APPENDIX A - FEES

1.0 GENERAL

1) The Subdivider or Developer shall pay all fees and costs associated with the review, inspection and administration of the land division or development equal to the actual cost incurred by the Town, plus a five percent (5%) overhead factor to assist in defraying costs for Town supervision and administration. The Subdivider shall submit all required fees, bonds, and letters of credit to the Town Clerk at the times specified before final approval of a plat, condominium, planned development or certified survey map. Any costs the Town may incur for plan review, inspection and administration which exceed the deposit amounts shall be billed to the Subdivider by the Town. If a fund balance exists in the inspection deposit after acceptance of all improvements and refund of the improvement guarantees, the subdivider may request a refund of the remaining inspection deposit amounts. In addition, the Subdivider's Agreement shall be executed and filed by the Subdivider prior to final approval of any plat or certified survey map.

1.1 REZONE FEE

1) The Subdivider shall deposit a sum equal to one-hundred dollars ($100) to the Town Clerk at the time of application for the review of any rezone request.

1.2 CONDITIONAL USE FEE

1) The Subdivider shall deposit a sum equal to one-hundred dollars ($100) to the Town Clerk at the time of application for the review of any conditional use request.

1.3 VARIANCE FEE

1) The Subdivider shall deposit a sum equal to one-thousand dollars ($1,000) to the Town Clerk at the time of application for the review of any variance request.

1.4 CONCEPTUAL PLAN REVIEW FEE

1) The Subdivider shall deposit a sum equal to one-thousand dollars ($1,000) to the Town Clerk at the time of application for the review of the conceptual plan.

1.5 CERTIFIED SURVEY MAP REVIEW FEE

1) The Subdivider shall pay a fee of four-hundred dollars ($400) for each certified survey map to the Town Clerk at the time of the application for approval of any proposed certified survey map.

1.6 PRELIMINARY PLAT AND ENGINEERING REVIEW FEE

1) The Subdivider shall deposit a sum equal to one-thousand dollars ($1,000) to the Town Clerk at the time of the application for approval of such preliminary plat and Engineering review.

1.7 CONDOMINIUM AND PLANNED DEVELOPMENT REVIEW FEE

1) The Developer of a condominium or planned development shall deposit a sum equal to one-thousand dollars ($1,000) to the Town Clerk at the time of application for approval of a Condominium Development Plan or Planned Development Plan.

1.8 FINAL PLAT REVIEW FEE

1) The Subdivider shall deposit a sum equal to one-thousand dollars ($1,000) to the Town Clerk at the time of the application for approval of such plat.

1.9 ENGINEERING AND INSPECTION FEES

1) All public improvements proposed to be made under the provisions of this Section shall be inspected during the course of construction by the Town Engineer. All fees and costs connected with the review of the drawings and specifications for the improvements and inspection of the construction of the improvements, including final approvals and project guarantee reductions, shall be paid by the Subdivider. The Subdivider shall deposit with the Town Clerk, within seven (7) days of the date of application, a sum of up to five-thousand dollars ($5,000) for review of project plans. The Town Clerk shall notify the Subdivider within three (3) days of the date of application, the exact amount of the deposit required.

1.10 ADMINISTRATIVE FEE

1) The Subdivider shall pay to the Town Clerk, the cost of any legal, administrative or fiscal services incurred by the Town in connection with its review of any plat or certified survey

map. Legal work shall include, without limitation, the drafting of contracts between the Town and the Subdivider. These fees may also include the cost of obtaining professional opinions including, but not limited to those of attorneys, engineers, landscape architects, and land planners, requested by the Town Board in connection with the land division being considered.

1.11 EFFECT ON NONPAYMENT OF FEES

1) Notwithstanding any other provision of this Ordinance, no final approval of any final plat, condominium or planned development, or certified survey map shall be granted by the Town Board until such time as all fees imposed under this Ordinance have been paid in full, with the exception of construction related fees. In the case of construction related fees, the Town reserves the right to withhold building permits until all fees imposed under this Ordinance have been paid in full.

Revised July 18, 2006, Ordinance No. 279

APPENDIX B - DESIGN STANDARDS

SECTION 1.0 - ENGINEERING AND ADMINISTRATIVE PROCEDURES

1.1 INTRODUCTION

1) These standards have been prepared to insure that the design and construction of public improvements will meet the minimum requirements of the Town. The intent of Section 1 is to provide an overview of requirements and procedures required by the Land Division Ordinance, which govern the design and construction of public improvements. These standards are also intended to provide uniform design criteria for facilities designed for or directly by the Town, as well as provide specifications for private development within the Town. These standards shall also apply to previously platted subdivisions where improvements have not yet been installed.

1.2 DEFINITION OF TERMS

(See Section 18.12 of the Land Division Ordinance)

1.3 SCOPE

1) In addition to the Town, the review and approval of contract documents for certain types of improvements may also fall within the jurisdiction of other public agencies. These standards are not intended as a substitute for the requirements of other public agencies. It shall be the Subdivider's responsibility to insure that the proposed contract documents meet the requirements of all other public agencies and that any or all permits and bonds required by such agencies are secured.

1.4 PRE-DESIGN CONFERENCE

1) It is recommended that after preliminary plat approval and prior to the development of detailed drawings, the Subdivider and the Design Engineer meet with the Town Engineer to review Town requirements and any other proposed projects or existing conditions that may affect the final project design. The request for this preliminary meeting, if desired, shall be initiated by the Design Engineer.

1.5 DRAWING PREPARATION REQUIREMENTS

1) All drawings submitted for approval shall bear the name of the

Design Engineer, his/her signature, the imprint of the Professional Engineer seal, and his/her address and telephone number. Where feasible, drawings shall consist of twenty-four (24”) inch x thirty-six (36”) inch sheets. Drawings shall be clear and legible, and shall be drawn to a conventional, even scales which will permit all necessary information to be plainly shown. All elevations shall be referenced to National Geodetic Vertical Datum (mean sea level) where available and benchmarks shall be noted. All improvements proposed for use on the project shall be indicated on the drawings. All proposed improvements and all existing municipal and privately owned utilities shall be shown in both plan and profile.

1.6 SPECIFICATION REQUIREMENTS

1) Technical specifications shall be complete in themselves, except that appropriate specific sections of the most recent edition of the "Standard Specifications for Road and Bridge Construction", as published by the “Department of Transportation”, “State of Wisconsin”, (“WDOT Standard Specifications”) and the various standard published material specifications prepared by associations such as the "American Society for Testing and Materials" (ASTM) or the "Concrete Reinforcing Steel Institute" (CRSI**)**, may be incorporated by reference.

2) The specifications shall include, but not be limited to, all information not shown on the drawings which is necessary to establish in detail the quality of materials and work required in the project, allowable parameters for testing the various parts of the project and instructions for testing material and equipment. Wherever there is conflict between the written specifications and the drawings, the more stringent requirements, as determined by the Town, shall apply.

3) The specifications shall include a clause that all work included shall be guaranteed by the Contractor to be free from defects in construction and materials and in conformance with the approved drawings and specifications. A statement of comprehensive liability insurance shall also be provided as required in Section 11.3 of the Land Division Ordinance.

1.7 DESIGN COMPUTATION REQUIREMENTS

1) Design computations shall be made by the Design Engineer for all phases of the project when such computations are required to facilitate review by the Town Engineer. Said computations shall be neat and legible and in a form considered acceptable by the Town Engineer. Said computations shall include, but not necessarily be limited to, the following:

(a) Detention Reservoir Capacity Design

(b) Sediment Basin Design
(c) Storm Sewer System Design Including Inlet Capacity
(d) Structural Strength Design for Conduits more than 20 feet below finished grade.
(e) Road and Drive Culverts

1.8 OPINION OF PROBABLE COST

1) The Design Engineer shall prepare an itemized opinion of the probable cost of the work. The opinion shall be delineated public and private (onsite) improvements when applicable. This opinion of probable cost shall be submitted with the construction plans and reviewed by the Town Engineer to assure adequate bond amounts and to set the review fees.

1.9 OTHER PERMIT APPLICATIONS AND APPROVALS

1) Other governmental agencies may review and approve for construction all or certain parts of the work included in a project and may require a permit for such work. They may also require that an application for a permit be executed by the Town. When such permit application is required, it shall be prepared by the Design Engineer. All required permits and necessary authorizations from other governmental agencies shall be secured by the subdivider.

1.10 REVISIONS TO APPROVED DRAWINGS AND SPECIFICATIONS

1) Any deviations from previously approved drawings or specifications affecting capacity, stability or operation of the system shall be approved in writing by the Town Engineer before such changes are made. Minor changes not affecting capacity, stability or operation of the system will not require formal approval, but must be approved in writing by the Field Inspector.

1.11 CONSTRUCTION SUPERVISION

1) Periodic visits to developments (including private developments) shall be conducted by the Town Engineer and/or Field Inspector which may include spot checking of grades and improvements, but full-time inspection and performance certifications are the responsibility of the Design Engineer or other independent professional employed by the Subdivider. Confirmation of approved grades and utility installation and preparation of Record Drawings are likewise the responsibility of the Design Engineer or other independent professional employed by the Subdivider.

1.12 EXISTING FACILITIES

1) Drawings and specifications shall provide for the continuous operation of existing facilities without interruption during construction, unless otherwise specifically authorized by the Town Engineer.

1.13 RECORD DRAWINGS

1) Reproducible record drawings signed and sealed by the Design Engineer or other independent professional employed by the Subdivider shall clearly show any and all changes from the approved drawings. Record drawings shall be submitted to the Town Engineer prior to the Subdivider's request for final inspection of the required improvements. The record drawings shall be based on actual measurements of both horizontal and vertical dimensions, made after the completion of the work.

1.14 WAIVER OF DESIGN STANDARDS

1) Where conditions so warrant; the Town Plan Commission of the Town of Delavan may consider waiving any of the requirements found in these standards upon appeal by the Subdivider, per Section 2.5 of the Land Division Ordinance.

SECTION 2.0 EROSION CONTROL

2.1 INTRODUCTION

1) Project construction required in connection with a development often occurs in or adjacent to areas with existing surface or underground improvements. The intent of this Section 2 is to specify Town requirements relative to construction affecting existing and future improvements. Drawings and specifications presented for Town approval shall provide for the implementation of the requirements of this Section.

2.2 EROSION CONTROL

1) Erosion and sediment control due to run off, equipment leaving and entering a construction site, wind, etc., are required for all construction. Site engineering or grading plans for projects shall either contain specific provisions for erosion control or a separate erosion control plan. The provisions or plan will follow accepted techniques and details as delineated by the Wisconsin Department of Natural Resources, Walworth County Land Use and Resources Management Office, or as directed by the Town Engineer.

2) For Erosion Control measures during building construction, see

Town of Delavan Municipal Code, Ordinance No. 23.

3) Steep slopes (exceeding 4:1) are to be avoided whenever possible. As much natural vegetation as possible; should be retained especially next to lakes, creeks, or other natural water sources.

4) The erosion control plan should indicate the location of soil stockpiles that are to remain onsite longer than four (4) weeks.

5) Erosion control measures should be used which include but are not limited to sediment traps, sediment basins, diversion channels, gravel access roads at all construction entrances and pavement cleaning operations, storm drain inlet protection, silt fences, straw bales, and any other measures necessary or as directed by the Town Engineer.

6) All activities on the site shall be conducted in a logical sequence to minimize the area of bare soil exposed at any one time.

7) Water pumped from the site shall be treated in temporary sedimentation basins, or by other appropriate practices as indicated in the "Wisconsin Construction Site Best Management Handbook".

8) All waste and unused building materials including garbage, debris, cleaning wastes, wastewater, toxic materials, or hazardous materials shall be properly disposed of and not be allowed to be carried by runoff into a receiving channel or storm sewer system.

2.3 DESIGN REQUIREMENTS

1) On-site sediment control measures shall be constructed and functional prior to initiating clearing, grading, stripping, excavating or fill activities on the site, meeting the requirements of the Wisconsin Department of Natural Resources, Walworth County Land Use & Resource Management Office, and the Town Engineer including:

(a) Filter barriers (including filter fences, straw bales, or equivalent control measures) shall be constructed to control all off-site runoff. Vegetated filter strips, with a minimum width of twenty-five (25') feet, may be used as an alternative only where runoffs in sheet flow is expected. Silt filter fences and straw bales shall be inspected weekly and after rainfall events for repair or replacement. Straw bales shall be replaced as a minimum, every three (3) months.

(b) Sediment trap or equivalent control measure shall be constructed at the down slope point of the disturbed area.

(c) Temporary sediment basin or equivalent control measure

shall be constructed at the down slope point of the disturbed area.

2) Sediment basin design shall provide for both detention storage and sediment storage. The sediment basin shall be designed as specified by the Wisconsin Department of Natural Resources. Walworth County Land Use & Resource Management Office and the Town Engineer.

3) Disturbed areas shall be stabilized within seven (7) days with any of the temporary or permanent measures defined in this section.

4) Channelized runoff from adjacent areas passing through the site shall be diverted around disturbed areas, if practical. Diverted runoff shall be conveyed in a manner that will not erode the conveyance and receiving channels, or neighboring properties.

5) Any required disturbance of stream channels shall be re-stabilized within forty-eight (48) hours of disturbance.

2.4 MAINTENANCE OF CONTROL MEASURES

1) All soil erosion and sediment control measures necessary to meet the requirements of this ordinance shall be maintained periodically by the applicant or subsequent land owner during the period of land disturbance and development of the site in a satisfactory manner to ensure adequate performance.

2) At the completion of any project, the storm sewers, culverts, gutters, etc., will be inspected by the Town Engineer to determine if removal of trapped sediment is required.

3) Once all disturbed areas have been vegetated, the erosion control measures shall be removed. Temporary sedimentation basins shall be removed at the time of project completion and as directed by the Town Engineer.

2.5 INSPECTION

1) The Town shall make periodic inspections and shall either approve that portion of the work completed or shall notify the permittee wherein the work fails to comply with erosion and sedimentation control plan as approved. Plans for grading, stripping, excavating, and filling work approved by the Town shall be maintained at the site during progress of the work. Inspections can take place during any or all of the following:

(a) Upon completion of installation of sediment and runoff control measures (including perimeter controls and diversions), prior to proceeding with any other earth disturbance or grading;
(b) After stripping and clearing;
(c) After rough grading;
(d) After final grading;

(e) After seeding and landscaping deadlines; and
(f) After final stabilization and landscaping, prior to removal of sediment controls.

2.6 SPECIAL PRECAUTIONS

1) If at any stage of the grading of any development site the Town determines by inspection that the nature of the site is such that further work authorized by an existing permit is likely to imperil any property, public way, stream, lake, wetland, or drainage structure, the Town may require, as a condition of allowing the work to be done, that such reasonable special precautions to be taken as is considered advisable to avoid the likelihood of such peril. **"Special Precautions"** may include, but shall not be limited to, a more level exposed slope, construction of additional drainage facilities, berms, terracing, compaction, or cribbing, installation of plant materials for erosion control, and recommendations of a soils engineer which may be made requirements for further work.

2) Where it appears that storm damage may result because the grading on any development site is not complete, work may be stopped and the permittee required to install temporary structures or take such other measures as may be required to protect adjoining property or the public safety. In large developments or where unusual site conditions prevail, the Town may specify the time of starting of grading and time of completion or may require that the operations be conducted in specific stages so as to insure completion of protective measures or devices prior to the advent of seasonal rains.

2.7 PROTECTION OF PROPERTY AND SURFACE STRUCTURES

1) Trees, shrubbery, fences, poles and all other property and surface structures shall be protected during construction operations. Any fences, poles or other man made surface improvements which are moved or disturbed shall be restored to their original condition, after construction is completed. A tree preservation plan may be required for all areas of a project that will be affected by the development activity. The plan shall show the location and trunk diameter of all trees of a diameter breast height of ten (10”) inches and larger. The plan shall be taken to the extent practicable to preserve healthy trees over ten (10”) inches DBH. Any trees, shrubbery or other vegetation which are approved for removal shall be removed completely, including stumps and roots.

2) Where trees which are to remain, proper care should be taken during excavation operations. Do not machine excavate in the **"Root Protection Zone"** defined as a circle around the tree

with a radius equal to one (1') foot for every inch of tree diameter. Roots encountered outside this zone which are over two (2") inch diameter shall not be cut unless approved by the Town Engineer. Tree tunneling, where necessary, shall be determined by the Town Engineer. Shrub and tree limbs shall be tied back to prevent loss or damage. Any damaged limbs and branches shall be pruned and sealed. Spoil banks shall be removed by hand from around trees to prevent damage to trunks by construction machinery.

3) Trees and shrubs which cannot be protected or are damaged during construction shall be replaced in kind or replace four (4') inch diameter and larger trees with one(1) four (4") inch diameter size tree for each six (6") inch of original tree diameter or fraction thereof. Replacement species shall be approved by the Town.

4) Trees which do not survive (in good condition) for a period of eighteen (18) months after planting shall be removed and replaced.

SECTION 3.0 RESTORATION OF EXISTING IMPROVED SURFACES

3.1 GENERAL

1) The Contractor shall restore all permanent type pavements, sidewalks, driveways, curbs, gutters, trees, shrubbery, lawns, fences, poles and other property and surface structures removed or disturbed during or as a result of construction operations to a condition that existed before the work began. The surface of all improvements shall be constructed of the same material and match in appearance the surface of the improvements which were removed.

3.2 SAW CUTTING

1) When necessary to remove sections of existing pavement, sidewalk, or curb and gutter, and prior to removal of existing pavement, the edges of the section to be removed shall be cleanly cut to full depth with a pavement saw. Prior to any pavement restoration, any un-sawed edges shall be cleanly cut to full depth with a pavement saw.

3.3 REMOVAL OF ROADWAY PAVEMENTS, SIDEWALKS, DRIVEWAY AND CURB

1) Where concrete pavement, sidewalk, driveway or curbing is cut, the width of the cut shall exceed the actual width of the top of the trench at subgrade by twelve (12") inches on each side. Exposed surface of Portland cement or asphaltic concrete shall be cut with a pavement saw to full depth before removal.

3.4 CONCRETE PAVEMENT SURFACE

1) Where the existing roadway pavement surface is Portland cement concrete, the pavement replacement shall consist of six (6") inch P.C. concrete pavement or existing Concrete depth, whichever is greater. Portland Cement Concrete and construction methods for Portland Cement Concrete pavement shall conform to the current requirements of the (WDOT) "Standard Specifications". Pavement joints and reinforcing in the replacement pavement shall conform to and match that in the adjacent pavement area.

3.5 ASPHALTIC CONCRETE PAVEMENT SURFACE

1) Where the existing pavement surface is asphaltic concrete and the base consists of a rigid material such as brick or Portland Cement Concrete, the base replacement shall consist of eight (8") inch Portland Cement Concrete base course. Portland Cement Concrete shall be as noted in Section 3.4 above.

2) The surface replacement shall consist of a one and one-half (1-1/2") inch binder course and a one and one-half (1-1/2) minimum surface course conforming to the requirements of the (WDOT) "Standard Specifications".

3.6 ASPHALTIC PLANT MIX PAVEMENT OR ASPHALTIC TREATED SURFACE-FLEXIBLE BASE

1) Where the existing pavement is asphaltic plant mix material or asphaltic surface treatment and the base consists of a flexible material such as gravel, crushed stone, seal coat, bituminous aggregate mixture, pozzolanic material or soil cement, the base replacement shall consist of a nine (9") inch compacted thickness of crushed aggregate base course conforming to the (WDOT) "Standard Specifications" and special provisions thereof. The surface replacement shall be as specified in Section 3.5 above.

3.7 CONCRETE SIDEWALKS, DRIVEWAYS, CURB, CURB AND GUTTER

1) Where necessary to remove and replace concrete sidewalk, driveways, curb and curb and gutter, replacements shall be made according to the Town Ordinance regulating the construction of driveways, approaches and sidewalks.

2) Curb or curb and gutter dimensions and cross sections shall conform, as nearly as practicable, with the existing installations except that at intersections with sidewalk that does not conform to State of Wisconsin handicap requirements, sufficient depressed curb and gutter along with sidewalk shall be replaced to meet said handicap specifications. One-half (1/2") inch preformed expansion joints shall be placed at

intervals not exceeding fifty (50') feet and at the junction with existing work. Saw cut crack control contraction joints shall be made every twenty (20) feet "Minimum" and shall be a "Minimum" of one-half (1/2") inch in depth. Sidewalks shall be finished to match existing adjacent sidewalk surfaces.

3.8 CULTIVATED LAWNS

1) Provide topsoil, seeding, sod, and care of grass during establishment period for a complete surface restoration of lawns, parkways, and other areas disturbed as a result of the construction.

2) TOPSOIL

(a) Topsoil shall be furnished and properly placed, raked, and rolled to minimum depth of four (4") inches. The topsoil furnished shall consist of loose, friable, loamy, non-acid soil, having at least ninety (90%) percent passing a No. ten (10) sieve, free of large roots, brush, sticks, weeds, stones larger than one-quarter (1/4") inch in diameter, and any other debris.

(b) Before topsoil is placed, the area to be covered shall be brought to the proper grade. If the existing surface has become hardened or crusted, it shall be raked or otherwise loosened to provide suitable bond with the topsoil.

(c) Apply commercial grade fertilizer uniformly at a rate of Twenty (20) pounds per one-thousand (1,000) square feet. Work fertilizer into soil prior to seeding or installing sod.

3) SOD

(a) Provide sod in developed areas that were grassed prior to construction and as indicated on the drawings. Sod shall also be used in ditches and drainage swales and on all embankment slopes steeper than 4:1 unless protection is provided against erosion of seeding. At the Contractor's option, sod installation may be substituted for seeding.

(b) The cut sod shall be not less than two (2") inches thick. Sod which has been cut more than forty-eight (48) hours prior to installation shall not be used without the approval of the Town Engineer.

(c) Sod shall be placed according to Section 631 of the (WDOT) "Standard Specifications". Place sod with edges in close contact and alternate courses staggered. On slopes 2:1 or steeper, sod shall be staked with at least one (1) stake for each piece of

sod. Do not place sod when the ground surface is frozen or when air temperatures may exceed ninety (90°) degrees F.

(d) New sod shall be watered daily at the rate specified in Section 631 of the (WDOT) "Standard Specifications" for a minimum of ten (10) days after the specified initial watering. Any defective, dead or dying sod shall be removed and replaced up to one (1) year after completion of the sod installation.

(e) In ditches, the sod shall be placed with the longer dimension perpendicular to the flow of water in the ditch. On slopes, starting at the bottom of the slope, the sod shall be placed with the longer dimension parallel to the contours of the ground.

4) SEED

(a) Seed all grassed areas disturbed by construction operations and not receiving sod, in accordance with Section 630 of the (WDOT) "Standard Specifications". Seed shall be sown between September 1 and November 1, or in spring from the time the ground can be worked until May 15. Do not seed in windy weather or when soil is very wet. Sow seed either mechanically or by broadcasting in two (2) directions at right angles to each other to achieve an even distribution.

(b) After seeding, rake seed lightly into ground and roll with a roller weighing between one hundred (100) and two-hundred (200) pounds per foot of roller width.

(c) Immediately after rolling seeded areas, apply vegetative mulch unless hydraulic seeding method is used. Apply mulch in accordance with Section 627 of the (WDOT) "Standard Specifications". Place erosion control excelsior blanket or fiber mat on slopes steeper than four (4) horizontal to one (1) vertical. Unless otherwise indicated, also place erosion control material at sides and bottoms of ditches, swales, and all areas within ten (10') feet of catch basins in seeded areas.

(d) Immediately after placing erosion control matting or mulch, water seeded areas thoroughly. Keep soil thoroughly moist until seeds have sprouted and achieved a growth of one (1") inch.

SECTION 4.0 UNDERGROUND IMPROVEMENTS

4.1 INTERRUPTION TO UTILITIES AND DAMAGE TO SURFACE IMPROVEMENTS

1) A minimum of forty-eight (48) hours prior to commencement of work, the Town and Diggers Hotline (1-800-242-8511) must be

notified for location of any existing utilities. All reasonable precautions shall be taken against damage to existing utilities.

2) In the event of a break in an existing gas main, sewer or underground cable, the Contractor shall immediately notify a responsible official from the organization operating the utility interrupted. The Contractor shall lend all possible assistance in restoring services and shall assume all costs, charges or claims connected with the interruption and repair of such services unless it is determined that the utility has not been properly located.

3) In the case of the Town utilities, the cost of such work will be billed to the Contractor.

4.2 TRAFFIC CONTROL

1) All work within public rights-of-way shall conform to the requirements of the latest edition of the (WDOT) "Standard Specifications". The provisions of these standards will be enforced:

(a) When an opening is made into the existing pavement,
(b) When construction takes place adjacent to the edge of the existing pavement,
(c) When a utility crossing is made beneath the existing pavement, and
(d) When it is necessary to close a lane of traffic due to construction operations.

2) Permission for land or road closure must be obtained from the Town Board Chair prior to commencing construction. Signing will be required in strict conformance to the "Traffic Control Manual". No construction operation is to commence until such time that all required signs and barricades have been erected.

4.3 PAVEMENT CROSSING

1) Unless otherwise specifically approved by the Town Engineer, all conduits crossing existing pavements shall be installed by tunneling, jacking or auguring. When the carrier pipe is a conduit intended to operate under internal pressure, a casing pipe of adequate strength for all applied loads shall be used. The nearest face of pits or other open excavations on each side of a traveled pavement shall be at least ten (10) feet from the edge of the pavement.

2) When open cutting is allowed or other pavement opening required, they shall be backfilled prior to the end of the working day unless otherwise authorized by the Town. All excavations shall be backfilled with three-quarter (3/4") inch crushed stone chips and a temporary hot mix asphalt patch of

at least two (2”) inches in thickness shall be constructed. It is understood that such backfilling and patching is only temporary and that permanent pavement repair will be required as specified in Section 3 of this Appendix. In lieu of a hot mix asphalt patch, a steel plate (minimum depth of one (1”) inch of thickness) over the excavation may be approved upon request by the Contractor.

4.4 UTILITY LOCATIONS

1) Sanitary sewers in proposed streets shall be located in the centerline of the right-of-way. Sanitary sewers in existing pavements shall, where possible, be located in the gravel shoulder four (4’) feet from the edge of the pavement. The shoulder portion within three (3’) feet of manhole covers shall be paved with the same material used in construction of the roadway. The paved area around the manhole shall return at a 45°angle to the pavement.

2) All utility lines, conduits or cable for electric, telephone, cable television and other communication services should generally be placed along the rear lot lines of the subdivision and be placed a minimum of twenty-four (24”) inches underground within easements, or within ten (10’) feet of the right-of-way line of dedicated public ways as recommended by the Town Engineer and as approved by the Town Plan Commission in conjunction with the approval of any final plan of subdivision, condominium or planned unit development. All transformer boxes shall be located so as not to be hazardous to the public.

3) Gas lines and facilities shall be, where possible, installed parallel to and within ten (10’) feet of the inside of the right-of-way.

4.5 TRENCHING

1) Trenches shall be excavated to the depths and grades necessary for pipelines including allowances for bedding material.

2) As determined by the Town Engineer, unsuitable soils found at or below the bottom of the trench shall be excavated to meet firm subsoil.

3) Comply with the following maximum trench widths at the top of pipelines:

Nominal Pipe Sizes (Inches)	Trench Widths (Inches)
12 or Smaller	30
14-18	36
20-24	42

27-30	48
33 or Larger	1-1/3 times pipe O.D.

4) If trench widths will exceed the maximum limitations above, higher strength pipe may be required or a concrete cradle may be used to achieve the necessary load factor.

4.6 BRACING AND SHEETING

1) Open cut trenches shall be sheeted and braced as required by governing federal and state laws including all "OSHA Safety and Health Standards", and as may be necessary to protect life, property and the work.

4.7 BEDDING AND BACKFILL REQUIREMENTS

1) BEDDING

(a) Bedding shall be provided for all underground pipelines, except where concrete encasement, concrete cradles, boring or jacking are indicated. Bedding shall be a minimum thickness of four (4") inches and consist of well graded, washed, mixture of 100 percent (100%) crushed gravel or crushed stone aggregate free of clay, loam, dirt, calcareous or other foreign matter conforming to the "Standard Specifications for Sewer and Water Construction in Wisconsin", and shall be properly compacted.

(b) For sewer pipe eighteen (18") inches in diameter and smaller, use bedding material of three-eighths (3/8") inch crushed stone chips with the following gradation:

SIEVE SIZE	PERCENT PASSING
1/2 Inch	100%
3/8 Inch	90-100%
No. 8	0-15%
No. 30	0-3%

(c) For sewer pipe larger than eighteen (18") inches in diameter, use bedding material of three-quarters (3/4") inch crushed stone chips with the following gradation:

SIEVE SIZE	PERCENT PASSING
1 Inch	100%
3/4 Inch	90-100%
3/8 Inch	20-55%
No. 4	0-10%
No. 8	0-5%

(d) Wherever two or more pipe or conduits are placed in the same trench or excavated area, backfill the trench with granular bedding material to support the uppermost pipe or conduit.

2) BACKFILL

(a) For conduits not requiring "GRANULAR BACKFILL, OR AGGREGATE SLURRY MATERIAL", backfill may be made with materials available from the trench excavation. The material shall be free from rocks and be carefully placed in twelve (12') inch lifts. For conduits requiring excavation beneath or within four (4') feet horizontally of existing or proposed pavements, driveways, or sidewalks or in other areas which, in the opinion of the Town Engineer, are or may be subject to vehicular traffic loading, "GRANULAR BACKFILL" shall be provided above the bottom of the trench and shall extend upward to the surface of the ground or pavement.

(b) Provide either sand, pit run gravel, granular material, or excavated granular materials.

(c) **SAND:** Well graded, free from organic matter, cohesionless, complying with the "Standard Specifications for Sewer and Water Construction in Wisconsin", with the following gradation:

SIEVE SIZE PASSING	**PERCENT**
1 Inch	100%
No. 16	45-80%
Material finer than No. 200	2-10%

(d) **PIT RUN GRAVEL:** Free from organic matter, cohesionless granular material obtained from natural deposits of sand and gravel, passing three-quarter (3/4") inch sieve, and not more than fifteen percent (15%) passing the No. 200 sieve.

(e) **GRANULAR MATERIAL:** Use one-hundred percent (100%) crushed stone or gravel complying with the "Standard Specifications for Sewer and Water Construction in Wisconsin", with the following gradation:

SIEVE SIZE	**PERCENT PASSING**
1 Inch	100%
3/4 Inch	90-100%
3/8 Inch	20-55%
No. 4	0-10%
No. 8	0-5%

(f) **EXCAVATED GRANULAR MATERIAL:** A mixture of sand and gravel, free from organic matter, clay, loam, dirt, and other foreign material, passing the 1-1/2-inch sieve, with not more than fifteen percent (15%) passing the No. 200 sieve.

(g) **CRUSHED STONE:** Clean, hard, tough, durable, angular material crushed from bedrock limestone, dolomite, or granite with the following gradation:

SIEVE SIZE	PERCENT PASSING
3 Inch	100%
2-1/2 Inch	90-100%
2 Inch	35-70%
1-1/2 Inch	0-15%
3/4 Inch	0-5%

SECTION 5.0 STORM WATER DRAINAGE

5.1 INTRODUCTION

1) All developments, regardless of size within limits or under the control of the Town, shall include provisions for the construction of storm water drainage facilities designed in accordance with this Section. The design of all storm water drainage facilities proposed for construction as independent projects under the control of the Town shall also meet the technical requirements of this Section.

2) Storm water drainage improvements shall also comply with the requirements of the Wisconsin Department of Natural Resources, Walworth County Land Use & Resource Management Office, and the Town Engineer.

5.2 GENERAL PROJECT REQUIREMENTS

1) SURFACE FLOW

(a) Surface swales/ditches described in Section 5.4(3), shall be encouraged for use as designed in accordance with the requirements of this Section. Swales shall be constructed on rear and side lot lines to intercept and transport storm waters so as to reduce the impact on adjacent lots and lands. Natural swales and depressional storage areas shall be incorporated into storm water facilities design wherever practicable. Swales and ditches, together with any underground storm sewer system, shall provide an adequate outfall for runoff from the one-hundred (100) year frequency twenty-four (24) hour duration rainstorm. In areas where swales/ditches can not be provided, the

underground storm sewer system shall be designed for the one-hundred (100) year storm condition.

2) STORM SEWER

(a) Where allowed or required by the Town Engineer, storm sewers may be constructed to drain the development and any contiguous drainage area.

3) STORM WATER DETENTION

(a) Storm water detention facilities are required for all subdivisions, condominiums or planned developments.
(b) Storm water detention for residential subdivisions with individual lot sizes of three (3) acres or more may not be required to provide storm water detention if such development will not result in exceeding the capacities of downstream existing drainage ways, endanger downstream properties, or degrade the quality of downstream waters, as determined by the Town.
(c) Detention facilities shall be installed after all necessary erosion control measures have been provided and prior to any land disturbing activities.

4) DRAINAGE BASIN DIVIDES

(a) The design of storm water drainage systems shall not result in the inter-basin transfer of drainage, unless no reasonable alternative exists and there is no legal restraint to prevent such transfer.

5) LOT GRADING

(a) The proposed finished yard grade, rear and side yard swales, and the location and top of foundation elevation for all proposed structures shall be shown on a lot grading plan. Generally, the top of foundation of any structure must be constructed at least eight (8”) inches above the proposed finished yard grade and approximately eighteen (18”) inches above the centerline (or back of curbs) of the abutting street. Where foundations are lower than the street centerline, or in the case of depressed driveways, alternate means of surface drainage diversion must be shown to avoid structure flooding. Sufficient finished grade elevations must be shown on the drawings to ensure positive drainage away from each structure.

5.3 DESIGN CRITERIA FOR STORM WATER DETENTION

1) GENERAL

(a) In concept, a detention basin shall have a high water level, with one (1') foot of freeboard, based on a one-hundred (100) year, twenty-four (24) hour design storm and shall have an outlet which allows runoff no greater than that for the land in its natural state prior to development.

2) RELEASE RATES

(a) The allowable release rates for the two (2) year, ten (10) year, and one hundred (100) year frequency, twenty-four (24) hour duration rainstorms shall be no greater than that for the land in its natural state prior to development.

3) DESIGN CALCULATIONS

(a) The design of storm water detention facilities shall be based on runoff hydrographs from the two (2) year, ten (10) year and one hundred (100) year frequency, twenty-four (24) hour duration rainstorms. The modified rational formula shall not be used for development of hydrographs. All design rainfall events shall be based on the "Point Rainfall Intensity-Duration-Frequency Relationships for Milwaukee, Wisconsin", as prepared by "Southeastern Wisconsin Regional Planning Commission". All design computations which do not rely on continuous accounting of antecedent soil moisture conditions shall assume "Wet" conditions.

(b) Storm water runoff from areas tributary to the site shall be considered in the equations for the design of the project site's drainage system. If the tributary areas are undeveloped or do not meet release rate requirements, the subdivider may bypass all tributary area flows around rather than through the storage facility. Runoff calculations for all undeveloped tributary land shall assume a reasonable fully developed land cover based on anticipated zoning.

4) WATER QUALITY DESIGN

(a) Detention basins shall be designed to provide for the reduction of sediments. Design shall meet Wisconsin Department of Natural Resources and Walworth county requirements, and the design standards herein.

5) BASIN DESIGN

(a) The use of wet-bottom detention basins shall be encouraged and designed to be safe, aesthetically pleasing, and available for recreational use. Wet bottom basins shall be at least three feet (3') deep, excluding near shore banks and safety ledges. If fish habitat is provided, at least twenty-five percent (25%) of the basin bottom shall be a minimum of ten (10') feet deep. Wet bottom basins shall be designed to remove storm water pollutants and sediments and designed in such a manner to reduce nuisance problems such as embankment erosion and algae. Embankments above normal water levels shall be either terraced or sloped at a maximum of 4:1. A safety ledge is required no greater than two feet six inches (2'-6") below the normal water level. Such ledges shall be no less than six (6') feet wide and shall back pitch toward the basin embankment.

(b) Dry bottom detention basins shall be designed to be safe, aesthetically pleasing and available for multiple uses. Dry bottom detention basins shall be designed and sized such that a minimum of eighty percent (80%) of the bottom area shall have standing water no longer than seventy-two (72) hours for the one-hundred (100) year frequency storm. The basin shall have a minimum slope of one percent (1%), and a maximum embankment slope of twenty percent (20%).

6) OUTLET

(a) All concentrated storm water discharges leaving a site must be directed into a well defined receiving channel or pipe with adequate capacity for safe conveyance of flows from all design events.

(b) Single pipe outlets shall have a minimum inside diameter of twelve (12") inches. If design release rates call for smaller outlets, structures such as perforated risers, flow control orifices, etc., shall be used.

5.4 DESIGN CRITERIA FOR SURFACE SWALES AND STORM SEWERS

1) STORM SEWER

(a) When storm sewer construction is permitted or required, storm sewers shall be designed to flow full, using "Manning's Formula" with an appropriate roughness coefficient based on pipe material. If a storm sewer is designed with a constantly submerged outfall, the sewer shall be designed using the

"Hydraulic Gradient" with the maximum allowable water level an elevation one (1”) foot below centerline of pavement.

(b) The rational method shall be employed when computing storm runoff. The storm system shall be designed with "Positive Street and Swale Drainage" such that storm water runoff will be directed overland to the storm water detention area in a manner to minimize property damage due to flooding.

(c) Storm sewers shall be designed for a minimum five (5) year storm event flowing full and have a maximum velocity not to exceed ten (10') feet per second.

(d) In areas where curb and gutter and storm sewers are approved, inlets shall be installed so that the distance between each inlet shall not exceed four hundred (400') feet and each inlet drains a maximum street gutter length of four hundred (400') feet. Where the inlet is located at a low point, additional inlets may be required by the Town Engineer. No more than two (2) inlets shall be interconnected. Inlets shall be so located those storm water runoffs will not **"Pond"** greater than the top of the street curbs. Depressed street crowns to facilitate drainage will not be permitted.

(e) Rear lot drainage should not drain over the curb. Yard inlets shall be placed where approved or as required by the Town Engineer.

(f) The minimum size storm sewer or inlet connection shall be twelve (12") inches in diameter.

(g) Unless otherwise approved by the Town Engineer, storm sewers shall be reinforced concrete pipe conforming to ASTM C76 minimum Class III with O-ring joints conforming to ASTM C443. All inlet connections shall be concrete sewer pipe, ASTM C14 for extra strength pipe.

(h) Minimum cover shall be generally three (3') feet for all storm sewers unless special precautions are taken to protect the pipe, as approved by the Town Engineer.

(i) All manholes, inlet manholes, inlets and catch basins, and headwalls shall be designed in accordance with the standard details of the Town.

(j) Connections to sanitary sewers or existing agricultural drainage systems (tiles) will not be permitted for any new developments. All developments will utilize separate drainage systems to avoid disruption or overloading of the existing agricultural tile drainage system. Any field tile systems cut during the process of land development must be reconnected. Connection of existing agricultural drain tiles to new storm water management systems may

be approved if proper allowance for flows from said tiles is incorporated in the new design system.

2) CULVERTS

(a) Culverts shall be sized for each lot along rural streets and placed on the grading plan. Culverts shall meet the following minimum standards:

i. Minimum pipe diameter of twelve (12") inches.
ii. Corrugated metal pipe (CMP) shall be hot-dipped galvanized steel or aluminum steel conforming to AASTO M36. Provide sixteen (16) gauge CMP for pipe diameter twenty-one inches (21") and smaller. Provide twelve (12) gauge CMP for pipe diameters twenty-four (24") inches and larger.
iii. Reinforced concrete pipe (RCP) shall conform to ASTM C76, minimum Class III.
iv. Culvert slope and invert elevations shall match the ditch slope and invert elevations.
v. Minimum cover at driveways shall be six (6”) inches.
vi. All culverts shall include end sections.

3) SWALES AND DITCHES

(a) Manmade swales and ditches shall meet the following minimum design standards:

i. Minimum grade of one percent (1%).
ii. Maximum grade of ten percent (10%).

(b) Minimum depth of twenty four (24") inches below the shoulder of the street. At high points in the roadway, a depth of eighteen (18") inches is allowable.
(c) Maximum bank slope of 4:1 under normal conditions.
(d) The bottom and banks of ditches with grades of less than four percent (4%) shall be sodded or else seeded in combination with mulch and/or erosion blanket.
(e) The bottom and banks of ditches with grades between four (4%) and six (6%) percent shall be sodded and stabilized.
(f) The bottom and banks of ditches with grades between six (6%) and ten (10%) percent shall be paved or otherwise stabilized as approved by the Town Engineer.
(g) Whenever practicable, all areas of the property must be provided an overland flow path that will pass the one-hundred (100) year flow at a stage at least one (1’) foot below foundation grades in the vicinity of

the flow path. Overland flow paths designed for flows in excess of the minor drainage system capacity shall be provided in drainage easements. Street ponding and flow depths shall not exceed curb heights.

SECTION 6.0 ROADWAY CONSTRUCTION

6.1 INTRODUCTION

1) All developments, regardless of size within the Town limits shall include provisions for the construction of roadways and appurtenant construction to serve each parcel of property within the development. Where more than one (1) building, other than an accessory building is located or planned on one (1) parcel of property, the proposed construction shall also include access roadways as required to serve each such building.

2) The design of all roadways proposed for construction or as independent projects under the control of the Town, shall meet the technical requirements of this Section and the (WDOT) "Standard Specifications".

6.2 STREET CLASSIFICATION

1) Certain variables in geometric and structural design discussed in this Section are dependent on the functional classification of the street in question. For the purposes of these standards, all streets will be classified as shown in Figures 1 and 2 appended to this section.

2) In developments where more than one (1) building is located or planned on one (1) parcel of property and a roadway is provided to serve such buildings, that roadway shall be classified as residential unless otherwise established by the Town Engineer.

6.3 GEOMETRICS

1) Roadway geometrics shall be as set out in Figures 2 and 3.

6.4 ROADWAY EXCAVATION

1) Topsoil shall be striped from all proposed roadway areas. The roads shall then be constructed to the lines and grades as shown on the drawings.

2) No construction required by this Section shall be permitted between November 1st and April 15th without written authorization of the Town Engineer.

6.5 SUBGRADE

1) The roadway shall be constructed to within +/-0.10 feet of the proposed subgrade elevation with the average subgrade within +/-0.02 feet of the proposed subgrade elevation.
2) Roadways shall be proof rolled prior to construction of the base course. A fully loaded tandem-axle truck shall be provided to drive slowly over the area to be inspected. Areas which show deflections greater than one and one-half (1 ½") inches shall be repaired and pass proof rolling tests before construction may proceed. The Town Engineer shall be present for and should be notified twenty four (24) hours prior to proof rolling.
3) Roadways shall be proof rolled prior to construction of the base course. A fully loaded tandem-axle truck shall be provided to drive slowly over the area to be inspected. Areas which show deflections greater than one and one-half (1 ½") inches shall be repaired and pass proof rolling tests before construction may proceed. The Town Engineer shall be present for and should be notified twenty four (24) hours prior to proof rolling.

6.6 SUB-BASE COURSE

1) Sub-base course construction required under this section shall be crushed stone or crushed gravel complying with the applicable provisions of the (WDOT) "Standard Specifications", for Dense Graded Base, three (3") inch.
2) Geo-textile fabrics, where allowed or required by the Town Engineer for subgrade stabilization, shall conform to (WDOT) "Standard Specifications".

6.7 BASE COUSE

1) Base course construction required under this Section may be asphalt base course, crushed stone or crushed gravel; in accordance with Figures 1, 2 and 3. Materials shall comply with the applicable provision of the (WDOT) "Standard Specifications", for Dense Graded Base, three-quarters (¾") inch. Roadways shall be proof rolled prior to construction of the binder course or pavement section. A fully loaded tandem-axle truck shall be provided to drive slowly over the area to be inspected. Areas which show deflections greater than one (1") inch shall be repaired and pass proof rolling tests before construction may proceed. The Town Engineer shall be present for and should be notified twenty-four (24) hours prior to proof rolling.

6.8 PAVEMENT AND SURFACE COURSES

1) Pavement construction required under this Section may be

either hot mix or asphalt pavement or concrete pavement in accordance with Figure 1. Comply with the (WDOT) "Standard Specifications" for mixture Type E-1. Materials shall comply with the (WDOT)"Standard Specifications" 12.5 mm aggregated for the lower layers and 9.5 mm for the surface layer. For tack coat comply with the applicable provisions of the (WDOT) "Standard Specifications".

2) Each lift of asphaltic pavement shall not exceed two (2) inches.

3) In new construction, surface course shall be placed no later than three (3) years and no earlier than one (1) year from the time in which the base is placed, without written authorization by the Town Engineer.

4) In new construction, all manhole rims in paved areas shall be set to the binder course elevation. Prior to the surface course being installed, all manhole rims shall be adjusted to finished grade.

6.9 COMBINATION CONCRETE CURB AND GUTTER

1) Curb and gutter construction where applicable, shall comply with the **(**WDOT) "Standard Specifications", and conform to a thirty (30") inch Type D (See Figure 2) concrete curb and gutter, shown in the (WDOT) "Standard Specification".

6.10 STANDARD DESIGN METHOD FOR PAVEMENTS

1) When, in the opinion of the Town Engineer, the volume and composition of the traffic anticipated to be carried by the pavement can be estimated within reasonable limits and, in all cases, where the roadway is designed as a four (4) or more lane facility, the structural design for pavements shall be based on the latest revision of the (WDOT) "Facilities Development Manual". However, in no case shall the design result in a pavement of lesser strength than those shown in Figure 1.

6.11 SPECIAL REQUIREMENTS FOR UNDERGROUND UTILITIES

1) STRUCTURE ADJUSTMENT

(a) Where finished grade or alignment for existing underground structures, such as inlet basins, catch basins, manholes or valve vaults is affected by proposed work, the project drawings shall provide for the adjustment of such structures as required.

(b) Where a project is to be constructed under two (2) or more construction contracts, one (1) or more of which includes the construction of pavement, the contract

documents for those contracts including paving work should provide for the adjustment of underground structures that may be constructed under other contracts as may be required to fit the proposed pavement.

2) UTILITY CROSSING PROTECTION

(a) For new construction or when required by the Town Building Inspector, all concrete sidewalk, curb, gutter and driveways over excavated areas or utility trenches shall be reinforced with a minimum of two (2) No. four (4) bars, twelve (12") inches on center for a length of twenty (20') feet.

6.12 SIDEWALKS

1) All sidewalks shall be a minimum of four (4") inches thick. Sidewalks shall be continuous through residential driveways with a minimum thickness of six (6") inches through the driveway section. Sidewalk in non-residential areas shall be a minimum of eight (8") inches thick through non-residential driveways. Sidewalk width shall be four (4') feet or as determined by the Town Board when a greater width is justified on the basis of anticipated traffic. All public walks should be constructed approximately one (1') foot outside the property line, and meet the "State of Wisconsin Handicapped Access Requirements".

FIGURE 1
STREET PAVEMENT REQUIREMENTS

STREET CLASSIFACTION	**MINIMUM PAVEMENT REQUIREMENTS**
Major Commercial	6" Crushed Stone or Crushed Gravel sub-base 7" P.C. Concrete with Wire Fabric -or- 6" Crushed Stone or Crushed Gravel sub-base 7" Asphaltic Base Course 1-1/2" Binder Course 1-1/2" Surface Course
Industrial	6" Crushed Stone or Crushed Gravel sub-base 7" P.C. Concrete with Wire Fabric -or- 6" Crushed Stone or Crushed Gravel sub-base 8" Asphaltic base course 1-1/2" Binder Course 1-1/2" Surface Course
Major Residential And Minor Commercial	6" Crushed Stone or Crushed Gravel sub-base 7" P.C. Concrete -or- 8" Crushed Stone or Crushed Gravel sub-base 4" Asphaltic Binder Course 2" Asphaltic Course 1-1/2" Surface Course
Residential Cul-de-Sac	9" Crushed Stone or Crushed Gravel sub-base 2" Asphaltic Binder Course 1-1/2" Asphaltic Surface Course

FIGURE 2
URBAN STREET GEOMETRIC CRITERIA (1)

ROADWAY CLASSIFICATION	MAJOR COMMERCIAL	INDUSTRIAL	MINOR COMMERCIAL & MAJOR RESIDENTIAL	RESIDENTIAL
Right-of Way Width	80 Feet	66 Feet	66 Feet	66 Feet
Roadway Width 2	45 Feet	39 Feet	33 Feet	31 Feet
Sidewalk Width 3,4	6 Feet	N/A	4 Feet	4 Feet
Curb Type 5	30" Type D	30" Type D	30" Type D	30" Type D
Number of Traffic Lanes 6	4	2	2	2
Lane Width	12 Feet	12 Feet	15 Feet	10 Feet
Parking	Both Sides	N/A	N/A	One Side
Minimum Cul-de-Sac Pavement Radius 7	N/A	N/A	N/A	45 Feet
Maximum Cul-de-Sac Length 8	N/A	N/A	N/A	750 Feet
Minimum Sight Distance	200 Feet	200 Feet	200Feet	100 Feet
Maximum Grade	6%	6%	8%	10%
Minimum Grade	0.5%	0.5%	0.5%	0.5%
Design Speed	30 MPH	30 MPH	30 MPH	30 MPH
Minimum Center Line Radius 9	300 Feet	300 Feet	300 Feet	100 Feet
Return Radius	30 Feet	40 Feet	30 Feet	25 Feet
Crown	1.5%	1.5%	1.5%	1.5%

1 See also Exhibit F
2 Dimension are measure back to back of curb
3 Sidewalk shall be placed in public right-of-way, one (1) foot from the property line unless otherwise approved by the Town
4 Sidewalk designated as bike path shall be a minimum width of eight (8) feet
5 Minimum gutter flag thickness shall be eight (8") inches
6 Four (4) lanes required for traffic volumes over 15,000 ADT
7 Cul-de-Sac R.O.W. radius shall be seventy-five (75') feet for Commercial and Industrial streets and sixty (60') feet for all others (See Detail Exhibit D)
8 The combined length of the street and diameter of the Cul-de-Sac
9 To be introduced when, the centerline deflects at any one (1) point by more than five (5°) degrees. A tangent of at least one-hundred (100') feet shall be introduced between reverse curves on major and secondary streets.

FIGURE 3
RURAL STREET GEOMETRIC CRITERIA (1)

ROADWAY CLASSIFICATION	MAJOR COMMERCIAL	INDUSTRIAL	MINOR COMMERCIAL & MAJOR RESIDENTIAL	RESIDENTIAL
Right-of-Way	80 Feet	66 Feet	66 Feet	66 Feet
Roadway Width (2)	48 Feet	30 Feet	26 Feet	22 Feet
Shoulder Width	6 Feet	6 Feet	4 Feet	4 Feet
Minimum Ditch Depth (2)	2.5 Feet	2.5 Feet	2.5 Feet	2.0 Feet
Number of Traffic Lanes (3)	4	2	2	2
Minimum Cul-de-Sac Pavement Radius (4)	N/A	55 Feet	NA	45 Feet
Maximum Cul-de-Sac Length (5)	N/A	1,000 Feet	NA	750 Feet
Minimum Sight Distance	200 Feet	200 Feet	200 Feet	100 Feet
Maximum Grade	6%	6%	8%	10%
Minimum Centerline Grade	0.5%	0.5%	0.5%	0.5%
Minimum Ditch Grade	1%	1%	1%	1%
Design Speed	30 MPH	30 MPH	30MPH	30 MPH
Minimum Centerline Radius (6)	300 Feet	300 Feet	300 Feet	100 Feet
Return Radius	30 Feet	40 Feet	30 Feet	25 Feet
Crown	2%	2%	2%	2%
Shoulder Slope	4%	4%	4%	4%

1 See also(Exhibit) G
2 Dimension are measured edge of pavement to edge of pavement
3 As measured from centerline elevation
4 Four 94) lanes required for traffic volumes over 15,000 APT
5 Cul-de-Sac R.O.W. radius shall be seventy-five (75') feet for minor Commercial and Industrial streets and sixty five (65') feet for all others (See Detail Exhibit E)
6 The combined length of the street and diameter of the Cul-de-Sac
7 To be introduced when, the centerline deflects at any one (1) point by more than five (5˚) degrees. A tangent of at least one-hundred (100')feet shall be introduced between reverse curves on major and secondary streets