

**SITE DESIGN AND DEVELOPMENT CRITERIA
TOWN OF CANANDAIGUA, NEW YORK**

ARTICLE 1 - GENERAL PROVISIONS

1.0 PURPOSE

- A. The purpose of these Specifications is to provide minimum criteria for the design and construction of improvements within the Town to:
 - (1) Ensure that such improvements are completed in a manner that protects the health safety and welfare of the Town residents and the natural environment, and
 - (2) Ensure that upon completion, such improvements are suitable for dedication to the Town of Canandaigua for perpetual operation and maintenance.

1.1 APPLICABILITY AND WAIVERS

- A. These specifications have been incorporated by reference into Town Code and shall have the same force and effect as Town Code.
- B. 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 in the Town.
- C. The Town and/or its representatives shall review proposals to assess compliance with the requirements contained herein.
- D. The requirements contained herein may be waived or modified by the Planning Board upon a finding that such waiver or modification results in an upgrade to the applicable requirements or that strict application of the requirement is not needed to meet the purposes stated in Section 1.0, Part A. The Planning Board shall consult with the Town Highway and Water Superintendent and others as appropriate
- E. 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.
- F. Where certain standards of development are not set forth they shall be established by the Planning Board, following their review of the particular situation.

1.2 RESPONSIBILITY

- A. It is the responsibility of the Developer to insure preparation of the Plans is sufficient to demonstrate compliance with the standards and requirements herein incorporated. Said Plans shall be prepared by a professional, licensed in the State of New York, who shall have experience in design of land development.
- B. It is the responsibility of the Contractor, acting for the Developer, to construct the facilities in conformance with the approved Plans and the Town standards.
- C. The final results of the project remain the prime responsibility of the Developer and until the development is satisfactorily approved the Town and/or its representatives, said development

shall not be accepted for dedication

1.3 BUILDING PERMITS

- A. To minimize any potential threats to the public health safety and welfare, the CEO, before issuing a building permit, may require that emergency access, water and sewer or other site elements first be installed.
- B. Building permits shall not be granted until:
 - (1) An approved subdivision plan is filed in the office of the Ontario County Clerk.
 - (2) All needed Planning Board and ZBA approvals have been granted.
 - (3) Easements affecting the development of a parcel are filed in the office of the Ontario County Clerk, and notification of such received by the Town.
 - (4) The stone subbase courses have been placed for the road, providing reasonable access to the site for emergency equipment. No building permits will be issued on a stone-base roadway without a surety for paving and approvals by the Code Enforcement Officer, Highway Superintendent, and Town Board.
- C. The Code Enforcement Officer may refuse to issue a building permit during the fall or winter months if the building site is serviced by an unfinished and unpaved road, and it can be reasonably expected that a Certificate of Occupancy may be required for the building before the road can be paved. Under these circumstances, the Code Enforcement Officer may issue a building permit upon receipt of a hold harmless agreement, or disclaimer, in a form acceptable to the Town Attorney and executed by both the Builder and the Buyer, which acknowledges that the road will not be maintained or plowed by the Town until it has been paved, and that the Town will not be liable to claims for damages arising from its issuance of a building permit or Certificate of Occupancy for the site.

1.4 PRECONSTRUCTION MEETING

- A. Before any construction begins on a subdivision or facilities to be dedicated to the Town, a pre-construction meeting with the developer, Town Staff, utility companies and as needed other outside agencies involved in the development, shall be held to:
 - (1) Address outstanding issues of the proposed construction,
 - (2) Clearly establish responsibilities of the various involved parties,
 - (3) Establish an estimated construction schedule,
 - (4) Finalize a sequence for construction.
- B. The pre-construction meeting shall not be held until the applicant has received all needed approvals from the Town and outside agencies, and required sureties have been filed with the Town.

1.5 CONSTRUCTION OBSERVATION

- A. The installation of improvements and development of any land shall be subject to construction observation at all stages of construction by the Town or its designated

representative.

- B. For such purposes free access to the site shall be accorded and requested information shall be promptly submitted by the applicant.
- C. All costs of construction observation, including testing of materials, shall be paid for solely by the Applicant.
- D. The Developer shall include in the surety an amount sufficient to pay for the project observation costs as specified herein.
- E. The Town may stop work if it has been determined that the contractor is not performing the work in the best interests of the municipality or in accordance with previously granted approvals.

1.6 CERTIFICATE OF OCCUPANCY

- A. Certificates of Occupancy may not be granted until:
 - (1) Drainage improvements are completed as shown on such plan and verified by the Town and/or certified by the design engineer to the Development Office.
 - (2) Easements effecting the development of a parcel are filed in the office of the Ontario County Clerk.
 - (3) If applicable, a certificate of water quality and quantity from a private water supply is obtained from a New York State approved testing laboratory.
 - (4) The site has been stabilized in accordance with applicable requirements of Town Code Chapter 165 and the New York State Storm Water Management Design Manual.
 - (5) Required approvals from all outside agencies have been obtained.
- B. If all on-site improvements are complete but landscaping is incomplete, the certificate of occupancy may be issued but the escrow monies will be retained until final landscaping is complete at which point the escrow shall be released to the applicant
- C. An Instrument Survey with spot elevations to verify site drainage may be required at the discretion of the Town CEO.

ARTICLE II – DESIGN AND CONSTRUCTION STANDARDS

2.1 RESERVED LAND FOR FUTURE USE

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

2.2 GRADING (See also Town Code Chapter 165)

- A. General
 - (1) Where possible, a finished grade shall be established and final seeding put in place as soon as possible.

- (2) The finished grading on developed lands shall provide for the effective removal of storm water runoff to a drainage system.
- (3) Areas that will not be impacted by subsequent construction are strongly encouraged to establish a turf surface during the initial phases of construction.
- (4) In general, the Design Engineer shall try to establish a finished grade at the structure line to permit a minimum of 2.0 percent grade away from the structure to the drainage system.
- (5) Drainage shall generally be to side or rear lot swales provided:
 - (a) Swales are of a proper cross-section to permit ease of maintenance by the individual Owner.
 - (b) Finish grade at right-of-way line shall not be more than 2 feet above finish grade at centerline and the driveway slope within the lot shall not be greater than 15 percent. A leveling area of 3 percent maximum grade adjacent to the right-of-way shall be provided, at a minimum of 30 feet in length from the edge of the street pavement.
 - (c) Where multi-lot grading is proposed, all swales required for positive drainage will be installed prior to the issuance of a Certificate of Occupancy.

B. Grading Plan

- (1) A Grading Plan shall be submitted, with the final plan for any development, showing at a minimum the following items:
 - (a) Existing contours.
 - (b) Proposed finish contours.
 - (c) Spot elevations of proposed finish grades at key locations.
 - (d) Garage floor elevations.
 - (e) Minimum elevations of any architectural opening and base flood elevation where flood hazard areas exist.
 - (f) Culvert invert elevations
 - (g) All elevations shall be established from USC&GS datum and the plan shall show a site benchmark.
 - (h) Drainage flow directional arrows.
 - (i) See Appendix GG for Typical grading Plan

2.3 EROSION & SEDIMENT CONTROL

- 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) Installing any stormwater management facilities (SMF) prior to mass grading operations.
- (2) 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.
- (3) 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.
- (4) Provision for temporary vegetation and/or mulching to protect critical areas.
- (5) 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.
- (6) Installation of permanent final vegetation and structures as soon as practical.
- (7) Provision of adequate protective measures when slopes in excess of 15% are graded; and minimizing such steep grading.
- (8) Provision for interceptor swales and sedimentation basins along the lower edges of all developments, and these shall be shown on the plans.
- (9) Development in the Canandaigua Lake Watershed that requires post construction water quality measures such as SMFs, the developer is required to provide daily observation of the site by a Licensed Professional or a Certified Persons in Erosion and Sediment Control (CPESC) until such time that the mass grading of that section or phase is completed and all stormwater management components of the SWPPP are installed and functioning. Development in the CLW that does not require post construction water quality measures but disturbs at least 1 acre and that have been determined by the Town 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 LP or CPESC until such time that all stormwater management components of the SWPPP are installed and functioning. 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 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.
- (10) Development in the Canandaigua Lake Watershed that will disturb more than 5 acres at one time, shall be required to coordinate the regular stormwater observations (required by the SPDES General Permit) with the Watershed Inspector and the Watershed Program Manager. 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.

2.4 STORM DRAINAGE SYSTEMS

- A. General Design Criteria. This section is to provide guidance for the design of storm drainage facilities.
 - (1) These facilities shall be designed to collect and transport the run-off from streets, lawns, paved areas, roof areas, and upstream areas.
 - (2) The developer is required to follow the most current edition of the New York State Storm Water Management Design Manual.
 - (3) The developer is required to file for a State Pollutant Discharge Elimination System (“SPDES”) General Permit (most recent edition) for storm water discharges from construction activities and submit a Notice of Intent (NOI) form to obtain permit coverage.
- B. Flow Determination.
 - (1) All development projects shall be required to provide for the adequate conveyance of storm drainage through the development.
 - (2) The natural drainage patterns are to be followed as much as possible.
 - (3) Drainage systems shall be sized to accommodate the future potential runoff based on the probable land use and the ultimate development of the upland watershed area.
 - (4) Water quality shall also be incorporated into all system designs.
- C. Storm Sewers and Drainage Facilities.
 - (1) A drainage area of up to 1,000 acres shall be designed to transmit the flow of a one-in-ten year storm. Larger systems and structures on natural watercourse channels shall have a drainage area design return interval as follows:
 - (a) 1,000 acres to 4 square miles - 25 year
 - (b) 4 square miles to 20 square miles - 50 year
 - (c) 20 square miles and above - 100 year
- D. Allowance for Overflow Conditions. Overflow conditions shall be designed into each system to protect against damage from major storms and provide an outlet for storm water, should inlets or pipes become damaged or plugged.
- E. Natural Channels and Open Swales.
 - (1) Natural channels are generally preferred alignments for major components of a residential drainage system.
 - (2) The utilization of open channels shall be evaluated as to the ease and cost of maintenance, safety hazards and aesthetics.
 - (3) Open channels may require special invert or side design to properly convey water while

keeping the maintenance cost minimal.

F. Runoff Computations

- (1) The design of one-in-ten year storm systems shall be generally established by the Rational Formula ($Q = CiA$) where:

Q = Runoff in cf/s

C = runoff coefficient

i = Rainfall intensity in inches/hour

A = Drainage basin area in acres

- (2) Storms systems greater than the one-in-ten year storm, i.e. 25-, 50-, or 100-year storm events, shall utilize TR-20 or TR-55 in the design process.
- (a) Rainfall intensity figures shall be taken from the chart provided in Appendix C for the time of concentration and return period required for a particular basin.
- (b) Times of concentration shall be calculated by the Design Engineer but shall be a maximum of 15 minutes to the first inlet for a residential subdivision.
- (c) Runoff coefficients shall also be calculated by the Design Engineer to establish a weighted value representative of the type of development proposed. In general, the following ranges shall be adhered to:

Description of Area or Character of Surface	Runoff Coefficient (C)
Business District	0.70 to 0.95
Residential - Single family	0.40 to 0.50
Apartments	0.50 to 0.70
Industrial	0.50 to 0.90
Unimproved	0.10 to 0.30
Lawns	0.10 to 0.35
Pavement	0.70 to 0.95

- (3) Factors to be considered in the determination of the runoff coefficient are: Soil type, slope of land, development density, etc.

G. Water Quantity Control

- (1) Storm water management facilities (SMF) shall be required to mitigate the impact of land development on downstream properties and drainage systems.
- (2) Storm water management facilities shall address erosion control, flood prevention, the

peak quantity of discharge, and water quality. The Town reserves the right to establish particular parameters in each individual instance, the general philosophy is to permit runoff from any particular development to an amount no more than 90% of which would normally occur under a natural, undeveloped condition. The following represents the basic philosophy regarding discharge from storm water storage facilities:

- (a) No developed area shall discharge more storm water into adjacent culverts and channels than occurs under a natural undeveloped condition.
 - (b) The flow capacity of channels and culverts immediately downstream from a development does not necessarily govern the total drainage system capacity downstream.
 - (c) Moving downstream in any given drainage basin (and therefore, away from any given development) the area contributing to the drainage channel is increasing.
- (3) Plan view and details are required to show the storm water management facility location, size, inlet structures, and outlet structures, as well as any appurtenances. All facilities shall be constructed with a minimum 1:4 side slope from base of storm water management facility to top of bank; Steeper side slopes are acceptable with the addition of a safety bench.
 - (4) In designing the detention facility, attention shall be given to the types of soils found in the site. The Town may require that the storm water management facility bottom be lined or constructed of impervious soils or manufactured sealants, (i.e. Bentonite) to prevent seepage or piping of stored water along the underlying bedrock.
 - (5) During design, the Town may require the developer to provide a soils report done by a professional soils engineer to determine if the on-site material meets the requirements for infiltration capacity or as a storm water management facility liner.
 - (6) The developer's engineer shall submit, with his final plans, drainage calculations justifying the size of pipes, channels, impoundment basins, and related structures.
 - (7) In order to arrive at an engineering estimate of storm flows and proposed detention storm water management facility size, the engineer should proceed according to the steps listed herein. The design engineer may also be required to identify impacts of particular site drainage on the watershed as a whole. The use of computer modeling by the developer's engineers is encouraged.
 - (8) The design engineer shall design the storm water management facility (SMF) in accordance with the following regulations:
 - (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 these regulations.
 - (b) SMF's shall be designed to discharge not more than 90% of Pre-Developed (natural/undeveloped) 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, 50-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
- (9) The developer's engineer shall use existing topographic maps and the appropriate rainfall charts and graphs to determine the maximum expected rate of runoff for the design storm for the undeveloped site. Factors affecting this rate include slope of land, surface cover, area of drainage basin, and the presence or lack of well defined natural channels. 90% of this undeveloped rate of runoff shall be the controlling allowable discharge from any development. If downstream sewers, culverts, or channels have a capacity of less than the derived rate, this downstream capacity shall control as the allowable discharge rate.
- (a) Design the collection system using the applicable method as approved by the Town Engineer.
 - (b) Design an outlet structure, which discharges water as a continuous function of head and which will discharge the maximum allowable flow at maximum storm water management facility depth. Lesser storms should discharge approximately proportional lesser flows (see Appendix P for an example of an outfall structure detail).
 - (c) Provide inflow hydrographs for a number of design storms of different durations and make a straight line approximately to an outflow hydrograph starting with $Q_0=0$ at $t=0$, assuming that good storm water management facility design is based on the outflow reaching its peak just as the inflow equals the outflow.
 - (d) Provide a tabular form showing computed runoffs and design capacities of the system.
 - (e) Provide a map of the development showing the on-site drainage areas with inlets numbered in conjunction with the tabular calculation sheet.
 - (f) If desired, make a more detailed analysis using the now determined critical storm and standard flood routing techniques. Otherwise, use the above estimated volume and size the area of the storm water management facility

H. Flood Hazard Prevention

- (1) All development proposed within a Flood Hazard Area as defined by FEMA (Federal Emergency Management Agency) NFIP (National Flood Insurance Program) Maps shall comply with the regulations set forth within and coordinated by the Town Flood Plain Manager or Town CEO and the Town of Canandaigua.
- (2) For review of the drainage design the Design Engineer shall submit a U.S.C. & G.S. quadrangle reprint with the development and drainage basin outlined.

I. Water Quality Control. The Town of Canandaigua is supportive of initiatives to preserve

water quality in all major streams, creeks, and tributaries.

- (1) Water quality initiatives shall be designed to reduce the thermal impacts, sediment load, and intrusion of pollutants into sensitive streams that support fish and wildlife habitat.
- (2) Water quality 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.
- (3) Development within the Canandaigua Lake Water shed shall provide Enhanced Phosphorous Treatment as outlined in Chapter 10 of the New York State Stormwater Management Design Manual.

J. Design

- (1) All development shall incorporate water quality measures into the design of the project if they meet the following threshold
 - (a) Project involves the creation of an additional 10,000 square feet or more of impervious surface.
 - (b) Project involves the creation of an additional 5,000 square feet or more of parking area.
- (2) Best management practices shall be utilized that are consistent with the latest edition of the “New York Guidelines for Urban Erosion and Sediment Control”.
- (3) The required treatment volume shall be calculated per the formula described in the latest edition of the “New York State Storm water Management Design Manual”.
- (4) The use of mechanical treatment systems shall be considered upon review by the Town Engineer. The developer must submit a Property Maintenance Agreement to assure the long-term care and cleaning of any mechanical treatment systems.
- (5) Under some instances, the Town may recommend and/or negotiate a fee in lieu of constructing an on-site storm water treatment facility with the Developer, particularly when nearby downstream regional storm water management facilities already exist and have the capacity to handle additional storm water or site restrictions on the applicants' property inhibit the installation of such a facility or for other site related/storm water 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 storm water, toward the maintenance and/or development of drainage channels, culverts, etc., or toward the possible creation of a new downstream regional storm water management facility if there appears to be a need for one in the area.
- (6) As per the latest edition of the NYS Storm water Management Design Manual, a storm water management facility landscaping plan is to be provided. The plan should include delineation of pondscaping zones, selection of corresponding plant species, planting plan, and sources of plant material.

(7) Snow storage should be considered with the sizing of the SMF.

K. All facilities shall be designed to address the following:

- (1) Be aesthetically pleasing,
- (2) Safe,
- (3) Reliable,
- (4) Provide wildlife habitat,
- (5) Minimum maintenance, and
- (6) Be of an appropriate scale to the adjoining area

L. Construction

- (1) Water quality measures shall be utilized during the construction of all projects. Erosion and sedimentation control plans should mitigate any impacts to adjoining downstream properties and receiving waters.
- (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 EE-1 for an example of a construction sequence).
- (3) 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”.
- (4) The Irrevocable Letter of Credit shall include sufficient costs to install, maintain, and remove erosion and sedimentation control measures for the approved erosion control plan.
- (5) Where possible, a finished grade should be established and then top-soiled and seeded as quickly as possible.

M. Culvert/Channel Design

- (1) Points of discharge shall be recognized on a U.S.C. & G.S. map. Critical drainage courses may require the Developer to dedicate easements for maintenance to the Town.
- (2) Culverts shall be designed to accommodate the design storm for the drainage area but shall be checked for the next highest increment of storm return interval to evaluate the possible complications. Headwater and/or tailwater calculations will be required to determine ponding that may occur. In general, the use of multiple culverts is discouraged because of maintenance problems. Inlets and outlets of culverts shall be protected from erosion or turbulence problems by the use of riprap, headwalls, energy dissipaters, etc.
- (3) Backyard swales shall be designed with minimum side slopes of 1 on 4 and a minimum longitudinal slope of 1.0 percent. Field inlets shall be generally provided every 300 lineal feet at all low points and where swales intersect.

N. Storm Drains

- (1) Minimum pipe size - 12 inch diameter
- (2) Minimum velocity when flowing full - 3 fp/s
- (3) Maximum manhole and catch basin spacing - 300 lineal feet.
- (4) 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.
- (5) All pipes shall be smooth bore.
- (6) Any drains less than 12" must be justified with drainage calculations and shall be approved by municipality.

O. Storm Laterals

- (1) Gravity laterals shall be a minimum of 6 inches in diameter.

P. Catch Basins

- (1) Catch basins shall be placed at all low points and intersections with maximum spacing of 300 feet.
- (2) 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.

Q. Storm Manholes

- (1) Storm manholes shall be designed to accommodate the pipes entering and exiting the structures.
- (2) A schedule of manhole diameters, inverts, and rim elevations shall be provided on the final plan.

R. Sump Pumps, Basement and Roof Runoff

- (1) Sump pumps shall be discharged to daylight where grade to drain is available.
- (2) Sump pumps discharging to storm laterals must have check valves.
- (3) The discharge from sump pumps shall not encroach within 20-feet of a property line.
- (4) Gravity basement drains will not be permitted to be tied to the municipal storm system.
- (5) Gravity basement drains may be considered for discharge to daylight depending on local conditions.
- (6) Roof runoff will be permitted to tie into the storm laterals or discharge to splash pads
- (7) Roof leaders, gutters, and downspouts may be permitted to tie into the storm sewer.

- (8) Should local conditions warrant the modification of the above-referenced, the design engineer and the Town Engineer can review changes and the Town Engineer may approve such changes, if appropriate.

2.5 ROADS

A. The Town of Canandaigua has established the following road classifications and their respective design criteria:

- (1) Town Collector
- (2) Subdivision
- (3) Minor Subdivision
- (4) Rural Development
- (5) Private Drive (non-dedicated)

B. The basic considerations of each road classification are as follows:

- (1) Town Collector
 - (a) Provides connections to major roads and represents major traffic pattern throughout the Town.
 - (b) Design speed of 55 m.p.h.
 - (c) High volume of traffic
 - (d) Provides access to subdivision roads
 - (e) Relatively low density of development abutting such a road
- (2) Subdivision
 - (a) Densities as are permitted by the current zoning provisions
 - (b) Design speeds of 30 m.p.h. or less
 - (c) Low volume of traffic.
 - (d) Individual driveways at regular intervals.
 - (e) Usually no affect on overall Town traffic pattern.
 - (f) Generally rimmed with well maintained shrubs and lawns.
- (3) Minor Subdivision
 - (a) Twelve or less units on the road.
 - (b) No possibility of future road extension.
 - (c) Same criteria as “subdivision road”, items a through f.
- (4) Rural Development

- (a) Density less than one-half units per acre.
- (b) Low volume of traffic.
- (c) Usually has no affect on overall Town traffic pattern.
- (d) Design speed of 30 m.p.h. or less
- (5) Private Drive (non-dedicated)
 - (a) Low volume of traffic
 - (b) Design speed of 30 m.p.h. or less
 - (c) Has a minimum of 40-foot fee ownership on a dedicated street.
 - (d) Has no effect on overall Town traffic pattern
 - (e) Maintenance covered by deed agreement or Homeowner's Association depending on number of units
- C. 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 maintenance of a proposed road type. Standard roads shall comply with the typical cross-sections shown in Appendices E – 1, E – 2, F – 1 and F – 2

- D. Required Road Widths – Roads shall comply with applicable requirements in the NYS Uniform Fire Prevention and Building Code and the following minimum standards:

Class	Pavement Width	Edge Treatment	Drainage
Town Collector	24'	2' paved shoulder + 2' stabilized shoulder	Roadside Swale
Subdivision Road (A)	22'	2.5 ft. Conc. Gutter	Storm Sewer
Subdivision Road (B)	24'	Granite Curb	Storm Sewer
Minor Subdivision Road/ Rural Development Road	22'	4' shoulder or 2.5 ft. Conc. Gutter	Roadside Swale or Storm Sewer
Private Drive	14' Min.	Req. approval	Req. approval

- E. All streets or roads developed in the Town shall be constructed to at least the minimum standards as set forth in the specifications or as shown on plans approved by the Town for a given project.

2.6 GENERAL ROAD DESIGN CONSIDERATIONS

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

- (1) Minimum width 60-feet for dedicated roads.
- (2) Private drive width depends on design constraints.
- (3) Private underground utilities to be located on easements beyond R.O.W limit.

B. Horizontal Alignment

- (1) The following factors shall be incorporated into the design of each road type:
 - (a) Sight distance must conform to minimum safe stopping sight distance per “Geometric Design of Highways and Streets”, AASHTO Latest Edition.
 - (b) Clear sight at intersections.
 - (c) No centerline intersection angles less than 75 degrees.
 - (d) Minimum centerline radius of 150-feet verified for design speed.
 - (e) Road pavement intersections shall have a minimum of 35-foot radius.
 - (f) Roadways ending in cul-de-sacs should not exceed 1,000-feet in length and end with an appropriately sized turnaround. Preferably the offset left configuration. (See Appendices G, H, H -1 through H – 3.)
 - (g) Access to future developments will be provided at the property lines.
 - (h) Tangent sections shall be used between reverse curves and maintain the proper flow of traffic at design speeds.

- C. Vertical Alignment. 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. Vertical curves are required whenever the net change in grade exceeds 0.5 percent
- D. Road Grades – Dedicated
 - (1) Minimum – 0.7 percent with shoulders; 0.5 percent with gutters.
 - (2) Preferred Maximum Grade – 8 percent.
 - (3) 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: snow removal and storage, enhanced drainage facilities, widened shoulders, longer and flatter grades at intersections, with other features that would enhance safety and maintainability of the roadway. Where road grades exceed 8%, the Town may require flared catch basins
- E. Private Roads. A private drive off a dedicated road shall:
 - (1) Be designed to keep surface water flows from entering the travelway of the dedicated street.
 - (2) Finish grade and seeding of the area are to be completed immediately upon completion of the private drive base.
 - (3) Provide a hard surface from the edge of the existing pavement at least 30 feet toward the developed site.
 - (4) 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.
 - (5) Maximum grade within the development site shall be 10 percent.
- F. Intersections: 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 3 percent
- G. Special Considerations
 - (1) Subsoil Conditions – A Geotechnical Engineering Report of the existing soils shall be provided for review.
 - (2) Where roadside swales exceed 5% and/or unsuitable soil conditions warrants, the swales shall be provided with a concrete channel.
 - (3) Underdrains –Underdrain shall be used under all concrete gutter, see Appendix K. Where sub surface conditions require underdrain may also be required.
 - (a) Underdrain Variance Considerations:
 - [1] When the general soil characteristics indicate a well drained granular material as indicated through general soils classifications procedures;

- [2] Where the highest seasonal groundwater table is not within three (3) feet of the subbase material;
- [3] Where the proposed longitudinal road grade exceeds 1.0%;
- [4] Where conduit underdrains are not required, stone wedges shall be installed as shown on the detail sheet.
- [5] Frontage Development – Where frontage development is to be approved along collector roads, the Planning Board may require that the roadside swale be enclosed in conduit along the fronts of the development. Such conduits shall be of the proper size to accommodate anticipated flows as previously outlined. (A parallel access road may also be considered by the Planning Board and discussed during concept plan submittal).

F. Additional Procedures:

- (1) Due to the general soil conditions within the Town and normal construction sequences for development, it is deemed to be in the best interests of the Town that following procedures be followed:
 - (a) Binder material shall not be placed prior to the completion and approval of all underground utilities including the private utility services and a review of the road base by the Town.
 - (b) The weather and seasonal limitations as specified under the Standard Specifications of New York State Department of Transportation shall apply for placing of bituminous mixtures.
 - (c) Restrictions (a) and (b) imply completion of all underground systems well in advance of the Developer's schedule for paving.

2.7 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. Performance bonds may also be considered as an option in lieu of construction of a haul road for necessary repair and maintenance of existing public roads.

2.8 PRIVATE WATER SUPPLY

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 at all fixtures in the proposed unit.
- C. A certificate of water quality and quantity from a New York State approved testing laboratory must be submitted to the Development Office before a certificate of occupancy is issued.

2.9 BACKFLOW PREVENTION

- A. Backflow prevention (RPZ) may be required on water lines for commercial development per New York State Department of Health Public Water Supply Guide, Cross-Connection Control. RPZ assemblies shall be manufactured by Watts. See Appendix R-2 & 3.
- B. RPZs shall be housed in an above grade heated/insulated enclosure located above the 100 year flood elevation. Where possible, RPZs should be installed in a mechanical room as part of the main structure on the site.
- C. Developments that require a RPZ serving multiple customers are required to provide a redundant RPZ.
- D. The Town does not allow any interconnections between the municipal supply and an individual water supply system.

2.10 WATER MAINS AND SERVICES

- A. Design
 - (2) Water supply systems shall be designed (as a minimum) to conform to the latest edition of Recommended Standards for Water Works (RSWW).
 - (3) 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).
 - (4) The Design Engineer shall substantiate all water main and service sizes.
 - (5) All water mains shall be a minimum of 8 inches.
 - (6) See Appendices Q through Z for water/utility related typical details
- B. Hydrants. 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 V and V – 2.
- 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 water main. Valves shall be provided at intersections and be no more than 800-feet apart along the water main.
 - (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 water main
 - (4) Pressure reducing valves (PRV), where required, shall be designed and installed per the Town of Canandaigua. PRVs shall be manufactured by Ross.
- D. Dead End Mains. Dead end mains are discouraged within the Town. Where they are unavoidable, a flushing hydrant (blow-off) shall be provided. Also, an auto flushing hydrant may be required by the Town.

E. Water Services.

- (1) Provide minimum of 1-inch water service to the curb stop located at the right-of way line of all individual lots or All services shall be Type K copper without line couplings or 200 psi polyethylene CTS pipe. Tracer wire is required from the main to the curb stop and also from the curb stop to the meter. Meters shall be installed for each individual service and are to be purchased from the Town (See Appendix S).
- (2) 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 Water Superintendent for a determination of need for an individual meter pit

2.11 INDIVIDUAL ON-SITE WASTEWATER TREATMENT SYSTEMS

A. Individual On-site Wastewater Treatment Systems

- (1) Where public sanitary sewers are not available, individual on-site wastewater treatment systems shall be designed, conform to the minimum requirements established and built to the standards and specifications of the New York State Department of Health (NYS Public Health Law Appendix 75-A or latest revision) and Town Code, respectively, and any other agency or authority with jurisdiction.
- (2) 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.
- (3) Provisions may be required to make the individual house plumbing for connection to future sanitary sewer system.
- (4) Maximum number of lots to be developed with individual on-site wastewater treatment systems shall be 49 within one subdivision.
- (5) Leach lines shall not cross over or under water, gas or storm laterals, nor be located underneath the driveway area.
- (6) Minimum total leach line lengths shall equal two hundred feet (200').

B. Alternate Systems

- (2) 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:
- (3) Any fill or built-up system shall have a taper section ending a minimum of 50 feet from any property line.
- (4) Fill limits shall include a future expansion area.
- (5) Evapo-transpiration areas are not acceptable for new construction.
- (6) Fill systems require professional certification of percolation tests 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.

- C. 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

2.12 DRIVEWAY DESIGN REQUIREMENT

- A. 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.
 - (1) Vertical Alignment
 - (a) Maximum grade shall not exceed 10%, unless a leveling area is provided per Section 2.2-A-5-b of the Site Design and Development Criteria.
 - (b) 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%. 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.
 - (c) 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.
 - (2) Horizontal Alignment
 - (a) Minimum radius along the centerline of driveways shall be 60 feet.
 - (b) Minimum radius along the inside edge of driveway shall be 35 feet unless shown otherwise in Standard Details.
 - (c) Driveway turnaround areas, when applicable, should be incorporated into all plans.
 - (3) Fire Department Requirements
 - (a) 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 for emergency access clearance from the edge of the driveway to any obstruction. Plans and details of such driveways shall be submitted to the Fire Department for review.

2.13 DRIVEWAY CULVERTS

- A. Driveway Culverts shall be provided along existing road frontage lots to properly convey roadside drainage. The culverts shall be installed to the proper grade to allow the natural flow of water.
- B. The installation of driveway culverts requires the approval and a permit for culvert

location, size and material from the State, County or Town Highway Department having jurisdiction over a given road

- C. Proposals for all new culverts shall be provided with the supporting design for sizing to be reviewed by the Town or other agencies as needed.
- D. The Town reserves the right to remove and/or install driveway or roadway culverts along any existing road to properly transmit surface drainage as determined by the Town Engineer and the Superintendent of Highways.
- E. See also 220-9, AA for additional requirements applicable to driveways.

F. Construction Requirements.

- (1) All driveway culverts shall be a minimum of 12” in size and a minimum of 20’ in length.
- (2) Culverts shall be a 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 5’ beyond the edge of the access driveway and be provided with end sections or headwalls. The slope from the driveway to the culvert end section shall be graded and seeded to maintain the slope stability.
- (4) Elevations to be set by U.S.C. & G.S. datum 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) The use of Corrugated Metal Pipe (CMP) is prohibited.

2.14 SIDEWALKS

Sidewalks may be required by the Planning Board and shall be determined at the time of conceptual review. If required, sidewalks shall be 5’ in width, 5” in depth of 4,000 psi concrete on a 4” base of Type 1 crusher-run. Compaction testing of the stone base is required. 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. See Appendix O for details.

2.15 TRAILS

Walking trails may be required by the Planning Board and shall be determined at the time of conceptual review. If required, walking trails shall be a minimum 6’ in width, with a 5” base of Type 2 crusher-run (NYSDOT 304.03), and a 2” top of stone-dust 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. See Appendix (O – 2) for details.

2.16 MONUMENTS

A. Monuments shall be located at:

- (1) Point of curvature (P.C.) and point of tangent (P.T.) of all horizontal curves along one side of the right-of-way.
- (2) Maximum of 1,000 feet along one side of right-of-way line.
- (3) Monuments shall be set by a licensed land surveyor before the final letter of credit amount is released by the Town.
- (4) Monuments shall be set to have a clear sight distance between two monuments and shall be flush with the finished grade.
- (5) The monuments shall be set as a minimum at all corners of the subdivision at final grade on one side of the streets at all changes of direction in the right-of-way lie.
- (6) 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.
- (7) The monuments shall be as shown in the detail in the Appendix J.

ARTICLE III- MATERIAL SPECIFICATIONS

3.0 GENERAL INFORMATION

The materials required herein are deemed to be of satisfactory quality for installation within the Town. When new 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.

3.1 ROADS, GENERAL REQUIREMENTS.

- A. 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 met 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 to the sites.

3.2 ROAD MATERIALS

A. Sub-base and Base Courses

- (1) Fine crusher run stone shall conform to NYSDOT Specification Section 304-2.02, Gradation Table 304-1, Type 1.
- (2) Course crusher run stone shall conform to NYSDOT Specification Section 304-2.02, Gradation Table 304-1, Type 2
- (3) Aggregate shall conform to NYSDOT Gradation Table 703-4, size as specified.
- (4) All Town roads are required to utilize a Geotextile fabric to support the stone sub-base and base courses. Fabric shall be overlapped by a minimum of 18-inches. Geotextile shall be Mirafi 500X unless otherwise accepted by the Town Highway Superintendent and Town Engineer.

B. Bituminous Pavement

- (1) Bituminous Material shall meet the requirements of NYSDOT Section 702.
- (2) Aggregate shall meet the requirements of NYSDOT Section 703-01 for Fine Aggregate and Section 703-02 for Course Aggregate.
- (3) Base course shall conform to NYSDOT Specification Section 401, Type 1 Base.
- (4) Binder course shall conform to NYSDOT Specification Section 401, Type 3 (Dense Binder).
- (5) Top course shall conform to NYSDOT Specification Section 401, Type 7F.

- C. Tack Coat shall conform to NYSDOT Specification Section 407. The grade shall depend on the specific use intended.

- D. Premoulded Resilient Joint Filler Shall conform to NYSDOT Specification Section 705-07

- E. Underdrains shall be 4 or 6 inch (depending on conditions) perforated SDR-35 PVC per

NYSDOT 706-15 or High Density Polyethylene Tubing per AASHTO M-252.

- (1) Underdrain Filter Material – Type II shall conform to NYSDOT Specification 605-2.02

F. Minimum Standards for Each Road Type

- (1) Town Collector

- (a) Two (2) 6-inch lifts of course crusher-run stone, NYSDOT Type 2.
- (b) One 3-inch lift of fine crusher-run stone, NYSDOT Type 1. Install with road crown.
- (c) Asphaltic concrete courses shall be 4-inches compacted of Type 1 base, 2-inches type 3 binder and 1 ½ inch compacted of Type 7F top.
- (d) 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.

- (2) Subdivision/ Minor Subdivision Road

- (a) Two 6-inch lifts of course crusher-run stone, NYSDOT Type 2.
- (b) One 3-inch lift of fine crusher-run stone, NYSDOT Type 1. Install with road crown.
- (c) Asphaltic concrete courses shall be 3-inches of Type 3 binder and 1 ½ inch of Type 7F.
- (d) Concrete gutter or granite curbing per Appendix K or E-4.

- (3) Private

- (a) A minimum of one 8-inch lift of course crusher-run stone, NYSDOT Type 2.
- (b) One 3-inch lift of fine crusher-run stone, NYSDOT Type 1.

G. Embankments: Roads designed on earth embankments shall be compacted to 95% modified AASHTO density. Certified compactions tests are required for all road sections on embankments.

H. 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. See Appendix E-3.

I. Conventionally Formed Concrete Gutters – Shall conform to Item 624-2.02 and have a minimum compressive strength of 3,500 psi after 28 days and shall be a minimum of 6” thick

J. Asphalt Filler – NYSDOT Specification 702.0700, Table 702-2 Misc. Asphalt Cement.

3.3 STORM DRAINS

- A. 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
- B. 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 or ASTM F-794 for ribbed gravity pipe. PVC pipe shall not be used as driveway culverts.
- C. High Density Polyethylene (HDPE) pipes shall be smooth lined (smooth bore) and shall conform to the requirements of ASTM F-405 or ASTM F667
- D. Storm Laterals
 - (1) PVC conforming to ASTM D-3034, minimum 4 inches in diameter with fabricated tees and wyes.
 - (2) HDPE shall conform to ASTM F-405 with fabricated tees and wyes
- E. Catch Basin Leads shall be a minimum of 12 inches in diameter. Acceptable materials are:
 - (1) Reinforced Concrete Pipe (RCP).
 - (2) Polyvinyl Chloride Pipe (PVC).
 - (3) High Density Polyethylene Pipe (HDPE).

3.4 MANHOLES

- A. Manholes
 - (1) Precast reinforced concrete sections shall be manufactured in accordance with ASTM Specifications 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 preformed or poured in the field. Roof slabs shall be precast structural concrete, reinforced for H-20 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 may be cast directly into the base walls may be used with compatible pipe material.
 - (2) 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.
 - (3) 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.
 - (4) See Appendix N for typical storm sewer manhole and catch basin manhole.
- B. Manhole Ladders and Steps
 - (1) Manhole ladders or steps shall be provided in all sanitary and storm manholes and

shall be constructed of one of the following materials.

- (a) Non-corrodible, aluminum magnesium alloy ladders, with intermediate supports at 5-foot intervals.
 - (b) Forged aluminum with drop front design and groove tread surface.
 - (c) Cast iron with asphalt coating
 - (d) Reinforced plastic steps
- (2) Steps shall be cast into 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.

C. Frames and Covers

- (1) Storm manhole frames and covers shall be Syracuse Casting 1032, stamped STORM, with a vented cover or other approved equal. The inside diameter for clearance shall be a minimum of 24 inches.
- (2) Catchbasin frames and grates shall be rectangular, galvanized (ASTM A-123) and sized to fit gutter inlets or field inlets. The gutter grates shall be NYSDOT size No. 1 to fit the catch basin inside dimensions of 18" x 24". The minimum field inlet shall be NYSDOT size No. 9 to fit a field inlet of 24" x 24" inside dimension.
- (3) Catchbasin manholes shall be set to allow a NYSDOT size No. 1 grate to be installed.
- (4) Frames and grates shall be as specified in NYSDOT Specifications Drawing 655-6R1 and Section 655 of the NYSDOT Standard Specification Manual. All grates shall be bolted to frames
- (5) Catchbasins installed within the Canandaigua Lake Watershed shall be installed with a permanent metallic marker indicating "No Dumping - Drains to Lake".

3.5 WATER MAINS

- A. Ductile Iron (DIP) Pipe shall conform to AWWA C-151/A21.51 and the minimum allowable thickness shall be Class 52. Pipe shall be cement lined in accordance with AWWA C-104/A21.4 and shall have rubber gasket push-on joint in accordance with AWWA C-111/A21.11. If soil conditions warrant, polyethylene wrap shall be required.
- B. Polyvinyl Chloride (PVC) Pipe shall meet specifications of AWWA C-900 made from PVC Compound 12454-B (ASTM D1784) with gasket joints meeting ASTM D3139
- C. Molecularly Oriented Polyvinyl Chloride (PVCO) Pipe PVCO shall meet specifications of AWWA C-909 made from PVC Compound 12454-B (ASTM D1784) with gasket joints meeting ASTM D3139
- D. High-Density Polyethylene (HDPE) Pipe shall meet specifications of AWWA C-906 made from compound 345464-C (ASTM D3350) with fittings to be used will be in accordance with the material's specification.
- E. Fittings.

- (1) Ductile iron shall meet AWWA C-153/A21.53 Specifications, minimum Class 350, with mechanical or push-on joint, except for hydrant branches which shall be mechanical joint.
- (2) Fittings shall be cement lined in accordance with AWWA C-104/A21.4.
- (3) Bolts and nuts shall be high-strength, low alloy steel.
- (4) All joints shall conform to the requirements of AWWA C-111/A21.11.

F. Appurtenances.

- (1) Detector Tape shall be blue in color, six inches (6") wide detectable marker tape as manufactured by Terra Tape or equal, shall be installed along main line watermain (12" above top of pipe).
- (2) Tracer Wire shall be solid copper wire (#8 gauge minimum) insulated with high density polyethylene per ASTM D-1248 attached to the pipe at 5 foot intervals with plastic ties with a minimum of 150# tensile strength. Wire shall be attached to all cast fittings, hydrants and valve boxes to make a continuous traceable system.

3.6 HYDRANTS

- A. Hydrants shall be manufactured in accordance with AWWA C-502.
- B. Hydrants shall be Mueller Super Centurion Model 250 5-1/2 bury three nozzle Model A-423, or Town approved equal, manufactured for 5 foot bury with breakaway flange construction and 6 inch mechanical joint inlet.
- C. They shall open left and be painted red bodies.
- D. Hydrants shall be three-way with two 2-1/2 inch hose nozzles and one 4-1/2 inch pumper connection, 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 V).

3.7 FLUSHING HYDRANT – BLOWOFF

- A. 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, or approved equal.

3.8 GATE VALVE AND BOX

- A. Gate valves shall conform to AWWA C-509 or latest revision and shall have non-rising stems; “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, or Town approved equal, with MJ ends, a 2” square operating nut.
- B. 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”.
- C. If the valves are buried deep they must have a valve box extension.

3.9 TAPPING SLEEVE AND VALVE

- A. All valves shall have mechanical joint ends and be furnished with sufficient quantities of accessories. For cast/ductile iron pipe and PVC pipe TS&V shall be Mueller H-615 sleeve with a T-2360-16 tapping valve, or Town approved equal. For AC pipe TS&V shall be Mueller H-619 with T-2360-16 tapping valve or Town approved equal.

3.10 ANCHORING FITTINGS

- A. 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 coal tar 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 manufactured by the Tyler Company, Model 5-198, or Clow, Model F-1216, or approved equal.

3.11 BUTTERFLY VALVES

- A. All valves greater than 12” in diameter shall be butterfly type. All butterfly valves shall conform to AWWA C-504, or latest revision.

3.12 RESTRAINERS

- A. 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 Uni-Flange series 1300, 1350, 1390, or approved equal, depending on the specific use.

3.13 WATER SERVICE MATERIAL

- A. Corporation stop shall be cast brass with “O” ring seals, Mueller H-15008 (3/4”, 2”).
- B. Curb stops shall have cast brass bodies with “O” ring seals, compression type, Mueller H-15209 (3/4”, 2”).
- C. Curb boxes shall be two (2) piece boxes with a slide type extension, a cast iron arch pattern lower section, a one (1) piece cast iron lid and a stainless steel stationary shut-off rod, Mueller H-10314 (3/4”), H-10310 (2”).
- D. Water service pipe shall be Type “K” copper, minimum 200 psi working pressure, all according to ASTM B-88
- E. Plastic pipe shall be copper tube size (CTS) polyethylene ASTM D-2737, PE4710 HDPE per AWWA C-901 on a minimum basis of 200 psi (only used from curb box to unit and a #10 gauge copper tracer wire shall be included from the curb box to the structure)

3.14 CONCRETE GUTTERS AND SIDEWALKS

- A. Concrete:
 - (1) Shall be a minimum of 4000 psi (28-day strength) Class A concrete conforming to NYSDOT Specification Section 501.
 - (2) Air entraining admixture conforming to ASTM Specification C-260.
 - (3) Expansion joints shall conform to NYSDOT Specification 705-07.

- (4) Curing and sealing compound shall conform to ASTM C-309, Type I, Class B for curing and sealing.

3.15 EQUIVALENTS

- A. 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.
- B. 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 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 Board.
- C. 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.

ARTICLE IV - INSTALLATION OF IMPROVEMENTS

4.0 PRE-CONSTRUCTION

- A. Pre-Construction Meeting
 - (1) A pre-construction meeting shall be requested by the Developer and scheduled through the Development Office or a Town Representative prior to the start of construction of a development. The Developer, his Contractor and Design Engineer shall meet with all private utility representatives, the 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.
 - (2) Prior to scheduling a pre-construction meeting, the Developer shall obtain a checklist from the Development Office, identifying all items that the Developer must bring to the meeting.
 - (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. Meaning of Drawings: The Contractor shall abide by and comply with the true intent and meaning of all drawings and of the specifications taken as a whole. If the Contractor believes that the construction indicated on the project drawings will not, when executed, produce safe and substantial results or if it appears that there is any discrepancy in the drawings, it is his duty to immediately notify the Developer's Engineer, in writing, and to thereafter proceed only upon written order of the Town.
- C. Protection of Property and Work
 - (1) The Contractor shall conduct his operations to prevent damage to trees, garden plots, shrubbery, pipe lines, conduits, buildings and other structures. The Contractor shall

use all necessary precautions to protect the work and adjacent structures of all kinds during construction and shall so conduct his operations that at no time shall the work or such structures be endangered.

- (2) Responsibility and damage - the Developer shall be responsible for all parts of his work, temporary or permanent, until the project is complete and shall thoroughly protect all work, finished or unfinished, against damage from any cause as all work is at the Contractor's risk until the same is accepted by the Developer. The use of part or all of the work by the Town as provided for in these specifications shall not relieve the Developer of this responsibility. The Contractor shall be responsible for damage to life and property due to his operations and shall provide all necessary guards, rails, night lights, etc.
- D. 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 and revised if necessary. No work will begin until a schedule is acceptable to and is on file with the Town. Hours of Operation within the Town of Canandaigua are the following:
- (1) Weekdays from 7:00 am to 7:00 pm.
 - (2) Saturdays from 7:00 am to 6:00 pm
 - (3) Sundays – No work is permitted.
- E. Permits: The Developer shall secure all necessary permits from the Town including Highway, Water Utilities Departments and/or any other agency who may have authority over any work prior to the start of construction.
- F. Existing Utilities or Structures
- (1) Before construction begins near any existing utility or structure, the Contractor shall notify the appropriate Owner of his intention and their instructions as to the protection of their property must be followed. Before commencing work, the Contractor shall determine the exact location of any structure or underground utility in order that the Contractor's project will not damage or disrupt these facilities.
 - (2) The Contractor shall take necessary precautions to prevent entry of mud, debris, etc. into existing utilities or onto streets near the site.
 - (3) All existing underground facilities shall be checked for damage before backfilling. In the event a facility is damaged, the Owner of that facility shall be notified by the Contractor so as to insure an acceptable repair and/or replacement.
- G. Facilities for Observation
- (1) The Contractor shall furnish all reasonable facilities and aid to the construction observers for safe and convenient footways, scaffolds, ladders, etc., that may be needed for the examination and review of any part of the work.
 - (2) The Town of Canandaigua may stop work when the Contractor has no responsible agent on the project.

- (3) The Town may stop work if the Town determines that the Contractor is not performing the work in the best interests of the municipality and/or in accordance with approved plans.
 - (4) Disorderly, intemperate and incompetent persons shall not be allowed on the project. The employees who neglect or refuse to follow the construction observer's instructions shall be permanently removed from the project by the Contractor.
 - (5) Failure to conform to these controls may warrant refusal of the municipality to consider the development for dedication.
- H. Layout: It shall be the responsibility of the Developer to have the work carefully laid out by qualified surveying or engineering personnel in a manner that will assure accurate completion of the work
- I. Defective Work: The review of the work shall not relieve the Developer of any of his obligations to comply with the specifications. Any defective work shall be made good and any unsuitable materials that have been previously overlooked by the Town or its representatives shall be removed and replaced. If the work or any part thereof shall be found defective at any time before the final acceptance of the project, the Developer shall make good such defect in a manner satisfactory to the Town

4.1 INITIAL SITE WORK, TRENCHING AND PIPE INSTALLATION

- A. Grading
- (1) Completion of grading per the grading plan to within 1 foot of design grade shall precede any trench excavation. Such grading shall include house "pads", removal of enough material to form "box" for road base, surface drainage channels, required temporary siltation basins, etc.
 - (2) Construction brush and debris including excess concrete, concrete washout will not be buried on the site. Wood materials shall be cut, chipped, mulched or removed from the site and deposited in a permitted construction/demolition landfill.
- B. Excavation: "Excavation" shall mean all excavation in trenches and pits, together with all backfilling and embankments that may be needed for the laying of the utilities and appurtenances or that may be necessary for the laying, changing and construction of any water, sewers, conduits, culverts, drainage ditches or water courses, or for any other incidental work that may be required or ordered by the Town or its representative. See Appendix W
- (1) It is the Contractor's sole responsibility to make sure that all work shall be conducted in strict accordance with the Federal Safety Standards of OSHA.
- C. Width of Trenches. The trenches shall be of such width as may be required by the Design Engineer to insure proper laying and handling of the pipes and appurtenances, proper tamping and backfilling operations. In all cases, trenches should be kept as narrow as possible. The Contractor shall be responsible to provide sheeting/bracing or other requirements to insure the safety of his workmen in conjunction with the proper installation of the pipe. See Appendix W.

D. Depth of Trenches

- (1) In general, the trenches shall be excavated to such a depth to properly install utilities to the grade established in the field by the Design Engineer. The depth of the excavation shall allow the proper bedding material to be placed under the pipe. See Appendix W.
- (2) Any extra-excavated depth by the Contractor shall be filled with compacted crushed stone to the proper grade required.
- (3) Utilities shall be designed to prevent damage from frost penetration or surface forces. Water mains and services shall be generally buried with 4'-6" of cover in fields but at least 6'-0" when they cross existing or proposed roads.

E. Tunneling: Work shall generally be conducted in open trenches or excavations, with proper protection. Tunneling shall be done only in areas specifically called for by the design plans with design details approved by the Town.

F. Blasting: Whenever necessary to resort to blasting for making the excavations, the trench shall be covered in a form to prevent fragments of rock from being thrown out. Only experienced, licensed workmen shall be employed in the handling and uses of explosives. All blasting operations shall be conducted in strict accordance with existing ordinances, regulations and specifications relative to rock blasting, storage and use of explosives.

K. Pailing and Draining. The Contractor shall furnish a sufficient pumping plant and shall provide and maintain, at his own expense, satisfactory drainage whenever needed in the trench and other excavations during the progress of the work and up to final inspection. No structures shall be laid in water. Water shall not be allowed to flow or rise upon any concrete or other masonry or flow on adjacent lands. All water pumped or bailed from the trench or other excavation shall be conveyed in a proper manner to a suitable point of discharge and may require temporary siltation traps.

L. Bottom of Trench

- (1) The bottom of the trench shall be carefully graded and formed according to the directions of the Design Engineer, before any structures are laid thereon. When other instructions or design are not indicated, all trenches shall be excavated in a straight line. In hard pan, boulder formations or rock, the excavation shall extend at least 6 inches below the bottom of the pipe and a carefully compacted bed of crushed stone screenings placed in the bottom of the trench up to the level of the spring line of the pipe.
- (2) It is the intention of this specification to achieve not less than Class "B" pipe bedding.

M. Suitable Bedding and Safety Backfill Material

- (1) It shall be the responsibility of the Contractor to generally utilize material excavated from the trench in order to provide the required backfill to meet the listed specifications unless crossing an existing or proposed road. Should the nature of the soil be such that the Contractor is unable to meet the above requirements by selecting, with reasonable care, from the excavated material, he shall provide the following

materials, if so ordered by the Town.

- (2) Sand, stone or concrete cradle when the trench bottom does not provide sufficient bearing capacity or when specification requires specific bedding for certain utilities.
- (3) Sand encasement shall be ordered by the Town when the trench is excavated in rock, boulders, or hard pan and none of the material above this level is suitable for backfilling the pipe.

N. 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.
- (2) Laying Pipe and Castings
 - (a) 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. 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.
 - (b) 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 re-laid.
 - (c) 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 it shall be completed by skilled workmen with proper tools, in such manner as will not cause any cracking of the pipe

- O. Thrust Blocks. At all tees, bends, or sharp curves and any other location determined necessary by the Design Engineer, concrete thrust blocks shall be poured between the pipe or fittings and the firm wall of the trench. Stone or wood blocks will not be permitted as thrust blocks except as temporary construction blocking. Solid concrete blocks are permitted provided that they bear on undisturbed earth. See Appendix U

4.3 MANHOLE CONSTRUCTION

A. General

- (1) 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.
- (2) The manhole bed shall be excavated level and include a minimum of 6 inches of crushed stone.
- (3) 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.
- (4) 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.
- (5) Interior and exterior concrete surfaces shall be sealed by the supplier and touched up or recoated by the Contractor with like material.
- (6) Any pipe entering a manhole shall be neatly cut with proper sharp tools before installation in the manhole. Pipe shall not be "chipped off" after installation.
- (7) All openings and joints in the manhole sections shall be completely filled once the sections are set, with non-shrink grout and after initial set, waterproofed on the inside and outside with a coal tar coating. When PVC is used all openings around pipes shall be completely filled with 100 percent epoxy non-shrink grout.
- (8) 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 no more than 30 inches below finished grade and continue to the top of the bench wall.
- (9) It is the intent of these specifications to construct first-class manholes, 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.

B. 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.

C. 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.

D. Drop Manholes

- (1) 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 3,000 psi concrete extending not less than 2 feet along the main

sewer.

- (2) 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.
- E. 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. 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
- F. Sealing of Manholes .All manholes shall be sealed with two coats of 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 by the Contractor. Covers and other exposed surfaces shall also be coated in the field. Improper materials or mil thickness shall be cause for rejection of manhole sections.

4.4 CATCH BASINS

A. General

- (1) Catch basins shall be constructed as shown in the Appendix L or as shown on the plans for special conditions. Catch basins shall be constructed of precast concrete structures.
- (2) All catch basins shall be coated inside and outside with two coats of heavy duty coal tar sealer.
- (3) Catch basins within the Canandaigua Lake Watershed shall be marked with a permanent metal storm drain marker such as “No Dumping – Drains to Lake.

4.5 SEWER LATERALS AND WATER SERVICES

- A. General. Sewer laterals and water services shall be installed to the right-of-way (or easement) line for all lots. Each service shall be located with a stake color coded in conformance with Industrial Code 53 to denote the type of service they represent.

4.6 HYDRANTS AND VALVES

A. General

- (1) A hydrant unit shall consist of a hydrant, guard valve, mechanical joint tee and anchor pipes.
- (2) Before hydrants or valves are installed they shall be checked to determine if they are in the proper working order.
- (3) 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.

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

4.7 BACKFILLING AND FINISHING

- A. General. Trenches shall be immediately backfilled following the installation of utilities unless specifically changed in writing by the Design Engineer and approved by the Town. The roadways and sidewalks shall be left unobstructed, with their surface in a safe passable condition. The trench shall be tamped sufficiently to prevent settlement of or damage to existing or newly installed structures
- B. Backfill shall be completed immediately after approval. Only select earth material shall be deposited around the utility and appurtenances covering them by hand for a depth of at least 12 inches above the pipe. This earth shall be thoroughly tamped as it is being placed so as to fill the lower portion of the trench thoroughly to give utilities a Class B bed for their entire length.
- C. Restrictions as to Materials. No rock or frozen materials shall be placed in trenches within existing or proposed streets. Such material may be used in fields where immediate compaction is not necessary and at least 2 feet of select fill has been placed over the pipe.
- D. Backfilling Pavement Crossings
 - (1) All utility lines or laterals that cross existing or proposed streets shall be backfilled with crusher run stone conforming to NYSDOT Specification Section 304-03 Gradation Type 2.
 - (2) Material shall be compacted in lifts of 1 foot maximum to the elevation of the road subgrade. From there the backfill shall conform to the material specifications for individual road sections.
- E. Cleaning Up
 - (1) As the work progresses or as directed by the Design Engineer, all rubbish or refuse, unused materials and tools, shall be removed at once from along and near the trench line construction.
 - (2) All roadways, intersections, gutters, and sidewalks shall be routinely cleaned of accumulated debris, sediment and tools throughout the construction process.
 - (3) Rough clean up along the route shall immediately follow installation procedures. Large spoil banks will not be permitted in developed areas.
 - (4) Final clean up and landscaping shall proceed immediately after the installation, testing and approval of the facility.
 - (5) Erosion control measures must be maintained throughout the construction process and removed only upon the approval of the Town.

- (6) In all cases, the project site shall be restored to a condition equal to or better than that which previously existed.

4.8 COMPACTION

A. General

- (1) Compaction densities specified herein shall be the percentage of the maximum density obtainable at optimum moisture content as determined and controlled, in accordance with AASHTO Standard T-10, Rodded Unit Weight. Field density tests shall be made in accordance with AASHTO Standard T-238.
- (2) Each layer of backfill shall be moistened or dried as required and shall be compacted to the following densities, unless otherwise specified.

B. Select Fill

- (1) Under all existing or proposed roads, driveways, parking areas, and building pads shall be compacted to 95%
- (2) All other areas shall be compacted to 85%

C. 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.

D. Testing

- (1) Field density tests may be ordered by the Town as necessary and 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) 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.
- (4) Inadequate compaction shall be cause for the Town to issue a stop work order on a project

4.9 TESTING OF UNDERGROUND UTILITIES

B. General

- (1) Upon the satisfactory completion of the installation of the underground utilities, the Contractor shall proceed to test each of the installed facilities as herein specified. All utilities shall be pre-tested by the contractor before the Town is to witness the final tests. No test will be accepted unless witnessed by the Town. Records and date of

these tests shall be submitted to the municipality as part of the record drawing information.

- (2) Water or test required of the Developer during any procedures will be paid for by the Developer. All hydrants for water supply or testing use shall be operated only by the Town Water Utilities Department.
- C. Sanitary Sewers (Gravity and/or Pressure Sewers) and Manholes. See Section 5.2
- D. Storm Sewers shall be flushed clean by the Contractor and the lines shall be lamped with the Town
- E. Water Mains
- (1) Pressure Tests. 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. The test pressure shall not vary by more than 5+ psi during the test period. No high pressure test will be allowed when temperature is less than 32 degrees, unless a heated shelter is provided for test equipment. A leakage test at operating line pressure shall be conducted for 24 hours in addition to the pressure test. These tests shall be performed in accordance with AWWA C-600 & C-605. The pressures at the point of testing shall be related to the highest elevation of the main.
 - (2) Disinfection Samples. After flushing of the newly disinfected main, the Town of Canandaigua Water Utilities Department shall obtain samples (two (2) samples for each sample point separated by 24 hours) of water and submit them to a laboratory approved by the New York State Department of Health. 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. 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.
 - (3) 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.
 - (c) Upon completion of the pressure testing the main shall be disinfected in accordance with AWWA C-651 as applicable

4.10 ROADS, GUTTERS AND SIDEWALKS

A. General

- (1) The Contractor shall not proceed to construct any surface improvements until the underground system has been installed, tested and approved by the Town.
- (2) Careful attention shall be given by the Contractor to obtain the necessary compaction

densities as specified. All surface improvements shall be constructed to the shape and dimensions as shown on the typical sections or on the approved plans.

- (3) A greater road width and base may be required in those areas where particular soil conditions or traffic patterns require special considerations.

B. Concrete Gutters

- (1) 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.
- (2) 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.
- (3) Gutters shall be broom finished before the joints are struck and the finish shall be consistent throughout the project.
- (4) Gutters shall be cured and sealed by spraying with an approved curing and sealing compound at the rate recommended by the manufacturer.
- (5) 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.
- (6) The use of burlap or coverings for curing or protection is not acceptable until after the concrete has been sprayed and set.
- (7) 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.
- (8) Gutter replacements shall conform to the existing gutter regarding finish and color.

C. Concrete Sidewalks

- (1) Minimum 5 inches in depth and constructed true to shape, line and grade. Sidewalks installed through driveways shall be 6 inches in depth.
- (2) Sidewalks shall be designed in conformance with the Americans with Disabilities Act (ADA) and the Federal Highway Administration.
- (3) Minimum width shall be 5 feet or to match existing.
- (4) The base shall be thoroughly compacted crusher run stone with a thickness of 4 inches. The base material shall extend 6 inches outside each edge of the concrete sidewalk.
- (5) A cross slope of 1/4 inch per foot shall be maintained for positive drainage.
- (6) 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.

- (7) 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.
- (8) 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.

D. Testing for Gutters and Sidewalks

- (1) 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.
- (2) Results of these tests shall be submitted to the Highway Superintendent.

4.11 ROADS

A. In an effort to assure the structural integrity of the road subgrade, the following general rules will apply:

- (1) Underground utilities will be designed to be constructed outside the pavement area where possible.
- (2) Where roads are designed on earth embankments or where utility trenches cross the pavement area, the area shall be compacted to 95% modified AASHTO density. The developer shall (if required by the Town) provide results of certified compaction tests on any section of the road. These tests shall be based on AASHTO Standard T-180, Method C. Field density tests shall be done by AASHTO Standard T-147.
- (3) If groundwater, poor soil conditions, or any suspect ground conditions are encountered in the road base, the developer shall remove such conditions and install drain pipe and/or crusher run stone to obtain a stable base.
- (4) The developer shall not proceed with the base construction until all underground utilities or casing affecting the road area are installed, tested, and approved by the Town.
- (5) The subgrade shall be shaped to proper grades and compacted with a minimum of a 10-ton, three-wheeled roller or vibra-roller.
- (6) 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.

B. Design

- (1) The Design Engineer shall consider the proposed use of the road when preparing a road design. The minimum standards contained herein shall be considered by the designer.
- (2) It is the intent of these requirements to obtain a road and a base that is stable and

capable of supporting H-20 loading. Pavement thickness may vary as required by Town Engineer.

C. Road 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 according to NYSDOT Specification 203-3.12.
- (2) Geotextile fabric is required by the Town to stabilize the base and subbase before the Contractor proceeds to install same.
- (3) 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 Highway Superintendent or his agent 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 Engineer or his representative to determine the condition of the pavement. It may be necessary to apply a tack coat at the rate of 0.1 gallon/square yard before placing the surface.
- (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. Continuation 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) B. All pavement joints shall receive a tack coat before placing the binder or top course

H. Street and Traffic 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

4.12 FINAL GRADING

- A. 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.
- B. 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.

- C. 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.

4.13 RECORD DRAWINGS AND MAPPING

- A. Record drawings and all testing results shall be supplied to the Town and are subject to their review and approval at least 15 calendar days prior to any dedication procedures.
- B. Record drawings shall be prepared by a licensed professional and eight prints and a reproducible (mylar) shall be submitted to the Town's Building Department. The record drawings shall contain, at a minimum, the following information:
 - (1) The locations, sizes, elevations, lengths, slopes, inverts and top elevations of all structures in the sewer systems.
 - (2) The elevations of any drainage swales and drainage structures to be dedicated to the Town.
 - (3) The locations including ties to all valves, curb boxes and hydrants to permanent structures.
 - (4) The locations at the property or easement line of each individual lot
 - (5) Sanitary Lateral Cleanouts
 - (6) Storm Lateral
 - (7) Water Service Curb Box
 - (8) Any other significant details affecting the operation or maintenance of any system by the Town.
- C. The location of all facilities shall be tied to visible and reproducible objects.
- D. Record mapping shall be provided by the Town at the expense of the Developer. Record mapping shall include:
 - (1) As-Built Survey of the following:
 - a. Water: Hydrants, Valves, Curb Boxes, other water related structures.
 - b. Storm Sewer: Manholes, Manhole Inverts, Cleanouts, Control Structures, Outfalls.
 - c. Sanitary Sewer: Manholes, Cleanouts.
 - (2) Update of Town GIS with utilizing the Record Drawings and As-Built Survey.

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TOWN OF CANANDAIGUA

LETTER OF CREDIT
SUMMARY SHEET

Based on Engineer's Estimate Dated: _____

Project Name: _____

Earthwork	\$ _____	
Contingency (10%)	\$ _____	
TOTAL EARTHWORK		\$ _____
Erosion Control Measures	\$ _____	
Contingency (10%)	\$ _____	
TOTAL EROSION CONTROL		\$ _____
Sewage Disposal Systems	\$ _____	
Contingency (10%)	\$ _____	
TOTAL SEWAGE DISPOSAL SYSTEMS		\$ _____
Drainage Systems	\$ _____	
Contingency (10%)	\$ _____	
TOTAL DRAINAGE SYSTEMS		\$ _____
Water Supply	\$ _____	
Contingency (10%)	\$ _____	
TOTAL WATER SUPPLY		\$ _____
Roadways	\$ _____	
Contingency (10%)	\$ _____	
TOTAL ROADWAYS		\$ _____
Sub Total Construction Cost		\$ _____
Construction Observation (5%)		\$ _____
Road Signs & Clean Up		\$ _____
Design Engineering & Surveying Fees		\$ _____
TOTAL LETTER OF CREDIT		\$ _____

A

TOWN OF CANANDAIGUA
LETTER OF CREDIT RELEASE

PROJECT NAME _____ SURETY NO. _____
_____ ESTIMATE NO. _____
PROJECT NO. _____ DATE _____
CPN NO. _____ LETTER OF CREDIT INFORMATION

Total Construction To Date \$ _____
Less Retainage \$ _____

A. Construction Value To Be Released \$ _____
B. Engineering Costs \$ _____
C. Construction Observation Costs (5%) \$ _____
D. 10% Contingency \$ _____
E. Other Costs \$ _____

Amount Previously Released Through Estimate No. _____ \$ _____

Amount Authorized For Release \$ _____

Project Engineer

Owner

Town Highway/ Water Supt.

Municipal Engineer

Planning Board Chairman

Fiscal Officer

LETTER OF CREDIT EXPIRES _____

1) Original Amount \$ _____

2) Authorized For Release Per Estimate Nos.
_____ \$ _____
_____ \$ _____
_____ \$ _____
_____ \$ _____
_____ \$ _____
_____ \$ _____
_____ \$ _____
_____ \$ _____

Subtotal \$ _____

* Balance Remaining In Letter Of Credit Through This Statement

\$ _____

* The balance amount shall be sufficient to insure satisfactory completion of the remainder of the development.

Date

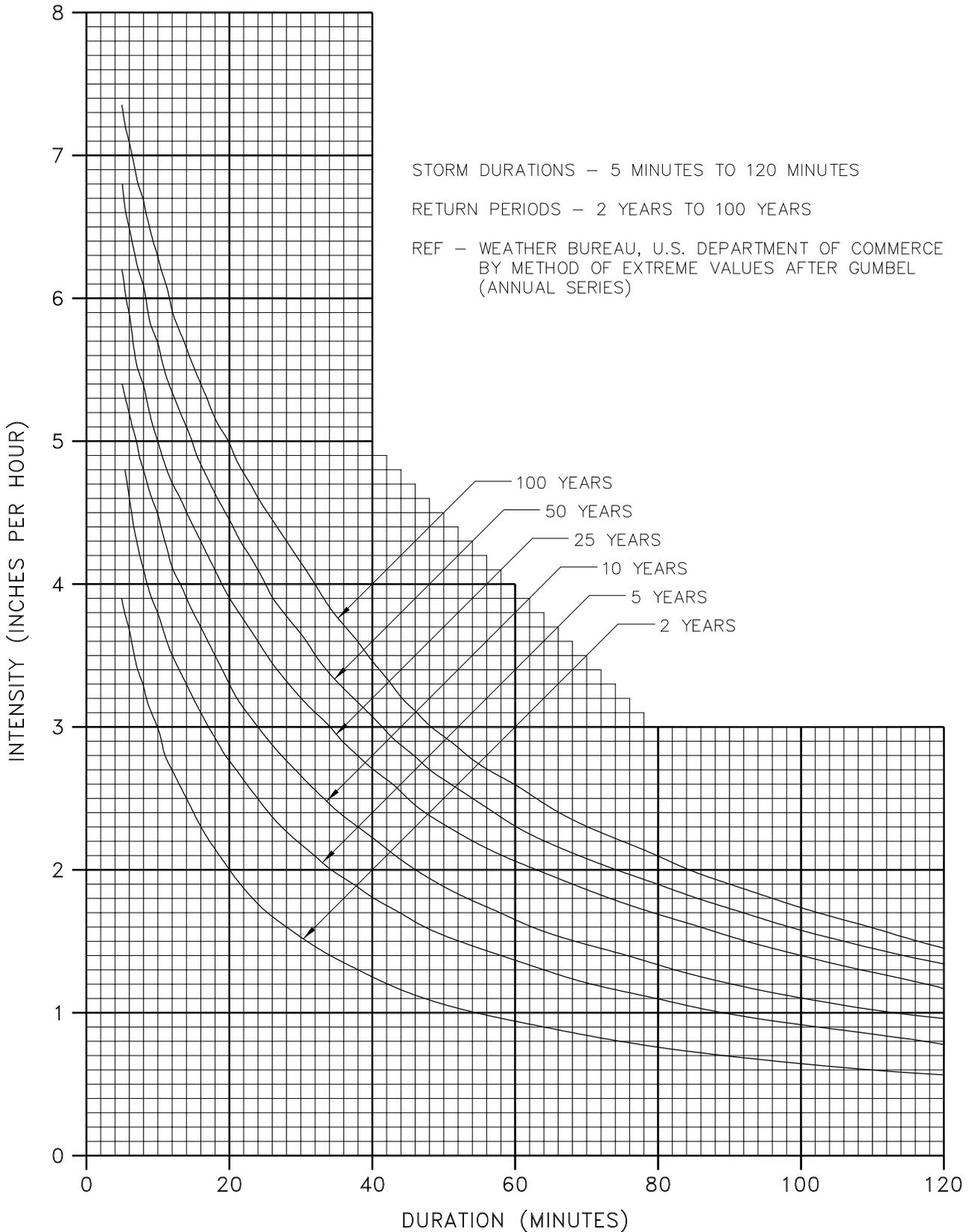
Date

Date

Date

B

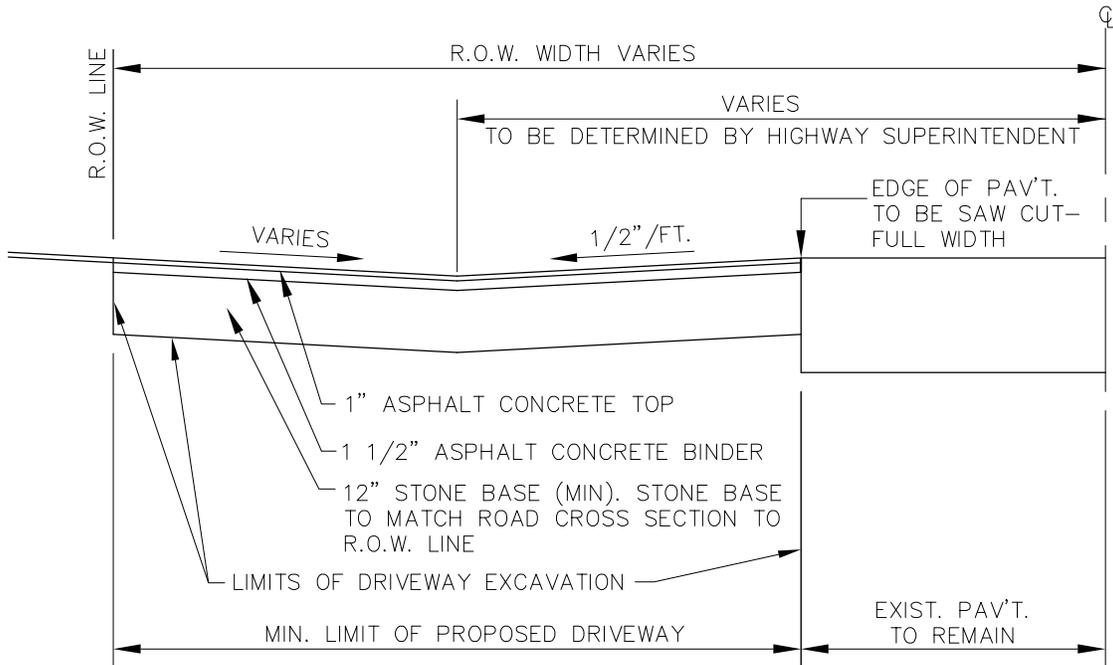
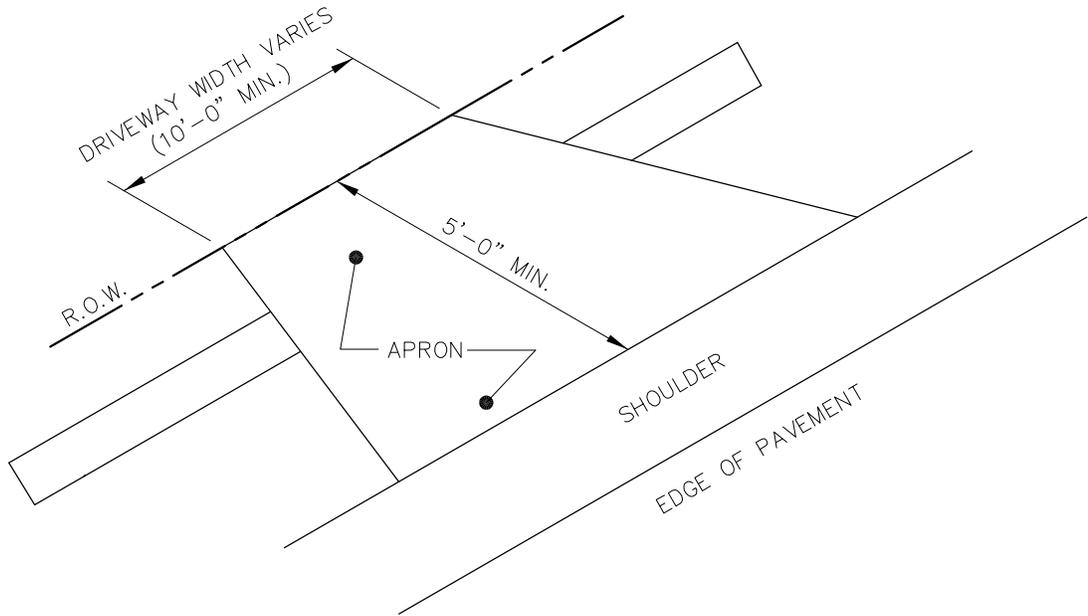
TOWN OF CANANDAIGUA



RAINFALL INTENSITY CURVES



TOWN OF CANANDAIGUA



NOTES:

1. DRIVEWAYS FRONTING ON TOWN ROADS SHALL BE PAVED TO THE RIGHT-OF-WAY LINE UNLESS OTHERWISE INDICATED BY THE TOWN.
2. THE APPLICANT SHALL NOTIFY THE HIGHWAY SUPERINTENDENT AT LEAST 48 HOURS PRIOR TO PERFORMING THE WORK TO SCHEDULE A FIELD INSPECTION.
3. A MAXIMUM 3% LEVELING AREA SHOULD BE PROVIDED FOR THE FIRST 30- FEET FROM THE EDGE OF PAVEMENT.

TYPICAL DRIVEWAY APRON DETAIL

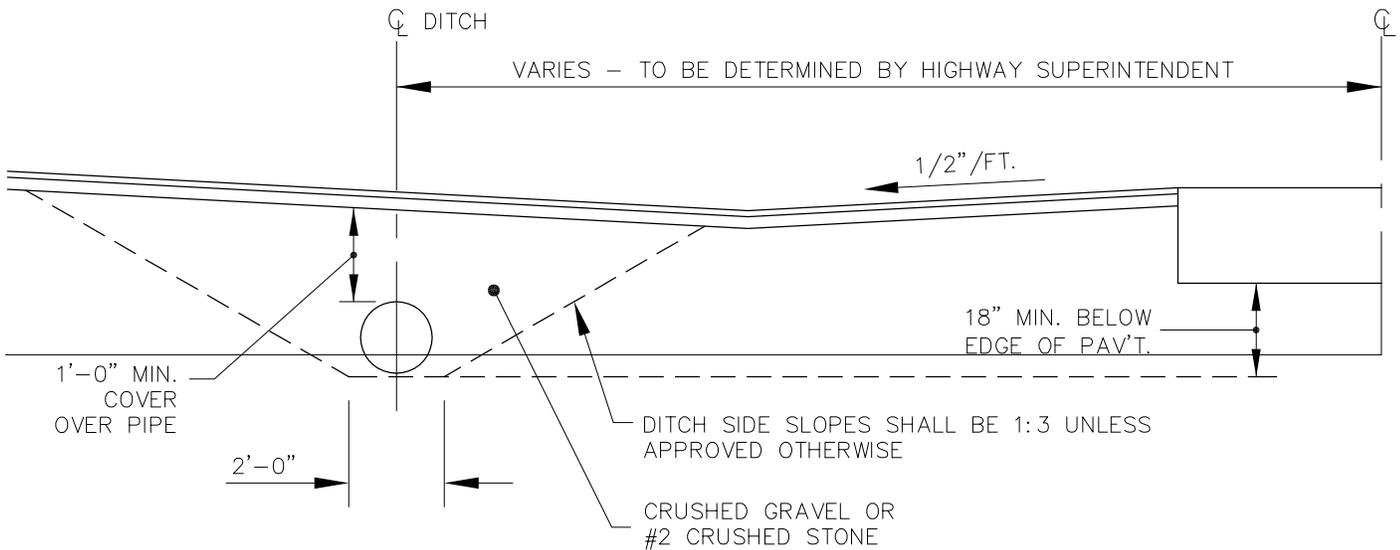
NT.S.

D — 1

TOWN OF CANANDAIGUA

THE OWNERS SHALL FURNISH AND INSTALL THE PROPER PIPE MATERIAL, MINIMUM LENGTH TO EXTEND AT LEAST THREE (3) FEET BEYOND THE OUTER EDGES OF THE NEW PROPOSED DRIVEWAY AT THE DITCH LINE. SIZE OF THE PIPE WILL BE DETERMINED BY THE TOWN OF CANANDAIGUA. THE NEW PROPOSED DRIVEWAY CULVERT SHALL BE PLACED AT A LINE, GRADE AND OFFSET DETERMINED BY THE EXISTING DITCH LINE, GRADE AND OFFSET OF THE ADJACENT PROPERTIES ON EITHER SIDE OF THE NEW PROPOSED DRIVEWAY TO FLOW PROPERLY IN A MANNER SATISFACTORILY TO THE SUPERINTENDENT OF HIGHWAYS. ALSO, THE OWNERS OR THEIR AGENTS SHALL INSTALL END SECTIONS TO EACH END OF THE NEW PROPOSED DRIVEWAY CULVERT. ENERGY DISSIPATING MATERIAL OR RIP RAP SHOULD BE USED AT EITHER END SECTION AS DIRECTED BY THE HIGHWAY SUPERINTENDENT.

NOTE: THE APPLICANT SHALL NOTIFY THE HIGHWAY SUPERINTENDENT AT LEAST 48 HOURS PRIOR TO PERFORMING THE WORK TO SCHEDULE FIELD INSPECTION.

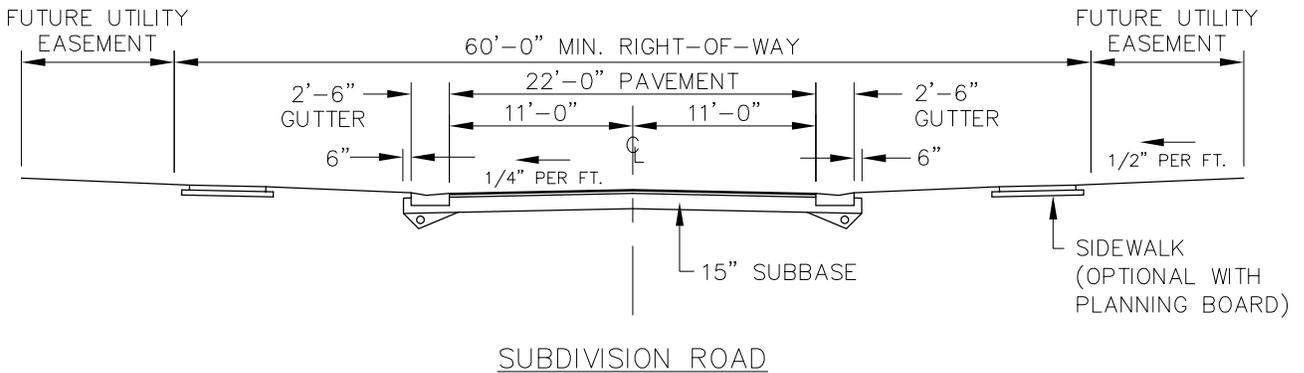
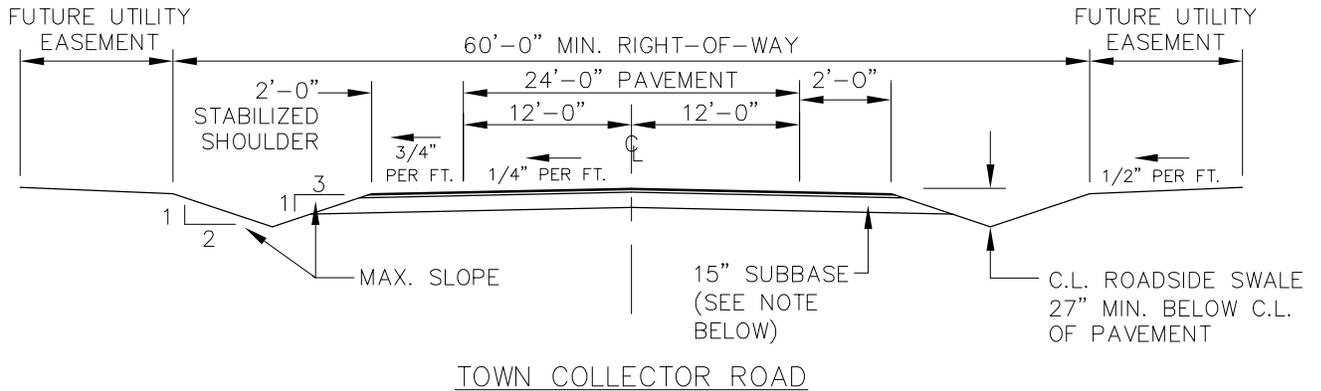


SECTIONAL VIEW

TYPICAL DRIVEWAY CULVERT DETAIL

NT.S.

TOWN OF CANANDAIGUA

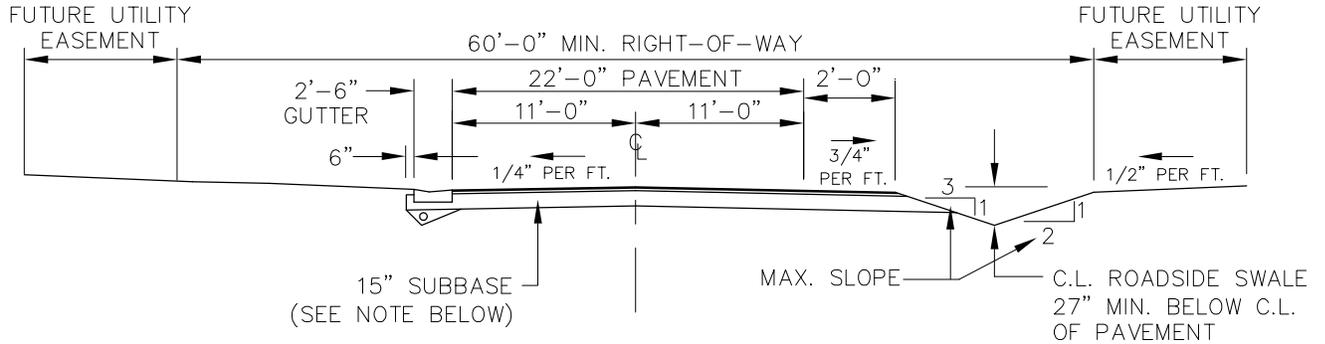


NOTE:
 SUBBASE EXTENDED OUT TO SWALE BY EITHER STONE WEEPS OR UNDERDRAIN AT DISCRETION OF THE HIGHWAY SUPERINTENDENT.

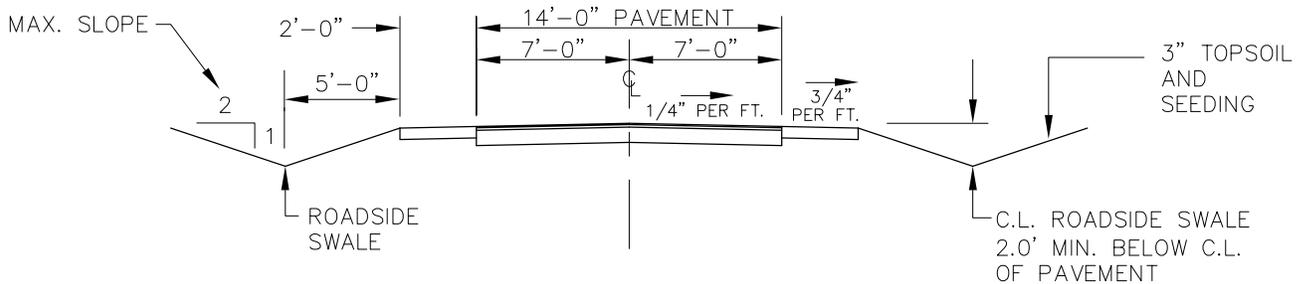
TYPICAL ROAD CROSS SECTIONS

(N.T.S.)

TOWN OF CANANDAIGUA



MINOR SUBDIVISION/RURAL DEVELOPMENT ROAD



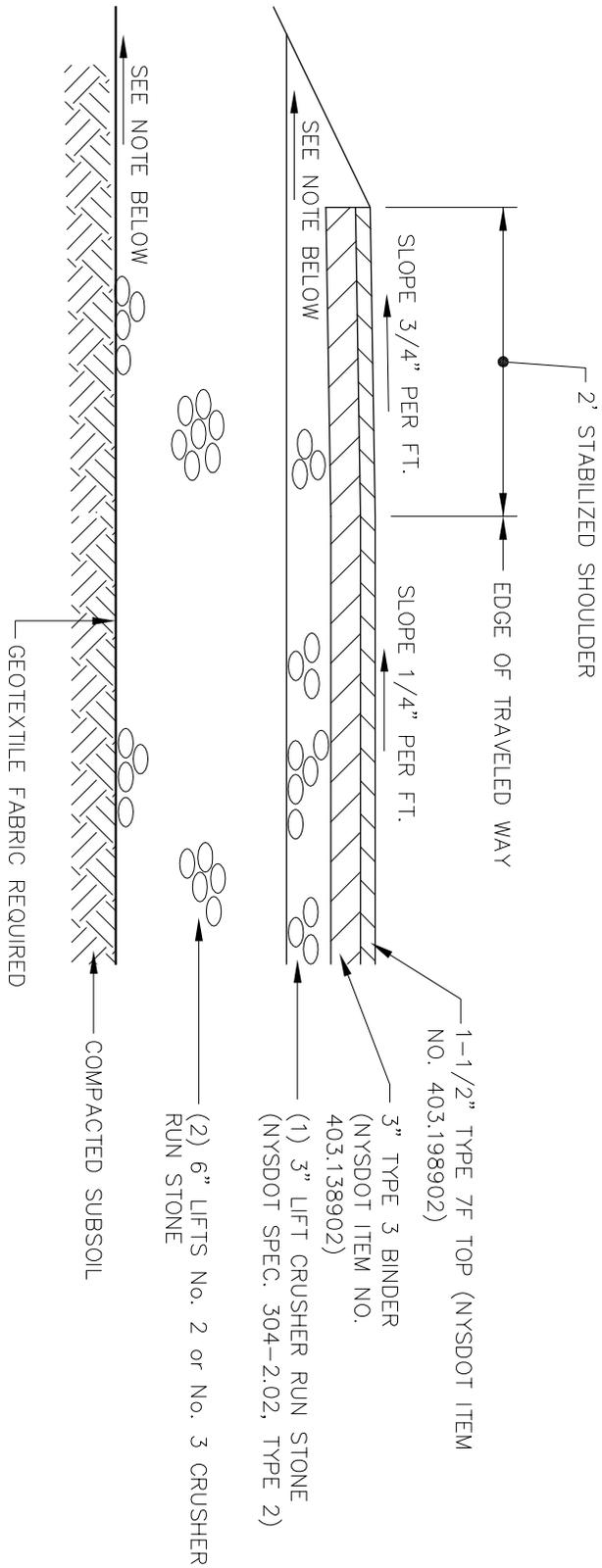
NON-DEDICATED PRIVATE DRIVE

NOTE:
 SUBBASE EXTENDED OUT TO SWALE BY EITHER STONE WEEPS OR UNDERDRAIN AT DISCRETION OF THE HIGHWAY SUPERINTENDENT.

TYPICAL ROAD CROSS SECTIONS

(N.T.S.)

3 | 1 | 1



NOTE: EXTEND SUBBASE TO SWALE PER APPENDIX E-1, E-2

**COMMERCIAL / INDUSTRIAL STABILIZED
SHOULDER SECTION**

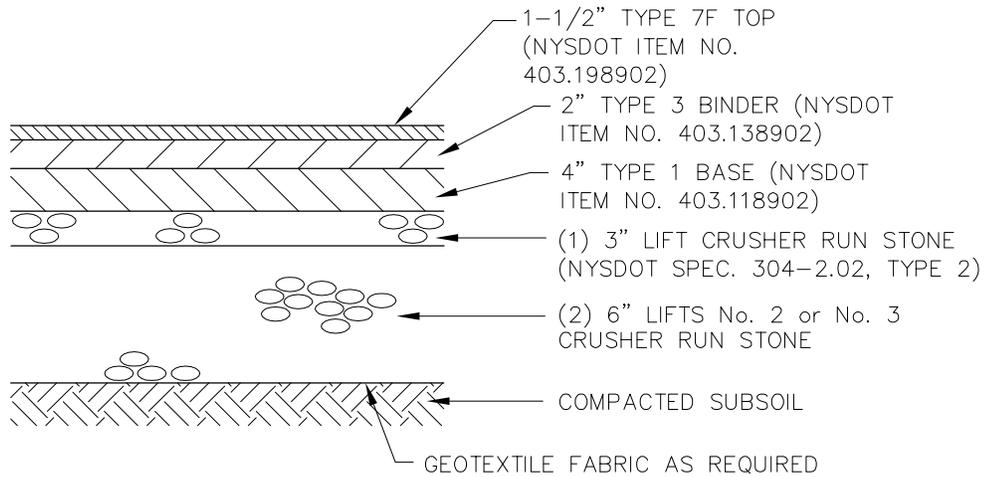
(N.T.S.)

TOWN OF CANANDAIGUA

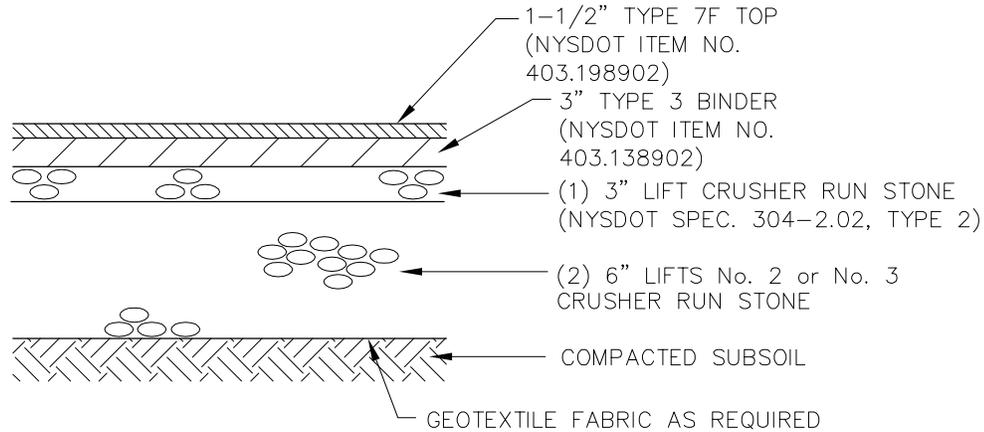
APPENDIX: E-3
DATE: JUNE 2000

MRRB | *ground*
ENGINEERING/ARCHITECTURE/SURVEYING, P.C.
2480 BROWNCRIFT BLVD. ROCHESTER, N.Y. 14625

TOWN OF CANANDAIGUA



TOWN COLLECTOR ROAD



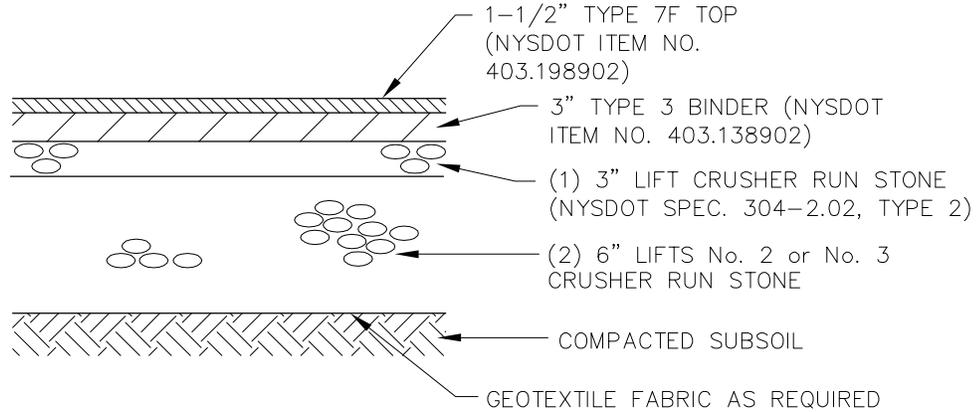
SUBDIVISION ROAD

NOTE: ALL DEPTHS ARE COMPACTED THICKNESSES AND PAVEMENT THICKNESSES MAY VARY AS REQUIRED BY TOWN ENGINEER

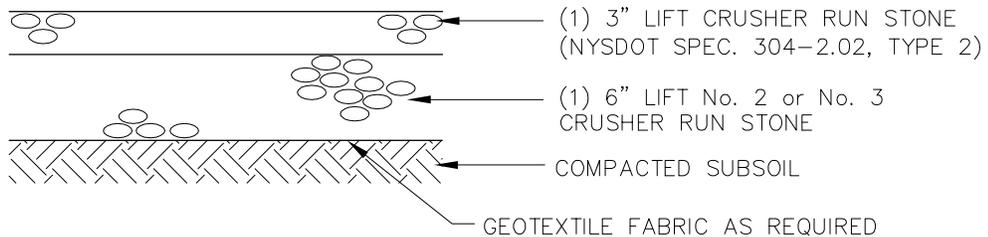
PAVEMENT CROSS SECTION

(N.T.S.)

TOWN OF CANANDAIGUA



MINOR SUBDIVISION/RURAL DEVELOPMENT ROAD



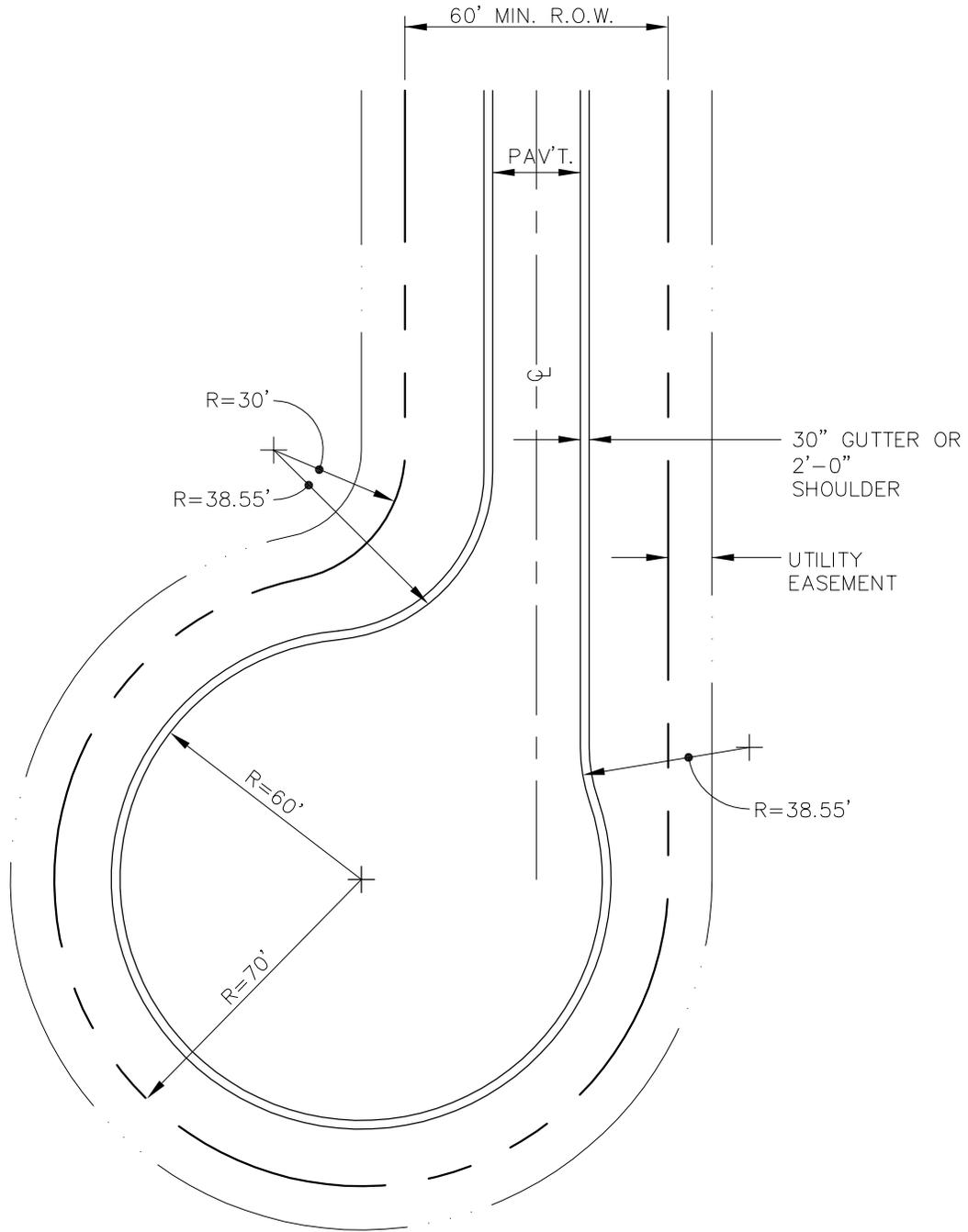
NON-DEDICATED PRIVATE DRIVE

NOTE: ALL DEPTHS ARE COMPACTED THICKNESSES AND PAVEMENT THICKNESSES MAY VARY AS REQUIRED BY TOWN ENGINEER

PAVEMENT CROSS SECTION

(N.T.S.)

TOWN OF CANANDAIGUA

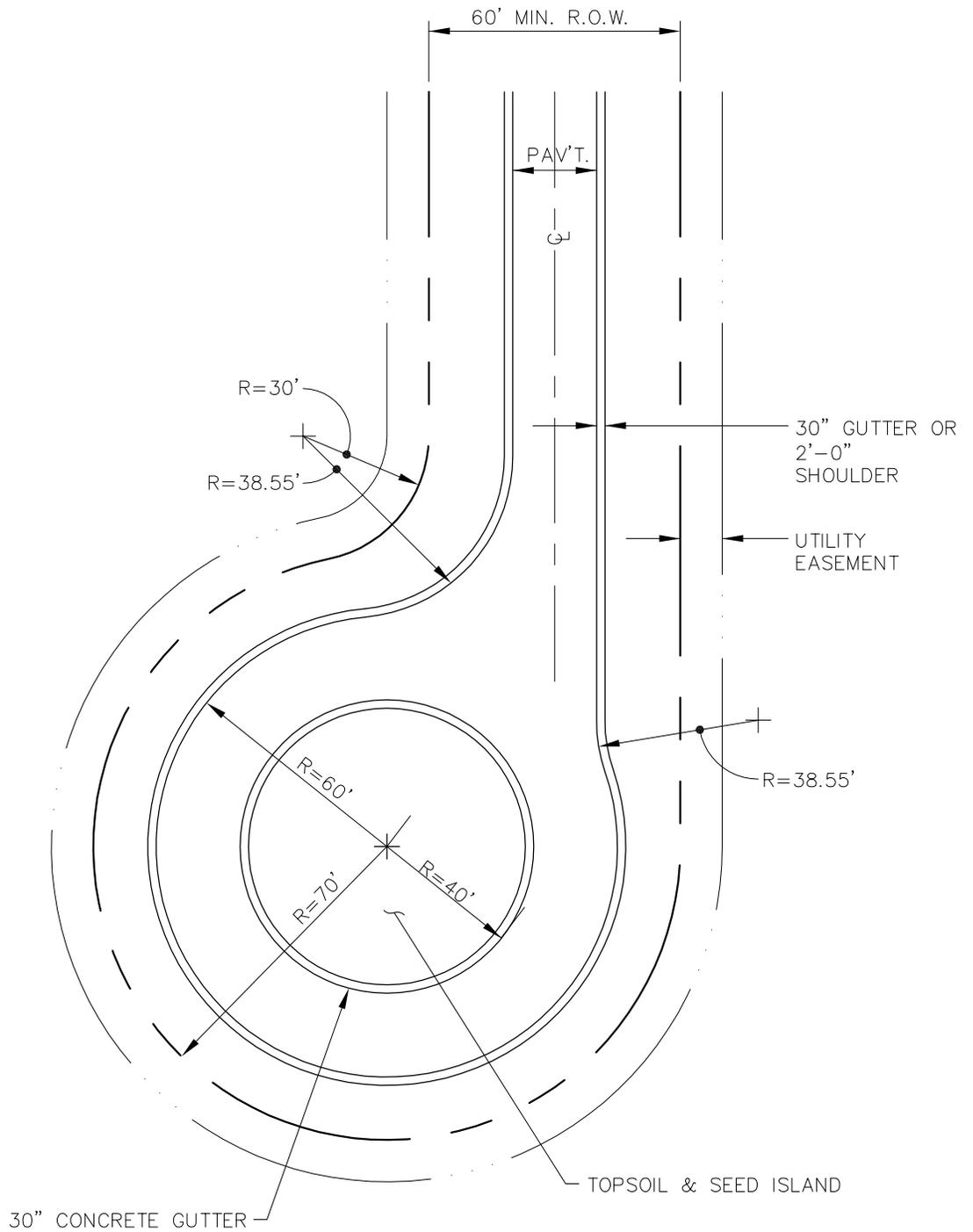


OFFSET CUL-DE-SAC PLAN

(N.T.S.)

G

TOWN OF CANANDAIGUA

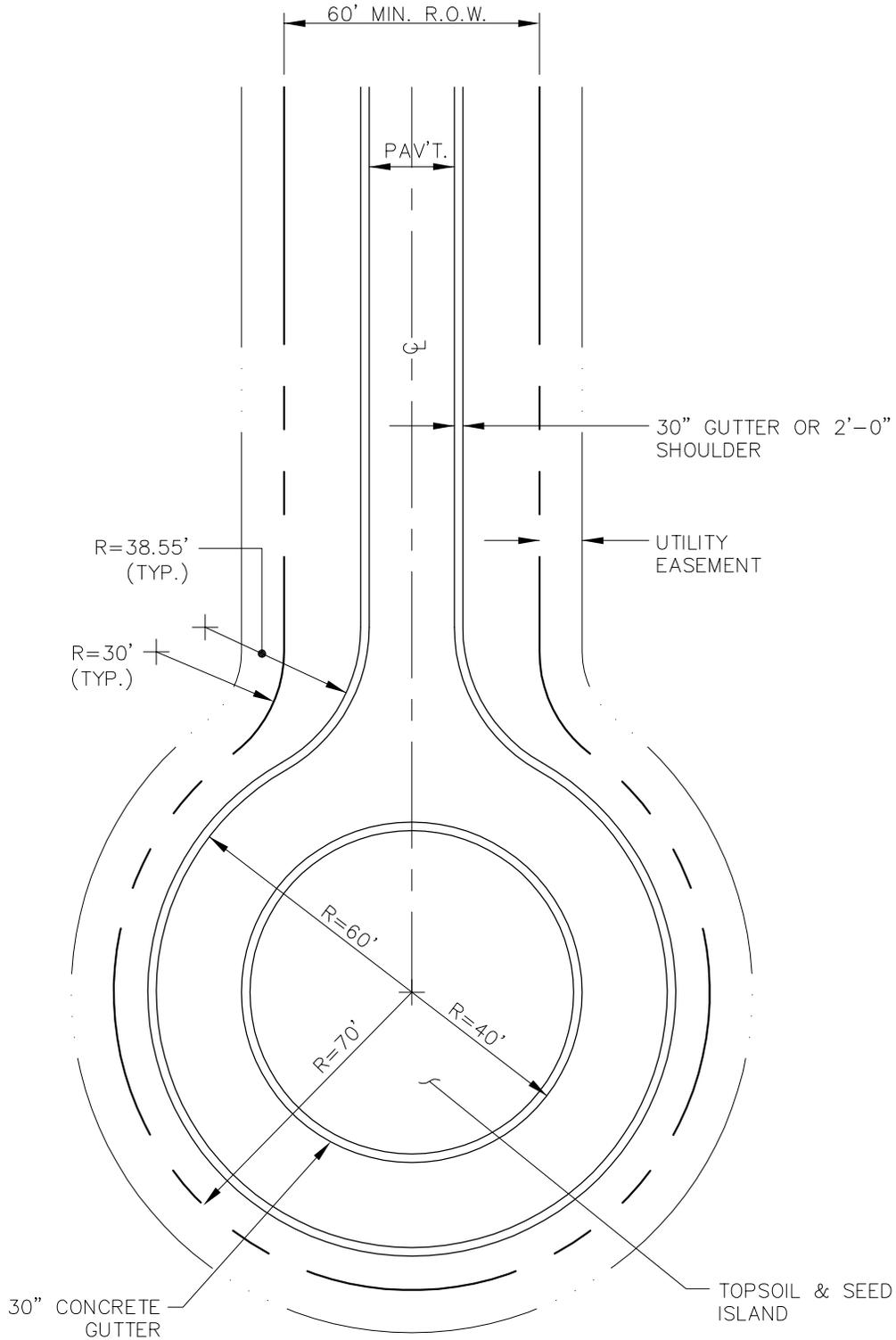


OFFSET CUL-DE-SAC PLAN

(N.T.S.)

H-1

TOWN OF CANANDAIGUA

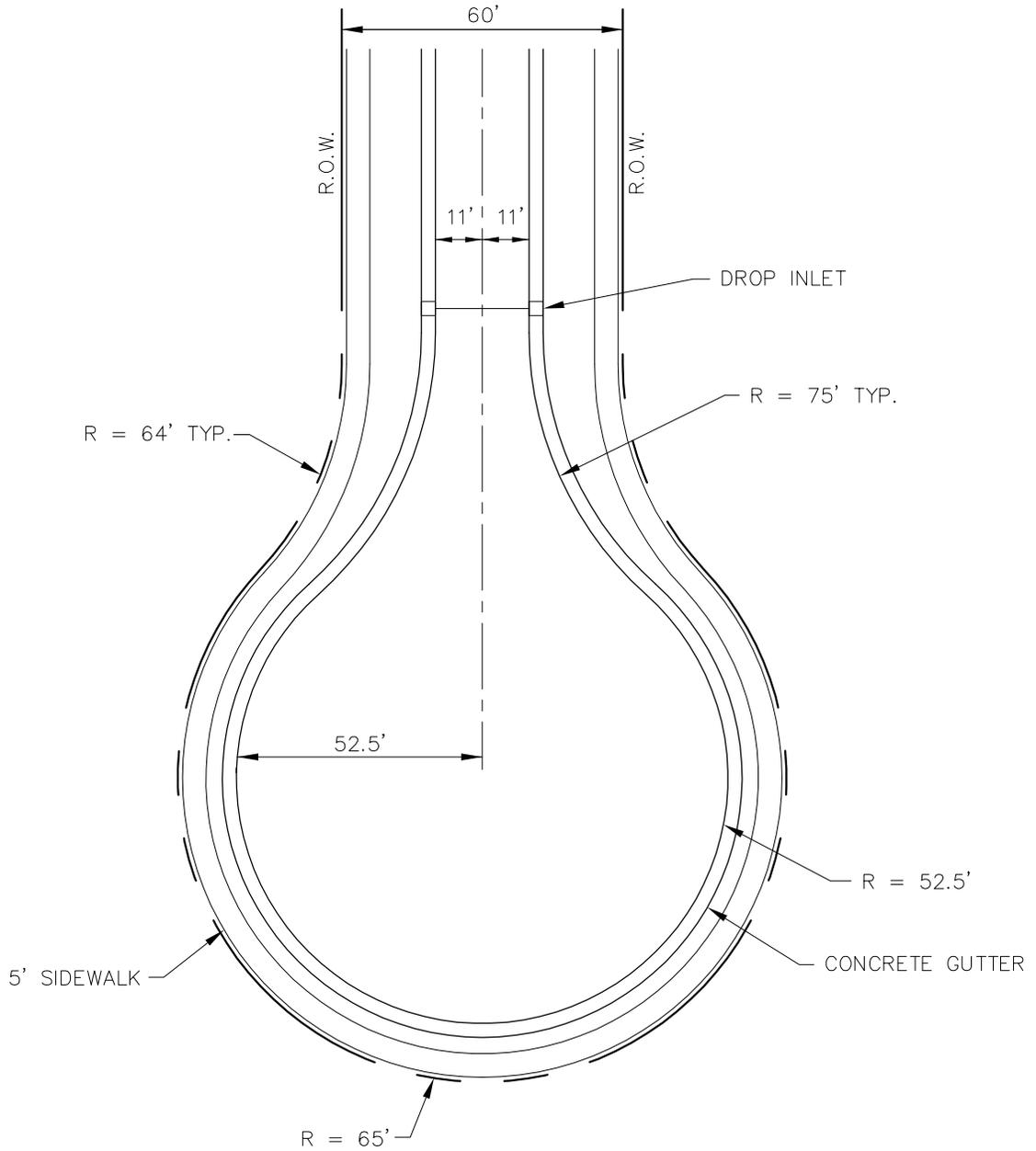


CONVENTIONAL CUL-DE-SAC PLAN

(N.T.S.)

H-2

TOWN OF CANANDAIGUA



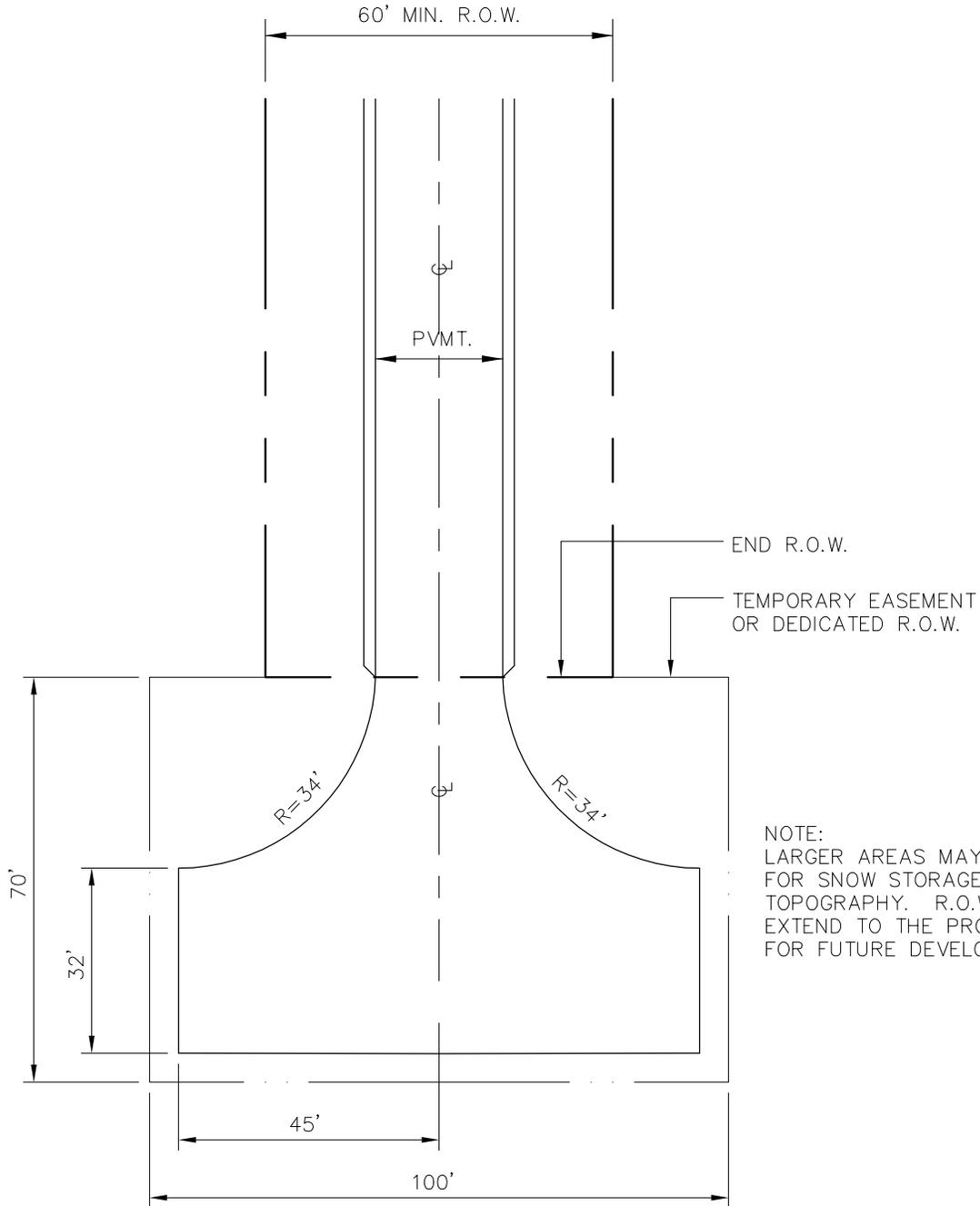
NOTE: NO DROP INLETS WITHIN PAVEMENT AREA. A THIRD
DROP INLET SHALL BE INSTALLED AT THE END OF THE
CUL-DE-SAC

CONVENTIONAL CUL-DE-SAC PLAN

(N.T.S.)

H-3

TOWN OF CANANDAIGUA

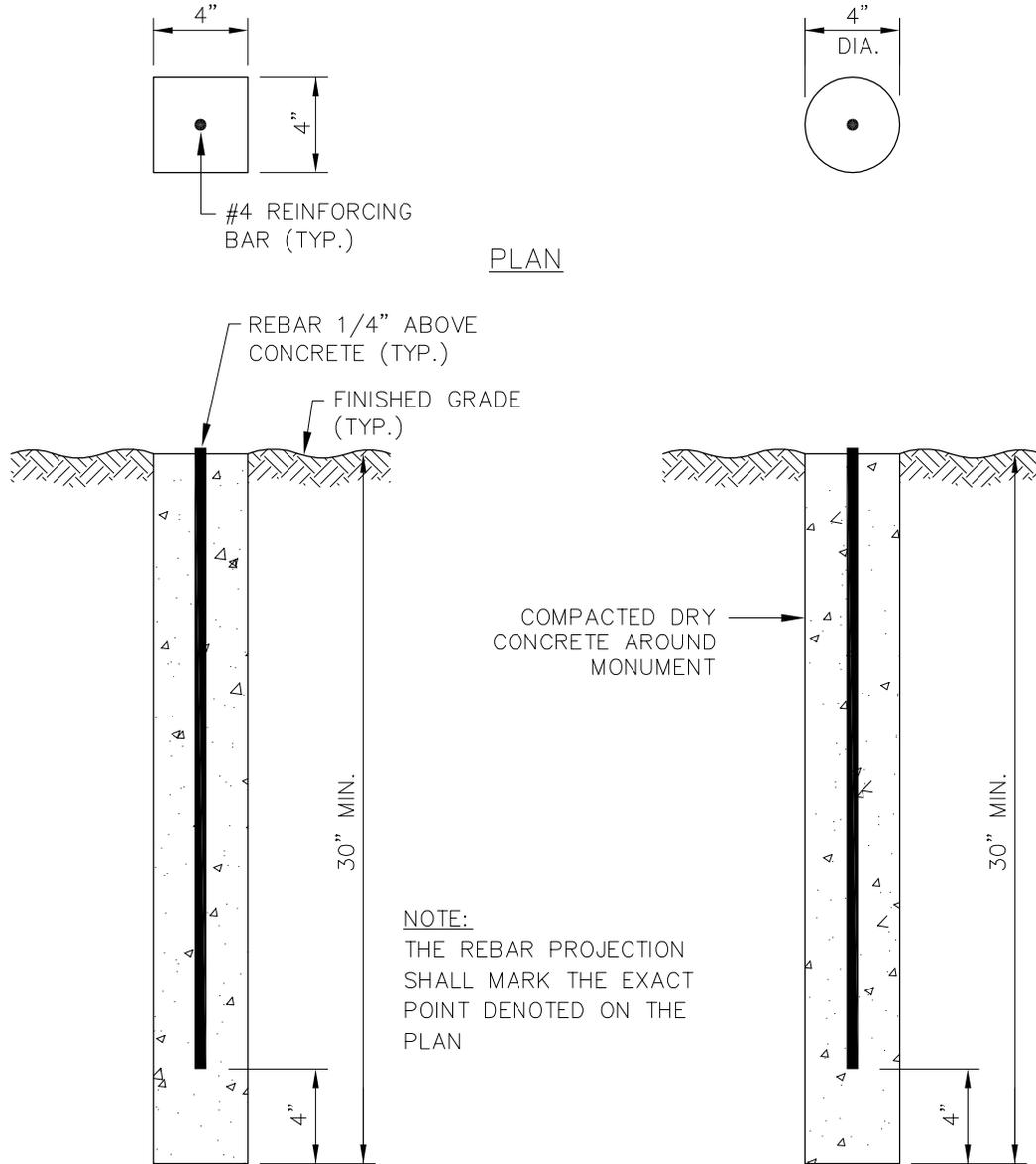


NOTE:
LARGER AREAS MAY BE REQUIRED
FOR SNOW STORAGE OR
TOPOGRAPHY. R.O.W. SHOULD
EXTEND TO THE PROPERTY LINE
FOR FUTURE DEVELOPMENT

HAMMER HEAD TURN-AROUND

(N.T.S.)

TOWN OF CANANDAIGUA



NOTE:
THE REBAR PROJECTION SHALL MARK THE EXACT POINT DENOTED ON THE PLAN

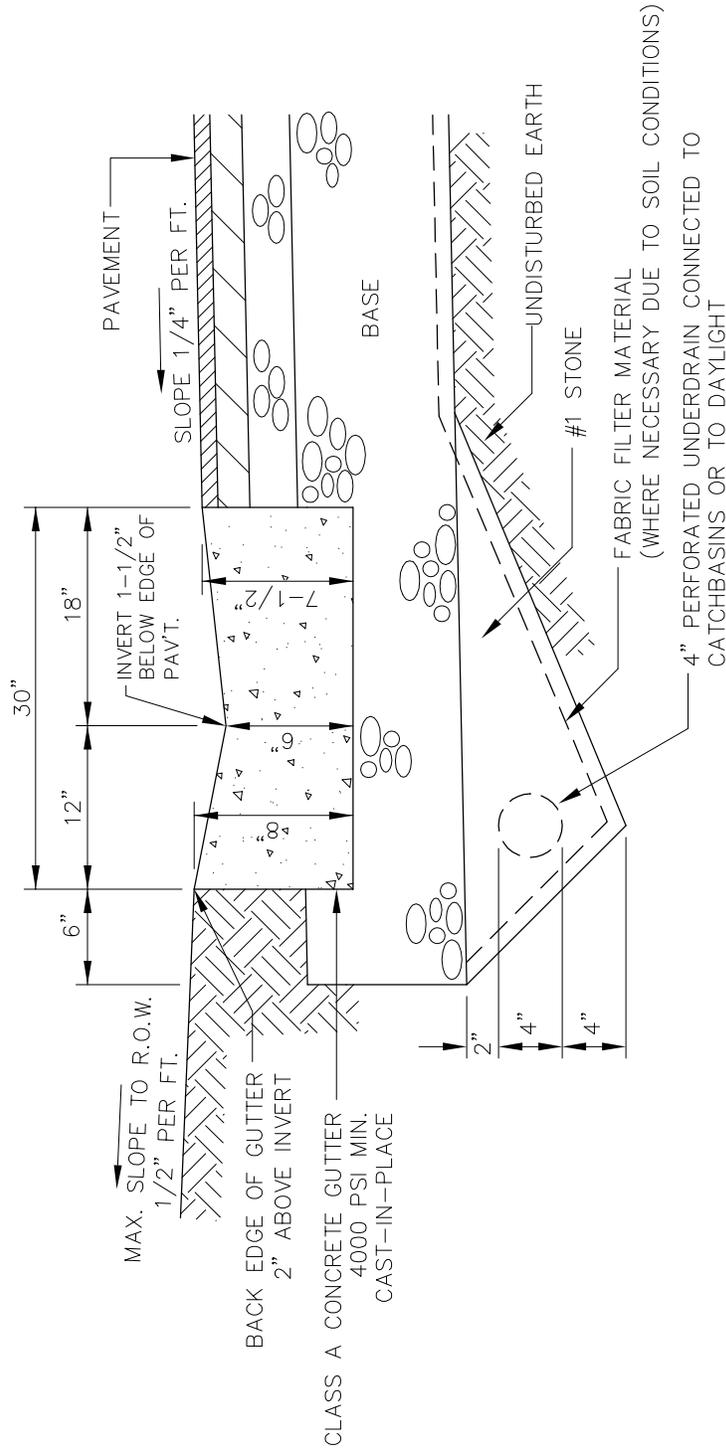
SECTION

MONUMENT

(N.T.S.)

J

TOWN OF CANANDAIGUA

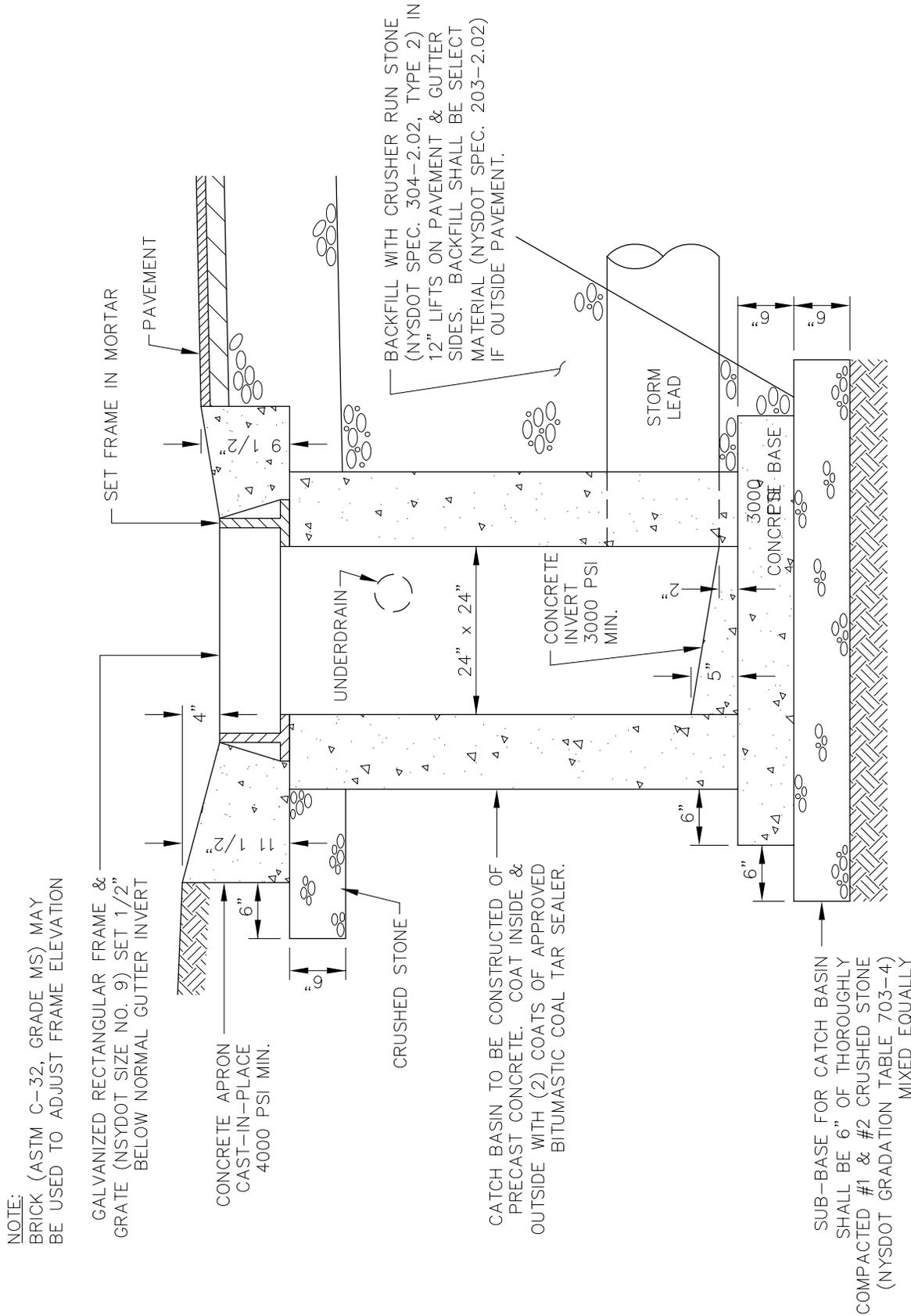


GUTTER DETAIL

(N.T.S.)

K

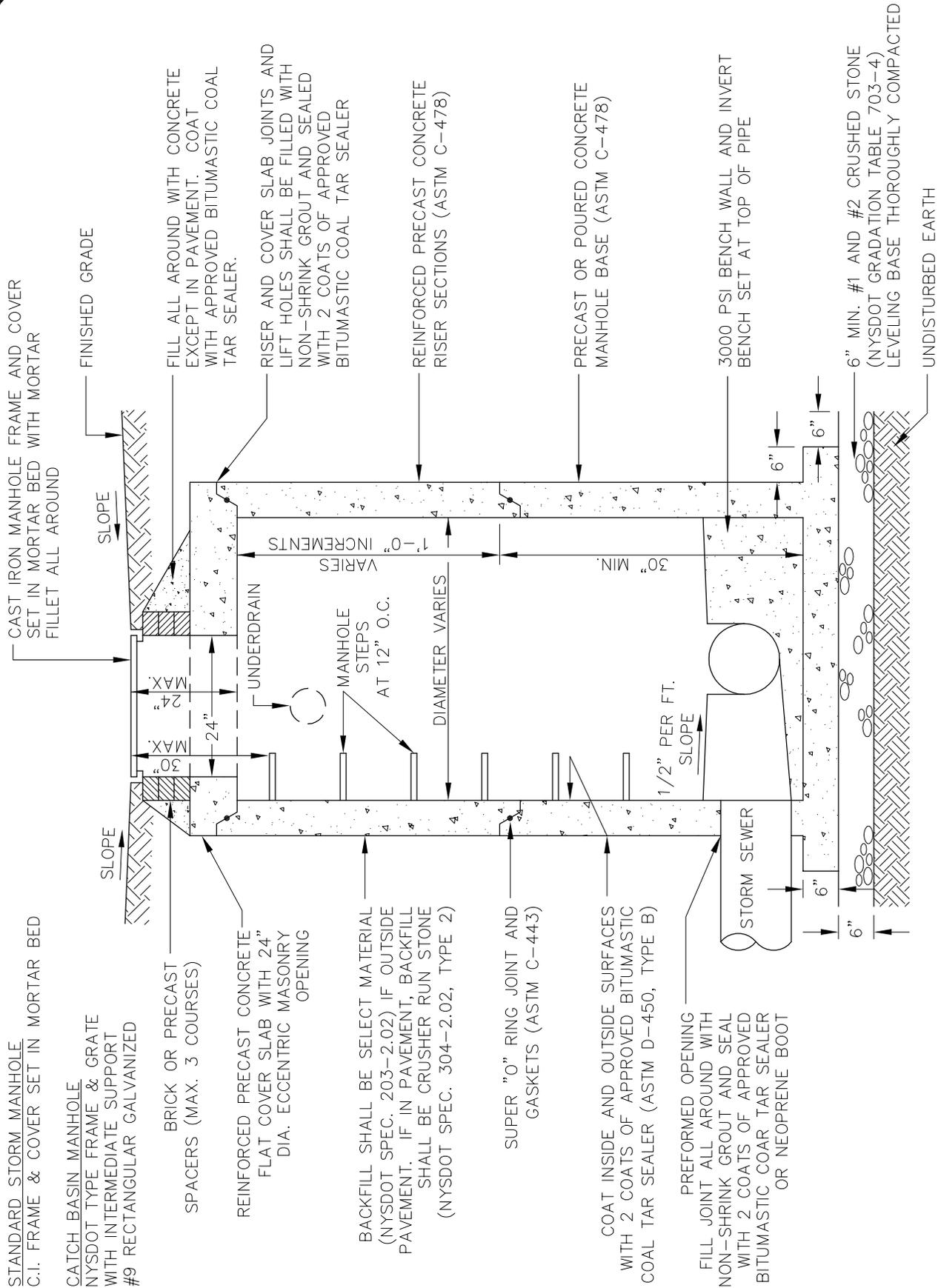
TOWN OF CANANDAIGUA



CATCH BASIN DETAIL

(N.T.S.)

TOWN OF CANANDAIGUA

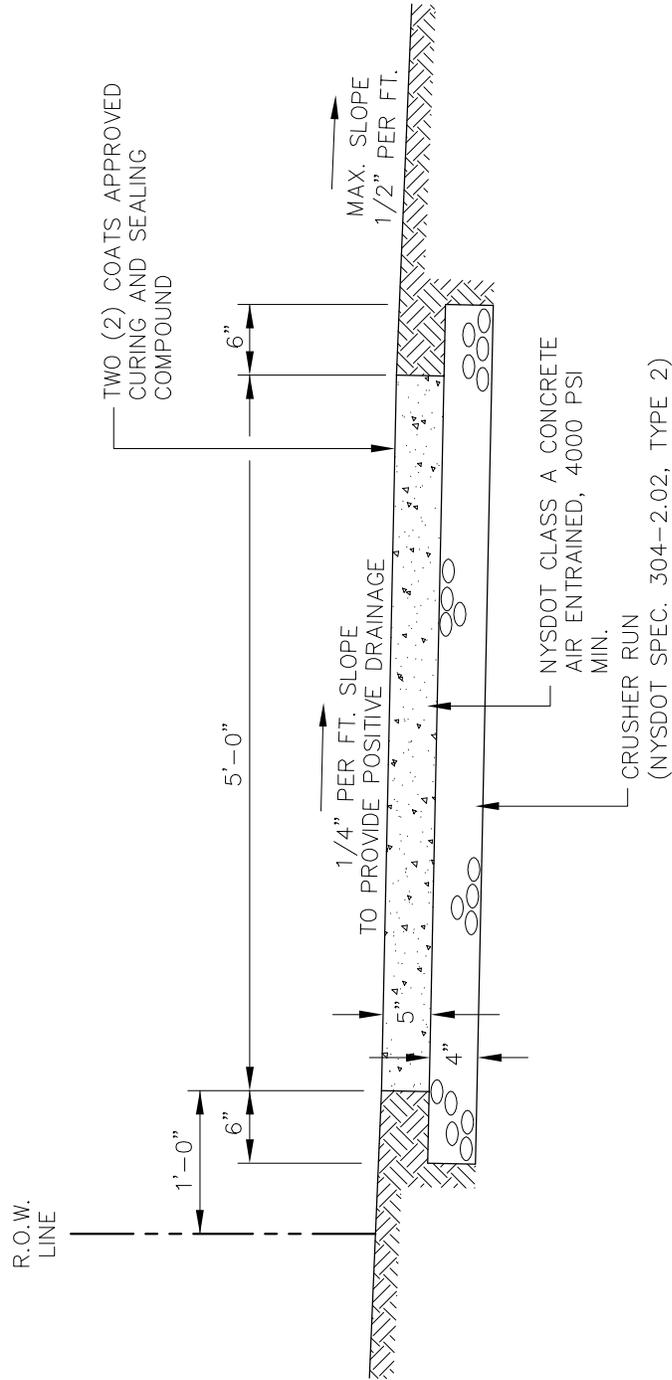


STORM SEWER MANHOLE AND CATCH BASIN MANHOLE

(N.T.S.)



TOWN OF CANANDAIGUA

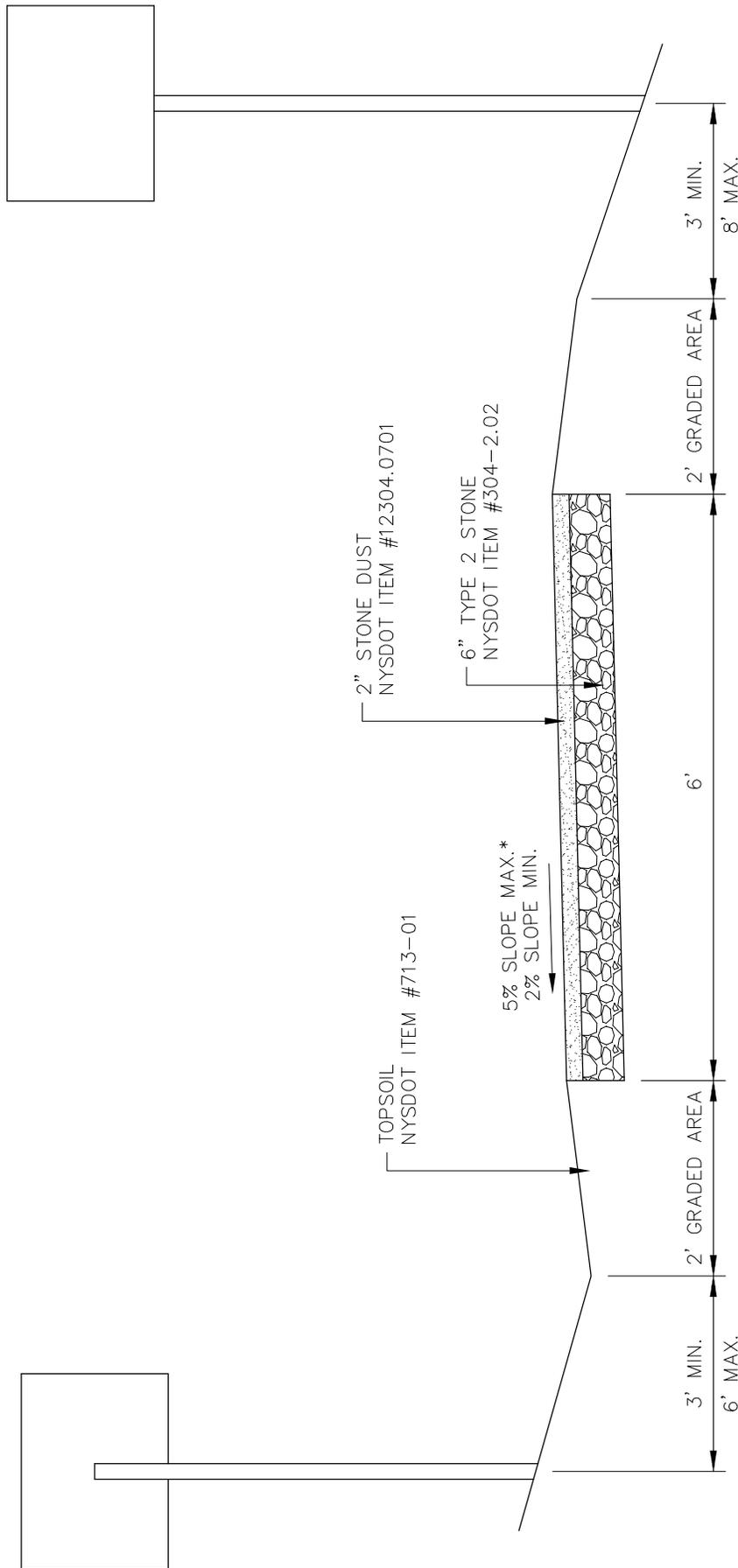


NOTE:
 CONCRETE SIDEWALKS THROUGH DRIVEWAYS SHALL BE INCREASED TO A 6" THICKNESS AND SHALL INCLUDE 6"x6" WIRE MESH (10 GAUGE) FOR REINFORCEMENT.

SIDEWALK DETAIL

(N.T.S.)

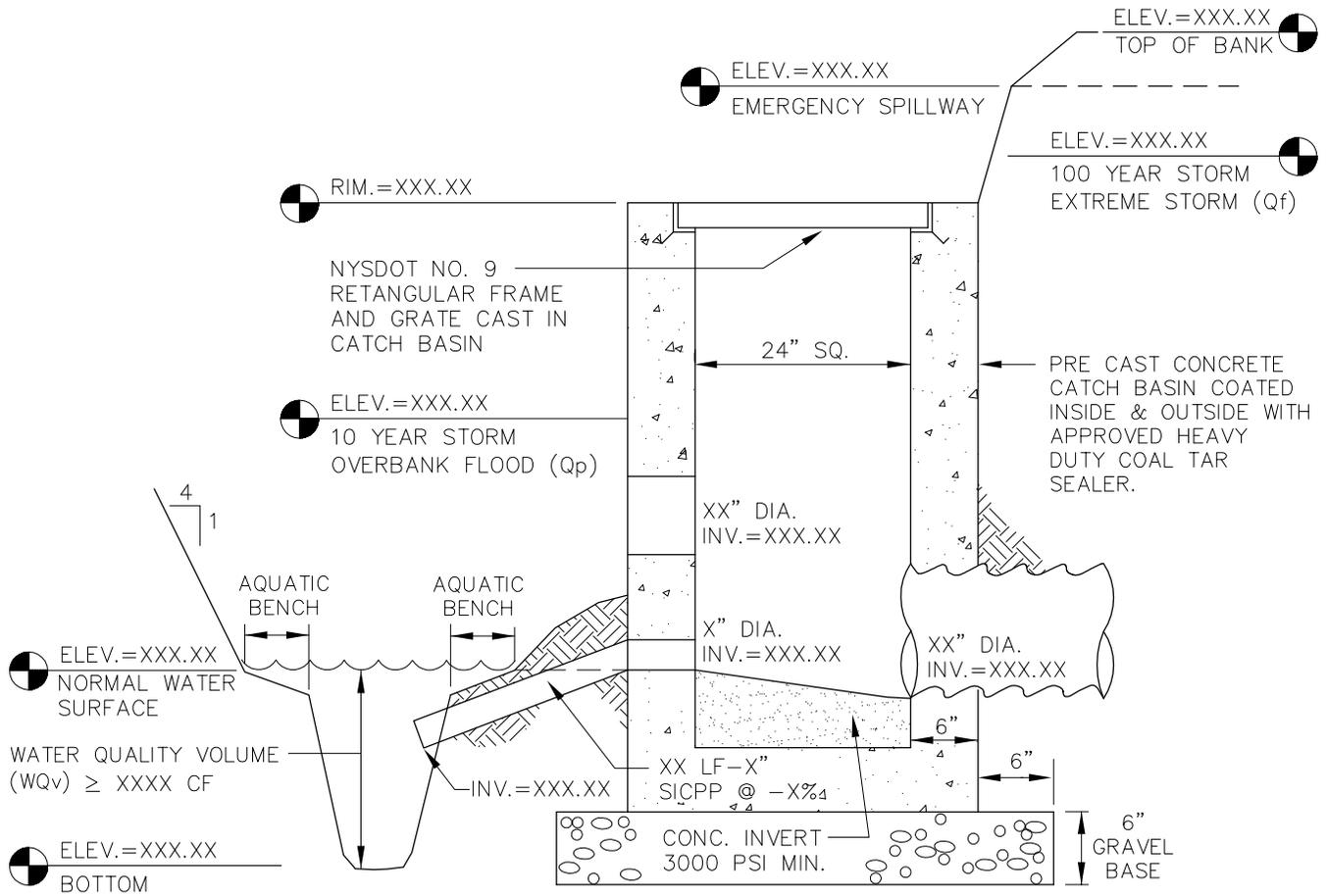
TOWN OF CANANDAIGUA



STONE DUST WALKING TRAIL

(N.T.S.)

TOWN OF CANANDAIGUA



DETENTION AREA OUTFALL STRUCTURE

N.T.S.

TOWN OF CANANDAIGUA

		TEST PRESSURE (P.S.I.)					
		100	125	150	175	200	225
	PIPE DIA. (INCHES)	ALLOWABLE LEAKAGE (G.P.H.)					
		D.I.P. PER 1,000 L.F. OF LINE	6	0.45	0.50	0.55	0.59
8	0.60		0.67	0.74	0.80	0.85	0.90
10	0.75		0.84	0.92	0.99	1.06	1.13
12	0.90		1.01	1.10	1.19	1.28	1.35
P.V.C. PER 1,000 L.F. OF LINE	6	0.41	0.45	0.50	0.53	0.57	0.61
	8	0.54	0.60	0.66	0.71	0.76	0.81
	10	0.68	0.75	0.83	0.90	0.96	1.02
	12	0.81	0.89	0.99	1.07	1.15	1.22

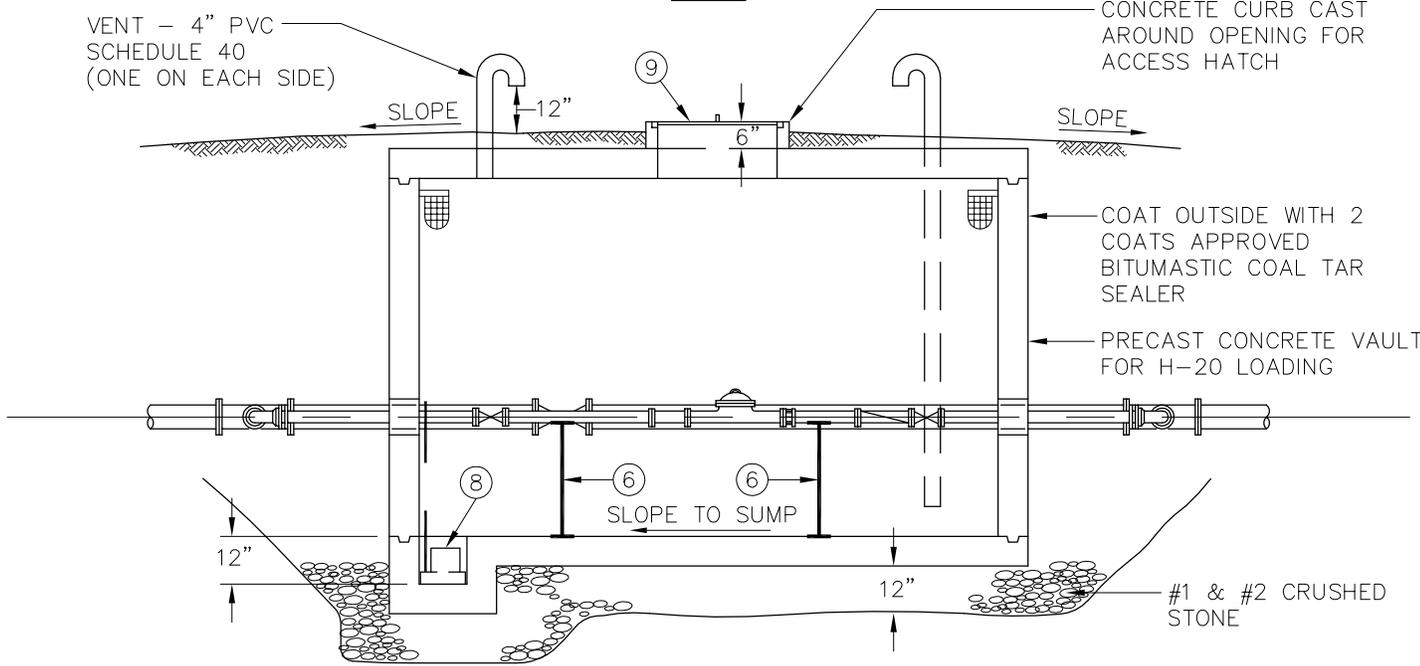
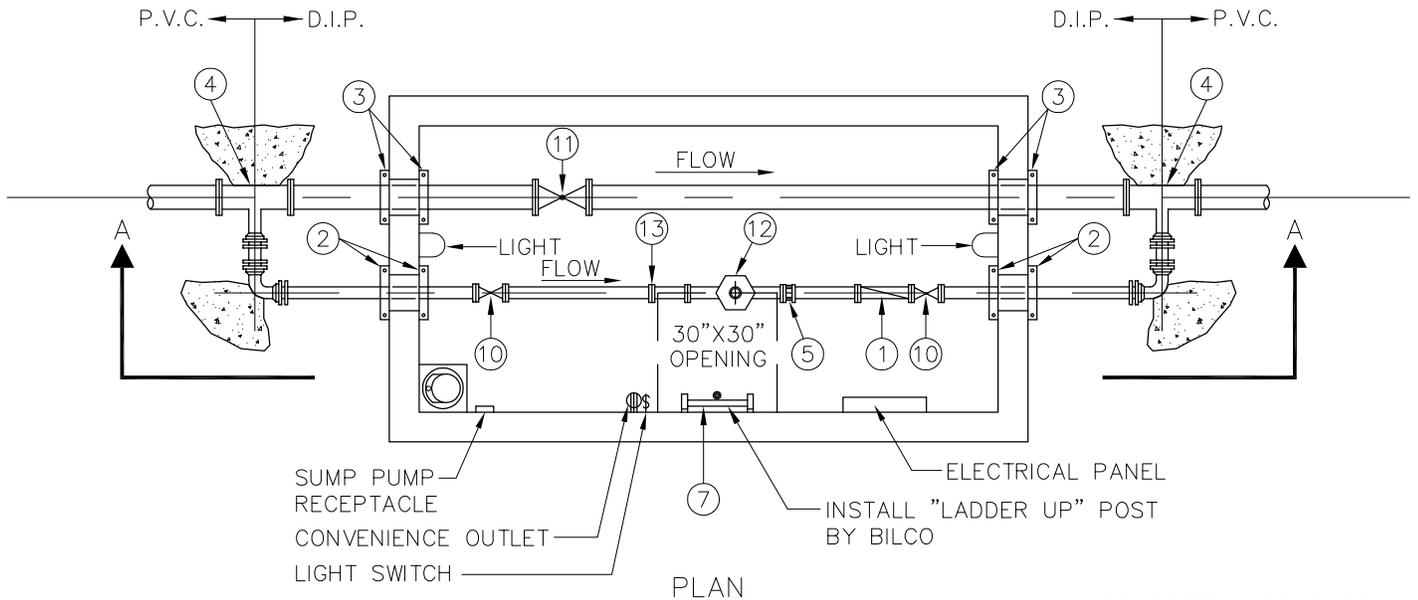
NOTES:

1. PRESSURE TESTS SHALL BE CONDUCTED SO THE PIPE SECTIONS ARE WITHIN 10 PSI OF THE TEST PRESSURE LOCATION.
2. PRESSURE TESTS SHALL BE CONDUCTED FOR A MINIMUM OF 2 HOURS.
3. LEAKAGE TESTS AT LINE PRESSURE SHALL BE CONDUCTED OVER A 24 HOUR PERIOD.

WATERMAIN PRESSURE TEST

Q

TOWN OF CANANDAIGUA



SECTION A-A

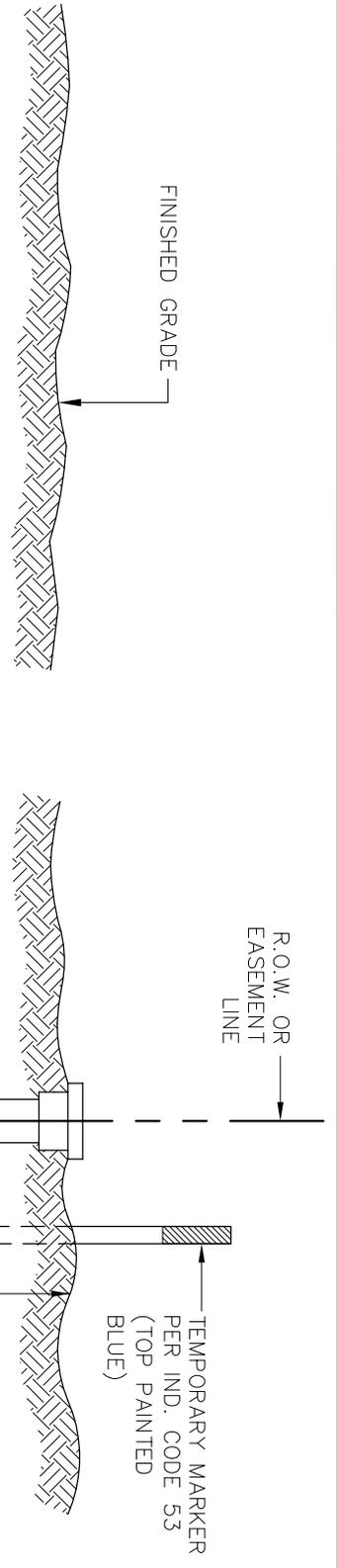
- | | |
|-----------------------------|---|
| ① SWING CHECK VALVE (FL-FL) | ⑧ SUMP PUMP OR GRAVITY DISCHARGE TO GROUND SURFACE |
| ② SOCKET CLAMPS | ⑨ BILCO ACCESS DOOR TYPE J-2AL (2'-6"X2'-6") H-20 LOADING |
| ③ SOCKET CLAMPS | ⑩ RESILIENT SEAT GATE VALVE (FL-FL) |
| ④ MJ TEE | ⑪ RESILIENT SEAT GATE VALVE (FL-FL) |
| ⑤ FLANGE ADAPTOR | ⑫ BADGER RECORDALL COMPOUND METER OR FIRE SERVICE METER |
| ⑥ PIPE SUPPORTS (4 REQ'D) | ⑬ RECORDER PLATE STRAINER |
| ⑦ LADDER | |

NOTE: IF A GRAVITY DRAIN IS POSSIBLE, ELIMINATE ALL ELECTRIC.

TYPICAL WATER METER VAULT

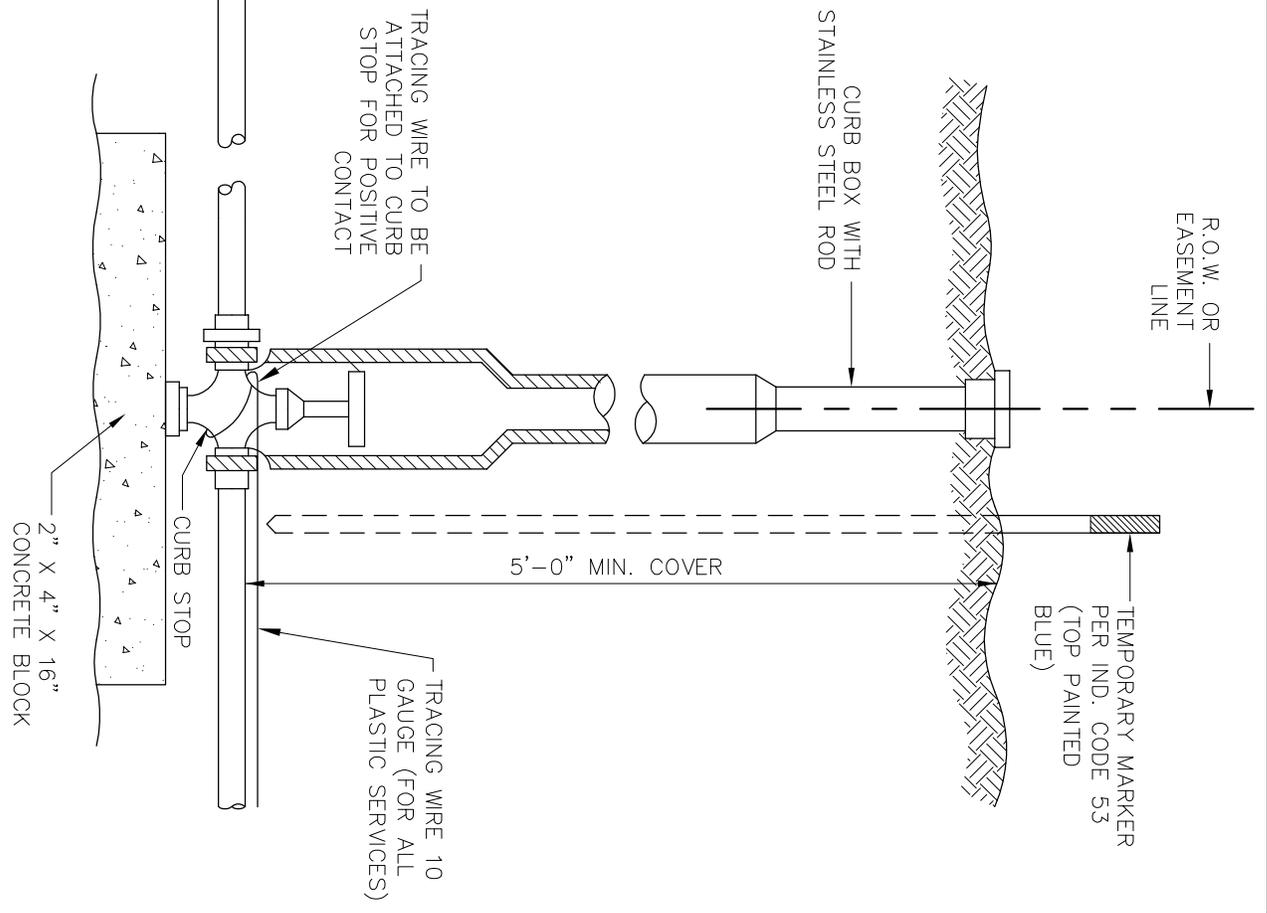
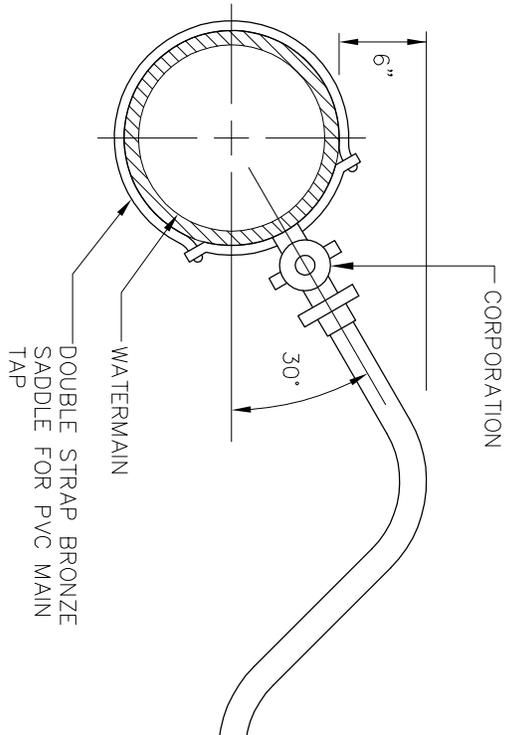
(N.T.S.)

R



NOTES:

1. COPPER SERVICES SHALL BE ENCASED ALL AROUND WITH SELECT EARTH SERVICES SHALL BE TYPE K COPPER FROM THE MAIN TO THE CURB STOP.
2. PLASTIC SERVICES ALLOWED FROM THE CURB STOP TO THE STRUCTURE. COPPER TRACER WIRE SHOULD BE PROVIDED AS SHOWN.



TYPICAL WATER SERVICE

(N.T.S.)

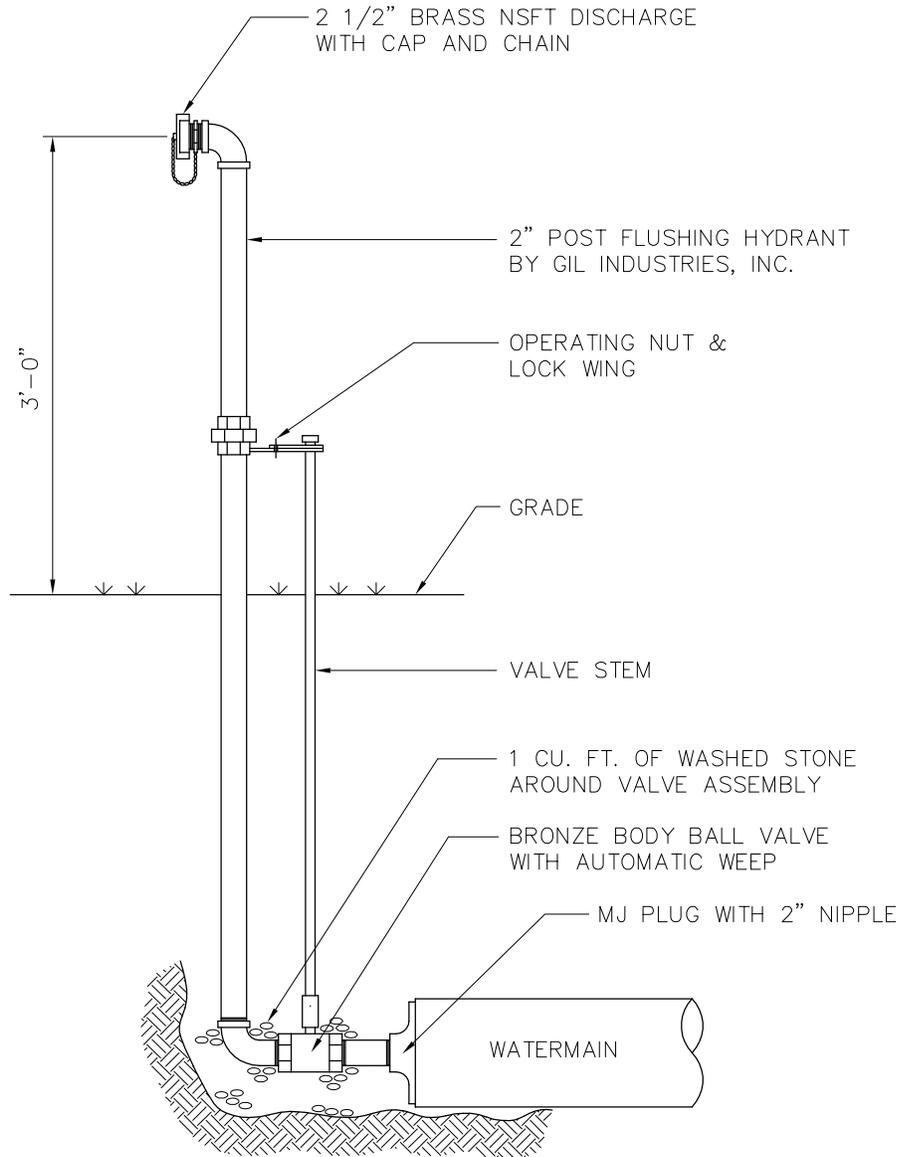
ENGINEERING/ARCHITECTURE/SURVEYING, P.C.
2480 BROWNCROFT BLVD. ROCHESTER, N.Y. 14625



APPENDIX: S
DATE: JUNE 2000

TOWN OF CANANDAIGUA

TOWN OF CANANDAIGUA

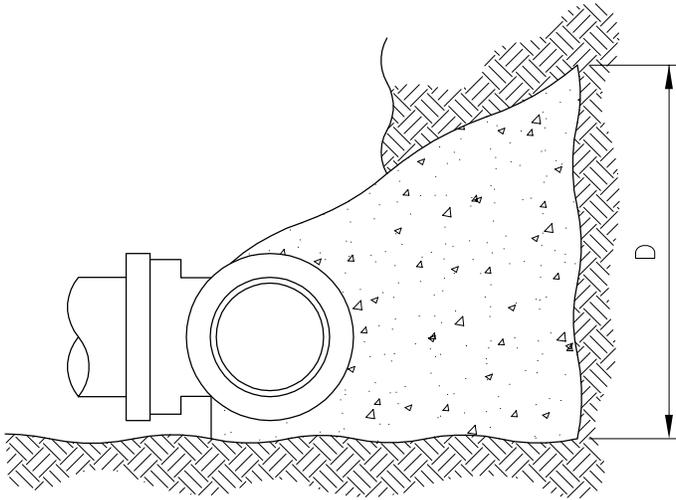


WATERMAIN BLOW-OFF DETAIL

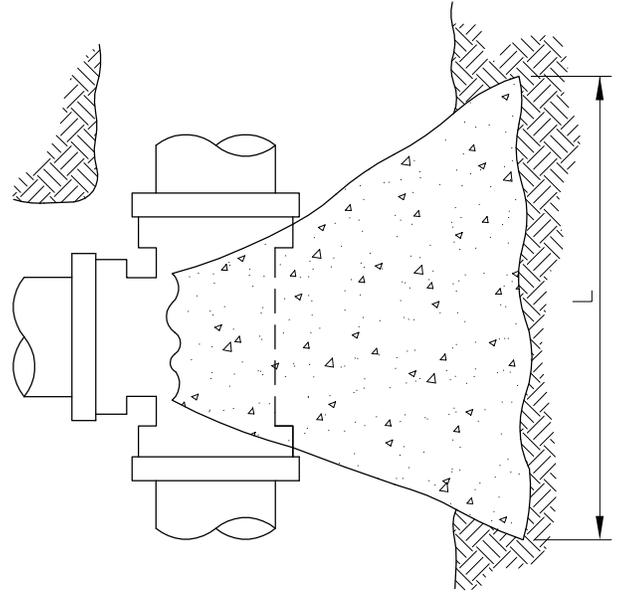
(N.T.S.)

T

TOWN OF CANANDAIGUA

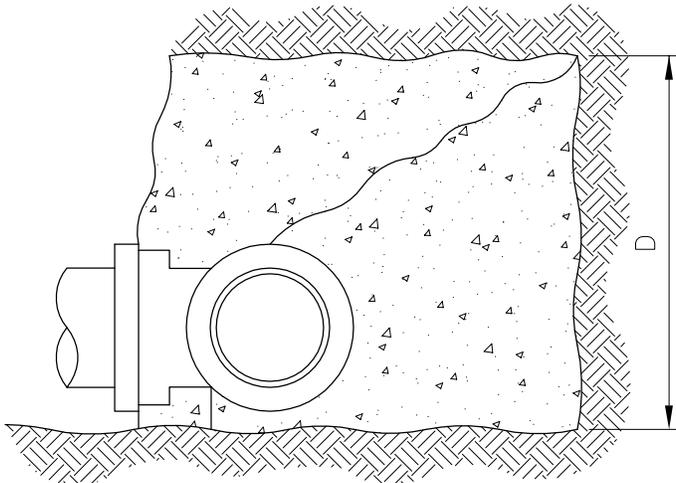


SECTION

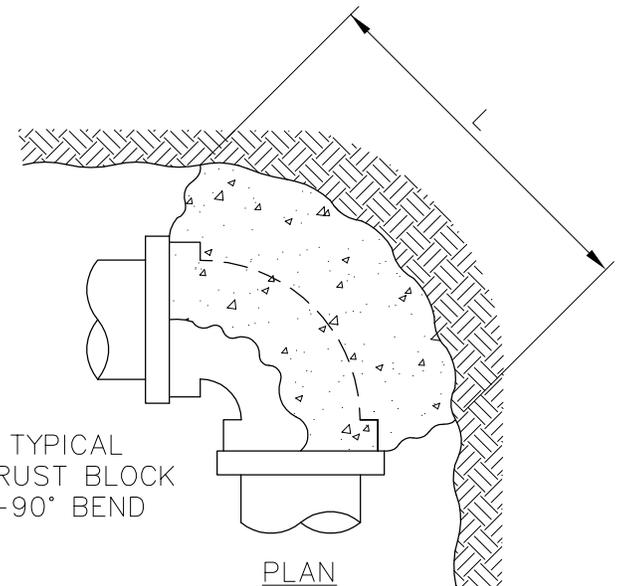


PLAN

TEE



SECTION



TYPICAL
THRUST BLOCK
- 90° BEND

PLAN

BEND

THRUST BLOCK DETAIL

(N.T.S.)

U - 1

TOWN OF CANANDAIGUA

NOTES:

1. ALL DIMENSIONS ARE IN FEET.
2. BEARING AREAS ARE BASED ON ALLOWABLE SOIL BEARING PRESSURE OF 3000 PSF.
3. HEIGHT OF THRUST BLOCK SHOULD BE EQUAL TO OR LESS THAN 1/2 THE DEPTH FROM THE GROUND SURFACE TO THE BASE OF THE BLOCK.
4. ALL THRUST BLOCKS SHALL CURE A MINIMUM OF SEVEN (7) DAYS BEFORE ANY PRESSURE TESTS ARE CONDUCTED.

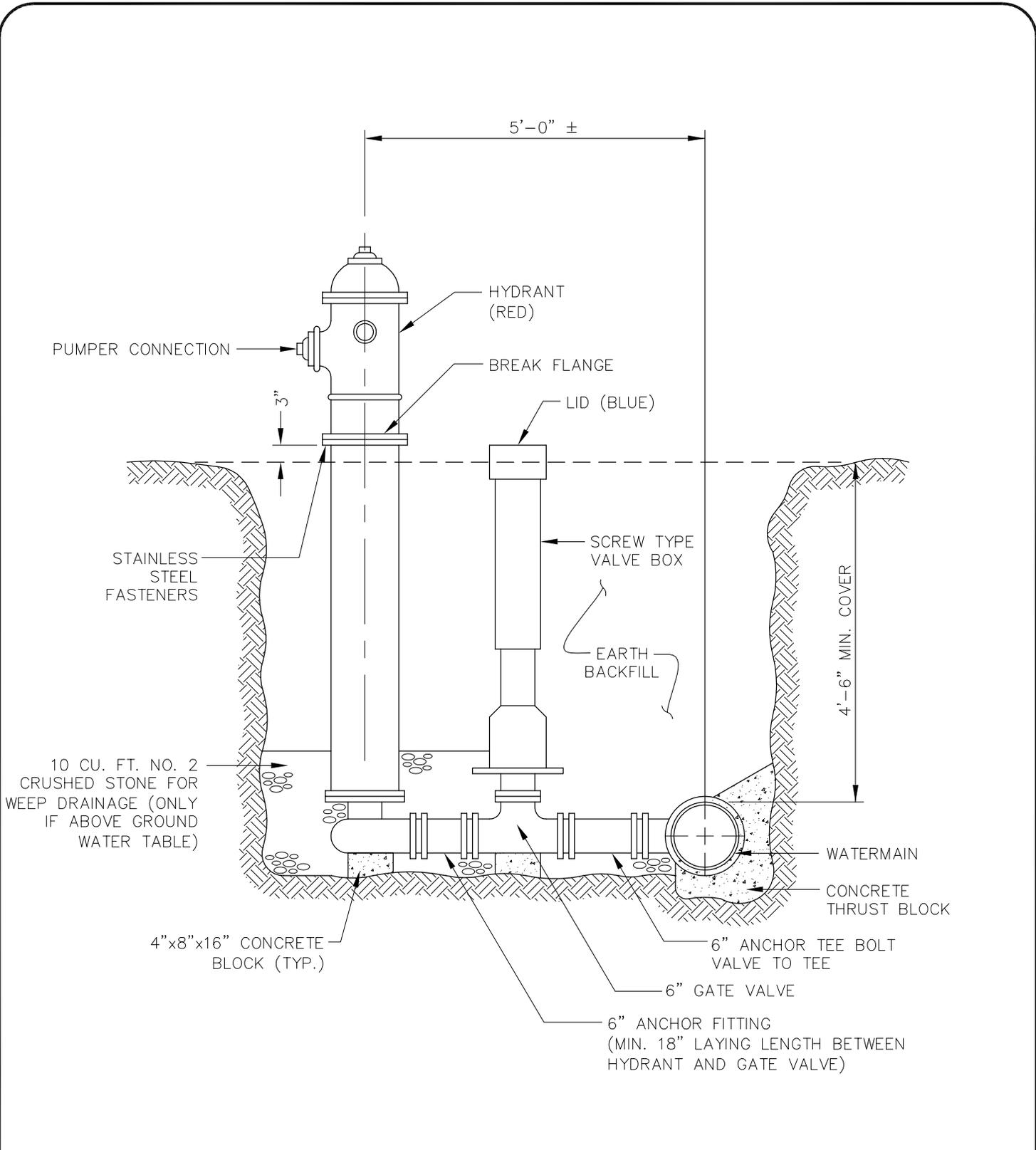
PIPE SIZE (INCHES)	WORKING PRESSURE (PSIG)	TEE OR PLUG		90° BEND		45° BEND		22-1/2° BEND	
		L	D	L	D	L	D	L	D
4	150	1.50	0.67	1.50	0.67	1.50	0.67	1.50	0.67
	250	1.50	0.67	1.67	0.75	1.50	0.67	1.50	0.67
6	150	1.67	0.75	2.00	1.00	1.50	0.67	1.50	0.67
	250	2.00	1.25	2.00	1.50	1.75	1.00	1.50	0.67
8	150	2.00	1.25	2.00	1.50	1.75	1.00	1.50	0.67
	250	2.25	1.75	3.00	2.00	2.00	1.50	1.67	1.00
10	150	2.00	1.75	2.50	2.00	1.75	1.50	1.67	1.00
	250	3.00	2.00	3.67	2.50	2.50	2.00	1.75	1.50
12	150	2.50	2.00	3.00	2.50	2.25	1.75	1.75	1.25
	250	3.67	2.50	4.00	3.00	3.00	2.33	2.00	1.75
14	150	3.00	2.33	4.00	2.50	2.75	2.00	2.00	1.50
	250	4.00	3.00	5.00	3.50	3.75	2.67	2.50	2.00
16	150	3.75	2.67	5.00	3.00	3.00	2.50	2.25	1.75
	250	5.00	3.25	6.00	3.50	4.00	3.00	3.25	2.00
18	150	4.00	3.00	5.50	3.25	3.67	2.50	2.50	2.00
	250	6.00	3.33	7.00	4.00	5.00	3.25	3.50	2.50
20	150	5.00	3.00	6.00	3.50	4.00	2.75	3.00	2.00
	250	6.50	4.00	8.00	4.50	6.00	3.25	4.00	2.50
24	150	6.00	3.33	7.00	4.25	5.00	3.25	3.67	2.50
	250	8.00	4.50	9.00	5.50	6.50	4.00	5.00	3.00

THRUST BLOCK DETAIL

(N.T.S.)

U-2

TOWN OF CANANDAIGUA

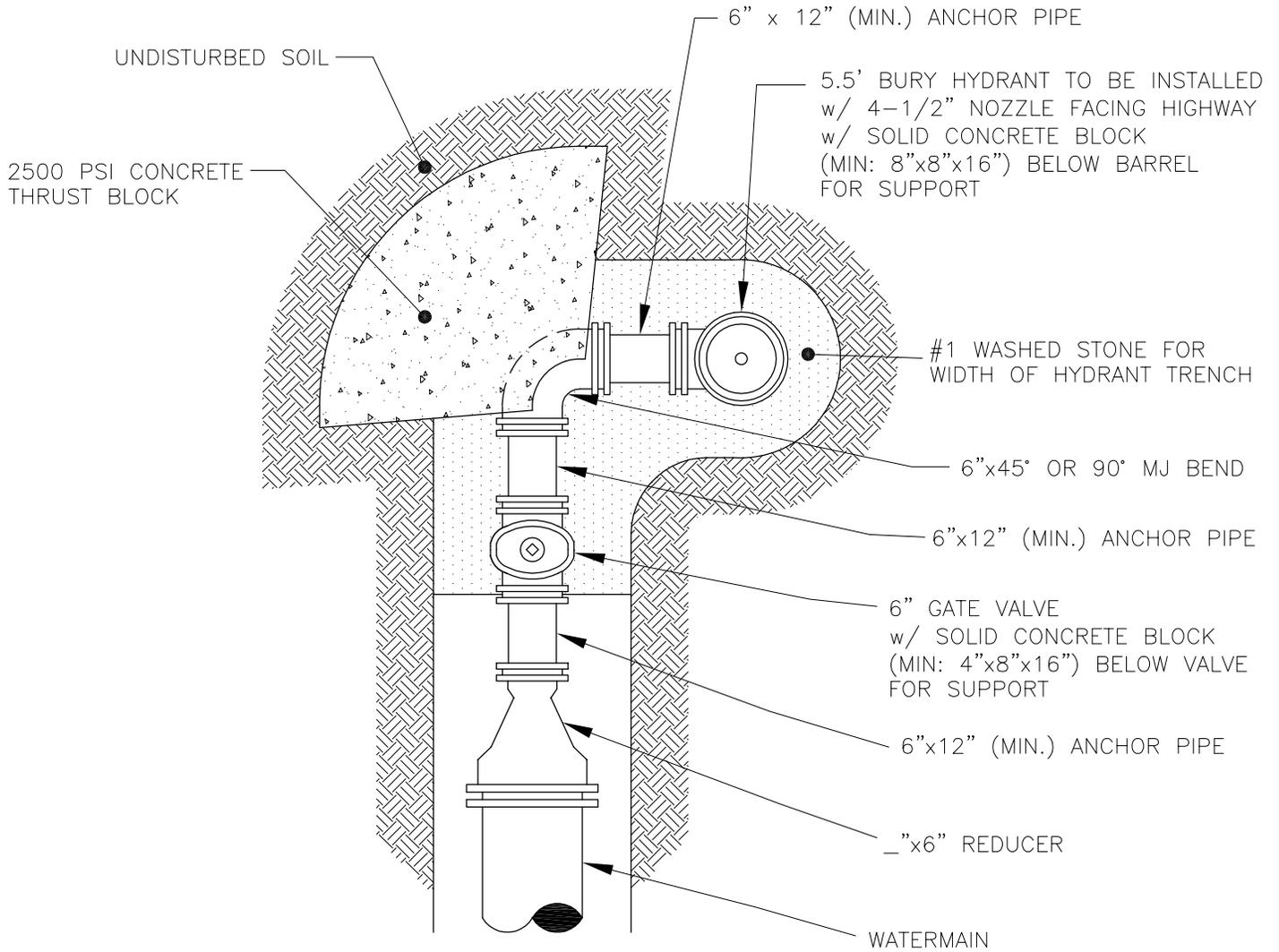


HYDRANT UNIT

(N.T.S.)

V-1

TOWN OF CANANDAIGUA

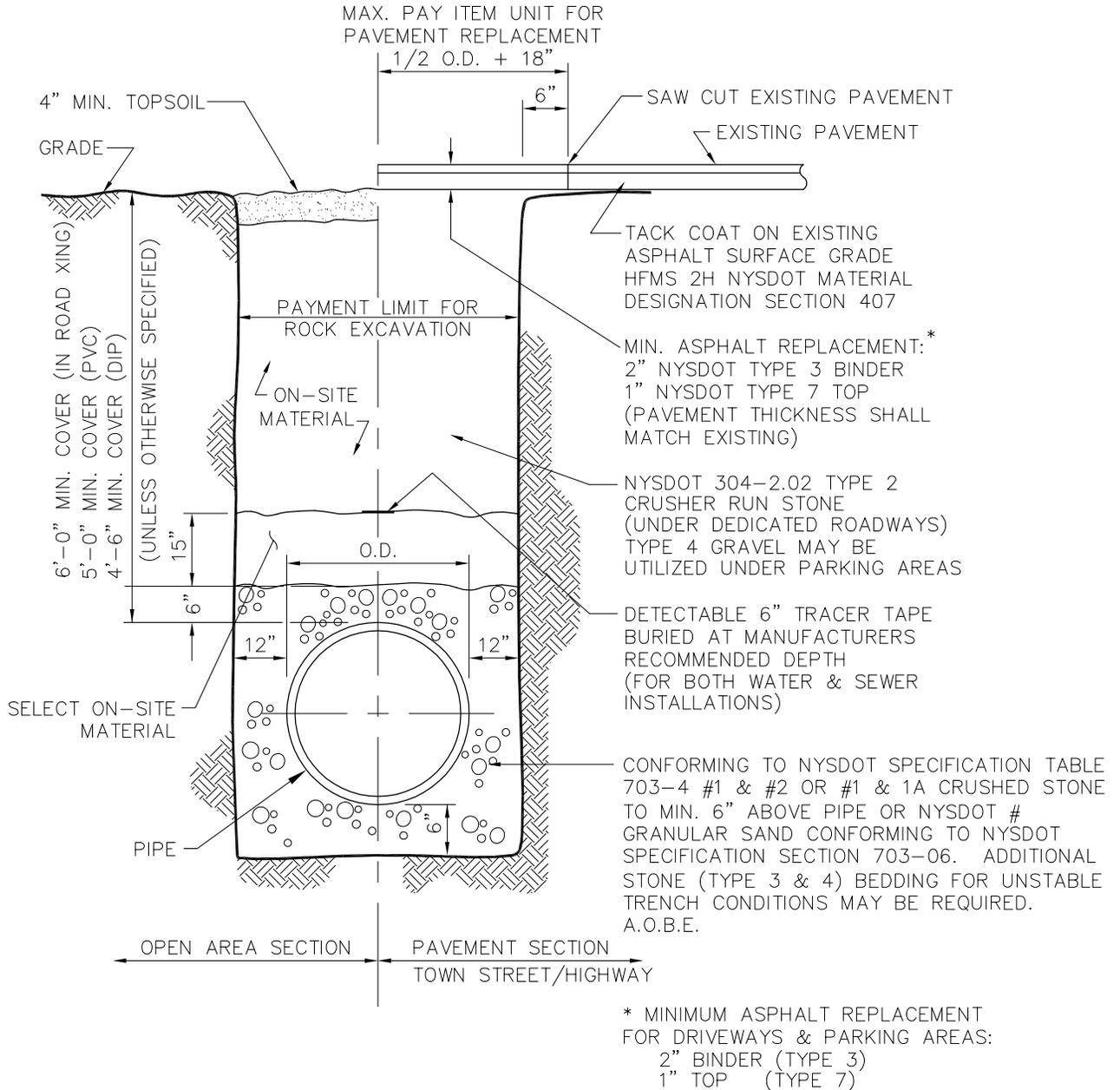


DEAD END PERPENDICULAR HYDRANT
ASSEMBLY DETAIL

(N.T.S.)

V-2

TOWN OF CANANDAIGUA



PIPE BEDDING/ TRENCH DETAIL

(OUTSIDE OF N.Y.S. HIGHWAYS)

(N.T.S.)

W-1

PIPE BEDDING DETAILS FOR WATER, SANITARY, AND STORM LINES

MRB|group, P.C.
Appendix: W-2

TYPE OF UTILITY: Watermain
PIPE MATERIAL: Ductile Iron Pipe
APPLICABLE PIPE SIZE: 4" I.D. 24"
TRENCH WIDTH (2): Min. O.D. +12"
Max. O.D. +24"
TRENCH CONDITIONS: Select Earth

BEDDING SPECIFICATION: The trench bottom shall be true, even, and free from stones, large dirt clods, and any frozen materials with any dimension greater than 1-1/2". Loose material left by the excavator on the trench bottom or soft material shoveled down from the side-walls will be adequate for bedding the pipe barrel so that it is fully supported. Depressions shall be provided in the trench bottom for pipe bells at each joint end to allow for withdrawal of pipe slings. This is to assure that the pipe barrels lie flat on the trench bottom.

BACKFILL SPECIFICATION: All backfill material shall be free from cinders, ashes, refuse, vegetable or organic material, boulders, rocks or stones, frozen soil, or other material that in the opinion of the owner is unsuitable. From the top of the bedding material to 12" above the top of the pipe, the backfill shall meet the standards of gradation for select granular fill (NYSDOT Spec. 203-2.02C) and be firmly tamped. Excavated material may be used for backfill provided that such material consists of loam, clay, sand, gravel, or other materials that in the opinion of the owner are suitable for backfilling.

If there is a deficiency of backfill material due to a rejection of portion of the excavated material, the required amount of approved select material shall be provided.

PIPE BEDDING DETAILS FOR WATER, SANITARY, AND STORM LINES

**MRB|group, P.C.
Appendix: W**

TYPE OF UTILITY: Watermain
PIPE MATERIAL: Ductile Iron Pipe
APPLICABLE PIPE SIZE: 4" I.D. 24"
TRENCH WIDTH (2): Min. O.D. +12"
Max. O.D. +24"
TRENCH CONDITIONS: Rock or Hard Pan

BEDDING SPECIFICATION: When excavation of rock or hard pan is encountered, all rock or hard pan material shall be removed to provide a minimum clearance of 6 inches below and on each side of all pipe, valves, and fittings. In its place approved NYSDOT crushed stone screenings (NYSDOT gradation Table 703-4) or coarse sand shall be installed (minimum of 6 inches) and tamped. From this point, follow back fill instructions for Bedding in Select Earth.

BACKFILL SPECIFICATION: See instructions for Backfill in Select Earth.

TRENCH CONDITIONS: Wet Earth (3).

BEDDING SPECIFICATION: When the subgrade is found to be wet or unstable, such material shall be removed to a minimum of 8" or to the depth ordered by the owner and replaced with 6" of crushed stone, #2 and #3 mixed equally as per gradation in NYSDOT Table 703-4 and 2" of crushed stone screenings (NYSDOT Gradation Table 703-4) or approved coarse sand. From this point, follow instructions for Bedding in Select Earth.

BACKFILL SPECIFICATION: See instructions for Backfill in Select Earth.

PIPE BEDDING DETAILS FOR WATER, SANITARY, AND STORM LINES

MRB|group, P.C.
Appendix: W

TYPE OF UTILITY: Watermain
PIPE MATERIAL: PVC Pressure Pipe
APPLICABLE PIPE SIZE: 4" I.D. 24"
TRENCH WIDTH (2): Min. O.D. +12"
Max. O.D. +24"
TRENCH CONDITIONS: Select Earth

BEDDING SPECIFICATION: The trench bottom shall be true, even, and free from stones, large dirt clods, or any frozen material with any dimension greater than ½" for PVC and 1-1/2" for RTRP. Generally, loose material left by the excavator on the trench bottom or soft material shoveled down from the side-walls will be adequate for bedding the pipe barrel so that it is fully supported. Depressions shall be provided in the trench bottom for pipe bells at each joint and to allow for withdrawal of pipe slings. This is to assure that the pipe barrel lies flat on the trench bottom.

BACKFILL SPECIFICATION: Initial backfill material shall be select earth fill free from rocks, dirt clods, or frozen material with any dimension greater than ½" for PVC and 1-1/2" for RTRP. It shall extend 12-inches above the top of the pipe and be properly tamped. If such material is not available on site, then approved crushed stone screenings (NYSDOT Gradation Table 703-4) or coarse sand shall be provided.

The balance of the backfill need not be as carefully selected as the initial material. It shall be placed in uniform layers in such a manner as to provide a uniformly dense backfill load on the pipe and avoid unfilled spaces in the backfill. Rolling equipment shall not be used until a minimum of 30" for RTRP and 18" for PVC of backfill material cover the top of the pipe.

PIPE BEDDING DETAILS FOR WATER, SANITARY, AND STORM LINES

**MRB|group, P.C.
Appendix: W**

TYPE OF UTILITY: Watermain
PIPE MATERIAL: PVC Pressure Pipe
APPLICABLE PIPE SIZE: 4" I.D. 24"
TRENCH WIDTH (2): Min. O.D. +12"
Max. O.D. +24"
TRENCH CONDITIONS: Rock or Hard Pan

BEDDING SPECIFICATION: See Instructions for Ductile Iron Pipe, Bedding in Rock or Hard Pan.

BACKFILL SPECIFICATION: See Instructions for Ductile Iron Pipe, Backfill in Rock or Hard Pan.

TRENCH CONDITIONS: Wet Earth (3)

BEDDING SPECIFICATION: See Instructions for Ductile Iron Pipe, Bedding in Wet Earth.

Backfill Specification: See Instructions for Ductile Iron Pipe, Backfill in Wet Earth.

PIPE BEDDING DETAILS FOR WATER, SANITARY, AND STORM LINES

**MRB|group, P.C.
Appendix: W**

TYPE OF UTILITY: Sanitary and Storm Sewer
PIPE MATERIAL: PVC
APPLICABLE PIPE SIZE: 4" I.D. 15"
TRENCH WIDTH (2): Min. O.D. +18"
Max. O.D. +24"
TRENCH CONDITIONS: Select Earth (3)

BEDDING SPECIFICATION: The trench bottom shall be true, even, and free of large stones, large dirt clods, and any other frozen material as approved by the Engineer. A minimum of three (3) inches of No. 1 and No. 1A crushed stone mixed equally (NYSDOT Gradation Table 703-4) shall be installed and tamped to provide satisfactory bedding for the pipe which is firm and gives continuous support of the pipe barrel. Depressions shall be hollowed in the trench bottom for pipe bells at all joints in this granular lift.

Backfill Specification: Initial backfill from the top of the pipe bedding material to the spring line of the pipe shall consist of No. 1 and No. 1A crushed stone (NYSDOT Gradation Table 703-4) mixed equally.

From the spring line of the pipe to 12" above the top of the pipe approved select backfill material, free of large stones, dirt clods, or frozen material with any dimension greater than 1-1/2" shall be installed.

The remainder of the backfill material need not be as carefully selected as the initial backfill. Large stones shall be avoided that could damage the installed pipe when dropped or when force through the soil cushion of the initial backfill.

The consolidation of the final backfill above the initial material has no effect, except for weight, on flexible pipe performance. Therefore, its placement and compaction requirements shall be as dictated with consideration of the proposed surface use.

PIPE BEDDING DETAILS FOR WATER, SANITARY, AND STORM LINES

**MRB|group, P.C.
Appendix: W**

TYPE OF UTILITY: Sanitary and Storm Sewer
PIPE MATERIAL: PVC
APPLICABLE PIPE SIZE: 4" I.D. 15"
TRENCH WIDTH (2): Min. O.D. +18"
Max. O.D. +24"
TRENCH CONDITIONS: Rock or Hard Pan

BEDDING SPECIFICATION: A minimum cushion of 6" of No. 1 and No. 1A crushed stone (NYSDOT Gradation Table 703-4) shall be used when excavating through rock or hard pan. The remainder of the bedding instructions shall be as those for Bedding in Select Earth.

BACKFILL SPECIFICATION: See instructions for PVC Sewer Pipe, Backfill in Select Earth.

TRENCH CONDITIONS: Wet Earth (3).

BEDDING SPECIFICATION: In addition to the bedding required for PVC Sewer Pipe in Select Earth, an additional 6" of No. 2 and No. 3 crushed stone (NYSDOT Gradation Table 703-4) mixed equally shall be installed to support the specified bedding material, 3" or No. 1 and No 1A crushed stone.

BACKFILL SPECIFICATION: See instructions for PVC Sewer Pipe, Backfill in Select Earth.

PIPE BEDDING DETAILS FOR WATER, SANITARY, AND STORM LINES

**MRB|group, P.C.
Appendix: W**

TYPE OF UTILITY: Storm Sewer
PIPE MATERIAL: Reinforced Concrete Pipe (RCP) and Corrugated Steel Pipe (CSP), Corrugated PVC.
APPLICABLE PIPE SIZE: 12" I.D. 27" for RCP
12" I.D. 24" for CSP
12" I.D. 24" for C. PVC
TRENCH WIDTH (2): Max. O.D. +24"
TRENCH CONDITIONS: Select Earth

BEDDING SPECIFICATION: See instructions for PVC Sewer Pipe, Bedding in Select Earth and substitute No. 1 and No. 2 crushed stone mixed equally for No. 1 and No. 1A crushed stone.

BACKFILL SPECIFICATION: See instructions for PVC Sewer Pipe, Backfill in Select Earth and substitute No. 1 and No. 2 crushed stone mixed equally for No. 1 and No. 1A crushed stone.

TRENCH CONDITIONS: Rock or Hard Pan.

BEDDING SPECIFICATION: See instructions for PVC, Sewer Pipe, Bedding in Rock or Hard Pan and substitute No. 1 and No. 2 crushed stone mixed equally for No. 1 and No. 1A crushed stone.

TRENCH CONDITIONS: Wet Earth (3).

BEDDING SPECIFICATION: See instructions for PVC, Sewer Pipe, Bedding in Wet Earth and substitute No. 1 and No. 2 crushed stone for No. 1 and No. 1A crushed stone.

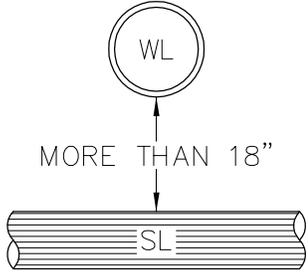
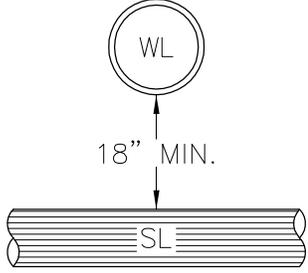
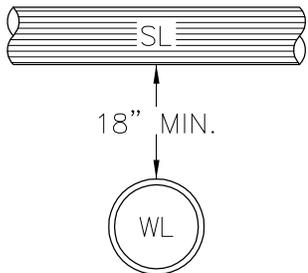
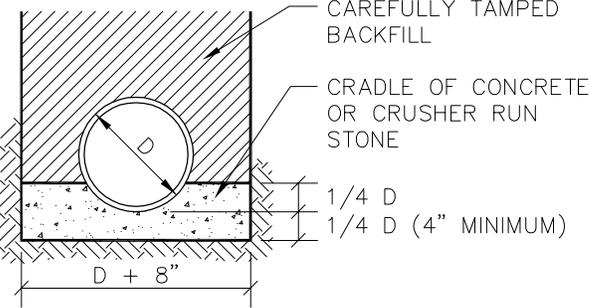
BACKFILL SPECIFICATION: See instructions for PVC Sewer Pipe, Backfill in Select Earth and substitute No. 1 and No. 2 crushed stone for No. 1 and No. 1A crushed stone.

PIPE BEDDING DETAILS FOR WATER, SANITARY, AND STORM LINES

**MRB|group, P.C.
Appendix: W**

1. These details are to be used by Developers as minimum standards of design. Individual projects, local soil conditions, and intended use are the design parameters that should be considered by the Developer's Engineer when he/she designs the bedding requirements for a proposed development.
2. Trenches shall be of such extra width, when required, to permit placement of timber supports, sheeting, bracing, and appurtenances.
3. When wet earth or other unstable subgrade conditions are encountered, the pipe diameter and height of fill will be the controlling factors for additional stone bedding requirements.

TOWN OF CANANDAIGUA

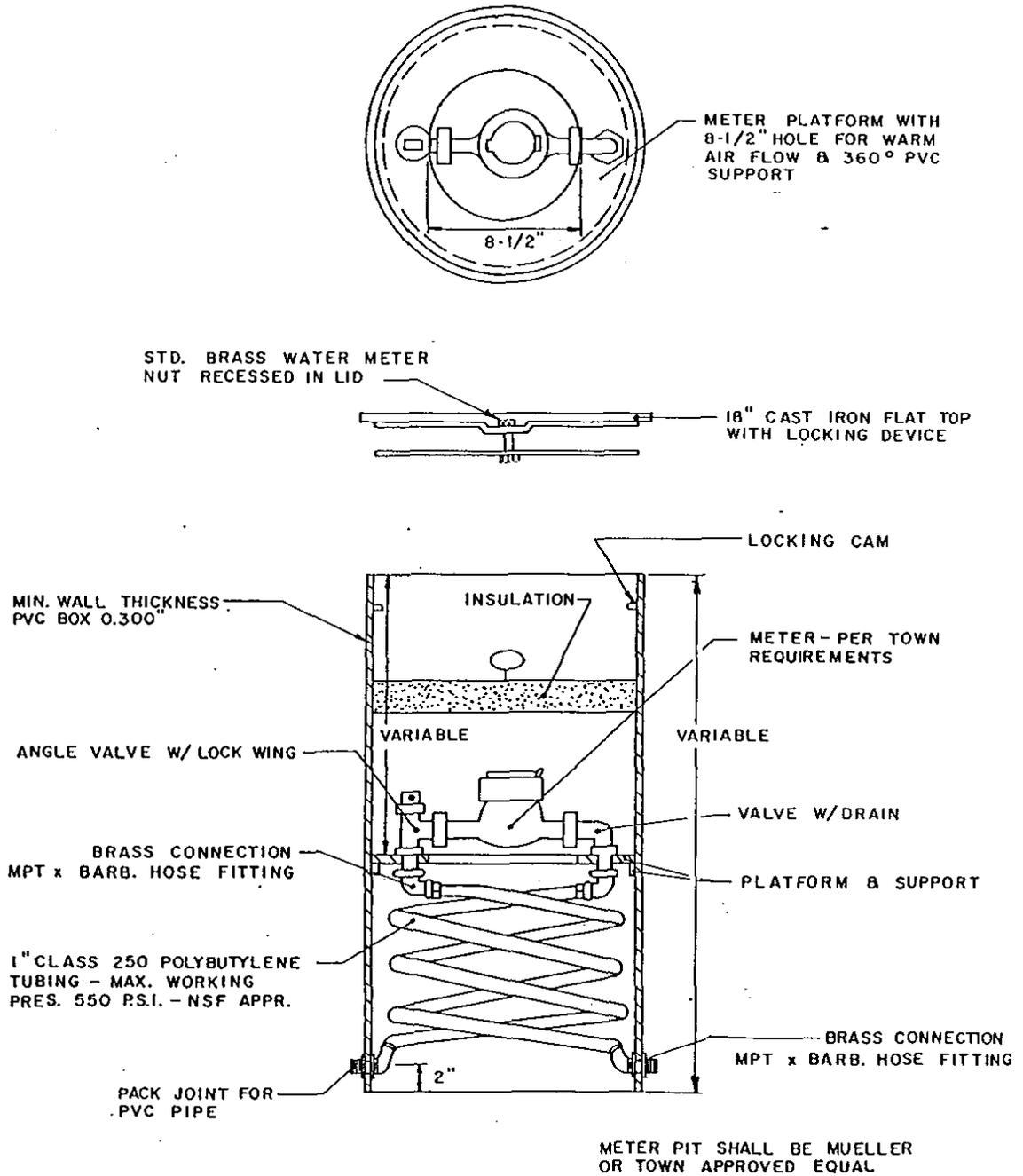
CONDITION	SCHEMATIC	REQUIREMENTS
<p>I WATER LINE ABOVE SEWER LINE</p>		<p>A) WATER LINE AND SEWER LINE PIPE LENGTHS TO BE CENTERED AT CROSSING. EACH LENGTH OF PIPE TO BE 10 FT. MINIMUM.</p> <p>B) BACKFILL WITH COMPACTED CRUSHER RUN STONE.</p>
<p>II WATER LINE ABOVE SEWER LINE</p>		<p>A) WATER LINE AND SEWER LINE PIPE LENGTHS TO BE CENTERED AT CROSSING. EACH LENGTH OF PIPE TO BE 10 FT. MINIMUM.</p> <p>B) WHEN BOTH WATER LINE AND SEWER LINE ARE NEW, SLEEVE SEWER LINE WITH STEEL CASING FOR 10 FT. EACH SIDE OF CROSSING.</p> <p>WHEN ONE LINE IS EXISTING, SLEEVE PIPE BEING INSTALLED WITH STEEL CASING FOR 10 FT. EACH SIDE OF CROSSING.</p> <p>C) BACKFILL WITH COMPACTED CRUSHER RUN STONE.</p>
<p>III SEWER LINE ABOVE WATER LINE</p>		<p>A) WATER LINE AND SEWER LINE PIPE LENGTHS TO BE CENTERED AT CROSSING. EACH LENGTH OF PIPE TO BE 10 FT. MINIMUM.</p> <p>B) SLEEVE SEWER LINE WITH STEEL CASING FOR 10 FT. EACH SIDE OF CROSSING.</p> <p>C) PROVIDE CRADLE OF CONCRETE OR CRUSHER RUN STONE (SEE TRENCH DETAIL BELOW) FOR WATER LINE AND SEWER LINE FOR 10 FT. EACH SIDE OF CROSSING.</p>
<p style="text-align: center;"><u>NOTES</u></p> <p>WL (WATER LINE)</p> <p>SL (SEWER LINE)</p> <p>D (OUTSIDE DIAMETER OF PIPE)</p> <p>IN NO CASE SHALL PIPES BE CLOSER THAN 18" APART. DISTANCES ARE MEASURED BETWEEN OUTSIDES OF PIPE.</p>		

WATERMAIN/SEWER CROSSING DETAIL

(N.T.S.)



TOWN OF CANANDAIGUA



METER PIT DETAIL

N.T.S.



TOWN OF CANANDAIGUA

!! CALL !!

**BEFORE
YOU DIG, DRILL OR BLAST**

1-800-962-7962 or 811

IN ACCORDANCE WITH UFPO (UNDERGROUND FACILITIES PROTECTIVE ORGANIZATION), CONTRACTORS MUST NOTIFY ALL UTILITIES IN THE AREA TWO (2) WORKING DAYS BEFORE EXCAVATION.

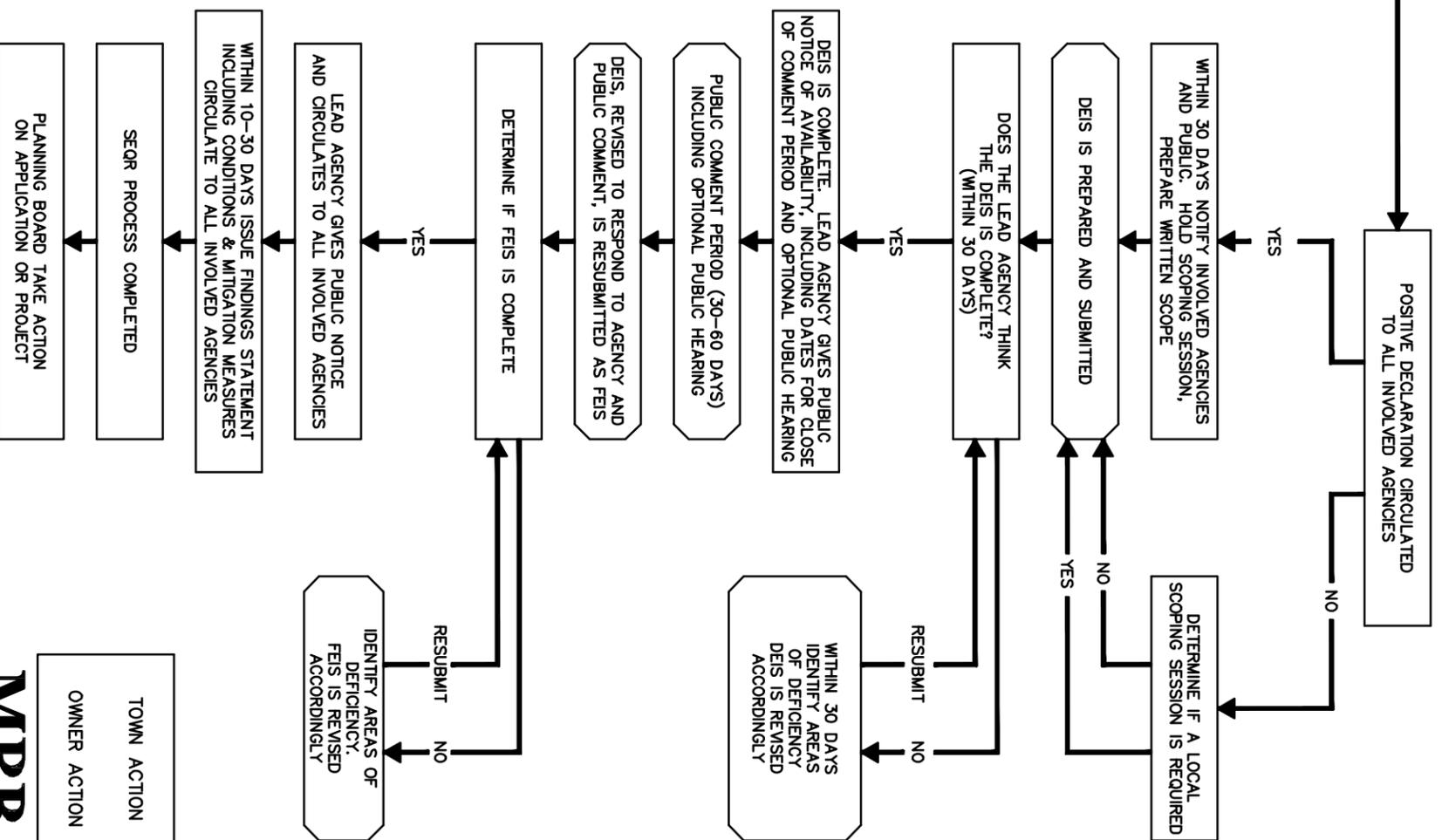
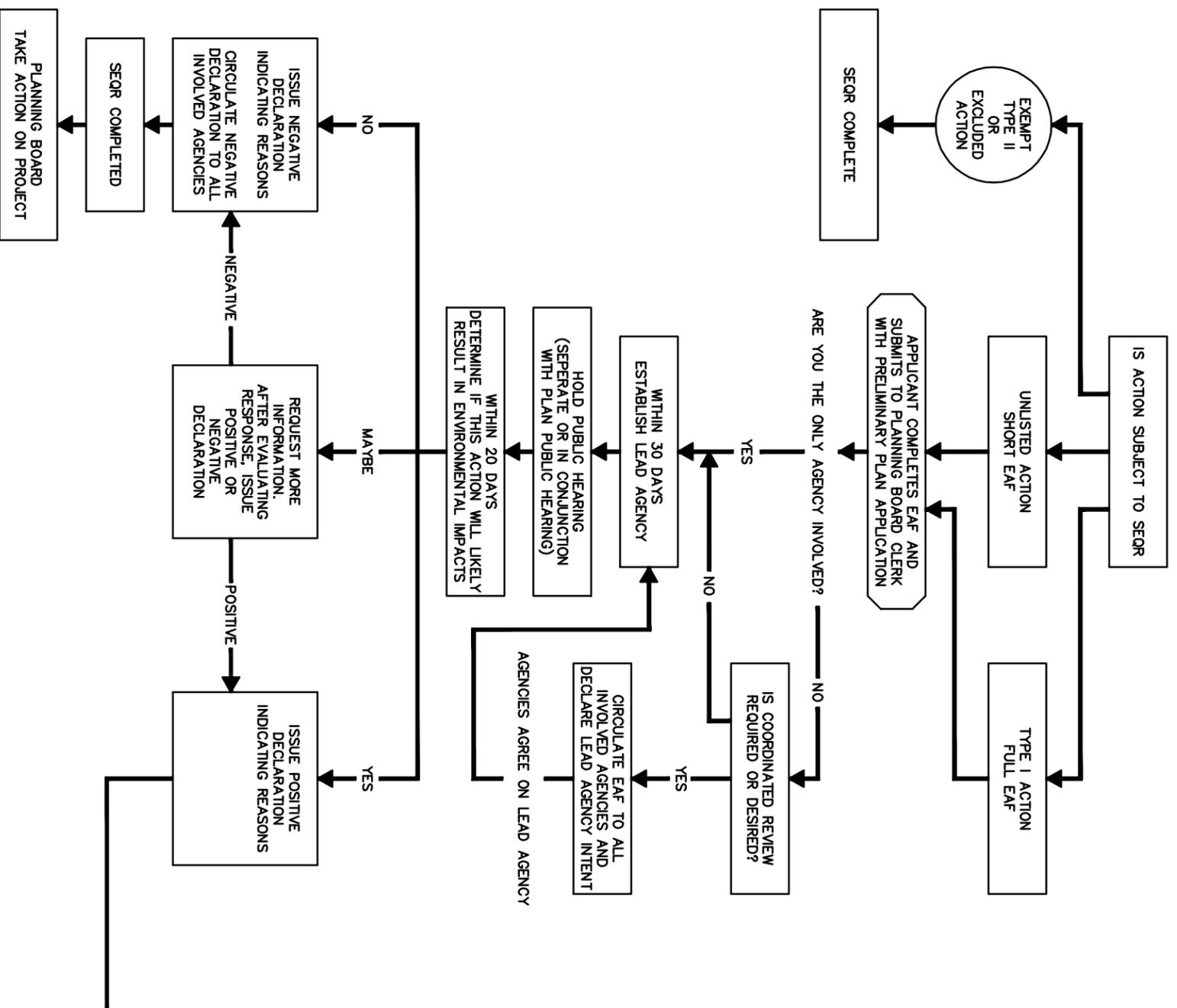
IN ADDITION, THE CONTRACTOR SHALL NOTIFY THE MUNICIPAL SEWER AND WATER DEPARTMENTS WITHIN THE PROJECT AREA.

UTILITY NOTIFICATIONS

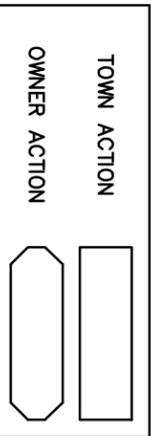
Z

SEQR BASIC FLOW CHART

TOWN OF CANANDAIGUA



AA

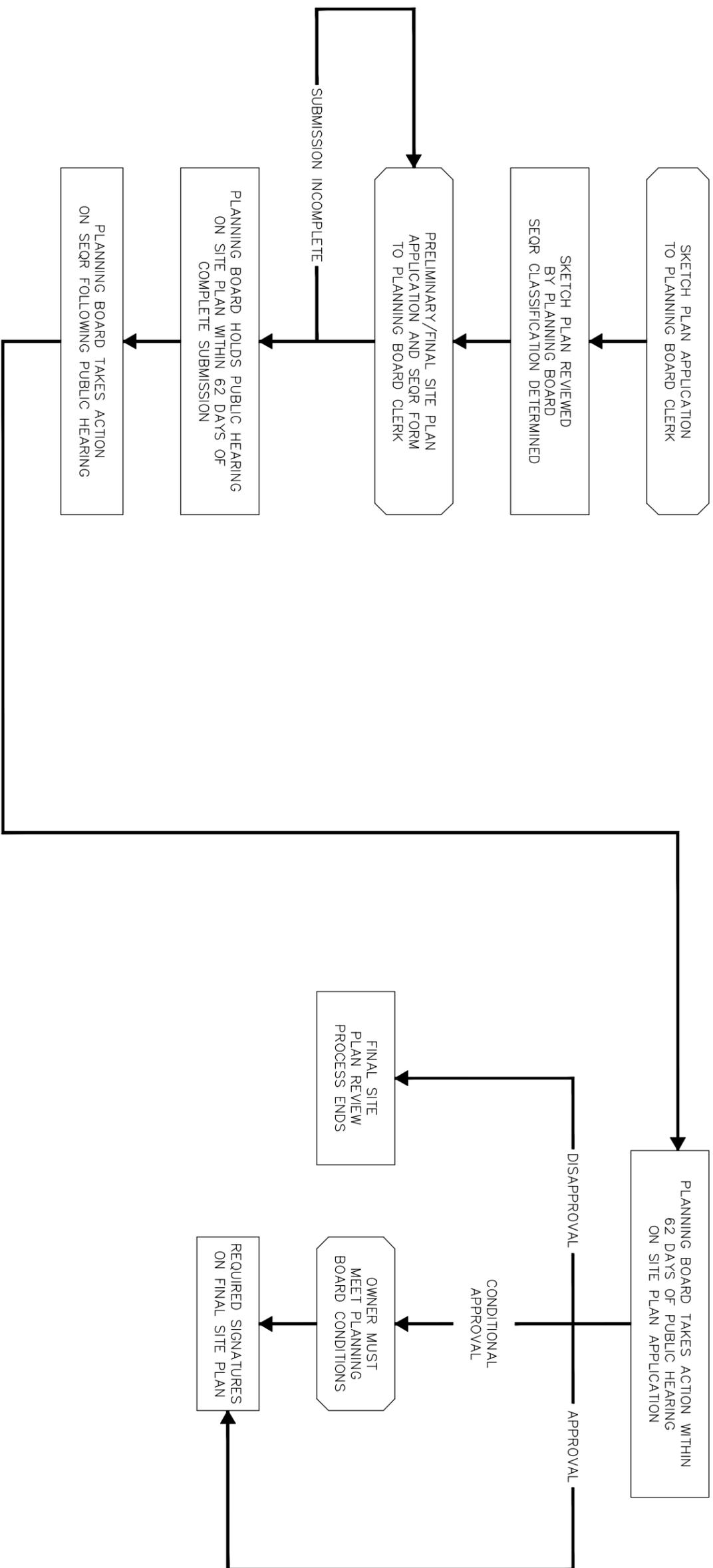


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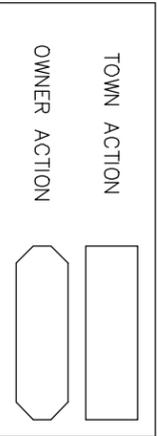
SITE PLAN REVIEW PROCESS

FOR EXISTING TAXED PARCEL TO BE DEVELOPED WITHOUT SUBDIVISION OF LAND

TOWN OF CANANDAIGUA



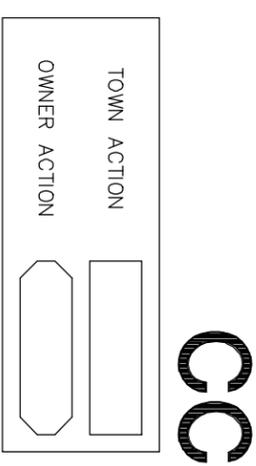
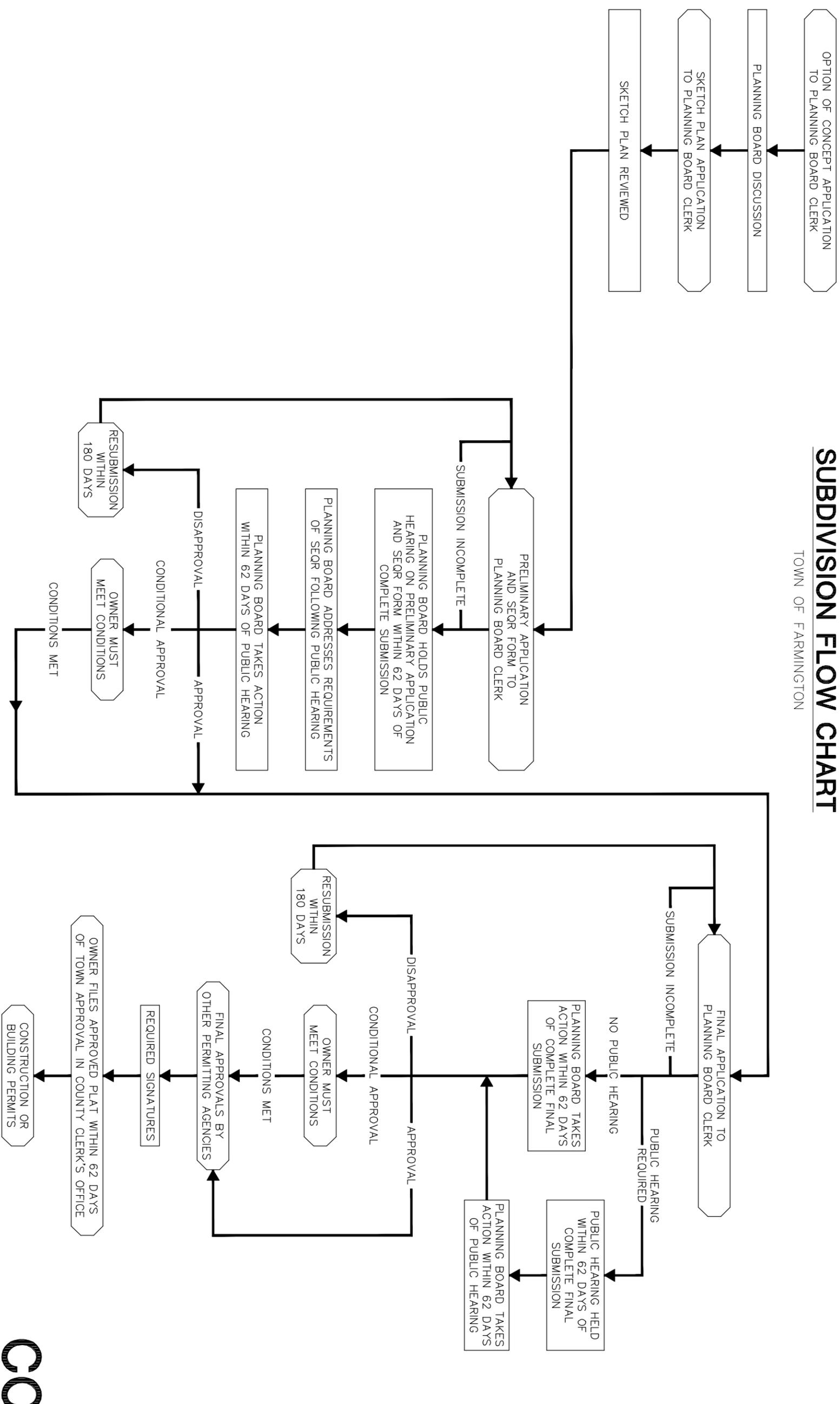
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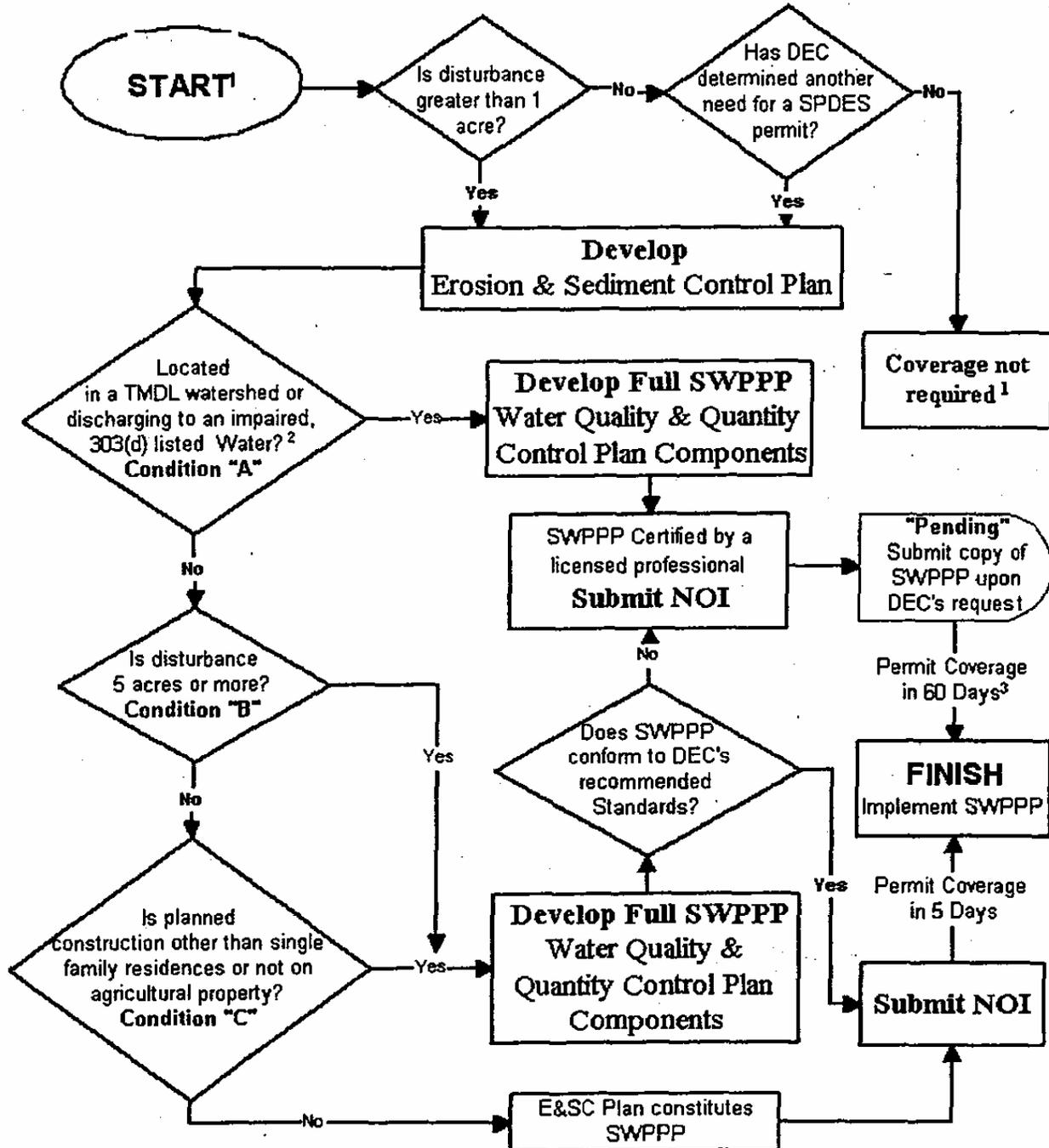
SUBDIVISION FLOW CHART

TOWN OF FARMINGTON



TOWN OF CANANDAIGUA

SWPPP and Stormwater Permit Process



NOTES:

1. Under any of the above conditions other environmental permits may be required. DEC may require permit for construction disturbance < 1 acre on a case by case basis.
2. and the following exists: construction and/or stormwater discharges from the construction or post-construction site contain the pollutant of concern identified in the TMDL or 303(d) listing.
3. After receipt by DEC of completed application.

TOWN OF CANANDAIGUA

TOWN OF CANANDAIGUA STANDARD NOTES

1. ALL IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE MOST RECENT STANDARDS AND SPECIFICATIONS OF THE TOWN OF CANANDAIGUA AND THE APPROPRIATE WATER/SEWER AGENCIES, UNLESS OTHERWISE NOTED.
2. DEVELOPMENT IN THE CANANDAIGUA LAKE WATERSHED THAT REQUIRES POST CONSTRUCTION WATER QUALITY MEASURES SUCH AS SMF'S, THE DEVELOPER IS REQUIRED TO PROVIDE DAILY ONSITE OBSERVATION BY A LICENSE PROFESSIONAL OR A CERTIFIED PERSONS IN EROSION AND SEDIMENT CONTROL (CPESC) UNTIL SUCH TIME THAT THE MASS GRADING IS COMPLETED.
3. DEVELOPMENT IN THE CANANDAIGUA LAKE WATERSHED DISTURBING MORE THAN 5-ACRES AT ONE TIME, SHALL BE REQUIRED TO COORDINATE THE REGULAR SWPPP OBSERVATIONS REQUIRED BY THE GENERAL PERMIT (GPO-08-001) WITH THE CANANDAIGUA LAKE WATERSHED INSPECTOR AND THE WATERSHED PROGRAM MANAGER.
4. SEQUENCE - THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES IN THE FOLLOWING SEQUENCE UNLESS AUTHORIZED OTHERWISE AT THE PRE -CONSTRUCTION MEETING:

- INSTALL PERIMETER SEDIMENT CONTROLS, (I.E. EROSION FENCING).
- INSTALL STABILIZED CONSTRUCTION ENTRANCE.
- PROTECT VEGETATION TO REMAIN.
- CLEAR GRUB AND CONSTRUCT DIVERSIONARY SWALES AND SEDIMENT BASINS.
- COMPLETE CLEARING AND GRUBBING OPERATION.
- PLACE EROSION CONTROL MEASURES AROUND TOPSOIL STOCKPILES AND STRIP TOPSOIL LOCATIONS.
- CONSTRUCT SWALES AND SILTATION DEVICES AS EARTHWORK OPERATIONS PROGRESS.
- MAINTAIN EROSION CONTROL MEASURES AND PLACE ADDITIONAL MEASURES AS EARTHWORK AND UNDERGROUND UTILITIES ARE CONSTRUCTED.
- RESTORE AREAS AS DEFINED BY CONTRACT DOCUMENTS.
- REMOVE EROSION CONTROL MEASURES AS AREAS ARE REESTABLISHED WITH GROUND COVER.
- IF SITE PREPARATIONS OCCUR BETWEEN SEPTEMBER 1 AND MARCH 31, ADDITIONAL EROSION CONTROLS MUST BE TAKEN INCLUDING REDUCING THE SIZE OF DISTURBED AREAS AND PLACING HEAVY STRAW MULCH WHERE PRACTICAL.

5. PLANS SHOULD INCLUDE RE-SEEDING INSTRUCTIONS INCLUDING MATERIALS AND A TIMETABLE FOR VARIOUS SEEDING

- SEED ALL CUT AND FILL, TOPSOIL PILES AND PONDS WITHIN FOURTEEN (7) DAYS AFTER COMPLETION.
- TEMPORARY SEEDING OF DISTURBED AREAS SHALL BE PROVIDED AS FOLLOWS:

THE SURFACE TWO INCHES OF SOIL SHOULD BE LOOSENEED BY DISKING, RAKING, OR BACK-BLADING WITH A BULLDOZER. IMMEDIATELY FERTILIZE WITH 300 POUNDS PER ACRE (OR 7 POUNDS PER 1,000 SQUARE FEET) OF 10-10-10 FERTILIZER. IMMEDIATELY SEED WITH THE FOLLOWING MIX:

	<u>LBS/ACRE</u>	<u>LBS/1,000 SQ. ACRE</u>
<u>SPRING/SUMMER/EARLY FALL</u>		
ANNUAL RYEGRASS	30	0.7
PERENNIAL RYEGRASS	30	0.7
<u>LATE FALL/EARLY WINTER</u>		
CEREAL RYE	100	2.5

SEED SHOULD HAVE A GERMINATION RATE OF AT LEAST 85 PERCENT AND MINIMAL INERT MATERIAL.

DISTURBED AREAS SHALL BE STABILIZED USING PERMANENT LAWN SEEDING MIX UPON COMPLETION OF GRADING AND CONSTRUCTION:

	<u>LBS/ACRE</u>	<u>LBS/1,000 SQ. ACRE</u>
BIRDSFOOT TREFOIL OR COMMON WHITE CLOVER	8 OR 8	0.20 OR 0.20
TALL FESCUE	20	0.45
REDTOP OR RYEGRASS (PERENNIAL)	2 OR 5	0.05 OR 0.10

SEEDING RATE: 6.0 POUNDS PER 1,000 SQUARE FEET
 MULCH: STRAW OR WOOD FIBER MULCH USED WITH HYRDO SEEDING METHOD AT TWO TONS PER ACRE WITH TRACKIFIER.
 STARTING FERTILIZER: 5:10:10 AT 20 POUNDS PER 1,000 SQUARE FEET.

- FOR FALL OR EARLY WINTER, SEED WITH CERTIFIED "AROOSTOCK" WINTER RYE (CEREAL RYE) AT 100 POUNDS PER ACRE.
- PERMANENT STABILIZATION FOR STEEP SLOPES GREATER THAN 3:1 SHALL INCLUDE JUTE MESH BLANKET AND CROWN VETCH SEED WITH PERENNIAL RYEGRASS.

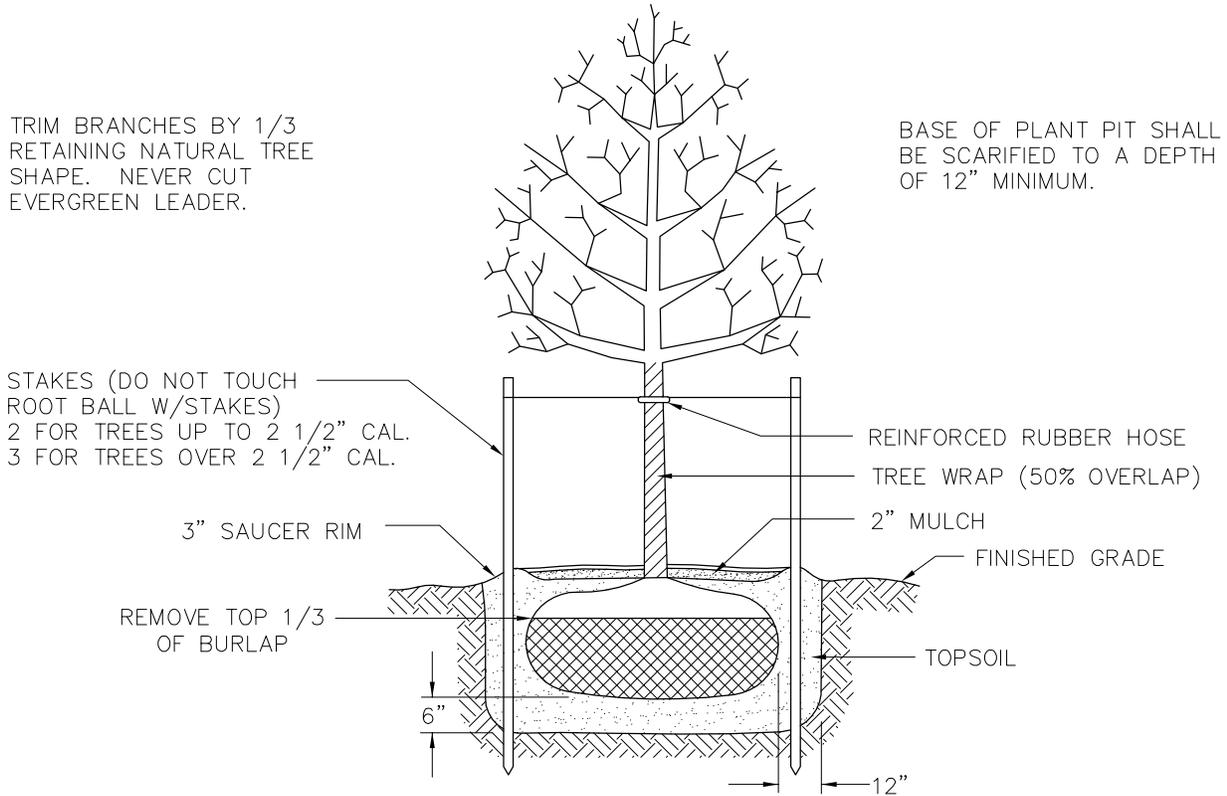
TOWN OF CANANDAIGUA

4. THE CONTRACTOR SHALL LOCATE, MARK, SAFEGUARD AND PRESERVE ALL SURVEY CONTROL MONUMENTS AND RIGHT-OF-WAY MONUMENTS IN THE AREAS OF CONSTRUCTION.
5. EXISTING UNDERGROUND UTILITIES SHOWN HEREIN WERE PLOTTED FROM FIELD LOCATIONS AND/OR UTILITY COMPANY RECORD PLANS. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL CALL THE DIG SAFELY NEW YORK (UFPO) HOTLINE AT 1-800-962-7962 FOR STAKEOUT OF EXISTING UTILITIES. THE CONTRACTOR SHALL DETERMINE EXACT LOCATION AND ELEVATION OF UNDERGROUND UTILITIES BEFORE COMMENCING CONSTRUCTION. CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS TO LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS AS REQUIRED TO MEET THE EXISTING CONDITIONS.
6. DUST SHALL BE CONTROLLED DURING CONSTRUCTION BY THE CONTRACTOR TO MINIMIZE EFFECT ON THE ADJACENT PROPERTIES. THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL MEASURES AS NEEDED AND/OR AS DIRECTED BY THE TOWN OF CANANDAIGUA.
7. THE OWNER'S CONTRACTOR SHALL BE RESPONSIBLE FOR THE ESTABLISHMENT, MAINTENANCE, CLEANING, REPAIR AND REPLACEMENT OF EROSION CONTROL MEASURES DURING SITE CONSTRUCTION.
8. ROOF LEADERS SHALL BE CONNECTED TO STORM SEWERS.
9. NO SITE PREPARATION SHALL COMMENCE UNTIL A VISUAL INSPECTION BY THE TOWN OF CANANDAIGUA, CONFIRMS THE INSTALLATION OF PERIMETER SEDIMENT CONTROLS.
10. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF VEGETATION, THE SILT SINK IN THE STORMWATER MANAGEMENT AREA SHALL BE CLEANED OF ACCUMULATED SILT AND SEEDED WITH WETLAND TYPE VEGETATION TO PROVIDE PERMANENT FILTRATION OF STORMWATER.
11. THE HOMEBUILDER WILL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING INDIVIDUAL LOT EROSION & SEDIMENT CONTROL MEASURES, DURING HOUSE CONSTRUCTION. MEASURES TO BE MAINTAINED UNTIL FINAL LOT LAWN GRADING AND SEED IS COMPLETE.
12. ANY ADDITIONAL EROSION OR SEDIMENT CONTROL DEEMED NECESSARY BY THE TOWN OR A REPRESENTATIVE THEREOF SHALL BE PROVIDED BY THE OWNER.
13. SEDIMENT CONTROL MEASURES ARE TO BE ESTABLISHED PRIOR TO COMMENCING EARTHWORK. SEDIMENT CONTROL MEASURES ARE TO BE MAINTAINED BY THE CONTRACTOR UNTIL UPSTREAM GROUND COVER HAS BEEN ESTABLISHED AND REMOVAL IS APPROVED BY THE TOWN OF CANANDAIGUA.
14. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING, REPLACING AND SUBSEQUENTLY REMOVING TEMPORARY EROSION & SEDIMENT CONTROL DEVICES.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING ADJOINING PROPERTIES, ROADWAYS, DRAINAGE WAYS AND SINKS OF SILT ACCUMULATION AS NEEDED AND AS DETERMINED/REQUESTED BY THE TOWN OF CANANDAIGUA.
16. ANY FINAL GRADE DEVIATIONS OF HOUSE PAD ELEVATIONS MORE THAN 12 INCHES SHALL BE APPROVED BY THE PLANNING BOARD.

MAINTENANCE SCHEDULE

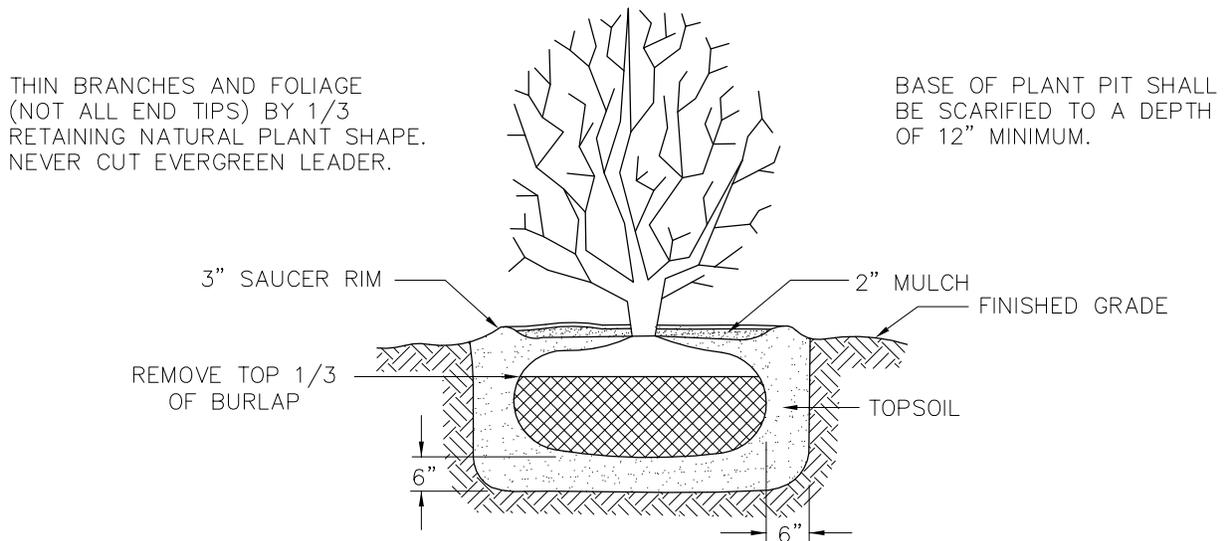
1. CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR A PERIOD OF 3 YEARS FROM THE DATE OF INITIAL PLANTING.
2. FLOOD PLANTS TWICE WITHIN THE FIRST 24 HOURS.
3. PRUNING MAY BE DONE OVER A PERIOD OF TIME (3-4 YEARS) AND THEN REPEAT THE CYCLE. SOME COMPANIES OFFER REDUCED RATES FOR TREE PRUNING DURING THE WINTER MONTHS.
4. FERTILIZATION MAY ALSO BE DONE OVER A PERIOD OF TIME WITH REPEATING CYCLES.
5. SPRAY PROGRAMS SHOULD BE DONE YEARLY. PESTICIDES USED IN PROGRAMS TODAY ONLY HAVE A TEN DAY EFFECTIVE LIFE.

TOWN OF CANANDAIGUA



TYPICAL TREE PLANTING DETAIL

N.T.S.

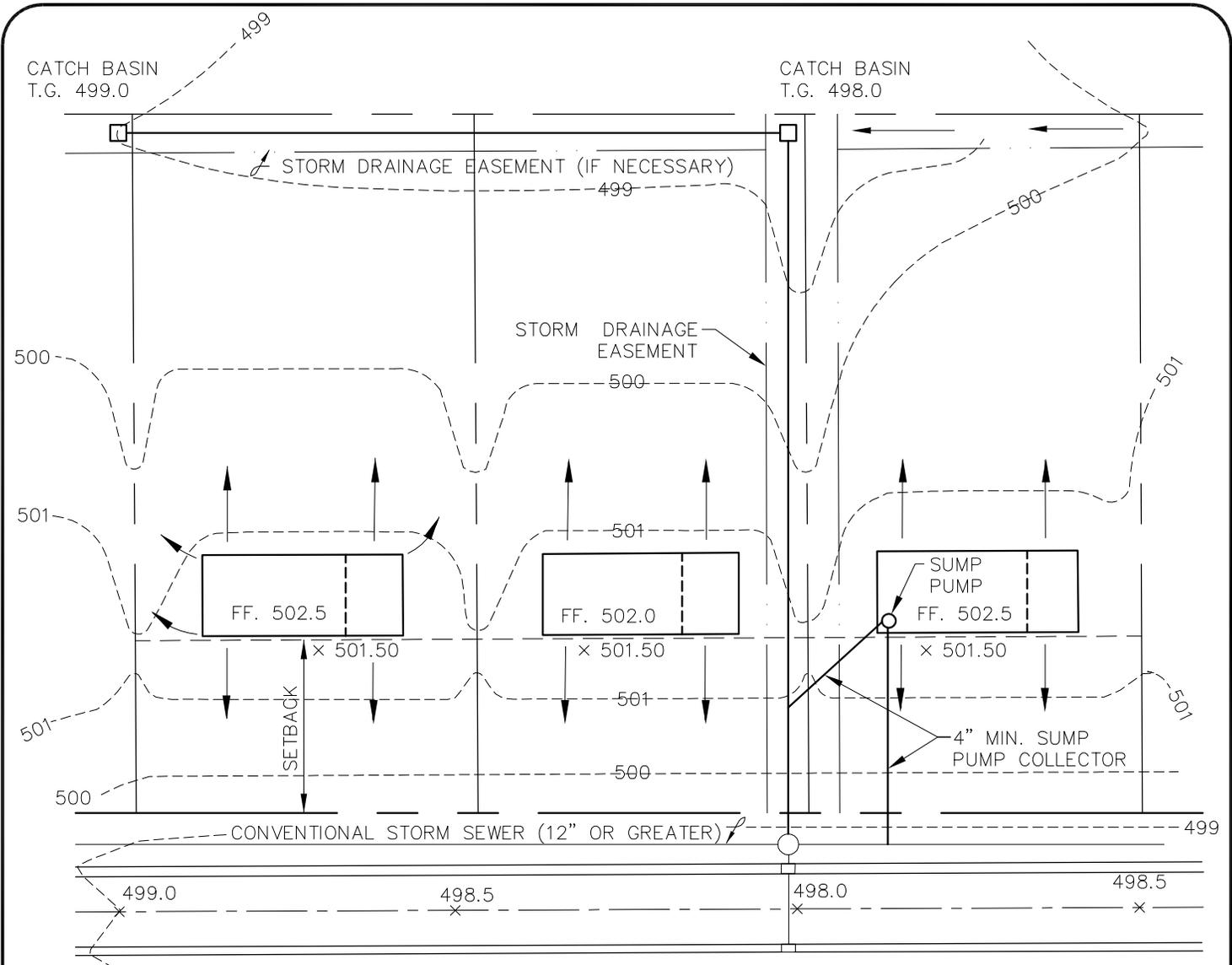


TYPICAL SHRUB PLANTING DETAIL

N.T.S.

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TOWN OF CANANDAIGUA



REQUIRED INFORMATION:

- 1.) ORIGINAL GROUND CONTOURS.
- 2.) SPOT ELEVATIONS OF PROPOSED GRADES AT KEY LOCATIONS.
- 3.) ARROWS INDICATING DIRECTION OF FLOW.
- 4.) MAIN FLOOR ELEVATION TO BE SHOWN ON DRAWINGS.

LEGEND

- 502-- ORIGINAL CONTOURS
- 501 -- PROPOSED CONTOURS
- FLOW ARROWS
- × 498.50 SPOT ELEVATIONS
- STORM SEWER & MANHOLE
- CATCH BASIN

TYPICAL GRADING PLAN

(N.T.S.)

GG

SHORELINE DEVELOPMENT GUIDELINES

Canandaigua Lake offers beautiful views for residents along its shores. The lake also provides scenic views for boaters and lake enthusiasts. The recently adopted Comprehensive Plan recommends addressing lakeshore development through the creation of development guidelines. The development guidelines are specific to development in the RLD (Residential Lake District) 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. Minimizing visual impacts of shoreline development can be accomplished in a number of ways including through setbacks and shoreline vegetation requirements.

The purpose of these development guidelines is to assist in protecting scenic resources in the Town, while allowing property owners and developers to make informed, sensible decisions regarding construction along the shoreline of Canandaigua Lake.

Shoreline Treatment

The focus of shoreline treatment should be to provide the homeowner with a scenic lake view, while allowing for a natural view of the shoreline from the lake. Emphasis should be placed on softer design approaches for the treatment of the shoreline, such as natural vegetation or riprap, if needed. A softer design approach is

preferred to a harder, more engineered treatment such as a retaining wall. Typically, strongly engineered treatments do not appear natural and can have a more significant visual impact.

Building Setbacks and Design

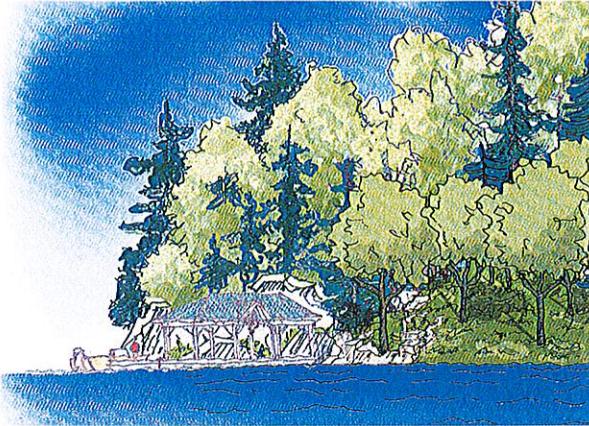
Building setbacks are an effective way to protect sensitive shoreline resources and minimize visual impacts. Buildings should be setback from the shoreline at a distance that allows the natural topography and vegetation to screen the structures from the lake. Proper setbacks can reduce the possibility of storm or flood damage and lessen runoff from impervious surfaces. A large enough setback will also reduce potential erosion. Erosion control measures should be implemented according to existing Town of Canandaigua Code. The illustration below shows a combination of



Lack of natural vegetation makes homes very visible from each other and from the lake. Also, the use of a retaining wall creates an unnatural shoreline.

Maintenance of natural vegetation screens homes from one another and reduces the visual impact from the lake of high density lakeside development

setbacks and vegetative covers to create a pleasing visual appearance of the shoreline and also allow for a filtered view from the dwelling.



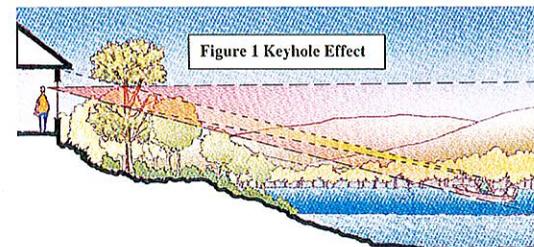
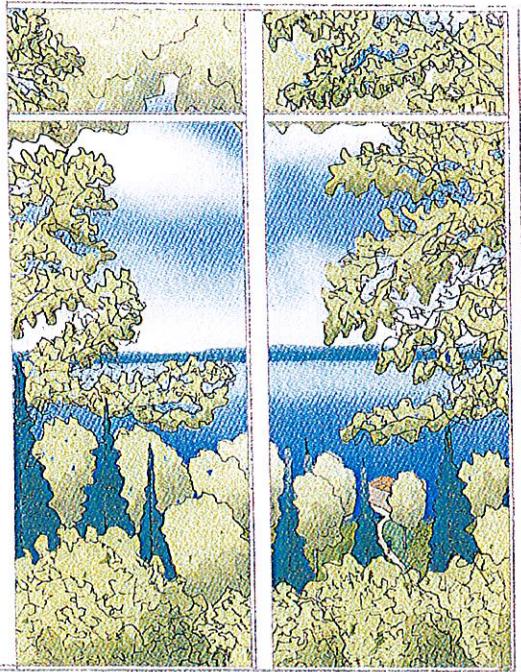
In addition, the design of a building can also have a significant visual impact. Color and materials used for buildings should be compatible with the natural landscape. Earth tone colors and natural materials such as wood, natural brick, slump block walls, tile or earth tone concrete shingles are recommended. Even structures located directly on the shoreline can be designed in a manner that does not have a negative visual impact. The structure illustrated above is constructed out of natural materials with a roofline blending with its surrounding environment.

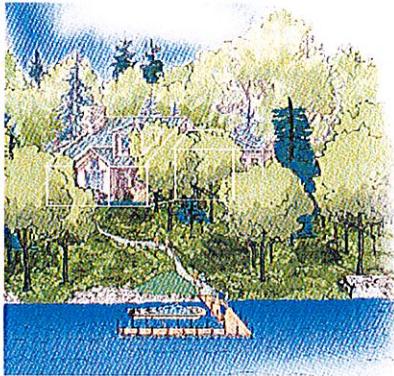
Vegetative Buffer

Working in coordination with building setbacks, a vegetative buffer is an important element used to preserve existing shoreline views and screen development along the lake. Native shrubs and trees should be retained along the shoreline whenever possible to help maintain the natural appearance of the lake's edge, reduce erosion, and provide habitat.

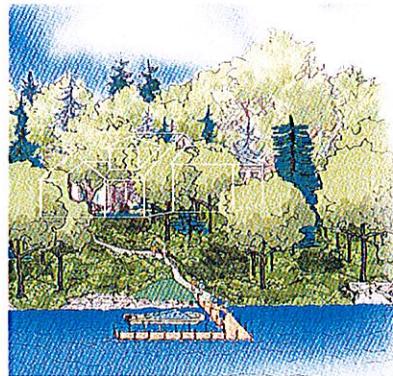
Existing vegetation and trees should be protected from damage during any new construction and clear cutting should be kept to a minimum.

Native vegetation should be installed in order to screen new development in such a way as to preserve existing views from neighboring residences. Selective pruning of vegetation is one technique to preserve views both from the structure and from neighboring residences. This 'keyhole effect' allows for scenic views from the structure. A typical view from the window of a structure with selectively pruned trees and vegetation is found below.

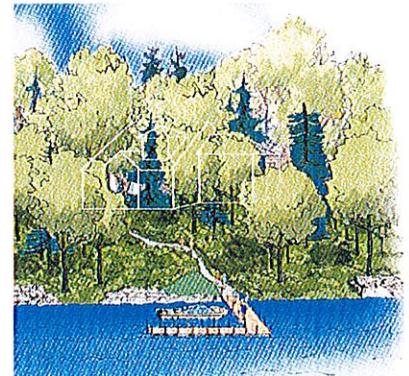




Highly visible structure



Moderately visible



Structure is screened by natural vegetation

Landscaped shorelines serve to buffer views from the lake, as is seen in the series of illustrations above. The illustration on the left illustrates a highly visible structure from the lake. The middle illustration shows the addition of natural vegetation and a moderately visible structure. The illustration on the right is preferable with very little of the structure visible from the lake through the vegetation. However, the views from the structure remain through selective pruning.

RIDGELINE DEVELOPMENT GUIDELINES

The Town of Canandaigua has an abundance of natural resources, including scenic ridgelines. The Comprehensive Plan recognizes the significance of these ridgelines and recommends the development of guidelines to describe methods to site buildings in a manner that minimizes visual impacts, while still allowing for scenic views.

In addition, the zoning law (as amended) provides for greater flexibility in the design of new subdivisions through the use of conservation subdivisions. This design flexibility can be used, among other purposes, to site new homes in a manner that limits their negative visual impact. The guidelines that follow address site design and architectural design.

Site Design

Proper site planning can dramatically reduce the visual impact of ridgeline development. The placement of a structure on the site or the use of native vegetation can effectively screen a building.

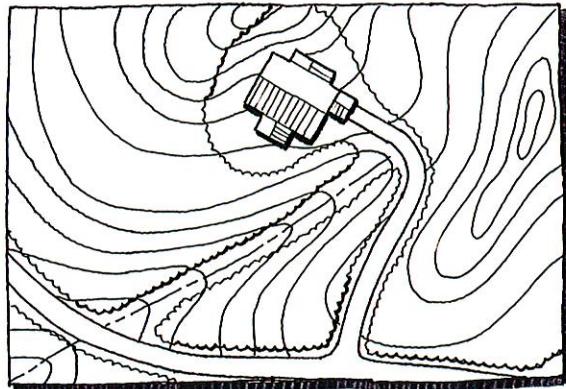
Grading

In order to preserve the natural environment, any disturbance to or alteration of existing contours, slopes, and natural drainage areas should be kept to a minimum. Grading, cut and fill, and retaining walls should be minimized for ridgeline development by using innovative building techniques, which reflect the natural topography of the site. When cut and fill is unavoidable, it should be stabilized by rounding and landscaping.

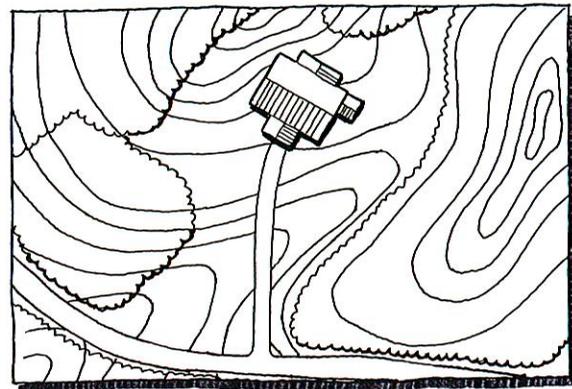
Building and Lot Design

Buildings and lots should be laid out to reduce the visual impact of the structures. This should include designing the buildings to conform to the contours of the site, and arranging driveways and patio areas to be compatible with the slopes and building design. The illustrations below show examples of possible driveway arrangements and what should be avoided.

This...

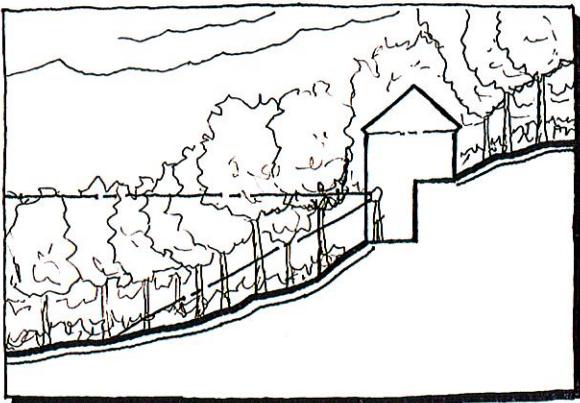


Not This...

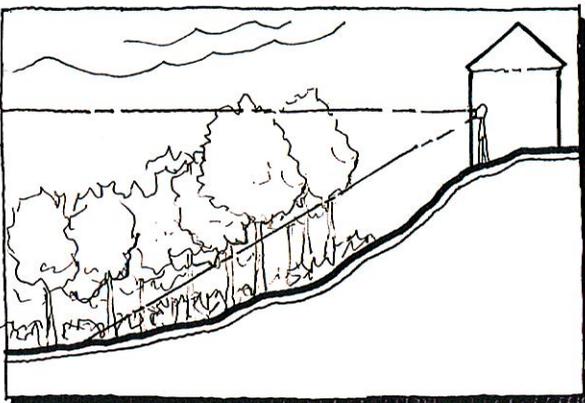


Buildings should be setback from a ridgetop at a distance that allows the natural topography and vegetation to screen the structures. Structures should be placed in small hollows or otherwise protected areas to reduce visual impacts. In addition, development should not occur on exposed ridges or rock outcroppings. The following illustration shows that building placement on top of a ridge is visually undesirable. In placing the building below the ridgetop, the homeowner will continue to have scenic views through selective pruning of trees.

This...



Not This...



Landscaping

Vegetation should be considered an important element used to preserve existing

vistas and screen new development on hillsides. Native shrubs and trees should be retained on hillside terrain to help maintain natural drainage swales, reduce erosion, and preserve the character of the hillside. Existing vegetation and trees should be protected from damage during construction and clear cutting should be kept to a minimum whenever possible. Minimizing the disturbance of existing vegetation would serve to screen the new development during construction. The use of vegetation to reduce visual impacts is illustrated on the following page.

When trees are added to a site, native species should be used and arranged in natural appearing clusters. This would serve to screen new development in such a way as to preserve existing views from neighboring residences. Selective pruning of vegetation is one technique to preserve views both from the structure and from neighboring residences.

Utilities

All utilities should be located underground whenever possible. In addition, utility housings should be safely screened by native plant species and located so as to minimize their visual impact. For areas with rocky terrain or for cost prohibitive reasons, placing of utilities near the road edge and offsetting the alignment can assist to screen a cleared utility corridor.

Architectural Design

The design of a structure can also have a significant visual impact. The following guidelines suggest ways in which to blend into the existing natural environment

through placement of windows, roof pitch, materials and color.

Color and Materials

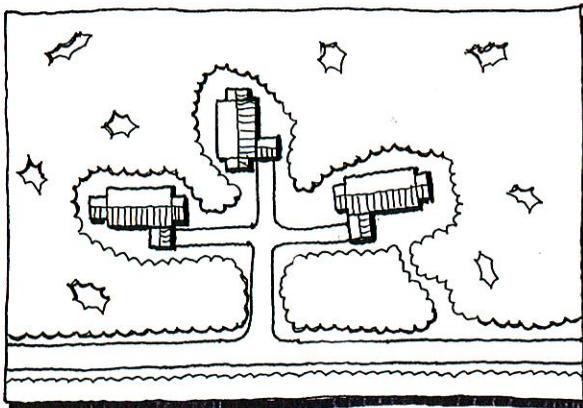
Color and materials used for buildings should be compatible with the natural landscape. Earth tone colors and natural materials such as wood, natural brick, slump block walls, tile or earth tone concrete shingles are recommended.

the slope of the roof should be oriented in the same direction of the natural terrain and mirror the angle of the natural hillside.

Windows

To the furthest extent possible, windows should be of low reflectivity, large windows should be screened by native trees, and upper floor windows should be smaller so as to reduce visual impact.

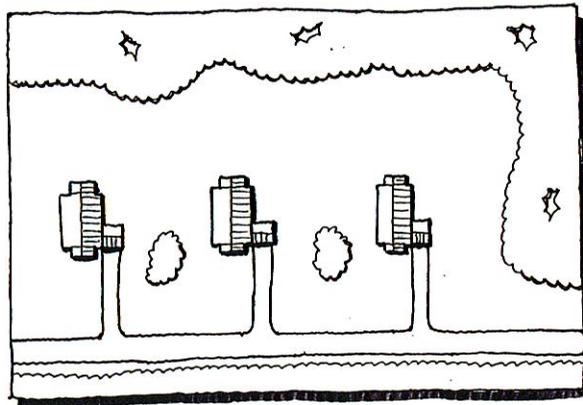
This...



Lighting

In addition to existing Town lighting requirements, lighting for ridgeline and hillside development should consist of low level lighting directed downward. All bulbs should be shielded to reduce impacts of glare and light on adjacent properties. Recessed lighting fixtures are one manner in which to reduce glare.

Not This...



Rooflines

Rooflines of buildings should not project above the natural ridgeline or disrupt the natural slope of the hillside. In order to preserve the natural outline of the hillside,