



Town of Canandaigua

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Established 1789

SITE DESIGN AND DEVELOPMENT CRITERIA – SEPTEMBER 2018

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The following is an excerpt from the New York Education Law Article 145 Section 7209 and applies to this document.
"It is a violation of this law for any person unless he is acting under the direction of a Licensed Professional Engineer or Land Surveyor to alter an item in any way. If an item bearing the Seal of an Engineer or Land Surveyor is altered, the Altering Engineer or Land Surveyor shall affix to the item his Seal and the Notation 'Altered by' followed by his signature and the date of such alteration and a specific description of the alteration".

Amendment Record

Date	Section No. / Page No.	Description of Change
9/17/18	See notes	General revisions throughout manual
12/19/18	Article III, pages 28-29	Revisions to roadway compaction and testing

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ARTICLE I – GENERAL INFORMATION

1.0 GENERAL PURPOSE

The purpose of these specifications is to provide minimum criteria for the design and construction of improvements within the Municipality, which, upon the satisfactory completion thereof, may be offered for dedication to the Town of Canandaigua for perpetual operation and maintenance. The information contained in this document is to be used in conjunction with the subdivision and site plan regulations provided in the Town of Canandaigua Code.

The criteria established is intended to provide minimum standards, which may be upgraded to serve the best interests of the municipality. The information in this booklet is provided to aid in the submission of material in a uniform manner and attempt to expedite the various review and approval procedures.

The Town of Canandaigua has been designated by the U.S. Environmental Protection Agency (EPA) as a small Municipal Separate Storm Sewer System (MS4). All projects within the Town of Canandaigua are, therefore, subject to the MS4's requirements. When required, the MS4 shall review the SWPPP to determine if all design considerations have been met. The MS4 is required to follow the same principles in the review of the SWPPP to ensure the equivalency of the design specification to the erosion and sediment control practices and performance criteria and the sizing criteria of post construction practices.

These criteria shall govern in all areas of private, public, industrial and commercial development and/or areas that will involve the connections to existing municipal systems.

It should be noted that the Town of Canandaigua currently has inter-municipal agreements with Ontario County, the City of Canandaigua, Town of Farmington, Town of Hopewell and the Town of Bristol regarding sanitary sewer and/or water installations and districts, which are required to be complied with as well.

The requirements contained herein may be waived or modified by the Planning Board if it is found that strict application of the requirement is not needed to meet the purposes of this manual, or that such modification or waiving of requirements would provide an upgrade over what would otherwise be required. The Planning Board shall consult with the Town Highway and Water Superintendent and others as appropriate.

ARTICLE II – DESIGN STANDARDS

2.0 GENERAL

- A. Proposed plans for development shall conform to the Town’s Comprehensive Plan as adopted by the Town Board.
- B. The developer shall strive to comply with standards of good planning and adhere to the codes and ordinances of the Town as well as the rules of any agencies having jurisdiction over other aspects and phases of the project.
- C. The Developer of a parcel of land shall make improvements to the parcel in accordance with the approved plans or the minimum standards required in these regulations as applicable to a specific project.
- D. Where certain standards of development are not set forth, they shall be established by the Planning Board, following their review of the particular situation.
- E. Additional or higher design standards of improvements may be required in specific cases where the Planning Board believes it necessary to create conditions essential to the health, safety, and general welfare of the citizens of the Town.

2.1 STREET LAYOUT

- A. Reasonable access shall be provided to all developed areas in a given tract of land. Under no circumstances shall a “Land Locked” parcel be created as part of land subdivision. A right-of-way must be provided at the time of the subdivision and reasonable access to existing streets provided.
- B. Streets shall be logically oriented, related to the existing topography and meet acceptable planning/engineering criteria, which will produce buildable lots and reasonable road grades.
- C. Minor streets shall be planned so as to discourage through traffic, but provide for excellent access to “connector” roadways with higher use classifications.
- D. Where a subdivision abuts or contains a major traffic street, the Planning Board may require that intermediate access streets, reverse-frontage lots or other treatments that will provide a reduction in the number of intersections with the major street and reasonable separation of local and through traffic.
- E. New, half or partial streets will not be permitted except where essential for reasonable subdivision of a tract in conformance with the other requirements and standards contained herein, and where, in addition, satisfactory assurance for dedication of the remaining part of the street can be secured.
- F. Wherever a tract to be subdivided borders on an existing half or partial street, the other part of the street shall be plotted within such tract.
- G. Dead-end streets shall be prohibited, except as stubs to permit future street extension into adjoining tracts or when designed as a cul-de-sac.

- H. Reserve strips that limit access to right-of-way or utility easements are prohibited. Reservations which encourage the extension of right-of-way and utilities may be required by the Town.
- I. Street names shall be submitted for approval to the County Planning Department, Postal Service and others designated by the Town Board to avoid duplications or use of similarly sounding or spelled names. A street, which is a continuation of an existing one, shall retain the same name.
- J. Further information regarding the design and development of streets is presented in Article IV Highway/Roadway Improvements and Appendices H of this manual.

2.2 STREET INTERSECTIONS

- A. Streets shall be laid out to intersect as nearly as possible at right angles. No street shall intersect another at an angle of less than 75 degrees.
- B. Multiple intersections involving a junction of more than two streets shall be avoided.
- C. Streets entering opposite sides of another street shall be laid out either directly opposite one another or with a minimum off-set of 250 feet between their center lines.
- D. Where a subdivision abuts or contains an existing street of inadequate right-of-way width, additional right-of-way width will be required.

2.3 HAUL ROADS

Haul roads may be required by the Planning Board, when applicable upon review with the Town Highway Superintendent, Town Board and Town Engineer.

2.4 EASEMENTS

- A. Easements shall be provided for all utilities and/or sidewalks of a width necessary for installation, repair and/or replacement of said utility and/or sidewalks. The depth, type, size and location of a utility in addition to soil conditions will be considered when establishing an easement width.
- B. To the fullest extent possible, all easements shall be centered on or adjacent to rear or side lot lines.
- C. Where a development is traversed by a watercourse, the applicant may be required to provide to the Town at no cost a drainage easement or right-of-way conforming substantially with the line of such watercourse and of such width as will be adequate to preserve natural drainage and maintain the same.

2.5 ALLEYS

Alleys are prohibited in residential developments. In commercial or industrial districts, alleys shall be a minimum width of 26 feet. Where such alleys dead-end, they shall be provided with a turnaround having an outside roadway diameter to allow emergency vehicle access.

2.6 RESERVATION AND DEDICATION OF LANDS FOR PUBLIC USE

All applicants for subdivision or site development should also be aware that the Town of Canandaigua's code regarding "Reservation of Parkland" contained in both the Town's subdivision and zoning regulations shall apply.

2.7 EROSION SEDIMENT CONTROL

A. General

1. It is the Town's intent to control soil movement by employing effective erosion and sediment control measures before, during and after site disturbance.
2. Erosion and sediment control measures, both temporary and permanent, must be installed in conformance with the approved plan prior to any soil disturbance. A site inspection to verify compliance may be required prior to issuance of the Site Development Permit.
3. The Planning Board, Town Engineer, Town CEO, and/or Canandaigua Lake Watershed Council will evaluate submitted erosion and sediment control design plans against the most current edition of "New York Guidelines for Urban Erosion and Sediment Control" manual as prepared by the USDA - Soil Conservation Service. The Board, Town Engineer, Town CEO, and/or Canandaigua Lake Watershed Council may require additional controls and details not specifically outlined in the aforementioned manual.

B. Vegetative Controls

1. To attain the Town's goals, vegetative measures should be used in a site design to control surface water runoff, provide soil stabilization methods and entrap soil sediments generated from the forces of erosion.
2. Site slopes shall be graded to be stable and provide control of any surface or subsurface water prior to vegetative plantings. All slopes greater than 3H: 1V are to be stabilized with a jute mesh erosion mat or equal.
3. Site disturbance, especially in sensitive areas, shall be kept at a minimum. Designs shall limit the removal of existing trees, hedgerows and indigenous plant cover.
4. Physiographic features such as drumlins, wetlands and forested areas shall be retained in their natural form whenever possible.

5. The Site Developer shall take whatever action is necessary to establish a stabilized vigorous stand of vegetative cover on all disturbed site soils immediately following the completion of the bulk earth movement.
6. If phasing is necessary to meet these conditions, the Developer shall present such in the development plans and the Stormwater Pollution Prevention Plan (SWPPP) for Town review.

C. Structural Controls

1. Some projects may require erosion and sediment controls that will be permanent in nature. If these measures are required to be constructed, they must be fully functional before upland site disturbance. Such structures may include but are not limited to siltation traps, storm check dams, stormwater management facilities, diversion swales and dikes.
2. All structural sediment controls including swales, berms, rip rap, etc. identified on the project plans shall be submitted with the supporting design of those controls to the Town for review.

D. Maintenance Measures

- 1, It is imperative that both the vegetative and structural components that are constructed be periodically reviewed and maintained for optimum erosion and sediment control before, during and after site disturbance.
2. Facilities must be cleaned, repaired and/or replaced as necessary to meet the original design criteria established in the project approval.

E. Erosion Control Guarantee

1. All projects must comply with the erosion control guidelines of this section. All projects are subject to an Erosion Control Bond, Letter of Credit or similar instrument of deposit and subsequent inspection at the developer/Owner's expense.
2. If the project under consideration involves possible dedication of constructed facilities to the Town, the Developer/Owner must provide a maintenance bond in the amount and for the duration as noted in Article of these criteria. Periodic stormwater inspections in excess/addition to those required by General SPDES Permit may be required by the Planning Board and/or Town CEO at the expense of the developer/Owner.

2.8 TRAILS/ SIDEWALKS

Walking trails and sidewalks when proposed or required, shall be designed (where possible) to connect with existing trail networks and sidewalks in the Town of Canandaigua or in conformance with the Town of Canandaigua Parks & Recreation Master Plan of 2018, and shall be subject to the approval of the Town. See Appendix H.

2.9 LANDSCAPING

Adequate site landscaping may be required of the developer/owner on any lands developed in the Town of Canandaigua. If required, a landscape plan will need to designate plant species and locations on the plans. See Appendix G for Tree/Shrub Planting Details.

A landscaping plan shall include the following:

1. Be designed to conform to the standards and techniques set forth in the Town Code.
2. Visual impacts shall be considered for planting within sight distances.
3. Trees are to be planted a minimum of 5 feet from the edge of any easement.
4. There shall be no underground utilities within 10 feet of any proposed tree.
5. All tree plantings shall be a minimum of 2 ½" caliper or as specified in the Town Code.

2.10 STREET LIGHTING

- A. Lighting facilities may be required along all new subdivision streets. Light spacing, fixtures, and underground conduit shall meet with the requirements set forth by the Town Code, Planning Board and Electric Corporation having jurisdiction in the service area. All lighting is required to be LED.
- B. The Planning Board may also require additional site lighting to be installed. All non-residential sites will be independently reviewed in regard to lighting systems and may be required to submit an illumination plan. Such a system shall be coordinated with the electrical utility system and designed to keep light from illuminating areas outside of the developed site per the Town Code.

2.11 SITE LIGHTING

All proposed lighting systems on the parcel intended for development should be designed and installed in conformance with the Town Code.

2.12 ELECTRIC, TELEPHONE, CABLE TV OR OTHER BURIED CABLE UTILITY

In every development, provisions shall be made for service from the private utility supply systems. All utilities serving a subdivision and a street lighting system shall be underground, rather than on poles, standard or towers. Underground conduit and cables shall be installed per the regulations of the Public Service Commission and a minimum of 2 feet below any drainage way.

2.13 GENERAL SITE CONSIDERATION

General site considerations should include pedestrian and vehicular access and circulation, as well as provisions for handicapped access. Location, arrangement, size, architectural features, and design of buildings, lighting and signs, protection of adjacent properties and general public against noise, glare and unsightliness, or other objectionable features will also be considered by the Board.

ARTICLE III – WATERMAIN IMPROVEMENTS

3.0 DESIGN CRITERIA

A. GENERAL

1. Where public water supply, in the opinion of the Planning Board, is reasonably accessible, the developer shall provide and dedicate to the Town a complete water distribution system. The design and installation of said system shall be subject to the approval of the Planning Board and jurisdictional agencies.
2. Where public water supply is not within reasonable distance, an alternate supply, developed under the guidelines of the State Department of Health, shall be required. The Town does not guarantee or assume any liability for an individual water supply as shown on development plans.
3. If a private on-site system is to be used as a water supply for a development:
 - a) The individual source must have a minimum sustained flow of five gallons per minute of potable water.
 - b) There must be a minimum flow pressure of 20 pounds per square inch (PSI) at all fixtures in the proposed unit.
 - c) A certificate of water quantity from a New York State approved testing laboratory must be submitted to the Building Department before a building permit is issued.
 - d) The Town does not allow any interconnections between the municipal supply and an individual water supply system.
4. Water supply systems shall be designed (as a minimum) to conform with the latest edition of Ten States Standards.
5. Water supply system shall be designed to provide adequate domestic (average day and maximum day) usage and fire protection, while maintaining acceptable system pressures. Where public water supply is not accessible, an alternate private supply shall be furnished, which conforms to the New York State Health Department regulations (Subpart 5).
6. The Design Engineer shall submit an Engineers Report including calculations supporting all watermain and service sizes.
7. All watermains shall be a minimum of 8 inches, unless approved by the Water Superintendent.
8. See Appendix W for water related typical details.

B. HYDRANTS

1. Hydrants shall be spaced to comply with ISO and New York State Building Code requirements with a maximum 500-foot interval in subdivisions and 600-foot intervals in open spaces. See Appendix W.
2. Hydrants are to be placed close enough to all commercial buildings to meet New York State Fire Code of 300 feet which is measured from the furthest point of the building from the nearest fire hydrant.
3. Hydrants should be placed at all intersections where feasible.

C. VALVES

1. Valves shall be located such that no more than 30 dwelling units and no more than two hydrants need be out of service for repair of a watermain. Valves shall be provided at intersections and be no more than 800-feet apart along the watermain.
2. Additional valves may be required at creek and/or railroad crossings depending on network configuration and permit requirements.
3. Air release valves shall be provided at critical high points along the watermain.
4. Pressure reducing valves (PRVs) shall be designed and installed per Town of Canandaigua Specifications.

D. DEAD END MAINS

1. Dead end mains are discouraged within the Town.
2. Where they are unavoidable, a flushing hydrant (blow-off) shall be provided. Also, an auto-flushing hydrant may be required by the Town Water Superintendent in some locations.

E. WATER SERVICES

1. Provide minimum of 1-inch water service or as approved by the Town of Canandaigua Water Superintendent. Services shall be extended to the right-of-way line of all individual lots. Where an easement is provided, the service shall extend to the easement line, (or across utility easement). See Appendix W or Typical Service Plan.
2. All services shall be Type K copper without line couplings or 200-psi polyethylene pipe. Tracer wire is to be provided as per the detail (Appendix W). Meters shall be installed for each individual service and are to be purchased from the Town.

3. If the distance from the Right-of-Way to the house is over 500-feet, the owner or developer will be required to purchase a meter pit from the Town. Specific applications may be subject for review by the Town of Canandaigua Highway & Water Superintendent for a determination of need for an individual meter pit (see Appendix W).

3.1 MATERIAL SPECIFICATIONS

A. GENERAL

The materials intended to establish the degree of excellence are herein included are deemed to be of satisfactory quality for installation within the Town. When alternative materials may be made available, their use may be permitted in limited test sections with the restriction that should these materials prove unsatisfactory through the test period as established by the Town, they shall be removed and replaced with those herein called for at no expense to the Town.

B. WATERMAINS

1. Ductile Iron Pipe(DIP)

DIP shall conform to AWWA C-151, minimum allowable thickness shall be Class 52. Pipe shall be cement lined in accordance with AWWA C-104 and shall have rubber gasket push-on joint in accordance with AWWA C-111. If soil conditions warrant, as a result of DIPRA Testing, polyethylene wrap shall be required.

2. Polyvinyl Chloride (PVC)

Shall conform to AWWA C-900, minimum Class 200 (DR14) with elastomeric gasket joints, integral bell and rubber rings locked in place, minimum depth 5'-0" with a minimum of six (6) inches of full sand encasement.

PVC pipe installation shall include either:

- a) Six (6) inch wide metallic tape placed over the center of the pipe on top of the 24-inch safety cover as manufactured by Line Guard III, Inc;
- b) Continuous #10 gauge copper wire attached to the pipe at 5-foot intervals with plastic ties with a minimum of 150 lbs tensile strength. Wire shall be attached to all cast fittings, hydrants and valve boxes to make a continuous traceable system.

3. High-Density Polyethylene (HDPE) Pipe

Upon review and discussion with the Town, may be considered for possible use in special circumstances, i.e. road & stream crossings. Shall be SDR-11 design shall be forwarded to the Town Water Superintendent for review and approval.

C. FITTINGS

Ductile iron shall meet AWWA C-153-11 Specifications, minimum Class 350, with mechanical or push-on joint, except for hydrant branches which shall be mechanical joint. Fittings shall be cement lined in accordance with AWWA C-104-13. Bolts and nuts shall be fluoropolymer coated "blue bolts".(Ass Tyler Union Fitting) All joints shall conform to the requirements of AWWA C-111.

PVC shall meet specifications of AWWA C-905 made from PVC Compound 12454-B (ASTM D1784) with gasket joints meeting ASTM D3139.

D. HYDRANTS

Shall be manufactured in accordance with AWWA C-502.

Hydrants shall be Mueller manufactured for 5 foot bury with breakaway flange construction and 6-inch mechanical joint inlet. Shoe and inlet shall be epoxy coated.

They shall open left, with a one and one-half inch (1-1/2") pentagon-operating nut.

All hydrants shall be painted red with bonnets painted as per the AWWA Hydrant Color Code as listed below:

<u>Bonnet Color</u>	<u>Flow Range (GPM)</u>
Blue	> 1500
Green	1000-1499
Orange	500-999
Red	< 500

All valve box covers shall be painted blue.

Hydrants shall be three-way with two (2) 2-1/2 inch hose nozzles and one (1) 4-1/2 inch pumper connection (quick disconnect), all with National Standard threads. Main valve openings shall be 5-1/4 inch with the total unit consisting of the tee, guard valve, hydrant and adaptors. (See Appendix W).

1. The main valve seat ring shall be bronze and screw into the bronze drain ring.
2. Stainless steel fasteners shall be used for all connections on hydrants and valves and fluoropolymer coated “blue bolts” for fittings.

E. FLUSHING HYDRANT – BLOWOFF

Shall be 2 inch self-draining, non-freezing with 5 foot bury, with all bronze parts designed to connect to a 2 inch main line outlet as manufactured by GIL Industries, Inc., Model Slim Line 2.

F. GATE VALVE AND BOX

1. All valves 12” or less shall be gate valves.
2. Gate valves shall conform to AWWA C-509 or latest revision, Resilient-seated wedge type epoxy coated gate valves with a non-rising stem; “o” ring packing, and open left. They shall be of the 350 psi test class with a minimum working pressure of 250 psi. Valves shall be manufactured by, Mueller Co., Model 2360, with MJ ends, a 2” square operating nut. Stainless steel bolts and nuts shall be utilized.
3. The valve ends shall depend on the type of pipe used and the particular use intended.
4. Valve boxes shall be Bibby-Ste-Croix model number VB3000 series, or approved equal, two-piece screw-type, cast-iron construction, valve box, with a 5-1/4 inch inside diameter and covers marked “WATER”.
5. If the valves are buried deep they must have an extension stem that can be reached with a 6 foot valve box key.

G. TAPPING SLEEVE AND VALVE

All valves shall have mechanical joint ends and be furnished with sufficient quantities of accessories. Valves shall open left and be manufactured by Mueller with epoxy coating.

H. ANCHORING FITTINGS

Anchoring pipe in accordance with ANSI-A21.4, or latest revision, shall be employed to anchor all hydrants to gate valves. The anchoring pipe shall be epoxy coated cement lined and provided with a rotating gland. There should be a minimum 18 inches between hydrant and gate valve. These anchoring pipes shall be Tyler 5-198 or proposed equal.

I. BUTTERFLY VALVES

All valves greater than 16” in diameter shall be butterfly type. All butterfly valves shall conform to AWWA C-504, or latest revision.

J. RESTRAINERS

Shall be manufactured of high strength ductile iron pipe and incorporate a full 360 degree support around the pipe. They shall be as manufactured by Megalug or Uni-Flange series 1500, 1300, 1350, or 1390 depending on the specific use.

K. WATER SERVICE MATERIAL

1. Corporations stop shall be Mueller H-15008 compression type.
2. Curb stops shall be Mueller H-15209 Mark II compression type.
3. Curb boxes shall be Mueller H-10334, 5 feet long with stainless steel rods and stainless steel keys. Curb boxes shall not be located within driveways.
4. Copper services shall be Type "K" ASTM B88
5. Plastic services shall be copper tube size (CTS) at 200 psi, with a minimum 1 inch pipe diameter (only used from curb box to unit and a continuous #10 gauge copper tracer wire shall be included from the curb box to the structure). Sand bedding shall be provided as appropriate.
 - Polyethylene ASTM D-2737, PE 3408 per AWWA C-901 (Minimum 5'-0" depth and sand encasement required)
6. All services tapped into mains shall utilize Double Strap SS Saddle (Mueller) with a Mueller Corporation
7. Any services larger than 1" shall meet the minimum specifications of the Water Superintendent.
8. Refer to Appendix W.

L. METER PITS FOR INDIVIDUAL SERVICES

1. Individual meter pits, where required, shall be Mueller, Double Lid Style with Wabash cover W2. Cover shall be equipped to receive attachments for radio-read water meters.
2. Refer to Appendix W.

M. THRUST BLOCKS

Shall be cast in place 3000-psi concrete to dimensions as shown in Appendix W.

N. PRESSURE REDUCING VALVES (PRV) AND VAULTS

1. PRV Vaults where required by the Town of Canandaigua, shall be a minimum of 6'x16'x8' high, Lakeland precast concrete vault provided with 48"x48" aluminum hatch with aluminum ladder, sump recess, openings as required, seals, boots, stainless steel trim, dual pilots and dual strainers. Sentence here about coating or waterproofing the concrete vault? The steel vent pipe is to be painted blue.
2. The PRV vault shall also be equipped with a Ross 40WR-BP Pressure Reducing Valve and may require a Back Pressure Sustaining feature and reverse flow feature depending on the location in the water system.
3. Refer to Appendix W

O. EQUIVALENTS

1. Any material and manufacturer substitutes are to be provided in advance to the Town Water Superintendent for review and approval.
2. For any project it will be assumed that the Developer will furnish the exact materials specified on the plans and specifications unless the Developer files with the Town of Canandaigua Water Superintendent prior to any use in the development, the names and complete description of each article which he proposes to substitute for approval by the Town.
3. Any costs incurred by the Town or its representatives associated with the verification of substitute equipment and materials will be the responsibility of the Developer.

3.2 INSTALLATION OF IMPROVEMENTS

A. HYDRANTS AND VALVES

1. General
 - a) A hydrant unit shall consist of a hydrant, guard valve, mechanical joint tee, and anchor pipes.
 - b) Before hydrants or valves are installed, they shall be tested to determine if they are in working order.
 - c) Hydrants shall be set plumb with the break flange 3 inches above the finished grade. Hydrant weeps shall be surrounded by at least 10 cubic feet of crushed stone or gravel. If the ground water is higher than the drainage plug, the plug shall be closed and the crushed stone eliminated.

- d) Valve boxes shall be placed plumb over the operating nut of the valve and adjusted to the final grade.
- e) All hydrants shall be painted red and all valve box covers shall be painted blue.

B. TESTING OF WATERMAIN

1. General

- a) Upon the satisfactory completion of the installation of the underground utilities, the Contractor shall test each of the installed facilities as herein specified. All utilities shall be pre-tested by the contractor before the Town witnesses the final tests. No test will be accepted unless witnessed by the Town. Records and date of these tests shall be submitted to the Town Water Superintendent as part of the record drawing information.
- b) Water used by the Developer during any testing procedures will be paid for by the Developer. All hydrants for water supply or testing use shall be operated only by the Town Water Department.

2. Pressure Tests

- a) The entire system, including services to the curb stops, shall be pressure tested at a minimum 1.5 times the working pressure or 200 psi whichever is greater for a period of two hours.
- b) The test pressure shall not vary by more than 5psi during the test period.
- c) No -pressure test will be allowed when temperature is less than 32 degrees, unless a heated shelter is provided for test equipment.
- d) A leakage test at operating line pressure shall be conducted for 24 hours in addition to the pressure test.
- e) These tests shall be performed in accordance with AWWA C-600 & C-605.
- f) The pressures at the point of testing shall be related to the highest elevation of the main.
- g) Refer to Appendix W for the listed test requirements.
- h) The Contractor shall provide all labor, materials, equipment, and instrumentation needed to perform the tests, including caps, plugs, blind flanges, bulkheads and temporary thrust restraint, as needed. The Contractor shall locate, identify and repair any leaks and/or other system deficiencies revealed during testing. See also item 5, below.

3. Disinfection

- a) Upon completion of the pressure testing, the main shall be disinfected in accordance with AWWA C-651 as applicable.

4. Samples

- a) After flushing the newly disinfected main, the Town of Canandaigua Water Department shall obtain samples of water and submit them to a laboratory approved by the New York State Department of Health.
- b) Upon the receipt of a satisfactory laboratory report, this information together with the Town Engineer's Certificate of Construction shall be submitted to the New York State Department of Health for approval.
- c) Upon receipt of the Approval of Completed Work from the Health Department, the water system shall be considered complete and may be accepted for service by the Town.

5. Defective Areas

- a) In any areas where satisfactory results of applied tests cannot be obtained, the defective portion of the system shall be located and replaced with new material.
- b) That portion of the system shall then be re-tested until satisfactory results are obtained. Use of repair clamps will not be permitted by the Town.

ARTICLE IV – HIGHWAY/ROAD IMPROVEMENTS

4.0 DESIGN CRITERIA

A. ROADS

1. The following designations will be used by the Town to classify roads and their respective design criteria (see Appendix H)
 - a) Town Collector & Town Collector Road (Complete Street)
 - b) Subdivision Road & Subdivision Road (Complete Street)
 - c) Rural Development Road
 - d) Non-dedicated Private Drive

2. The basic considerations of each road classification are as follows:
 - a) Town Collector Road (see Appendix H)
 - i. Provides connections to major roads and represents major traffic pattern throughout the Town.
 - ii. Design speed of 55 MPH
 - iii. High volume of traffic
 - iv. Provides access to subdivision roads
 - v. Relatively low density of development abutting such a road
 - vi. Represents typical road built or reconstructed by the Town Highway Department
 - b) Subdivision Road (see Appendix H)
 - i. Densities as are permitted by the current zoning provisions
 - ii. Design speeds of 30 MPH or less
 - iii. Low volume of traffic.
 - iv. Individual driveways at regular intervals.
 - v. Usually no effect on overall Town traffic pattern.
 - c) Rural Development Road (see Appendix H)
 - i. Density less than one-half units per acre.
 - ii. Low volume of traffic.
 - iii. Usually has no effect on overall Town traffic pattern.
 - iv. Design speed of 30 MPH or more

- d) Non-Dedicated Private Drive (see Appendix H)
 - i. Low volume of traffic
 - ii. Design speed of 30 MPH or less
 - iii. Has a minimum of 40-foot wide fee ownership on a street.
 - iv. Has no effect on overall Town traffic pattern
 - v. Maintenance covered by deed agreement or Homeowner's Association depending on number of units
- 3. Each of these roads has basic characteristics, which may be varied to be consistent with unique proposals of development and construction. The individual variations of the conditions will not be permitted if they sacrifice design safety or ability to maintain a proposed road type. Standard roads shall comply with the typical cross-sections shown in Appendices H.

B. GENERAL ROAD DESIGN CONSIDERATIONS

1. Right-of-Way (R.O.W.)

- a) Minimum width 60-feet for dedicated roads.
- b) Private drive width depends on design constraints.
- c) Private underground utilities to be located on easements outside right-of-way limit.
- d) All dead end streets shall be constructed to the development property line and terminate with:
 - i. A hammerhead turnaround or a cul-de-sac designed in accordance with the standards in Appendix H of this manual.

2. Horizontal Alignment

- a) The following factors shall be incorporated into the design of each road type:
 - i. Sight distance must conform to minimum safe stopping sight distance per “Geometric Design of Highways and Streets”, AASHTO Latest Edition.
 - ii. No centerline intersection angles less than 75 degrees.
 - iii. Minimum centerline radius of 150-feet verified for design speed.
 - iv. Road pavement intersections shall have a minimum of 35-foot radius.
 - v. Access to future developments will be provided at the property lines.
 - vi. Tangent sections shall be used between curves to maintain the proper flow of traffic at design speeds.

3. Vertical Alignment

- a) The minimum length of vertical curves shall be based upon current AASHTO policy and address stopping sight distance, passing sight distance, riding comfort, and headlight sight distance.
- b) Vertical curves are required whenever the net change in grade exceeds 1 percent.

4. Sight Distance Requirements

- a) Refer to the most current edition of AASHTO, *A Policy on Geometric Design of Highways and Streets*, for sight distance and stopping distance requirements.

5. Road Grades

- a) Minimum – 0.7 percent with shoulders; 0.5 percent with gutters.
- b) Preferred Maximum Grade – 8 percent.
- c) Maximum – 12 percent – In particular areas in the southern portions of the Town grades up to 12% may be allowed. In these instances, grades over 8% may be allowed for short distances (500' maximum) subject to approval by the Highway Superintendent and the Planning Board. Such road design should be accompanied by an engineering evaluation that includes provisions for:
 - i. snow removal and storage,
 - ii. enhanced drainage facilities,
 - iii. widened shoulders,
 - iv. longer and flatter grades at intersections, with other features that would enhance safety and maintainability of the roadway.
 - v. Where road grades exceed 8%, the Town may require flared catch basins.

6. Leveling Areas

- a) Leveling areas shall be incorporated at all intersections for a minimum distance of 100-feet from the edge of the pavement and the grade shall not exceed three percent (3%).
- b) Leveling areas for driveways shall be a minimum distance of thirty (30) feet from the edge of highway right-of-way and the grade shall not exceed three percent (3%).

7. Road Widths

Class	Pavement Width	R.O.W. Widths	Edge Treatment	Drainage
Town Collector	24'	60'	3' paved shoulder + 2' stabilized shoulder or 2' - 6" Concrete Gutter	Roadside Swale or Storm Sewer
Town Collector (Complete Street)	24'	70'	5'-0" Bike Lane & Curb or 5'-0" Bike Lane & 2'-6" Gutter	Storm Sewer
Subdivision Road (w/ concrete gutter)	22'	60'	2'-6" Conc. Gutter	Storm Sewer
Subdivision Road (w/ mountable curb)	26'	60'	Mountable Curb	Storm Sewer
Subdivision Road (Complete Street)	22'	70'	5'-0" Bike Lane & Curb or 5'-0" Bike Lane & 2'-6" Gutter	Storm Sewer
Rural Development Road	22'	60'	3' shoulder or 2.5 ft. Conc. Gutter	Roadside Swale Storm Sewer
Private Drive	14' Min.	N/A	Req. approval	Req. approval

8. Special Considerations

- a) Subsoil Conditions – A Geotechnical Engineering Report of the existing roadway soils shall be provided for review.
- b) Where roadside swales exceed 5% and/or unsuitable soil conditions warrant, the swales shall be provided with a concrete channel.
- c) Underdrains – Underdrain shall be used under all concrete gutter, see Appendix H. Where subsurface conditions require underdrains may also be required in other locations. The method used shall be subject to the review of the Town Highway Superintendent.
 - i. All pipes shall be perforated and a minimum of four inches (4”) in diameter.
- d) Frontage Development – Where frontage development is to be approved along collector roads, the Planning Board may require that the roadside swale be enclosed in pipe along the fronts of the development. Such conduits shall be of the proper size to accommodate anticipated flows. A parallel access road may also be considered by the Planning Board and discussed during concept plan submittal.

C. ROAD DESIGN

1. General Requirements

The Design Engineer shall consider the proposed use of the road or street when preparing a design. The following criteria are listed as minimum standards to be considered by the designer. It is the intent of these requirements to obtain a road and a base that is stable and capable of supporting H-20 loading.

2. Minimum Design Standards for Each Road Type (see Appendix H)

a) Town Collector Road

- i. Tensar Triax TX160 to be provided.
- ii. Two 6-inch lifts of No. 2 crusher-run stone.
- iii. One 3-inch lift of Type 1 crusher-run stone.
- iv. Asphaltic concrete courses shall be 4 inches compacted of Type 1 base, 3 inch type 3 binder and 1 ½ inch compacted of Type 7F top.
- v. Stabilized shoulder constructed of crushed stone with a single seal of 0.4 gal/S.Y. hot bituminous liquid with 25#/S.Y. of 1st stone.

b) Subdivision Road

- i. Tensar Triax TX160 to be provided.
- ii. Two 6-inch lifts of No. 2 crusher-run stone.

- iii. One 3-inch lift of Type 1 crusher-run stone.
 - iv. Asphaltic concrete courses shall be 3 inch Type 3 binder and 1 ½ inch of Type 7F.
 - v. Concrete gutter per Appendix H.
- c) Rural Development Road
- i. Tensar Triax TX160 to be provided.
 - ii. Two 6-inch lifts of No. 2 crusher-run stone.
 - iii. One 3-inch lift of Type 1 crusher-run stone.
 - iv. Asphaltic concrete courses shall be 3 inch Type 3 binder and 1 ½ inch of Type 7F.
 - v. Concrete gutter per Appendix H.
- d) Non-Dedicated Private Drive
- i. Tensar Triax TX160 to be provided.
 - ii. One 6-inch lifts of No. 2 crusher-run stone.
 - iii. One 3-inch lift of type 1 crusher-run stone.
 - iv. A private drive off a dedicated road shall:
 - Be designed to keep surface water flows from entering the travelway of the dedicated street.
 - Finish grade and seeding of the area are to be completed immediately upon completion of the private drive base.
 - Provide a paved surface from the edge of the existing pavement within the R.O.W. at least 30 feet toward the developed site.
 - No private drive should exceed a slope of 3 percent from the edge of the pavement to a point 30 feet into the property being developed.
 - Maximum grade shall be 10 percent.

D. DRIVEWAY DESIGN REQUIREMENT

1. Design and location of driveways shall be in accordance with applicable Town Standards, County Standards and requirements of NYSDOT Policy and Standards for Entrances to State Highways.
 - a) Vertical Alignment
 - i. Maximum grade shall not exceed 10%, unless a leveling area, as outlined below is provided.

- ii. Finish grade at right-of-way line shall be not more than 2 feet above finish grade at centerline and the driveway slope within the lot shall not be greater than 15%.
- iii. A leveling area of 3 percent maximum adjacent to the right-of-way shall be provided which is a minimum of 30 feet in length from the edge of the street pavement.
- iv. Driveway shall slope away from the edge of road pavement at the same slope as the road shoulder, and the slope shall extend at least the full width of the shoulder so as not to create a bump or depression in the shoulder area unless shown otherwise in Standard Details.
- v. All driveways shall be designed to avoid the sheeting of surface water runoff onto an adjacent highway.
- vi. All driveways shall be a paved a minimum of 30 feet extending from the edge of road pavement to the R.O.W. line, unless otherwise indicated by the Town Highway Superintendent.

b) Horizontal Alignment

- i. Minimum radius along the centerline of driveways shall be 60 feet.
- ii. Minimum radius along the inside edge of driveway shall be 35 feet unless shown otherwise in Appendix H.
- iii. All driveways shall be a paved a minimum of 30 feet extending from the edge of road pavement to the R.O.W. line, unless otherwise indicated by the Town Highway Superintendent.
- iv. Driveway turnaround areas, when practical, should be incorporated into all plans.
- v. All driveways are to be a minimum 10 feet from the property lines.
- vi. All driveways are to be a minimum distance of 43 feet from all intersections as measured from the shoulder.

c) Fire Department Requirements

- i. All common driveways regardless of length and individual driveways, which are longer than 500 feet, shall be constructed to support HS-20 loading and provide an emergency pull off area that is 30' x 80' at intervals of 250' for emergency access clearance from the edge of the driveway to any obstruction.
- ii. Plans and details of such driveways shall be submitted to the local Fire Department and Town Code Enforcement Officer for review.

E. DRIVEWAY CULVERTS

1. Design and location of driveway culverts shall be in accordance with applicable Town Standards and requirements of NYSDOT Policy and Standards for Entrances to State Highways. *These standards shall apply also to driveways entering on County and Town roads and streets.*
 1. Shall be provided along existing road frontage lots to properly convey roadside drainage. The culverts shall be supplied and installed at the discretion of the Town Highway Superintendent to the proper grade to allow the natural flow of water. All culverts installed shall be subject to the review of the Superintendent of Highways having jurisdiction on the road (Appendix H)
 2. Minimum of 12" diameter unless they are a part of a larger drainage course, which may require larger diameter pipes. Larger sizes to be determined by the Highway Superintendent, Developer's Engineer, or Town Engineer.
 3. The culverts shall extend a minimum of 3' beyond the edge of the access driveway and be provided with end sections or headwalls. The slope from the driveway edge to the culvert end section shall be graded and seeded to maintain the slope stability.
 4. Elevations to be set by NAVD 88 whenever possible.
 5. Culverts shall have a minimum of 12" of cover. If High Density Polyethylene (HDPE) pipe is utilized, 12 inches of cover per 12-inch diameter of pipe shall be provided.
 6. If Corrugated Metal Pipes (CMP) is used, culverts shall be bituminous coated inside and out.

F. CONCRETE GUTTERS

8" concrete gutters with a maximum invert depth of 1-1/2 inches below the pavement edge shall be provided along the edges of all Town Collector Roads and Subdivision Roads to be dedicated to the Town of Canandaigua. A typical cross-section is shown in Appendix H.

At the discretion of the Town Highway Superintendent, mountable curbing can be provided.

G. SIDEWALKS

Sidewalks are required by the Planning Board in all applications unless otherwise determined by the Planning Board as part of their review of applications. If required, sidewalks shall be concrete having 5' in width, 5" in thickness on a 6" thick base of Type 1 crusher-run. The blocks shall be 5' in length with bituminous expansion joints every 25'. The finish shall be consistent with the gutter specifications as listed in NYSDOT Specification Section 702 (Appendix H).

Concrete sidewalks through driveways shall be increased to a 6-inch thickness and shall include 6" x 6" wire mesh (10 gauge) for reinforcement.

H. TRAILS

Walking trails in conformance with the Town of Canandaigua Parks and Recreation Master Plan of 2018 may be required by the Planning Board and shall be determined at the time of review. If required, walking trails shall be a minimum 6' in width, and consist of a 6 inch lift course of Type 2 crusher run stone, and a 2" top of stone-dust or 2" top of asphalt conforming to screenings & 1B (NYSDOT Table 703-4). Shared use paths (walkers and bicyclists) may require additional trail width. All trails shall be designed in conformance with the Federal Highway Administration recommendations (Appendix H).

I. CUL-DE-SAC

1. The cul-de-sac shall be offset to the left whenever possible for ease of maintenance and traffic safety (Appendices H)
2. The pavement depth shall match the road type.
3. Roadways ending in cul-de-sacs shall not exceed 1,000-feet in length and shall terminate with either a cul-de-sac or a hammerhead turnaround (see Appendix H for design and radius requirements).
4. The pavement shall slope to the center of the cul-de-sac on subdivision and minor subdivision roads when stormwater pipes are provided. The outside edge of the pavement will have standard gutters or a 6-foot stabilized shoulder from the outside edge of the pavement. On Town Collector Roads and Rural Development Roads, the pavement may slope to the center of the cul-de-sac or to the right-of-way line. If the pavement slopes away from the center, both edges of the pavement will have stabilized shoulders consistent with the road type.

J. MONUMENTS

1. Monuments shall be located at:
 - a) Point of curvature (P.C.) and point of tangent (P.T.) of all horizontal curves along one side of the right-of-way.
 - b) Shall have a maximum of 1,000 feet spacing along one side of right-of-way line.
 - c) Monuments shall be set by a licensed land surveyor before the final letter of credit amount is released by the Town.
 - d) Monuments shall be set to have a clear sight distance between two monuments and shall be flush with the finished grade.
 - e) The monuments shall be set, as a minimum, at all corners of the subdivision at final grade on one side of the streets and at all changes of direction in the right-of-way line.
 - f) The monuments shall be as shown in the detail in the Appendix G.

K. RESERVED LAND FOR FUTURE USE

Where land areas are reserved for future connections to adjacent parcels, all improvements, i.e., sanitary, storm, water, sidewalks, roads, will be constructed to the common property line.

4.1 MATERIAL SPECIFICATIONS

A. GENERAL

The materials intended to establish the degree of excellence are herein included are deemed to be of satisfactory quality for installation within the Town. When alternative materials may be made available, their use may be permitted in limited test sections with the restriction that should these materials prove unsatisfactory through the test period as established by the Town, they shall be removed and replaced with those herein called for at no expense to the Town.

B. CONCRETE GUTTERS AND SIDEWALKS

5. Concrete

- a) Shall be a minimum of 4000 psi (28-day strength) Class J concrete conforming to NYSDOT Specification Section 501.
- b) Air entraining admixture conforming to ASTM Specification C-260.
- c) Expansion joints shall conform to NYSDOT Specification 705-07.
- d) Curing and sealing compound – conforming to ASTM C-309, Type I, Class B for curing and sealing.

6. Concrete Gutters

- a) Shall conform to Item 624-2.02.
- b) A minimum compressive strength of 3,500 psi after 28 days
- c) Shall be a minimum of 6” thick.

C. ROAD MATERIALS

1. Sub-base and Base Courses

- a) Crusher run stone shall conform to NYSDOT Specification Section 304-2.02, Type 2.
- b) Aggregate shall conform to NYSDOT Gradation Table 703-4, size as specified.
- c) NYSDOT Specification 304-2.02 Type 4 gravel may be substituted for No. 2 and No. 3 crusher run (NYSDOT Gradation Table 703-4) if acceptable

subsoil conditions exist with the approval of the Superintendent of Highways and Town Engineer. The Design Engineer shall submit data justifying the use of gravel over specific subsoil conditions.

2. Bituminous Pavement

- a) Base course shall conform to NYSDOT Specification Section 401, Type 1 Base.
 - b) Binder course shall conform to NYSDOT Specification Section 401, Type 3 (Dense Binder).
 - c) Top course shall conform to NYSDOT Specification Section 401, Type 7F.
3. Tack Coat shall conform to NYSDOT Specification Section 407. The grade shall depend on the specific use intended.
 4. Premoulded Resilient Joint Filler shall conform to NYSDOT Specification Section 705-07.
 5. Underdrains shall be 4 or 6 inch (depending on conditions), perforated, SDR-35 PVC per NYSDOT 706-15, polyvinyl chloride per NYSDOT 706-18, or High Density Polyethylene Tubing per AASHTO M-252.
 6. Stabilized shoulders (Town Collector and Rural Development) shall be constructed to the dimensions shown on the typical sections. Construction methods shall conform to NYSDOT Specification 410-3.023. The base course shall consist of a wedge of Type 4 stone with a minimum thickness of 6-inches at the outside edge.

D. EQUIVALENTS

1. The mention of apparatus, articles or materials by name and such specific description of same as is made herein is intended to convey to the Developer and his Contractor an understanding of the degree of excellence required. The Town shall be the sole judge of the qualifications of the offerings and will determine all questions regarding the conformance of any offer outside the specifications.
2. Any material and manufacturer substitutes are to be provided in advance to the Town Highway Superintendent for review and approval.
3. For any project it will be assumed that the Developer will furnish the exact materials specified on the plans and specifications unless the Developer files with the Town of Canandaigua Highway Superintendent prior to any use in the development, the names and complete description of each article which he proposes to substitute for approval by the Town
4. Any costs incurred by the Town or its representatives associated with the verification of substitute equipment and materials will be the responsibility of the Developer.

4.2 INSTALLATION OF IMPROVEMENTS

A. ROADS, GUTTERS AND SIDEWALKS

1. General

- a) The Contractor shall not construct any surface improvements until the underground utilities have been installed, tested and approved by the Town.
- b) The Contractor shall obtain the necessary compaction densities as specified. All surface improvements shall be constructed to the shape and dimensions as shown on the typical sections (Appendix H) or on the approved plans.
- c) A greater road thickness and base may be required in those areas where particular soil conditions or traffic patterns require special considerations.

B. ROADS

1. General

The following general rules apply:

- a) Underground utilities will be designed to be constructed outside the pavement area where possible.
- b) If groundwater, poor soil conditions, or any suspect ground conditions are encountered in the road base, the contractor shall remove such conditions and install drain pipe and/or crusher run stone to obtain a stable base.
- c) The contractor shall not proceed with the base construction until all underground utilities or casings affecting the road area are installed, tested, and approved by the Town.
- d) All materials used for road construction shall conform to the latest Standard Specifications Construction and Materials of the New York State Department of Transportation Division of Construction and all revisions thereafter.

2. Compaction

Compaction densities specified herein shall be the percentage of the maximum density obtainable at optimum moisture content as determined and controlled, in accordance with ASTM D1557. Field density tests shall be made in accordance with ASTM D6938.

Each layer of backfill shall be moistened or dried as required and shall be compacted to the following densities, unless otherwise specified.

a) Select Fill

Under all existing or proposed roads, driveways, parking areas: 95% maximum modified Proctor dry density (ASTM D1557).

All other areas: 92% maximum modified Proctor dry density (ASTM D1557).

b) Methods and Equipment

Methods and equipment proposed for compaction shall be subject to the approval of the Town. Compaction by rolling or operating heavy equipment over fill areas shall be conducted in a manner by which damage to existing utilities and structures shall be avoided. Any pipe or structure damaged thereby shall be replaced or repaired as directed by the Town at the expense of the Developer.

c) Testing

1. Field density tests will be paid for by the Developer.
2. The Developer shall furnish all necessary samples for laboratory tests and shall provide assistance and cooperation during field tests. The Developer shall plan his operations to allow adequate time for laboratory tests and to permit taking of field density tests during compaction.
3. A qualified testing agency should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation; proof-rolling; placement and compaction of controlled compacted fills; backfilling of excavations in the completed subgrade.
4. Each lift of compacted fill should be tested, evaluated, and reworked as necessary until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 5,000 square feet of compacted fill in open areas and every 50 linear feet of compacted utility trench backfill.
5. Any areas found to be below required compaction densities shall be removed and replaced with new material at the Developer's expense. The methods of operation and/or the backfill materials shall be changed to meet required compactions.
6. Inadequate compaction shall be cause for the Town to issue a stop work order on a project.

C. SUBGRADE

1. The subgrade shall be graded to remove all unsatisfactory or unstable material. Where material is removed below the subgrade elevation, suitable granular material shall be used to bring the road to proper subgrade. Where ground water or poor soil conditions exist, the Developer shall be required to install perforated underdrain and crushed stone weeps to drain the base. The entire subgrade surface shall be thoroughly compacted and proof rolled in accordance with NYSDOT Specification 203-3.12.
2. Fabric filter material is required by the Town to stabilize the base and subbase before the Contractor proceeds to install same.

No movement shall be observed in the subgrade material as the roller passes. When the subgrade is completed, the Contractor shall so notify the Town Highway Superintendent and the Town Engineer for a base determination. Upon the review and written approval of the subgrade by the Town Engineer or his representative, the base material may be placed.

D. BASE MATERIAL

1. Approved base materials shall be uniformly deposited and compacted in layers with a roller, according to NYSDOT Specifications. Rolling shall begin at the sides and continue toward the center and shall continue until there is no movement of the course ahead of the roller. After compaction, the top surface of this course shall not extend above the theoretical elevation for this course and when tested with a straight-edge 16 feet in length, any bump or depression over 1/4 inch from the theoretical grade line shall be satisfactorily eliminated.
2. When the base has been prepared to the satisfaction of the Town Highway Superintendent or his representative, the Developer may place the binder course, however, the Developer shall provide 48-hour notice to the Town Highway Superintendent or his representative prior to placement of the binder course.
3. If base conditions are changed as determined by the Town Highway Superintendent or his representative before the binder is placed, he may order the Developer to seal the stone with a rapid sealing liquid asphalt emulsion as specified in NYSDOT Specification 702 with 0.5 gallons per square yard as determined by the conditions and not more than 24 hours prior to placement of binder asphalt.
4. If the compaction of the base is questionable by the Town Highway Superintendent or his representative, it may require re-rolling or stone replacement by the Developer.

E. BITUMINOUS PAVEMENT

1. Binder shall be placed and compacted to a minimum finished layer thickness of 2 inches with a self-propelled asphalt spreader and rolled according to NYSDOT Specifications 402-3.04 and 402-3.07. Before applying the top course, any irregularities in the binder course shall be eliminated but at no time will "cold patch" or "winter mix" be allowed on the binder for repair work.

2. Before the surface course is placed, the binder will be cleaned by the Developer and inspected by the Town Highway Superintendent or his representative to determine the condition of the pavement. A tack coat at the rate of 0.1 gallon/square yard before placing the surface shall be applied.
3. Surface Course shall be placed and compacted to a minimum finished layer thickness of 1 ½ inch with a self-propelled asphalt spreader and rolled in accordance with NYSDOT Specifications 402-3.04 and 402.3.07.

F. TEMPORARY ROAD CONSTRUCTION

1. Where construction sequences preclude the specified road construction items and these requirements for Certificates of Occupancy, a temporary road consisting of the specified road section less top surface course may be constructed.
2. This temporary road shall be reviewed by the Town Highway Superintendent and approved in writing prior to the issuance of any Certificate of Occupancy. The Town may accept dedication of the road if sufficient monies remain in the financial guarantee to top the road the next year.

G. CONTINUANCE OF EXISTING ROAD

1. When construction of a road is continued from an existing road or previous developed section, the pavements shall be joined with a triangular cut of at least 15 feet from edge of the pavement to the centerline of the old pavement. The intent of this provision is to eliminate any grade difference and make a smooth riding transition.
2. All pavement joints shall receive a tack coat before placing the binder or top course.

H. STABILIZED SHOULDERS

Stabilized shoulders shall be constructed to the dimensions shown on the typical sections. Construction methods shall conform to NYSDOT Specification 410-3.02. The base course shall consist of a wedge of crusher run stone with a single surface treatment. See Appendix H.

I. UNDERDRAINS

Underdrains shall be installed in conformance with NYSDOT Specification 605 and underdrain filter Type 1 per NYSDOT Specification 605-2.02.

J. CONCRETE GUTTERS AND SIDEWALKS

1. Concrete Gutters
 - a) Concrete gutters shall be a minimum of 6 inches in depth and constructed true to the shape, line and grade on a thoroughly compacted base. The gutters may be constructed using a slip form method or in-place form work.
 - b) Joints between sections shall be placed every 10 feet at right angles to the flow line and must be "wet struck" 1/8 inch wide and 3/4 inch deep. Full depth bituminous expansion joints shall be placed every 50 feet and at all structures or inlets.

- c) Gutters shall be broom finished before the joints are struck and the finish shall be consistent throughout the project.
- d) Gutters shall be cured and sealed by spraying with an approved curing and sealing compound at the rate recommended by the manufacturer.
- e) One coat of curing and sealing compound shall be applied when the work is complete and another coat after the gutters have set for 48 hours.
- f) The use of burlap or coverings for curing or protection is not acceptable until after the concrete has been sprayed and set.
- g) The gutters, prior to final paving, shall be flooded and checked for horizontal and vertical line and grade and finish. If any gutters are found to be constructed in an unacceptable manner by the Superintendent of Highways, they shall be removed and replaced.
- h) Gutter replacements shall conform to the existing gutter regarding finish and color.

2. Concrete Sidewalks

- a) Minimum 5 inches in thickness and constructed true to shape, line and grade. Sidewalks installed through driveways shall be 6 inches in depth and shall include 6" x 6" wire mesh (10 gauge) for reinforcement.
- b) Sidewalks shall be designed in conformance with the Americans with Disabilities Act (ADA) and the Federal Highway Administration.
- c) Minimum width shall be 5 feet or to match existing.
- d) The base shall be thoroughly compacted crusher run stone with a thickness of 6 inches. The base material shall extend 6 inches outside each edge of the concrete sidewalk.
- e) A cross slope of 1/4 inch per foot shall be maintained for positive drainage.
- f) Construction joints shall be wet struck at 5 foot increments and be 3/4 inch deep. Full depth bituminous expansion joints shall be placed every 25 feet and at all castings.
- g) Sidewalks shall be broom finished and have troweled edges with a corner radius of 1/4 inch. The finish shall be consistent throughout the project.
- h) Two coats of approved curing and sealing compound shall be applied. One coat immediately following the finish work and the second coat 48 hours later.

3. Testing

- a) The Contractor shall obtain in accordance with ASTM C-31 two samples from every other truck delivering concrete to the site and have the samples compression tested by an independent testing laboratory.

- b) Results of these tests shall be submitted to the Superintendent of Highways.

K. MONUMENTS

The monuments shall be installed at those locations shown on the approved final plat and as located in the field by a Licensed Land Surveyor. They shall be installed to a depth of at least 30 inches below finished grade with the top surface to be flush with finished grade. Upon the installation of the monuments the location shall be certified to the Town by a Licensed Land Surveyor as to their accuracy. See Appendix G.

L. FINAL GRADING

1. Upon satisfactory completion of the utilities and roads, the entire area within the right-of-way shall be raked, graded, seeded and mulched to the approved plans.
2. The site Contractor shall be responsible to fine grade the right-of-way and maintain erosion control. In those areas where home building has started, clean up, site maintenance and erosion control will then become the responsibility of the builder.
3. Debris and spoil banks created during the development (not home building) of the site shall be entirely removed and/or disposed of from the site. No burying of debris or material shall be allowed on approved or proposed building lots.

M. SIGNS

1. Street and traffic signs shall be supplied and installed by the Highway Department in accordance with standards outlined in the National Manual of Uniform Traffic Control Devices (including the New York State Supplement).
2. Signs and posts shall be ordered by the Highway Department for consistency throughout the Town. Upon receipt of signs, they shall be placed in the field by the Highway Department with sign, post and installation cost the responsibility of the Developer.

ARTICLE V – DRAINAGE IMPROVEMENTS

5.0 DESIGN CONSIDERATIONS

A. GENERAL DESIGN CRITERIA

This section provides guidance for the design of storm drainage facilities within the Town of Canandaigua Municipal Separate Storm Sewer System (MS4). These facilities shall be designed to collect and transport the run-off from streets, lawns, paved areas, roof areas, and upstream areas while meeting the MS4 requirements. The developer is required to:

1. Follow the most current edition of New York State Stormwater Design requirements located in the New York State Stormwater Management Design Manual.
2. Complete and submit an MS4 SWPPP Acceptance Form (Appendix ST-2.0) to the Town of Canandaigua MS4 Program Coordinator for approval.
3. File for the latest version of the State Pollutant Discharge Elimination System (“SPDES”) General Permit for Stormwater Discharges from Construction Activities and submit a Notice of Intent (NOI) form to obtain permit coverage. A copy of the MS4 Acceptance Form is to be submitted to NYSDEC with the NOI. A copy shall also remain within the approved SWPPP.

B. HOUSE AND LOT STORM DRAINAGE

1. Finished ground level adjacent to house foundation wall shall be a minimum of one (1') foot higher than the edge of pavement or shall provide a minimum slope of 2% away from the foundation to a swale, culvert, or other collection system. Provisions shall be made for draining positively the surface of each lot by proper grading and construction of swales, ditches or drains. These items shall receive the same careful design attention as the street drainage system (see Appendix G).
2. Provisions shall be made for discharging roof and basement drainage into the street drainage system. This shall be accomplished with the use of storm sewer laterals. When gravity discharge from the basement drain cannot be obtained, sump pumps with appropriate check valves shall be installed.
3. Where storm sewers are not available, roof and basement drainage shall be discharged to splash blocks and be directed away from neighboring properties and foundations.
4. No laundry, sanitary, or kitchen wastes shall be discharged to a storm drainage system. No drain connections from garage floors shall be permitted to enter drainage swales or a storm drainage system.
5. Storm drain laterals shall have outside cleanouts.

6. Rear yard swales shall have a minimum grade of 2%. Where this cannot be provided, a concrete gutter may be required. Under no conditions will a grade of less than 1% be allowed for drainage swales.
7. Yard inlets shall be provided along swales to collect runoff from a maximum distance of three (3) lots or four hundred (400') feet (in any one direction), whichever is less.
8. Additional design requirements can be found under the Town of Canandaigua Steep Slope Protection Law (Chapter 220, Section 220-8).

C. STORMWATER MANAGEMENT FACILITIES

1. Stormwater management facilities (SMF), such as (but not limited to) artificial ponds and wetlands, shall be required to mitigate the impact of land development on downstream properties and drainage systems.
2. Stormwater management facilities and erosion control measures in all new land development shall be provided in compliance with the MS4 and NYSDEC requirements; and where the Town Engineer determines it is necessary in order to provide proper drainage and/or erosion control.
3. The Town reserves the right to establish particular parameters in each individual instance. The following represents the basic philosophy regarding the design of stormwater management facilities:
 - a) Requirements of the New York State Department of Environmental Conservation (NYSDEC) shall be considered and shall be used in cases where they are more stringent than the requirements presented in this document.
 - b) SMF's shall be designed to discharge not more than 90% of Pre-Developed runoff rates under Post Developed conditions.
 - c) Best manageable practices shall be implemented where possible.
 - d) All detention/retention facilities designs shall evaluate the impacts of a 2-year, 10-year, 25-year, and 100-year design storm.
 - e) All SMF's shall be designed so that a 100-year storm event is routed through the principal spillway in lieu of utilizing the auxiliary/ emergency spillway.
 - f) New York State Dam Safety Regulations, where applicable.
 - g) No developed area shall discharge more stormwater into adjacent culverts and channels than occurs under a predeveloped/natural condition.
 - h) The flow capacity of channels and culverts immediately downstream from a development does not necessarily govern the total drainage system capacity downstream.

4. A plan view and details are required to show the stormwater management facilities location, size, inlet structures, and outlet structures, as well as any appurtenances. An access easement may be required to be provided around all portions of the stormwater management facilities or the stormwater management facilities may be located on land dedicated to the Town.
5. Under some instances, the Town may recommend and/or negotiate a fee in lieu of constructing an on-site stormwater treatment facility with the Developer, particularly when nearby downstream regional stormwater management facilities already exist and have the capacity to handle additional stormwater or site restrictions on the applicants' property inhibit the installation of such a facility or for other site related/stormwater related reasons as directed by the Town. This fee shall be used for either maintenance improvements to the existing downstream facility into which the proposed development would contribute stormwater, toward the maintenance and/or development of drainage channels, culverts, etc., or toward the possible creation of a new downstream regional stormwater management facility if there appears to be a need for one in the area.
6. Snow storage needs should be considered in the design of the SMF.

D. WATER QUALITY & QUANTITY REQUIREMENTS

1. The Town of Canandaigua is supportive of initiative to preserve water quality in all major streams, creeks, and tributaries. Water quality initiatives are designed to reduce the thermal impacts, sediment load, and intrusion of pollutants into sensitive streams that support fish and wildlife habitat. Water quality preservation measures shall be incorporated into all developments either through construction of man-made wetlands, mechanical purification methods, or cash contributions to regional water quality facilities.
2. All development in the Town of Canandaigua shall incorporate water quality preservation measures into the design of the project as follows:
 - a) If the total project disturbance is 1-acre or more, the project will be required to meet the MS4 and NYSDEC General Permit requirements.
 - b) If the project involves the creation of 5,000 square feet or more of cumulative parking area, the project will be required to provide water quality preservation measures and be designed to evaluate the impacts of at least a 10-year design storm.
3. All development in the Canandaigua Lake Watershed Area with a distance of 500 feet or more away from the Canandaigua Lake shall incorporate water quality preservation measures into the design of the project as follows:
 - a) If the total project disturbance is 20,000 square-feet or more, the project will be required to provide water quality preservation measures and be designed to manage the impacts of a 2-year design storm.

4. For all development within the Canandaigua Lake Watershed, water quality preservation measures shall be designed to provide Enhanced Phosphorous Treatment as outlined in chapter 10 of the New York State Stormwater Management Design Manual.
5. The required water quality treatment volume shall be calculated as described in the latest edition of the “New York State Stormwater Management Design Manual”.
6. The use of mechanical treatment systems shall be considered upon review by the Town Engineer. If such mechanical treatment systems be approved, the developer must submit a Maintenance Agreement to assure the long-term care and cleaning of any mechanical treatment systems approved.

5.1 MATERIAL SPECIFICAITONS

A. GENERAL

The materials presented herein are deemed to be of satisfactory quality for installation within the Town. When other materials may be made available, their use may be permitted in limited test sections with the restriction that should these materials prove unsatisfactory through the test period as established by the Town, they shall be removed and replaced with those heroin called for at no expense to the Town.

B. STORM DRAINS

1. General Requirements:

- a) Minimum pipe size - 12 inch diameter*
- b) Minimum velocity when flowing full - 3 fps
- c) Maximum manhole and catch basin spacing - 300 lineal feet.
- d) In general, only natural waterways may be continued in open channels. Street drainage and other parts of a storm sewer system shall be in closed conduit. When gradient and tributary runoff require conduit greater than 36 inches in diameter, then open channel design may be considered after review by the municipality.
- e) All pipes shall be smooth bore.

*Any drains less than 12” must be justified with drainage calculations and shall be subject for review by the Town of Canandaigua Highway Superintendent and the Town Engineer.

2. Reinforced Concrete Pipe (RCP)

Shall be supplied in conformance with ASTM C-76 Class II. Joints shall be of the bell and spigot type with compression type joint ASTM C-443.

3. Polyvinyl Chloride (PVC) Pipe

Shall meet the requirements of ASTM D-3034 or ASTM F-679, minimum wall thickness SDR-35 with elastomeric gasket joint, ASTM D-3212. PVC pipe shall not be used as driveway culverts.

4. Corrugated Steel Pipe

All pipes shall be coated inside and outside and have joints made with connecting bands. Thickness gauge will be dependent on the load conditions, except that 16 gauge shall be the minimum allowable thickness.

5. High Density Polyethylene (HDPE)

All HDPE storm drainage pipes shall be corrugated with a N12 smooth interior and shall conform to AASHTO M-294. All fittings shall conform to ASTM D1248.

6. Storm Laterals

- a) PVC conforming to ASTM D-3034, with a wall thickness of SDR-35 and a minimum pipe diameter of 6 inches.
- b) Sump pumps and roof runoff shall discharge to storm laterals or, in the absence of storm sewers, to splash pads directed to side or rear yard drainage swales.

7. Catch Basin Leads

Shall be a minimum of 12 inches in diameter (see Appendix ST); cross-over pipes are to be 12 inch perforated. Catch basin leads shall only be connected to the storm sewers at manholes except in those areas where the storm sewer is 24 inches in diameter or greater. In these instances, the catch basin leads can connect directly to the pipe

- a) Reinforced Concrete Pipe.
- b) Polyvinyl Chloride Pipe (PVC).
- c) Corrugated Steel Pipe.

8. Underdrains

- a) Shall be a minimum of 4 inches in diameter, perforated polyethylene.
- b) Required on all Town Collector, Local and Industrial Roads unless determined to be unnecessary by the Town Highway Superintendent.

C. MANHOLES

1. All storm manholes shall be designed to accommodate the pipes entering and exiting the structures. A schedule of manhole diameters, inverts, and rim elevation shall be provided on the final plan

2. Manholes

- a) Precast reinforced concrete sections shall be manufactured in accordance with ASTM Specification C-478. Riser sections shall have tongue and groove ends and super "O" joints and gaskets conforming to ASTM C-443. Manhole bases may be pre-formed or poured in the field. Roof slabs shall be precast structural concrete, reinforced for H-20 loading and 30 percent impact loading. A 24-inch diameter hole shall be eccentrically located in the roof slab. In place of preformed openings in base sections, flexible manhole sleeves (rubber boots/A lok) cast directly into the base walls may be used with compatible pipe material.
- b) All manholes shall be sealed inside and outside completely with two coats of heavy-duty water repellent protective coating which complies with ASTM Specification D-450, Type B.
- c) Manholes constructed of other materials shall be considered for approval following a review of said manhole construction. In specifying these manholes, the Developer's Engineer shall submit adequate design data and/or shop drawings to substantiate the materials.

3. Manhole Ladders and Steps

- a) Manhole ladders or steps shall be provided in all sanitary and storm manholes and shall be constructed of one of the following materials.
 - i. Non-corrodible, aluminum magnesium alloy ladders, with intermediate supports at 5-foot intervals.
 - ii. Forged aluminum with drop front design and grooved tread surface.
 - iii. Nylon/Co-Polymer Polypropylene with steel reinforcement manhole steps.
 - iv. Cast iron steps shall not be used.
- b) Steps shall be cast into the walls of riser sections and shall be aligned in each section to form a continuous ladder with rungs equally spaced vertically in the assembled manhole at a distance of 12 inches apart. The first step shall be a maximum of 32 inches from the manhole cover. Step alignment less than 1" (vertical) alignment tolerance in all manholes.

4. Frames and Covers

a) Storm Manhole Frames and Covers

Shall be Neenah R-1723 or East Jordan Casting No. 1203 with a vented cover or other approved equal. The inside diameter for clearance shall be a minimum of 24 inches.

b) Catch Basin Frames and Grates

- i. Shall be rectangular, galvanized (ASTM A-123) and sized to fit gutter inlets or field inlets. The gutter grates shall be NYSDOT size no. 9 to fit the catch basin inside dimensions of 24" x 24". The minimum field inlet shall be NYSDOT size no. 9 to fit a field inlet of 24" x 24" inside dimension.
- ii. Catch basin manholes shall be set to allow a NYSDOT size no. 9 grate to be installed.
- iii. Catch basins shall be placed at all low points and intersections with maximum spacing of 300 feet.
- iv. Frames and grates shall be as specified in NYSDOT Specification Drawing 655-6R1 and Section 655 of the NYSDOT Standard Specification Manual. All grates shall be bolted to the frames.

P. EQUIVALENTS

1. Any material and manufacturer substitutes are to be provided in advance to the Town Highway Superintendent for review and approval.
2. For any project it will be assumed that the Developer will furnish the exact materials specified on the plans and specifications unless the Developer files with the Town of Canandaigua Highway Superintendent prior to any use in the development, the names and complete description of each article which he proposes to substitute for approval by the Town
3. Any costs incurred by the Town or its representatives associated with the verification of substitute equipment and materials will be the responsibility of the Developer.

5.2 INSTALLATION OF IMPROVEMENTS

A. PIPE INSTALLATION

1. Line and Grade

All pipes and appurtenances of whatever character shall, when set, conform to the alignments and grades required by the Design Engineer. All of the required special castings and other fixtures that are indicated upon the plans, or that may be required during the progress of the work, shall be installed in their proper positions. Wye connections may be stone encased with the approval of the Town of Canandaigua.

2. Laying Pipe and Castings

The Contractor shall use suitable tools and appliances for the safe and convenient handling and laying of all utilities and appurtenances. All pipes and castings shall be carefully examined by the Contractor for defects and no pipe or casting which is known to be defective shall be laid. All PVC pipe shall be glossy with the manufacturer's marks legible. If defective pipe or castings should be discovered after being laid, these shall be removed and replaced with sound pipe or castings. The pipes shall be cleaned before they are laid and shall be kept clean until they are accepted with the completed work. All ends of the pipes shall be watertight capped to exclude water and debris from entering the pipes except during the actual pipe laying.

Sewers shall be built to the lines and grades between manholes as shown on the project drawings. The Contractor shall provide sufficient grade control to properly install the pipe and appurtenances. Sewer pipe shall be laid upgrade with spigots placed in the direction of flow. All pipes shall be fitted together to form a smooth, even invert. Pipes disturbed after laying shall be removed and relaid.

After the pipe has been placed and adjusted to line and grade, the bed shall be trimmed to support the pipe for its entire length. Material used for bedding shall be thoroughly compacted under the bottom and the haunches of the pipe. The trench shall then be backfilled to above the top of the pipe and carefully compacted to hold the pipe in position.

3. Cutting Pipe

Whenever it may be necessary to cut any straight pipe for any purpose, cutting shall be done to the satisfaction of the Engineer in such manner as will not cause any cracking of the pipe.

B. MANHOLE CONSTRUCTION

1. General

- a) Manholes shall be constructed of the size, type and at the locations shown on the Plans, or as designated by the Design Engineer in the field.
- b) The manhole bed shall be excavated level and include a minimum of 6 inches of crushed stone.
- c) Manhole risers and flat slab covers shall be precast reinforced units. Manhole bases may be precast "Monobase" or field poured with 3,500 psi concrete.
- d) Eccentric cone sections may be used on the top of manhole riser sections if the inside height dimension from the bench wall to the bottom of the eccentric section exceeds 8 feet.
- e) Interior and exterior concrete surfaces shall be sealed by the supplier and touched up or recoated by the Contractor with like material.

- f) Any pipe entering a manhole shall be neatly cut before installation in the manhole. Pipe shall not be "chipped off" after installation.
- g) All openings and joints in the manhole sections shall be completely filled once the sections are set, with non-shrink grout* and enhanced with Xypex Admix, and after grout is cured, sealed with 2 coats of approved bitumastic coal tar sealer.

*When PVC is used all openings around pipes shall be completely filled with 100 percent epoxy non-shrink grout.
- h) Before each barrel of the manhole is set, the joint shall be cleaned and the barrel correctly aligned, so that the steps form a continuous ladder. The first step shall be a maximum of 30 inches below finished grade and continue to the top of the bench wall.
- i) It is the intent of these specifications that manholes are constructed which will exclude all ground water, by means of carefully constructed foundations, tight barrel joints and the coating of the inside and outside of the manholes.

2. Frames and Covers

The frames shall be firmly set in a bed of not less than one full inch of cement mortar and adjusted to the finished grade. The manhole frame may be set directly on the concrete roof slab, providing the top will be at the proper grade; otherwise, precast concrete spacers or bricks shall be mortared to the roof slab to raise the frame to the proper grade. A maximum of three courses of spacers or bricks shall be used to adjust the frames and grates to the proper grade.

3. Inverts

Inverts shall be constructed in all manholes. The inverts may be constructed of the mainline pipe or brick (Grade SS) and shall be the depth of the pipe. When PVC material is used, all brick, concrete or other masonry material that interfaces with the PVC shall be adhered to the PVC with 100 percent epoxy non-shrink grout. Manholes with 2 or more inverts shall have a smooth transition of flow.

4. Drop Manholes

Wherever the invert of the entering sewer is more than 2 feet above the invert of the outlet sewer, it shall be connected with a vertical outside drop with a clean-out pipe half bricked up. When drops are placed, the entire excavation around the drop pipe shall be filled with stone encasement extending not less than 2 feet along the main sewer.

The clean-out opening in the barrel of the manhole shall be cut in after the manhole wall pipe is in place and the joint between the clean-out pipe and the manhole wall shall be thoroughly sealed with cement mortar on the inside and bituminous joint material on the outside.

5. Shallow Sewer Manholes

Where any manhole is less than 4 feet from invert to bottom of roof slab, the Contractor is to provide a manhole as shown in Appendix S. The roof slab shall be precast structural concrete reinforced to withstand a concentrated H-20 load plus 30 percent impact. The slab shall be formed to fit into the ends of the vertical pipe and shall have a full bearing for its entire circumference.

6. Sealing of Manholes

All manholes shall be sealed with two (2) coats of approved bitumastic coal tar sealer as applied by the manhole manufacturer to the entire interior and exterior surfaces in minimum dry thickness of 11 mils per coat. Application shall be in accordance with the coating manufacturer's recommendations and shall be certified thereto by the suppliers. Before placement in the field, abraded areas shall be touched up with two coats of like material by the Contractor. Covers and other exposed surfaces shall also be coated in the field. Improper materials or coating thickness shall be cause for rejection of manhole sections.

C. CATCH BASINS

1. General

- a) Catch basins shall be constructed as shown in the Appendix H or as shown on the plans for special conditions. Catch basins shall be constructed of precast concrete.
- b) All catch basins shall be coated inside and outside with two coats of heavy-duty coal tar sealer.
- c) Catch basins within the Canandaigua Lake Watershed shall be marked with a permanent metal storm drain marker which states "No Dumping – Drains to Lake," or similar text approved by the Town Highway Superintendent.

ARTICLE VI – EROSION & SEDIMENT CONTROL

6.0 DESIGN CONSIDERATIONS

A. GENERAL

In order to assure that the surrounding properties and watercourses will not be subjected to siltation or erosion the Developer shall be required to follow certain erosion control practices. Such procedures may include, but are not limited to:

1. All construction projects shall be designed, installed and maintained per the requirements set forth in the latest edition of the “New York Standards and Specifications for Erosion and Sediment Control Manual”.
2. A detailed construction sequence outlining the individual steps to be taken during construction shall be provided on the erosion and sediment control plan (see Appendix G for an example of a construction sequence).
3. Best management practices shall be utilized that are consistent with the latest edition of the “New York Guidelines for Urban Erosion and Sediment Control”.
4. Water quality measures shall be utilized during the construction of all projects that meet the requirements of Section 5.0 of this Article.
5. Erosion and sedimentation control plans should be designed to mitigate any impacts to downstream properties and receiving waters.
6. Where possible, a finished grade should be established and then top-soiled and seeded as quickly as possible.
7. Installing stormwater management facilities (SMF) prior to grading operations.
8. Installing and maintaining all perimeter erosion and sediment control measures prior to any ground disturbance such as silt fencing and temporary sedimentation basins at all points of storm water discharge from the property.
9. Minimize site disturbance by conserving as much natural vegetation as possible limiting the area of disturbances to the smallest practical area of land at any one time during development.
10. Provision for temporary vegetation and/or mulching to protect critical areas.
11. Provisions for adequate drainage and management facilities to treat, retain, and convey the increased runoff caused by changed soil and surface conditions during and after development.
12. Installation of permanent final vegetation and structures as soon as practical.
13. Provision of adequate protective measures when slopes in excess of 15% are graded; and minimizing such steep grading.
14. Provision for interceptor swales and sedimentation basins along the lower edges of all developments, and these shall be shown on the plans.

B. Development in the Canandaigua Lake Watershed (CLW):

1. Development that requires post construction water quality measures such as SMFs, the developer is required to provide daily observation of the site by a NYS Licensed Professional Engineer or a Certified Persons in Erosion and Sediment Control (CPESC). These observations are to be in conformance with the NYS SPDES General Permit (most recent version) and Town of Canandaigua MS4 requirements and shall continue until such time that the mass grading of that section or phase is completed and all stormwater management components of the approved project SWPPP are installed and functioning.
2. Development in the CLW that does not require post construction water quality measures but disturbs at least 1 acre and have been determined by the Town Code Enforcement Officer (CEO) to have a high erosion risk are required to provide observation of the site at least two times per week (separated by at least two calendar days) by NYS Licensed Professional Engineer or CPESC. These observations are to continue until such time that all stormwater management components of the approved project SWPPP are installed and functioning.
3. Reduced observation frequency shall be only authorized by the Town CEO with consultation of approved governing agencies (Watershed Inspector, Watershed Program Manager, Town Engineer, etc.) after written request by the developer. These observations do not relieve the developer of the stormwater requirements per the NYS SPDES General Permit (most recent version). The observer will report any site compliance issues or deficiencies to the Town CEO. The CEO reserves the right to review the qualifications of the observer.
4. Development in the CLW that will disturb more than 5 acres at one time and have received a 5-acre waiver (written approval) from the Town of Canandaigua (MS4) shall be required to coordinate the regular stormwater observations (required by the NYS SPDES General Permit) with the Watershed Inspector and the Watershed Program Manager.
5. Developments that disturb less than 5 acres at one time may be inspected periodically by the Watershed Inspector and Watershed Manager to verify that all SWPPP components are installed properly and that the site is not contributing to the contravention of water quality standards.

ARTICLE VII – SANITARY IMPROVMENTS

7.0 DESIGN CRITERIA

A. GENERAL

The materials intended to establish the degree of excellence are herein included are deemed to be of satisfactory quality for installation within the Town. When alternative materials may be made available, their use may be permitted in limited test sections with the restriction that should these materials prove unsatisfactory through the test period as established by the Town, they shall be removed and replaced with those herein called for at no expense to the Town.

B. INDIVIDUAL ON-SITE WASTEWATER TREATMENT SYSTEMS

1. Individual On-site Wastewater Treatment Systems

Where public sanitary sewers are not available, individual on-site wastewater treatment systems shall be designed and must conform to the minimum requirements established by the New York State Department of Health per Appendix 75-A of Part 75 Chapter 11 of Title 10 effective 12/1/90 or the latest revisions thereof and/or the Department of Environmental Conservation Design Standards for Wastewater Treatment Works (1996), and Town Code, respectively, and any other agency or authority with jurisdiction.

- a) Individual on-site wastewater systems proposed within the Canandaigua Lake Watershed must additionally conform to the requirements and procedures adopted by the Canandaigua Lake Watershed Commission and enforced by the Canandaigua Lake Watershed Inspector.
- b) Provisions may be required to make the individual house plumbing for connection to future sanitary sewer system.
- c) A “dry” sanitary sewer system may be required in those areas that are adjacent to proposed trunk sewers established in the Town of Farmington Sewer Master Plan.
- d) Leach lines shall not cross over or under water, gas or storm laterals, nor be located underneath the driveway area.
- e) Must be designed by a New York State Licensed Professional Engineer.

2. Alternate Systems

Alternate systems may be submitted for review by the New York State Department of Health with the following additional restrictions by the Town of Canandaigua:

- a) Any fill or built-up (Raised Bed) system shall have a taper section ending a minimum of 100 feet from any property line.

- b) Fill limits shall include a minimum 50% future expansion area.
- c) Fill systems require percolation tests, completed by a New York State Licensed Professional Engineer, in the in-situ fill and placed fill after it has been in place for at least six months and over at least one winter season.
- d) Detail plans for all individual on-site wastewater treatment systems associated with developments defined as subdivisions by the Public Health Law shall be subject to the approval of the New York State Department of Health.

C. PUBLIC SANITARY SEWERS

1. Generally, all public sanitary facilities and installations within the Town of Canandaigua are under the jurisdiction of the Ontario County Department of Public Works (Canandaigua Lake County Sewer District). Accordingly, all design, material, construction and testing shall be performed in accordance with and are subject to the standard specifications of and subject to acceptance by this Agency.
2. A small geographic area of the Town of Canandaigua is tributary to the Town of Farmington. In this area all design, material, construction and testing shall be performed in accordance with and are subject to the standard specifications of and subject to acceptance by the Town of Farmington Sewer Department.
3. Detail plans for all public sanitary sewage facilities are to meet the requirements of and are subject to the approval of the New York State Department of Health and the New York State Department of Environmental Conservation.

ARTICLE VIII – CONSTRUCTION REQUIREMENTS

8.0 GENERAL

Once the Planning Board has granted final approval and before the issuance of permits, the Developer, so as to assure the proper and timely completion of the required improvements, shall submit the following:

- tender of dedication and deeds to all streets
- easements
- agreements
- irrevocable Surety

Once this information is provided a preconstruction meeting is then scheduled.

A. Pre-Construction Meeting

1. A pre-construction meeting shall be requested by the Developer and scheduled through the Development Office and Code Enforcement Officer or a Town Representative prior to the start of construction of a development. The Developer, his Contractor and Design Engineer shall meet with all utility representatives, the Town Code Enforcement Officer, Town Engineer, appropriate Department representatives and project observers to discuss the overall project, its impacts and schedules. A schedule of construction shall be presented in writing at this meeting by the site contractor. Meeting minutes will also be taken and filed with the project as an accurate summary of the discussion.
2. Prior to scheduling a pre-construction meeting, the following items are to be completed:
 - a) Plans must be signed by all required parties.
 - b) If required by the Planning Board, a surety is to be provided to the Town Development Office for review and processing in accordance with Local Law 19 of 2017 Amending Chapter 174, Section 174-32(F).
 - c) Approved Stormwater Pollution Prevention Plan (SWPPP) and signed MS4 SWPPP Acceptance Form.
 - d) All required agreements and easements have been submitted for review.
 - e) State Historic Preservation Office (SHPO) compliance letter “No Impact” where applicable, is to be provided.
 - f) Building Permit application completed and submitted to the Development Office.
3. Developments within the Canandaigua Lake Watershed will require the attendance of the Canandaigua Lake Watershed Inspector and the Canandaigua Lake Watershed Program Manager at the pre-construction meeting.

B. Construction Schedule

The Developer shall provide a construction schedule showing the order in which work will be completed at the pre-construction meeting. The schedule shall be reviewed at the pre-construction meeting, revised and resubmitted if necessary. No work will begin until a schedule is acceptable to and is on file with the Town Development Office.

C. Permits

The Developer shall secure all necessary permits from the Town including Highway and Water Departments, and any other agency who may have authority over any work prior to the start of construction.

D. Offers of Dedication

The developer shall tender offers of dedication in a form satisfactory to the Town Attorney of all land included in streets, highways or parks, not specifically reserved by him. Approval of a Plan by the Planning Board shall not constitute an acceptance by the Town Board of the dedication of any street; highway, utility, park or other public's open space.

E. Surety/Letter of Credit – Large Projects

A Surety/Letter of Credit furnished for the installation of the required improvements shall be in the amount as determined by the applicants design professional, stamped and signed by a NYS Licensed Professional, and reviewed by the Town Engineer as to form, sufficiency and manner of execution. The Surety/Letter of Credit shall be issued in favor of the Town of Canandaigua and shall assure the complete installation of the required improvements within a specified period, not longer than three years. The Surety/Letter of Credit shall be issued to the Town for an initial minimum period of one year.

The Surety must be accepted by the Town Board before the Site Development Permit is issued.

The amount shall include but not be limited to the following items:

- Total estimated construction cost of all utilities, laterals, water services, roads, gutters, earthwork, drainage and stormwater mitigation improvements, etc.
- Minimum 10 percent contingency factor.
- Engineering and construction observation charges will be a minimum of 6 percent based on the project complexity and construction schedule.
- Street signs and surveyor's monuments.
- Record drawings & GIS information of installed facilities.

F. Special Sureties – Small Projects

1. General

Special Sureties shall be a form of surety guaranteeing that the plan is executed according to the final approval. In the event that the execution is not consistent with the approved plan the surety shall be exercised by the Town to construct the required elements.

- a) The Town Clerk may receive the Surety in the form of a Bank Check.
- b) The Surety shall be in the amount as determined by the applicants design professional, stamped and signed by a NYS Licensed Professional, and reviewed by the Town Development Office if under \$20,000.00 and if greater than \$20,000.00 reviewed by the Town Engineer, as to form, sufficiency and manner of execution.
- c) All special sureties require the review and approval of the Town Attorney prior to being processed.
- d) All special sureties received by the Town of Canandaigua will be reviewed and processed in accordance with Local Law 19 of 2017 Amending Chapter 174, Section 174-32(F) [including the most recent amendments] and must be accepted by the Town before the Site Development Permit is issued.

2. Erosion Control Guarantee

All projects shall provide an erosion control plan designed to meet the requirements of the New York State Department of Environmental Conservation or other authorities having jurisdiction. The developers engineer shall provide an engineer's estimate of the cost to execute the plan as approved by the Planning Board, for review. An Erosion Control Surety in an amount approved by the Town will be required prior to the issuance of a site development permit.

3. Landscaping Guarantee

The developer shall provide an estimate of the cost to execute the approved landscaping plan, as approved by the Planning Board, for review. A Landscaping Surety in an amount approved by the Town will be required prior to the issuance of a site development permit.

8.1 METHODS OF RELEASE OF FINANCING SECURITY

A. Surety/Letters of Credit – Large Projects

The procedure required for the release of funds is as follows:

- 1 Submission of periodic construction cost estimates by the Contractor and Developer to the Town of Canandaigua Code Enforcement Officer, Town Highway & Water Superintendent, and the Town Engineer.

2. The site shall be reviewed by the Town Code Enforcement Officer, Town Highway & Water Superintendent, Town Engineer, and Developer's agents to review the comparison of the work completed to the monetary value of the requested release of funds.
3. The Developer's Engineer, Developer, Town Code Enforcement Officer, Town Highway & Water Superintendent, and Town Engineer shall approve in writing all requests for release of funds up to 90 percent of the total amount of an item. (See Appendix G for Town of Canandaigua Letter of Credit Release Form)
4. The Town Engineer, upon completing a coordinated review with the Town Code Enforcement Officer and Town Highway & Water Superintendent, shall then submit a completed Town of Canandaigua Surety/ Letter of Credit Release Form, Applicants Engineers Estimate, and a letter of recommendation to the Town Development Office and Town Clerk. All releases are to be processed with the Town's Planning Board for recommendation to the Town's Fiscal Office for release of funds. Approval by the Town officials for authorized periodic payments is not to be construed as acceptance of the work completed to date.
5. Partial release from the Surety/Letter of Credit may be granted by the Planning Board as individual components of the subdivision development are completed. This shall not be construed as acceptance of the work by the Town.
6. If the required improvements are not completely installed within the period fixed or the extended period approved by the Planning Board or Town Board, the Town Board may declare the Surety/Letter of Credit in default and collect the amount payable thereunder. Upon receipt of such amount, the Town shall cause installation of the improvements covered by the Surety/Letter of Credit and as commensurate with the extent of building development that has taken place in the subdivision, not exceeding the monetary value of the Surety/Letter of Credit.

B. Special Sureties – Small Projects

The procedure required for the release of funds is as follows:

- 1 Submission of a request for release of a special surety by the applicant and/or representative is to be provided to the Town Development Office.
- 2 The site shall be monitored by the Town Code Enforcement Officer, Town Highway & Water Superintendent (where applicable), Town Engineer (if requested by the Town), and Developer's agents, to review the comparison of the work completed to the monetary value of the requested release of funds.

a) Erosion Control Guarantees

Release of the Erosion Control Guarantee shall be made following the completion of the approved work and the successful establishment of a permanent vegetative cover over all the disturbed areas.

b) Landscaping Guarantee

Release of the Landscaping Guarantee shall be made one year after verification of the successful planting and survival of the proposed elements.

3 Once the requested release is authorized by the Town Code Enforcement Officer:

a) If the requested surety amount is less than \$20,000

- The Town Code Enforcement Officer will
 - Prepare a letter of recommendation regarding the approved dollar amount to be released.
 - Sign the Town of Canandaigua Surety Release Form for Special Sureties.
 - Forward the letter of recommendation and signed surety release form to the Town Clerk.
- The Town Clerk will forward to the Planning Board for review and authorization.
- Once authorized by the Planning Board and returned to the Town Clerk, the release request will be processed in accordance with Local Law 19 of 2017 Amending Chapter 174, Section 174-32(F) [including the most recent amendments].

b) If the requested surety amount is greater than \$20,000

- The Town Code Enforcement Officer will forward his approval of the release to the Town Engineer.
- The Town Engineer will review the requested release amount with the approved estimate and prepare a letter of recommendation regarding the approved dollar amount to be released.
- The Town Engineer will forward the letter of recommendation and Town of Canandaigua surety release form to the Town Clerk.
- The Town Clerk will forward to the Planning Board for review and authorization.
- Once authorized by the Planning Board and returned to the Town Clerk, the release request will be processed in accordance with Local Law 19 of 2017 Amending Chapter 174, Section 174-32(F) [including the most recent amendments].

4 For Final Releases please refer to Article IIX Requirements for Dedication

8.2 FORMATION OF DISTRICTS

- A. Between the interval of preliminary and final approvals of the land subdivision plat, the Developer shall:
1. Petition the Town Board for the creation of districts or extensions of districts as necessary for a given development. Those districts or extensions may include water, sewer, drainage, sidewalks, lighting and/or any particular district created for a specific purpose.
 2. Coordinate with Canandaigua Lake County Sewer District and/or the Town of Farmington Sewer Department, which manage sewage facilities within the Town of Canandaigua as the Town of Canandaigua does not operate and maintain sanitary sewer systems.
 3. In order to preserve the continuity and format of the application of the districts to the various governing authorities, the Town Attorney and Town Engineer are required to review the necessary documents and maps and the Town Clerk will be responsible for publication and filing requirements. All costs for the formation of these districts shall be paid by the Developer to the Town of Canandaigua within 30 calendar days of its receipt of a bill therefore.
 4. Required improvement districts must be extended or created by the Town Board before the signature of the Planning Board Chairperson may be affixed to the approved subdivision plan.

8.3 FORMATION OF EASEMENTS

- A. If easements are required on a project, the following procedure will be followed:
1. The developer will have his NYS Professional Engineer and/or NYS Licensed Professional Surveyor prepare easement maps and legal descriptions of all of the easements associated with the development.
 2. The easements and legal descriptions are forwarded to the Town Engineer for technical review.
 3. After technical review by the Town Engineer, the easement maps and legal descriptions are sent to the Planning Board Attorney to assure that the appropriate legal language is incorporated into the documents.
 4. The Planning Board Attorney will then contact the developer's attorney to work out any concerns associated with the easement descriptions.

5. If any revisions to the easements are needed they are made by the developer's engineer or surveyor then resubmitted to the Planning Board Attorney for re-review. The Planning Board Attorney shall provide approved easements to the Town Board for review and acceptance.
6. Either the Planning Board Attorney or the Town Clerk will duly file the final easements and the charge of such will be borne by the developer.

8.4 CONSTRUCTION OBSERVATION

Before any construction begins on a subdivision or facilities to be dedicated to the Town, a pre-construction meeting in conformance with Section 9.0 must be held to address the Plans and intended improvements. The installation of improvements and development of any land shall be subject to construction observation at all stages by representatives of the Town. For such purposes free access shall be accorded and requested information shall be promptly submitted. All costs of construction observation, including testing of materials, shall be paid for solely by the Developer. The Developer in either the Surety/Letter of Credit or Check shall provide a sufficient sum for the project observation costs.

8.5 HARDSHIPS

Where the Planning Board finds that because of unusual circumstances of a proposed development extraordinary hardship may result from the strict compliance with these regulations. The applicant should refer to the Code of the Town of Canandaigua for procedure regarding this issue.

ARTICLE IX - REQUIREMENTS FOR DEDICATION

9.0 GENERAL

- A. Prior to the closing out of a project, the expiration of a surety, authorizing final release of a surety, and dedication to the Town, a final inspection is to be completed by the Town Highway & Water Superintendent, Code Enforcement Officer, and Town Engineer (upon request). The Town of Canandaigua Final Inspection Form (Appendix G) is to be completed and provided to the Town of Canandaigua Development Office, Town Clerk, and the Town Engineer for processing.
- B. In addition, prior to dedication taking place, the Town Attorney shall notify the Town in writing that all legal aspects of the project have been satisfied.

9.1 MONUMENTS

Monuments shall have been set in their required locations and certified by the applicants NYS licensed Professional Land Surveyor.

9.2 GRADING

Final grading and hydroseeding and mulching to achieve full stabilization shall be completed within the right-of-way and all spoil removed from the site.

9.3 LANDSCAPING

All landscaping is to be completed as per the approved plans and inspected by the Town of Water and Highway Superintendent, Code Enforcement Officer, and Town Engineer when applicable.

9.4 STREET SIGNS

Permanent street signs, of the same specifications as those of the Town Highway Department, shall be erected at each intersection by the Highway Department and paid for by the developer.

9.5 EASEMENTS & AGREEMENTS

All easement and right-of-way descriptions, maps, deed(s), and stormwater maintenance agreements are to be provided to the Town Development Office, reviewed and approved by the Town Engineer and Town Attorney and accepted by the Town Board prior to authorizing final release of a surety, the expiration of a surety, and dedication to the Town.

9.6 RECORD DRAWINGS

- A. Four (4) prints of the record drawings and one (1) CD digital copy of the information in compliance with the list of requirements below shall be submitted to the Development Office for processing. The Record Drawings are to be provided to the Highway & Water Superintendent, Code Enforcement Officer, and Town Engineer for review and approval.

- B. Once approved, four (4) copies of the record drawings and two (2) CD's containing the digital information is to be provided to the Town of Canandaigua Development Office for distribution (Development Office, Town Clerk, Town Engineer, and Highway & Water Superintendent).
- C. The following requirements are to be provided to insure consistency with the Town of Canandaigua GIS program and to facilitate addition to the Town of Canandaigua's GIS Online Website:
1. All survey data to be in NAD 83 coordinates. NY Central projection units – US Feet.
 2. All elevations to be based on NAVD 88 Othometric Heights.
 3. A minimum of one site benchmark will be established.
 4. All infrastructure dedicated to the Town of Canandaigua is to include but not limited to: monuments and pins delineating dedicated Town of Canandaigua properties, fire hydrants, storm & sanitary manholes, catch basins, water valves, curb stops, sewer cleanouts, light poles and stormwater management facilities.
 5. Delivered to the Town of Canandaigua in a .dwg format that include the following attributes with each structure:
 - Northing
 - Easting
 - Ortho Height
 - Point Code
 - Point I.D.
 - Material
 - Manufacturer
 6. All required points and attributes are to be included in separate files in either .csv or ascii format so that they can be processed and uploaded onto the Town of Canandaigua's GIS Program.
 7. Water line record information to be delivered in a .dwg format with attribute data to include length of line, material and size.
 8. Sanitary sewer line record information to be delivered in .dwg format with attribute data to include length of line, material, size, inlet line, outlet line, slope line, and flow direction arrows.

9. Storm sewer line record information to be delivered in .dwg format with attribute data to include length of line, material, size, inlet line, outlet line, slope line, and flow direction arrows.
10. All data is to be delivered to the Town of Canandaigua on a CD/DVD and a .dwg format digital file.

D. The following Record Drawing information shall be provided as described:

1. Locations and Elevations of all sanitary/storm manholes, catch basins, culvers, this includes invert and top elevations of *sanitary sewers*, watermain, storm sewers, slopes, size and lengths.
2. Locations and Elevations of all water system valves, curb boxes, fire hydrants, *sanitary sewer lateral and main connection at wyes*, *sanitary sewer clean-outs*, storm lateral, water service line and curb box, street signs.
3. Finished Elevations and slopes of road surfaces and gutters, including road name and curve table.
4. Locations and finished elevations of all dedicated stormwater management facilities and outfall structures.
5. Locations of all light poles and sidewalks.
6. Liber/page number of any easements or right-of-way and including floodplain numbers.
7. Any other significant details affecting the operation or maintenance of any system by the town or districts.
8. All record data and test results shall be supplied to the Town/Districts and are subjected to review and approval at least 15 days prior to any dedication procedure.

If the developer cannot provide the record information as detailed above the Town may elect to complete the record information at the Developer/owners expense.

9.7 MAINTENANCE GUARANTEE

- A. The submission and acceptance of a two (2) year Maintenance Surety *or the use of 10 percent of the value of the dedicated items in the established Letter of Credit (LOC)* for the project, for all improvements to be offered to the Town for dedication. Maintenance sureties shall be written by a surety licensed to do business in New York State and they shall be in the amount of 10 percent of the dedicated items. [The Maintenance surety shall be approved as to form and content by the Town Attorney prior to any dedication procedure and final release of funds.]

9.8 DEDICATION PROCESS

A. Prior to the Town Board taking dedication, the following items are to be completed:

1. A final inspection and completion of the Final Inspection Form (Appendix G) is to be performed by the Town of Canandaigua including Highway & Water Superintendent, Code Enforcement Officer, and Town Engineer (upon request from the Town), to confirm all proposed dedicated items have been completed and constructed per the approved plans and Town requirements.
2. The submission and acceptance of a two (2) year Maintenance Guarantee for all improvements to be offered to the Town for dedication. Maintenance sureties shall be written by a surety licensed to do business in New York State and they shall be in the amount of 10 percent of the dedicated items.
3. The submission of all testing results to the Town Development Office and Highway & Water Superintendent.
4. Acceptance of project Record Drawings and GIS information meeting the Town of Canandaigua requirements.
5. All R.O.W. descriptions, easement(s) and deed(s), bills of sale, maps, and agreements reviewed and approved by the Town Attorney and provided to the Town Board.

9.9 FINAL RELEASE OF SURETY

A. Prior to final release from the Surety, the following items are required to be completed as described above:

1. A final site inspection and completion of the Town of Canandaigua Final Inspection Form (Appendix G).
2. A two (2) year Maintenance Guarantee & Acceptance by Town Board
3. Easements and Agreements Approved and filed
4. Certified Record Drawings & GIS Information
5. Acceptance of Dedication by Town Board
6. Payment of all outstanding fees

- B. If the required improvements are not completely installed within the period fixed, or the extended timeframe approved by the Town Board, or the submitted Final Inspection Form identifies deficiencies, the Town Board may declare the Surety or Maintenance Guarantee in default and collect the amount payable thereunder. Upon receipt of such amount, the Town shall install such improvements as were covered by the Surety or Maintenance Guarantee and are commensurate with the extent of building development, which has taken place in the subdivision, not exceeding in cost, however, the amount collected upon the Surety or Maintenance Guarantee.

ARTICLE X - GUIDELINES & REQUIREMENTS

10.0 STEEP SLOPE PROTECTION LAW

The purpose of the Steep Slope Protection Law is to conserve the sensitive environment of steep slope areas, and to regulate land use within these areas in a manner which protects the public interest by minimizing detrimental effects of land disturbance and development to steep slopes. All projects are comply with this section of the Town Code (§220-8).

10.1 SHORELINE DEVELOPMENT GUIDELINES

These development guidelines are specific to development in the Residential Lake District (RLD) and apply to all projects that require site plan review in the RLD in accordance with Article VII of the Town of Canandaigua zoning Law.

10.2 RIDGELINE DEVELOPMENT GUIDELINES

These development guidelines are designed to protect the natural scenic vistas and ridgelines. These guidelines apply to all projects that require site plan review in accordance with Article VII of the Town of Canandaigua zoning Law.