural flow of drainage waters upon or along such County road and the gutters or drainage thereof.

6. The obstruction of any gutter or drainage ditch, catch basin, or any portion thereof, serving a County road by filling or otherwise depositing stones, earth, dirt, debris, hazardous waste, or other materials or things thereon or by any other means shall be unlawful, but this shall not apply to such materials as may be carried or deposited thereon by the natural drainage of surface waters or by other natural causes.

7. Any person, firm or corporation violating any of the provisions of this Resolution shall, upon conviction thereof, be subject to a fine of not more than Two Hundred Dollars (\$200.00) or, in the case of an individual, be imprisoned in the County jail for a period not exceeding ninety (90) days, or both.

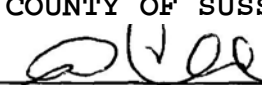
8. As provided by N.J.S.A. 40:24-8, all fines collected under this resolution shall be paid to the treasurer of the County of for the use of the County.

9. The Clerk of the Board of Chosen Freeholders of the County of shall cause to be published at least once in the newspaper circulating in the County a copy of this resolution before same shall be effective.

10. Certified copies of this Resolution shall be provided to the County Administrator, County Engineer, the Superintendent of the Division of Roads and Bridges; the County Counsel; Superior Court Administrator; Superintendent of the New Jersey State Police; and the Municipal Clerks and Chiefs of Police of every municipality in County.

**THE BOARD OF CHOSEN FREEHOLDERS
COUNTY OF SUSSEX**

By: _____


**THOMAS J. CLARK
Freeholder Director**

Certified as a true copy of
the Resolution adopted by
the Board on the 31ST day
of August, 1994.

Elaine A. Morgan

Elaine A. Morgan, Clerk
Board of Chosen Freeholders
County of Sussex

7. Bond Resolution

RESOLUTION RE: AUTHORIZATION FOR THE SUSSEX COUNTY BOARD OF CHOSEN FREEHOLDERS TO ADOPT A POLICY AND PROCEDURE USED TO DETERMINE THE TYPE AND VALUE OF BONDS REQUIRED UNDER CONDITIONS SET FORTH BY VARIOUS COUNTY RESOLUTIONS AND ORDINANCES GOVERNING WORK WITHIN COUNTY RIGHTS-OF-WAY AS REGULATED THROUGH THE ISSUANCE OF PERMITS BY THE OF ENGINEERING AND CERTAIN APPROVALS GRANTED BY THE SUSSEX COUNTY PLANNING BOARD ADMINISTERED BY THE DIVISION OF PLANNING

WHEREAS, the County of Sussex, has adopted regulatory mechanisms defining policy and procedures governing Road Opening Permits, Entrance Permits, Final Site Plan Approvals add Final Approvals; and

WHEREAS, pursuant to the established policies and procedures the Division of Engineering and Division of Planning must secure bonding sufficient in value to cover costs of work proposed and required within the County rights-of-way; and

WHEREAS, the bonding is needed to protect the public's interest when private or public entities perform work within a County right-of-way; and

WHEREAS, bonding will ensure and guarantee the proper completion of all work performed within the County rights-of-way and that all work will have been completed in conformance with County standards; and

WHEREAS, currently, there is no established procedure to determine the type or value of bonding required for Road Opening or Road Entrance Permits and County Planning Board Approvals involving proposed work within the County's right-of-way; and

WHEREAS, the Department of Engineering and Planning has drafted a Policy and Procedure to govern bonding in these situations and the same is attached hereto as Attachment A; and

WHEREAS, the Policy and Procedure within Attachment A serves to provide guidance when bonding is required for Permits issued by the Division of Engineering or Approvals granted by the Sussex County Planning Board; and

WHEREAS, the County of Sussex, after careful review of said Attachment A on the advice of the County Engineer, finds that adopting the Policy and Procedure outlined therein is in the best interest of the County and its intent to provide guidance for obtaining bonding; and

WHEREAS, these documents materially improve the County's ability to consistently comply with procedures established for issuance of Road Opening and Road Entrance Permits by the Division of Engineering and providing approvals through the Sussex County Planning Board.

NOW, THEREFORE, BE IT RESOLVED that the Board of Chosen Freeholders of the County of Sussex, on the recommendation of the County Engineer, adopt the attached Policy and Procedure entitled "Procedure Governing Bonding Requirements for Division of Engineering Permits and County Planning Board Approvals"; and

BE IT FURTHER RESOLVED that a copy of this Resolution along with its Attachment be forwarded to the County Division of Engineering; County Division of Planning; and Municipal Clerks.

Certified as a true copy of a
Resolution adopted by the
Board of Chosen Freeholders
on the 23rd day of August, 2006.



Elaine A. Morgan, Clerk
Board of Chosen Freeholders
County of Sussex

**Department of Engineering and Planning
Administrative Procedure**

Sussex County, New Jersey

Titled: Procedure Governing Bonding Requirements for Division of Engineering Permits and Sussex County Planning Board Approvals**Dated:** Aug 23, 2006 **Revised:** No Revisions

1. Purpose and Need -The County of Sussex hereby establishes a policy outlining general procedures which can be applied by the Division of Engineering and Division of Planning when bonding is required for work within the County's right-of-way.
2. Definitions - For the purpose of this policy and procedure, the following terms, phrases, words and their derivations shall have the meanings stated herein unless their use for the purpose of this policy and procedure clearly demonstrates a different meaning. When not inconsistent with the context, words used in the present tense include future, words used in the plural number include singular number, and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.
 - a. County right-of-way-any public Right-of Way owned or maintained by Sussex County generally for the purpose of transportation infrastructure.
 - b. County Route -any roadway or other thoroughfare operated by Sussex County.
 - c. Traveled Way -The portion of the roadway traversed by vehicles.
 - d. Applicant -An entity, public or private, proposing to perform work within the County's right-of-way. This will be inclusive of, but not limited to, Public or Private Utilities, Government Agencies, Private Individuals, or Partnerships and Corporations of any form.
 - e. Performance or Maintenance Bond -A bond issued by a firm that is licensed to do business in the State of New Jersey guaranteeing the proper and satisfactory completion of the proposed work.
 - f. Cash Bond: A certified check for the project amount made payable to the County of Sussex.
 - g. Letter of Credit: A letter ,from a financial institution licensed to conduct business in the State of New Jersey acting as an irrevocable guarantee of payment to the County of Sussex for the bonded work.
 - h. Maintenance Bonding Period -At the direction of the County Engineer, Maintenance bonds will be held by the County for a period of one (1) year from the date of acceptance by the County Division of Engineering of the completed work.
3. Prohibited Conduct -No Applicant may conduct work within the County's right-of-way without first obtaining Permits issued by the Sussex County Division of Engineering. An Applicant shall provide the County with appropriate bonding prior to the issuance of permits.
4. Exemptions-there are no exemptions from this requirement.

5. Responsibilities:
- It is the responsibility of the Applicant to provide Sussex County with bonding as required by the permit or approval process and outlined below.
 - It is the responsibility of County Employees to administer and enforce this policy.
 - The Division of Engineering and Division of Planning shall coordinate acceptance and release of bonds impacting projects of mutual interest.
6. Bonding Requirements: Prior to performing any work within the County's right-of-way or as may be required through the Planning Process the County shall be provided a Bond by the Applicant equal in amount to that of the proposed work plus a ten (10) percent contingency.
- Determination of Bonding amount:
 - The Applicant shall provide the County with an Engineer's Estimate or Quotation for proposed work. Estimates and Quotations shall, at minimum:
 - Be itemized and correlated with unit quantities as represented on the applicants plan submittal.
 - Have been established using industry acceptable prices.
 - Utilize prevailing wage labor rates.
 - Include mobilization and traffic control.
 - The County Engineer shall review the provided estimate or quotation and either:
 - Provide acceptance of same, or
 - Based upon his professional judgment, modify the estimate or quotation to accurately reflect actual industry prices reflective of those born by the County of Sussex to complete the proposed work within a public right-of-way.
 - Bonds for work scheduled one or more year(s) future shall include an inflation adjustment factor.
 - Project estimates shall be adjusted when needed by the County Engineer to reflect as built project values, the adjusted estimate shall be used to determine the value of the Maintenance Bond.
 - Bond Amount and Type: The Applicant shall provide a Bond to the County of Sussex in compliance with the following (Unless otherwise approved by the County Engineer) the bonded amount will include the project estimate or quotation plus a ten (10) percent contingency:
 - Construction Bonding:
 - Projects up to and including \$20,000.00 in estimated value: Cash Bond or Letter of Credit for the value of the proposed work.
 - Projects exceeding \$20,000.00 in estimated value shall adhere to the following schedule:
 - Cash Bond or Letter of Credit, not required to exceed \$100,000.00:
 - \$20,000.00, plus

- ii. 20% of the value exceeding \$20,000.00; at the Applicants discretion the entire project value may be provided as a Cash Bond or Letter of Credit.
- b. Performance Bond:
 - i. Having a value equal to the project balance in excess of that provided by the Cash Bond or Letter of Credit. All Performance Bonds must be issued by a company licensed to do business in the State of New Jersey.
- ii. Maintenance Bond: A Maintenance bond shall be provided unless otherwise approved by the County Engineer for fifty (50) percent of the project estimate in accordance with the following:
 - 1. Bonding amounts as calculated under 6.b.i and adjusted per 6.a.iv shall be provided to the County at a rate of fifty (50) percent of the amount bonded there under. The type of bonding shall be as follows:
 - a. Maintenance Cash Bond valued at fifty (50) percent of the construction Cash Bond Value, adjusted when needed under 6.a.iv.
 - b. Maintenance Bond valued at fifty (50) percent of the Construction Performance Bond value, adjusted when needed under 6.a.i.v. All Maintenance Bonds must be issued by a company licensed to do business in the State of New Jersey.

Special Considerations:

- i. Municipal Projects: Consideration will be given by the County Engineer for acceptance of joint County/Municipal Performance and Maintenance bonds on a case-by-case basis. To be considered:
 - 1. The Applicant should send a written request to the County Engineer.
 - 2. The proposed work should not impact the County Route Traveled Way.
- ii. Utility Emergent Response Work: The County will accept annual bonds from Public and Private Utility Companies for the purpose of response to unplanned emergent work as conditions develop. The bonds will be subject to the conditions contained herein. The bonding amount shall be established by the County Engineer on an annual basis during the month of January. This does not apply to planned capital improvements or service connections.
- iii. The County will accept concurrent bonding from Applicants seeking both Sussex County Planning Board Approvals requiring bonding and issuance of Road Opening or Road Entrance Permits by the Division of Engineering.

7. **Bond Use:** The County may utilize bond funds to rectify substandard performance, workmanship or maintenance requirements related to the work performed under the bonding or disturbance or damage of adjacencies. The County shall provide the Applicant and the Bonding Company ten (10) days notice during which the Applicant shall remediate the deficiency. If the Applicant fails to remediate the deficiency within ten (10) days of the notice the County will utilize bonded funds to remediate the deficiency. Funds held in Cash Bond or Letter of Credit shall be utilized prior to pursuit of the applicants surety. Bond funds may be utilized for, in addition to other deficiencies, the remediation of any portion of the work or workmanship jeopardizing public safety.
8. **Release of Bond:**
 - a. **General:**
 - i. Bond release shall be approved by the County Engineer at the recommendation of the Division of Engineering and for bonding emanating from County Planning Board Approvals, the Division of Planning.
 - b. **Construction Bonding:**
 - i. Construction Bonds shall not be released until the County has accepted the final construction AND the Applicant has provided the County with the required Maintenance bonding.
 - c. **Maintenance Bonding:**
 - i. The Maintenance bond, unless otherwise approved by the County Engineer, shall not be released until the one year maintenance period has lapsed and all deficiencies, if any, have been corrected.
9. **Applicability:** The procedure outlined herein shall be utilized for all future and ongoing projects.
10. **Penalties** -Unbonded work performed within the County's right-of-way will be subject to permit violation assessments.

B. Appendix B - Forms

The following forms are in this appendix:

1. Final Major Subdivision Checklist	163
2. Final Site Plan Checklist.....	166
3. Minor Subdivision Checklist	169
4. Preliminary Major Subdivision.....	172
5. Preliminary Site Plan	176
6. ROW Source Documents For Surveys.....	181
7. Application Form	183

1. Final Major Subdivision Checklist

Applicant Name _____

Block _____ Lot _____ Municipality: _____

Yes /No	Item
	Has frontage on Sussex County Route # _____ Mile Marker _____
	Direct Access onto County Road
	Is within the subwatershed of a County Bridge # _____

Required items below have a check box (☐) In blank spaces, enter "N.A." for not applicable

General

- ☐ Plans (with drawing size of 24" x 36" preferred) and one CD-ROM of Plat at not less than 1"=100' scale, conforming to the Map Filing Act, as required with all County and municipal requirements, with supporting documentation and data.
- ☐ Deed book and pages of all right-of-way dedications and easement deeds appear on the plat.
- ☐ CAD electronic file submitted. (see Standards section IV.C.4)
- ☐ Seal and signature of Professional Land Surveyor.
- ☐ Location of existing and/or proposed monuments to establish the county road right-of-way, coordinates tied into the NJ State Plane Coordinate System (NAD83) and shown on plat.
- ☐ County Engineer final approval of all bridges and culverts.
- ☐ Signature blocks for owner, Sussex County Clerk's office, Sussex County Planning Board. Corporate certification required if owner is a corporation.
- ☐ Copy of any required permits from federal, state or other governmental units

Easements

Deed Book & Page on plat	Type of Deed (as required in Preliminary approval)
<input type="checkbox"/>	Sight Triangle Easement
<input type="checkbox"/>	Sight Distance Easement
<input type="checkbox"/>	Sight Triangle deed restriction on property
<input type="checkbox"/>	Slope Easement to County
<input type="checkbox"/>	Continued Right-to-Discharge or Drainage Easement to County
<input type="checkbox"/>	Bridge Maintenance Easement to County

Other

- _____ Sight triangles Graded and cleared
- _____ Measured sight lines shown on plans if direct access to County road
- _____ Required payment in lieu of improvements to the County roads and/ or a proportionate share of the cost of future installation of County infrastructure
- _____ Permits obtained before working in the County Road Right-of-Way
- _____ ROW dedication shown on Plans (Deed Book _____ Page _____)
- _____ Stormwater maintenance and operation Plan reviewed by municipal engineer if stormwater runoff impacts County infrastructure
- _____ ROW Source Documents noted on Plans if property fronts County road

2. Final Site Plan Checklist

SUSSEX COUNTY PLANNING BOARD SCPB # _____
FINAL SITE PLAN CHECKLIST

Applicant Name _____
Block _____ **Lot** _____ **Municipality:** _____

Yes /No	Item
	Has frontage on Sussex County Route # _____ Mile Marker _____
	Direct Access onto County Road
	Is within the subwatershed of a County Bridge # _____

Required items below have a check box (☐) In blank spaces, enter "N.A." for not applicable

General

- ☐ Legible prints and CD-ROM of the final and copies of all supporting documentation and data as required. *The final site plan is an as-built of the preliminary site plan and encompasses the requirements of the preliminary site plan, including the 1" = 20 foot scale entrance and right-of-way detail.*
- ☐ CAD electronic file submitted (see Standards section IV.C.4)
- ☐ Seal and signature of Professional Land Surveyor, or copy of sealed survey and reference noted on site plan (refer to State Statute)
- ☐ Name and address of the applicant and the name, address and title of the person preparing the plan, maps and accompanying data.
- ☐ Copy of any required permits from federal, state or other governmental units
- ☐ Identifying titles on each sheet.
- ☐ A key map showing the entire subdivision and the proposed street pattern, nearest intersecting streets, and lots within 200'
- ☐ Date of latest revision, scale and north arrow
- ☐ Municipal tax map sheet, block and lot number, zoning district, and latest revision date.
- ☐ Owner authorization as defined.

Easements

Deed Book & Page, if filed	Deed submitted	Type of Deed (as required in Preliminary approval)
		Sight Triangle Easement
		Sight Distance Easement
		Sight Triangle deed restriction on property
		Slope Easement to County
		Continued Right-to-Discharge or Drainage Easement to County
		Bridge Maintenance Easement to County

Other

- _____ Measured sight lines shown on plans if direct access to County road
- _____ Permits obtained before working in the County Road Right-of-Way
- _____ ROW dedication submitted to County
- _____ ROW dedication shown on Plans (Deed Book _____ Page _____)
- _____ Maintenance and Operation Plan reviewed by municipal engineer if stormwater impacts County infrastructure
- _____ ROW Source Documents noted on Plans if property fronts County road

**SUSSEX COUNTY PLANNING BOARD
FINAL SITE PLAN CHECKLIST**

SCPB # _____

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Sussex County Planning Board

3. Minor Subdivision Checklist

Applicant Name _____

Block _____ Lot _____ Municipality: _____

Yes /No	Item
	Has frontage on Sussex County Route # _____ Mile Marker _____ Is adjacent to County property
	Proposed new access to County road
	Existing access to County road
	Is within the subwatershed of a County Bridge # _____

Required items below have a check box (☐)

General Plan Details, Owner Information

- ☐ Plans showing the following on **one hardcopy** (drawing size of 24" x 36" preferred, minimum scale of 100') and **one CD-ROM with** electronic version of plans and report
- ☐ 1. Seal and signature of Professional Land Surveyor
- ☐ 2. A key map showing the entire subdivision, nearest intersecting streets, and lots within 200'
- ☐ 3. A Regional Map identifying the nearest County bridges & roads, State roads
- ☐ 4. Name and address of the applicant and owner, and owners within 200'.
- ☐ 5. Name and address of the person who prepared the map.
- ☐ 6. Existing and proposed utility poles.
- ☐ 7. Copy of application to Municipality and tax map sheet with block and lot number, zoning district, reference meridian, and latest revision date.

Improvements and Proposed Lot Layout, Natural Features

- ☐ 1. All existing and proposed buildings or structures.
- ☐ 2. Acreage of the tract to be subdivided to 1/10 acre, number of new lots to be created.
- ☐ 3. Existing and proposed property lines, setbacks, existing buildings and structures, existing driveways, and wooded areas, or other environmental features.
- ☐ 4. All existing and proposed signs, traffic control devices, shown with Manual on Uniform Traffic Control Devices (MUTCD) designations on plan and Lighting Standards.
- ☐ 5. Location, names, paved widths and right of way widths of all existing streets.
- ☐ 6. Land to be dedicated or reserved for public use.
- ☐ 7. Location of all flood hazard areas shown as delineated on the current "Flood Insurance Rate Map" issued by the Federal Emergency Management Agency, (FEMA), as well as lakes, ponds, standing water bodies.
- ☐ 8. All existing watercourses, streams, wetlands, and NJDEP Stream Encroachment and Wetlands delineation, buffers, and permit data shown.

Sussex County Planning Board

In blank spaces, enter "N.A." for not applicable, "W.R" for waiver, or "I" if included

Access Standards

_____	<u>Subdivision proposes or has direct access(s) to County Road</u> (skip section if "N.A.")
_____	Details provided as per Standard Construction Details (available from County Website)
<input type="checkbox"/>	Driveways on opposite side of road shown
<input type="checkbox"/>	On County road, show yellow centerline, existing and proposed white edge line, edge of pavement, dimensions. Transect Zone: T-_____ (see County Standards, Section V.C.2) Speed: Posted: _____ 85 th Percentile: _____ (from County database)
<input type="checkbox"/>	Pavement box for residential driveway off County road. Distances from proposed access on site to existing driveways on adjacent properties: Same side of County Road as Subdivision: Left _____ Right _____ Opposite side of County Road from Subdivision: Left _____ Right _____
_____	<u>New Driveway</u> width, curb flare & radii, sight triangle, and grade as per Table V.C.5
<input type="checkbox"/>	Access driveways allow vehicles to turn around on-site.

A. Easements

	Type of Deed	When Required
_____	Sight Triangle Easement * 90' x 300' to County	<i>Street intersection with County Roads on or adjacent to site</i>
_____	Sight Distance Easement	<i>Sight line from driveway extends over neighboring property</i>
_____	Sight Triangle deed restriction 60' x 300' (in Centers: 15' behind curb x Stopping Sight Distance)	<i>Commercial and multi-family residential driveways</i>
_____	Slope Easement to County	<i>If regrading required outside ROW</i>
_____	Continued Right-to-Discharge or Drainage Easement to County	<i>If stormwater can flow from County Road onto property</i>
_____	Bridge Maintenance Easement to County	<i>If a County bridge fronts the site</i>

*Double sight triangles needed at intersection of two arterial roads

Sight Distances

_____	<u>Site has existing or proposed direct access to County Road</u> (skip section if "N.A.")
<input type="checkbox"/>	Field Meeting held with County staff to measure and verify sight distances. Please call County planning office to schedule. Date of Field Meeting: _____
<input type="checkbox"/>	Measured sight distances noted on the plans, sight lines shown in plan and profile views. County Road Cross sections provided if regrading needed in ROW.
<input type="checkbox"/>	Sight distance measured 5' behind proposed stop bar
<input type="checkbox"/>	use eye height=3.5', object height=3.5'. (object=2.0' for Stopping Sight Distances)
_____	Sight distances meet Standards in Appendix D. (WR) (6" clearance over asphalt)
<input type="checkbox"/>	<i>Acknowledge that permits are required before working in the County Road Right-of-Way</i>

Sussex County Planning Board

Dedication and Reservation of Road Right-of-Way (ROW)

- _____ ROW dedication to the County shown on Plans (*applicant will need to submit deed descriptions as per subchapter V. D for Engineering Review*)
- _____ ROW follows corner radii at intersections

Reverse Frontage - Access points are not from County Road:

- _____ Access from municipal street is utilized (WR)

Shade Trees

- _____ No trees within 1' of clear zone (if specified) or the County Road ROW; section V.N.
- _____ No landscaping in sight triangles between 2' and 10' above pavement levels

Road Improvements

- _____ Road improvements proposed

Sidewalks and Bikeways

- _____ Sidewalk if within a designated Center or Transect Zones T-4 through T-6
- _____ Bikeway according to NJDOT or shared bicycle usage according to V.P.1.

Curbing, and Additional Traffic Lanes

- _____ Curbing on plan
- ☐ Dimensions provided as shown in Drawing No. SC-5
- _____ Unused, existing curb openings to be closed

Traffic Impact Report

- _____ Left turn lane into site warrant performed or left turn lane proposed

Drainage Standards

_____	<i><u>Stormwater from the site affects a County Bridge, Road or stormwater system</u></i> (skip if "N.A.")
<input type="checkbox"/>	Stormwater Management Plan consistent with NJDEP standards for "major development" and County Standards
<input type="checkbox"/>	Maintenance and Operation Plan
<input type="checkbox"/>	Detail of existing County stormwater collection system on Plans (details of proposed changes to stormwater system if needed)
<input type="checkbox"/>	Runoff calculations for conceptual development of new lot based on USDA NRCS method
<input type="checkbox"/>	Emergency spillways designed according to County Standards (including no open emergency spillway directed to County Road ROW)
<input type="checkbox"/>	NJDEP Best Management Practices Used
_____	Calculation of impact to existing bridge if >3 residential lots

Survey Data (regarding properties adjoining County Road ROWs)

_____	<i><u>Property fronts a County Road</u></i> (Skip Section if "N.A.")
<input type="checkbox"/>	ROW Source Documents for Surveys form filled-out and attached, source docs. noted on Plans
<input type="checkbox"/>	Existing right-of-way lines, width shown on plans.

4. Preliminary Major Subdivision

Applicant Name _____

Block _____ Lot _____ Municipality: _____

Yes /No	Item
	Has frontage on Sussex County Route #____ Mile Marker ____ Is adjacent to County property
	Proposed new access to County road
	Existing access to County road
	Is within the subwatershed of a County Bridge # _____

Required items below have a check box (☐)**General Plan Details, Owner Information**

- ☐ Plans showing the following on **one hardcopy** (drawing size of 24" x 36" preferred, minimum scale of 100') and **one CD-ROM with** electronic version of plans and report
- ☐ 1. Seal and signature of Professional Land Surveyor
- ☐ 2. Seal and signature of Professional Engineer (refer to State Statute)
- ☐ 3. A key map showing the entire subdivision, nearest intersecting streets, and lots within 200'
- ☐ 4. A Regional Map identifying the nearest County bridges & roads, State roads
- ☐ 5. Name and address of the applicant and owner, and owners within 200'.
- ☐ 6. Name and address of the person who prepared the map.
- ☐ 7. Existing topography based on North American Datum of 1983 (NAD 83)
- ☐ 8. Existing and proposed utility poles.
- ☐ 9. Copy of application to Municipality and tax map sheet with block and lot number, zoning district, reference meridian, and latest revision date.

Improvements and Proposed Lot Layout, Natural Features

- ☐ 1. All existing and proposed buildings or structures.
- ☐ 2. Acreage of the tract to be subdivided to 1/10 acre, number of new lots to be created.
- ☐ 3. Existing and proposed property lines, setbacks, existing buildings and structures, existing driveways, and wooded areas, or other environmental features.
- ☐ 4. All existing and proposed signs, traffic control devices, shown with Manual on Uniform Traffic Control Devices (MUTCD) designations on plan and Lighting Standards.
- ☐ 5. Location, names, paved widths and right of way widths of all existing and proposed streets.
- ☐ 6. Contour lines reference to the New Jersey Geodetic Control Survey Datum, NVD 87
- ☐ 7. Contours at 5' intervals wherever average slope is 10% or greater, at 2' intervals wherever average slope is less than 10% but more than 2%, at 1' intervals wherever average slope is 2% or less.
- ☐ 8. Land to be dedicated or reserved for public use.
- ☐ 9. Location of all flood hazard areas shown as delineated on the current "Flood Insurance Rate Map" issued by the Federal Emergency Management Agency, (FEMA), as well as lakes, ponds, standing water bodies.
- ☐ 10. All existing watercourses, streams, wetlands, and NJDEP Stream Encroachment and Wetlands delineation, buffers, and permit data shown.

In blank spaces, enter "N.A." for not applicable, "W.R" for waiver, or "I" if included

Access Standards

_____	<u>Subdivision proposes or has direct access(s) to County Road</u> (skip section if "N.A.")
<input type="checkbox"/>	Access details at 1"=20' scale Details provided as per Standard Construction Details (available from County Website)
<input type="checkbox"/>	Driveways on opposite side of road shown
<input type="checkbox"/>	On County road, show yellow centerline, existing and proposed white edge line, edge of pavement, dimensions. Transect Zone: T-_____ (see County Standards, Section V.C.2) Speed: Posted: _____ 85 th Percentile: _____ (from County database)
_____	<u>New street</u> width, lane width, and corner radii (see Table V.C.2);
<input type="checkbox"/>	Approach grades shown; pavement box for residential driveway off County road. Distances from proposed access on site to existing driveways on adjacent properties: Same side of County Road as Subdivision: Left _____ Right _____ Opposite side of County Road from Subdivision: Left _____ Right _____
_____	<u>New Driveway</u> width, curb flare & radii, sight triangle, and grade as per Table V.C.5
<input type="checkbox"/>	Access driveways allow vehicles to turn around on-site.

Easements

	Type of Deed	When Required
_____	Sight Triangle Easement * 90' x 300' to County	<i>Street intersection with County Roads on or adjacent to site</i>
_____	Sight Distance Easement	<i>Sight line from driveway extends over neighboring property</i>
_____	Sight Triangle deed restriction 60' x 300' (in Centers: 15' behind curb x Stopping Sight Distance)	<i>Commercial and multi-family residential driveways</i>
_____	Slope Easement to County	<i>If regrading required outside ROW</i>
_____	Continued Right-to-Discharge or Drainage Easement to County	<i>If stormwater can flow from County Road onto property</i>
_____	Bridge Maintenance Easement to County	<i>If a County bridge fronts the site</i>

*Double sight triangles needed at intersection of two arterial roads

Sight Distances

_____	<u>Site has existing or proposed direct access to County Road</u> (skip section if "N.A.")
<input type="checkbox"/>	Field Meeting held with County staff to measure and verify sight distances. Please call County planning office to schedule. Date of Field Meeting: _____
<input type="checkbox"/>	Measured sight distances noted on the plans, sight lines shown in plan and profile views. County Road Cross sections provided if regrading needed in ROW.
<input type="checkbox"/>	Sight distance measured 5' behind proposed stop bar
<input type="checkbox"/>	use eye height=3.5', object height=3.5'. (object=2.0' for Stopping Sight Distances)
_____	Sight distances meet Standards in Appendix D. (WR) (6" clearance over asphalt)
<input type="checkbox"/>	<i>Acknowledge that permits are required before working in the County Road Right-of-Way</i>

Dedication and Reservation of Road Right-of-Way (ROW)

- _____ ROW dedication to the County shown on Plans (*applicant will need to submit deed descriptions as per subchapter V. D for Engineering Review*)
- _____ ROW follows corner radii at intersections

Reverse Frontage - Access points are not from County Road:

- _____ Access from municipal street is utilized (WR)

Shade Trees

- _____ No trees within 1' of clear zone (if specified) or the County Road ROW; section V.N.
- _____ No landscaping in sight triangles between 2' and 10' above pavement levels

Road Improvements

- _____ Road improvements proposed

Sidewalks and Bikeways

- _____ Sidewalk if within a designated Center or Transect Zones T-4 through T-6
- _____ Bikeway according to NJDOT or shared bicycle usage according to V.P.1.

Curbing, and Additional Traffic Lanes

- _____ Curbing on plan if required in Section V.Q in Standards.

- ☐ Dimensions provided as shown in Drawing No. SC-5

- _____ Unused, existing curb openings to be closed

Traffic Impact Report

- _____ Left turn lane into site warrant performed or left turn lane proposed

Drainage Standards

_____	<i><u>Stormwater from the site affects a County Bridge, Road or stormwater system</u></i> (skip if "N.A.")
<input type="checkbox"/>	Stormwater Management Plan consistent with NJDEP and County Standards
<input type="checkbox"/>	Maintenance and Operation Plan
<input type="checkbox"/>	Detail of existing and proposed changes to County stormwater collection system
<input type="checkbox"/>	If new bridge is proposed, design of bridge submitted to County Engineer for review prior to development or construction plans.
<input type="checkbox"/>	Runoff calculations based on USDA NRCS method
<input type="checkbox"/>	Emergency spillways designed according to County Standards (including no open emergency spillway directed to County Road ROW)
_____	NJDEP Best Management Practices Used
_____	Calculation of impact to existing bridge if >3 residential lots

Survey Data (regarding properties adjoining County Road ROWs)

_____	<i><u>Property fronts a County Road</u></i> (Skip Section if "N.A.")
<input type="checkbox"/>	ROW Source Documents for Surveys form filled-out and attached, source docs. noted on Plans
<input type="checkbox"/>	Existing right-of-way lines, width shown on plans.

5. Preliminary Site Plan

SCP#

Block _____ **Lot** _____ **Municipality:** _____

Block	Lot	Municipality:
Yes /No	Item	
	Has frontage on Sussex County Route #____ Mile Marker ____	
	Is adjacent to County property	
	Proposed new access to County road	
	Existing access to County road	
	Is within the subwatershed of a County Bridge # _____	

General Plan Details, Owner Information

- ☐ Plans showing the following on **one hardcopy** (drawing size of 24" x 36" preferred, minimum scale of 100') and **one CD-ROM** with electronic version of plans and report
- ☐ 1. Seal and signature of Professional Land Surveyor, or copy of sealed survey and reference noted.
- ☐ 2. Seal and signature of Professional Engineer (refer to State Statute)
- ☐ 3. A key map showing the site, nearest intersecting streets, and lots within 200'
- ☐ 4. A Regional Map identifying the nearest County bridges & roads, State roads
- ☐ 5. Name and address of the applicant and owner, and owners within 200'.
- ☐ 6. Name and address of the person who prepared the map.
- ☐ 7. Existing topography based on North American Datum of 1983 (NAD 83)
- ☐ 8. Existing and proposed utility poles.
- ☐ 9. Copy of application to Municipality and tax map sheet with block and lot number, zoning district, reference meridian, and latest revision date.

- ☐ 1. All existing and proposed buildings or structures.
- ☐ 2. Finished grade elevations at all corners of buildings.
- ☐ 3. Existing and proposed property lines, setbacks, existing buildings and structures, existing driveways, and wooded areas, or other environmental features.
- ☐ 4. All existing and proposed signs, traffic control devices, shown with Manual on Uniform Traffic Control Devices (MUTCD) designations on plan and Lighting Standards.
- ☐ 5. Location, names, paved widths and right of way widths of all existing and proposed streets.
- ☐ 6. Contour lines reference to the New Jersey Geodetic Control Survey Datum, NVD 87
- ☐ 7. Contours at 5' intervals wherever average slope is 10% or greater, at 2' intervals wherever average slope is less than 10% but more than 2%, at 1' intervals wherever average slope is 2% or less.
- ☐ 8. Land to be dedicated or reserved for public use.
- ☐ 9. Location of all flood hazard areas shown as delineated on the current "Flood Insurance Rate Map" issued by the Federal Emergency Management Agency, (FEMA), as well as lakes, ponds, standing water bodies.
- ☐ 10. All existing watercourses, streams, wetlands, and NJDEP Stream Encroachment and Wetlands delineation, buffers, and permit data shown.

**SUSSEX COUNTY PLANNING BOARD
PRELIMINARY SITE PLAN CHECKLIST**

SCPB # _____

In blank spaces, enter "N.A." for not applicable, "W.R" for waiver, or "I" if included

Access Standards

_____	<u>Subdivision proposes or has direct access(s) to County Road</u> (skip section if "N.A.")
<input type="checkbox"/>	Access details at 1"=20' scale Details provided as per Standard Construction Details (available from County Website)
<input type="checkbox"/>	Driveways on opposite side of road shown
<input type="checkbox"/>	On County road, show yellow centerline, existing and proposed white edge line, edge of pavement, dimensions. Transect Zone: T-_____ (see County Standards, Section V.C.2) Speed: Posted: _____ 85 th Percentile: _____ (from County database) New street width, lane width, and corner radii (see Table V.C.2);
<input type="checkbox"/>	Approach grades shown; pavement box for residential driveway off County road. Distances from proposed access on site to existing driveways on adjacent properties: Same side of County Road as Subdivision: Left _____ Right _____ Opposite side of County Road from Subdivision: Left _____ Right _____
_____	<u>New Driveway</u> width, curb flare & radii, sight triangle, and grade as per Table V.C.5
<input type="checkbox"/>	Access driveways allow vehicles to turn around on-site.

Easements

	Type of Deed	When Required
_____	Sight Triangle Easement * 90' x 300' to County	<i>Street intersection with County Roads on or adjacent to site</i>
_____	Sight Distance Easement	<i>Sight line from driveway extends over neighboring property</i>
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*Double sight triangles needed at intersection of two arterial roads

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<input type="checkbox"/>	Sight distance measured 5' behind proposed stop bar
<input type="checkbox"/>	use eye height=3.5', object height=3.5'. (object=2.0' for Stopping Sight Distances)
_____	Sight distances meet Standards in Appendix D. (WR) (6" clearance over asphalt)
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Road Improvements

- _____ Road improvements proposed

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Curbing, and Additional Traffic Lanes

- _____ Curbing on plan if required in Section V.Q in Standards.

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- _____ Unused, existing curb openings to be closed

Traffic Impact Report

- _____ Left turn lane into site warrant performed or left turn lane proposed

Drainage Standards

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<input type="checkbox"/>	Stormwater Management Plan consistent with NJDEP and County Standards
<input type="checkbox"/>	Maintenance and Operation Plan
<input type="checkbox"/>	Detail of existing and proposed changes to County stormwater collection system
<input type="checkbox"/>	If new bridge is proposed, design of bridge submitted to County Engineer for review prior to development or construction plans.
<input type="checkbox"/>	Runoff calculations based on USDA NRCS method
<input type="checkbox"/>	Emergency spillways designed according to County Standards (including no open emergency spillway directed to County Road ROW)
_____	NJDEP Best Management Practices Used
_____	Calculation of impact to existing bridge if >3 residential lots

Survey Data (regarding properties adjoining County Road ROWs)

_____	<i><u>Property fronts a County Road</u></i> (Skip Section if "N.A.")
<input type="checkbox"/>	ROW Source Documents for Surveys form filled-out and attached, source docs. noted on Plans
<input type="checkbox"/>	Existing right-of-way lines, width shown on plans.

[This Page is intentionally left blank]

6. ROW Source Documents For Surveys

FOR SUSSEX COUNTY ROUTE No. _____ Nearest Mile Marker to site: _____
Municipality _____ Tax Block _____ Lot _____

<input type="checkbox"/> Found <input type="checkbox"/> Not Found	TURNPIKE For portions of (but not limited to) Routes: 517 in Vernon, 519, 565, 639, 645, 650, 655 Name _____ File No. _____ Date _____ ROW Width = _____ Relevant Courses Or Calls _____
<input type="checkbox"/> Found <input type="checkbox"/> Not Found	ROAD RETURN Date Of Writing _____ Date Of Filing _____ Book Of Roads _____ Page _____ ROW Width = _____ Municipalities _____ Relevant Courses Or Calls _____
<input type="checkbox"/> Found <input type="checkbox"/> Not Found	FILED MAP Date Of Map _____ Filing Date _____ Registered Map Number _____ ROW Width= _____ Preparer Of Map _____ License Number _____ Right-Of Way Map _____ Subdivision Map _____ Deed References _____ Other Document References _____ Station: From _____ To _____
<input type="checkbox"/> Deed <input type="checkbox"/> Mortgage <input type="checkbox"/> Not Found For Help Searching, See list of GRANTEE NAMES on next page	DEED or MORTGAGE: Book _____ Page _____ ROW Width = _____ Grantor _____ Grantee _____ Date Of Execution _____ Filing Date _____ Other Document References: _____ _____ _____ Map Stationing Reference _____ _____
Additional deed references: ** List all found source documents in Plans **	
DEED Book _____ Page _____ ROW = _____ Grantor _____ Grantee _____ Dates: Execution: _____ Filing: _____ Other Document References: _____ _____ _____ Map Stationing Reference _____	DEED Book _____ Page _____ ROW = _____ Grantor _____ Grantee _____ Dates: Execution: _____ Filing: _____ Other Document References: _____ _____ _____ Map Stationing Reference _____

Note: Resolutions from governing bodies may also specify ROW widths survey courses, and references to the above items

Name of Professional Land Surveyor License No. Signature (affix seal)

To be filled-	Deed Book _____	Page _____	Width _____
---------------	-----------------	------------	-------------

out by Sussex County Division of Engineering <input type="checkbox"/> Found <input type="checkbox"/> Not Found	Grantor _____ Grantee _____ (County Of Sussex) Date Of Execution _____ Filing Date _____ Other Document References _____ _____ _____ _____ MAP STATIONING REFERENCE _____
To be filled- out by Sussex County Division of Engineering <input type="checkbox"/> Found <input type="checkbox"/> Not Found	Deed Book _____ Page _____ Width _____ Grantor _____ Grantee _____ (County Of Sussex) Date Of Execution _____ Filing Date _____ Other Document References _____ _____ _____ _____ MAP STATIONING REFERENCE _____

ROW Source Documents for Surveys

POSSIBLE GRANTEE NAMES FOR RIGHT-OF-WAY DEDICATIONS

BOARD OF FREEHOLDERS
 BOARD OF CHOSEN FREEHOLDERS
 FREEHOLDER BOARD
 COUNTY OF SUSSEX
 SUSSEX COUNTY
 SUSSEX COUNTY BOARD OF CHOSEN
 FREEHOLDERS
 DEPARTMENT OF TRANSPORTATION
 NEW JERSEY
 NEW JERSEY DEPARTMENT OF
 TRANSPORTATION
 NEW JERSEY, STATE OF
 STATE OF NEW JERSEY
 STATE OF NEW JERSEY, COMMISSIONER
 OF TRANSPORTATION
 TRANSPORTATION DEPARTMENT
 (MUNICIPALITY WHERE ROAD LIES)

Note: this list is not exhaustive.

7. Application Form

APPLICATION FOR SUBDIVISION or SITE PLAN REVIEW SUSSEX COUNTY PLANNING BOARD County Administrative Center 1 Spring Street Newton, NJ 07860 (973) 579-0500	FILE NUMBER _____ DATE RECEIVED _____ DATE COMPLETED _____ DATE PROCESSED _____ REVIEW DATE _____ ACTION DATE _____
PRIOR APPLICATIONS _____	COUNTY NUMBER _____ ACTION TAKEN _____ DATE _____
APPLICATION BY _____	MUNICIPALITY _____
FOR <input type="checkbox"/> CONCEPTUAL REVIEW <input type="checkbox"/> NEW APPLICATION <input type="checkbox"/> REQUIRED REVISION <input type="checkbox"/> REVISION BY APPLICANT <input type="checkbox"/> REVISION AFTER DISAPPROVAL	BLOCK NUMBER _____ LOT(S) NUMBER _____ ZONE (EXISTING) _____ TAX MAP NUMBER _____ STREET ADDRESS _____
SITE ABUTS	PRIVATE STREET OR RIGHT OF WAY _____ MUNICIPAL STREET _____ COUNTY ROAD NUMBER _____ STATE HIGHWAY _____ COUNTY PROPERTY _____ BLOCK _____
SITE AFFECTS	COUNTY BRIDGE NO. _____ ON _____ DRAINAGE ON COUNTY ROAD _____ ROUTE _____
SITE DEVELOPMENT IS <input type="checkbox"/> RESIDENTIAL <input type="checkbox"/> COMMERCIAL <input type="checkbox"/> INDUSTRIAL <input type="checkbox"/> (QUASI) PUBLIC SITE REQUIRES <input type="checkbox"/> ROADS <input type="checkbox"/> ADDITIONAL R.O.W. <input type="checkbox"/> OPENSOURCE <input type="checkbox"/> RECREATION AREAS DEDICATION OF <input type="checkbox"/> DRAINAGE <input type="checkbox"/> SLOPE <input type="checkbox"/> SIGHT <input type="checkbox"/> SIGHT TRIANGLES <input type="checkbox"/> UTILITIES SITE REQUIRES EASEMENTS FOR WAIVERS <input type="checkbox"/> SIGHT DISTANCE <input type="checkbox"/> SIGHT TRIANGLES <input type="checkbox"/> OTHER _____ REQUIRED FOR SITE CONTAINS <input type="checkbox"/> FLOOD HAZARD AREAS <input type="checkbox"/> WETLANDS <input type="checkbox"/> OPEN WATER <input type="checkbox"/> DETENTION BASINS	
TOTAL CONTIGUOUS LAND AREA OWNED (UNDER CONTRACT) BY APPLICANT _____ ACRES	
SUBDIVISION PROPOSES CREATION OF _____ NEW LOTS CONTAINING _____ ACRES	
SITE PLAN PROPOSES DEVELOPMENT (TOTAL DISTURBED AREA) OF _____ ACRES	
SITE PLAN PROPOSES DEVELOPMENT (BUILDING AREA) OF _____ SQ. FT.	
DEVELOPMENT PROPOSES DEDICATION OF ADDITIONAL RIGHTS OF WAY _____ ACRES	
DEVELOPMENT PROPOSES DEDICATION OF OPEN SPACE OF _____ ACRES	
TYPE OF APPLICATION	
SITE PLAN	<input type="checkbox"/> PRELIMINARY <input type="checkbox"/> MINOR <input type="checkbox"/> FINAL FEE REQUIRED \$ _____
PLANNED DEVELOPMENT	<input type="checkbox"/> PRELIMINARY <input type="checkbox"/> FINAL FEE REQUIRED \$ _____
SUBDIVISION MINOR	<input type="checkbox"/> AGRICULTURAL <input type="checkbox"/> LOT CONSOLIDATION <input type="checkbox"/> LOT LINE RELOCATION <input type="checkbox"/> UNPERFECTED SUBDIVISION <input type="checkbox"/> MINOR FEE REQUIRED \$ _____
SUBDIVISION TECHNICAL MAJOR	<input type="checkbox"/> FEE REQUIRED \$ _____
SUBDIVISION MAJOR	<input type="checkbox"/> PRELIMINARY <input type="checkbox"/> FINAL FEE REQUIRED \$ _____
AUTHORIZED ACTIONS	FEE \$ _____ CASH/CHECK NO _____
<input type="checkbox"/> EXEMPT	RECEIVED FROM _____
<input type="checkbox"/> REVIEWED	DEPARTMENT REPRESENTATIVE _____
<input type="checkbox"/> APPROVAL	DATE _____

Applicant's Name _____ Title _____
Firm or Company _____
Mailing Address _____
Corporate Representative _____
Telephone Number () _____
Signature of Applicant _____ Date of application _____

_____ print name of person completing application
_____ signature of person completing application

Owner's Name _____
Mailing Address _____
Corporate Representative _____
Telephone Number () _____
I / we hereby authorize the above named applicant to submit this application for the proposed development on my /our property.

_____ Date _____
Land Surveyor's Name _____ License No. _____
Firm or Company _____
Mailing Address _____
Telephone Number () _____

Engineer / Architect Name _____ License No. _____
Firm or Company _____
Mailing Address _____
Telephone Number () _____ Fax: _____ Email: _____

Attorney Name _____
Firm _____
Mailing Address _____
Telephone Number () _____ Fax: _____ Email: _____

Realtor or other Representative _____ Title _____
Firm _____
Mailing Address _____
Telephone Number () _____ Fax: _____ Email: _____

Comments or Notes _____

COUNTY PLANNING BOARD REVIEW ACTION

This application has been acted upon in accordance with the N. J. County Planning Enabling Act R.S. 40:27-6.2 through 40:27-6.4 or 40:27-6.6 as follows:

____ Received & Filed - Application stands (Approved) (Approval Withheld) (Disapproved)
____ Reviewed - Comments on conceptual plan are attached.
____ Exempt - Site plan will have no adverse affect on any County Property.
____ Reviewed – Subdivision will have no adverse effect on County Property
____ Approved as it relates to County roads, bridges, drainage structures, and/or property.
____ Approval withheld subject to conditions (see attached).
____ Disapproved for a number of reasons (see attached).

The aforementioned decision was taken by the County Planning Board's Site Plan & subdivision Review Committee. Any question or appeal shall be directed to the Sussex County Planning Department, as per N.J.S.A. 40:27-6.9.

Signature of Authorized Agent for: _____
Sussex County Planning Board

C. Appendix C – Sussex County Standard Design & Construction Details

Sussex County
Department of Engineering and Planning
Division of Engineering
Standard Design & Construction Details



Subject to Modification
Last Revised January 31, 2008

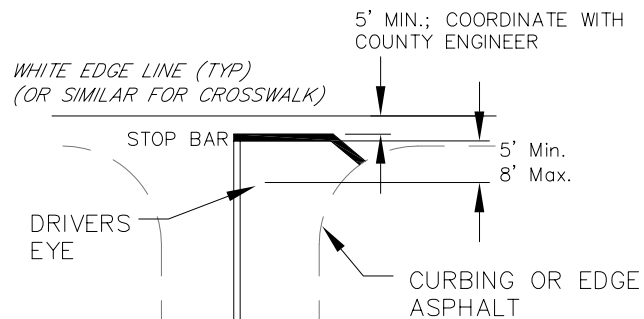
Forward

These details have been developed by the Sussex County Division of Engineering to augment, and as appropriate replace, the New Jersey Department of Transportation Standard Construction Details. Additionally, these details are intended to supplement the Sussex County Land Development Standards. The Sussex County Division of Engineering is dedicated to providing design and construction practices which optimize both public safety and resource investment. As such we are continually looking for new and more advanced design and construction techniques which would provide superior safety and serviceability for the public and their infrastructure investment.

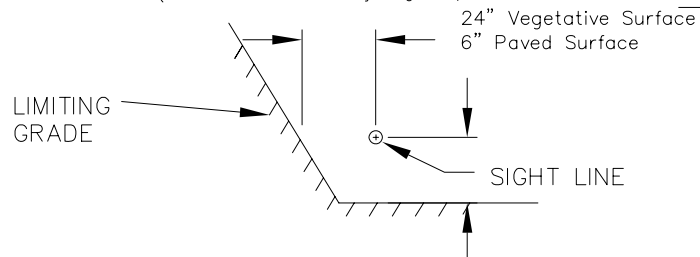
These details have been developed based upon our experiences and in consideration of providing an optimal benefit to the public. We will continue to promote this objective by incorporating advancements in design or construction methodology into these details.

To this end we welcome input which would serve to enhance or improve the public safety or optimize the public resource investment and maintenance.

Sussex County Standard Construction Details			
Detail ID	Detail Description	Revision Status	
SC-01	Intersection Access - Sight Distance Turning Out (used with Sight Distance Standards)	Dev 11/29/05 Rev 1/31/08	
SC-02	Intersection Access - Sight Distance Turning In (used with Sight Distance Standards)	Dev 9/26/06 Rev 1/28/08	
SC-03	Critical Sight Area at Intersection	Dev 11/29/05	
SC-04	Roadway Intersection Detail	Dev 11/29/05 Rev 11/16/07	
SC-05	Multifamily Residential and Commercial Entranceway Detail	Posted 11/29/05 Rev 11/16/07	
SC-05A	Residential Driveway	Dev 2/20/07 Rev 11/16/07	
SC-06	Typical Roadway Section	Dev 11/29/05 Rev 1/29/08	
SC-07	Restricted Entrance –Limited Movements	Dev 11/29/05 Rev 1/9/07	
SC-08	Stop Pavement Markings	Dev 11/29/05 Rev 1/31/08	
SC-09	9"x18" Concrete Vertical Curb	Dev 11/29/05	
SC-10	Depressed Curb Detail	Dev 11/29/05	
SC-11	Sidewalk Detail	Dev 11/29/05	
SC-12	10' Curb Transition Detail	Dev 11/29/05	
SC-13	Pavement Finish Details (Joints)	Dev 11/29/05 Rev 1/29/08	
SC-14	Trench Detail	Dev 11/29/05 Rev. 1/29/08	
SC-15	Timber Sign Post Detail	Dev 1/02/06	
SC-15.1	Sign Details – Sheet 1 of 3	Dev 1/11/05	
SC-15.2	Sign Details – Sheet 2 of 3	Dev 1/11/05	
SC-15.3	Sign Details – Sheet 3 of 3	Dev 1/11/05	
SC-16	Median Break Pavement Markings	Dev 2/27/06 Rev 11/16/07	
SC-17	Auxiliary Lane Layout	Dev 2/27/06 Rev 10/25/07	
SC-18	Auxiliary Lane Layout	Dev 2/27/06 Rev 10/25/07	
SC-19	Driveway Curb Flares	Dev 9/26/06 Rev 1/29/07	



03 SC1 **Driver Eye Location**
(Coordinate with County Engineer)



04 SC1 **Sight Line Buffer**
(Clear Area Between Obstruction and Sight Line)

Legend:

- DS: Design Speed:
(85th Speed plus 10%) or when not available
(Posted Speed Modified per LDS V.C.3.b.ii)
- C1: Exiting vehicle
- C2: Left-hand approaching vehicle traveling at DS
- C3: Right-hand approaching vehicle traveling at DS
- C4: Right turn only exit vehicle
- Distance A: Intersection Sight Distance
Left Turning vehicle
- Distance E: Intersection Sight Distance
Right Turning Vehicle

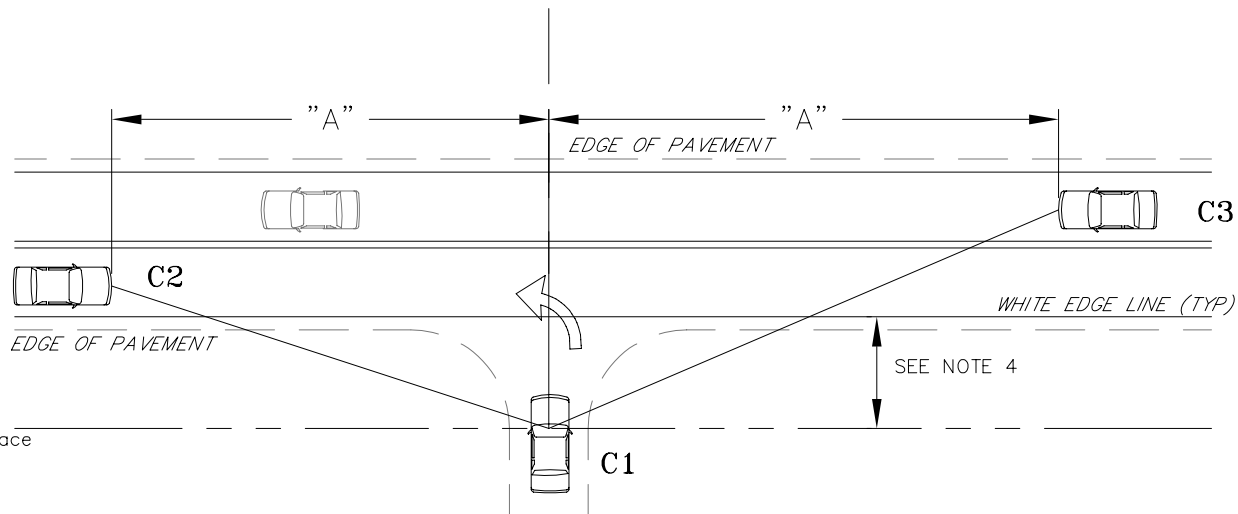
Design Notes:

1. Diagram used in conjunction with sight distance tables.
2. Car C4 exiting to the right.
3. Eye and Object height per AASHTO standards.
4. Sight distance is measured as follows:

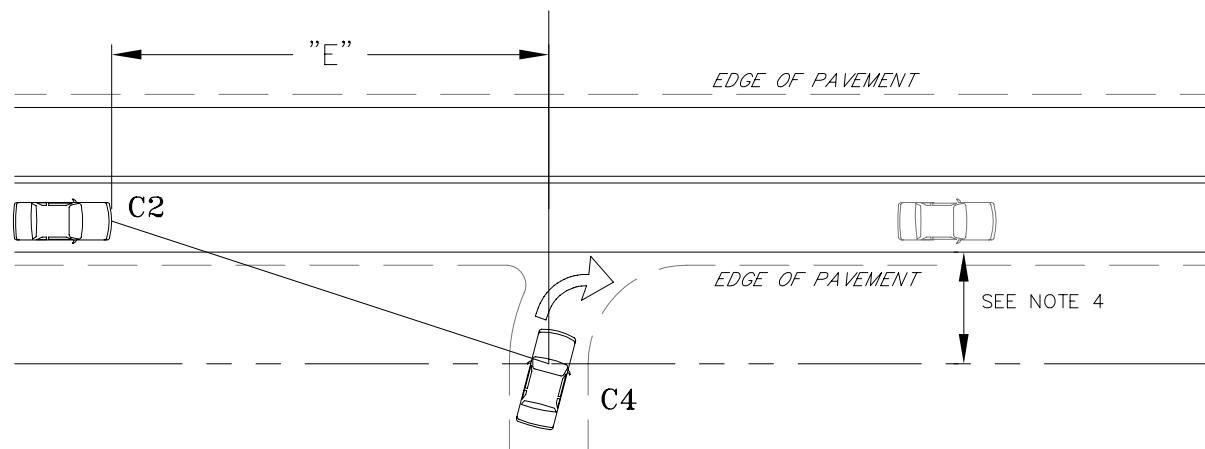
Access without Stop Bars: within the range of 5 to 10 feet behind the white line
(white line is the edge of traveled way)

Access with Stop Bar: within a range of 5 to 8 feet behind Stop Bar, this point is typically located between 12 and 15 feet from the edge of traveled way. Coordinate with County Engineer.

Comments: Sight distance shall be measured nearest to location a driver will actually stop.
Sight distance shall be measured at the most restrictive location within the above range.



02 SC1 **Intersection Allowing Left Turns Out**
(Typically Will Control for turns out)



01 SC1 **Intersection - Right Turn Out**
(Right Turn Out Only)

SHEET DATE: 11/29/05

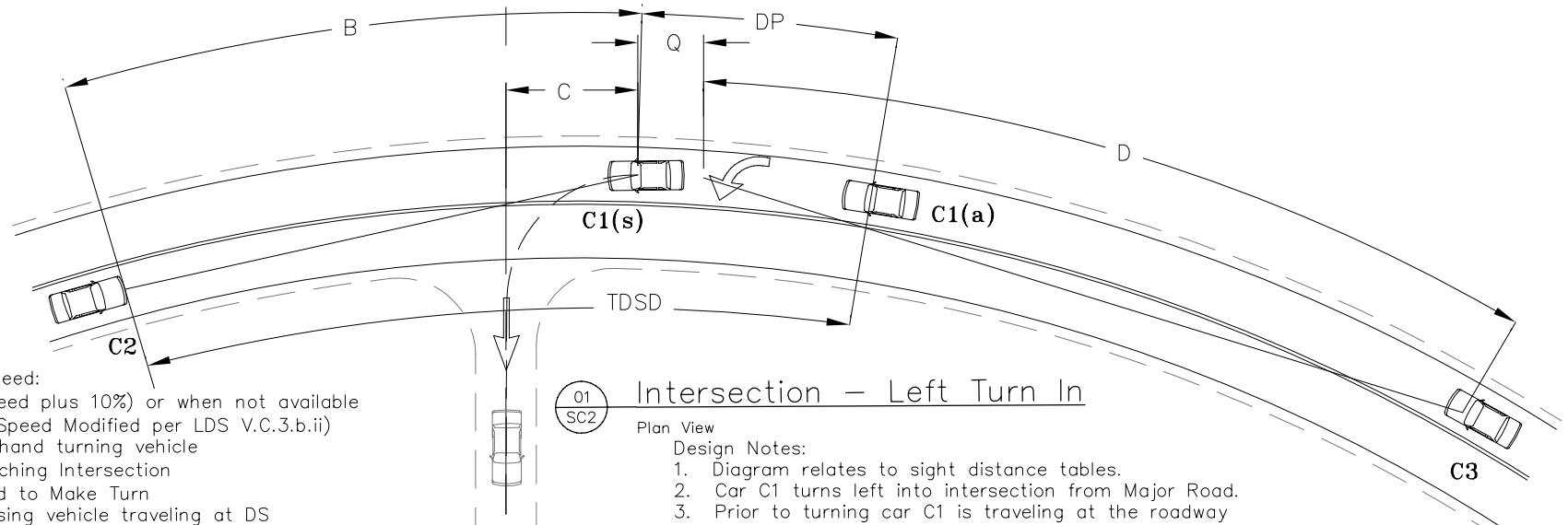
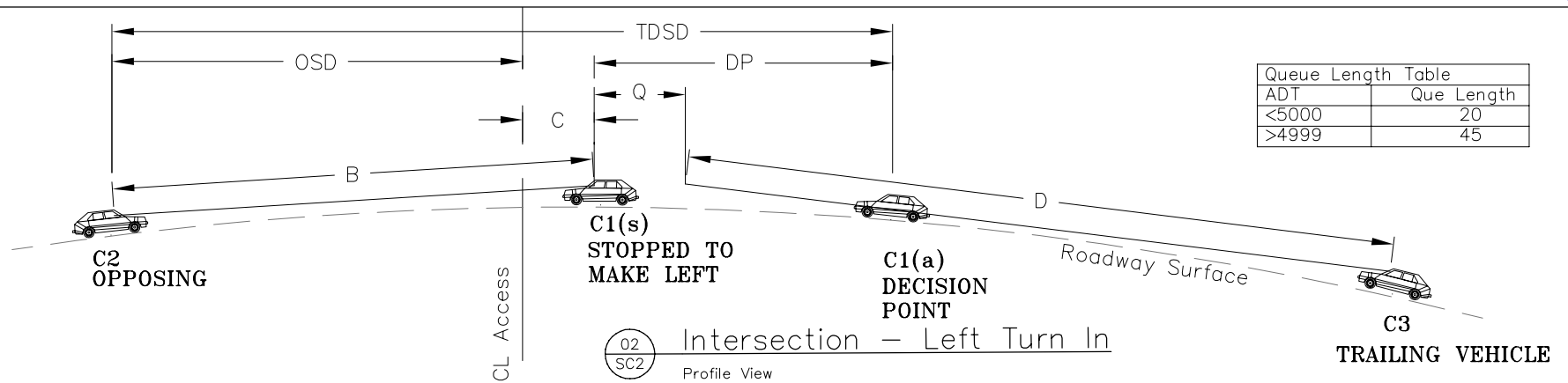
1	Revised Sight Distance	4/4/06	WJK	ENGINEERING DIVISION SUSSEX COUNTY ADMINISTRATIVE CENTER ONE SPRING STREET NEWTON, NEW JERSEY 07860 TEL-973-579-0430 WWW.SUSSEX.NJ.US
2	Measurement Offset	5/9/06	WJK	
3	Revise Detail 03/SC1	4/26/06	WJK	
4	Add Detail 04/SC1	1/31/08	WJK	
No.	REVISIONS	DATE	REV. BY	



COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

INTERSECTION ACCESS
SIGHT DISTANCE OUT

DETAIL
SC-1



Legend:

DS: Design Speed:

(85th speed plus 10%) or when not available
(Posted Speed Modified per LDS V.C.3.b.ii)

Car C1: Left-hand turning vehicle

C1(a): Approaching Intersection

C1(s): Stopped to Make Turn

Car C2: Opposing vehicle traveling at DS

Car C3: Trailing vehicle traveling at DS

Distance C: Stop to Turn Location – 22' Access ingress

CL plus 5' to Driver Eye

Analysis 1 (C1(s) Stopped to Make Left):

Distance B: AASHTO Left Turn from Major Road Car C1 or

Stopping Sight Distance Car C2

Distance D: Stopping Sight Distance Car C3 at DS.

Distance Q: Queue Length: See Table "Queue Length"

Analysis 2: (C1(a) Advancing to make Turn):

Distance DP: Critical Decision Point

(See COS Sight Distance Standards)

Distance TDS: Turn Decision Sight Distance (see

COS Sight Distance Standards).

Distance OSD: Stopping sight distance for Car C3.

Design Notes:

- Diagram relates to sight distance tables.
- Car C1 turns left into intersection from Major Road.
- Prior to turning car C1 is traveling at the roadway design speed. As car C1 approaches the intersection it decelerates to make the left-hand turn. See COS Sight Distance Manual for more data.
- Car C3 requires Stopping Sight Distance from the last car in a left turn queue.
- Car C2, traveling toward car C1 in the opposing lane requires ample stopping sight distance to avoid car C1 should car C1 turn unsafely.
- Driver Eye and Object Height per AASHTO standards.
- Car C1 requires ample Turn Decision Sight Distance over which it must see car C2 to evaluate the safety of executing the turn movement. See COS Sight Distance Manual.
- Stopping Sight Distance is required continuously within the intersection area of influence for all commercial and street access points.
- Distance "C" is the centerline intersection offset to where Car 1 will stop to make the left hand turn. Distance "C" will be 16 feet plus one-half the entry way lane width.

SHEET DATE: 11/29/05

ENGINEERING DIVISION				
1	LEFT TURN IN FROM MAJOR ROAD	10/27/06	Div Eng	SUSSEX COUNTY ADMINISTRATIVE CENTER
	CRITERIA CONFORMANCE CHECK/UPDATE			ONE SPRING STREET
	AGAINST AASHTO STANDARDS			NEWTON, NEW JERSEY 07860
2	Mod. P. Speed Note to Land Dev. Std.	1/28/08	WJK	TEL-973-579-0430
No.	REVISIONS	DATE	REV. BY	WWW.SUSSEX.NJ.US

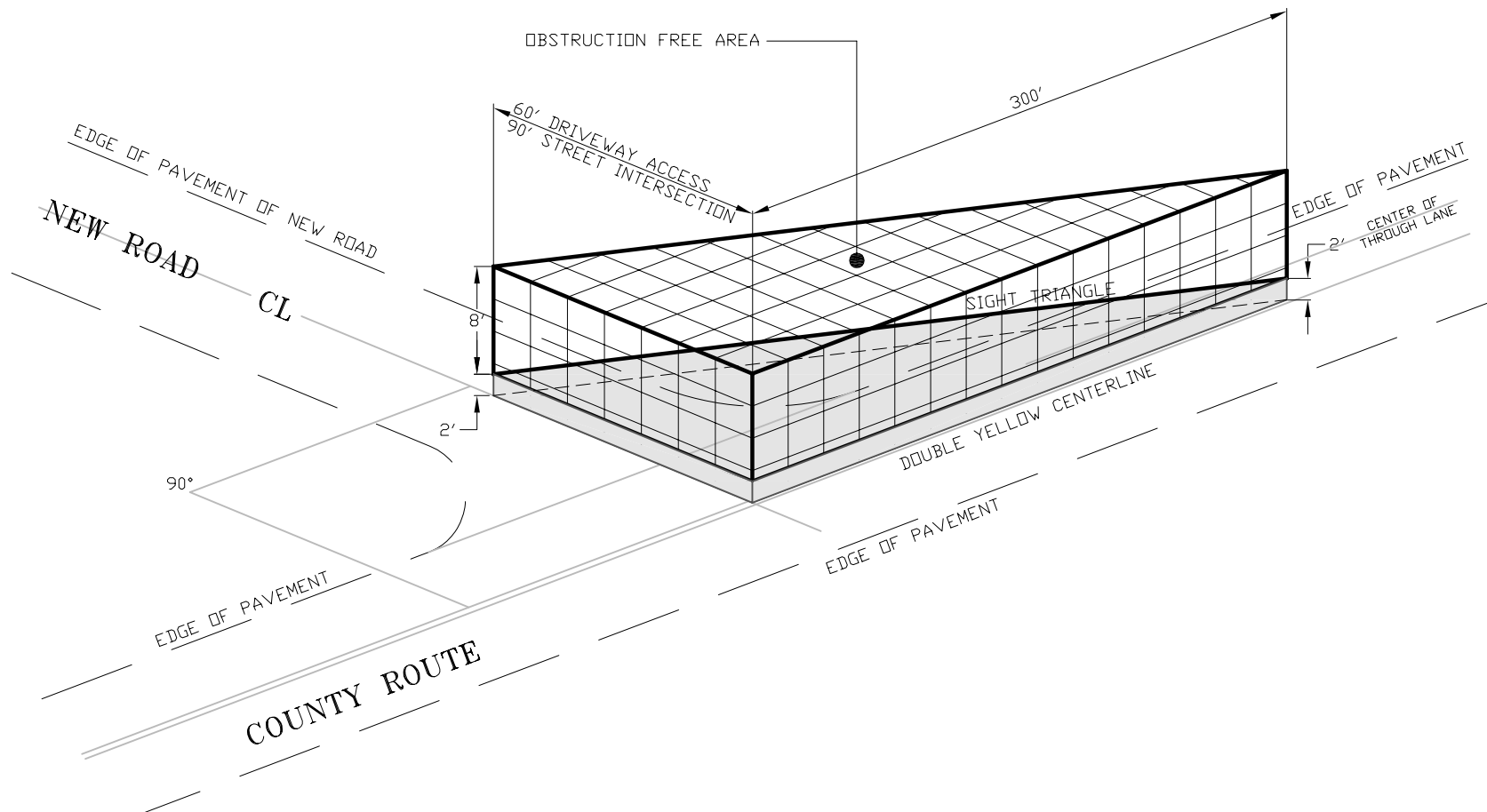


COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

INTERSECTION ACCESS
SIGHT DISTANCE IN

DETAIL

SC-2



INTERSECTION SIGHT TRIANGLE

60' DRIVEWAY ACCESS
90' STREET INTERSECTION
(REFER TO LDS SECTION V.D.2.d FOT TRANSECTS T-5 OR T-6)

SHEET DATE: 11/29/05

ENGINEERING DIVISION			
SUSSEX COUNTY ADMINISTRATIVE CENTER			
ONE SPRING STREET			
NEWTON, NEW JERSEY 07860			
TEL-973-579-0430			
WWW.SUSSEX.NJ.US			
No.	REVISIONS	DATE	REV. BY

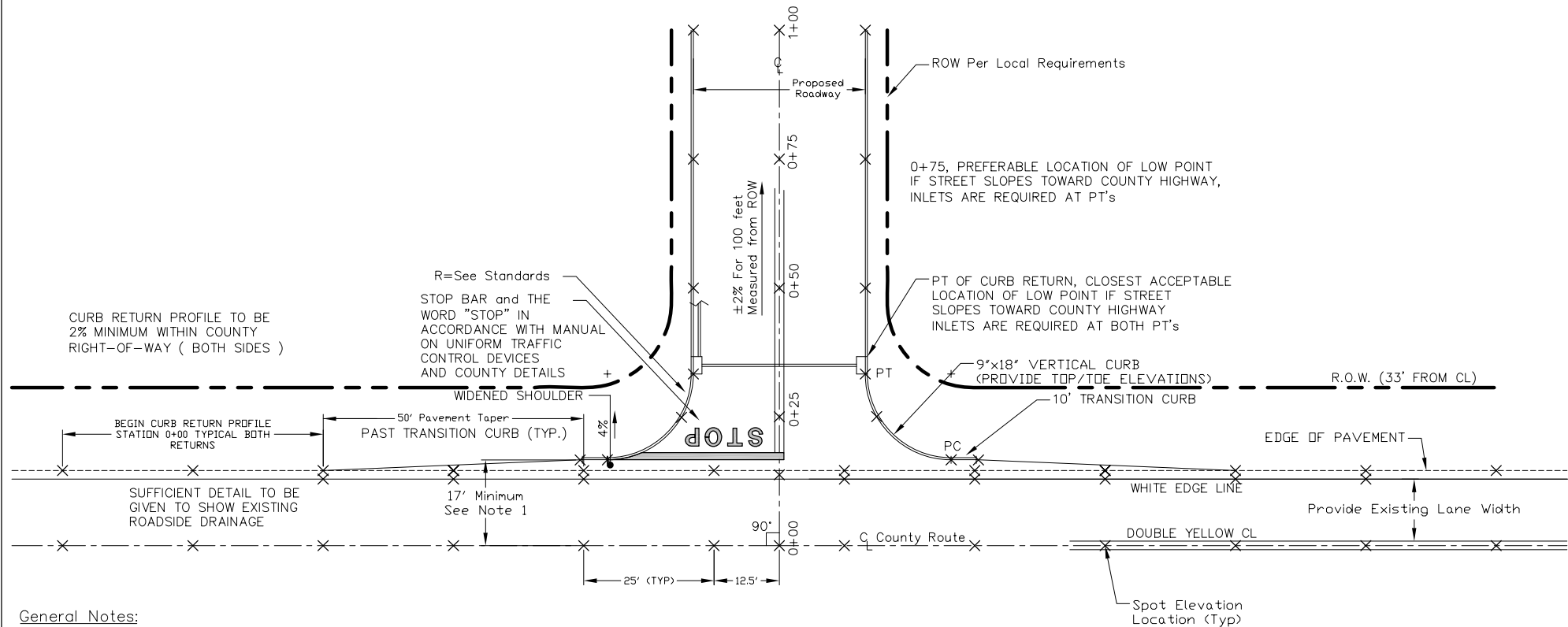


COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

CRITICAL SIGHT AREA
AT INTERSECTION

DETAIL

SC-3



General Notes:

- 1.) Adjustment to curb setback may be required to obtain minimum slopes. Minimum CL offset based upon 12 ft lane, 5 ft shoulder, See Land Development Standards for other lane and shoulder configurations.
- 2.) Written justification will be required when low point is not located at PT of curb.
- 3.) Sight distance to be analyzed in accordance with County Standards.
- 4.) All signage shall be shown on plan and identified using MUTCD designations.
- 5.) Inlets may be omitted when positive drainage can be affected through curb cuts and stabilized swales.
- 6.) Details depicted here represent minimum requirements. All details pertinent to the functioning of the intersection shall be included on submittals.
- 7.) Guide rail shall be included as warranted.
- 8.) Cross sections and CL profile shall be provided for County Route when lane modifications are required.
- 9.) 90'x300' sight triangles shall be provided. Double Overlapping sight triangles may be required, see standards (Not shown this detail).
- 10.) Concrete curb shall be used within County ROW unless otherwise directed by the County Engineer.
- 11.) Proposed pavement box shall be continued to existing County Route white edge line. All existing asphalt between existing white edge line and proposed work shall be removed. Refer to Detail SC-13

Implementation Note:

This detail represents a generic access configuration. It is intended as a graphical representation of common design data needed to facilitate the County Application Review Process. Designers shall provide information similar to that depicted hereon applied to the specific access proposal. Site specific details shall be provided with the planning application at a scale of 1" = 20'. This detail should be used for informational purposes only.

SHEET DATE: 11/29/05

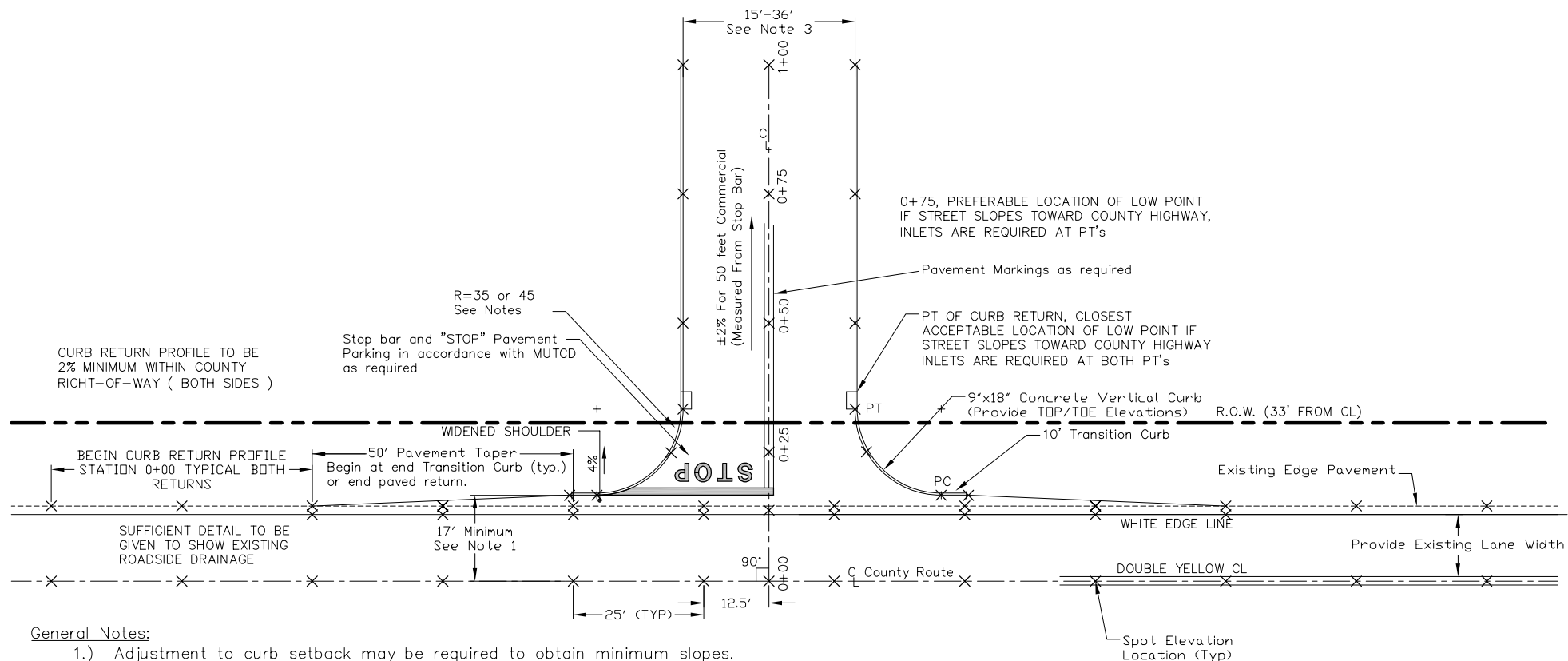
1	Update with Land Development Standards	1/30/07	ENG	ENGINEERING DIVISION SUSSEX COUNTY ADMINISTRATIVE CENTER ONE SPRING STREET NEWTON, NEW JERSEY 07860 TEL-973-579-0430 WWW.SUSSEX.NJ.US
2	Added Implementation Note	11/16/07	ENG	
No.	REVISIONS	DATE	REV. BY	



COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

ROADWAY
INTERSECTION DETAIL

DETAIL
SC-4



General Notes:

- Adjustment to curb setback may be required to obtain minimum slopes. Minimum CL offset based upon 12 ft lane, 5 ft shoulder, refer to Land Development Standards for alternate lane/shoulder configurations.
- Written justification will be required when low point is located at PT of curb.
- Entranceway widths vary per County Standards dependent on use type and number of lanes.
- Sight distance to be analyzed in accordance with County Standards.
- All signage shall be shown on plan and identified using MUTCD designations.
- Inlets may be omitted when positive drainage can be effected through curb cuts and stabilized swales.
- Details depicted here represent minimum requirements All details pertinent to the functioning of the entranceway point of access shall be included on submittals.
- Guide rail shall be included as warranted.
- Cross sections and CL profile shall be provided for County Route when lane modifications are required.
- 60'x300' sight triangles shall be provided (not shown this detail).
- All curbing within the County ROW shall be concrete unless otherwise directed by the County Engineer.
- Proposed pavement box shall be continued to existing County Route white edge All existing asphalt between existing white edge line and proposed work shall be removed. refer to Detail SC-13.
- Curb return radii may be varied by the designer to accommodate proposed design vehicles. See Land Development Standards for Alternate configurations.
- Proposal shall be designed to accommodate the SU design vehicle unless proposed use warrants larger vehicles.
- Applicant shall provide sight line profiles.

Implementation Note:

This detail represents a generic access configuration. It is intended as a graphical representation of common design data needed to facilitate the County Application Review Process. Designers shall provide information similar to that depicted hereon applied to the specific access proposal. Site specific details shall be provided with the planning application at a scale of 1" = 20' This detail should be used for informational purposes only.

SHEET DATE: 11/29/05

ENGINEERING DIVISION			
4	REMOVED SINGLE FAMILY RESIDENTIAL DATA	2/20/07	WJK
3	Update to Land Development Standards	1/29/07	ENG
2	REVISED APPROACH GRADE NOTES	3/1/06	WJK
1	ADAPTED FROM INTERSECTION DETAIL	9/20/05	DDR
No.	REVISIONS	DATE	REV. BY

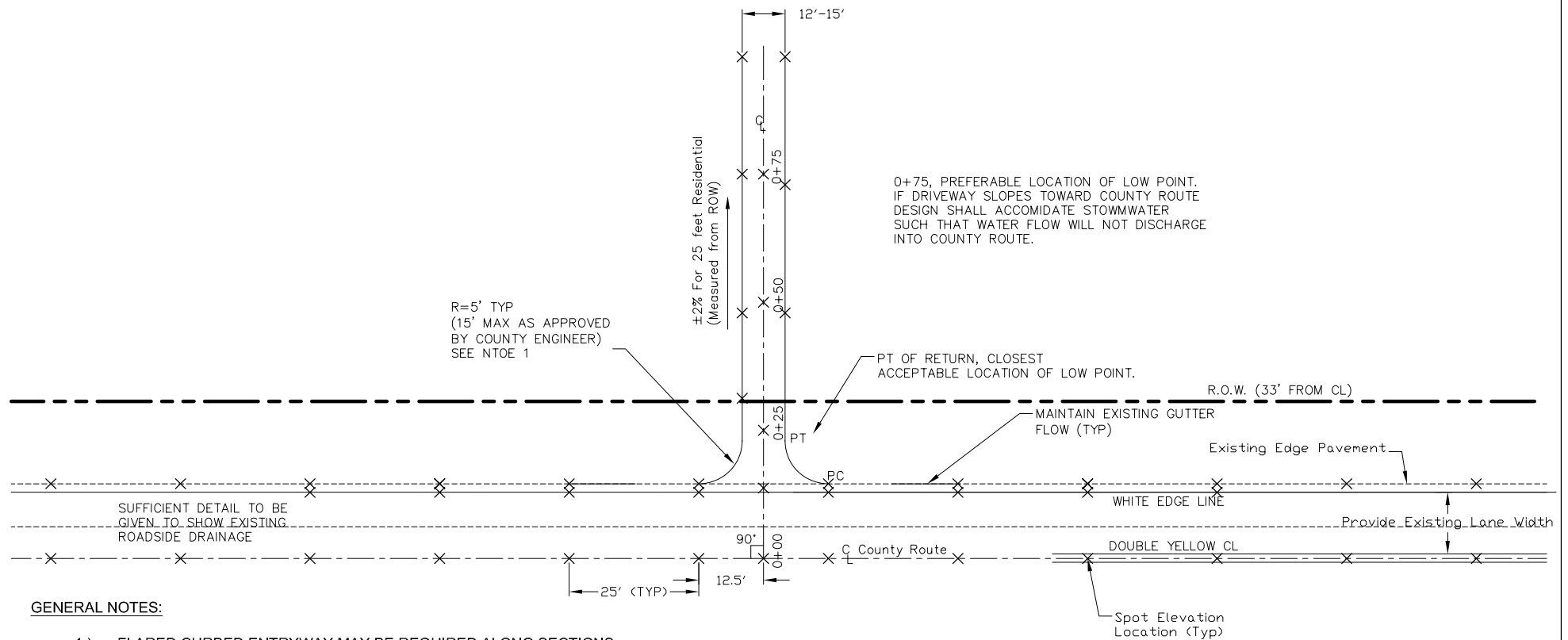
SUSSEX COUNTY ADMINISTRATIVE CENTER
ONE SPRING STREET
NEWTON, NEW JERSEY 07860
TEL-973-579-0430
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COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

MULTIFAMILY OR
COMMERCIAL ENTRANCEWAY

DETAIL
SC-5



GENERAL NOTES:

- 1.) FLARED CURBED ENTRYWAY MAY BE REQUIRED ALONG SECTIONS OF COUNTY ROUTES WHICH ARE CURBED. REFER TO STANDARD DETAIL SC-19
- 2.) WRITTEN JUSTIFICATION WILL BE REQUIRED WHEN LOW POINT IS LOCATED AT PT OF CURB.
- 3.) SIGHT DISTANCE TO BE ANALYZED IN ACCORDANCE WITH COUNTY STANDARDS.
- 4.) ALL SIGNAGE SHALL BE SHOWN ON PLAN AND IDENTIFIED USING MUTCD DESIGNATIONS.
- 5.) INLETS AND OTHER DRAINAGE SYSTEMS ALONG COUNTY ROUTS SHALL BE SHOWN ON PLAN.
- 6.) ROADSIDE DRAINAGE SHALL NOT BE ALTERED BY PROPOSED DRIVEWAY.
- 7.) DETAILS DEPICTED HERE REPRESENT MINIMUM REQUIREMENTS ALL DETAILS PERTINENT TO THE FUNCTIONING OF THE ENTRANCEWAY POINT OF ACCESS SHALL BE INCLUDED ON SUBMITTALS.
- 8.) EXISTING GUIDE RAIL SHALL BE SHOWN ON THE PLAN, MODIFICATIONS DESIGNED AS WARRANTED.
- 9.) CROSS SECTIONS AND CL PROFILE SHALL BE PROVIDED FOR COUNTY ROUTE OR SPOT ELEVATIONS SUFFICIENT TO DEFINE DRAINAGE.
- 10.) ALL CURBING WITHIN THE COUNTY ROW SHALL BE CONCRETE UNLESS OTHERWISE DIRECTED BY THE COUNTY ENGINEER.
- 11.) PROPOSED PAVEMENT SHALL MEET EXISTING EDGE OF COUNTY ROUTE. REFER TO STANDARD DETAIL SC-13 FOR JOINING DETAILS.

Implementation Note:

This detail represents a generic access configuration. It is intended as a graphical representation of common design data needed to facilitate the County Application Review Process. Designers shall provide information similar to that depicted hereon applied to the specific access proposal. Site specific details shall be provided with the planning application at a scale of 1" = 20'. This detail should be used for informational purposes only.

SHEET DATE: 2/16/07

ENGINEERING DIVISION

SUSSEX COUNTY ADMINISTRATIVE CENTER
ONE SPRING STREET
NEWTON, NEW JERSEY 07860
TEL-973-579-0430
WWW.SUSSEX.NJ.US



COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

RESIDENTIAL
ACCESS

DETAIL

SC-5A

1

No.

ADAPTED FROM SC-5

REVISIONS

2-15-07

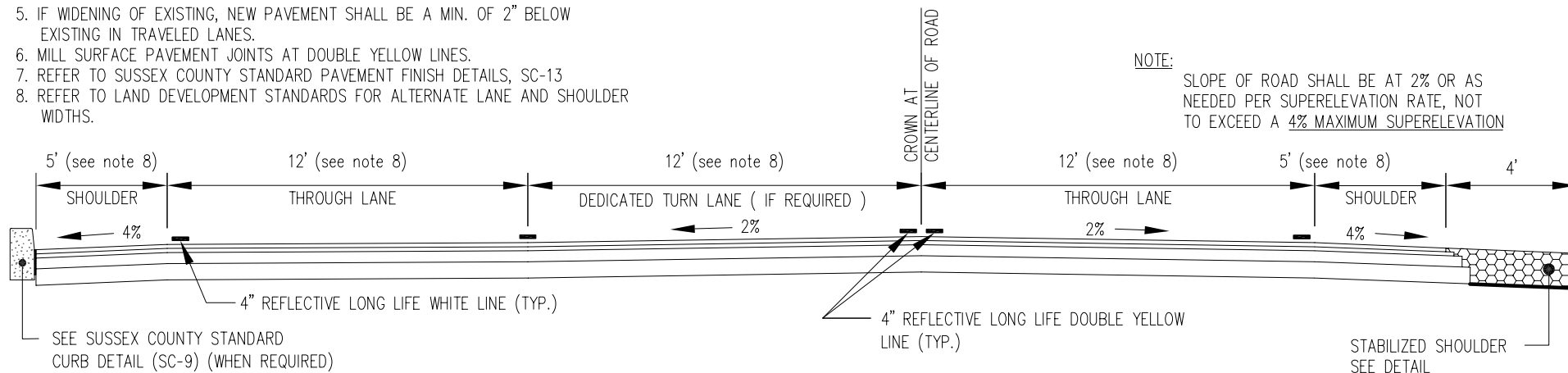
DATE

WJK

REV. BY

NOTE: TYPICAL ROADWAY SECTIONS

1. SLOPES GREATER THAN 2:1 SHALL BE STABILIZED WITH JUTE FABRIC.
2. TYPICAL SLOPES SHALL HAVE A MINIMUM OF (3:1) AND PREFERRED (10:1) IN LAWNS, ACTUAL SLOPES MAY VARY BASED ON EXISTING FIELD CONDITIONS.
3. CLEAN CUT START AND FINISH JOINTS.
4. MIN. 12" OVERLAP NEW PAVEMENT TO MEET EXISTING REMAINING.
5. IF WIDENING OF EXISTING, NEW PAVEMENT SHALL BE A MIN. OF 2" BELOW EXISTING IN TRAVELED LANES.
6. MILL SURFACE PAVEMENT JOINTS AT DOUBLE YELLOW LINES.
7. REFER TO SUSSEX COUNTY STANDARD PAVEMENT FINISH DETAILS, SC-13
8. REFER TO LAND DEVELOPMENT STANDARDS FOR ALTERNATE LANE AND SHOULDER WIDTHS.

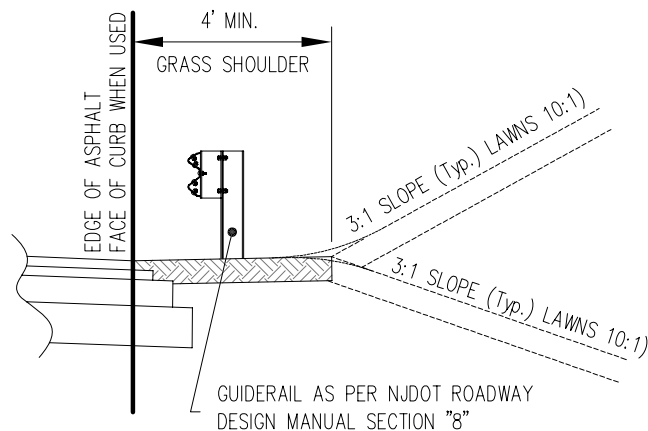


TYPICAL ROADWAY SECTION

NTS

NOTE: TYPICAL SLOPE DETAIL

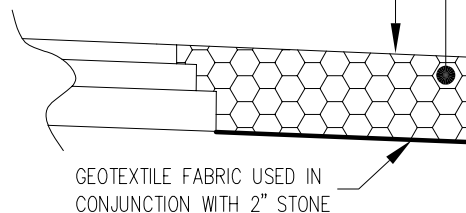
1. ALL SLOPES SHALL BE STABILIZED WITH 4" THICK TOP SOIL, SEEDING, AND MULCH.
2. SHOULDERS 4% OR LESS SHALL HAVE 4" THICK TOP SOIL, SEEDING, AND MULCH



TYPICAL SLOPE DETAIL

NTS

STABILIZED SHOULDER
ROAD GRADE 4% OR GREATER ($D_{50} = 2"$)
ROAD GRADE LESS THEN 4% (DENSE GRADED AGGREGATE)
IF DGA IS USED, TOP SHOULD HAVE A VEGETATIVE STABILIZATION AND GEOTEXTILE FABRIC TO PREVENT LOSS OF FINER MATERIALS



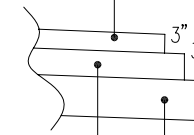
SHOULDER STABILIZATION DETAIL

NTS

2" THICK HOT MIX ASPHALT
SURFACE COARSE MIX 12.5M64

5" THICK HOT MIX ASPHALT
BASE COARSE MIX 19M64

6" THICK DENSE GRADED AGGREGATE



PAVEMENT STEPPING DETAIL

NTS

SHEET DATE: 11/29/05

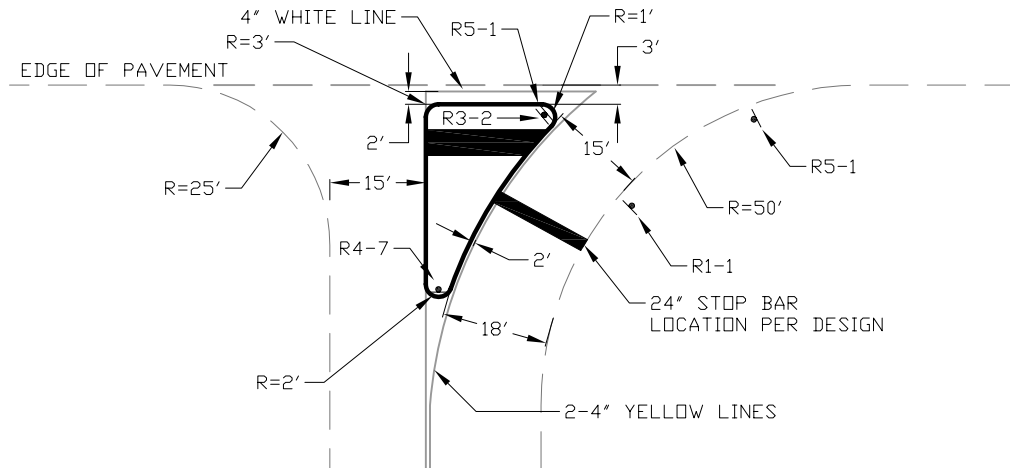
ENGINEERING DIVISION			
SUSSEX COUNTY ADMINISTRATIVE CENTER ONE SPRING STREET NEWTON, NEW JERSEY 07860 TEL-973-579-0430 WWW.SUSSEX.NJ.US			
No.	REVISIONS	DATE	REV. BY
2	UPDATE FOR SUPERPAVE	1/29/08	ENG
1	Update for Land Development Standards	1/29/07	ENG



COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

TYPICAL
ROADWAY SECTION

DETAIL
SC-6



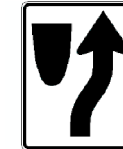
LEFT TURNS OUT PROHIBITED



R1-1
STOP



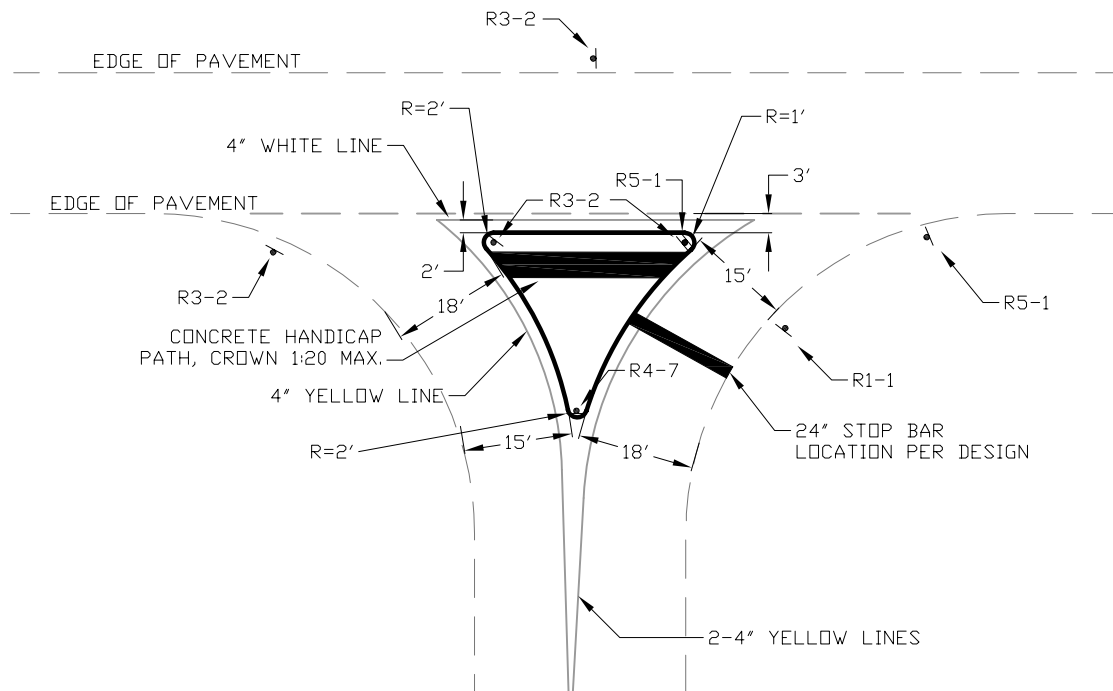
R5-1
DO NOT ENTER



R4-7
KEEP RIGHT



R3-2
NO LEFT TURN



RIGHT-IN AND RIGHT-OUT ONLY

NOTES:
TYPICAL RESTRICTED ENTRANCEWAY DETAILS
BASED UPON SU DESIGN VEHICLE. DESIGNER
SHOULD VERIFY ADEQUACY FOR SPECIFIC DESIGN
VEHICLE AND ADJUST DIMENSIONS AS NEEDED
TO ACCOMMODATE DESIGN VEHICLE.

DESIGN ELEMENTS SHOULD DETER RESTRICTED
TURN MOVEMENTS TO THE MAXIMUM EXTENT POSSIBLE.

ADDITIONAL SIGNS MAY BE WARRANTED. SIGNAGE
SHALL BE INSTALLED PER
MUTCD.

MOUNTABLE CURB MAY BE USED AS APPROPRIATE.

SHEET DATE: 11/29/05

ENGINEERING DIVISION			
SUSSEX COUNTY ADMINISTRATIVE CENTER ONE SPRING STREET NEWTON, NEW JERSEY 07860 TEL-973-579-0430 WWW.SUSSEX.NJ.US			
No.	REVISIONS	DATE	REV. BY
1	UPDATE TO LAND DEVELOPMENT STANDARDS	1/29/07	ENG

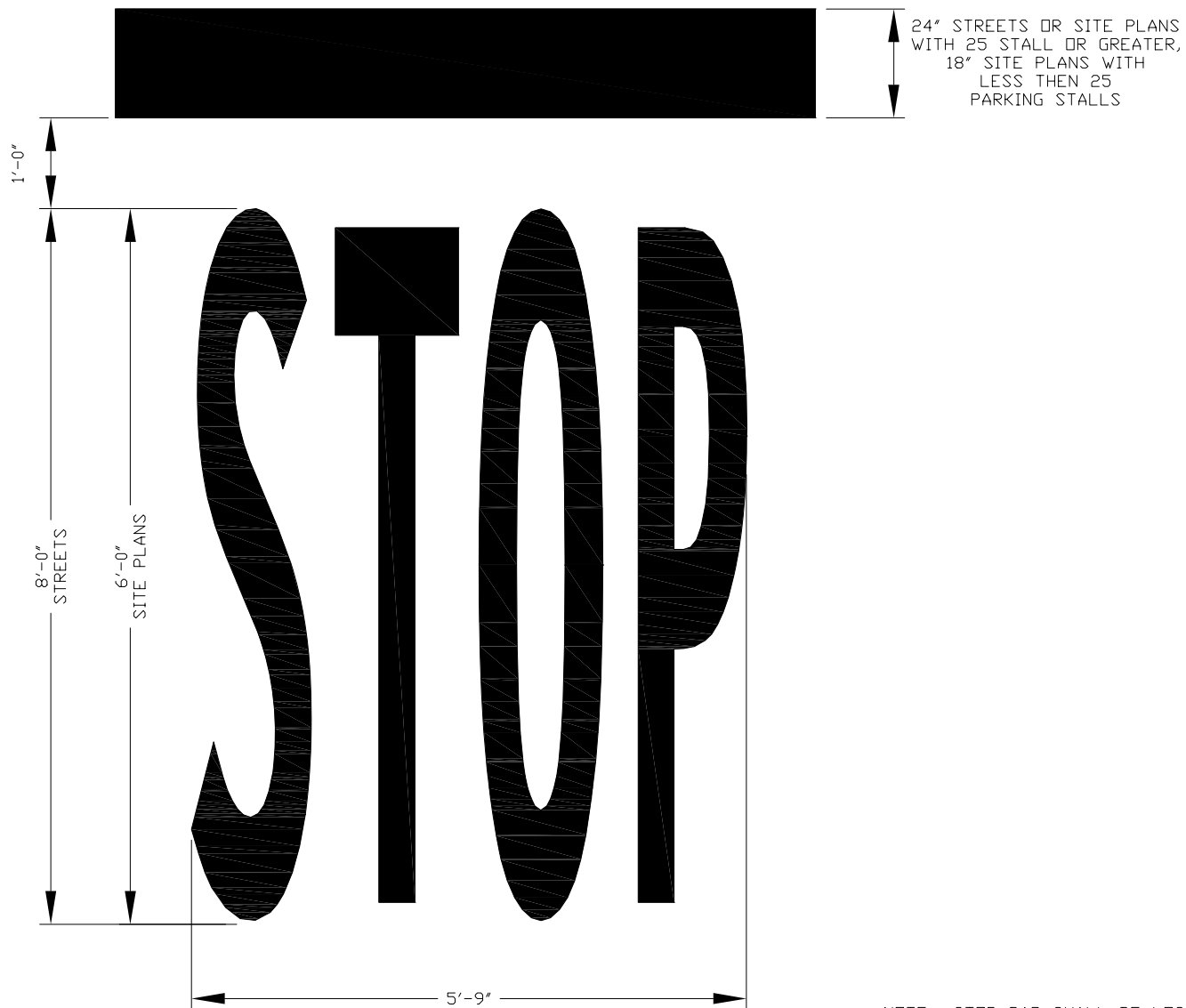


COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

RESTRICTED ENTRANCE
LIMITED MOVEMENTS


DETAIL

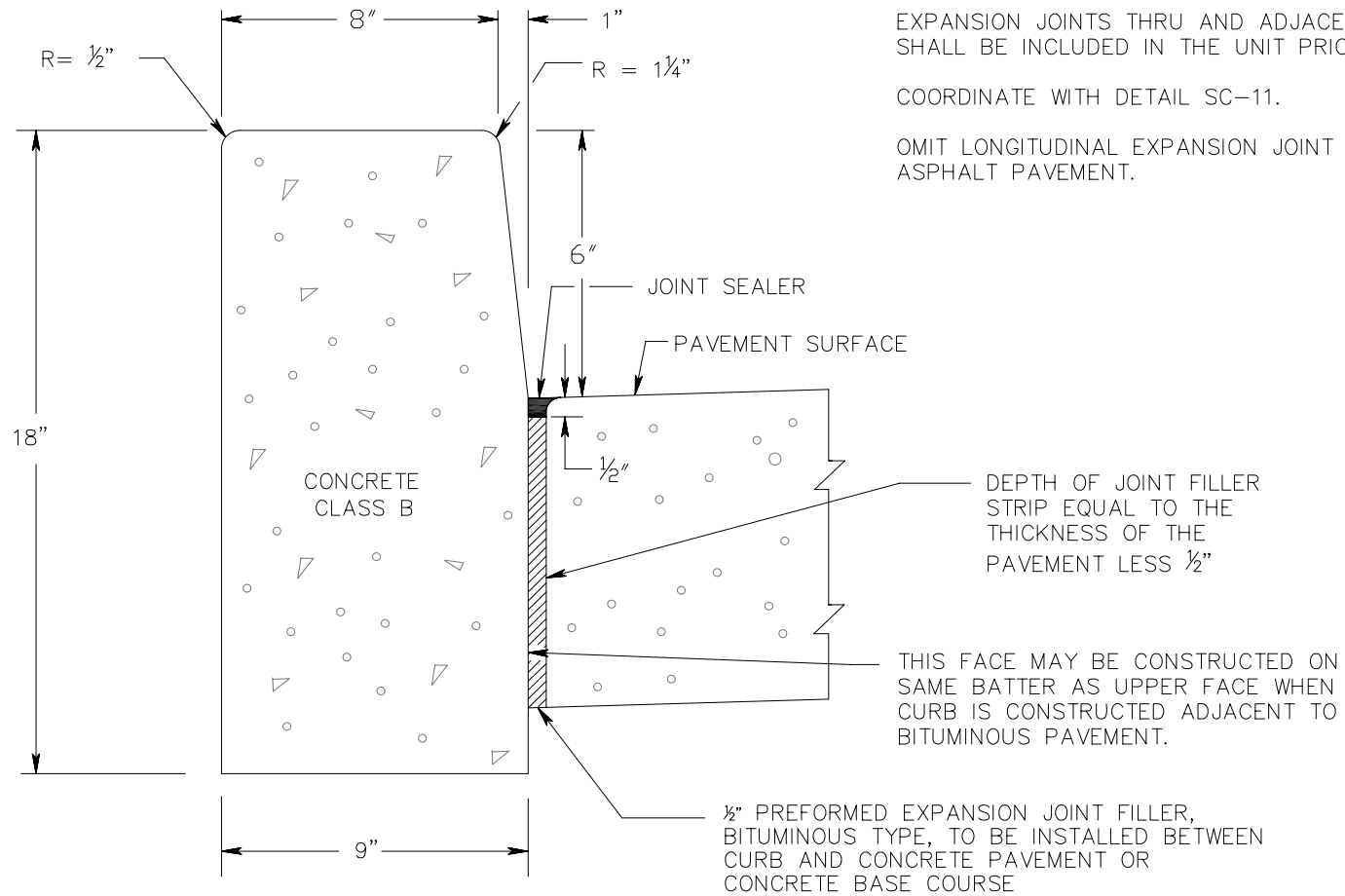
SC-7



NOTE: STOP BAR SHALL BE LOCATED A MINIMUM OF 5 FEET BEHIND THE THROUGH STREET WHITE EDGE LINE. LOCATION SHALL BE COORDINATED ON A CASE BY CASE BASIS WITH THE COUNTY ENGINEER.

SHEET DATE: 11/29/05

SHEET DATE: 1/17/03				ENGINEERING DIVISION			COUNTY OF SUSSEX DEPARTMENT OF ENGINEERING AND PLANNING STANDARD DETAILS	STOP PAVEMENT MARKING	DETAIL
				SUSSEX COUNTY ADMINISTRATIVE CENTER					SC-8
				ONE SPRING STREET					
				NEWTON, NEW JERSEY 07860					
				TEL-973-579-0430					
1	ADDED NOTE	1/31/08	ENG	WWW. SUSSEX. NJ. US					
No.	REVISIONS	DATE	REV. BY						



SHEET DATE: 11/29/05

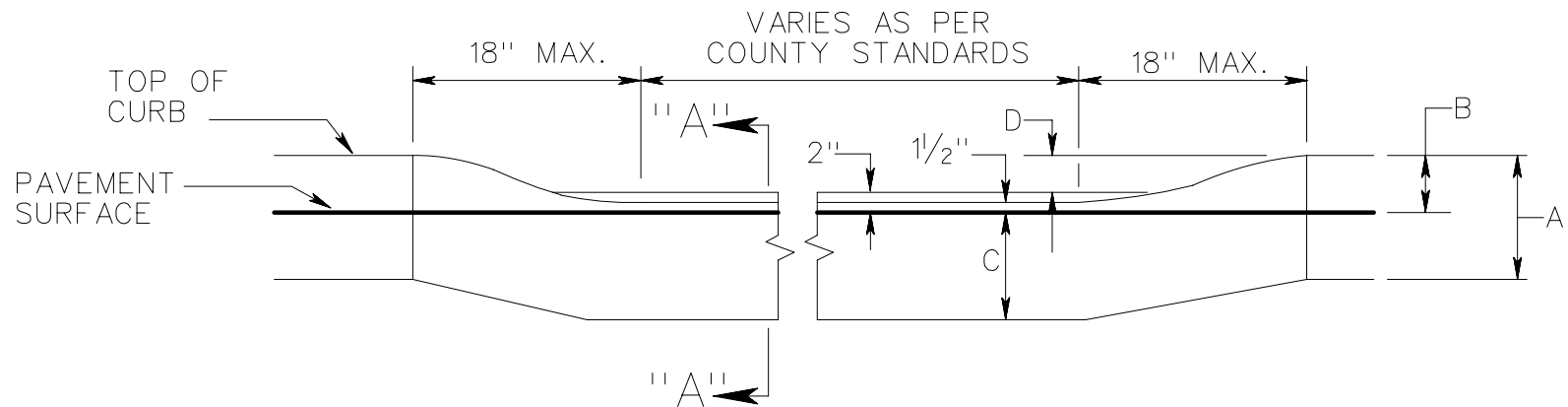
ENGINEERING DIVISION			
SUSSEX COUNTY ADMINISTRATIVE CENTER			
ONE SPRING STREET			
NEWTON, NEW JERSEY 07860			
TEL-973-579-0430			
WWW.SUSSEX.NJ.US			
No.	REVISIONS	DATE	REV. BY



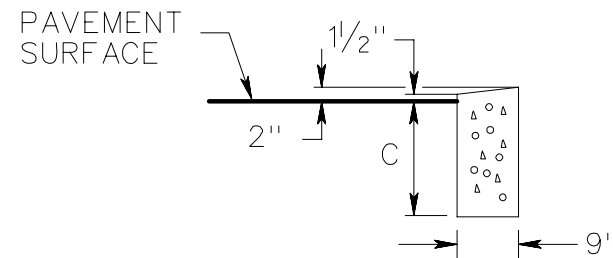
COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

9" X 18" CONCRETE
VERTICAL CURB

DETAIL
SC-9



CURB SIZE	DIM. A	DIM. B	DIM. C	DIM. D
9"x18"	18"	6"	16"	4"
9"x22"	22"	8"	16"	6"



SECTION A-A

METHOD OF DEPRESSING CURB AT DRIVEWAYS

N.T.S.

SHEET DATE: 11/29/05

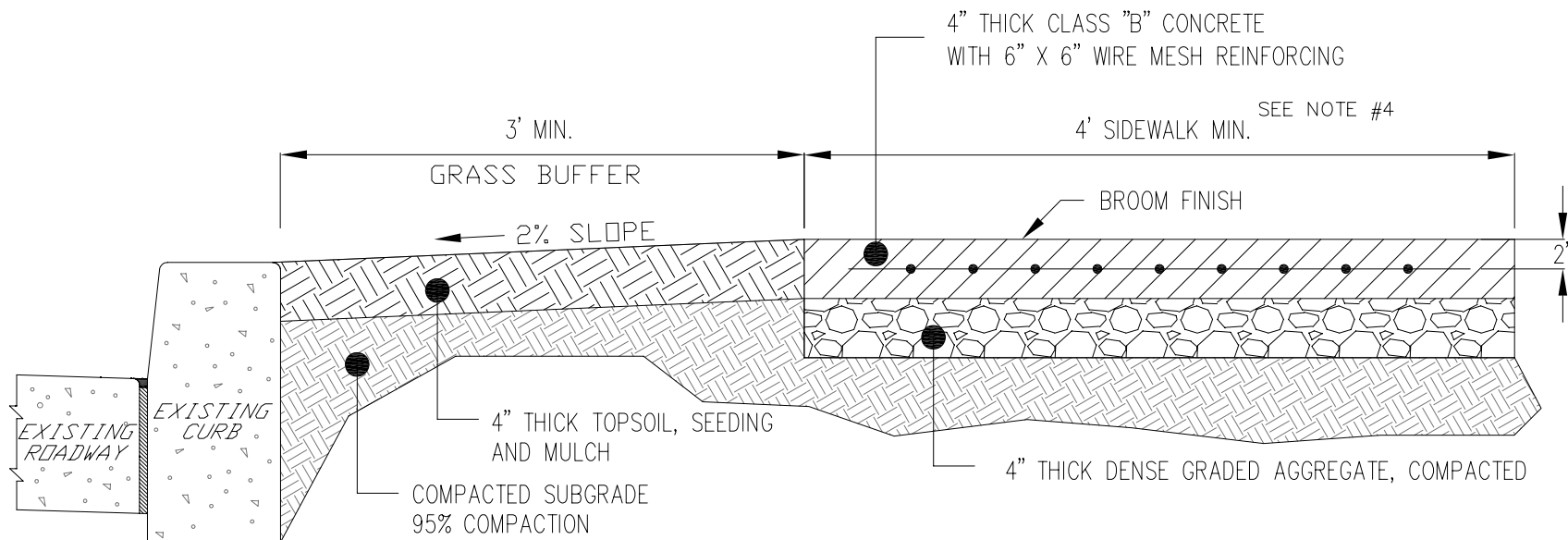
ENGINEERING DIVISION			
SUSSEX COUNTY ADMINISTRATIVE CENTER			
ONE SPRING STREET			
NEWTON, NEW JERSEY 07860			
TEL-973-579-0430			
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COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

DEPRESSED CONCRETE
CURB DETAIL

DETAIL
SC-10



METHOD FOR SIDEWALK/CURB BUFFER

NOTES:

N.T.S.

1. PROVIDE 1/2" EXPANSION JOINTS AT 20' O.C. AND AT ALL EXISTING STRUCTURES, AND PROVIDE CONTRACTION JOINTS AT 5' O.C., IN SIDEWALKS.
2. FIBER MESH MAY BE SUBSTITUTED FOR WWF AT A RATE OF 1.5 Lb. PER CY CONCRETE.
3. 3' GRASS BUFFER AREA SHALL HAVE A MINIMUM OF 4" THICK TOPSOIL, SEEDING, AND MULCH OR AS PER CURRENT LOCAL STANDARDS.
4. IF 3' GRASS BUFFER IS OMITTED THE CONCRETE SIDEWALK SHALL BE 5' MIN. IN WIDTH AND SHALL SLOPE TOWARDS THE ROADWAY.
5. ADA ACCESSIBLE RAMPS SHALL BE IN CONFORMANCE WITH CURRENT NJDOT STANDARD DETAILS.
6. ADA ACCESSIBLE RAMPS SHALL NOT OUTLET ONTO COUNTY ROUTE SHOULDERS IN THE ABSENCE OF COUNTY APPROVED PEDESTRIAN CROSSWALKS.

SHEET DATE: 11/29/05

ENGINEERING DIVISION

SUSSEX COUNTY ADMINISTRATIVE CENTER
ONE SPRING STREET
NEWTON, NEW JERSEY 07860
TEL-973-579-0430
WWW.SUSSEX.NJ.US



COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

SIDEWALK/
CURB DETAIL

DETAIL

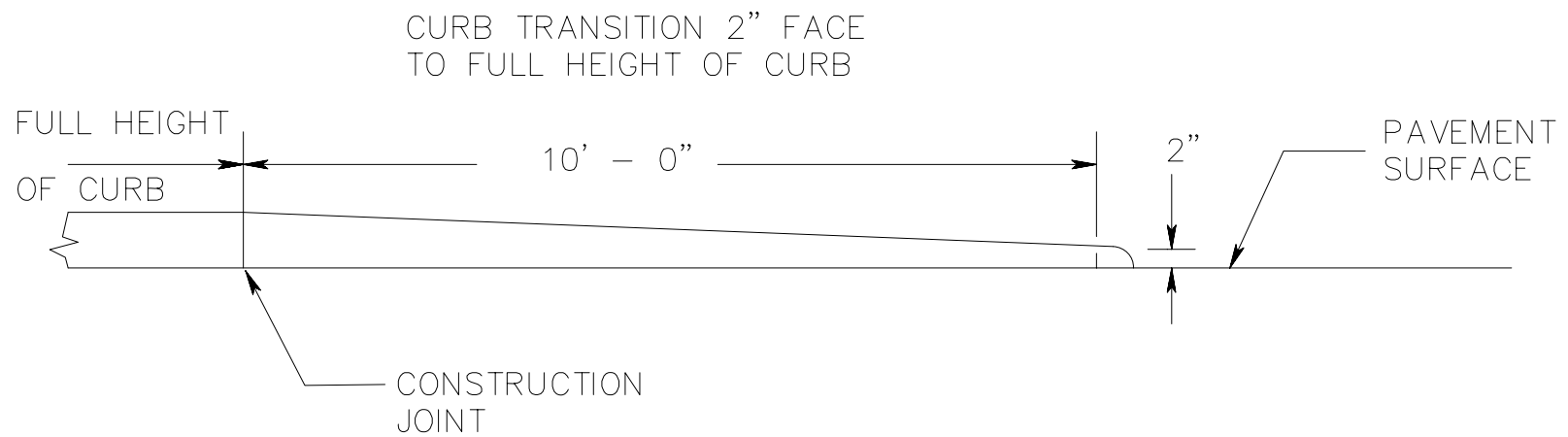
SC-11

No.

REVISIONS

DATE

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SHEET DATE: 11/29/05

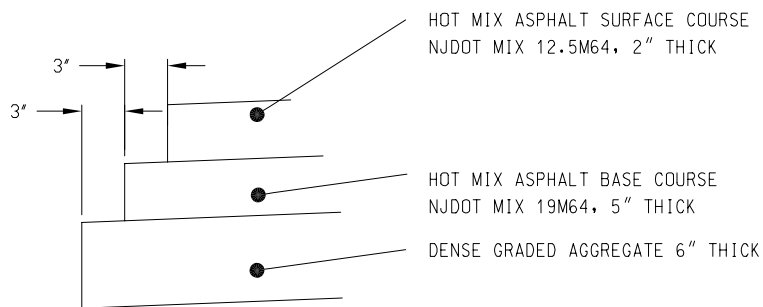
ENGINEERING DIVISION			
SUSSEX COUNTY ADMINISTRATIVE CENTER			
ONE SPRING STREET			
NEWTON, NEW JERSEY 07860			
TEL-973-579-0430			
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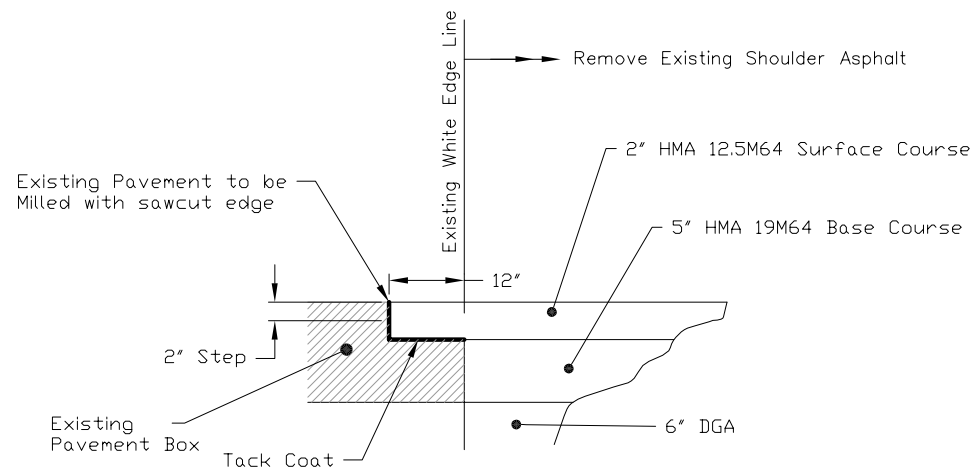
COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

10' CURB
TRANSITION

DETAIL
SC-12

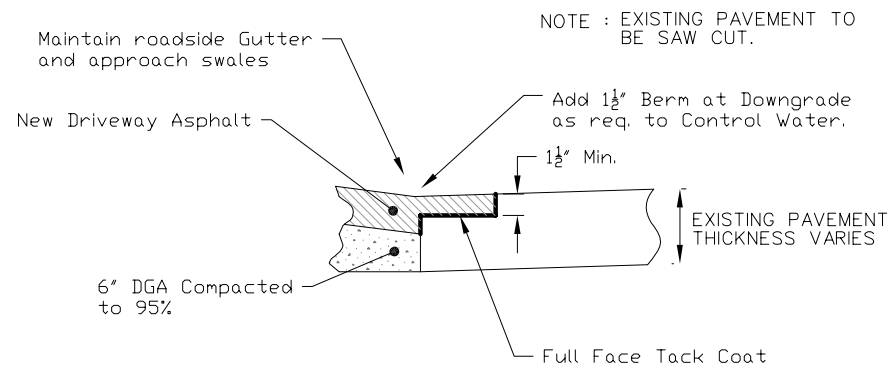


STEPPED PAVEMENT DETAIL



PAVEMENT JOINTING DETAIL

Used for Widened Pavment Sections



NOTE : EXISTING PAVEMENT TO BE SAW CUT.

RESIDENTIAL DRIVEWAY JOINING DETAIL

Pavement Nomenclature			
Aggregate Size	NJDOT OLD	NJDOT NEW	Min Bit. Thickness
3/8"	HMA I-5	HMA 9.5MM64	1.5"
1/2"	HMA I-4	HMA 12.5M64	2"
3/4"	HMA I-2	HMA 19M64	3"
1"		HMA 25M64	4"
1 1/2"		HMA 37.5M64	6"

SHEET DATE: 11/29/05

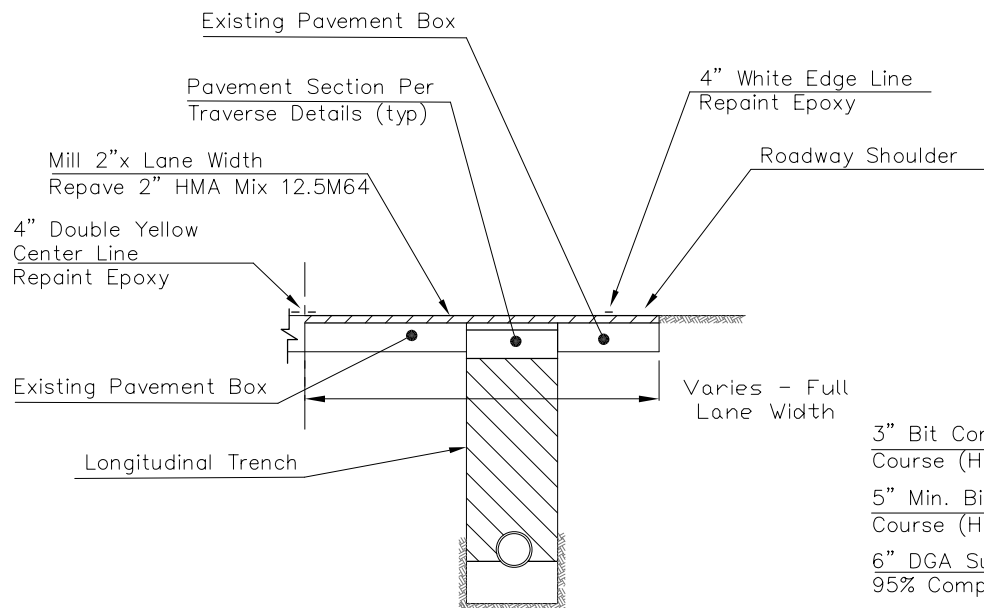
ENGINEERING DIVISION			
SUSSEX COUNTY ADMINISTRATIVE CENTER ONE SPRING STREET NEWTON, NEW JERSEY 07860 TEL-973-579-0430 WWW.SUSSEX.NJ.US			
1	UPDATE FOR SUPERPAVE	1/29/08	ENG
No.	REVISIONS	DATE	REV. BY



COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

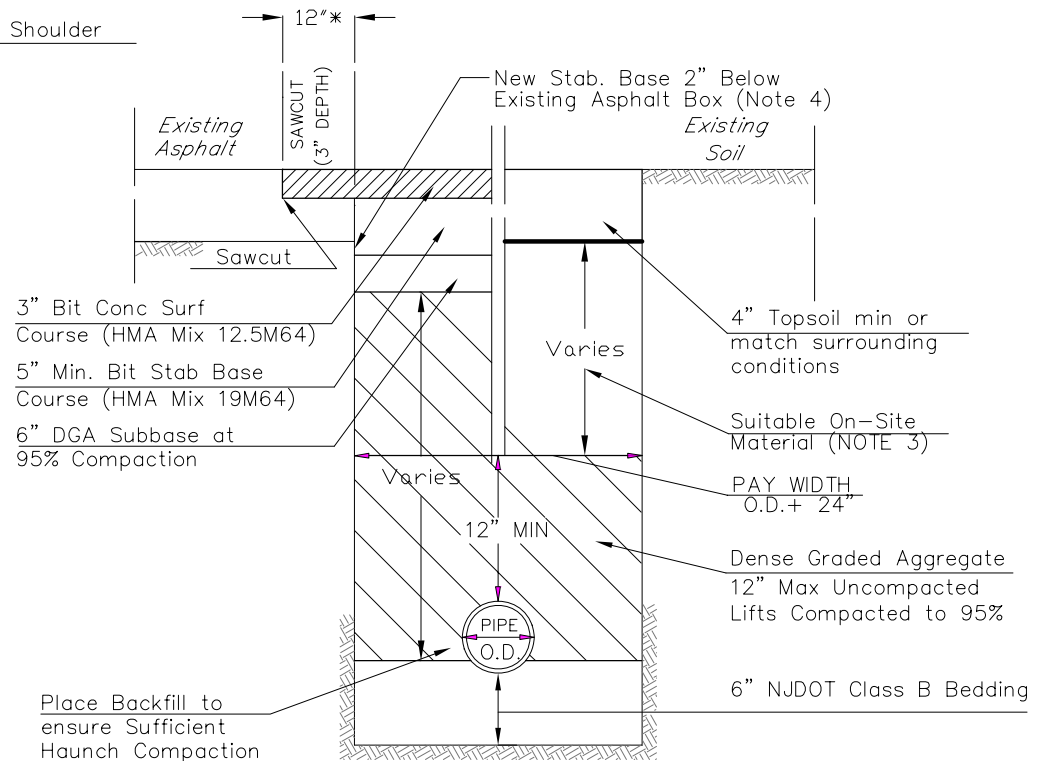
PAVEMENT
FINISH DETAILS

DETAIL
SC-13



Mill and Repave Travelway Lane Width along sections of County Routes where longitudinal trenches are constructed. Refer to typical roadway sections for minimum lane/shoulder widths and additional section data.

LONGITUDINAL TRENCH



TRAVERSE TRENCH

* 12" shall be uniform transversely across the road measured from the widest part of the road opening.

1. Contractor shall provide sheeting or shoring as require
2. Contractor shall provide all dewatering. Dewatering shall comply with NJ Soil Conservation Standards.
3. On-site material shall only be permitted for use in trenches within open areas, i.e. fields and lawns.
4. Bituminous Stabilized Base Course shall be placed such that the bottom elevation extends 2" below the existing asphalt road box.
5. All asphalt joints shall be saw-cut

SHEET DATE: 11/29/05

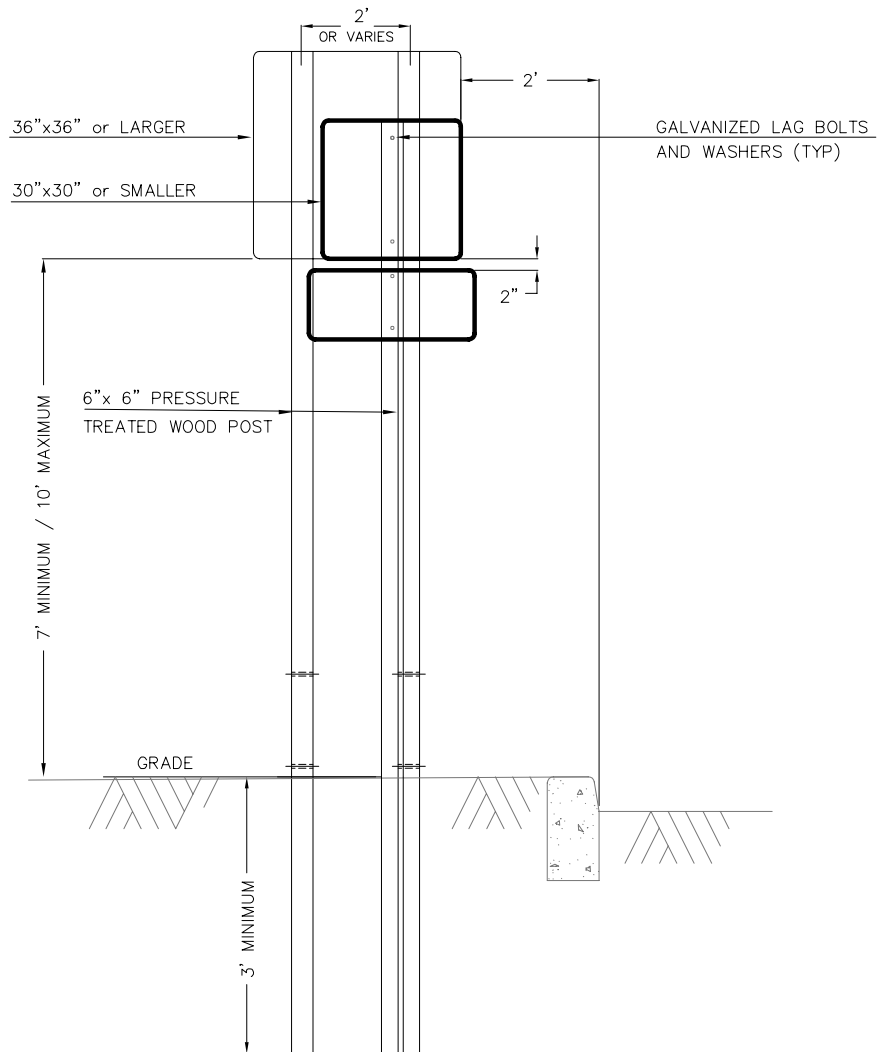
ENGINEERING DIVISION			
SUSSEX COUNTY ADMINISTRATIVE CENTER ONE SPRING STREET NEWTON, NEW JERSEY 07860 TEL-973-579-0430 WWW.SUSSEX.NJ.US			
2	UPDATE TO SUPERPAVE	1/29/08	ENG
1	Add reference to Typical Section	9/26/06	Eng. Stf
No.	REVISIONS	DATE	REV. BY



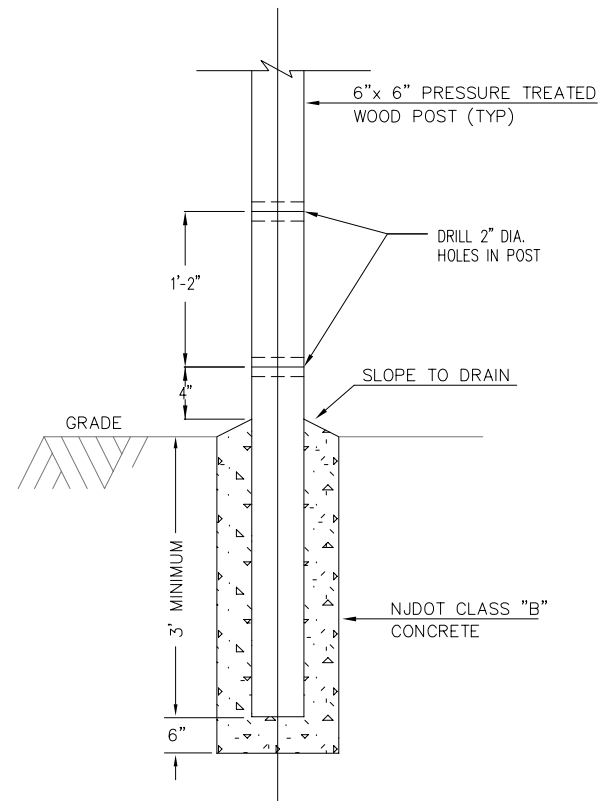
COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

TYPICAL
TRENCH DETAIL

DETAIL
SC-14



SIGN POST DETAIL



TYPICAL POST FOUNDATION

TYPICAL WOOD SIGN POST

N.T.S.

SHEET DATE: 01/02/06

ENGINEERING DIVISION

SUSSEX COUNTY ADMINISTRATIVE CENTER
ONE SPRING STREET
NEWTON, NEW JERSEY 07860
TEL-973-579-0430
WWW.SUSSEX.NJ.US



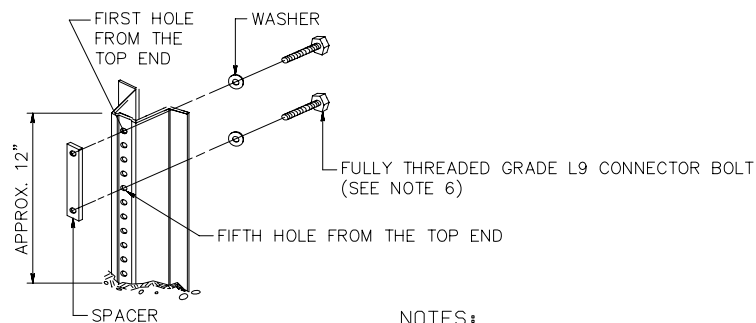
COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

BREAKAWAY SIGN
SIGN POST DETAIL

DETAIL

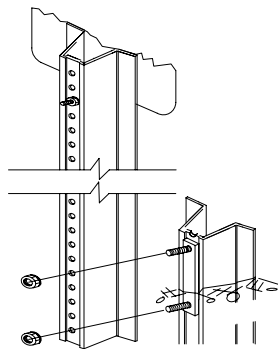
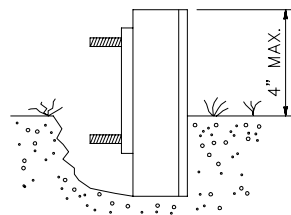
SC-15

No.	REVISIONS	DATE	REV. BY



NOTES:

1. DRIVE ANCHOR POST ASSEMBLY TO WITHIN APPROXIMATELY 12 INCHES ABOVE GROUND LEVEL. PLACE BOLT AND WASHER IN FIRST AND FIFTH HOLES FROM THE TOP END, AND SECURELY TIGHTEN BOLTS ONTO THREADED SPACER.
2. DRIVE ANCHOR POST ASSEMBLY TO WITHIN A MAXIMUM OF 4 INCHES ABOVE GROUND LEVEL.
3. DIG OUT AROUND BACK OF ANCHOR POST ASSEMBLY TO ALLOW ROOM FOR TOP POST TO BE ATTACHED.
4. NEST TOP POST ASSEMBLY ONTO PROTRUDING ANCHOR POST ASSEMBLY BOLTS, THROUGH THE FIRST AND FIFTH HOLES FROM THE BOTTOM OF THE TOP POST.
5. PLACE AND TIGHTEN A SELF-LOCKING FLANGE NUT ON EACH BOLT. WHEN INSTALLATION IS COMPLETE, TOP OF GROUND POST SHALL NOT EXCEED 4 INCHES ABOVE GROUND LEVEL.
6. SIZE OF CONNECTOR BOLT FOR TYPE 1, $\frac{5}{16}$ " x $1\frac{1}{2}$ "
SIZE OF CONNECTOR BOLT FOR TYPE 2, $\frac{3}{8}$ " x 2"



NOTE:

THE CONNECTOR BOLTS AND SPACERS SHALL BE FULLY THREADED. EACH CONNECTOR BOLT AND NUT SHALL BE CLEARLY STAMPED WITH MANUFACTURER'S IDENTIFYING MARK.

ANCHOR POST ASSEMBLY SIGN SUPPORTS

CD-619-5.2

GENERAL NOTES:

1. ALL POSTS SHALL BE OF ADEQUATE LENGTH TO MEET THE REQUIREMENTS FOR ERECTION AS STATED IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND AS INDICATED BELOW.
2. ALL SMALL SIGN SUPPORTS SHALL BE OF THE BREAKAWAY TYPE WITH EXCEPTION OF THOSE INSTALLED BEHIND GUIDE RAIL OR OTHER ROADSIDE BARRIER.
3. ALL STEEL POSTS AND BRACKETS SHALL BE CUT, BENT, AND HOLES PUNCHED AND DRILLED BEFORE GALVANIZING. GALVANIZING SHALL BE IN CONFORMANCE WITH CURRENT ASTM A123.
4. ALL STEEL U-POST SIGN SUPPORTS MUST BE INSTALLED FACING THE PREDOMINANT TRAFFIC FLOW. A MOUNTING BRACKET SHOULD BE USED ON SIDE MOUNTED SIGNS SUCH AS "ONE WAY" SIGNS INSTALLED IN MEDIANS.
5. SIGN PANEL SIZES SHALL DETERMINE POST TYPE AND NUMBER AS SHOWN ON THIS DETAIL.
6. BOLTS SHALL NOT PROTRUDE MORE THAN $\frac{3}{4}$ " BEYOND THE NUT WHEN TIGHT, BUT SHALL ENGAGE ALL THREADS IN THE NUT.
7. WHEN SIGNS ARE INSTALLED ON SLOPES 10H:1V OR FLATTER, THE MINIMUM VERTICAL CLEARANCE REQUIREMENTS FOR SIGNS ARE:

FOR SINGLE POST INSTALLATIONS - THE MINIMUM DISTANCE BETWEEN THE EDGE OF THE PAVEMENT AND THE BOTTOM OF ANY PANEL MUST BE 7 FEET, AND THE MINIMUM DISTANCE FROM EDGE OF PAVEMENT TO THE TOP OF ANY SIGN PANEL MUST BE 9 FEET.

FOR MULTI-POST INSTALLATIONS - THE MINIMUM DISTANCE BETWEEN THE EDGE OF PAVEMENT AND THE BOTTOM OF A MAJOR SIGN PANEL MUST BE 7 FEET.

SECONDARY SIGN PANELS (LAND SERVICE HIGHWAYS) - THE MINIMUM DISTANCE BETWEEN THE EDGE OF PAVEMENT AND THE BOTTOM OF A SECONDARY SIGN PANEL IS 6 FEET.

SECONDARY SIGN PANELS (INTERSTATE AND FREEWAYS) - THE BOTTOM OF THE MAJOR SIGN SHALL BE A MINIMUM OF 8 FEET AND THE SECONDARY SIGN PANEL A MINIMUM OF 5 FEET ABOVE THE EDGE OF PAVEMENT.

WHERE GRADING OF 10H:1V OR FLATTER CANNOT BE OBTAINED, OR WHERE CURB OR BERM IS GREATER THAN 4 INCHES, THE MINIMUM VERTICAL CLEARANCE WILL BE MEASURED FROM THE GROUND LINE TO THE BOTTOM OF THE SIGN.

8. PERMANENT SIGN SUPPORTS SHOULD NOT BE INSTALLED ON SLOPES GREATER THAN 10H:1V, EXCEPT WHERE GRADING OF 10H:1V CANNOT BE OBTAINED OR THE SIGN SUPPORTS WILL BE BEHIND A TRAFFIC BARRIER. THE SLOPE SHALL EXTEND A MINIMUM OF 3 FEET BEYOND THE OUTSIDE EDGE OF SIGN (SEE GRADING DETAIL FOR SLOPE TREATMENT).
9. EXTRUDED ALUMINUM SIGN PANELS ARE NOT PERMITTED FOR USE WITH STEEL U-POST SIGN SUPPORTS.
10. STEEL U-POST SIGN SUPPORTS SHALL NOT BE PLACED IN FRONT OF GUIDE RAIL AND THE POSTS MUST NOT STRADDLE GUIDE RAIL.
11. TO EXTEND THE HEIGHT OF A SIGN POST, A MAXIMUM OF ONE SPLICE MAY BE MADE AND MUST BE A MINIMUM OF 9 FEET FROM THE GROUNDLINE TO CENTER LINE OF SPLICE.

SHEET DATE: 1/11/005

ENGINEERING DIVISION			
SUSSEX COUNTY ADMINISTRATIVE CENTER ONE SPRING STREET NEWTON, NEW JERSEY 07860 TEL-973-579-0430 WWW.SUSSEX.NJ.US			
No.	REVISIONS	DATE	REV. BY
			CDS

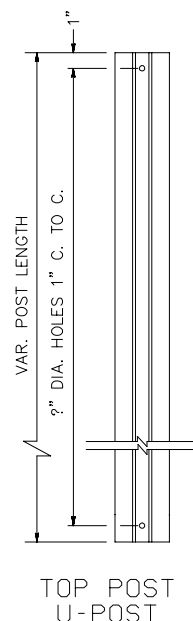
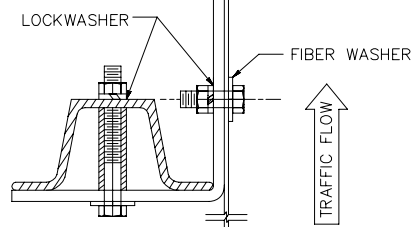
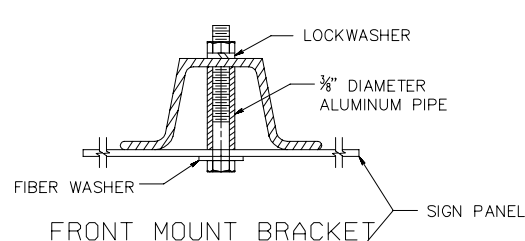


COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

SIGN DETAILS
SHEET 1 OF 3

DETAIL
SC-15.1

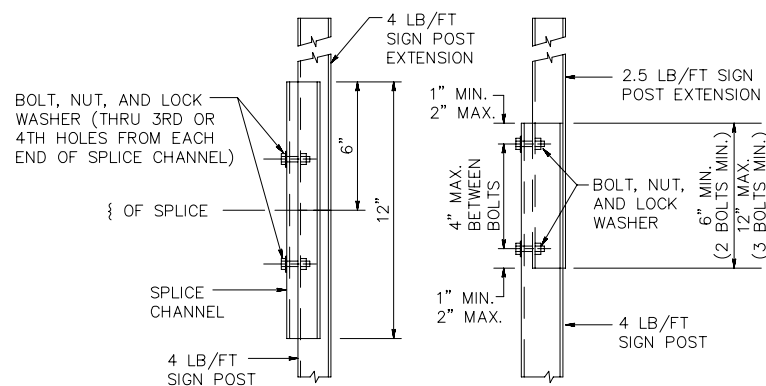
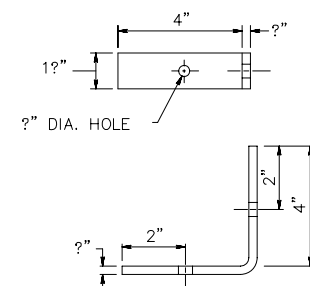
NJDOT DETAILS EXTRACTED FROM SHEETS CD-619-4 AND CD 619-5
SEE SHEETS SC-15.1, SC-15.2 AND SC-15.3



PANEL SIZE (W X H)	• OF POSTS	POST SIZE (LB/ FT)
18" x 18"	1	2.5
18" x 24"	1	2.5
24" x 24"	1	2.5
24" x 30"	1	2.5
24" x 36"	1	2.5
30" x 24"	1	2.5
30" x 30"	1	2.5
36" x 12"	2	2.5
36"x36"x36"	2	2.5
30" x 36"	1	4.0

PANEL SIZE (W X H)	• OF POSTS	POST SIZE (LB/ FT)
36" x 36"	2	2.5
36" x 48"	2	2.5
45" x 36"	2	2.5
48" x 24"	2	2.5
48" x 36"	2	2.5
48" x 48"	2	4.0
48"x64"x64"	2	2.5
60" x 36"	2	4.0
48" x 60"	2	4.0
60" x 30"	2	4.0

U-POST SELECTION TABLE
BREAKAWAY SIGN SUPPORT

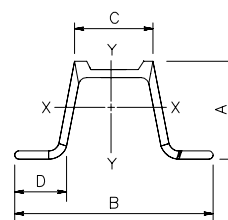


WEIGHT * LBS/FT.	DIMENSIONS (IN)				AREA IN ²	X-X AXIS * *		Y-Y AXIS	
	"A"	"B"	"C"	"D"		1 (IN. ⁴)	S (IN. ³)	1 (IN. ⁴)	S (IN. ³)
2.50	1.516	3.062	1.278	0.669	0.760	0.228	0.313	0.539	0.352
4.00	1.968	3.500	1.336	0.834	1.187	0.611	0.707	1.161	0.664

TYPE 1 STEEL U-POST PROPERTIES

* ± 5%

* *GOVERNING SECTION



NOTES:

- ANCHOR POST AND TOP POST SHALL BE OF EQUAL WEIGHT/FEET.
- SOIL ANCHOR PLATE SHALL BE ATTACHED TO ALL ANCHOR POSTS.
- THE MATERIAL FOR THE SOIL ANCHOR PLATES SHALL BE CARBON SHEET STEEL.

NJDOT DETAILS EXTRACTED FROM SHEETS CD-619-4 AND CD 619-5
SEE SHEETS SC-15.1, SC-15.2 AND SC-15.3

SHEET DATE: 1/11/005

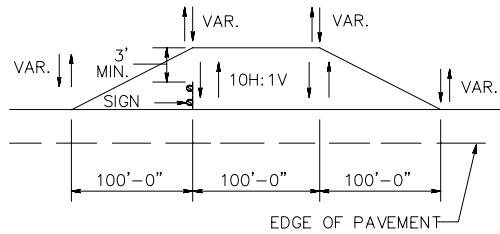
ENGINEERING DIVISION			
SUSSEX COUNTY ADMINISTRATIVE CENTER			
ONE SPRING STREET			
NEWTON, NEW JERSEY 07860			
TEL-973-579-0430			
WWW.SUSSEX.NJ.US			
No.	REVISIONS	DATE	REV. BY



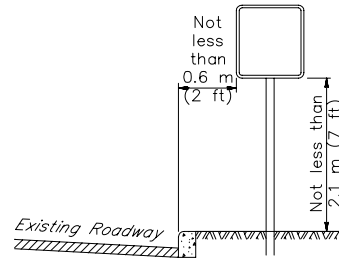
COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

SIGN DETAILS
SHHET 2 OF 3

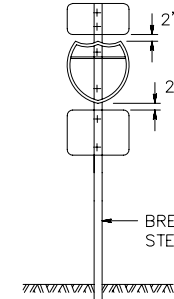
DETAIL
SC-15.2



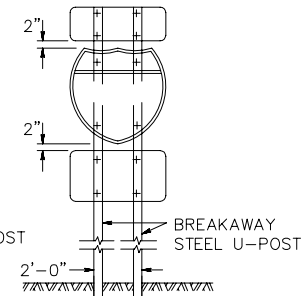
STEEL U-POST GRADING DETAIL



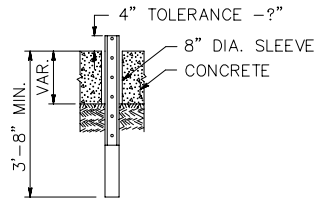
ROADSIDE SIGN
BUSINESS OR
RESIDENCE DISTRICT



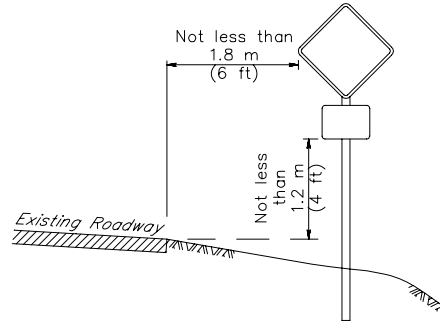
24" X 24"
SHIELD



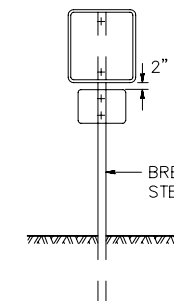
36" X 36"
SHIELD



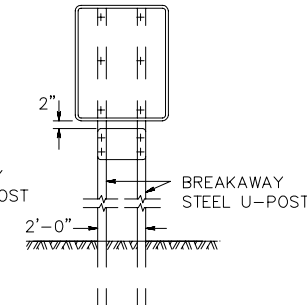
CONCRETE
INSTALLATION



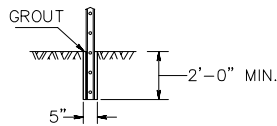
WARNING SIGN
WITH ADVISORY
SPEED PLAQUE
RURAL DISTRICT



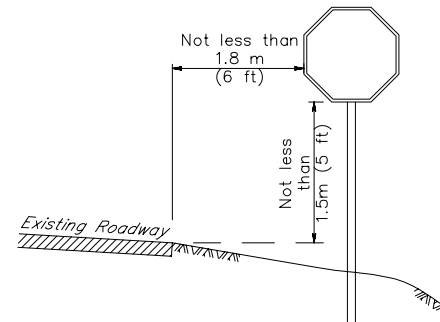
30" X 30"
OR
SMALLER



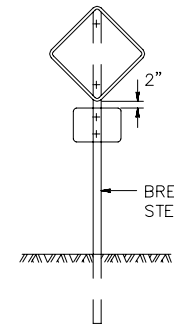
36" X 36"
OR
LARGER



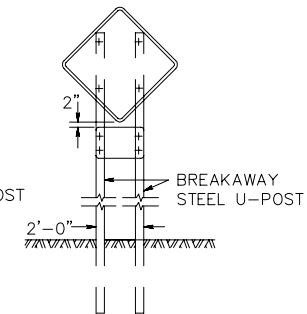
ROCK
INSTALLATION



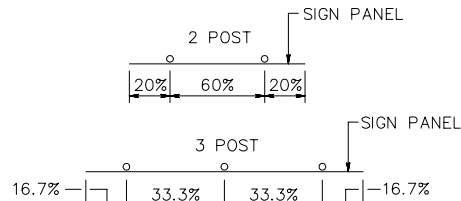
ROADSIDE SIGN
RURAL DISTRICT



30" X 30"
OR
SMALLER



36" X 36"
OR
LARGER



STEEL U-POST SPACING

NJDOT DETAILS EXTRACTED FROM SHEETS CD-619-4 AND CD 619-5
MUTCD INSTALLATION DIAGRAMS
SEE SHEETS SC-15.1, SC-15.2 AND SC-15.3

SHEET DATE: 1/11/005

ENGINEERING DIVISION			
SUSSEX COUNTY ADMINISTRATIVE CENTER			
ONE SPRING STREET			
NEWTON, NEW JERSEY 07860			
TEL-973-579-0430			
WWW.SUSSEX.NJ.US			
No.	REVISIONS	DATE	REV. BY



COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

SIGN DETAILS
SHEET 3 OF 3

DETAIL

SC-15.3



DESIRABLE TURN LANE MARKING LAYOUT

	DETAIL
X	SC-16

MATCH EX. LANE -
SHOULDER WIDTH AND
CROSS SLOPES (TYP)

EX WHITE
EDGE LINE

WA

T1

AREA OF WIDENED ASPHALT

PROPOSED PAVEMENT EDGE (TYP)

8" WHITE

4" WHITE
EDGE LINE

EX YELLOW
CENTERLINE

R2

4" DOUBLE YELLOW CENTER LINE

AREA OF WIDENED ASPHALT
SEE SC-16 FOR INTERSECTION
MARKINGS

WHITE PAVEMENT
MARKINGS

24" STOP BAR

INTERSECTING
STREET

ABBREVIATIONS:

RC: REVERSE CURVE TAPER (FEET)

W: LANE WIDTH (FEET)

R: RADIUS (FEET)

DS: DESIGN SPEED (MPH)

WA: LANE WIDTH SHIFT ADJUSTMENT (FEET)

SL: STACK LENGTH: 50 FT MIN OR BY DESIGN

T1: TAPER LENGTH

DS>40: $T1=DS \times WA$

DS<45: $T1=\frac{DS^2 \times WA}{60}$

EXISTING PAVEMENT EDGE (TYP)

R1

R2

REPAVE ROAD SECTION SUCH
THAT NEW CROWN FOLLOWS NEW CL
(MILLING MAY BE REQUIRED)

R2

NOTES:

1.) TYPICAL LAYOUT CONFIGURATION FOR TURN
LANE CENTERED ONTO EXISTING ROADWAY.

2.) REFER TO OTHER COUNTY DETAILS FOR
ADDITIONAL INFORMATION.

3.) REFER TO SC-16 FOR MEDIAN MARKINGS.

	R1	R2	RC
DS	Radius	Radius	Length
< 35	50	100	59
35-40	150	300	102
>40	300	600	149

SHEET DATE: 2/27/06

ENGINEERING DIVISION			
SUSSEX COUNTY ADMINISTRATIVE CENTER ONE SPRING STREET NEWTON, NEW JERSEY 07860 TEL-973-579-0430 WWW.SUSSEX.NJ.US			
1	REMOVE STOP BAR, ADD 8" TURN LANE WL	10/25/07	WJK
No.	REVISIONS	DATE	REV. BY

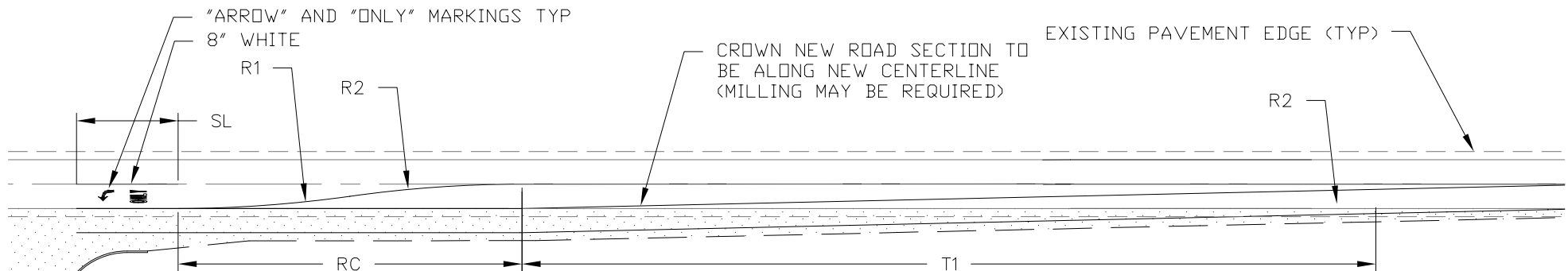
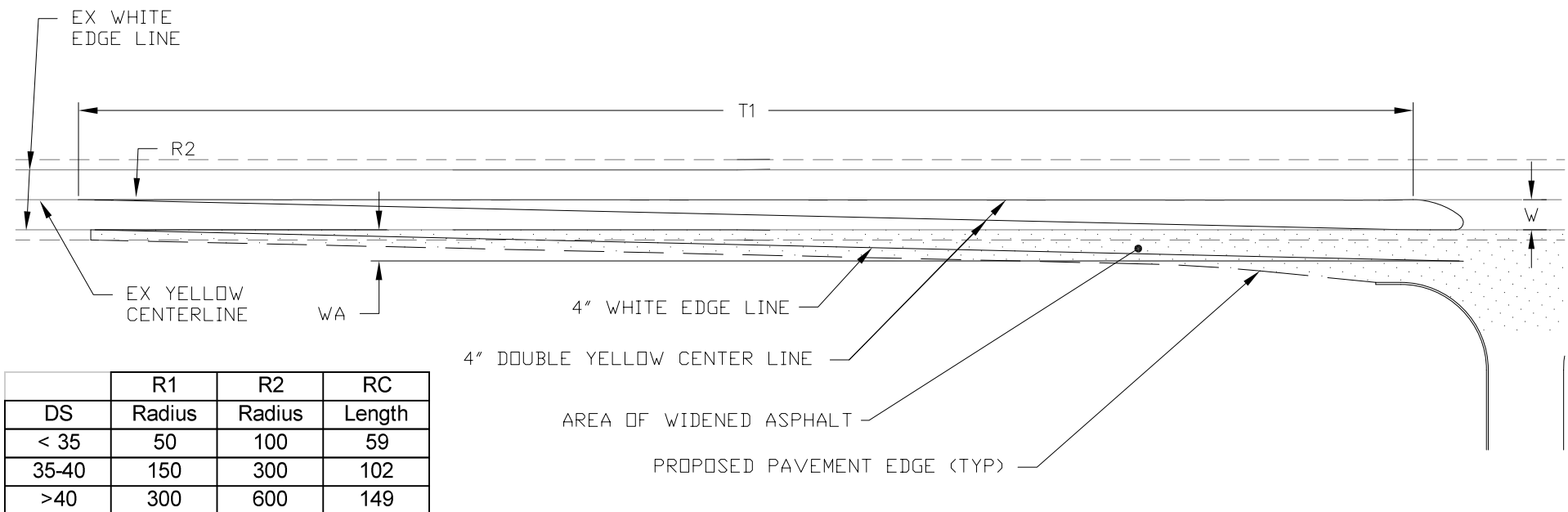


COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

DESIRABLE AUXILIARY
LANE LAYOUT-CENTERED

DETAIL

SC-17



ABBREVIATIONS:

RC: REVERSE CURVE TAPER (FEET)

W: LANE WIDTH (FEET)

R: RADIUS (FEET)

DS: DESIGN SPEED (MPH)

WA: LANE WIDTH ADJUSTMENT (FEET)

SL: STACK LENGTH: 50 FT MIN OR BY DESIGN

T1: TAPER LENGTH

DS>40: $T1 = DS \times WA$

DS<45: $T1 = \frac{DS^2 \times WA}{60}$

NOTES:

- 1.) TYPICAL LAYOUT CONFIGURATION FOR TURN LANE MAINTAINING ONE EDGE OF EXISTING ROADWAY.
- 2.) REFER TO OTHER COUNTY DETAILS FOR ADDITIONAL INFORMATION.
- 3.) COORDINATE WITH SC-17 FOR UNDEFINED DATA
- 4.) REFER TO SC-16 FOR MEDIAN MARKINGS.

SHEET DATE: 2/27/06

No.	REVISIONS	DATE	REV. BY
1	REMOVE STOP BAR, ADD 8" TURN LANE WL	10/25/07	WJK

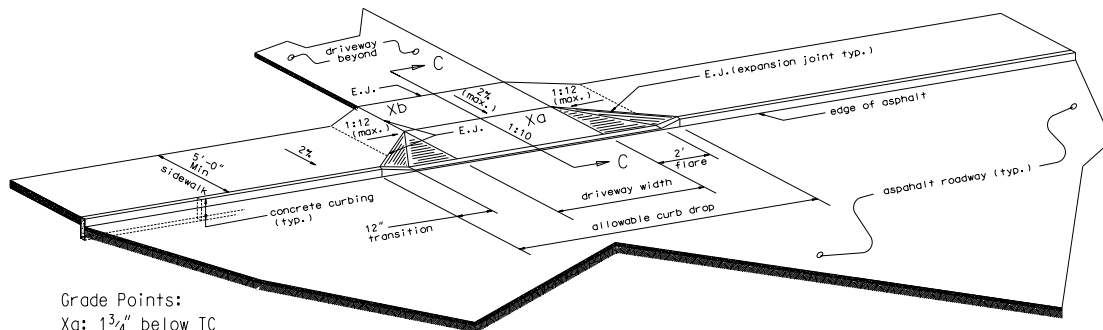
ENGINEERING DIVISION
 SUSSEX COUNTY ADMINISTRATIVE CENTER
 ONE SPRING STREET
 NEWTON, NEW JERSEY 07860
 TEL-973-579-0430
 WWW.SUSSEX.NJ.US



COUNTY OF SUSSEX
 DEPARTMENT OF ENGINEERING AND PLANNING
 STANDARD DETAILS

DESIRABLE AUXILIARY
 LANE LAYOUT-OFFSET

DETAIL
 SC-18



Grade Points:

Xa: $1\frac{3}{4}$ " below TC

Xb: $1\frac{1}{2}$ " below TC

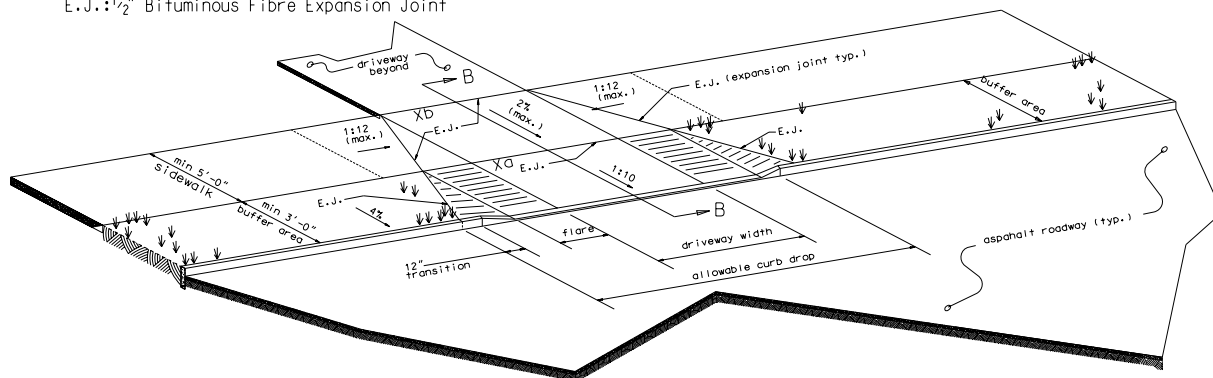
Slopes:

1:10 = 10% = $1\frac{1}{4}$ " per 1'

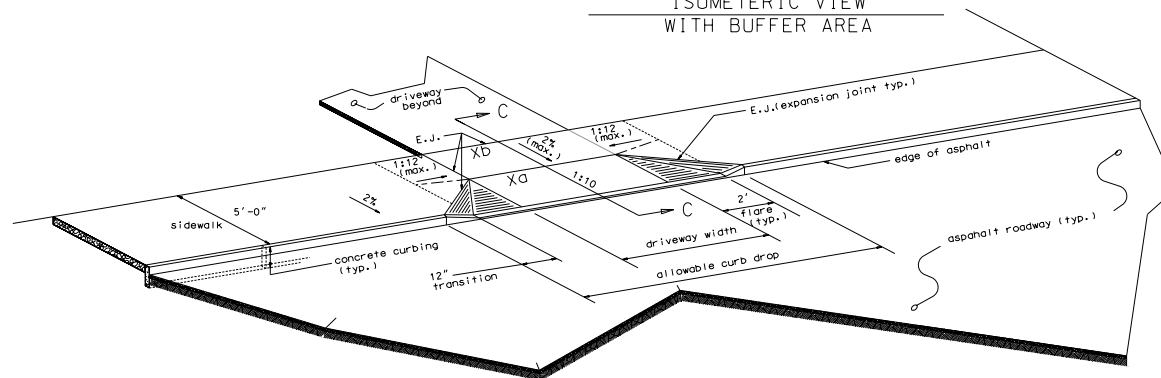
1:12 = 8% = 1" per 1'

E.J.: $1\frac{1}{2}$ " Bituminous Fibre Expansion Joint

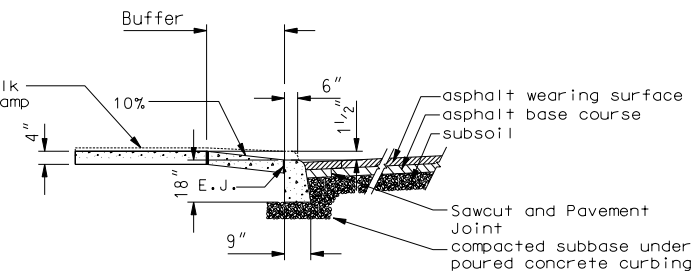
ISOMETRIC VIEW
DRIVEWAY APRON DETAIL



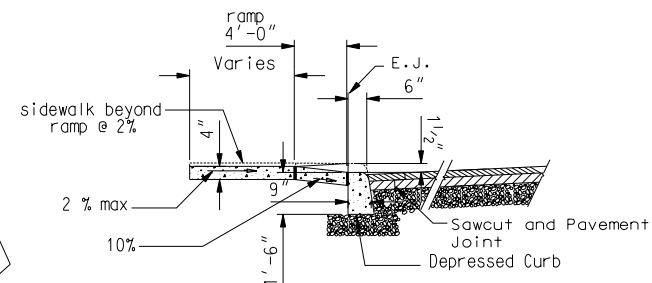
ISOMETRIC VIEW
WITH BUFFER AREA



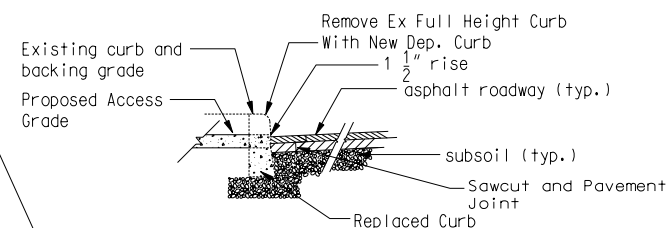
ISOMETRIC VIEW
DRIVEWAY APRON DETAIL



SECTION B-B
MINIMUM DRIVEWAY APRON REQUIREMENTS
SIDEWALK WITH BUFFER AREA



SECTION C-C
SIDEWALK @ BACK OF CURB
absolute minimum apron width due to r/w restrictions



SECTION THRU DRIVEWAY INSTALLED
WITH EXISTING CURB TO BE REMOVED

Notes:

- 1) Sawcut roadway asphalt in conformance with other Sussex County Standard Details prior to curbe replacement.
- 2) Applicable along curbed sections of County Roads and other locations only when approved by the County Engineer.
- 3) High volume access points will warrant curb return radii.
- 4) Refer to Sussex County Details CD-10 "Method of Depressing Curb at Driveways" and CD-9 "9"x18" Concrete Vertical Curb" for curb construction.
- 5) Refer to Sussex County Detail CD-11 "Sidewalk/Curb Detail".

SHEET DATE: 9/26/06

ENGINEERING DIVISION

SUSSEX COUNTY ADMINISTRATIVE CENTER
ONE SPRING STREET
NEWTON, NEW JERSEY 07860
TEL-973-579-0430
WWW.SUSSEX.NJ.US



COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

TYP DRIVEWAY ACCESS
ALONG CURBED STREETS

DETAIL

SC-19

1	Update to SC Standards	1/29/07	eng
No.	REVISIONS	DATE	REV. BY

D. Appendix D – Sussex County Sight Distance Standards

Sussex County Division of Engineering Sight Distance Standards



Developed August 29, 2005
Last Revised November 27, 2006

Table of Contents

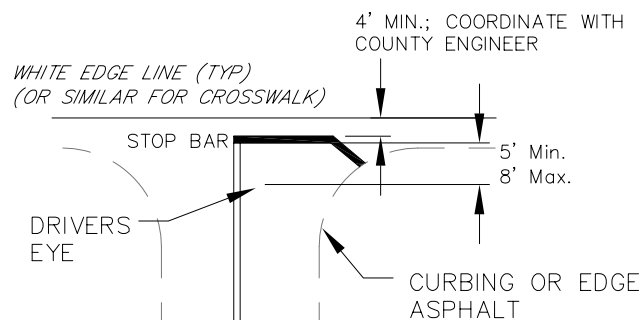
85 th Percentile Speed Tables	3
Posted Speed Tables.....	4
Diagrams	5-6
Filed Observation Log.....	7
Left Turn from Major Discussions.....	8-17
Stopping Sight Distance Tables	18-28

County of Sussex
SIGHT DISTANCE DATA
Using 85th Percentile Speed

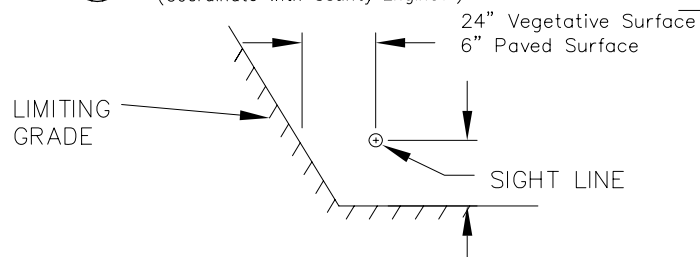
		Intersections - Left Turns In from Major Road					
		LEFT IN FROM STOP			LEFT IN ON APPROACH		
		Eye height 3.5' Object height 3.5' Diagram Dist "B" <i>Left from Major Distance</i> AASHTO			Eye height 3.5' Object height 3.5' Diagram Dist "TDSD"		
85th pctl speed (MPH)	DESIGN SPEED (MPH)	DESIGN VEHICLE			DESIGN VEHICLE		
		(P)	(SU)	(WB)	(P)		
20	22	178	210	243	223		
25	27.5	222	263	303	278		
30	33	267	315	364	334		
35	38.5	311	368	424	390		
40	44	356	420	485	445		
45	49.5	400	473	546	501		
50	55	445	526	606	557		
55	60.5	489	578	667	612		
60	66	534	631	728	668		
65	71.5	578	683	788			
70	77	623	736	849			
		Stopping Sight Distance					
		Eye height 3.5' Object height 2.0' Diagram Dist "D"			See Tables Sight Distance Appendix B		

		Intersections - Turns Out					
		Left Out			Right Out		
		Eye height 3.5' Object height 3.5' Diagram Dist "A" <i>Clear sight lines</i> <i>from stopped condition</i>			Eye height 3.5' Object height 3.5' Diagram Dist "E" <i>Clear sight lines</i> <i>from stopped condition</i>		
85th pctl speed (MPH)	DESIGN SPEED (MPH)	DESIGN VEHICLE			DESIGN VEHICLE		
		(P)	(SU)	(WB)	(P)	(SU)	(WB)
20	22	243	307	372	210	275	340
25	27.5	303	384	465	263	344	424
30	33	364	461	558	315	412	509
35	38.5	424	538	651	368	481	594
40	44	485	614	744	420	550	679
45	49.5	546	691	837	473	619	764
50	55	606	768	930	526	687	849
55	60.5	667	845	1023	578	756	934
60	66	728	922	1116	631	825	1019
65	71.5	788	998	1209	683	893	1104
70	77	849	1075	1302	736	962	1188

Posted speed (MPH)		DESIGN SPEED (MPH)		Intersections - Turns Out					
				Left Out			Right Out		
				Eye height 3.5'			Eye height 3.5'		
				Object height 3.5'			Object height 3.5'		
				Diagram Dist "A"			Diagram Dist "E"		
				Clear sight lines from stopped condition			Clear sight lines from stopped condition		
		DESIGN VEHICLE			DESIGN VEHICLE				
		(P)	(SU)	(WB)	(P)	(SU)	(WB)		
20	30	331	419	507	287	375	463		
25	35	386	489	592	334	437	540		
30	40	441	559	676	382	500	617		
35	45	496	628	761	430	562	695		
40	50	551	698	845	478	625	772		
45	55	606	768	930	526	687	849		
50	60	662	838	1014	573	750	926		



03
SC1 **Stop Bar Location**
(Coordinate with County Engineer)



04
SC1 **SIGHT LINE BUFFER**
(Clear Area Between Obstruction and Sight Line)

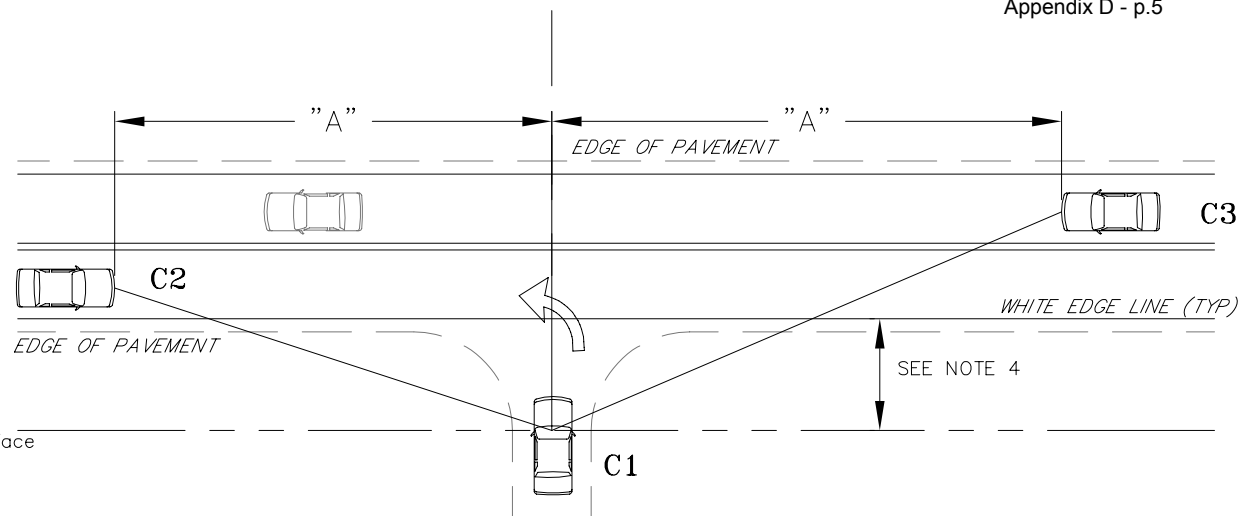
Legend:

- DS: Design Speed:
(85th Speed plus 10%) or when not available
(Posted Speed Plus 10 MPH)
- C1: Exiting vehicle
- C2: Left-hand approaching vehicle traveling at DS
- C3: Right-hand approaching vehicle traveling at DS
- C4: Right turn only exit vehicle
- Distance A: Intersection Sight Distance
Left Turning vehicle
- Distance E: Intersection Sight Distance
Right Turning Vehicle

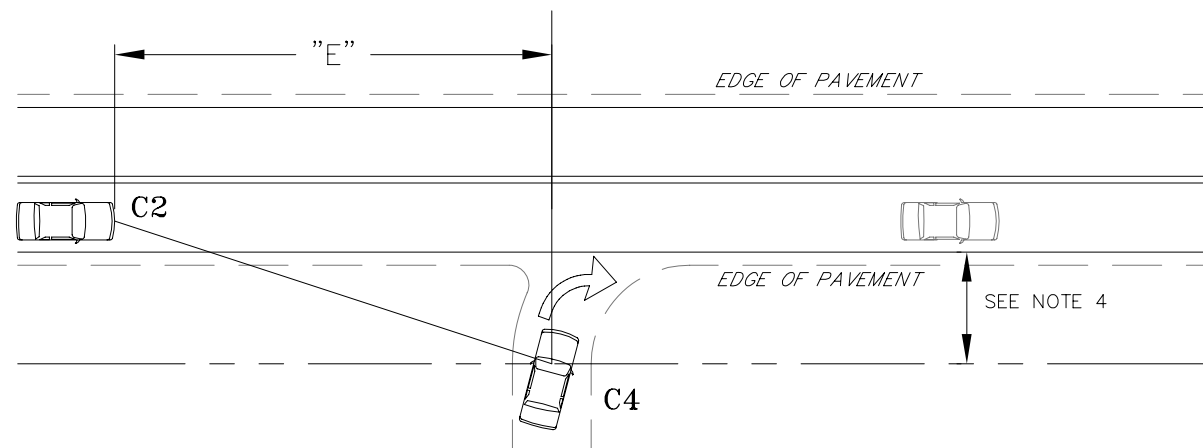
Design Notes:

1. Diagram used in conjunction with sight distance tables.
2. Car C4 exiting to the right.
3. Eye and Object height per AASHTO standards.
4. Sight distance is measured within the range of 5 feet behind the white line (white line is the edge of traveled way) to between 5 and 8 feet behind Stop Bar, this point typically located between 15 and 18 feet from the edge of traveled way. Coordinate with County Engineer.

Comments: Sight distance shall be measured nearest to location a driver will actually stop.
Sight distance shall be measured at the most restrictive location within the above range.



02
SC1 **Intersection Allowing Left Turns Out**
(Typically Will Control for turns out)



01
SC1 **Intersection - Right Turn Out**
(Right Turn Out Only)

SHEET DATE: 11/29/05

1	Revised Sight Distance	4/4/06	WJK	ENGINEERING DIVISION SUSSEX COUNTY ADMINISTRATIVE CENTER ONE SPRING STREET NEWTON, NEW JERSEY 07860 TEL-973-579-0430 WWW.SUSSEX.NJ.US
	Measurement Offset			
2	Revise Detail 03/SC1	5/9/06	WJK	
3	Add Detail 04/SC1	4/26/06	WJK	
No.	REVISIONS	DATE	REV. BY	



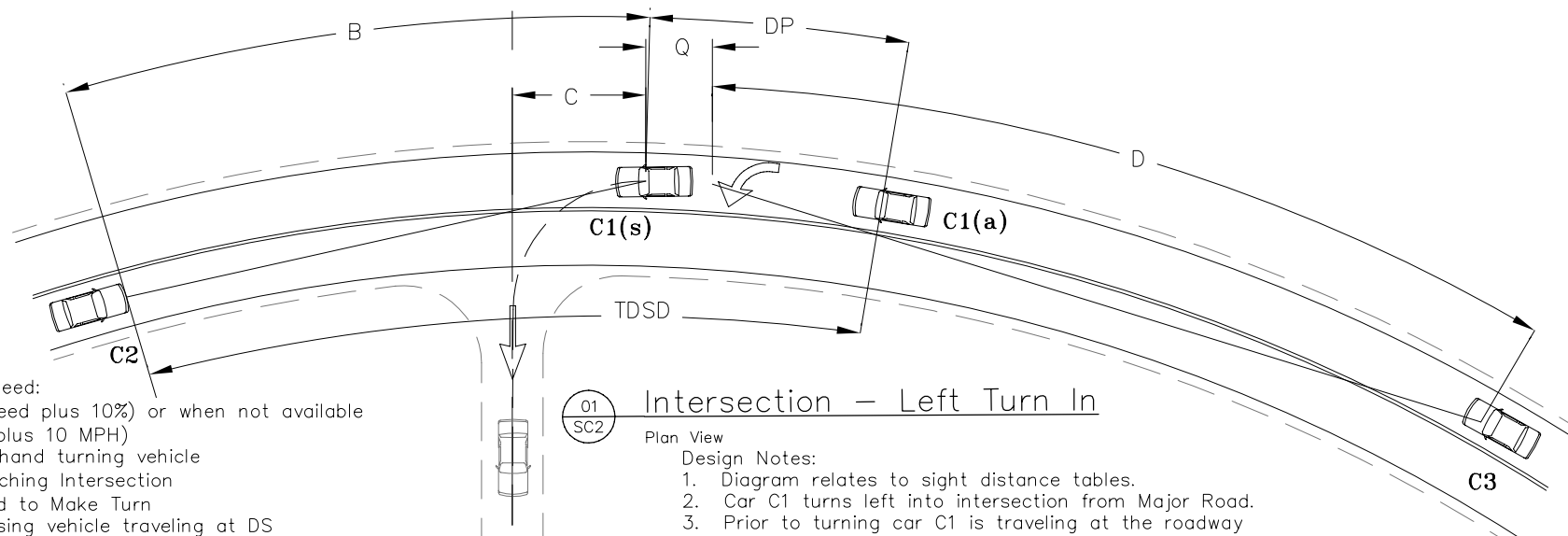
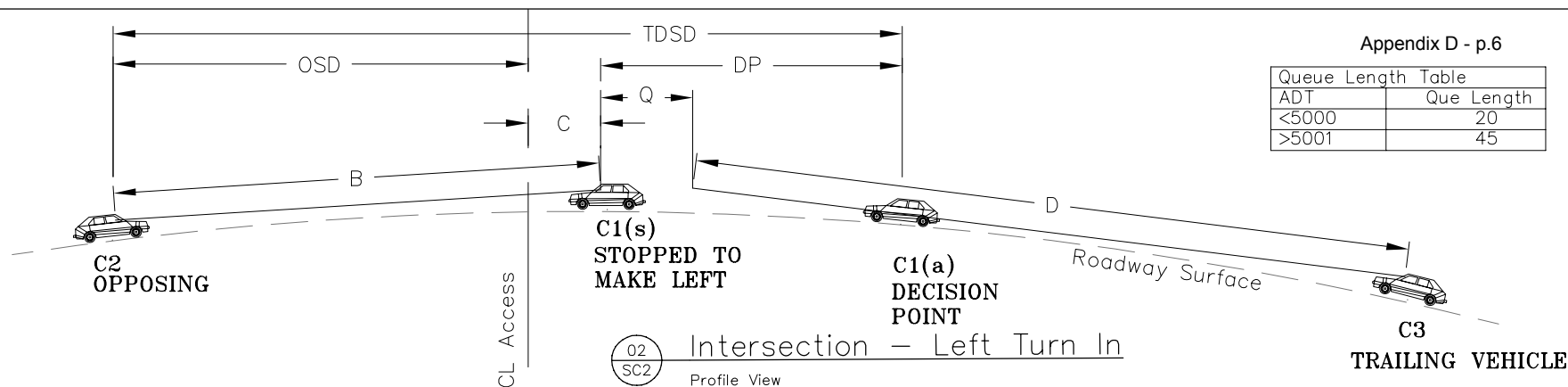
COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

INTERSECTION ACCESS
SIGHT DISTANCE OUT

DETAIL

SC-1

Queue Length Table	
ADT	Que Length
<5000	20
>5001	45



Legend:

DS: Design Speed:

(85th speed plus 10%) or when not available
(Posted plus 10 MPH)

Car C1: Left-hand turning vehicle

C1(a): Approaching Intersection

C1(s): Stopped to Make Turn

Car C2: Opposing vehicle traveling at DS

Car C3: Trailing vehicle traveling at DS

Distance C: Stop to Turn Location - 22' Access ingress

CL plus 5' to Driver Eye

Analysis 1 (C1(s) Stopped to Make Left):Distance B: AASHTO Left Turn from Major Road Car C1 or
Stopping Sight Distance Car C2

Distance D: Stopping Sight Distance Car C3 at DS.

Distance Q: Queue Length: See Table "Queue Length"

Analysis 2: (C1(a) Advancing to make Turn):

Distance DP: Critical Decision Point

See COS Sight Distance Standards)

Distance TDS: Turn Decision Sight Distance (see
COS Sight Distance Standards).

Distance OSD: Stopping sight distance for Car C3.

Design Notes:

1. Diagram relates to sight distance tables.
2. Car C1 turns left into intersection from Major Road.
3. Prior to turning car C1 is traveling at the roadway design speed. As car C1 approaches the intersection it decelerates to make the left-hand turn. See COS Sight Distance Manual for more data.
4. Car C3 requires Stopping Sight Distance from the last car in a left turn queue.
5. Car C2, traveling toward car C1 in the opposing lane requires ample stopping sight distance to avoid car C1 should car C1 turn unsafely.
6. Driver Eye and Object Height per AASHTO standards.
7. Car C1 requires ample Turn Decision Sight Distance over which it must see car C2 to evaluate the safety of executing the turn movement. See COS Sight Distance Manual.
8. Stopping Sight Distance is required continuously within the intersection area of influence for all commercial and street access points.
8. Distance "C" is the centerline intersection offset to where Car 1 will stop to make the left hand turn. Distance "C" will be 16 feet plus one-half the entry way lane width.

SHEET DATE: 09/26/06

ENGINEERING DIVISION			
1	LEFT TURN IN FROM MAJOR ROAD	10/27/06	Div Eng
	CRITERIA CONFORMANCE CHECK/UPDATE		
	AGAINST AASHTO STANDARDS		
No.	REVISIONS	DATE	REV. BY

SUSSEX COUNTY ADMINISTRATIVE CENTER
ONE SPRING STREET
NEWTON, NEW JERSEY 07860
TEL-973-579-0430
WWW.SUSSEX.NJ.US



COUNTY OF SUSSEX
DEPARTMENT OF ENGINEERING AND PLANNING
STANDARD DETAILS

INTERSECTION ACCESS
SIGHT DISTANCE IN

DETAIL
SC-2

COUNTY OF SUSSEX
 Department of Engineering and Planning
 Division of Engineering
 Sight Distance Observations
 Field Data Record

Date: _____ CR: _____ MM: _____

Municipality: _____

Block: _____ Lot: _____

SCP No.: _____ Applicant: _____

85th Percentile Speed: _____ Design Speed: _____

Posted Speed: _____

Location: _____ feet from _____

	Field Measured	Require by Design		Eye Height	Object Height
A	<input style="width: 80%;" type="text"/>	<input style="width: 80%;" type="text"/>	Turn Out Looking Left	3.5'	3.5'
A	<input style="width: 80%;" type="text"/>	<input style="width: 80%;" type="text"/>	Turn Out Looking Right	3.5'	3.5'
Left Turn In from Major (Note: Profile may be needed to safely obtain distance)					
B	<input style="width: 80%;" type="text"/>	<input style="width: 80%;" type="text"/>	Left Turn in Distance (AASHTO Case F)	3.5'	3.5'
TDSD	<input style="width: 80%;" type="text"/>	<input style="width: 80%;" type="text"/>	Decision Sight Distance		
	Standard	Site			
DP	123 ft	<input style="width: 80%;" type="text"/>	Decision Point CL Offset Distance		
D	<input style="width: 80%;" type="text"/>	<input style="width: 80%;" type="text"/>	Tail light Sight Distance	3.5'	2.0'
E	<input style="width: 80%;" type="text"/>	<input style="width: 80%;" type="text"/>	Right Turn Out	3.5'	3.5'

Comments:

Discussion on Left Turn from Major Roadway

The Division of Engineering has reviewed the issue of determining a reasonable and logical approach to providing adequate sight distances as needed for a driver to safely complete a left turn movement from the major roadway. Our evaluation and consideration of this subject has included reviewing numerous sources of information related to intersection sight distances. Although most available sources provided the sight distance criteria for a vehicle from the stopped position it is apparent that a driver approaching the intersection will require adequate sight distance to evaluate opposing traffic's impact on the desired turn movement. The turning driver must determine if the movement can be completed without conflict from opposing traffic. The materials reviewed all cited inadequate sight distances as the primary contributing factor to increased intersection accident rates. Studies have related inadequate intersection sight distances to significantly increased accident rates.

It should be noted that AASHTO recommends all intersections be designed to provide stopping sight distances continuously along the length of the major roadway thus allowing users adequate distance to stop. The following parameters do not by default provide stopping sight distances along the major roadway at the intersection. All proposed commercial driveways and street intersections must be located along sections of a County Routes that provide continuous stopping sight distance. The following parameters have been established for use in evaluating the suitability of existing and/or proposed intersections along Sussex County Roads and should only be used when superior locations are not available along the property frontage.

Additionally, the Division recommends that intersections at or near the crest of hills be avoided. A driver's comfort level is compromised when the driver is not provided adequate sight distance to observe potentially opposing vehicles that could present a conflict to the desired turn movement. Designs which fail to provide adequate sight distance for advancing left turn drivers such that a driver is only provided a marginal comfort level thus resulting in an extremely decreased approach speed and/or even requiring a left turning vehicle driver to stop in the traveled-way of any road has served to unnecessarily introduce a hazard for the traveling public.

Our analysis has identified the following minimum components required for a vehicle to safely complete a Left Turn from the Major roadway while minimally jeopardizing the safety of our traveling public.

A. Let us presume that the left turning vehicle has been provided sufficient sight distance ahead to identify an oncoming conflicting vehicle thus necessitating a stop prior to execution of the left turn. This condition is represented in Sussex County Standard Detail SC-2. Safeguarding the traveling public requires the following sight distances be provided when a vehicle is stopped in the thru-travel lane preparing for a left turn into a minor intersecting access:

1. Stopping Sight Distance must be provided for trailing vehicles, design parameters for this condition include:
 - a. Optimal protection will be provided through utilization of an 85th percentile roadway operating speed applying a 10% adjustment such that a majority of roadway users are accounted for in the calculations. Posted or Statutory speed limits should only be used in the absence of data establishing operating speeds. A designer's primary objective should be that which provides a reasonably safe roadway corridor for the traveling public. The successful realization of this dictates the use of sound engineering judgment in applying standards. Based upon this objective a designer would be remiss in utilizing a posted or statutory speed when actual operating speeds are available.
 - b. Reaction time should be 2.5 seconds as recommended by AASHTO and supported by various studies. A driver approaching from the rear of the stopped vehicle will not be alert nor anticipating the stopped vehicle. In consideration of this the Division believes the condition warrants conformance with established standards upon which recommendations have been developed providing a reasonable level of safety for most roadway users.
 - c. The Left Turning vehicle will stop a distance of 22-feet from the centerline of the access ingress.
 - d. A length of 20-feet will provide ample storage for the average automobile.
 - e. Depending upon roadway ADT, there exists a reasonable probability that more than one car may queue behind the vehicle stopped awaiting an opportunity to execute the left turn movement. As such under higher ADT conditions additional vehicles should included in the design queue length.

Using this information we can conclude the following:

- a. Stopping Sight distance must be provided for a trailing vehicle approaching the turning vehicle stopped within the travel way awaiting an opportunity to execute the desired left turn movement. The stopping sight distance will be computed using the roadways 85th percentile operating speed applying the 10% factor needed to encompass a majority of roadway users.
 - b. Stopping Sight Distance must be measured from a point behind the stopped vehicle. Based upon the determination a vehicle stops 22-feet from the access ingress and the average vehicle have a length of 20-feet we compute the point to be 42-feet from the access ingress centerline. Higher roadway ADT will warrant an increased centerline offset distance thus accounting for additional vehicles likely to be in the queue length. The increase reflects that required to stack vehicles in the queue, the recommended incremental increase would be 25-feet per queued vehicle.
2. The Left Turning vehicle must be provide adequate sight distance to safely make the left turn from a stopped condition. This corresponds to the AASHTO Case F intersection sight distance criteria. The distance must be provided 22-feet from access ingress centerline location, this being the location a vehicle would

stop while waiting to complete the left turn movement. To this we will add 5-feet adjusting to the reasonable location of the driver's eye. In consideration of this, the AASHTO Case F distance must be provided for a vehicle stopped 27-feet from the access ingress centerline.

B. Let us now investigate the distance required by a driver advancing toward a Left Turn movement from the Major Roadway. As noted previously, the advancing driver must be provided adequate sight distance such that they can determine if the turn movement can be safely executed or if they will have to yield to conflicting opposing traffic. This distance must be provided to the advancing driver in advance of the intersection thus allowing sufficient opportunity for the driver to detect, react and execute the required action. A review of this condition identifies the following parameters for consideration:

1. Vehicle Operating Conditions:

- a. The Advancing vehicle will be decelerating as it approaches the intersection. Available information indicates that average drivers will slow to around one-half of their operating speed regardless of the detection of conflicting vehicles.
- b. A review of available information identifies that the typical driver will slow to 15 MPH when executing the turn without stopping.
- c. The Left Turning driver, in anticipation of the forthcoming turn maneuver, is alert. The Left Turning driver must evaluate both the approaching intersection and conflicting traffic. If we categorize the reaction time for detection of these events as expected we can use AASHTO tabular data to determine the 85th percentile driver reaction time required for a one component event will be 1.7 seconds. This is slightly less than AASHTO findings indicating increased deceleration will occur about 2.5 seconds after a conflicting vehicle comes into view.
- d. Deceleration Rates vary depending upon the situation, ideally sight distances to a new access should be designed to allow a comfortable deceleration rate and not require the driver to react to an unexpected condition. AASHTO concludes the comfortable deceleration rate to be 11.2 ft/s^2 . Additionally, AASHTO finds that drivers confronted with the need to stop will typically decelerate at 14.8 ft/s^2 .
- e. Grade can play an important part in computation of the stopping sight distance and may be considered in computing the stopping sight distance.
- f. If the driver identifies conflicting opposing traffic which requires a stop prior to execution of the left turn the vehicle will stop 22-feet from the access ingress centerline.
- g. Opposing conflicting vehicles will travel at the roadway 85th percentile operating speed. Determination of the appropriate roadway operating speed should be consistent with that outlined in 1.a above.

2. Computation Critical Locations: See Diagram 3.

- a. Decision Point "DP": the physical location along the intersection approach at which the advancing driver must have the minimum adequate sight

distance needed to provide for a safe driver perception, reaction and maneuver.

- b. Stopping Point “SP”: the physical location along the approach the driver will have to begin executing a stop maneuver to stop the vehicle at the turning stop point.
- c. Turning Stop Point “TSP”: The location along the intersection approach that the driver will stop the vehicle prior to executing the turn maneuver.

Using these conditions we can conclude:

- a. The left turning advancing vehicle will require stopping sight distance should the driver identify the presence of a conflicting opposing vehicles such that they preventing the safe execution of a left turn. The stopping sight distance computation can reasonably be based upon the speed a driver will have decelerated to when they are required to detect, evaluate and react to the conflicting opposing vehicle. Determination will be predicated upon the following presumptions:
 - i. The vehicle will execute the turn at 15 MPH.
 - ii. The driver is decelerating at a rate of 11.2 ft/s^2 .
 - iii. We will use a reaction time of 2.2 seconds, a conservative median between the 1.7 and 2.5 seconds found in AASHTO.

Using this information we can calculate the maximum speed at which the vehicle should be traveling when the driver reaches the point necessitating a decision to be 32 MPH.

- b. We can now use this in conjunction with the other information to determine the distance from the intersection a driver will be when they reach the final decision point. Calculation of this will incorporate the following:
 - i. The braking distance a vehicle traveling 15 MPH must be provided to stop. $d = 1.075 \frac{(15\text{MPH})^2}{11.2} = 22 \text{ feet}$
 - ii. The distance a vehicle will travel in 2.2 seconds while decelerating from 32 MPH to 15 MPH
 $d = (46 \text{ fps})(2.2 \text{ s}) + 1/2(-11.2)(2.2 \text{ s})^2 = 74 \text{ feet}$
 - iii. The location of the driver’s eye will be 5-feet behind the front of vehicle.
 - iv. 22-feet from access ingress centerline stopping location.

Using these parameters we find the critical Decision Point to be a distance of 123 feet from the access ingress centerline.

- c. Now we must determine what sight distance the Advancing vehicle will require from the “Decision Point” such that the advancing driver is provided adequate time to evaluate and decide if a turn can safely be completed. To complete this we consider the following:
 - i. The advancing vehicle will be decelerating over the 101-foot decision distance prior to either stopping or executing the turn movement.

- ii. The turning vehicle will travel approximately 47-feet once committed to the turn before the vehicle crosses the opposing lane and clears the roadway. See attached Diagram 2.
 - iii. The turning vehicle will complete the maneuver at no more than 10 MPH, we will assume the vehicle began the turn at 15 MPH and decelerated to complete the turn at 5 MPH.
 - iv. The opposing vehicle is traveling at the roadway 85th percentile operating speed.
- d. Applying the above we can determine the distance an approaching opposing vehicle must be from the Advancing vehicle “Decision Point” such that the advancing driver is provided ample opportunity to adequately evaluate the safety of a potential left turn movement. Identification of this distance can be premised on the distance traveled by the opposing vehicle traveling at the 85th percentile operating design speed during the time required by the advancing left turn vehicle for detection, evaluation and completion of the turn. The factors used to compute this distance include the following two components:
 - v. The time required for the advancing vehicle to traverse 101-foot distance between the “DP” and the Turning Stop Point “TSP”: As determined previously, the vehicle speed at “DP” will be 32 MPH. Calculate of this includes the following three components:
 - 1. First Segment: find the time required to travel from the decision point “DP” to the Stop Point “SP” we must use the Vehicle Speed at “DP” and the deceleration rate. We found that the vehicle traveled 74-feet between the “DP” and “SP”. We also know the vehicle decelerated from 32 MPH to 15 MPH. Using a deceleration rate of 11.2 ft/s² we find 2.2 seconds.
 - 2. The second segment is between “SP” and “TSP”. Assuming the driver has clear distance and determines it adequately safe to execute the turn the vehicle will travel this distance at 15 MPH. We can compute the time to travel the 22-foot distance to be 1 second.
 - 3. The total time required to travel from the “DP” to the “TP” is found to be $1s + 2.2s = 3.2$ seconds.
 - vi. Time required for turning vehicle to execute turn and clear roadway, assuming an average turn speed of 10 MPH we find it will require 3.2 seconds for the vehicle to travel the 47-foot distance of the turn.
 - vii. If we add 0.5 additional second for safety factor to the equation it will yield the total time require to complete the maneuver of $3.2s + 3.2s + 0.5s$ or 6.9s (or 6.4 w/o FS)
 - viii. We now determine the distance an opposing vehicle will travel in the 6.9 (6.4) seconds while the turning vehicle evaluates the maneuver. This distance will be required by the Advancing driver to safely complete the maneuver. The distance will be applied to

the Advancing Driver “Decision Point”. Refer to Sussex County Standard Detail Sheet SC-2.

D. Finally, an opposing vehicle should be provided stopping sight distance prior to the intersection. This will provide the opposing vehicle ample opportunity to stop should the left turning vehicle unsafely execute the turn movement. Provided the previous sight distances are provided the stopping sight distance required for the opposing vehicle should be achieved.

Example Access Assessment:

Distances reference refer to Sussex County Standard Detail Sheet SC-2

Determine Minimum acceptable sight distances assuming an Observed 85th percentile speed of 50 MPH and a 7.7% incline grade.

- Condition A and D: Stopping Sight Distance for Following and Opposing Vehicle, Detail SC-2 dimension “D” and “OSD”:

V= Velocity = 50 MPH plus 10% = 55 MPH

a = Rate of Deceleration = 11.2 ft/s²

t = Reaction Time = 2.5 seconds

G = Percent Grade/100 = 7.7%/100

Component	Formula	Completed Equation
AASHTO Reaction Distance	$D_R = 1.47Vt$	$D_R = 1.47(55MPH)(2.5s) = 202\text{ ft}$
AASHTO Braking Distance	$D_T = 1.075 \frac{V^2}{a}$	$D_T = 1.075 \left(\frac{(55MPH)^2}{11.2 \frac{ft}{s^2}} \right) = 290\text{ ft}$
AASHTO Braking Distance with Grade	$D_G = \frac{V^2}{30 \left(\left(\frac{a}{32.2} \right) \pm G \right)}$	$D_G = \frac{(55MPH)^2}{30 \left(\left(\frac{11.2}{32.2} \right) + 0.077 \right)} = 237\text{ ft}$

Find a SSD distance $D = D_R + D_T \gg 202\text{ ft} + 290\text{ ft} = 492\text{ ft}$ along tangent sections or
 $D = D_R + D_G \gg 202\text{ ft} + 237\text{ ft} = 449\text{ ft}$ on a 7.7% Grade

- Condition B: Left Turn from major road: Detail SC-2 dimension “B”
t = time gap = 5.5 passenger and 6.5 single unit

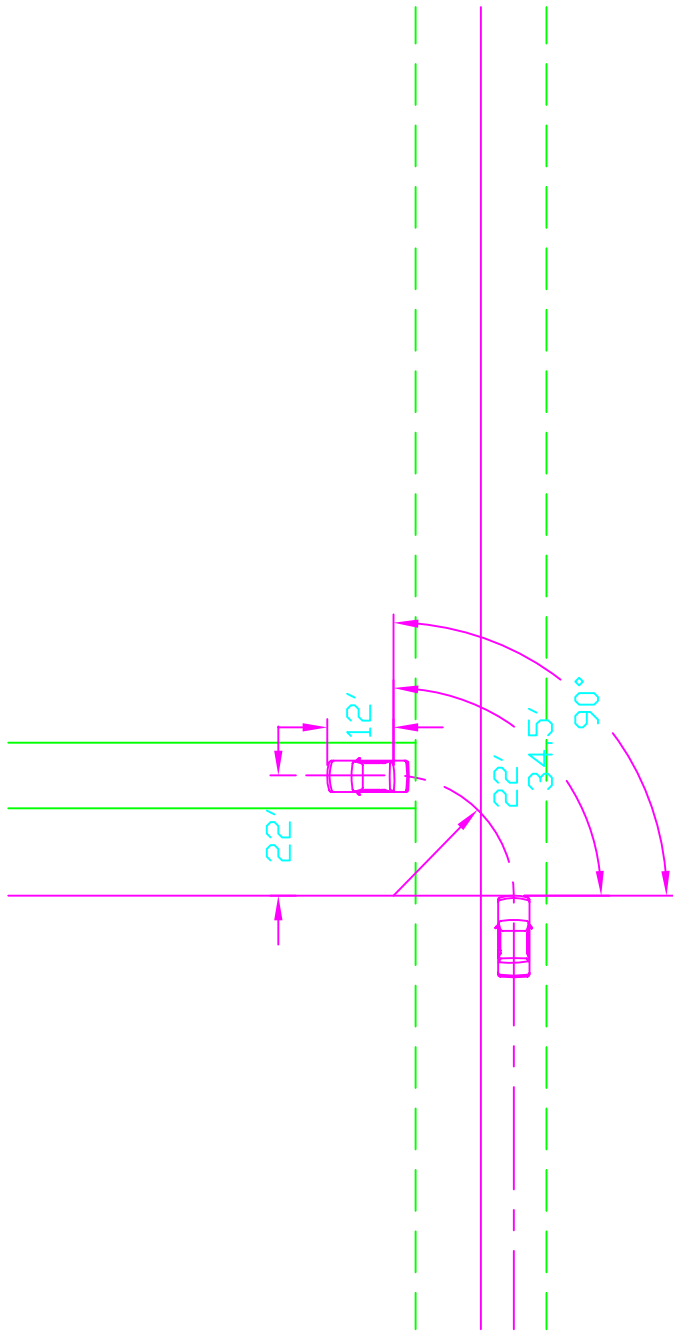
Component	Formula	Completed Equation
AASHTO Case F Formula	$D = 1.47Vt$	$D = 1.47(55MPH)(5.5s) = 445 ft$

Find a Case F sight distance = 445 ft

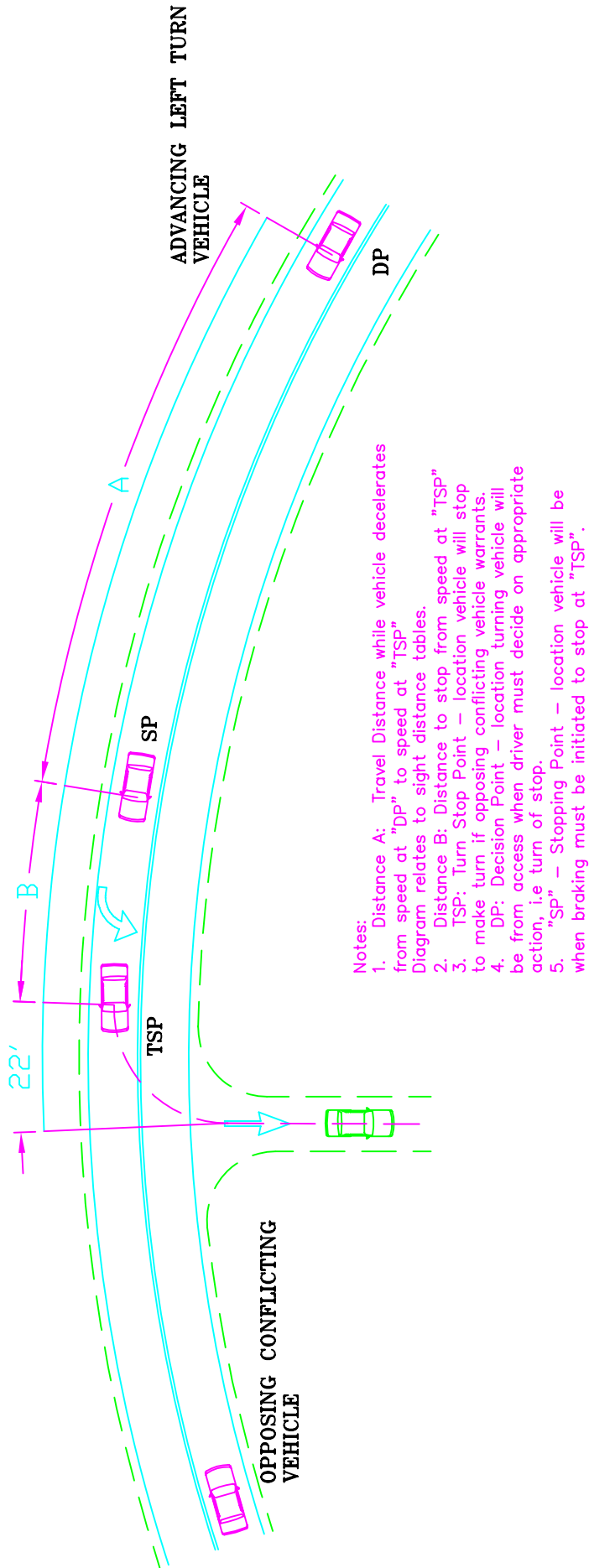
- Condition C: Turn Decision Sight Distance: Detail SC-2 dimension “TDSD”

Component	Formula	Completed Equation
Determine time for C1 to travel between “SP” and “TSP”	$t = \frac{2s}{V_o + V_f}$	$t = \frac{2(22 ft)}{(22 fps) + (22 fps)} = 1.0s$
Determine Vehicle Speed at “DP”	$V_o = \sqrt{V_f^2 + 2Da}$	$V_o = \sqrt{(15MPH \times 1.467)^2 + 2 \times 74 ft \times 11.2 \frac{ft}{s^2}}$ $V_o = 46 fps (32MPH)$
Determine time for C1 to travel from “DP” to “SP”	$t = \frac{\sqrt{2as + V_o^2} + V_o}{a}$	$t = \frac{\sqrt{2(-11.2)(55 ft) + (46 fps)^2} - 46 fps}{11.2 \frac{ft}{s^2}} = 2.2s$
Determine time for C1 to complete turn and clear roadway	$t = \frac{2s}{V_o + V_f}$	$t = \frac{2(47 ft)}{22 fps + 7.3 fps} = 3.5s$
Determine time C2 travels during C1 turn	$t = 3.2s + 3.2s + t_{FS}$ $t_{FS} = 0.5s$	$t = 3.2s + 3.2s + 0.5s = 6.9s$ $t = 3.2s + 3.2s = 6.4s$
Determine distance traveled by C2 during the above time	$D = 0.5t(V_o + V_f)$	$D = 0.5(6.9s)(88 fps + 88 fps) = 557 ft$ $D = 0.5(6.4s)(88 fps + 88 fps) = 516 ft$

Find a Turn Decision Sight Distance “TDSD” of 557 ft when using an additional 0.5 seconds to the left turn vehicle travel time or 516 without the added 0.5 seconds.



Sight Distance Diagram 2



Sight Distance DIAGRAM 3

APPENDIX B
STOPPING SIGHT DISTANCE 'D'
Sheet 1 of 11

85 th PERCENTILE SPEED	20
DESIGN SPEED	22
FRICTION FACTOR	0.4
REACTION DISTANCE	81

Vd; f	Vd; f
20; 0.40	50; 0.30
25; 0.38	55; 0.30
30; 0.35	60; 0.29
35; 0.34	65; 0.29
40; 0.32	70; 0.28
45; 0.32	

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	41	122
-0.5	42	123
-1	42	123
-1.5	43	124
-2	44	124
-2.5	44	125
-3	45	126
-3.5	45	126
-4	46	127
-4.5	47	128
-5	47	128
-5.5	48	129
-6	49	130
-6.5	50	130
-7	50	131
-7.5	51	132
-8	52	133
-8.5	53	134
-9	54	135
-9.5	55	136
-10	56	136
-10.5	57	137
-11	58	138
-11.5	59	140
-12	60	141
-12.5	61	142
-13	62	143
-13.5	63	144
-14	65	145
-14.5	66	147
-15	67	148
-15.5	69	150
-16	70	151
-16.5	72	153
-17	73	154
-17.5	75	156
-18	77	158
-18.5	79	160
-19	81	162
-19.5	83	164
-20	85	166

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	41	122
0.5	41	122
1	40	121
1.5	40	121
2	39	120
2.5	39	120
3	38	119
3.5	38	119
4	38	118
4.5	37	118
5	37	118
5.5	36	117
6	36	117
6.5	35	116
7	35	116
7.5	35	116
8	34	115
8.5	34	115
9	34	114
9.5	33	114
10	33	114
10.5	33	113
11	32	113
11.5	32	113
12	32	112
12.5	31	112
13	31	112
13.5	31	112
14	30	111
14.5	30	111
15	30	111
15.5	30	110
16	29	110
16.5	29	110
17	29	110
17.5	29	109
18	28	109
18.5	28	109
19	28	109
19.5	28	108
20	27	108

APPENDIX B
STOPPING SIGHT DISTANCE 'D'
Sheet 2 of 11

85 th PERCENTILE SPEED	25
DESIGN SPEED	27.5
FRICTION FACTOR	0.36
REACTION DISTANCE	101

Vd; f	Vd; f
20; 0.40	50; 0.30
25; 0.38	55; 0.30
30; 0.35	60; 0.29
35; 0.34	65; 0.29
40; 0.32	70; 0.28
45; 0.32	

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	70	171
-0.5	71	172
-1	72	173
-1.5	73	174
-2	74	175
-2.5	75	176
-3	76	177
-3.5	78	179
-4	79	180
-4.5	80	181
-5	81	182
-5.5	83	184
-6	84	185
-6.5	85	187
-7	87	188
-7.5	88	190
-8	90	191
-8.5	92	193
-9	93	194
-9.5	95	196
-10	97	198
-10.5	99	200
-11	101	202
-11.5	103	204
-12	105	206
-12.5	107	208
-13	110	211
-13.5	112	213
-14	115	216
-14.5	117	218
-15	120	221
-15.5	123	224
-16	126	227
-16.5	129	230
-17	133	234
-17.5	136	237
-18	140	241
-18.5	144	245
-19	148	249
-19.5	153	254
-20	158	259

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	70	171
0.5	69	170
1	68	169
1.5	67	168
2	66	167
2.5	65	167
3	65	166
3.5	64	165
4	63	164
4.5	62	163
5	61	163
5.5	61	162
6	60	161
6.5	59	160
7	59	160
7.5	58	159
8	57	158
8.5	57	158
9	56	157
9.5	55	156
10	55	156
10.5	54	155
11	54	155
11.5	53	154
12	53	154
12.5	52	153
13	51	153
13.5	51	152
14	50	151
14.5	50	151
15	49	150
15.5	49	150
16	48	150
16.5	48	149
17	48	149
17.5	47	148
18	47	148
18.5	46	147
19	46	147
19.5	45	146
20	45	146

APPENDIX B
STOPPING SIGHT DISTANCE 'D'
Sheet 3 of 11

85 th PERCENTILE SPEED	30
DESIGN SPEED	33
FRICTION FACTOR	0.3
REACTION DISTANCE	121

Vd; f	Vd; f
20; 0.40	50; 0.30
25; 0.38	55; 0.30
30; 0.35	60; 0.29
35; 0.34	65; 0.29
40; 0.32	70; 0.28
45; 0.32	

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	107	228
-0.5	108	230
-1	110	231
-1.5	112	233
-2	113	235
-2.5	115	237
-3	117	238
-3.5	119	240
-4	121	242
-4.5	123	244
-5	125	246
-5.5	127	249
-6	130	251
-6.5	132	253
-7	134	256
-7.5	137	258
-8	140	261
-8.5	142	264
-9	145	266
-9.5	148	269
-10	151	273
-10.5	154	276
-11	158	279
-11.5	161	283
-12	165	286
-12.5	169	290
-13	173	294
-13.5	177	298
-14	182	303
-14.5	186	307
-15	191	312
-15.5	196	317
-16	202	323
-16.5	207	329
-17	214	335
-17.5	220	341
-18	227	348
-18.5	234	355
-19	242	363
-19.5	250	372
-20	259	381

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	107	228
0.5	105	226
1	104	225
1.5	102	224
2	101	222
2.5	99	221
3	98	219
3.5	97	218
4	96	217
4.5	94	216
5	93	214
5.5	92	213
6	91	212
6.5	90	211
7	89	210
7.5	87	209
8	86	208
8.5	85	207
9	84	206
9.5	83	205
10	83	204
10.5	82	203
11	81	202
11.5	80	201
12	79	200
12.5	78	199
13	77	199
13.5	76	198
14	76	197
14.5	75	196
15	74	195
15.5	73	195
16	73	194
16.5	72	193
17	71	192
17.5	70	192
18	70	191
18.5	69	190
19	68	190
19.5	68	189
20	67	188

APPENDIX B
STOPPING SIGHT DISTANCE 'D'
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85 th PERCENTILE SPEED	35
DESIGN SPEED	38.5
FRICTION FACTOR	0.32
REACTION DISTANCE	141

Vd; f	Vd; f
20; 0.40	50; 0.30
25; 0.38	55; 0.30
30; 0.35	60; 0.29
35; 0.34	65; 0.29
40; 0.32	70; 0.28
45; 0.32	

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	154	296
-0.5	157	298
-1	159	301
-1.5	162	303
-2	165	306
-2.5	167	309
-3	170	312
-3.5	173	315
-4	176	318
-4.5	180	321
-5	183	324
-5.5	186	328
-6	190	332
-6.5	194	335
-7	198	339
-7.5	202	343
-8	206	347
-8.5	210	352
-9	215	356
-9.5	220	361
-10	225	366
-10.5	230	371
-11	235	377
-11.5	241	383
-12	247	389
-12.5	253	395
-13	260	402
-13.5	267	409
-14	274	416
-14.5	282	424
-15	291	432
-15.5	299	441
-16	309	450
-16.5	319	460
-17	329	471
-17.5	341	482
-18	353	494
-18.5	366	507
-19	380	522
-19.5	395	537
-20	412	553

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	154	296
0.5	152	294
1	150	291
1.5	147	289
2	145	287
2.5	143	285
3	141	283
3.5	139	281
4	137	279
4.5	135	277
5	134	275
5.5	132	273
6	130	272
6.5	128	270
7	127	268
7.5	125	267
8	124	265
8.5	122	263
9	121	262
9.5	119	261
10	118	259
10.5	116	258
11	115	256
11.5	114	255
12	112	254
12.5	111	253
13	110	251
13.5	109	250
14	107	249
14.5	106	248
15	105	247
15.5	104	246
16	103	244
16.5	102	243
17	101	242
17.5	100	241
18	99	240
18.5	98	239
19	97	238
19.5	96	237
20	95	237

APPENDIX B
STOPPING SIGHT DISTANCE 'D'
Sheet 5 of 11

85 th PERCENTILE SPEED	40
DESIGN SPEED	44
FRICTION FACTOR	0.32
REACTION DISTANCE	162

Vd; f	Vd; f
20; 0.40	50; 0.30
25; 0.38	55; 0.30
30; 0.35	60; 0.29
35; 0.34	65; 0.29
40; 0.32	70; 0.28
45; 0.32	

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	208	370
-0.5	212	373
-1	215	377
-1.5	219	380
-2	223	384
-2.5	226	388
-3	230	392
-3.5	235	396
-4	239	401
-4.5	244	405
-5	248	410
-5.5	253	415
-6	258	420
-6.5	263	425
-7	269	431
-7.5	275	436
-8	281	442
-8.5	287	449
-9	293	455
-9.5	300	462
-10	307	469
-10.5	315	476
-11	323	484
-11.5	331	493
-12	340	501
-12.5	349	511
-13	359	520
-13.5	369	530
-14	380	541
-14.5	391	553
-15	403	565
-15.5	416	578
-16	430	592
-16.5	445	607
-17	461	623
-17.5	478	640
-18	496	658
-18.5	516	678
-19	538	699
-19.5	561	723
-20	587	748

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	208	370
0.5	205	367
1	202	363
1.5	199	360
2	196	357
2.5	193	354
3	190	352
3.5	187	349
4	184	346
4.5	182	343
5	179	341
5.5	177	339
6	174	336
6.5	172	334
7	170	332
7.5	168	329
8	165	327
8.5	163	325
9	161	323
9.5	159	321
10	157	319
10.5	156	317
11	154	315
11.5	152	314
12	150	312
12.5	148	310
13	147	308
13.5	145	307
14	143	305
14.5	142	304
15	140	302
15.5	139	300
16	137	299
16.5	136	298
17	134	296
17.5	133	295
18	132	293
18.5	130	292
19	129	291
19.5	128	289
20	127	288

APPENDIX B
STOPPING SIGHT DISTANCE 'D'
Sheet 6 of 11

85 th PERCENTILE SPEED	45
DESIGN SPEED	49.5
FRICTION FACTOR	0.3
REACTION DISTANCE	182

Vd;	f	Vd;	f
20;	0.40	50;	0.30
25;	0.38	55;	0.30
30;	0.35	60;	0.29
35;	0.34	65;	0.29
40;	0.32	70;	0.28
45;	0.32		

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	272	454
-0.5	277	459
-1	282	464
-1.5	287	468
-2	292	474
-2.5	297	479
-3	303	484
-3.5	308	490
-4	314	496
-4.5	320	502
-5	327	509
-5.5	333	515
-6	340	522
-6.5	348	529
-7	355	537
-7.5	363	545
-8	371	553
-8.5	380	562
-9	389	571
-9.5	398	580
-10	408	590
-10.5	419	601
-11	430	612
-11.5	441	623
-12	454	636
-12.5	467	649
-13	480	662
-13.5	495	677
-14	510	692
-14.5	527	709
-15	545	726
-15.5	563	745
-16	583	765
-16.5	605	787
-17	628	810
-17.5	653	835
-18	681	863
-18.5	710	892
-19	743	924
-19.5	778	960
-20	817	999

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	272	454
0.5	268	450
1	263	445
1.5	259	441
2	255	437
2.5	251	433
3	248	429
3.5	244	426
4	240	422
4.5	237	419
5	233	415
5.5	230	412
6	227	409
6.5	224	406
7	221	403
7.5	218	400
8	215	397
8.5	212	394
9	209	391
9.5	207	389
10	204	386
10.5	202	384
11	199	381
11.5	197	379
12	194	376
12.5	192	374
13	190	372
13.5	188	370
14	186	368
14.5	184	365
15	182	363
15.5	180	361
16	178	359
16.5	176	358
17	174	356
17.5	172	354
18	170	352
18.5	168	350
19	167	349
19.5	165	347
20	163	345

APPENDIX B
STOPPING SIGHT DISTANCE 'D'
Sheet 7 of 11

85 th PERCENTILE SPEED	50
DESIGN SPEED	55
FRICTION FACTOR	0.3
REACTION DISTANCE	202

Vd; f	Vd; f
20; 0.40	50; 0.30
25; 0.38	55; 0.30
30; 0.35	60; 0.29
35; 0.34	65; 0.29
40; 0.32	70; 0.28
45; 0.32	

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	336	538
-0.5	342	544
-1	348	550
-1.5	354	556
-2	360	562
-2.5	367	569
-3	373	576
-3.5	381	583
-4	388	590
-4.5	395	598
-5	403	605
-5.5	412	614
-6	420	622
-6.5	429	631
-7	438	641
-7.5	448	650
-8	458	660
-8.5	469	671
-9	480	682
-9.5	492	694
-10	504	706
-10.5	517	719
-11	531	733
-11.5	545	747
-12	560	762
-12.5	576	778
-13	593	795
-13.5	611	813
-14	630	832
-14.5	651	853
-15	672	874
-15.5	695	898
-16	720	922
-16.5	747	949
-17	776	978
-17.5	807	1009
-18	840	1042
-18.5	877	1079
-19	917	1119
-19.5	960	1162
-20	1008	1210

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	336	538
0.5	331	533
1	325	527
1.5	320	522
2	315	517
2.5	310	512
3	306	508
3.5	301	503
4	297	499
4.5	292	494
5	288	490
5.5	284	486
6	280	482
6.5	276	478
7	273	475
7.5	269	471
8	265	467
8.5	262	464
9	259	461
9.5	255	457
10	252	454
10.5	249	451
11	246	448
11.5	243	445
12	240	442
12.5	237	439
13	234	437
13.5	232	434
14	229	431
14.5	227	429
15	224	426
15.5	222	424
16	219	421
16.5	217	419
17	215	417
17.5	212	414
18	210	412
18.5	208	410
19	206	408
19.5	204	406
20	202	404

APPENDIX B
STOPPING SIGHT DISTANCE 'D'
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85 th PERCENTILE SPEED	55
DESIGN SPEED	60.5
FRICTION FACTOR	0.29
REACTION DISTANCE	222

Vd; f	Vd; f
20; 0.40	50; 0.30
25; 0.38	55; 0.30
30; 0.35	60; 0.29
35; 0.34	65; 0.29
40; 0.32	70; 0.28
45; 0.32	

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	421	643
-0.5	428	650
-1	436	658
-1.5	444	666
-2	452	674
-2.5	460	683
-3	469	692
-3.5	478	701
-4	488	710
-4.5	498	720
-5	508	731
-5.5	519	742
-6	530	753
-6.5	542	765
-7	555	777
-7.5	567	790
-8	581	803
-8.5	595	818
-9	610	832
-9.5	626	848
-10	642	864
-10.5	660	882
-11	678	900
-11.5	697	920
-12	718	940
-12.5	739	962
-13	763	985
-13.5	787	1009
-14	813	1036
-14.5	841	1064
-15	871	1094
-15.5	904	1126
-16	939	1161
-16.5	976	1198
-17	1017	1239
-17.5	1061	1283
-18	1109	1332
-18.5	1162	1384
-19	1220	1442
-19.5	1284	1507
-20	1356	1578

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	421	643
0.5	414	636
1	407	629
1.5	400	622
2	394	616
2.5	387	610
3	381	604
3.5	375	598
4	370	592
4.5	364	587
5	359	581
5.5	354	576
6	349	571
6.5	344	566
7	339	561
7.5	334	557
8	330	552
8.5	325	548
9	321	543
9.5	317	539
10	313	535
10.5	309	531
11	305	527
11.5	301	524
12	298	520
12.5	294	516
13	290	513
13.5	287	509
14	284	506
14.5	280	503
15	277	500
15.5	274	497
16	271	493
16.5	268	490
17	265	488
17.5	262	485
18	260	482
18.5	257	479
19	254	477
19.5	252	474
20	249	471

APPENDIX B
STOPPING SIGHT DISTANCE 'D'
Sheet 9 of 11

85 th PERCENTILE SPEED	60
DESIGN SPEED	66
FRICTION FACTOR	0.29
REACTION DISTANCE	243

Vd; f	Vd; f
20; 0.40	50; 0.30
25; 0.38	55; 0.30
30; 0.35	60; 0.29
35; 0.34	65; 0.29
40; 0.32	70; 0.28
45; 0.32	

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	501	743
-0.5	509	752
-1	519	761
-1.5	528	771
-2	538	780
-2.5	548	790
-3	558	801
-3.5	569	812
-4	581	823
-4.5	593	835
-5	605	848
-5.5	618	860
-6	631	874
-6.5	645	888
-7	660	903
-7.5	675	918
-8	691	934
-8.5	708	951
-9	726	969
-9.5	745	987
-10	764	1007
-10.5	785	1027
-11	807	1049
-11.5	830	1072
-12	854	1097
-12.5	880	1123
-13	908	1150
-13.5	937	1179
-14	968	1211
-14.5	1001	1244
-15	1037	1280
-15.5	1076	1318
-16	1117	1359
-16.5	1162	1404
-17	1210	1453
-17.5	1263	1505
-18	1320	1563
-18.5	1383	1625
-19	1452	1695
-19.5	1528	1771
-20	1613	1856

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	501	743
0.5	492	735
1	484	727
1.5	476	719
2	468	711
2.5	461	704
3	454	696
3.5	447	689
4	440	683
4.5	433	676
5	427	670
5.5	421	663
6	415	657
6.5	409	652
7	403	646
7.5	398	640
8	392	635
8.5	387	630
9	382	625
9.5	377	620
10	372	615
10.5	368	610
11	363	606
11.5	359	601
12	354	597
12.5	350	592
13	346	588
13.5	342	584
14	338	580
14.5	334	576
15	330	573
15.5	326	569
16	323	565
16.5	319	562
17	316	558
17.5	312	555
18	309	551
18.5	306	548
19	303	545
19.5	299	542
20	296	539

APPENDIX B
STOPPING SIGHT DISTANCE 'D'
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85 th PERCENTILE SPEED	65
DESIGN SPEED	71.5
FRICTION FACTOR	0.28
REACTION DISTANCE	263

Vd; f	Vd; f
20; 0.40	50; 0.30
25; 0.38	55; 0.30
30; 0.35	60; 0.29
35; 0.34	65; 0.29
40; 0.32	70; 0.28
45; 0.32	

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	609	871
-0.5	620	882
-1	631	894
-1.5	643	906
-2	655	918
-2.5	668	931
-3	682	944
-3.5	696	958
-4	710	973
-4.5	725	988
-5	741	1004
-5.5	757	1020
-6	775	1037
-6.5	793	1055
-7	811	1074
-7.5	831	1094
-8	852	1115
-8.5	874	1137
-9	897	1160
-9.5	921	1184
-10	947	1209
-10.5	974	1237
-11	1002	1265
-11.5	1033	1296
-12	1065	1328
-12.5	1099	1362
-13	1136	1399
-13.5	1175	1438
-14	1217	1480
-14.5	1262	1525
-15	1311	1574
-15.5	1363	1626
-16	1420	1683
-16.5	1482	1745
-17	1549	1812
-17.5	1623	1886
-18	1704	1967
-18.5	1794	2057
-19	1893	2156
-19.5	2005	2268
-20	2130	2393

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	609	871
0.5	598	861
1	588	850
1.5	578	840
2	568	831
2.5	559	821
3	550	812
3.5	541	804
4	533	795
4.5	524	787
5	516	779
5.5	509	771
6	501	764
6.5	494	757
7	487	750
7.5	480	743
8	473	736
8.5	467	730
9	461	723
9.5	454	717
10	448	711
10.5	443	705
11	437	700
11.5	431	694
12	426	689
12.5	421	684
13	416	678
13.5	411	673
14	406	668
14.5	401	664
15	396	659
15.5	392	655
16	387	650
16.5	383	646
17	379	641
17.5	375	637
18	370	633
18.5	366	629
19	363	625
19.5	359	622
20	355	618

APPENDIX B
STOPPING SIGHT DISTANCE 'D'
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85 th PERCENTILE SPEED	70
DESIGN SPEED	77
FRICTION FACTOR	0.28
REACTION DISTANCE	283

Vd; f	Vd; f
20; 0.40	50; 0.30
25; 0.38	55; 0.30
30; 0.35	60; 0.29
35; 0.34	65; 0.29
40; 0.32	70; 0.28
45; 0.32	

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	706	989
-0.5	719	1002
-1	732	1015
-1.5	746	1029
-2	760	1043
-2.5	775	1058
-3	791	1074
-3.5	807	1090
-4	823	1106
-4.5	841	1124
-5	859	1142
-5.5	878	1161
-6	898	1181
-6.5	919	1202
-7	941	1224
-7.5	964	1247
-8	988	1271
-8.5	1014	1296
-9	1040	1323
-9.5	1068	1351
-10	1098	1381
-10.5	1129	1412
-11	1163	1446
-11.5	1198	1481
-12	1235	1518
-12.5	1275	1558
-13	1318	1601
-13.5	1363	1646
-14	1412	1695
-14.5	1464	1747
-15	1520	1803
-15.5	1581	1864
-16	1647	1930
-16.5	1719	2002
-17	1797	2080
-17.5	1882	2165
-18	1976	2259
-18.5	2080	2363
-19	2196	2479
-19.5	2325	2608
-20	2470	2753

SLOPE TOWARD DESIGN POINT

PCT	BRAKING DISTANCE	TOTAL SSD
0	706	989
0.5	693	976
1	681	964
1.5	670	953
2	659	942
2.5	648	931
3	638	921
3.5	627	910
4	618	901
4.5	608	891
5	599	882
5.5	590	873
6	581	864
6.5	573	856
7	565	848
7.5	557	840
8	549	832
8.5	541	824
9	534	817
9.5	527	810
10	520	803
10.5	513	796
11	507	790
11.5	500	783
12	494	777
12.5	488	771
13	482	765
13.5	476	759
14	471	754
14.5	465	748
15	460	743
15.5	454	737
16	449	732
16.5	444	727
17	439	722
17.5	434	717
18	430	713
18.5	425	708
19	420	703
19.5	416	699
20	412	695

E. Appendix E – Curve Numbers

NRCS – Land Use Runoff Curve Numbers						
Table 1: Runoff curve numbers for hydrologic soil cover (Antecedent moisture condition II, and Ia=0.25) Cover					Hydrologic Soil Group	
Land Use	Notes and % Impervious ¹	Hydrologic Condition	A	B	C	D
Fully Developed Urban Areas (Vegetation Established)						
Open Space (lawns, parks, golf courses, cemeteries) ² :						
Grass Cover < 50%			68	79	86	89
Grass Cover 50 to 70%			49	69	79	84
Grass cover > 75%			39	61	74	80
Impervious Areas:						
Paved Parking, Driveway, Roofs	No ROW		98	98	98	98
Streets and Roads:						
Paved: Curbed and Sewers	No ROW		98	98	98	98
Paved: Open Ditches	Include ROW		83	89	92	93
Gravel	Include ROW		76	85	89	91
Dirt	Include ROW		72	82	87	89
Urban Districts:						
Commercial and Business	85		89	92	94	95
Industrial	72		81	88	91	93
Residential:						
1/8 acre or less (town houses)	65		77	85	90	92
1/4 acre	38		61	75	83	87
1/3 acre	30		57	72	81	86
1/2 acre	25		54	70	80	85
1 acre	20		51	68	79	84
2 acres	12		46	65	77	82
Developing Urban Areas						
Newly Graded Areas ³			77	86	91	94
Agricultural Lands – Cultivated ⁴						
	Treatment or Practice	Hydrologic Condition ⁴	A	B	C	D
Fallow						
Bare Soil			77	86	91	94
Crop Residue ¹¹		Poor	76	85	90	93
		Good	74	83	88	90
Row Crops	Straight Row	Poor	72	81	88	91
		Good	67	78	85	89
	Contoured	Poor	70	79	84	88
		Good	65	75	82	86

NRCS – Land Use Runoff Curve Numbers						
Table 1: Runoff curve numbers for hydrologic soil cover (Antecedent moisture condition II, and Ia=0.25) Cover				Hydrologic Soil Group		
	Terraced	Poor	66	74	80	82
		Good	62	71	78	81
Small Grain	Straight Row	Poor	65	76	84	88
		Good	63	75	83	87
	Contoured	Poor	63	74	82	85
		Good	61	73	81	84
	Terraced	Poor	61	72	79	82
		Good	59	70	78	81
Close-seeded Legumes or Rotation Meadow	Straight Row	Poor	66	77	85	89
		Good	58	72	81	85
	Contoured	Poor	64	75	83	85
		Good	55	69	78	83
	Terraced	Poor	63	73	80	83
		Good	51	67	76	80
Agricultural Lands – Other						
Pasture or Range – continuous grazing 5	Natural	Poor	68	79	86	89
		Fair	49	69	79	84
		Good	39	61	74	80
	Contoured	Poor	47	67	81	88
		Fair	25	59	75	83
		Good	6	35	70	79
Meadow – continuous grass, protected from grazing and generally mowed for hay.	Natural	Good	30	58	71	78
Brush: brush-weed-grass mixture with brush as major element 6	Natural	Poor	48	67	77	83
		Fair	35	56	70	77
		Good	30	48	65	73
Woods & Grass Combination (Orchard or Tree Farm 8	Natural	Poor	57	73	82	86
		Fair	43	65	76	82
		Good	32	58	72	79
Woods 9	Natural	Poor	45	66	77	83
		Fair	36	60	73	79
		Good	257	55	70	77
Farmsteads 10	---	---	59	74	82	86
Roads	(dirt)	---	72	82	87	89
	(hard surface)	---	74	84	90	92

Notes:

1: The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4 in NRCS Technical Release 55, Urban Hydrology for Small Watersheds.

2 :CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

3: Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 in Technical Release 55, based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

4: Hydrologic condition is based on combination of factors that affect infiltration and runoff, including (a) density and canopy of vegetative areas, (b) amount of year-round cover, (c) amount of grass or close-seeded legumes in rotations, (d) percentage of residue cover on the land surface (good > 20%), and (e) degree of surface roughness.

Poor: Factors impair infiltration and tend to increase runoff.

Good: Factors encourage average and better than average infiltration and tend to decrease runoff.

5: *Poor:* <50% ground cover or heavily grazed with no mulch.

Fair: 50 to 75% ground cover and not heavily grazed.

Good: >75% ground cover and lightly or only occasionally grazed.

6: *Poor:* <50% ground cover.

Fair: 50 to 75% ground cover.

Good: >75% ground cover.

7: Use CN = 30 for runoff computations.

8: CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

9: *Poor:* Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.

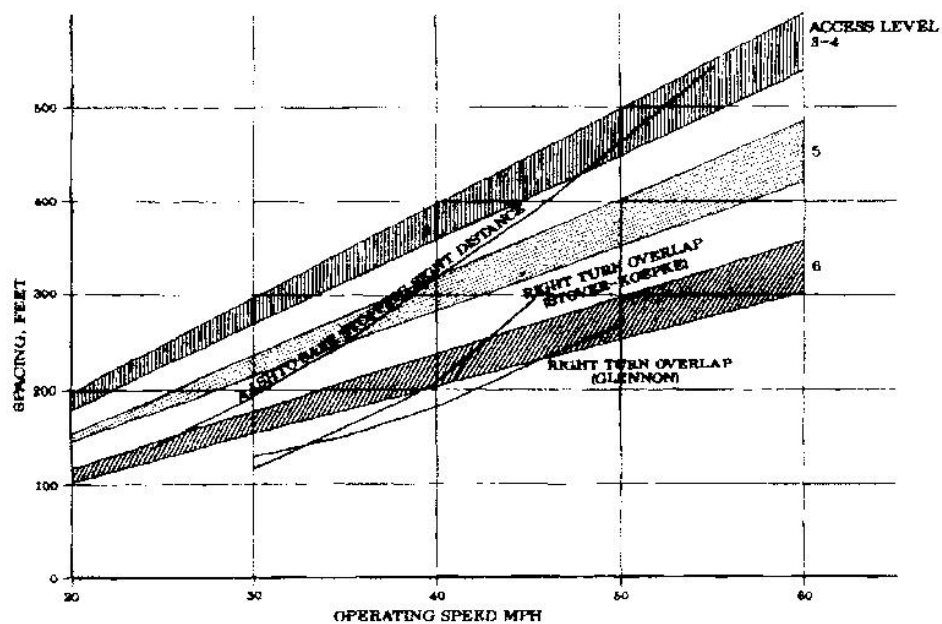
Fair: Woods are grazed but not burned, and some forest litter covers the soil.

Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

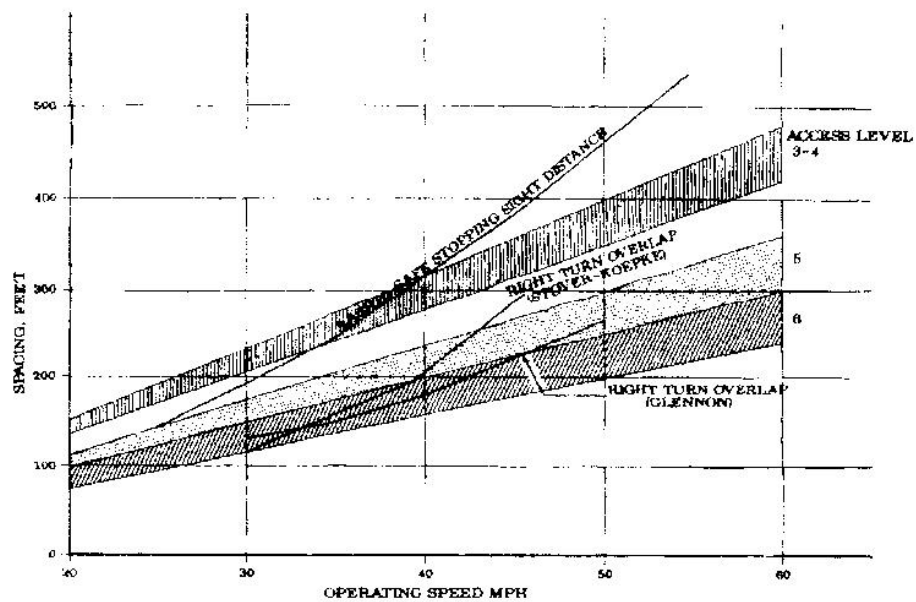
10: Includes buildings, lanes, driveways and surrounding lots.

11: Crop residue cover applies only if residue is on at least 5 percent of the surface throughout the year.

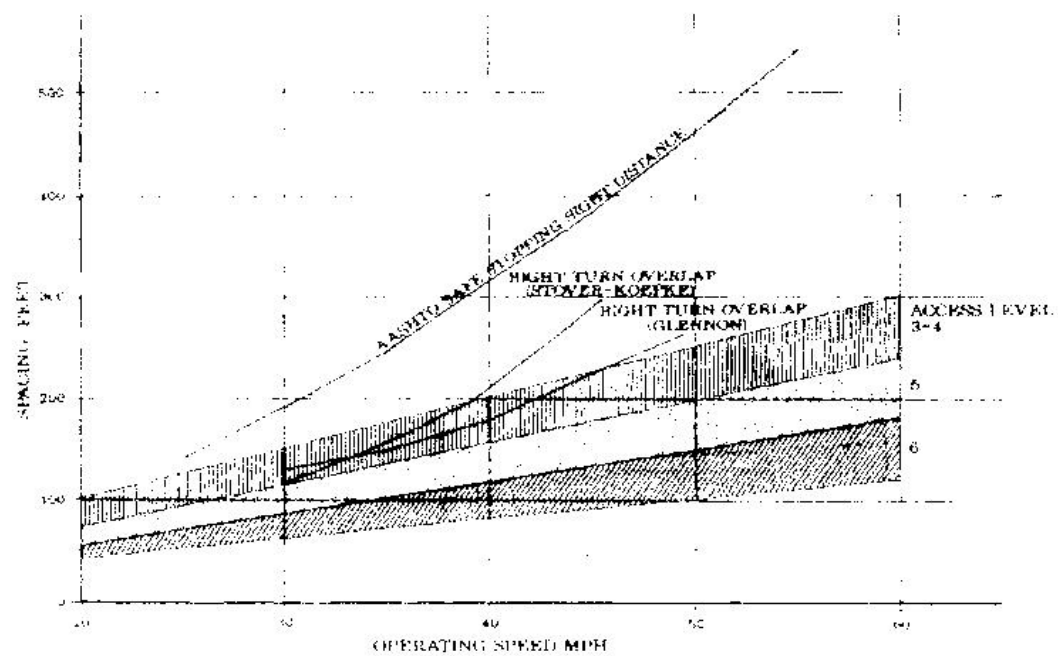
F. Appendix F - Access Spacing



Unsignalized driveway spacing for major generator.



Unsignalized driveway spacing for minor generator.



Unadjusted deceleration for maximum use generator.

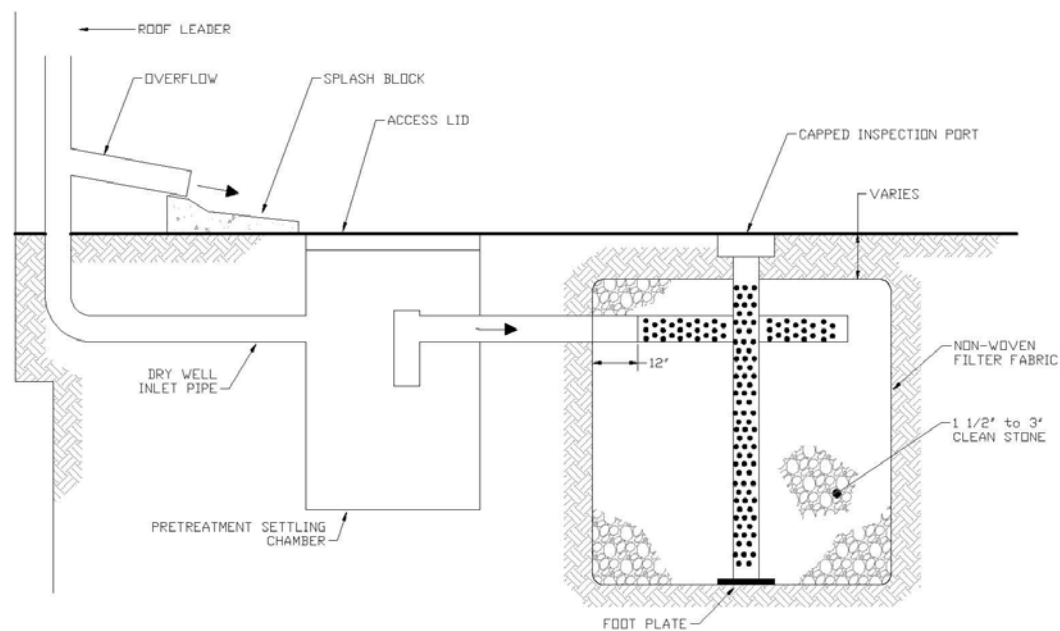
G. Appendix G – Infiltration Devices

APPENDIX G – INFILTRATION MANAGEMENT DEVICES

Treatment Suitability: Infiltration practices alone typically cannot meet detention and channel protection requirements, except on sites where the soil infiltration rate is greater than 5.0 in/hr. However, extended detention storage may be provided above an infiltration basin. Extraordinary care should be taken to assure that long-term infiltration rates are achieved through the use of post construction inspection and long-term maintenance.

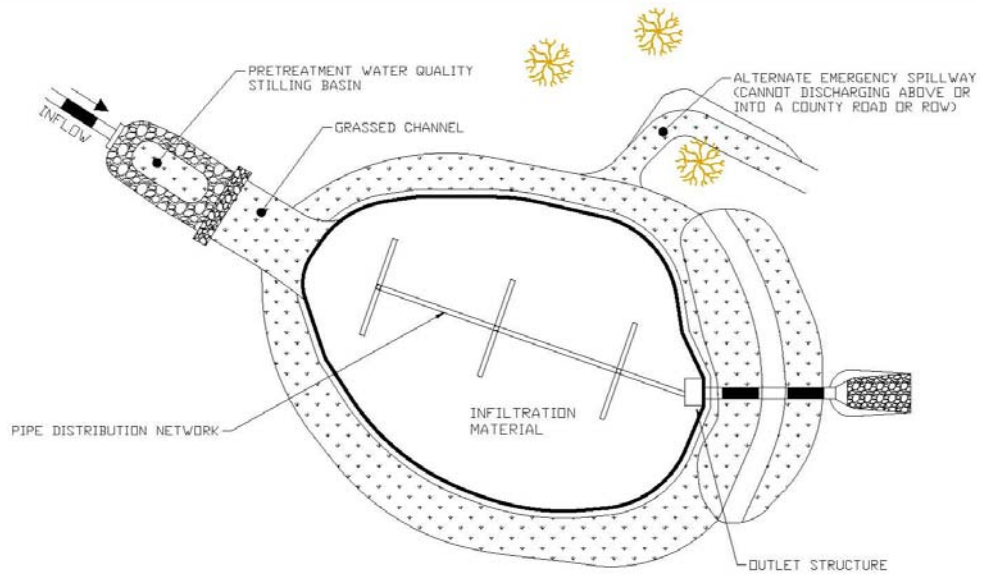
Considerations: Although there are numerous design considerations which must be evaluated by the engineer, below are some of the most commonly neglected.

- To be suitable for infiltration, underlying soils shall have an infiltration rate of at least 0.5 inches per hour. The minimum geotechnical testing is one test hole per 5000 sf, with a minimum of two borings per facility (taken within the proposed limits of the facility).
- Infiltration practices cannot be located on areas with natural slopes greater than 15%.
- Infiltration practices cannot be located in fill soils, except the top quarter of an infiltration trench or dry well.
- The bottom of the infiltration facility shall be separated by at least three feet vertically from the seasonally high water table or bedrock layer, as documented by on-site soil testing.
- Infiltration facilities shall be located at least 100 feet horizontally from any water supply well.
- Infiltration practices cannot be placed in locations that cause water problems to downgradient properties. Infiltration trenches and basins shall be setback 25 feet downgradient from structures and septic systems. Dry wells shall be separated a minimum of 10 feet from structures.
- For dry wells, all flows that exceed the capacity of the dry well should be passed through the surcharge pipe.
- Stormwater Pretreatment Must be included prior to discharge into the infiltration device.
- An observation well shall be installed in every infiltration trench and dry well, consisting of an anchored six-inch diameter perforated PVC pipe with a lockable cap installed flush with the ground surface.
- Direct access shall be provided to infiltration practices for maintenance and rehabilitation. If a stone reservoir or perforated pipe is used to temporarily store runoff prior to infiltration, the practice shall not be covered by an impermeable surface.
- Because of additional challenges in cold climates, infiltration SMPs need design modifications to function properly. These modifications address the following problems: Reduced infiltration into frozen soils and Chlorides.
- Reduced Infiltration: Draining the ground beneath an infiltration system with an underdrain can increase cold weather soil infiltration, other alternatives are available and designers are encouraged to present creative design concepts.

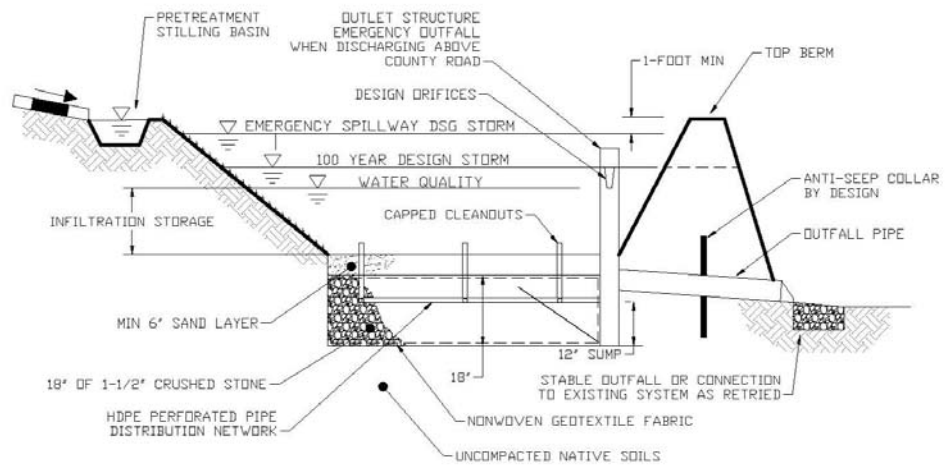


TYPICAL DRY WELL CONFIGURATION

SHEET 1 OF 3

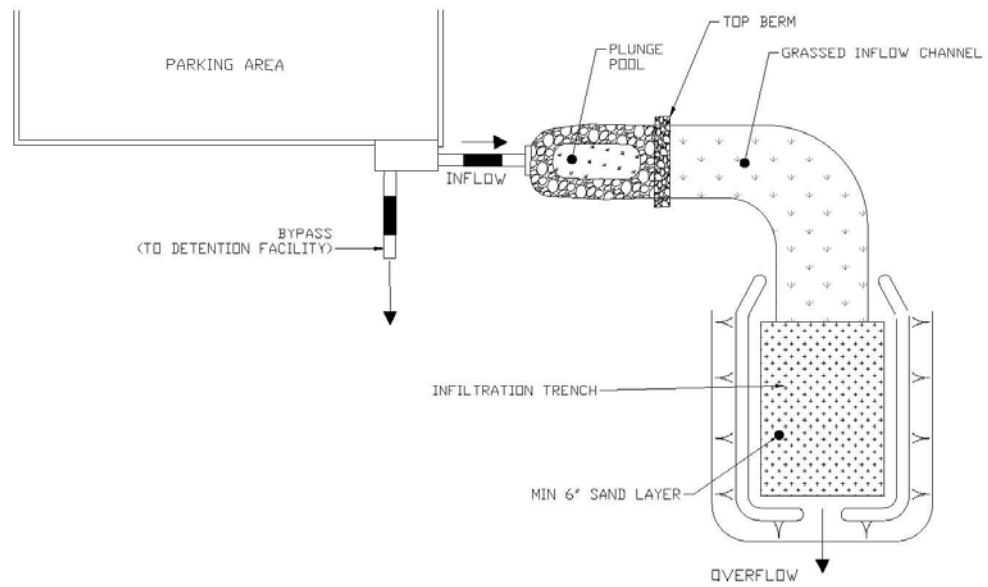


INFILTRATION BASIN - PLAN VIEW

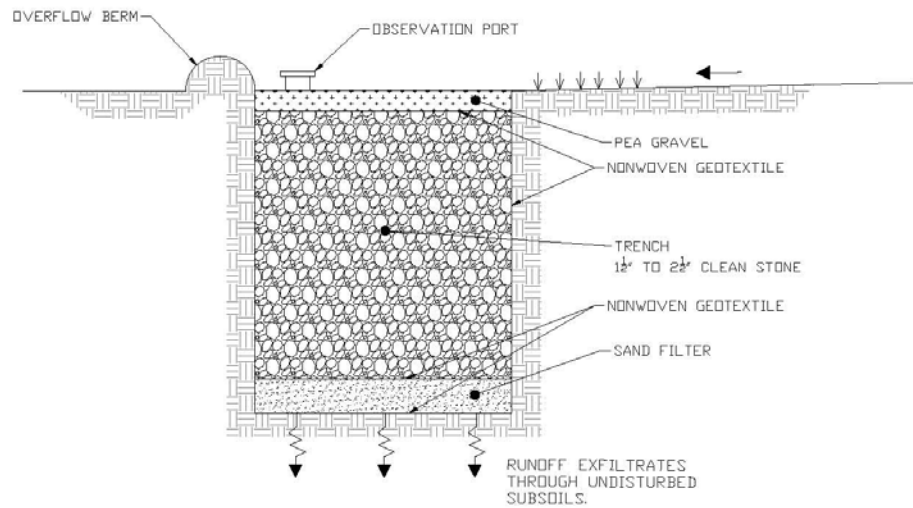


INFILTRATION BASIN - SECTION VIEW

SHEET 2 OF 3



INFILTRATION TRENCH - PLAN VIEW



INFILTRATION TRENCH - SECTION VIEW

SHEET 3 OF 3

H. Appendix H – Tree Planting Guidelines



Figure 1. Tree pit with railing.



Figure 2. Tree pit with railing.

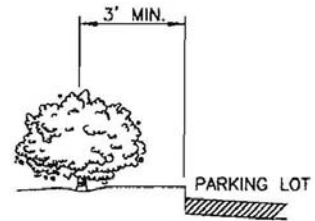
H.1



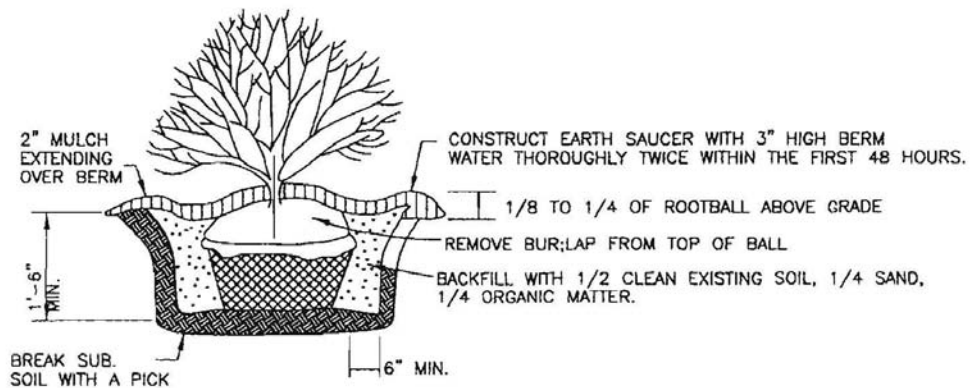
SUBSOIL TO BE BROKEN
WITH A PICK AXE

6" DEEP PLANTING BED CONTAINING
1/2 CLEAN EXISTING SOIL,
1/4 SAND AND, 1/4 ORGANIC MATTER.

GROUND COVER PLANTING DETAIL



TYPICAL HEDGE PLANTING
AROUND PARKING LOTS

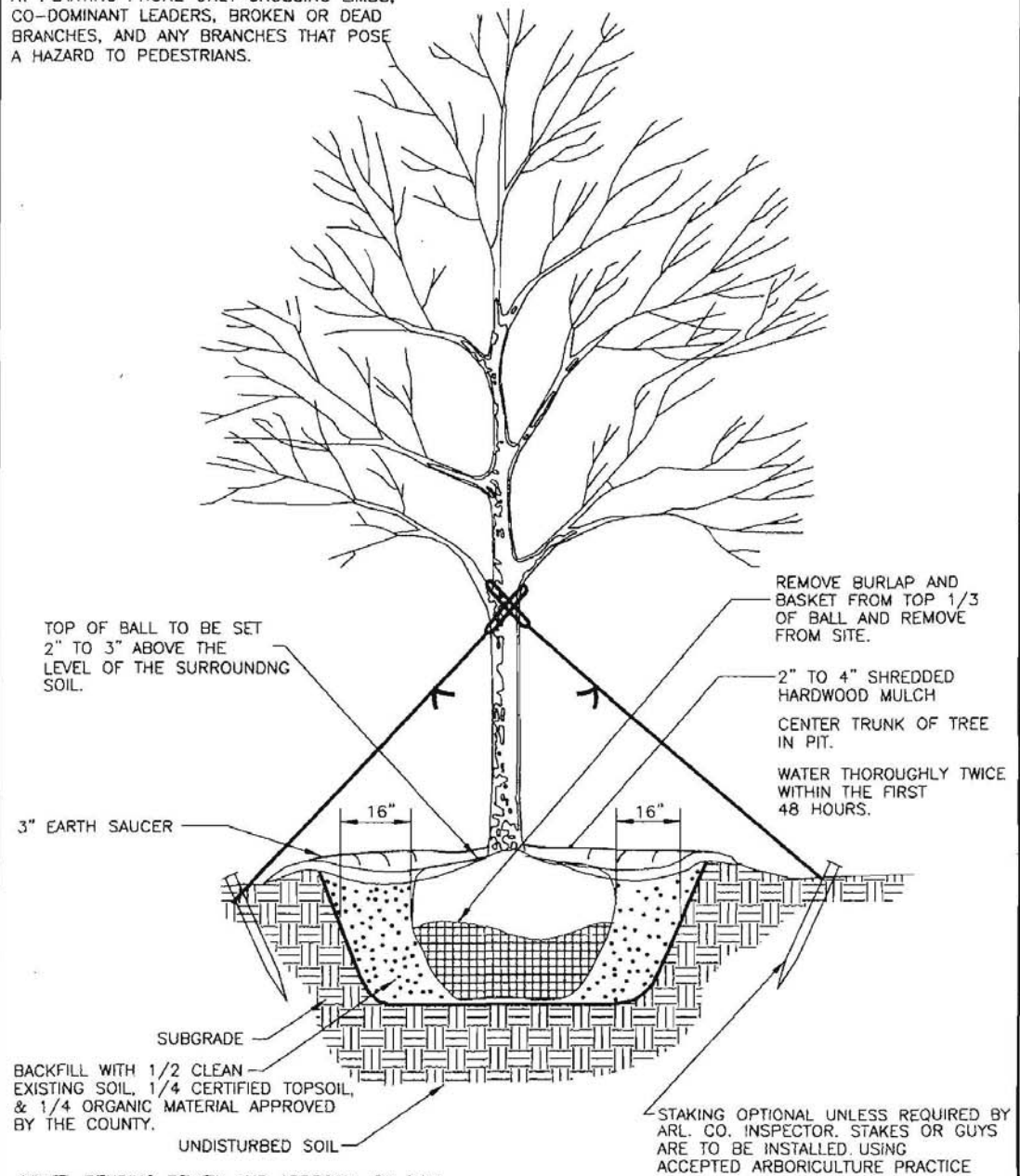


SHRUB PLANTING DETAIL

DRAFT

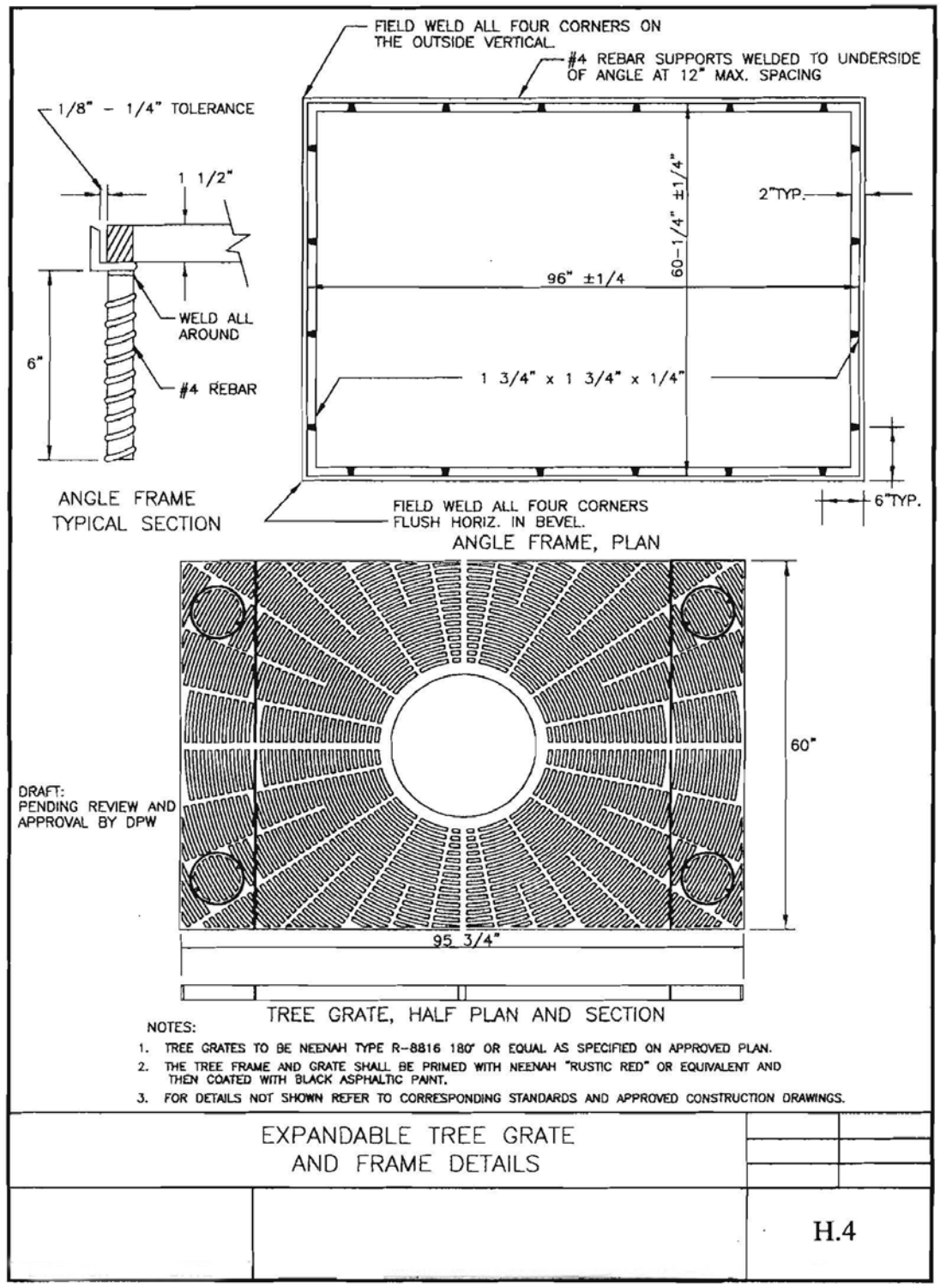
SHRUB AND GROUND COVER PLANTING DETAIL		
		H.2

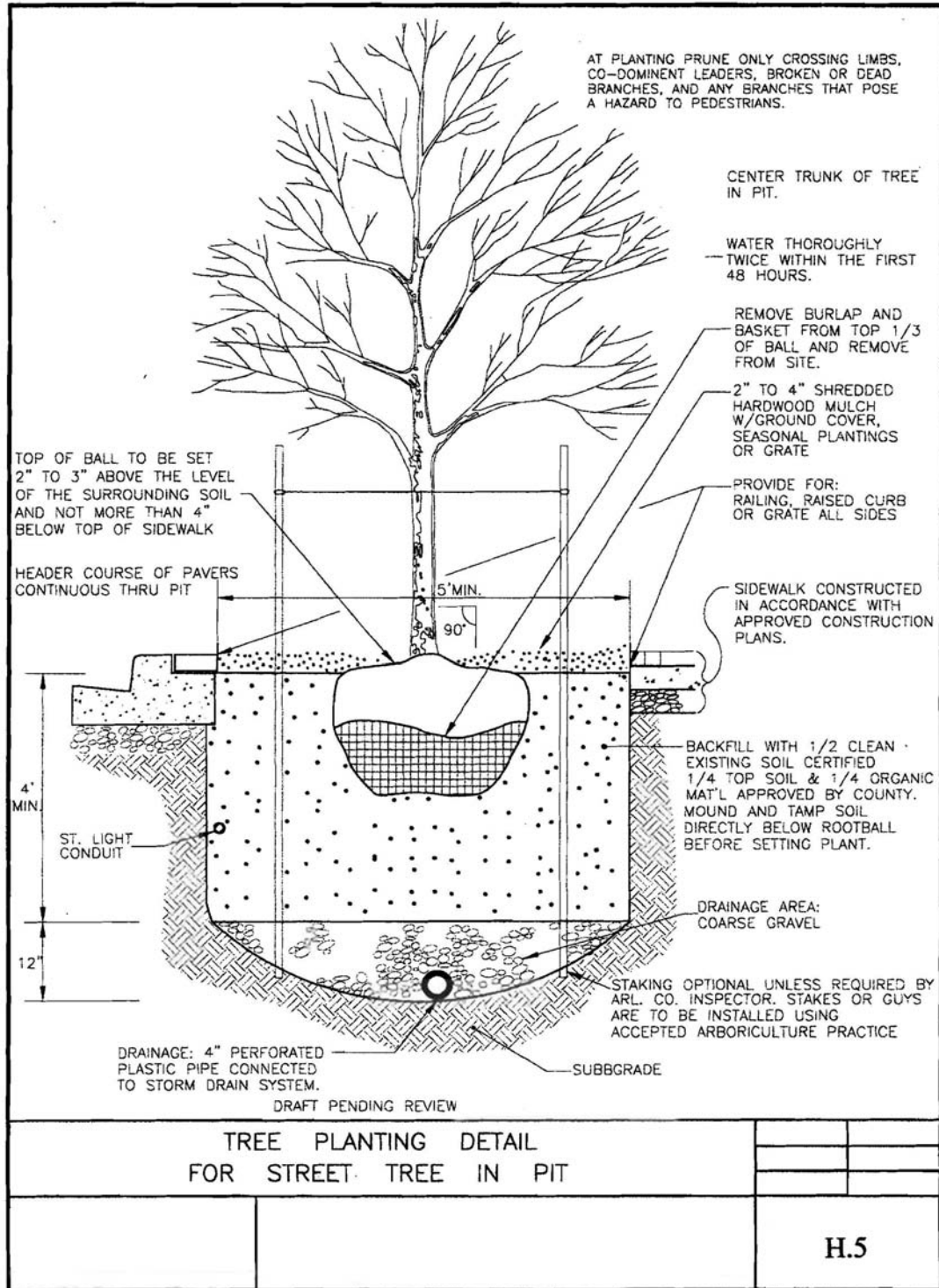
AT PLANTING PRUNE ONLY CROSSING LIMBS,
CO-DOMINANT LEADERS, BROKEN OR DEAD
BRANCHES, AND ANY BRANCHES THAT POSE
A HAZARD TO PEDESTRIANS.

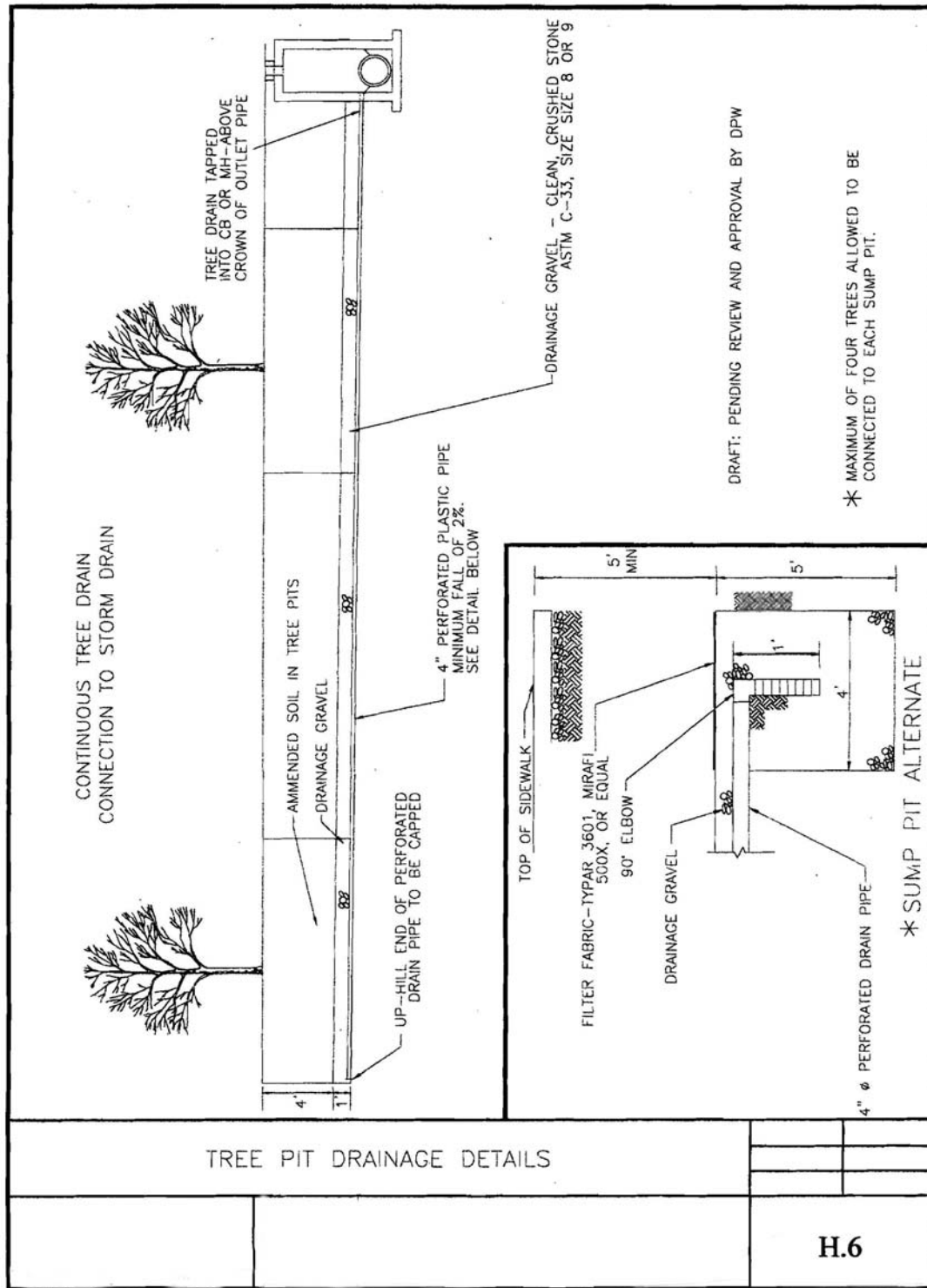


PLANTING TREES IN OPEN AREA OR GRASS STRIP

H.3







DRAFT: PENDING REVIEW AND APPROVAL BY DPW

* MAXIMUM OF FOUR TREES ALLOWED TO BE CONNECTED TO EACH SUMP PIT.

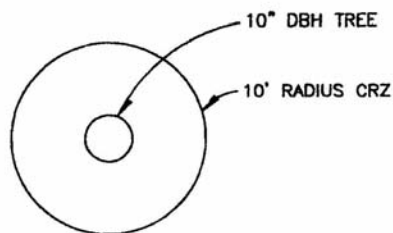
DETERMINING THE CRITICAL ROOT ZONE

THE CRITICAL ROOT ZONE OF A TREE IS THE ZONE IN WHICH THE MAJORITY OF A TREE'S ROOTS LAY. NINETY-FIVE PERCENT OF THE ROOTS OF MOST TREES WILL BE FOUND IN THE UPPER 30-36" OF THE SOIL. OF THOSE, THE MAJORITY OF THE ROOTS THAT SUPPLY THE NUTRIENTS AND WATER TO THE TREE ARE FOUND IN THE UPPERMOST LAYER, JUST BELOW THE SOIL SURFACE. THE TOTAL AMOUNT OF A TREE'S ROOTS ARE GENERALLY PROPORTIONAL TO THE VOLUME OF THE TREE'S CANOPY. THEREFORE, IF THE ROOTS ONLY PENETRATE A THIN LAYER OF SOIL, THEN THE ROOTS MUST SPREAD FAR FROM THE TREE, BEYOND THE LIMITS OF THE CANOPY. ROOTS ARE VITAL TO THE FUNCTIONING OF ANY TREE. THEY PROVIDE STRUCTURAL SUPPORT AS WELL AS THE MAJOR MECHANISM FOR NUTRIENT AND WATER UPTAKE FOR USE BY THE REST OF THE TREE. DESTROYING A SECTION OF A TREE'S ROOTS WILL ULTIMATELY RESULT IN A PROPORTIONAL LOSS OF THE TREE'S CANOPY. THE CRITICAL ROOT ZONE OF A TREE TO BE SAVED SHALL BE THE MINIMUM AREA PROTECTED WITH TREE PROTECTION FENCING.

DRAFT: _____

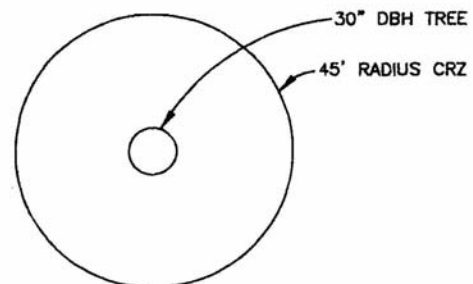
TREES GREATER THAN 8" DBH (DBH=DIAMETER BREAST HEIGHT):

1" DBH OF THE TREE = 1' RADIUS OF THE
CRITICAL ROOT ZONE (CRZ)



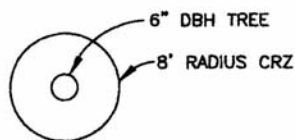
SPECIMEN TREES

1" DBH = 1.5' RADIUS OF THE
CRITICAL ROOT ZONE.



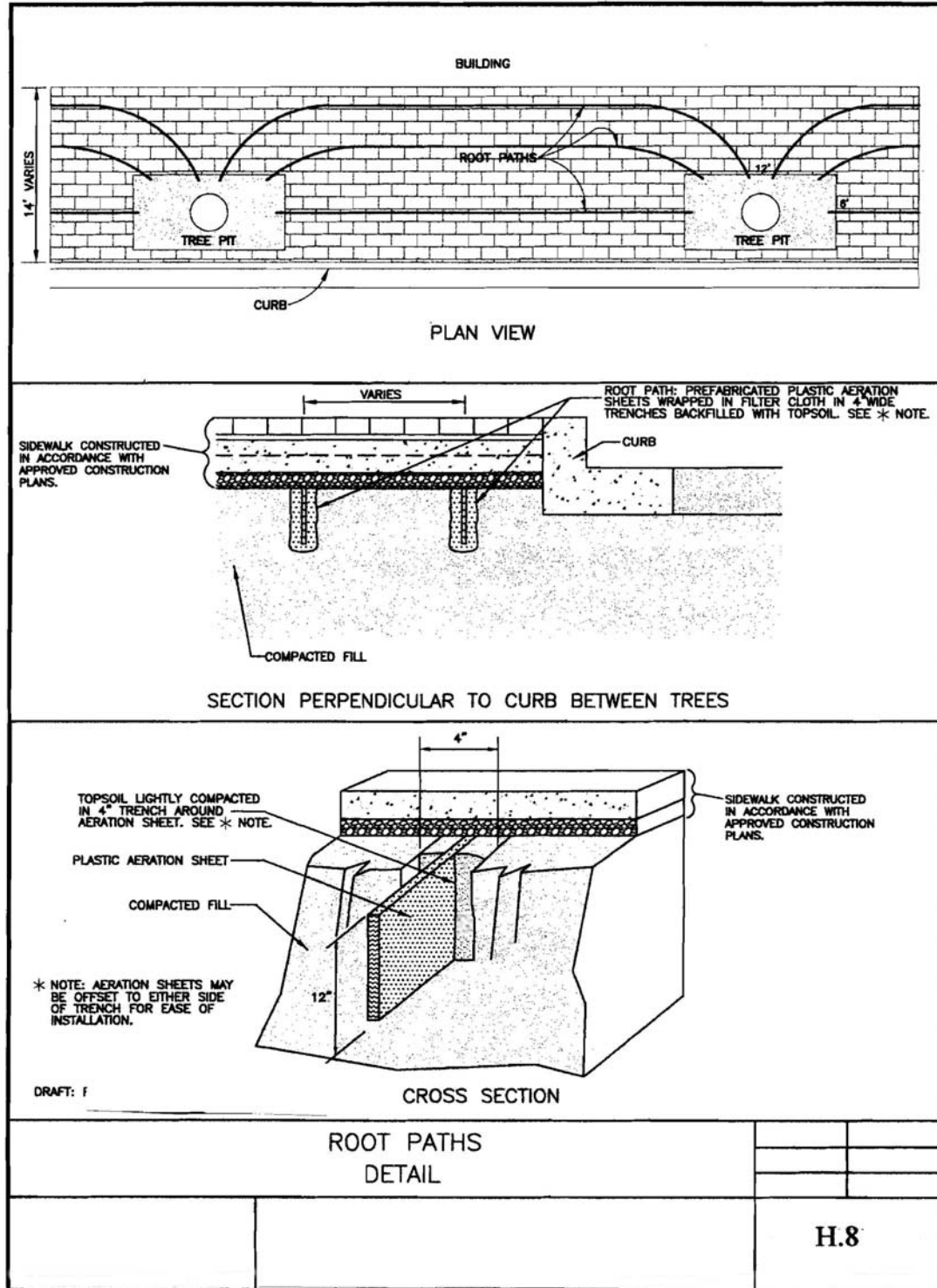
TREES 8" DBH AND SMALLER:

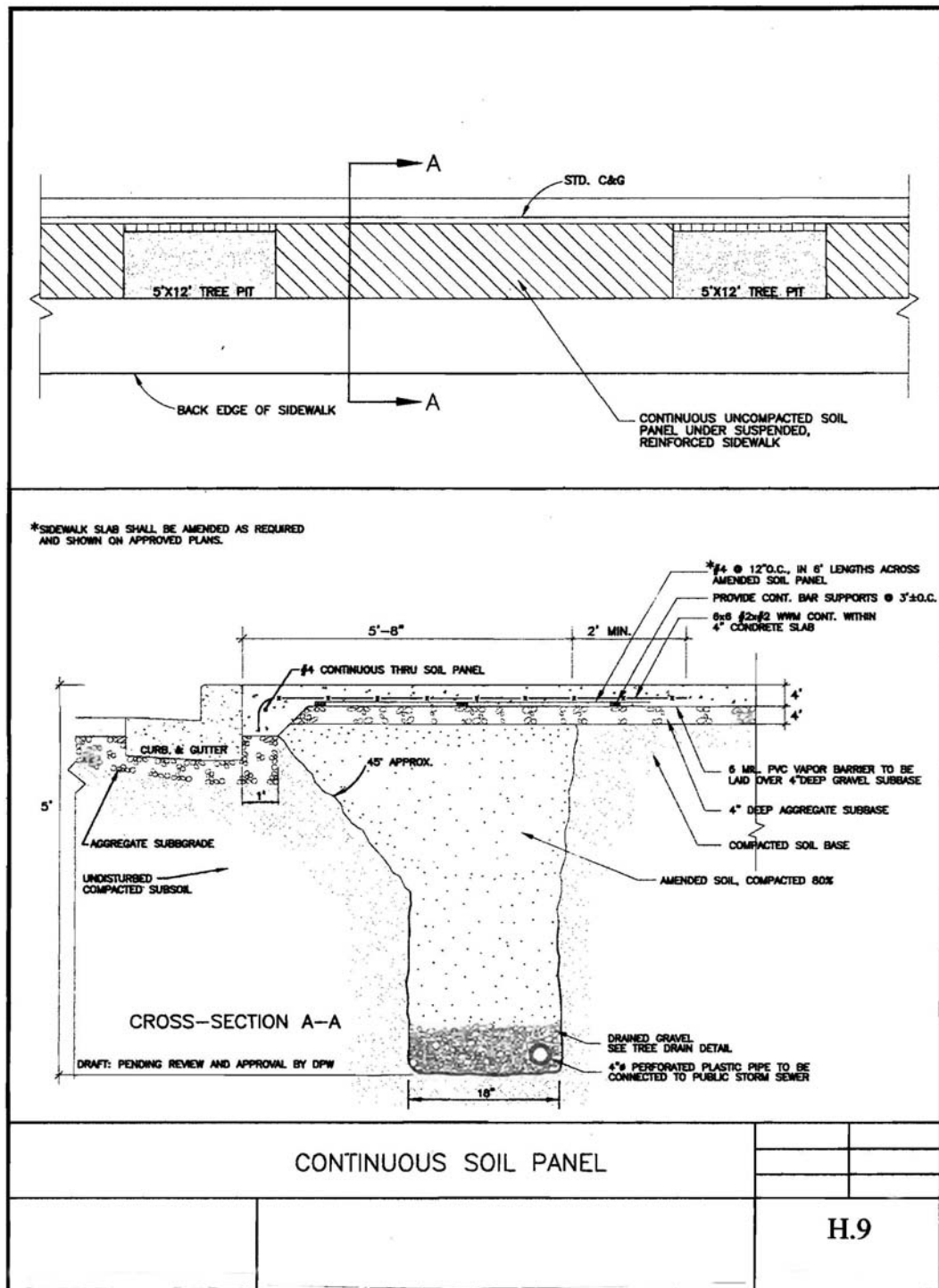
8 FT. RADIUS CIRCLE AROUND THE TRUNK
OF THE TREE.

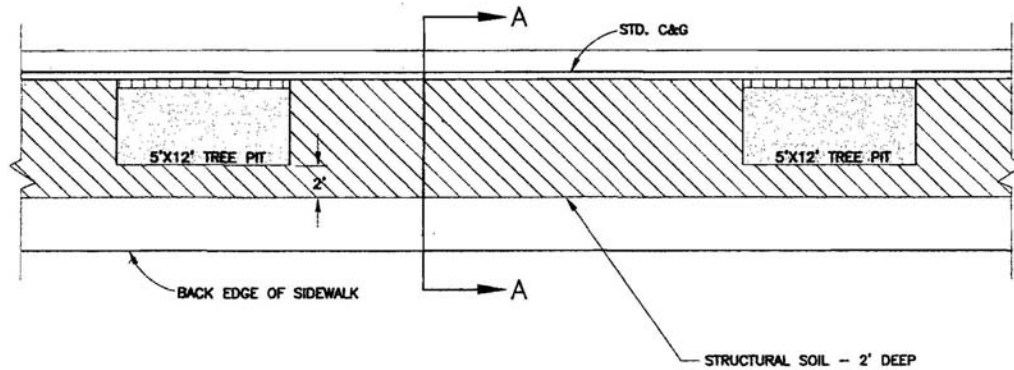


TREE PROTECTION DETAIL
FOR DETERMINATION OF CRITICAL ROOT ZONE

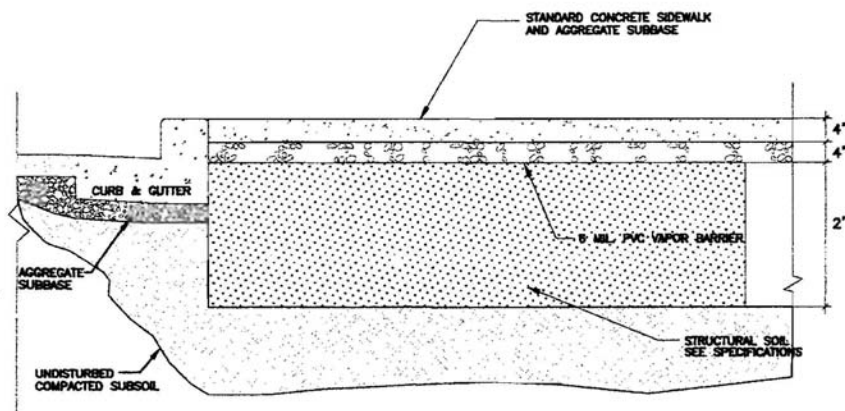
H.7







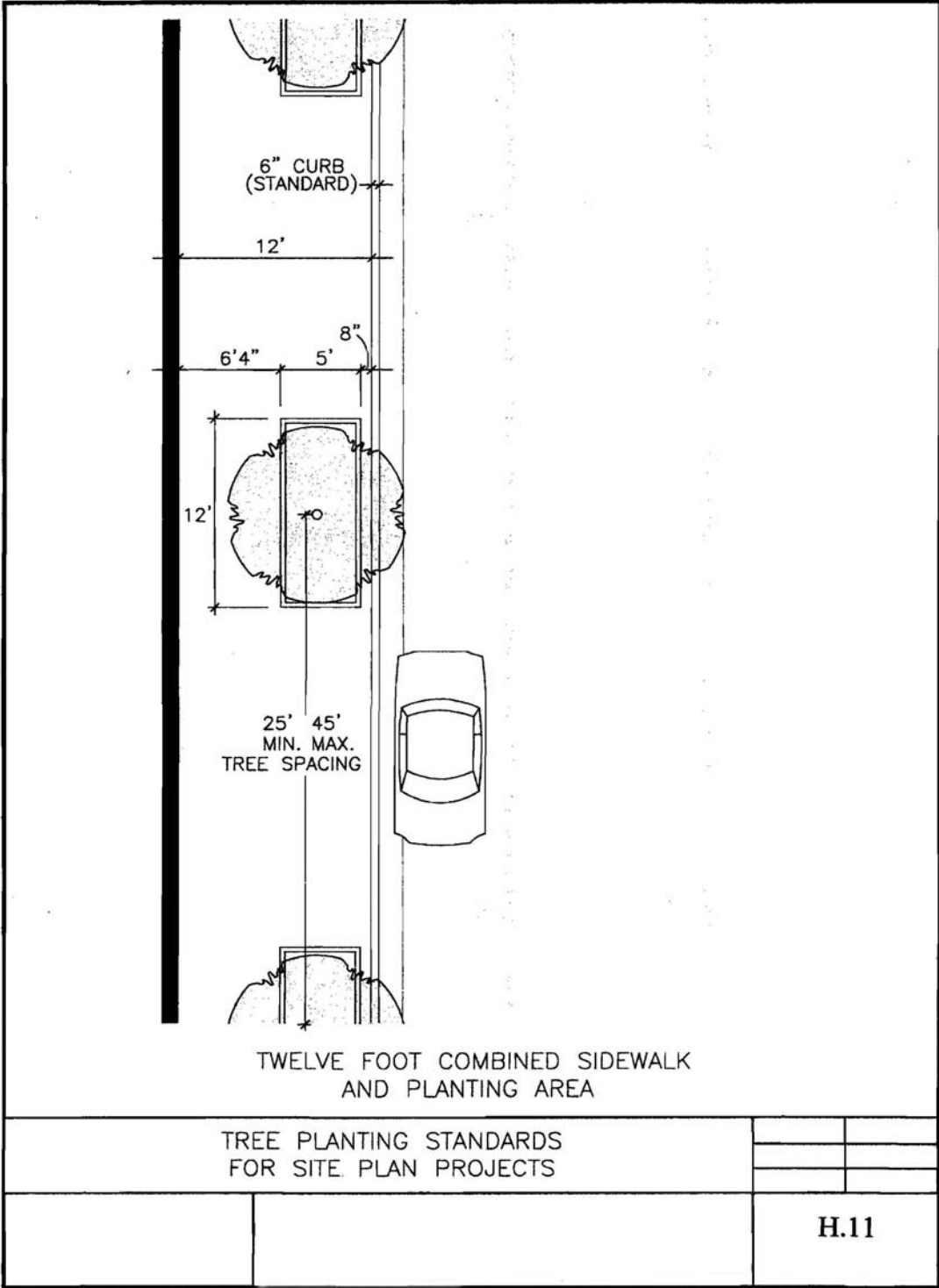
PLAN VIEW

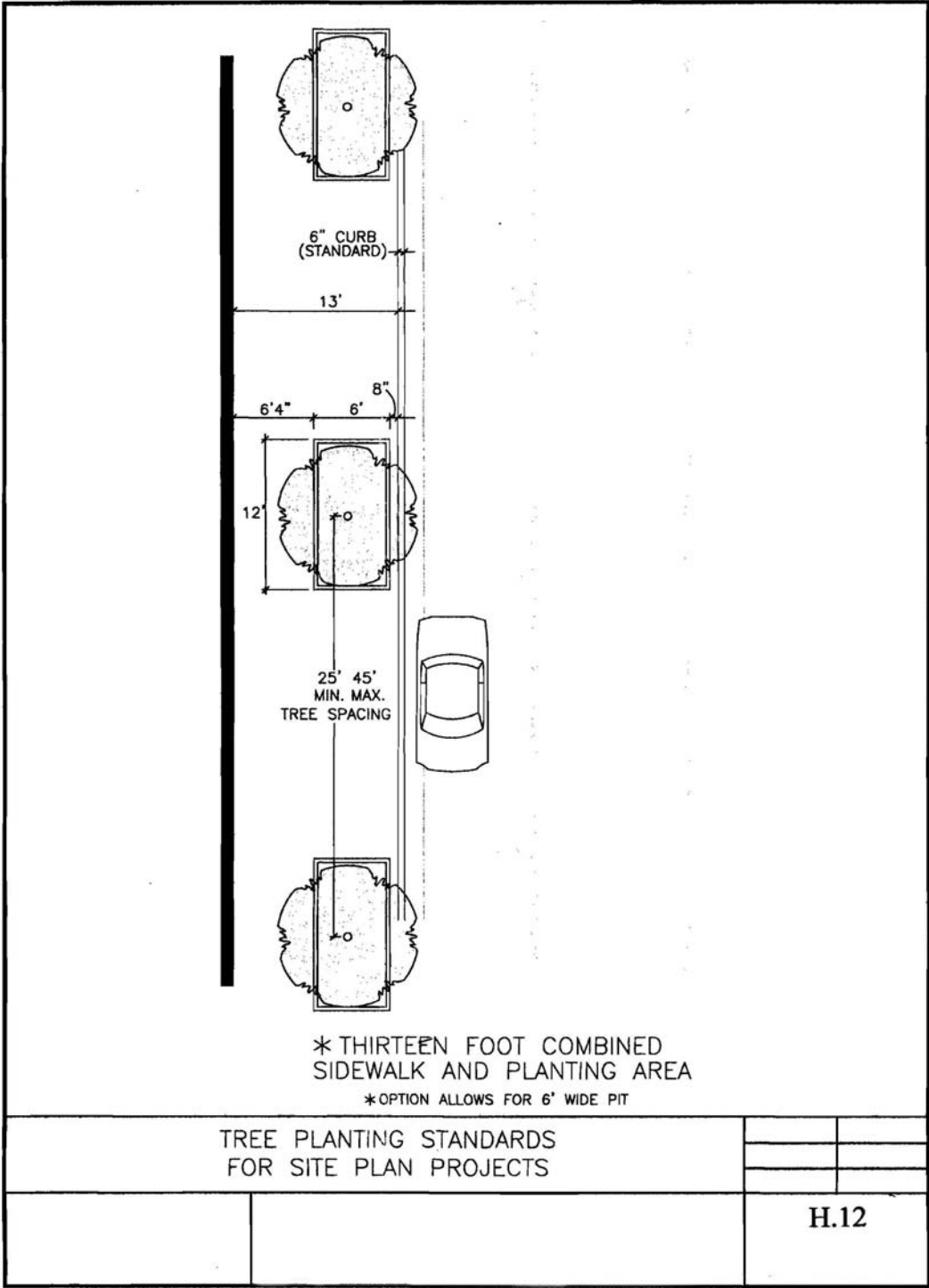


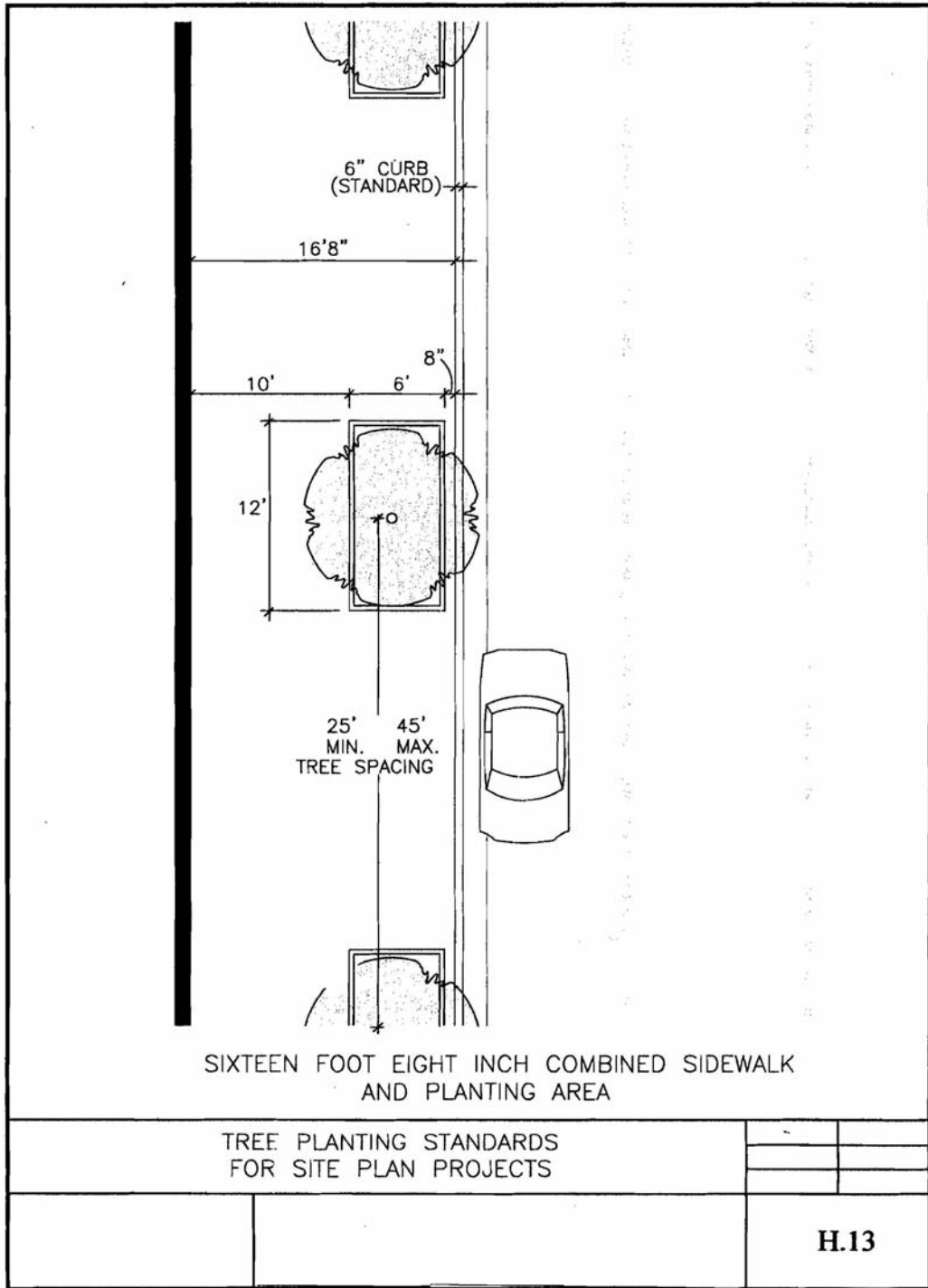
CROSS-SECTION A-A

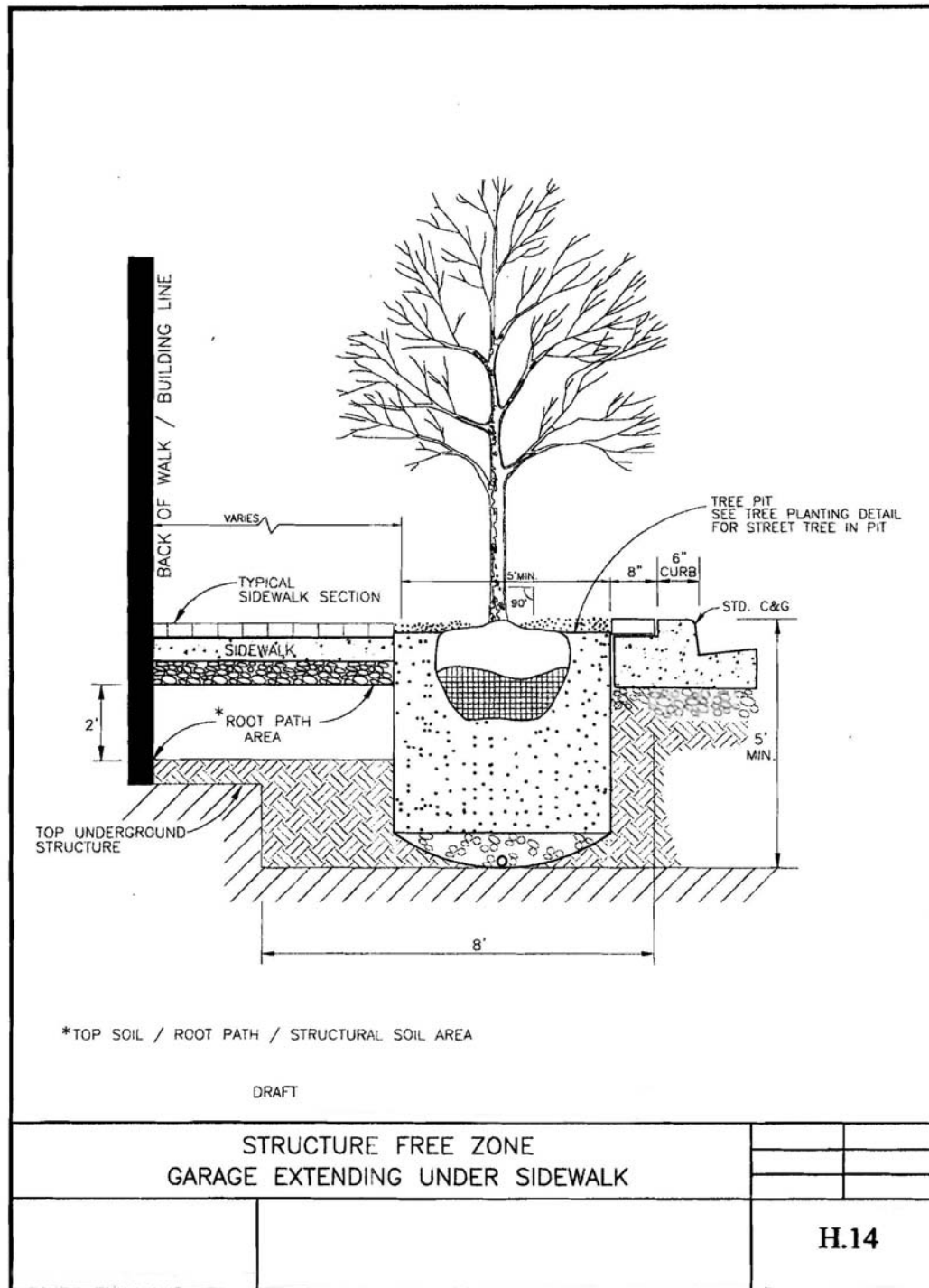
DRAFT: PENDING REVIEW AND APPROVAL BY DPW

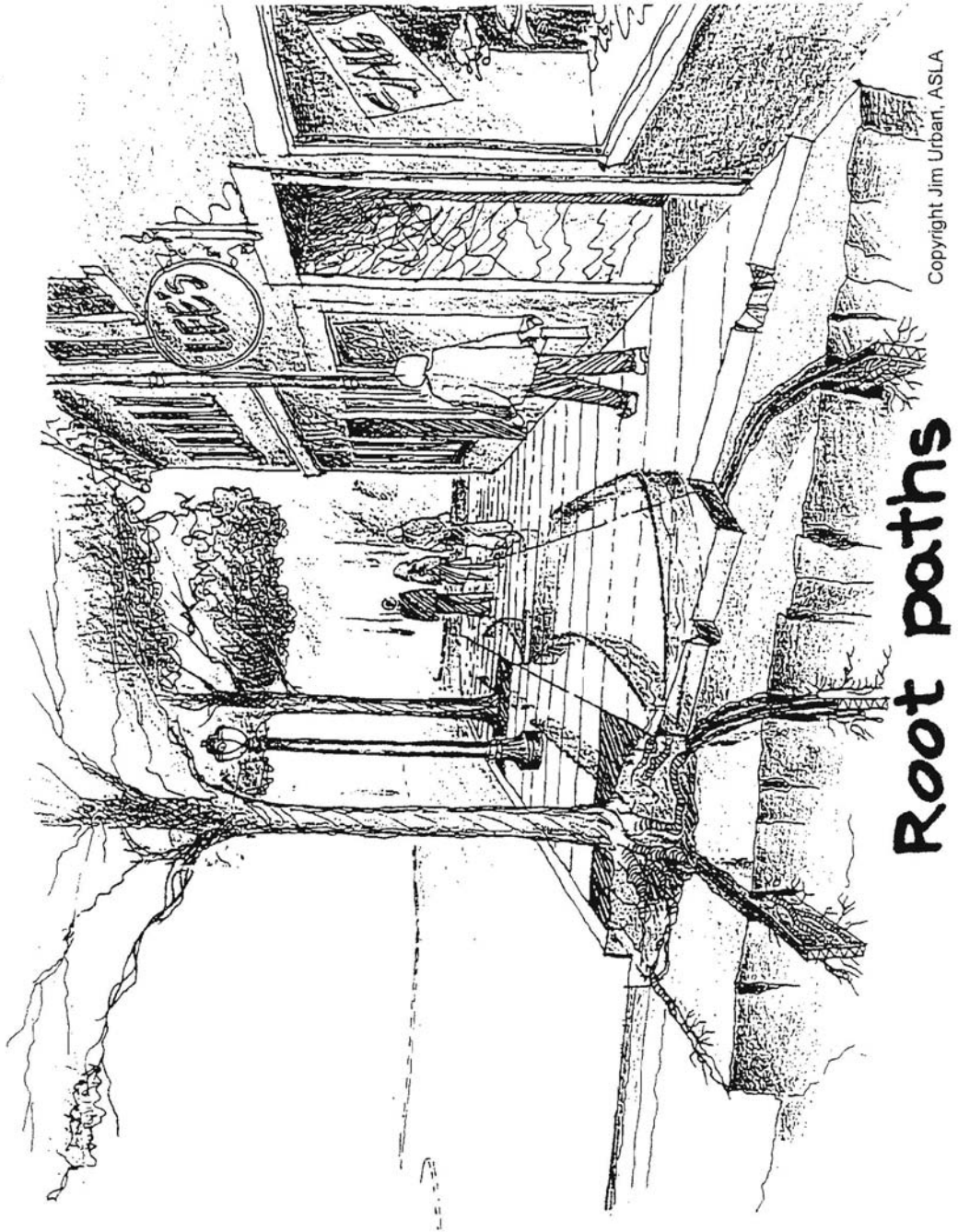
STRUCTURAL SOIL		
		H.10











Root Path Illustration