TOWN OF PORTLAND, CONNECTICUT

REGULATIONS FOR PUBLIC IMPROVEMENTS

PORTLAND PUBLIC WORKS DEPARTMENT
TOWN OF PORTLAND
33 EAST MAIN STREET
P.O. BOX 71
PORTLAND, CONNECTICUT 06480-0071

ADOPTED
Pord 3/29/16

TABLE OF CONTENTS
for
REGULATIONS FOR PUBLIC IMPROVEMENTS

PORTLAND PUBLIC WORKS DEPARTMENT
PORTLAND, CONNECTICUT

SECTION 70 - ROAD CRITERIA

SECTION 80 - ROAD CONSTRUCTION STANDARDS

SECTION 100 - DRAINAGE CONSTRUCTION STANDARDS

SECTION 110 - SOIL EROSION AND SEDIMENT CONTROL CRITERIA

SECTION 120 - FINAL GRADING, STABILIZATION AND LANDSCAPING CRITERIA

APPENDIX A

STANDARD DETAIL DRAWINGS	FIGURE
Typical Road Section Local Road	1
Typical Road Section Business/Industrial Road	2
Underground Utility Assignments	3
Bituminous Concrete Lip Curb	4
Cul-de-Sac (Circular)	5
Cul-de-Sac (Offset)	6
Underdrain	7
Storm Trench Section Reinforced Concrete Pipe	8
Storm Trench Section High Density Corrugated Polyethylene Smooth Interior Pipe (CPEP)	9
Storm Trench Section Slotted or Perforated Storm Drain	10
Chain Link Fence	11
Concrete Sidewalk	12
Curb Ramp - Type I	13
Curb Ramp - Type II & III	14
Road Name Sign	15
Concrete Monument	16
Private Drain Access Structure	17

REGULATIONS FOR PUBLIC IMPROVEMENTS

SECTION 10

PREAMBLE

10A - AUTHORITY AND PURPOSE

For the purpose of promoting the public health, safety and welfare, to assure protection of the public against the dangers of unsafe roads, to assure protection of the use, value and enjoyment of premises adjoining roads and to assure the protection of the Town against costs and expenses in the repair and maintenance of roads after acceptance which are avoidable through careful planning, appropriate design and competent construction, these Regulations are and have been adopted pursuant to Sections 8-25 and 13a-71 of the Connecticut General Statutes.

10B - SEPARABILITY

If a court of competent jurisdiction finds any provision of these Regulations to be invalid or ineffective in whole or in part, the effect of such decision shall be limited to the particular provision which is expressly held to be invalid or ineffective and all other provisions of these Regulations shall continue to be separately and fully effective.

10C - APPLICABILITY

To the extent that these regulations conflict with the provisions of the Portland Subdivision Regulations, these regulations shall apply, unless a waiver or waivers have been granted by the Commission pursuant to the Subdivision Regulations.

If a court of competent jurisdiction finds the application of any provision of these Regulations to any use, land or improvement to be invalid or ineffective in whole or in part, the effect of such decision shall be limited to the person, property or situation immediately involved in the controversy and the application of any such provision to other persons, property or situations shall not be affected.

10D - EFFECTIVE DATE

The effective date of these regulations shall be _____, 2005.

REGULATIONS FOR PUBLIC IMPROVEMENTS

SECTION 20

DEFINITIONS

20A - DEFINITIONS

20A.1 General

For the purpose of these regulations, the terms and words listed below shall have the following meanings assigned to them.

Americans with Disabilities Act Accessibility Guidelines - Appendix A to Part 36 entitled "ADA Accessibility Guidelines for Buildings and Facilities" as published in the Federal Register Vol. 56, No. 144, Friday, July 26, 1991, including any revisions.

Applicant - Any person, partnership, or corporation who shall make an application for approval under the provisions of these regulations either for himself or as an agent for others.

Arterial Street - A major through street that conducts relatively high volumes of traffic between communities, and that is not intended to have a residential environment.

Business/Industrial Road - Streets used or intended primarily for access to and from individual business or industrial lots or parcels.

Collector Street - A street that conducts traffic between major arterial streets, activity centers, and/or neighborhoods. It is a principal traffic route within residential areas and carries relatively high volumes of traffic. A collector street ties in at one or both ends with an arterial street.

Commission - The Portland Planning and Zoning Commission or its designated agent.

Connecticut Department of Transportation Standard Sheets - The most current detail drawings, including all revisions thereto, as issued by the Connecticut Department of Transportation.

Connecticut Guidelines for Soil Erosion and Sediment Control - The most current document entitled "Connecticut Guidelines for Soil Erosion and Sediment Control", including all corrections thereto, as published by the Connecticut Council on Soil and Water Conservation.

Criteria - The Road Design (Section 70), Drainage Design (Section 90), Soil Erosion and Sediment Control (Section 110), Final Grading, Stabilization and Landscaping (Section

120) and, Design & Construction of Driveways (Section 130) criteria specified in these regulations.

Cul-De-Sac - A dead end street with a turnaround.

Department of Public Works - The Portland Department of Public Works.

Director of Planning & Development - The Portland Director of Planning or his/her authorized agent.

Director of Public Works - The Portland Director of Public Works or his/her designated agent.

Driveway - A private vehicular accessway that has not been accepted as a public road by the Town or approved as a private road by the Commission.

Local Road - Streets used or intended primarily for access to and from individual residential lots or parcels.

Manual of Uniform Traffic Control - The most current document entitled "Manual on Uniform Traffic Control Devices for Streets and Highways", as published by the U.S. Department of Transportation Federal Highway Administration.

Parking Lot - An area used for parking of vehicles.

Private Property - Property owned by persons, partnerships or corporations other than the Town of Portland.

Private Road - Any road not lawfully accepted by the Town or the State of Connecticut for public vehicular travel.

Private Travel or Private Use (of Roads) - Any vehicular use of a road that is not defined as public travel or public use.

Public Road - Any road lawfully accepted by the Town or the State of Connecticut for public vehicular travel.

Public Travel, or Public Use (of Roads) - The vehicular use of (1) any public road or (2) any private road approved by the Commission.

Right-of-Way - A strip of land intended for, or dedicated and accepted for, the purpose of vehicular traffic, which includes the roadway, sidewalks, drainage facilities, shoulders and other improvements.

Road/Roadway - All surfaces, either paved or unpaved, constructed, designated and used to carry or guide vehicular traffic, between different lots or parcels within or outside of Town. The term does not include driveway or parking lots.

Standards - The Road Construction (Section 80), Drainage Construction (Section 100) and Design & Construction of Driveways (Section 130) standards specified in these Regulations.

Standard Detail Drawings - The Standard Detail Drawings appended to the Portland Road Regulations as figures, as may be amended from time to time, the contents of which shall be considered as criteria and standards.

State - The State of Connecticut.

State Department of Transportation - The State of Connecticut Department of Transportation.

State Standard Specifications - The most current document entitled "Standard Specifications for Road, Bridges and Incidental Construction", and all additions, revisions, and supplements thereto, as published by the Connecticut Department of Transportation at the time of the work or installation of improvements.

State Statutes - The most current document entitled "General Statutes of Connecticut", including all volumes and revisions thereto.

Street - Same as Road/Roadway.

Stormwater - Excess precipitation, after accounting for all losses, which becomes surface runoff.

Subcollector Street - A street that provides access to abutting lots and conducts traffic from local and minor streets to a higher classification street or to an activity center. A subcollector may be a loop street connecting one collector or arterial street in two places, or a through street connecting collector and/or arterial streets.

Through Traffic - When used in reference to a particular street or category of streets, "through traffic" means traffic that is using the street only to gain access to another street.

Town - The Town of Portland.

Town Attorney - The attorney or law firm appointed by the Portland Board of Selectman to represent the Town of Portland.

Town Road - Any road lawfully accepted by the Town for public vehicular travel.

Watercourse/Wetlands - Areas designated and defined as "Watercourses" and "Inland Wetlands" by the Portland Inland Wetlands and Watercourses Commission, pursuant to its Regulations, as the same may be amended from time to time.

REGULATIONS FOR PUBLIC IMPROVEMENTS

SECTION 30

GENERAL PROHIBITIONS

30A - USE OF LAND AS A ROAD

No person shall open any road for vehicular travel by the public without the approval of the Commission. The Commission's approval of a road shall not prevent any other legal requirement for creating or establishing a public road, including the requirement in the Town Charter for formal acceptance by the Board of Selectmen.

30B - USE OF UNAPPROVED PRIVATE ROADS

A private road that has not been approved by the Commission may not be used for public travel. Such a road may be used for private travel, provided a conspicuous sign, facing the public road, and clearly stating in bold letters that the private road is a private way and is not open for public vehicular travel.

30C - CONSTRUCTION OF A PUBLIC ROAD

No person shall commence construction of any road which is then intended to be opened, at any future time, to the public unless approval of the location, layout, design and construction plans therefore have been approved by the Commission.

REGULATIONS FOR PUBLIC IMPROVEMENTS

SECTION 40

DESIGN APPROVAL PROCESS

40A - PROCEDURE

40A.1 Design Approval Required for Public Use of Roads

The Commission may not approve the proposed establishment, construction or use of any road for public travel unless an application for such approval is submitted to the Commission and the Commission grants such approval in accordance with these regulations.

40A.2 Roads Located Within an Area Proposed for Subdivision

If an application for subdivision or resubdivision involves the establishment, construction or use of a road or roads within the area to be subdivided, and such road or roads are proposed to be used for public vehicular travel, the application for subdivision shall also be deemed to be an application for design approval of the road or roads, and no separate application for design approval shall be required. However, all supporting documentation and materials required by these regulations must be submitted in order for the Commission to consider or to grant design approval for the road or roads.

40A.3 Roads Not Located Within an Area Proposed for Subdivision

If a proposal to establish, construct or use a road or roads for public vehicular travel is not made in connection with an application for subdivision or resubdivision, an application for design approval of the road or roads must be submitted to the Commission, together with all supporting documentation and materials required by these regulations.

40A.4 Staff Review Prior to Application

All prospective applicants for design approval of a road or roads for public travel are encouraged to meet with the Town's Director of Planning prior to submission of a formal application. The Director of Planning shall coordinate the review of all the materials submitted by the prospective applicant with other Town staff, officials and consultants, and may set up informal meetings among the prospective applicant and others, including the Commission. The Commission shall not informally discuss any road proposal with any prospective applicant unless the proposal has first been submitted to the Director of Planning for such review as he or she may deem appropriate. The purpose of any and all pre-application reviews, meetings and comments shall be advisory only, and no comments made by any Town staff or Commission member or other Town official or consultant shall be deemed to be binding in any way on the Commission if and when a formal application for design approval is submitted.

40A.5 Procedure for Decisions on Formal Applications

(A) Applications Made as Part of a Subdivision Application

When a request for design approval is made as part of a subdivision application, the Commission shall follow the same procedures in making its decision on the design approval application as it does in deciding upon the subdivision application. The Commission may approve, modify and approve, or deny design approval. A decision to deny a subdivision application shall also be deemed to be a decision to deny design approval.

(B) Applications for a Private or Public Road Not Made As Part of a Subdivision Application

All applications for a private or public road not made as part of a subdivision application will be reviewed pursuant to the Portland Zoning Regulations.

40B - SUPPORTING INFORMATION

40B.1 General

In addition to any information required to be submitted in the subdivision regulations, an application for design approval to construct, reconstruct or complete construction of a road intended to be opened to the public, shall include the supporting information required in this section.

40B.2 Maps, Drawings and Plans

All information pertaining to topographic maps and delineation of street rights-of-way and property boundaries required under this Section shall be shown on plans, maps or drawings which are prepared by and certified by a registered land surveyor to the standards prescribed in the "Minimum Standards for Surveys and Maps in the State of Connecticut", adopted September 26, 1996, as amended, (Amended 10/27/03) by the Connecticut Association of Land Surveyors. All information pertaining to design of roads and drainage systems and appurtenant facilities required under this Section shall be shown on plans, maps or drawings which are prepared by and certified by a registered professional engineer. All information shown in construction drawings shall be based on accurate field survey data referenced to U.S.G.S. vertical datum and the Connecticut Coordinate Grid System. Aerial survey data, based on accurate ground control surveys, may be utilized provided it is supplemented by field surveys at locations where elevations and dimensions are critical.

40B.3 General Plan

The general plan shall be a map or maps, drawn to a scale of 1" = 100' or less to the inch, showing the following:

(A) The proposed road layout.

(B) Existing topography, including the identification of slopes $\geq$ 25%.

(C) Ledge outcrops, stone walls, rare/specimen trees and trees greater than 18 inches in diameter.

(D) Wetlands, watercourses and all proposed alterations thereof, flood hazard zones, floodways, stream channel encroachment lines, existing bridges, culverts and storm drainage systems.

(E) Soil Conservation Service soil types and boundaries.

(F) All existing buildings and structures, properly identified, located upon, and within two hundred (200) feet outside of each boundary line of the land to which the application relates.

(G) All existing roads, driveways and other vehicular access ways entering upon, or which will enter upon, the road to be laid out and constructed.

(H) All existing parking facilities, playgrounds, recreational facilities, and open space areas, access to which may be obtained from such proposed road.

(I) The location of all structures and improvements, including subsurface utilities and improvements proposed in connection with the construction of such road.

(J) All areas to be conveyed to the Town for open space, drainage, etc.

(K) Numbered survey control points, wetland flags and test pits.

40B.4 Plan & Profile Drawings

Plan & Profile drawings shall be prepared on a 24" x 36" sheet size with scales of 1" = 40' horizontal and 1" = 4' vertical, showing the following:

(A) The location and dimensions of existing and proposed street rights-of-way, edges of pavement, curbs, sidewalks, piping, catch basins, manholes, endwalls, bridges, utilities and utility easements, drainage easements, open channels, monuments, tops and toes of all slopes, all data required for accurate layout of roadway center lines and rights-of-way, including stationing, bearings, tangent lengths, arc lengths, radii and central angles of all curves; location of property lines intersecting the street right-of-way lines and the names of owners of such adjacent property; typical cross-sections of each

street, showing proposed dimensions, materials of construction, and locations of drainage piping and other underground facilities and utilities; location and description of survey bench mark; and, street signs and traffic control signs.

(B) Profiles of existing ground surface on the center line and at each right-of-way line shall be based on an accurate field survey.

(C) Profile of the proposed center line, showing proposed grades, vertical curve data and stations at grade changes, intersections, high points and low points.

(D) Profiles of all existing and proposed drainage facilities, bridges and other proposed improvements showing locations, sizes, grades and invert elevations.

40B.5 Detail Drawings

For proposed improvements that cannot be readily shown on the Plan & Profile drawings, or that are not included in the Standard Detail Drawings in Appendix A, additional drawings shall be submitted showing in further detail all information required for construction. Detail drawings shall be prepared at appropriate scales, and shall substantially conform in both form and manner to the Standard Detail Drawings in Appendix A. In addition to any necessary detail drawings, the following statement shall be included on all construction drawings; "All construction shall conform to the criteria and standards included in the 'Regulations for Public Improvements'".

40B.6 Drainage Report

A drainage report, conforming with the design criteria in Section 90 of these Regulations, shall be submitted which includes the basis of design, detailed design computations, and a drainage analysis map for sizing all proposed storm drainage facilities; the analysis of any required existing off-site facilities; and, for any proposed stormwater runoff control measures. Detailed design computations shall include the design criteria, parameters and methods used in selecting the location, configuration, type and size of all proposed drainage facilities. Such computations shall include tabulated summaries of pertinent design computations. Wherever feasible, such tabulations shall follow the most current format utilized by the Connecticut Department of Transportation, the Federal Highway Administration, the U.S. Soil Conservation Service or such format as may be adopted and amended from time to time by the Town.

40B.7 Soils Report

A soils report shall be submitted showing the type, nature and extent of the various soils existing within the proposed road right-of-way and in the area where the roadway slopes extend beyond the proposed road right-of-way. All soils types shall be identified on the basis of test pits, which shall also indicate seasonal high ground water and bedrock depths. Such report shall also include a description of the means and methods proposed to be utilized to overcome any potential soils problems.

40B.8 Earthwork Analysis

An earthwork analysis shall be submitted which quantifies the volumes of cut and fill required to construct the proposed road and associated public improvements.

40B.9 Soil Erosion and Sediment Control Plan

A detailed plan for soil erosion and sediment control, conforming with the requirements of Section 110 in these Regulations, shall be submitted. The plan shall include all measures to be taken to control erosion and sedimentation resulting from proposed road and drainage facility construction. All such measures shall be consistent with the requirements and standards outlined in the "Connecticut Guidelines for Soil Erosion and Sediment Control". When a project is of a size that requires a "General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities", it shall be the applicant's responsibility to file the required registration form with the Connecticut Department of Environmental Protection and to provide copies to the Town.

40B.10 Landscape Plan

A landscape plan shall be submitted for any median strips or other proposed landscaped areas to be located within the right-of-way lines of a road. All proposed landscaping shall be consistent with the criteria included in Section 120 of these Regulations.

40B.11 Water Distribution System Report

If a public water distribution system is proposed to be extended within a road right-of-way, a water distribution system report, prepared by a registered professional engineer, shall be submitted. The report shall identify the proposed new service area, estimated average and peak day demands resulting from the full build out of the new service area, elevations, pressures and supporting analysis demonstrating that the proposed water distribution system extension is sized to meet projected demands. The report shall also identify any improvements to the existing public water distribution system that are necessary to meet projected demands. The planning, design and construction of all proposed water distribution system extensions and/or improvements shall conform to the most current "Regulations of the Water Division, Department of Public Works, Town of Portland".

40B.12 Sewage Collection System Report

If a public sewage collection system is proposed to be extended within a road right-of-way, a sewage collection system report, prepared by a registered professional engineer, shall be submitted. The report shall identify the proposed new service area, estimated average and peak day flows resulting from the full build out of the new service area, and supporting analysis demonstrating that the proposed sewage collection system extension is sized to meet projected flows. The reports shall also identify any improvements to the existing public sewage collection system that are necessary to convey projected flows. The planning, design and construction of all proposed sewage collection system extensions and/or improvements shall conform to the most current "Sewer Ordinance of The Portland Sewer

Authority". In addition to the preparation of a Sewage Collection System Report, applicants shall also be responsible for contacting the Director of Public Works regarding Supplemental Benefit Assessments for connection to the existing sewage collection system.

40B.13 Traffic Report

If, in the opinion of the Director of Public Works, there is concern regarding the ability of the existing roadway network to accommodate prospective traffic in a safe and efficient manner, he/she may require the submission of a traffic report which shall evaluate and identify any required measures to address such concerns. Traffic reports shall be prepared by a Registered Professional Engineer with a specialization in Traffic Engineering.

40B.14 Connecticut Department of Transportation Approval

Where any road, drainage facility or other associated work is proposed to join with a state highway, or is to be located within a state highway right-of-way, the applicant shall obtain a letter from the Connecticut Department of Transportation which shall approve of such work. Such letter may be conditional upon prior approval of the project by the Commission, and/or submission of a permit application to the Connecticut Department of Transportation.

40C - SUPPLEMENTAL INFORMATION

40C.1 General

Whenever the staff or Commission shall deem it reasonably necessary or appropriate to request additional information for consideration of an application, it may require the applicant to submit, at or prior to the hearing, any other information in such form as it may prescribe. Furthermore, whenever the Commission shall deem required information unnecessary for the consideration of an application, it may, upon request of the applicant, waive in writing the requirement of any information specified in Section 40B above.

40C.2 Layout

Within one week of submission of an application and supporting information, the approximate location of all drainage outlets, and the proposed road centerline at maximum intervals of 100 feet, shall be flagged in the field. The requirement for field flagging shall not permit the applicant to initiate any type of site clearing. If such flagging is not completed as requested, the Commission may deem that there is insufficient information on which to make a decision and deny the application.

REGULATIONS FOR PUBLIC IMPROVEMENTS

SECTION 50

CONSTRUCTION INSPECTION PROCESS

50A - PROCEDURE

50A.1 General

Any project for which design approval has been granted by the Portland Planning & Zoning Commission to construct, reconstruct or complete construction of a road intended to be used for public travel or public use shall require periodic inspections to be conducted by the Town of Portland to monitor compliance with the approved drawings and plans, the requirements outlined in these regulations, and good construction practices. However, it is the applicant's sole responsibility to ensure that all construction shall conform to such requirements.

50A.2 Preconstruction Meeting

Prior to the start of any construction, it is the applicant's responsibility to schedule a preconstruction meeting with the Town. No such meeting shall, however, be scheduled until such time as the inspection fee has been paid, and the sediment and erosion control bond and the performance bond are posted as required in Sections 50A.4, 50A.5 and 50A.6 of these regulations. Scheduling of the preconstruction meeting shall be made with the Director of Planning, who shall be responsible for notification of the Public Works Department and other appropriate Town Staff. The applicant shall be responsible for ensuring that the contractor and Construction Coordinator are in attendance. The general purpose of the preconstruction meeting is to introduce all parties, identify the person from the Department of Public Works who will be assigned construction inspection responsibilities, exchange telephone numbers, review the construction schedule, and discuss any additional requirements or concerns specific to the proposed project.

50A.3 Construction Coordinator

In respect of all matters pertaining to inspection hereunder, the applicant shall designate one Construction Coordinator who shall be fully authorized to communicate with the Town. Such designation shall be made in writing which shall state such individual's mailing address, and telephone/cell phone and fax numbers, and shall be delivered to the Director of Public Works prior to commencement of any work. All notices, orders or other communications delivered to or served upon such individual shall be deemed to have been delivered or served upon the applicant. All notices or other communications received from him shall be deemed to have been received from the applicant.

50A.4 Inspection Fees

Prior to the start of any activity, the applicant shall pay an inspection fee to the Town, as specified in the Town of Portland Code of Ordinances.

50A.5 Erosion and Sediment Control Bond

Prior to the start of any activity, the applicant shall post a separate cash bond with the Town for sediment and erosion control and site stabilization measures in accordance with the procedures established in the Portland Subdivision Regulations and the Portland Zoning Regulations.

50A.6 Performance Bond

Prior to the start of any activity, the applicant shall post a performance bond with the Town in accordance with the procedures established in the Portland Subdivision Regulations.

50A.7 Bond Reductions

During the course of construction, periodic reductions in the amount of the performance bond may be requested by the applicant, and considered by the Commission, to reflect the cost of remaining improvements. Any such bond reductions shall be subject to the limitations specified in Section 50E.4 of these Regulations.

50B - REQUIRED INSPECTIONS

50B.1 General

Scheduled inspections shall be conducted by the Town at key construction stages specified in Section 50B.4 in order to provide a reasonable level of confidence that a road, which is to be used for public travel, as well as any associated improvements, has been constructed in general conformance with the approved drawings and plans; the requirements outlined in these regulations; and, good construction practice. At the discretion of the Town, the Construction Coordinator may be notified of additional inspections that may be required. It is the Construction Coordinator's sole responsibility to schedule and coordinate all required inspections with the Town's Construction Inspector. The applicant shall provide a minimum advance notification of twenty-four (24) hours for all inspections, which shall only be made during the Public Works Department normal working hours. Unannounced spot inspections may also be made by the Town at any time.

50B.2 Right-of-Entry

All Town Staff, and Board or Commission members, shall have the right to enter upon the premises and to inspect, or cause to be inspected, construction work authorized by Design Approval hereunder at any time with or without notice during, before or after regular business hours.

50B.3 Scheduled Inspections and Surveys

The following inspections shall be required and no further work shall be performed until each inspection shall have been made and the Construction Coordinator has been notified by the Town's Construction Inspector that further work may proceed:

(A) The approved limits of clearing, conservation easements and inland wetland and watercourses shall be flagged prior to the start of any work.

(B) After cutting of trees and brush, and the installation of sediment and erosion control measures, but prior to any stumping and/or grading.

(C) After stumping and stripping of topsoil and organic material from earth cut and fill areas, but prior to the placement of any fill material.

(D) After rough earth cuts and fills and the formation of the road subgrade. (The Town may require the applicant to perform compaction tests at this time.)

(E) After the installation of sewage collection system improvements, but prior to backfilling.

(F) After the installation of water distribution system improvements, but prior to backfilling.

(G) After the installation of storm drainage pipe and catch basins, but prior to backfilling.

(H) After the installation of underdrains, but prior to backfilling.

(I) After formation of the finished road subgrade, following the construction of all underground utilities located within the roadway (water distribution, sewage collection, storm drainage, underdrains, gas, etc.) and prior to the placement of any rolled granular base materials.

(J) Provide an interim As-built survey, after formation of finished road subgrade, showing the edges of road, centerline profile and catchbasin locations with invert and top of grate elevations.

(K) After the placement of rolled granular base.

(L) After the placement of processed aggregate base.

(M) Prior to the placement of bituminous concrete paving, the applicant shall be responsible for the excavation of shallow test holes for the purpose of confirming that the actual compacted depth of rolled granular base and processed aggregate base materials conform to Town Standards. Test holes will be required at a minimum

interval of 100 feet and/or at locations designated by the Town of Portland. In addition, proof rolling of the road base must be observed by the Town.

(N) During the placement of bituminous concrete paving. A copy of all weight slips for bituminous concrete material delivered to the site must be provided to the Town of Portland.

(O) After placement of bituminous concrete lip curbs, but prior to any backfilling of curbs.

(P) After placement of the granular sidewalk base.

(Q) During the placement of Portland Cement Concrete Sidewalks. A copy of all batch plant tickets for Portland Cement Concrete delivered to the site must be provided to the Town of Portland.

(R) After backfilling of curbs and final grading of shoulder areas.

(S) After restoration of all disturbed areas, placement of road monuments, traffic control/street name signs and street trees.

50B.4 Construction Materials

The applicant shall be required to submit samples and certified laboratory reports to the Town documenting the conformance of certain construction materials with the specifications included in these regulations. The applicant shall not be permitted to place, or to have delivered to the project site, any materials for which approvals have not been granted by the Town. Any approvals granted by the Town on the basis of certified laboratory reports shall be conditional upon the tested sample being representative of all such materials utilized for construction. The Town shall reserve the right at any time during the course of construction, for whatever reason, to have additional materials testing conducted. Should the results of such testing find that the materials do not conform to specifications, then such materials shall be removed and replaced with conforming materials at the applicant's expense. The applicant shall be required to reimburse the Town for the cost of any such testing only if the results prove that the materials tested do not conform to required specifications.

Samples and/or certified laboratory reports shall be submitted for the following materials:

(A) Rolled Granular Base - A five (5) gallon sample and sieve analysis for conformance with the State Standard Specification Section M.02.06 Grading A.

(B) Processed Aggregate Base - A five (5) gallon sample and sieve analysis for conformance with the State Standard Specification Section M.05.01.

(C) Bituminous Concrete - Plant certification by the State Department of Transportation for use of such materials in state highway construction projects.

(D) Roadway Subgrade - In place density tests at approximately one hundred (100) foot intervals and/or at other locations and depths as required by the Director of Public Works. Compaction testing shall be performed in accordance with AASHTO T180, Method D. Correction for particles retained on the ¾ inch sieve shall be in accordance with AASHTO Method T224.

(E) Portland Cement Concrete - Slump tests and air content at frequencies required by the Director of Public Works. Slump testing shall be performed in accordance with AASHTO Method T119, and air content shall be determined in accordance with AASHTO Method T152 (Pressure Method).

50C - FAILURE TO PROPERLY EXECUTE REQUIRED IMPROVEMENTS

50C.1 General

Failure to follow the procedures set forth in these Road Regulations may result in a rejection of that portion of the work completed without required inspections, which may result in delays and added costs to the applicant in demonstrating compliance with applicable regulations and standards. Failure to construct road, drainage and other public improvements in accordance with approved construction plans, Town Regulations and Standards, and good construction practice may result in the Town's refusal to accept any such improvements. If the applicant fails to execute the approved or required improvements in accordance with these regulations or the terms of the permit or approval, and such failure causes unreasonable sedimentation, erosion, pollution or other nuisance conditions, the Town or the Commission may take whatever actions it deems necessary or appropriate to correct and/or abate the nuisance conditions. In such circumstances, the Commission may recommend that the Town not accept such improvements, unless and until the applicant reimburses the Town for all costs and expenses of such correction and abatement.

50D - CHANGES DURING CONSTRUCTION

50D.1 Modifications

If at any time during the construction of the required improvements, unforeseen field conditions make it necessary or preferable to modify the location or design of such required improvements, the Construction Coordinator shall notify the Town Construction Inspector in writing, who shall determine whether the change is minor in nature or whether the Commission itself must act on the proposed change. If the change is minor, the Town Construction Inspector shall either approve or disapprove the applicant's request. If it is determined that the change is not minor, the applicant shall submit an application for a modification of the Commission's approval. Such application shall meet all the informational requirements required by the Commission.

50D.2 Additional Work

If during the course of construction of any new road, or any other improvements required by the Commission in connection with the approval of a subdivision, it appears that additional work is required owing to unforeseen conditions such as, but not limited to springs, old drains, wet conditions, side hill drainage from cuts, bedrock, or other conditions which were not apparent at the time of the approval by the Commission, the Town may require such additional work to be done, and the Commission may require additional surety.

50E - MAINTENANCE OF UNACCEPTED ROADS

50E.1 General

Prior to acceptance of a completed road by the Town of Portland, where a performance bond has been posted to ensure construction of all required improvements, there may be instances where certificates of occupancy have been issued for individual dwellings that front on and derive access from the unaccepted road. In order to protect public health, safety and welfare, and to provide safe access to any such dwellings, it shall be the developer's sole responsibility to provide normal maintenance, including but not limited to snow and ice removal. Such maintenance shall be provided by the developer, at his cost, during the entire course of construction until the road is accepted by the Town of Portland.

50E.2 Preparation for Winter

Whenever a roadway has only been paved with the bituminous concrete Class I binder course, and the bituminous concrete Class II top course will not be placed until after the winter season, the developer shall place bituminous concrete wedges adjacent to all structures protruding above the surface of the bituminous concrete Class I binder course including but not limited to catch basin tops, manhole frames and valve boxes, so as to assure proper drainage and to provide safe conditions for snow plows. Any damage done to structures protruding above the surface of the bituminous concrete Class I binder course shall require their removal and replacement with new structures prior to the placement of the bituminous concrete Class II top course.

50E.3 Snow and Ice Removal

In the event that a developer fails to plow or sand a road within four (4) hours following cessation of a snowfall, or when icing conditions or ice build up occurs, the Portland Public Works Department shall have the right to plow or sand the road in question or arrange for a private contractor to do so. Any plowing or sanding that is necessary to be completed, or arranged for, by the Town of Portland shall neither be considered an assumption of responsibility nor shall it in any way relieve the developer of his continued responsibility to provide such maintenance.

50E.4 Normal Maintenance

In the event that a developer fails to maintain a road or make necessary repairs within seven (7) days of receiving notice from the Portland Public Works Department that maintenance or repairs are necessary, the Portland Public Works Department may make whatever repairs are necessary, or arrange for a private contractor to do so. Any maintenance or repairs necessary to be completed or arranged for by the Town of Portland shall neither be considered an assumption of responsibility nor shall it in any way relieve the developer of his continued responsibility to provide such maintenance.

50E.5 Reimbursement of Town Expenses

Whenever the Portland Public Works Department provides or arranges for maintenance of unaccepted roads, the developer shall be responsible for promptly reimbursing the Town for all costs. During any such time when the developer has outstanding bills owed to the Town, the Town shall neither consider any requests for a reduction in, or release of, any bonds held, nor shall it consider any request for acceptance of the road. In the event that any bills owed by the developer become past due for a period of more than forty-five (45) days, then the Town shall have the right to deduct such past due amounts from any bonds, cash or otherwise, held by the Town of Portland.

Whenever funds are deducted from a bond, the developer shall, upon written notice from the Town of Portland, replenish the bond to the original amount required. In the event that the bond is not replenished, the Town shall neither consider any requests for a reduction in, or release of, any bonds held, nor shall it consider any request for acceptance of the road.

REGULATIONS FOR PUBLIC IMPROVEMENTS

SECTION 60

TOWN ACCEPTANCE OF A COMPLETED ROAD

60A - PROCEDURE

60A.1 General

Whenever a completed road is intended to be offered for acceptance by the Town, a written request for acceptance, including supporting and supplemental information required in this section, shall be submitted to the Director of Planning, who shall forward such information to the Director of Public Works, Town Engineer and Town Attorney for review. The Director of Planning shall notify the person(s) making the request of any comments requiring revisions to the supporting and supplemental information and any outstanding maintenance bills due to the Town. Upon receipt and confirmation that all required revisions have been made, and outstanding bills paid, the Director of Planning shall forward the written request and supporting and supplemental information, along with recommendations from the Director of Public Works, Town Engineer and Town Attorney, to the Planning & Zoning Commission. The Planning & Zoning Commission, after review of all information, shall make a recommendation to the Board of Selectman regarding the request for acceptance as a town road. The procedure for formal acceptance shall be as required by state law and the Charter of the Town.

60A.2 Who May Request Acceptance

A written request for acceptance of a completed road may be made by any person who is:

(A) The owner, or all the joint owners, of the land underlying the proposed road.

(B) The purchaser, or all the purchasers, under a written contract to purchase the land underlying the proposed road, provided that written consent of the owner, or all joint owners, of the land accompanies the written request.

60B - SUPPORTING AND SUPPLEMENTAL INFORMATION

60B.1 General

A written request for Town acceptance of a completed road shall include six (6) copies of all required supporting information and supplemental information as may be requested.

60B.2 Supporting Information

Supporting information shall include the following items:

(A) A written description by metes and bounds or courses and distances, of all land and additional easements as necessary to be conveyed to the Town.

(B) Fixed line mylars of Record Plan-Profile Drawings, prepared at the scale and, showing the information specified in Section 40 on an "As-Built" basis. All record drawings shall be prepared by a Land Surveyor licensed in the State of Connecticut.

(C) Fixed line mylars of Record Detail Drawings, where any previously approved details have been modified, showing all information on an "As-Built" basis.

(D) A copy of a completed Work Permit or letter, issued by the State Department of Transportation, confirming the satisfactory completion of all work conducted within a State Highway Right-of-Way.

(E) Completed copies of all conveyances or other legal instruments, properly executed in form and manner suitable for recording in the Town Land Records, effectively transferring or creating the rights in each instance required under Sections 70I.5 and 90A.7.

(F) A Warranty Deed properly executed by the owner or owners of the land to which the written request relates, in form and manner suitable for recording, effectively conveying good and marketable title to said land to the Town, together with a Certificate of Title from an attorney admitted to practice in Connecticut certifying that said owner or owners hold good and marketable title to said land at the date of such written request free and clear of all title defects and encumbrances. By delivery of such deed, said owner or owners shall be deemed to authorize delivery to and recording thereof by the Town upon acceptance of such road by the Town.

(G) A Certificate of Accurate Monument Location prepared by a Land Surveyor licensed in the State of Connecticut.

60B.3 Supplemental Information

Whenever the Commission shall deem it reasonably necessary or appropriate to a proper disposition of any written request for acceptance of a completed road, it may require submission of any other information in such form as it may prescribe. Until such supplemental information has been received by the Commission, it shall decline to make any recommendation to the First Selectman regarding acceptance.

60C - ACCEPTANCE

60C.1 Conformance

Prior to considering acceptance of a road, the Commission shall determine whether or not the road and all associated improvements, including but not limited to detention basins, water storage tanks and any required off site improvements, conform to the approved

location, layout, design and construction plans and to the criteria and standards hereinafter specified or prescribed for such road and all associated improvements in or pursuant to these Regulations.

60C.2 Release of Performance Bond

The obligation of the performance bond prescribed in Section 50A.6 shall not expire, be released or otherwise terminate with respect to any road and associated improvements prior to the effective date of final acceptance by the Board of Selectmen and posting of a maintenance bond.

60C.3 Maintenance Bond

Prior to the acceptance of any road by the Board of Selectman, the applicant shall post with the Town a maintenance bond or bonds, in an amount and with surety and conditions satisfactory to the Town indemnifying the Town for a one year period against costs and expenses of labor and materials necessary or appropriate to correct or replace improper or defective materials or faulty workmanship, including any damage to any property of the Town resulting therefrom, or to complete construction in conformity with the standards, criteria and specifications prescribed in these Regulations. Such maintenance bond shall be in an amount equal to not less than ten percent (10%) of the total value of the performance bond specified in Section 50A.6 of these Regulations, or as otherwise approved by the Commission. The maintenance bond shall be delivered to the Director of Planning, who shall deliver the maintenance bond to the Portland Director of Finance for review and safe keeping.

60C.4 Recording of Documents

The owner shall provide all supporting information set forth in Section 60B.2, including the required maintenance bond, prior to acceptance of the completed road by the Board of Selectmen. Final acceptance of a completed road shall not be deemed effective until all required documents have been filed on the Town Land Records.

REGULATIONS FOR PUBLIC IMPROVEMENTS

SECTION 70

ROAD CRITERIA

70A - GENERAL

70A.1 Preservation of Existing Resources

All significant existing natural, human-made, or scenic resources shall be preserved and protected to the greatest extent possible. Such resources include, but are not limited to: stone walls, steep slopes with a gradient greater than 25%, ledge outcroppings, specimen trees and stands of trees including rare and unusual flora and fauna, endangered species, species of special concern, watercourses, ponds, wetlands, scenic vistas, ridge lines and any other significant geological features such as erskers, kames or kettles.

70B - PAVEMENT AND RIGHT-OF-WAY WIDTH

70B.1 Road Width

The minimum pavement width of roads, as measured from face to face of curbs, shall be as follows:

(A) Local Road — 24 feet

In all residential zoning districts

(B) Business/Industrial Road — 30 feet

In all business and industrial zoning districts

70B.2 Right of Way

For every road, the right-of-way lines on each side of the road shall be parallel or shall be concentric arcs and all intersections of right-of-way lines shall be rounded by a curve having a radius equal to the required curb line radius, but not less than 25 feet. Minimum right-of-way widths shall be as follows:

(A) Local Road — 50 Feet

(B) Business/Industrial Road — 60 Feet

70C - GRADIENT

70C.1 General

Roads shall be designed so as to avoid excessive cuts and fills and to avoid a combination of steep grades and sharp curves.

70C.2 Minimum

The minimum gradient on any road shall be 1%, except turnarounds which shall be 1.35%.

70C.3 Maximum

Maximum gradients shall be as follows:

(A) Local Road 10%

(B) Business/Industrial Road 10%

(C) Turnarounds 5%

The maximum permitted gradient for the entire required turnaround diameter.

(D) Intersection, Local Road 4%

For a minimum tangent distance of not less than 50 feet as measured from the gutter line of the intersected road to any change in gradient.

(E) Intersections 3%

For a minimum tangent distance of not less than 100 feet as measured from the gutter line of the intersected road to any change in gradient.

70D - STOPPING SIGHT DISTANCE

70D.1 Minimum

The horizontal and vertical alignment of all roads shall be based on a 30 MPH design speed, and provide for a minimum stopping sight distance of 200 feet.

70D.2 Determination

Sight distances shall be determined on the basis of height of eye-height of object, headlight beam and horizontal location of eye, and object design criteria currently used by the State of Connecticut Department of Transportation.

70E - HORIZONTAL ALIGNMENT

70E.1 Curve Tangent and Radius

For all roads, the minimum tangent length between horizontal curves shall be 100 feet and the minimum radius of centerline curvature shall be 200 feet.

70E.2 Sight Distance

The horizontal alignment of the roads shall be such as to meet the requirements for sight distance specified in Section 70D.

70F - VERTICAL ALIGNMENT

70F.1 Gradient Transition

Parabolic vertical curves for transition between roadway gradients shall be provided on all roads to insure adequate sight distances in accordance with the minimum requirements specified in Section 70D and to provide a rate of change of gradient that assures safe vehicle operation and does not cause discomfort to vehicle occupants.

70F.2 Curve Length

The required length of vertical curve shall be based upon criteria identified in Section 70D, with the following requirements being the minimum acceptable:

Type of Vertical Curve	Minimum Length, Ft.
Crest	29 times the algebraic difference in grade, in percent.
Sag	36 times the algebraic difference in grade, in percent.

70F.3 Minimum Curve Length

Vertical curves shall have a minimum length of 100 feet.

70F.4 Maximum Curve Length at Low Points

Where a sag vertical curve results in a low point, the maximum length of vertical curve shall be equal to the minimum length of vertical curve, based on the criteria identified in Section 70F.2 and 70F.3.

70G - INTERSECTIONS

70G.1 General

The following standards shall apply to all intersections:

(A) No more than two roads shall intersect at any one location.

(B) Cross (four-cornered) intersections shall require approval by the Director of Public Works.

(C) Spacing of intersections, as measured between centerlines, shall be at least 200 feet.

(D) Driveways shall not be located any closer than 75 feet from an intersection.

(E) Wherever possible, roads shall intersect at a 90 degree angle, or as close thereto as is practical. In no event however, shall an intersection be allowed where the angle of intersection is less than 75 degrees within 100 feet of the intersection.

(F) The minimum radii of curb lines at intersections shall be as follows:

Local Road	25 feet
Business/Industrial Road	35 feet

The Commission may require greater radii where the angle of intersection is less than 90 degrees.

(G) The visibility at intersections (intersection sight distance) shall be such as to allow a stopped vehicle on the intersecting roadway, located 15 feet back from the gutter line, to see, and to be seen from, a vehicle approaching from either direction along the intersected roadway at a distance of not less than 250 feet, based on a height of eye and object of 3.5 feet.

(H) Sufficient clearing and regrading shall be accomplished to meet the sight distance visibility requirements of Subparagraph (G) of this subsection and no structures, fences, walls, hedges, rock, shrubs, trees or other landscaping shall be permitted to obstruct such visibility.

(I) Permanent sight line easements shall be provided on all private property so as to maintain the sight line requirements established in this subsection. In addition, no objects of any kind, that are located on private property outside the limits of a permanent sight line easement, shall be permitted to extend or protrude within the plane of such easement. In the case of trees, all foliage shall be trimmed up to a minimum height of six feet as measured from the top of curb or edge of pavement adjacent to the nearest road.

70H - DEAD END ROADS

70H.1 General

All dead end roads (cul-de-sacs), permanent and temporary, shall be provided with a circular right-of-way at the terminating end. The required radii of the right-of-way and pavement shall be as follows:

Element	Radius, feet
Right-of-Way	60 feet
Outside Edge of Pavement	50 feet

70H.2 Layout

The layout of the turnaround shall be in accordance with the most current Standard Detail Drawings for either a circular or offset type turnaround.

70H.3 Snow Storage Reserve Area

Unless otherwise approved, an open unrestricted area shall be reserved at the end of all turnarounds for the storage of snow. Such area shall be located at the end of the turnaround between the curb and the right of way line for a distance of 25 feet on each side of the extended road center line. This area, which shall be delineated on the Record Subdivision Map, shall be free from all obstructions including, but not limited to, driveways, mailboxes, landscaping and fences.

70H.4 Length

The maximum length of a dead end road shall be as specified in the Portland Subdivision Regulations and shall be measured from the gutter line of the intersected road to the center of the turnaround.

70I - SHOULDERS AND SLOPES

70I.1 General

For all roads, a shoulder area 12 feet 3 inches in width in back of the curbing shall be excavated to a depth of at least 6 inches, and then backfilled and final graded with not less than 6 inches of topsoil, as hereinafter specified.

70I.2 Grading of Shoulder Areas

The shoulder areas shall be graded so as to slope toward the centerline of the road at a cross slope of 3/8 inch per foot unless otherwise approved by the Department of Public Works due to special conditions encountered during construction.

70I.3 Grading Beyond Shoulder Areas

Areas outside of the shoulders shall be graded up or down to existing grades, at a slope not to exceed two feet horizontal to one foot vertical. In rock cuts, slopes of one foot horizontal to not more than six feet vertical shall be allowed, but care shall be taken to insure that all exposed rock is stable and free from faults, cracks or other infirmities which might lead to collapse or flaking.

70I.4 Special Conditions

The Department of Public Works may require additional measures to be taken to maintain the stability of slopes, and to control groundwater seepage, under prevailing soil conditions encountered during construction. These measures may include, but not necessarily be limited to, a decrease in the amount of slope, stabilization blankets or grids, stone slope protection, plantings, wedge drains, underdrains, terracing, drainage swales or retaining structures. In cases where the exposed face of a cut slope consists of decomposed, flaking, highly fractured or unstable rock, slopes shall be flattened so as to protect public safety and minimize future maintenance.

70I.5 Limits

No cut or fill slopes shall extend beyond the limits of the right-of-way onto private property unless appropriate slope rights are acquired which provide a perpetual right, running with the land in favor of the owner of the road, to enter upon said private property for purposes of constructing, maintaining and repairing such slopes. In the absence of such slope rights, appropriate retaining structures shall be constructed to prevent encroachment on adjoining private property.

70I.6 Trees

If, in the opinion of the Commission, a slight modification of the shoulder or slope would result in the saving a valuable shade tree, the Commission may in its discretion allow such variation.

70J - CURBING

70J.1 General

Curbs shall be constructed along the edge of street pavement in accordance with the dimensions and details shown in the most current Standard Detail Drawings.

70K - UTILITIES

70K.1 General

For new road construction, all utilities within the right-of-way of a road shall be located underground and installed as shown in the most current Standard Detail Drawings for underground utility assignments. Individual services shall be extended to the right-of-way line prior to the placement of any pavement. Installation of utilities within existing road right-of-ways shall be as approved by the Director of Public Works. To the extent possible, separation distances shall be maximized from existing municipal utilities.

70L - PROTECTIVE BARRIERS

70L.1 Guide Rails

Guide rails shall be installed wherever necessary to minimize the risk of personal injury or property damage resulting from vehicle departure from the right-of way. In general, guide rails shall be installed at the following locations:

(A) Embankments - Such protective barriers shall be required on any roadway section constructed on an embankment which places the roadway surface five (5) feet or more above the existing ground surface at the toe of the embankment slope. This requirement may be waived by the Department of Public Works where the embankment slopes are not steeper than four (4) feet horizontal to one (1) foot vertical.

(B) Culvert Endwalls - Such protective barriers may be required at culvert endwalls, depending on the height of the endwall and its proximity to the edge of the road.

(C) Roadside Obstacles - Such protective barriers may be required to shield natural or man-made fixed object hazards including, but not limited to, trees, rock outcrops, ditches, retaining walls, bridge abutments and permanent bodies of water.

Where marginal situations occur with respect to the placement or omission of a guide rail, or where it is determined that a vehicle striking a guide rail could potentially be more severely damaged than an accident resulting from hitting an unshielded roadside obstacle, the Public Works Department may approve the use of an object marker in accordance with Section 70P.4.

70L.2 Fencing

A securely anchored PVC coated chain link fence four (4) feet in height, shall be installed wherever necessary to minimize the risk of personal injury.

In general, fencing shall be installed at the following locations:

(A) Rock Cuts - such protective barriers shall be required along the top of slope where a rock cut exceeds five (5) feet in height.

(B) Culvert Endwalls - Such protective barriers shall be required at the top of any endwall that exceeds five (5) feet in height.

70M - ROAD LIGHTING

70M.1 Places

Road lighting shall be provided if required by the Commission at any location where illumination in darkness is necessary to minimize the risk of accident involving vehicles or pedestrians or to assure safe and convenient vehicle and pedestrian passage. In general, the placement of lighting should be limited to intersections and when required at turnarounds.

70M.2 Nature

Lighting standards and luminaries shall conform to the most current utility company standards and shall be of a colonial type design with full cut-off luminaires and fiberglass poles, unless otherwise approved by the Commission. They shall be so located as to safeguard against discomfort glare and disability glare and avoid adverse effects from illumination upon the use, enjoyment and value of adjacent property.

70N - MONUMENTS

70N.1 General

All new roads shall be accurately monumented to allow the ready determination of points along all rights-of-way lines. Monuments shall be placed at all points of tangency and points of curvature and elsewhere as required to permit seeing from one monument on a line to another on the same line.

70O - ROAD NAMES AND SIGNS

70O.1 General

Road and other location names shall be approved by the Commission, and be so distinctive as to preclude possible confusion with other existing roads and locations within the Town. Road name signs shall be installed at all intersections. Such signs shall be erected in such places as to assure clear legibility by vehicle operators and shall conform to the dimensions and details shown on the Standard Detail Drawings.

70P - TRAFFIC CONTROL DEVICES

70P.1 General

Traffic control devices, including signs, pavement markings, object markers, and other regulatory devices, shall be provided in such places as may be necessary to minimize the risk of accident involving vehicles or pedestrians and to assure safe and convenient vehicle and pedestrian passage.

70P.2 Signs

The design and placement of regulatory, warning and guide signs (Stop, Speed Limit, No Outlet, etc.) shall conform to the most current edition of the Manual of Uniform Traffic Control Devices.

70P.3 Pavement Markings

The location, type, color, width and patterns of pavement markings and object markers, shall conform to the most current edition of the Manual of Uniform Traffic Control Devices. In general, pavement markings shall include stop lines and crosswalks. Longitudinal pavement markings (center lines), to delineate the separation of traffic flows in opposing directions, shall only be required on business/industrial roads or other roads as required by the Director of Public Works.

70P.4 Object Markers

The design and placement of Type 2 Object Markers shall conform to the most current edition of the Manual of Uniform Traffic Control Devices.

70Q - SIDEWALKS

70Q.1 General

The Commission may require the installation of sidewalks along roads and in pedestrian easements. In general, when required, the installation of sidewalks should be limited to projects located adjacent to arterial, collector, and subcollector streets; adjacent to local streets within 1.5 miles of a school, library or recreational facility; in the vicinity of public or quasi-public buildings, playgrounds, shopping areas, transit stops or high density residential areas; and, at other locations when deemed necessary by the Commission where the expected or probable volume of pedestrian traffic makes sidewalks necessary or appropriate in the interest of public safety and convenience.

70Q.2 Location and Dimensions

Sidewalks shall be a minimum of four feet in width and shall be located within the street right-of-way line, as shown on the Standard Detail Drawings.

70Q.3 Handicap Ramps

Curb cuts shall be provided at all pedestrian cross walks to provide access for the safe and convenient movement of physically handicapped persons. Such curb cuts shall conform to the most current State Statutes and the Americans with Disabilities Act Accessibility Guidelines.

REGULATIONS FOR PUBLIC IMPROVEMENTS

SECTION 80

ROAD CONSTRUCTION STANDARDS

80A - CONSTRUCTION SURVEY PROCEDURE

80A.1 General

The centerline of the traveled portion of the road shall be placed in the center of the right-of-way, and shall be located in the field by a State licensed land surveyor. Suitable construction ties shall be established at all control points, which shall be protected during construction so that the centerline may be re-established at any time.

80A.2 Stations

Stations shall be established every 50 feet and at all radius points (P.C. and P.T.'s). The beginning of this line shall be located in the gutterline of the intersected street and shall be designated as Station 10+0. A construction stake shall be placed at right angles to each station, clear of construction and grading. This stake will show the station on the side facing toward Station 10+0 the measured distance to centerline (offset) on the side facing away from Station 10+0 and on the face nearest to center line the cut or fill which will establish the center line grade. A grade list showing the Stations, stake elevations, offset from centerline grade, cuts and fills shall be provided to the Department of Public Works by the Applicant, or his designee who is to have charge of the construction layout, before construction begins.

80A.3 Bench Marks

A permanent Bench Mark shall be established at the beginning and end of each road and at intervals not exceeding 500 feet along the length of the road. These Bench Marks shall be referenced to the same datum shown and identified on the construction drawings for the road. Sketches showing at least three ties to each Bench Mark, the Bench Mark elevation and a description of each Bench Mark shall be provided to the Department of Public Works.

80A.4 Protection of Stakes and Bench Marks

Grade stakes and permanent Bench Marks shall be protected and preserved until the road construction has been approved by the Department of Public Works. If such stakes or Bench Marks are disturbed, they shall be replaced immediately.

80B - CLEARING AND GRUBBING

80B.1 Clearing

All trees, brush, boulders, structures, walls, fences, perishable matter and debris of whatever nature shall be cleared from the full width of the right-of-way, including areas necessary for cuts and fills, construction of storm drainage systems, and required sight lines, except that valuable shade trees may remain in shoulder areas as provided for in Section 80B.3.

80B.2 Grubbing

All roots and stumps within the clearing limits specified in Section 80B.1 above shall be grubbed and excavated. All stumps shall be chopped or disposed of off site in a lawful manner. No stumps shall be buried on site.

80B.3 Trees

Valuable shade trees may be permitted by the Commission to remain in shoulder areas as provided for in Section 70I.6, but not within three (3) feet of any curbline, if no substantial increase in the risk of injury or damage results by reason of its presence in the particular place where it stands, and a written opinion is provided from a qualified arborist stating that the long term health of the tree will not be adversely impacted by proposed construction or proximity to proposed road improvements. Any such tree shall be effectively protected and preserved so as to insure that it will suffer no damage during construction operations. All tree branches overhanging the roadway pavement or shoulder areas shall be trimmed by a qualified arborist to a clearance of sixteen feet above the finished grade of the road.

80B.4 Topsoil

Topsoil shall be stripped from all surfaces of the roadway section which will be disturbed by cut or fill operations. Topsoil so stripped shall be stockpiled on the site of the work and shall be reserved for roadway landscaping.

80C - ROADWAY EXCAVATION, FORMATION OF EMBANKMENT AND DISPOSAL OF SURPLUS MATERIAL

80C.1 General

The excavation, filling, compaction, and the disposal of all surplus or unsuitable materials required to construct the roadbed, subgrade, shoulders, slopes and other associated improvements shall be accomplished in accordance with all applicable requirements of the State Standard Specifications for "Roadway Excavation, Formation of Embankment and Disposal of Surplus Material" except as modified herein.

80C.2 Unsuitable Material

All unsuitable material, including material removed during clearing and grubbing and preparation of subgrade, shall be removed from within the limits of the right-of-way and disposed of in a lawful manner.

80C.3 Surplus Material

Surplus suitable material may be used to flatten fill slopes within the limits of the right-of-way and any slope easements if approved by the Department of Public Works. Surplus suitable materials that cannot be so utilized shall be disposed of in a lawful manner.

80C.4 Blasting

Blasting shall be performed only by licensed competent personnel and shall be done in accordance with all applicable State and Federal laws, local ordinances, rules and regulations pertaining thereto, and only after obtaining all necessary permits.

80D - PREPARATION OF SUBGRADE

80D.1 General

All topsoil, peat, other organic matter and all soft and yielding material shall be stripped and removed to their full depth, and boulders and ledge rock removed to a depth of at least twelve (12) inches below finished subgrade. The surface shall then be backfilled up to subgrade elevation with bank or crushed gravel conforming to the requirements of the State Standard Specification Sections M.02.1 and M.02.06 (Grading B). All construction methods shall conform to the requirements of the State Standard Specifications for "Subgrade".

80E - ROLLED GRANULAR BASE

80E.1 General

After the subgrade has been compacted, proof rolled and approved by the Department of Public Works, a rolled granular base shall be applied for the full required width of pavement plus one foot beyond each curb line. The rolled granular base shall not be less than eight (8) inches thick after compaction and shall have the cross-slope shown on the Standard Detail Drawings.

80E.2 Materials and Methods

Construction methods shall conform to the requirements of the State Standard Specifications for "Rolled Granular Base", and materials shall conform to the requirements of the State Standard Specification Sections M.02.03 and M.02.06 (Grading A).

80F - PROCESSED AGGREGATE BASE

80F.1 General

After the rolled granular base has been placed and compacted, processed aggregate base shall be applied for the full required width of pavement plus one foot beyond each curb line. The process aggregate base shall not be less than four (4) inches thick after compaction and shall have the cross slope shown on the Standard Detail Drawings.

80F.2 Materials and Methods

Construction methods shall conform to the requirements of the State Standard Specifications for "Processed Aggregate Base", and materials shall conform to the requirements of the State Standard Specification Section M.05.01.

80G - BITUMINOUS CONCRETE PAVEMENT

80G.1 General

After the processed aggregate base has been brought to the required grade and cross slope, rolled, and compacted, the roadway shall be surfaced with bituminous concrete Class I binder course for the full required width of pavement plus one foot beyond each curb line to a compacted depth of not less than 2 1/2 inches. After placement of bituminous concrete curbing on the binder course, a bituminous concrete Class II top or surface course not less than 1/1/2 inches thick after compaction shall be placed. The total compacted depth of Class I binder course and Class II top or surface course shall not be less than 4 inches. Prior to the pavement of the Class II surface course, the surface of the binder course shall be broomed clean and a tack coat applied. No paving shall be permitted between October 31 and April 1 unless the Public Works Department specifically permits an exception due to unusually mild weather conditions. No paving shall be permitted on any day where the base temperature is less than 35 degrees Fahrenheit or when weather conditions of fog or rain prevail or when the pavement surface shows any signs of moisture. Pavement shall be placed so that each course shall have the cross-slope shown on the Standard Detail Drawings.

80G.2 Materials and Methods

All materials and construction methods shall conform to the requirements of the State Standard Specifications for "Bituminous Concrete" except as modified herein. "Bituminous Concrete" shall conform to the requirements of the State Standard Specifications Sections M.04.01 and M.04.03 (Class I for the binder course and Class II for the top or surface course).

80G.3 Source

All bituminous concrete pavement material shall be obtained from a plant certified by the State Department of Transportation for provision of such materials for use in State highway

construction. Original signed copies of certification by the supplier that each load of bituminous concrete pavement materials incorporated in the work conforms to the requirements specified in Section 80.G.1 shall be submitted to the Public Works Department.

80.H - BITUMINOUS CONCRETE CURBING

80H.1 General

Machine laid "Cape Cod" style bituminous concrete curbing, as shown on the Standard Detail Drawings, shall be placed on both sides of the pavement along the entire length of new and improved roads at the offset from centerline of road shown on the Standard Detail Drawings. Bituminous concrete curbing shall not be required on existing Town roads where it is determined by the Director of Public Works that the installation of enclosed storm drainage systems is not warranted. Wavy or damaged curbing shall not be accepted, and the Public Works Department shall require that improperly placed curbing be removed and replaced.

80H.2 Materials and Methods

All materials and construction methods shall conform to the requirements of the State Standard Specifications for "Bituminous Concrete Lip Curbing". Curbing shall be placed on the road binder course at a height which will maintain a 6 inch curb reveal after placement of the road surface course. Prior to the placement of any curbing, the surface of the pavement shall be cleaned of all loose and foreign material. The surface of the pavement, which shall be dry at the time the curbing is placed, shall be coated with an approved tack coat. All curbing shall conform to the shape shown in the Standard Detail Drawings.

80I - GUIDE RAIL

80I.1 General

Guide railing shall be installed as shown in the Standard Detail Drawings. The type of guide rail to be utilized shall be as follows:

(A) Generally, 3 cable guide rail with steel posts shall be used on all new road ways provided that a minimum clear zone of eleven and one half (11.5) feet is maintained behind the guide rail so as to accommodate the maximum deflection distance. The use of alternate types of guide rail may be required by the Director of Public Works where insufficient clear zone or other conditions warrant.

(B) Steel backed timber guide rail may be required in areas of aesthetic or historical significance as determined by the Commission.

Under no circumstances shall ornamental wood rails be permitted within a Town road right-of-way.

80I.2 End Anchorage

Regardless of the type of guide rail to be used, all leading and trailing ends shall be secured with concrete end anchors. Blunt or flared ends shall not be permitted.

80I.3 Materials and Methods

For three cable guide rail and end anchorages, construction methods shall conform to the requirements of the State Standard Specifications for "Three Cable Guide Railing (I-Beam Posts) and Anchorages", and materials shall conform to the requirements of the State Standard Specification Sections M.10.08 for wire rope, steel posts and plate anchors, fittings and anchorages, and M.18.09 for reflective delineators.

80J - FENCING

80J.1 General

Fencing shall be a minimum of four (4) feet in height and shall be installed as shown in the Standard Detail Drawings.

80J.2 Materials and Methods

Steel fabric, posts, and all hardware shall be coated with a black colored polyvinyl chloride, with all materials conforming to the requirements of the State Standard Specifications Section M.10.05. All construction methods shall conform to the requirements of the State Standard Specifications for "Chain Link Fence" with the exception that top tension wires shall be provided in lieu of top rails.

80K - MONUMENTS

80K.1 General

Monuments shall be of reinforced concrete, not less than four (4) inches square at the top and not less than three (3) feet long, shall have a cross mark indented in the top to indicate the exact point of reference, and shall be set so as to project not more than two (2) inches above finished grade. Under no circumstances shall monuments be buried beneath the ground surface or covered with landscape or other materials such that they are not visible. Monuments shall conform with the dimensions and details shown in the most current Standard Detail Drawings.

80K.2 Exposed Ledge Areas

In exposed ledge areas, a brass plug 1/2 inch in diameter and three (3) inches long shall be installed in the ledge and cemented in place with Portland cement mortar.

80L - Traffic Control Devices

80L.1 General

Except for street signs, which shall conform to the Standard Detail Drawings, the design and placement of signs, pavement markings, and object markers shall conform to the most current edition of the Manual of Uniform Traffic Control Devices.

80L.2 Materials and Methods - Signs

Street signs shall be of reinforced concrete construction as shown on the Standard Detail Drawings. All other signs shall be sheet aluminum with materials conforming to the requirements of the State Standard Specification Sections M.18.09 and M.18.13. Construction methods shall conform to the requirements of the State Standard Specifications for "Sign-Face - Sheet Aluminum". Materials for metal sign posts and sign mounting bolts shall conform to the requirements of the State Standard Specification Sections M.18.14 and M.18.15 respectively. Posts shall be galvanized U-channel with a weight of two (2) pounds per foot.

80L.3 Materials and Methods - Pavement Markings

Construction methods shall conform to the requirements of the State Standard Specifications for "Painted Pavement Markings", and materials shall conform to the requirements of the State Standard Specification Section M.07.20 for 15-minute dry paint.

80L.4 Materials and Methods - Object Markers

Construction methods shall conform to the requirements of the State Standard Specifications for "Object Marker". Materials shall conform to the Requirements of the State Standard Specification Sections 18.13 for Sheet Aluminum, 18.09 for Reflective Sheeting, 18.14 for Metal Sign Posts, and 18.15 for Sign Mounting Bolts. Posts shall be galvanized U-Channel with a weight of two (2) pounds per foot.

80M - SIDEWALKS

80M.1 General

Sidewalks shall be located as shown on the Standard Detail Drawings, and shall be constructed of 3000 PSI Portland Cement Concrete, with an air entraining admixture. Sidewalks shall be a minimum of four (4) feet in width and five (5) inches thick, and shall

be constructed on a granular fill base having a minimum compacted thickness of eight (8) inches. At all driveway crossings, the concrete thickness shall be increased to eight (8) inches, and a welded wire fabric reinforcement provided.

80M.2 Materials and Methods

All materials and construction methods shall conform to the requirements of the State Standard Specifications for "Concrete Sidewalks", except that a one-quarter inch premolded bituminous joint, set one-quarter inch below the finished surface of the walk and extending the full width and depth of the walk, shall be provided at sixteen (16) foot intervals, and dummy joints placed at four (4) foot intervals. "Granular Fill" shall conform to the requirements of the State Standard Specifications Sections M.02.01 and M.02.06 (Grading A). Portland Cement Concrete shall conform to the requirements of the State Standard Specifications Section M.03.01 (Class C). Welded wire fabric reinforcement shall be WWF 6x6 - W2.9xW2.9.

80M.3 Handicap Ramps - General

Handicap ramps shall be constructed to the dimensions shown on the Standard Detail Drawings; shall be located as shown on the Approved Design Drawings; and shall be constructed of 3000 PSI Portland Cement Concrete, with an air entraining admixture. Handicap Ramps shall be five (5) inches thick, and shall be constructed on a granular fill base having a minimum compacted thickness of eight (8) inches.

80M.4 Handicap Ramps - Materials and Methods

All materials and construction methods shall conform to the requirements of the State Standard Specifications for "Concrete Ramps". "Granular Fill" shall conform to the requirements of the State Standard Specifications Sections M.02.01 and M.02.06 (Grading A). Portland Cement Concrete shall conform to the requirements of the State Standard Specifications Section M.03.01 (Class A). Welded wire fabric reinforcement shall be WWF 6x6 - W2.9xW2.9.

REGULATIONS FOR PUBLIC IMPROVEMENTS

SECTION 90

DRAINAGE DESIGN CRITERIA

90A - DESIGN CRITERIA

90A.1 General

Proposed drainage facilities shall be designed to accommodate surface runoff from proposed land development as well as the entire upstream drainage area and to protect wetlands, watercourses and water bodies from the adverse impacts of post construction stormwater runoff.

90A.2 Analysis

Computations, conforming to the requirements outlined in this section, shall be submitted for sizing all proposed storm drainage facilities as well as the analysis of any existing off-site facilities required by the Commission. In addition, computations shall be submitted for both pre-development and post-development conditions for the 2, 10, 25, 50 and 100-year frequency 24-hour duration Type III storm events at each location from which storm water discharges will exit the property under development.

90A.3 Potential Overload

Where the proposed land development, including roadway and drainage facility construction, is likely to cause an increase in the rate of stormwater runoff such as to hydraulically overload or cause damage to existing downstream drainage structures, facilities, or watercourses, and/or cause flooding which would likely result in physical damage of land and improvements adjacent thereto, adequate stormwater runoff control measures shall be designed and constructed to prevent or alleviate such harmful effects.

90A.4 Stormwater Runoff Control

Where stormwater runoff control measures are required by the Commission, they may include, but not be necessarily limited to, retention and/or detention with controlled release of increased flows, increasing the hydraulic capacity of downstream drainage facilities, erosion protection measures, stormwater treatment or any combination of the above.

90A.5 Stormwater Quality

Best Management Practices shall be used to enhance the removal of both particulate and soluble pollutants during storm events so as to improve the quality of stormwater runoff discharged to receiving waters. In this regard, the applicant shall contact the Portland

Planning Department/Public Works Department for specific guidance on which Best Management Practices are to be required.

90A.6 Stormwater Detention

When stormwater detention facilities are required, they shall be sized such that the peak discharge after development shall not exceed the peak discharge prior to development for each of the storm frequencies identified in Section 90A.2. Design and construction of surface stormwater detention facilities shall conform to the requirements for "Detention Basin" as outlined in the "Connecticut Guidelines for Soil Erosion and Sediment Control", with the exception that basin side slopes shall not exceed 4H:1V, and the maximum basin depth (as measured from the bottom of basin to the top of berm) shall not exceed six feet. In addition, detention basins shall be located no closer than one hundred fifty feet from an existing or proposed residential dwelling, or active recreation area. To the maximum extent possible, detention basins shall be designed as extended detention ponds or wet ponds, or used in conjunction with other stormwater treatment practices to provide water quality benefits; shall be irregular in shape and landscaped so as to enhance the appearance of the surrounding environment; shall be screened; and, shall be designed to minimize future maintenance. All detention basins shall be readily accessible for maintenance purposes via an improved access drive. In addition, unless specifically waived by the Commission, fencing (refer to Section 80J) shall be required around the perimeter of all detention basins. In granting any requests for a waiver of this requirement, the Commission shall consider the proximity of the basin to adjacent residential dwellings; future population density in the general vicinity; and, the size and depth of the proposed basin.

Detention basins shall be located on land to be conveyed to a Homeowners' Association, which shall be established by the applicant and whose members shall be jointly and severally liable for costs associated with the maintenance of such detention basins(s) and the appurtenant system. When applicable, a permanent right to drain surface or subsurface drainage systems from any existing or future town lands or roadways shall be granted to the Town of Portland. However, it shall be the Homeowners' Association's sole responsibility to maintain and repair the detention basin and appurtenant structures. Such obligation shall be established within a Declaration of Covenants and Restrictions which shall be submitted for review by the Town, and when approved, filed on the Portland Land Records. Such document shall provide the right, but shall not in any way obligate, the Town of Portland to enter upon the property to make inspections and to make emergency repairs, should the Homeowners' Association, after proper notice from the Town, fail to execute their responsibilities. This document must also include all of the Town's other "Standard Provisions and Requirements for Maintenance and Repair of Detention Basins".

90A.7 Discharge

Unless otherwise approved by the Commission, the discharge of all stormwater shall be into established watercourses, wetlands, or Town/State Highway drains having adequate capacity to accommodate such discharges.

90A.8 Drainage Easements and Rights to Discharge

Where the discharge of stormwater shall be onto or through private property, perpetual drainage easements and discharge rights, in favor of the owner of the road, shall be secured by the applicant. Where drainage easements are required, they shall have a minimum width of thirty (30) feet. For open channels, flared end sections/headwalls, and other outlet protection measures, they shall extend a minimum of fifteen (15) feet beyond the outside edge of such measures.

90A.9 Diversion

The diversion of stormwater runoff from one watershed or watercourse to another shall normally be avoided. Where it is necessary to create such a diversion, special provisions shall be made to minimize the potential damages which may occur as a result of such diversion.

90A.10 Existing Watercourses

All activities that are regulated by the Wetlands Commission shall be accomplished in such a way as to minimize the effects which would be adverse to the regimen of such watercourse. Adequate provision shall be made to prevent or minimize scour or erosion in the adjacent upstream and downstream reaches of the watercourse.

90A.11 Capacity Within Roadway

Storm drainage systems within the roadway, exclusive of culverts and bridges carrying flows under the road, shall be designed to safely accommodate flows resulting from storms of the maximum intensity which can be expected to occur on an average of once in ten (10) years (10-year storm) without being surcharged.

90A.12 Capacity Under Roadways

Culverts crossing under roadways shall be designed to accommodate the following flows:

(A) Minor Structures

These shall include pipe, box culverts or bridges providing for the drainage of adjacent lands less than one square mile in area in which there is no established watercourse. These structures shall be designed to pass a 25-year frequency discharge without flooding or damaging the highway or adjacent property.

(B) Small Structures

These shall include pipe, box culverts or bridges providing for the drainage of adjacent lands less than one square mile in area in which there is an established watercourse. These structures shall be designed to pass a 50-year frequency discharge with one foot of freeboard, and without flooding or damaging adjacent property. The

effects of a discharge equal to the 100-year frequency storm shall be checked. Where such effects are likely to cause damage to persons or property, structures shall be designed to alleviate these problems.

(C) Large Structures

These shall include pipe, box culverts or bridges for the drainage of adjacent lands one square mile or larger in area. These structures shall be designed to pass a 100-year frequency discharge with a minimum one foot under clearance, relative to the low chord of the upstream face of the structure, and shall not create a backwater which will flood or endanger property or roads upstream.

90A.13 Capacity Within Open Drainage Channels

New open channels and existing open channels into which a new or expanded storm drainage system is proposed to discharge shall be designed to accommodate flows resulting from storms of the maximum intensity which can be expected to occur on an average of once in twenty five years with a minimum freeboard of six inches. When conditions are such that lining of the open channel with rip rap is necessary to prevent erosion, the size of the rip rap shall be no less than "intermediate", and the thickness shall be no less than eighteen inches.

90A.14 Municipal Improvements

The requirements specified in Section 90 are not intended in any way to preclude the Portland Public Works Department from making storm drainage improvements on existing public roadways. Such improvements, including, but not limited to the conversion of road side ditches to piped drainage systems, the extension, repair, or replacement of existing storm drainage systems, and the installation of new storm drainage systems, shall be permitted provided that a determination is made by the Director of Public Works that such improvements will not result in significant adverse impacts.

90B - COMPUTATION OF STORMWATER FLOWS

90B.1 General

Stormwater flows may be computed by use of the Rational Method or by use of the methods described in the most current edition of the U.S. Soil Conservation Service Technical Release No. 20, or Technical Release No. 55. In general, the use of the Rational Method is discouraged for use in computing flows from drainage areas in excess of 200 acres, or for computing flows from 100-year frequency storms.

Regardless of the method that is utilized, all computations shall include a Drainage Analysis Map which clearly delineates the drainage area and flow path used for determining the time of concentration to each proposed drainage facility and each existing downstream drainage structure that may become hydraulically overloaded or damaged. The drainage analysis map

shall show existing topography of the drainage areas (based on the best available existing mapping), existing and proposed roads watercourses, wetlands, flood hazard zones, existing and proposed vegetation (woods, fields, lawns, etc), existing and proposed drainage facilities and structures, and the proposed area of development. When U.S. Soil Conservation Service methods are used, the drainage analysis map should also show soil types as shown on the most currently available soils maps as prepared by the U.S. Soil Conservation Service.

90B.2 Rational Method Computations

Where the Rational Method formula is used, computations shall conform with the following guidelines:

(A) Runoff Coefficients

Where the Rational Method formula is used, the following runoff coefficients ("C" values) shall be the minimum values utilized for each type of surface, and a composite "C" value computed for each tributary drainage area. In any case, a composite "C" value of less than 0.30 shall not be used for single family residential developments.

Type of Surface	Runoff Coefficient "C" (1) (10-year Storm)
Pavement, roofs and impervious surfaces	0.90
Embankment Slopes (cuts and fills)	0.40
Lawns:	
Flat Slope (2% or less)	0.17
Average Slope (2% to 7%)	0.22
Steep Slope (7% or greater)	0.35
Cultivated Fields	0.45
Pasture	0.30
Meadows (moist, level grassland)	0.10
Forested Areas	0.20

For 25-year storm increase runoff coefficients by 20%, for 50-year storm increase by 35%, and for 100-year storm increase by 55% (except for pavement, roofs and impervious surfaces).

(B) Time of Concentration

Time of concentration (t) shall be determined by the Technical Release No. 55 Method.

(C) Rainfall Intensities

Rainfall intensities (i) shall be determined using the frequency/intensity/duration curves for Hartford, Connecticut. The minimum allowable time of concentration shall be five minutes.

90C - MINIMUM PIPE SIZES

90C.1 Surface Drainage

All pipe carrying surface drainage or a combination of surface drainage and subsurface drainage (groundwater) shall have a minimum internal diameter of fifteen (15) inches.

90C.2 Subsurface Drainage

All subsurface drainage pipe used exclusively for intercepting groundwater shall have a minimum internal diameter of six (6) inches.

90D - CATCH BASINS

90D.1 General

Catch basins shall be provided in order that surface water will not travel along the roadway curbline without interception for more than 350 feet on roads with grades up to and including 5% and not more than 250 feet on roads with grades up to and including 10%. Catch basins shall also be installed at all low points, roadway intersections and at the lower end of all cul-de-sacs. Catch basins located within the paved roadway shall have Type "C" heads and provided with two foot deep sumps.

90D.2 Off Road Locations

Where it is necessary to provide catch basins in off-road locations outside of the limits of pavement, they shall have Type "C-G" heads and provided with two foot deep sumps.

90D.3 Inlet Capacity

Where additional inlet capacity is necessary, the installation of double Type II catch basins, or more closely spaced catch basins shall be required.

90E - MANHOLES

90E.1 General

In general, a manhole is less preferable to a catch basin and should only be provided where the use of a catch basin is not feasible.

90E.2 Places

Manholes shall be provided at each change of drainage pipe slope or horizontal alignment, at all pipe junctions and otherwise at intervals of approximately 350 feet on long lengths of pipe where catch basins are not used.

90F - FLARED END SECTIONS/HEADWALLS

90F.1 General

The inlets and outlets of all exposed drainage conduits shall be protected with flared end sections except where hydraulic, or other considerations necessitate the use of a headwall. When headwalls are provided, they shall be of reinforced concrete construction. Wingwalls shall be provided when required to contain and protect the adjacent earthen slopes and/or direct the flow of water entering or leaving the conduit. Outlet protection shall be provided in accordance with the standards outlined in the "Connecticut Guidelines for Soil Erosion and Sediment Control".

90G - OPEN CHANNELS

90G.1 General

In general, open channels shall be avoided, except as may be required at storm drainage system outlets to convey storm water discharges to an acceptable outlet. Where open channel flow is required, the channel shall be properly designed to safely carry the design flow. Open channels shall be in the form of a trapezoid having a bottom width of at least two feet and side slopes of not less than two feet horizontal to one foot vertical. The channel shall be seeded and protected with erosion control blankets, sodded, riprapped or otherwise stabilized as the flow quantities and velocities require.

90G.2 Stabilization of Open Channels

Special attention shall be given to the stabilization of open channels in the immediate vicinity of pipe inlets and outlets, bridges, at bends and curves and at other critical locations as required to prevent scouring, erosion and/or siltation of watercourses and culverts, and undermining of drainage structures.

90G.3 Criteria

Hydraulic design of open channels and design of bed and bank stabilization shall be done in accordance with the applicable criteria of the most current edition of the Federal Highway Administration publication entitled "Design of Roadside Drainage Channels".

90H - UNDERDRAINS

90H.1 General

The installation of subsurface drainage systems or underdrains will be required beneath the edge of pavement of a proposed street wherever the ground water is known to be less than three (3) feet below the proposed finished grade of the street. Underdrains shall also be installed where localized seeps or springs are observed within the proposed street lines during construction, or where otherwise required by the Director of Public Works.

90I - CONNECTION OF PRIVATE DRAINS

90I.1 General

Unless otherwise approved by the Director of Public Works, private storm drains, footing drains, curtain drains, underdrains, basement drains, yard drains or area drains of any kind shall not be permitted to discharge upgradient of or into a town road or road proposed to be dedicated to the Town at a future date. Any such private drains shall be connected to storm drainage structures. When such a connection is not possible or practical, they may be connected directly to an existing or proposed storm drain if approved by the Director of Public Works. Where direct connections are made, they shall utilize appropriate fittings, and be preceded by an access extended to grade. Such access shall be located within a town road right-of-way or easement, and shall have a minimum diameter of twelve inches, or as otherwise deemed necessary to provide direct observation and to facilitate sampling. All access structures shall be provided with a secure top to preclude accidental entry. The following notation shall be placed on all design drawings where the connection of private drains are proposed; "Private drains are the sole responsibility of the owner and the Town of Portland shall assume no responsibility for any maintenance, replacement and/or repair. The owner of the drain shall hold the Town of Portland harmless for any damage or injuries resulting from such connection".

REGULATIONS FOR PUBLIC IMPROVEMENTS

SECTION 100

DRAINAGE CONSTRUCTION STANDARDS

100A - PIPE

100A.1 General

All pipe used for storm drainage shall be either Class IV Reinforced Concrete Pipe (RCP) or High Density Corrugated Polyethylene Smooth Interior Pipe (CPEP).

100A.2 Minimum Cover

The minimum cover over all storm drainage located within the right-of-way shall be two (2) feet. Where conflicts with other subsurface facilities occur, and with approval of the Director of Public Works, pipe may have as little as 18 inches of cover, but in such cases extra strength Class V RCP shall be used with a crushed stone bedding extending to a minimum depth of four (4) feet below finished grade.

100A.3 Slotted or Perforated Storm Drains

Where water is encountered in the pipe trenches, or where underdrains are required under Section 90H, storm drains shall either be slotted RCP or Perforated High Density Corrugated Polyethylene Smooth Interior Pipe.

100A.4 Additional Underdrains

Where additional underdrains are deemed necessary in locations not requiring other storm drainage, Perforated High Density Corrugated Polyethylene Smooth Interior Pipe with a minimum internal diameter of six (6) inches shall be used.

100A.5 Materials and Methods

Except as noted herein, construction methods shall conform to the State Standard Specifications for "Culverts" and "Underdrain and Outlets". Where High Density Corrugated Polyethylene Smooth Interior Pipe is used for storm drains, it shall be installed in a Type II installation, regardless of the internal pipe diameter, with backfill material conforming to the State Standard Specifications for No. 8 crushed stone (3/8") under Section M.01.01, with geotextile fabric conforming to the State Standard Specification Section M.08.01-26 placed over top of the crushed stone. Backfill conforming to the Connecticut Department of Transportation Materials Testing Lab Reference File 163-I for medium processed aggregate (3/4" minus) will also be permitted. Use of this material will not require placement of a geotextile fabric. Where reinforced concrete pipe is used for storm drains, it shall be installed in a Type II installation with backfill material conforming

to the State Standard Specifications Section M.02.06 - Grading C. For underdrains, pipe shall be installed with holes in a downward position. Aggregate used for backfilling around underdrains and slotted or perforated pipe shall conform to the State Standard Specifications Section M.08.03 - 1 (No. 8 Crushed Stone). Sand shall not be permitted as backfill around underdrains. Geotextile fabric, conforming to the State Standard Specification Section M.08.01 - 26, shall be wrapped around the aggregate as shown in the Standard Detail Drawings.

Reinforced concrete pipe shall conform to the State Standard Specifications Section M.08.01 - 6, or Section M.08.0 - 10 for Slotted Reinforced Concrete Pipe. Material used for sealing joints in concrete pipe shall conform to the State Standard Specifications for Cold-Applied Bituminous Sealer (Section M.08.01-18), or Pre-formed Plastic Gaskets (Section M.08.09.19). High Density Corrugated Polyethylene Smooth Interior Pipe shall conform to the AASHTO Standard Specifications M 294 Type S, or M 294 Type SP/M 252 Type SP for Perforated High Density Corrugated Polyethylene Smooth Interior Pipe.

100B - CATCH BASINS AND MANHOLES

100B.1 General

Catch basins and manholes shall be precast reinforced concrete constructed in accordance with the Connecticut Department of Transportation Standard Sheets.

100B.2 Materials and Methods

Except as noted herein, all materials and construction methods shall conform to the requirements of the State Standard Specifications for "Catch Basins, Manholes and Drop Inlets". All catch basin and manhole structures shall be of precast reinforced concrete construction. Use of brick, concrete building brick or masonry concrete units shall not be permitted unless otherwise approved by the Director of Public Works. However, a course of brick or concrete building brick shall be provided to allow for adjustment of catch basin tops and manhole frames. All pipe penetrations shall be bricked and mortared inside and outside of all catch basin and manhole structures. All catch basin frames and grates shall be 507K - Type A, constructed of galvanized steel. Manhole frames and covers shall be heavy traffic duty, constructed of cast iron. Frames shall have a twenty-four (24) inch internal opening. Covers shall be marked "STORM". Where required by the Director of Public Works, covers shall be bolted.

100C - FLARED END SECTIONS/HEADWALLS

100C.1 General

Flared end sections and headwalls shall be constructed in accordance with the Connecticut Department of Transportation Standard Sheets.

100C.2 Materials and Methods

All materials and construction methods shall conform to the State Standard Specifications for "Culvert Ends" and "Retaining Walls, Endwalls and Steps". When high density corrugated polyethylene smooth interior pipe is used, and culvert ends are specified, they shall be metal culvert ends. High density polyethylene culvert ends shall not be permitted.

100D - RIPRAP

100D.1 General

Stone for this work shall be of the size, and placed to the limits and depth, specified on the Drawings.

100D.2 Materials and Methods

Construction methods shall conform to the requirements of the State Standard Specifications for "Riprap" and materials shall conform to the requirements of the State Standard Specification Section M.12.02. Where geotextile fabric is specified underneath riprap, it shall conform to the requirements of the State Standard Specification Section M.08.01 - 26.

100E - STABILIZATION OF OPEN CHANNELS

100E.1 General

Open channels shall be stabilized with riprap, sod, or seed protected with erosion control/turf reinforcement mattings. The method of stabilization shall be as specified on the Drawings.

100E.2 Materials and Methods

For stabilization with rip rap, all work shall conform to the requirements specified in Section 100D above. For stabilization with sod or seed protected with erosion control/turf reinforcement mattings, all materials and methods shall conform to the State Standard Specifications for "Sodding" and "Turf Establishment" respectively.

100F - SPECIAL STRUCTURES

100F.1 General

Special structures, including but not limited to bridges, box culverts, retaining walls and stormwater treatment units shall be designed and constructed in accordance with the most current applicable standards of the Connecticut Department of Transportation, or as otherwise directed by the Director of Public Works. Plans and specifications prepared and

sealed by a licensed professional engineer registered in the State of Connecticut who is competent in the field of structural engineering shall be submitted for all special structures. In the case of bridges, such plans and specifications shall be accompanied by a written statement from the design engineer certifying that the bridge has been designed to withstand AASHTO HS20 Live Loads, and that any waterway opening conforms to the Standards established in Section 90A.11 of these Regulations. Upon completion of construction of any special structure, the licensed professional engineer shall be required to provide a written statement to the Director of Public Works that the special structure was constructed in substantial conformance with the approved design drawings and specifications.

100F.2 Private Drain Access Structure

Where private drain access structures are required prior to a direct connection to a storm drain, they shall be fabricated from high density corrugated polyethylene pipe and fittings conforming to AASHTO Standard Specification Sections M 294 Type S and M 252 Type S. The fabrication of the access structures shall conform to the Standard Detail Drawings, and shall include as a minimum a standard 12"x12"x12" tee with reducers and couplings as required at each end of the horizontal run, and a 12-inch inside diameter vertical riser pipe extending to grade. A snap on end cap shall be securely fastened at the end of the vertical riser pipe, and shall be set flush with the proposed finish grade elevation.

REGULATIONS FOR PUBLIC IMPROVEMENTS

SECTION 110

SOIL EROSION AND SEDIMENT CONTROL CRITERIA

110A - SOIL EROSION AND SEDIMENT CONTROL PLANS & PERMITS

110A.1 General

No construction shall be undertaken unless an erosion and sediment control plan, which explains and illustrates the measures, which will be taken to control erosion and sediment problems, is submitted to and approved by the Town of Portland. Plans shall be prepared in accordance with the requirements and standards outlined in the most current edition of the "Connecticut Guidelines for Soil Erosion and Sediment Control".

110A.2 Stormwater General Permits

When a project requires a Connecticut Department of Environmental Protection Agency "General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities", copies of the registration form and Stormwater Pollution Control Plan submitted to the State shall also be submitted to the Town of Portland prior to the start of any activity.

110B - CONSTRUCTION & MAINTENANCE PROCEDURES

110B.1 General

The practices and measures included in the approved erosion and sediment control plan shall be implemented during the entire construction period and maintained until adequate permanent vegetation is established. Erosion control measures shall be supplemented as field conditions require, or as directed by the Town of Portland.

110B.2 Contact Person

Prior to the start of any roadway construction, the name, address and day/night telephone numbers of the person designated by the owner to be responsible for the implementation of erosion and sediment control practices and measures shall be provided to the Director of Public Works.

110B.3 Final Site Clean-up

Following the permanent stabilization of all disturbed areas, all remaining temporary erosion control measures that are not bio-degradable, as well as all accumulated sediments, shall be removed from the site and disposed of in a lawful manner. In addition all

accumulated sediments remaining in permanent facilities such as plunge pools, drainage channels, detention areas and catch basins, shall be removed and disposed of in a lawful manner. The removal of temporary erosion control measures and accumulated sediments shall be conducted in a manner so as not to disturb existing permanent vegetation. All exposed areas remaining after the removal of erosion control measures shall be immediately seeded and mulched.

REGULATIONS FOR PUBLIC IMPROVEMENTS

SECTION 120

FINAL GRADING, STABILIZATION AND LANDSCAPING CRITERIA

120A - FINAL GRADING AND STABILIZATION

120A.1 General

Except as otherwise specified herein, all areas disturbed by the construction of roads, drainage facilities and associated improvements that are not paved or occupied by structures shall be properly graded to smooth uniform slopes that maintain the general shape of existing landforms, covered with topsoil to a minimum depth after settlement of six (6) inches, and limed, fertilized, seeded and mulched.

120A.2 Materials and Methods

Construction methods shall conform to the requirements of the State Standard Specifications for "Topsoil", "Turf Establishment", and "Liming". Materials shall conform to the State Standard Specification Sections M.13.01-1 for Topsoil, M.13.03 for Fertilizer, M.13.04 for Seed, M.13.05-2 for Mulch, and M.13.02 for Lime.

120B - LANDSCAPING

120B.1 General

All plantings shall be such as to eliminate any requirement for mowing, weeding, or other forms of maintenance by the Town of Portland.

120B.2 Street Tree Locations

Street trees, when required by the Commission, shall be planted on private property five feet outside of the limits of the road right-of-way, sight line easements, storm drainage easements or other easements. They shall be planted on both sides of the street at approximate intervals of fifty feet, subject to minor adjustments based on locations of driveways and underground utilities. Specific criteria regarding the proximity of street trees to overhead and underground utility lines shall be as follows:

(A) Tall trees, including all species that may reach heights of 50 feet or more at maturity shall be located a minimum horizontal distance of 50 feet from any overhead utility line.

(B) Medium trees, including all species that may reach heights ranging from 30 to 50 feet at maturity shall be located a minimum horizontal distance of 30 feet from any overhead utility line.

(C) Small trees, including all species that reach maximum heights of 30 feet or less at maturity, may be located under or near overhead utility lines.

(D) No street tree shall be located closer than 20 feet from any underground utility line.

(E) The Connecticut Guidelines for Erosion and Sediment Control should be consulted to determine if a specific site will support the growth of the proposed mixture of street trees.

(F) A ten foot wide temporary easement in favor of both the applicant and the Town of Portland shall be provided parallel with and directly adjacent to the outside of the road right-of-way line for the planting of street trees. This temporary easement shall automatically expire on the date when the Town of Portland releases the maintenance bond for public improvements.

120B.3 Street Tree Species

When selecting street trees, a mixture of predominately native species shall be provided so as to protect the community forest from disease, insect and environmental blight. In this regard, the goal of the Town of Portland is to have a mixture of street trees such that at least 80% of the total number of trees includes native species, which are designated by an asterix (*) in the list below. Furthermore, no one species should comprise more than ten (10) percent of the total. In general, projects requiring plantings of fifty (50) or more street trees shall have a variety of species such that no one species comprises more than ten (10) percent of the total project plantings. For projects requiring less than fifty (50) street trees, no one species shall comprise more than twenty (20) percent of the total project plantings. No tree, or its cultivars, cited in the list entitled "The Non-native Invasive & Potentially Invasive Vascular Plants in Connecticut" as amended, shall be selected for planting. Unless otherwise approved by the Commission, street trees shall have a minimum caliper of 1-1/2" to 2" and shall be one of the following species:

(A) Tall Trees

*Paper Birch (Betula papyrifera)

White Fir (Abies concolor)

*Pin Oak (Quercus palustris)

Japanese Zelkova (Zelkova serrata)

*Red Maple (Acer rubrum)

*Red Oak (Querus rubra borealis)

*White Oak (Querus alba)

*Black Gum or Tupelo (Nyssa sylvatica)

*American Sweetgum (Liquidambar styraciflua)

*Green Ash (Fraxinus pensylvanica)

(B) Medium Trees

European Hornbeam (Carpinus betulus)

Katsura Tree (Cercidiphyllum japonicum)

*American Holly (Ilex opaca)

(C) Small Trees

Indian Magic Crabapple (Malus 'Indian Magic')

Japanese Crabapple (Malus floribunda)

*Flowering Dogwood (Cornus florida)

Kousa Dogwood (Cornus kousa)

Fringe Trees (Chlonanthus virginicus)

*Crimson Cloud Hawthorn (Crataegus laevigata 'Crimson Cloud')

*Winterking Hawthorn (Crataegus viridis 'Winterking')

*American Hornbeam (Carpinus caroliniana)

Saucer Magnolia (Magnolia X soulangiana)

Japanese Maple (Acer palmatum)

*Eastern Redbud (Cercis canadensis)

*Serviceberry (Amelanchier X grandiflora)

Sourwood (Oxydendrum arboreum)

*Nannyberry (Vibarnum lentago)

Prior to planting street trees, the proposed location of trees to be planted shall be approved by the Director of Public Works. Construction methods shall conform to the requirements of the State Standard Specifications for "Furnishing, Planting, and Mulching Trees, Shrubs, Vines and Ground Cover Plants". Materials shall conform to the State Standard Specification Section M.13.07 for Plant Materials. Where existing healthy native trees meeting the requirements set forth herein can be protected and saved, they may be used in lieu of new plantings provided that they are approved by the Director of Public Works, and are properly pruned by a qualified arborist to remove all branches which are dead or which would obstruct required sight lines.

120B.4 Ornamental Landscape Features

Ornamental landscape features including, but not limited to boulders, grouping of rocks, statues, signs, exterior lighting (except required street lights), walls, basketball hoops and other obstructions, shall be prohibited within the road right-of-way, medians, sight line easements, storm drainage easements or other easements.

120B.5 Medians

Medians, when permitted by the Commission, shall be planted with low-growing plants and shrubs that will not exceed a fully mature height in excess of two and one half feet as measured from the adjacent roadway gutterline. Surface areas that remain unplanted shall be covered with wood or stone chips underlayed by a landscape fabric barrier designed to retard the growth of weeds, so as to effectively eliminate any requirements for mowing, weeding, or other forms of maintenance. Construction methods for new plantings shall conform to the requirements of the State Standard Specifications for "Furnishing, Planting and Mulching Trees, Shrubs, Vines and Ground Cover Plants". Materials shall conform to the State Standard Specification Section M.13.07 for Plant Materials. The Town of Portland shall neither accept any responsibility, nor costs, associated with the maintenance of median areas. Where medians are proposed, and approved by the Commission, a legal mechanism shall be established for perpetual maintenance. Such mechanism shall require the approval of the Commission, the Director of Public Works, and the Town Attorney.

120C - MAINTENANCE OF STABILIZED AND LANDSCAPED AREAS

120C.1 General

All areas stabilized by vegetation, and all landscaped areas, shall be properly maintained by the person or firm constructing the road, drainage facilities and associated improvements until permanent growth of such plantings has been firmly and effectively established for a period of one year after planting. Maintenance shall include watering, mowing, pruning, fertilizing, cultivating and all else required to maintain the planted areas in a vigorous and healthy condition. All grassed areas showing root growth failure, deterioration, bare or thin spots and eroded areas shall be replanted and all dead, dying or diseased shrubs, plants and trees shall be replaced so as to meet the requirements specified herein.

Appendix A

Standard Detail Drawings

STANDARD DETAIL DRAWING

TYPICAL ROAD SECTION
LOCAL ROAD

SCALE: NONE

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

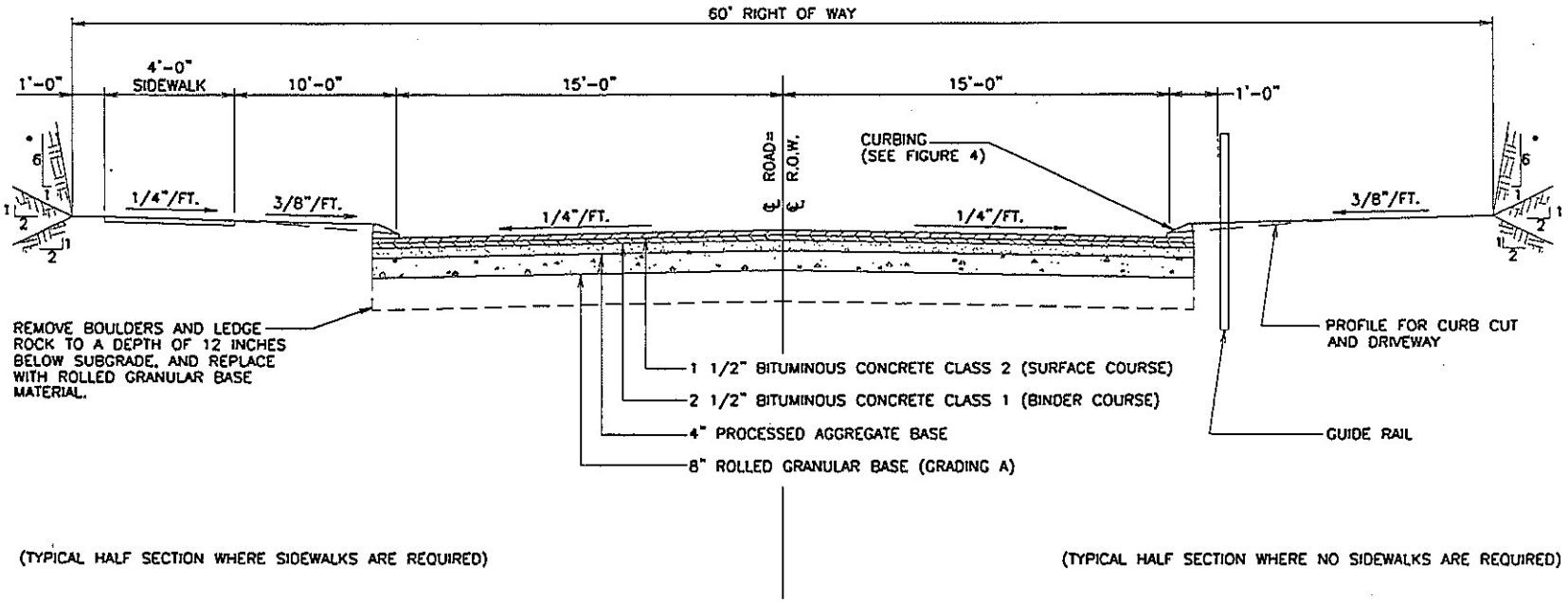
FIGURE 1

REVISIONS:

STANDARD DETAIL DRAWING

TYPICAL ROAD SECTION
BUSINESS/INDUSTRIAL ROAD

SCALE: NONE



(TYPICAL HALF SECTION WHERE SIDEWALKS ARE REQUIRED)

(TYPICAL HALF SECTION WHERE NO SIDEWALKS ARE REQUIRED)

* MAXIMUM SLOPE PERMITTED IN ROCK CUTS ONLY.

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 2

NOTE:
UNDERGROUND POWER, TELEPHONE, CABLE T.V., AND ELECTRICAL TRANSFORMERS SHALL BE LOCATED OUTSIDE OF THE ROAD RIGHT-OF-WAY WITHIN A UTILITY COMPANY EASEMENT.

STANDARD DETAIL DRAWING

UNDERGROUND UTILITY ASSIGNMENTS

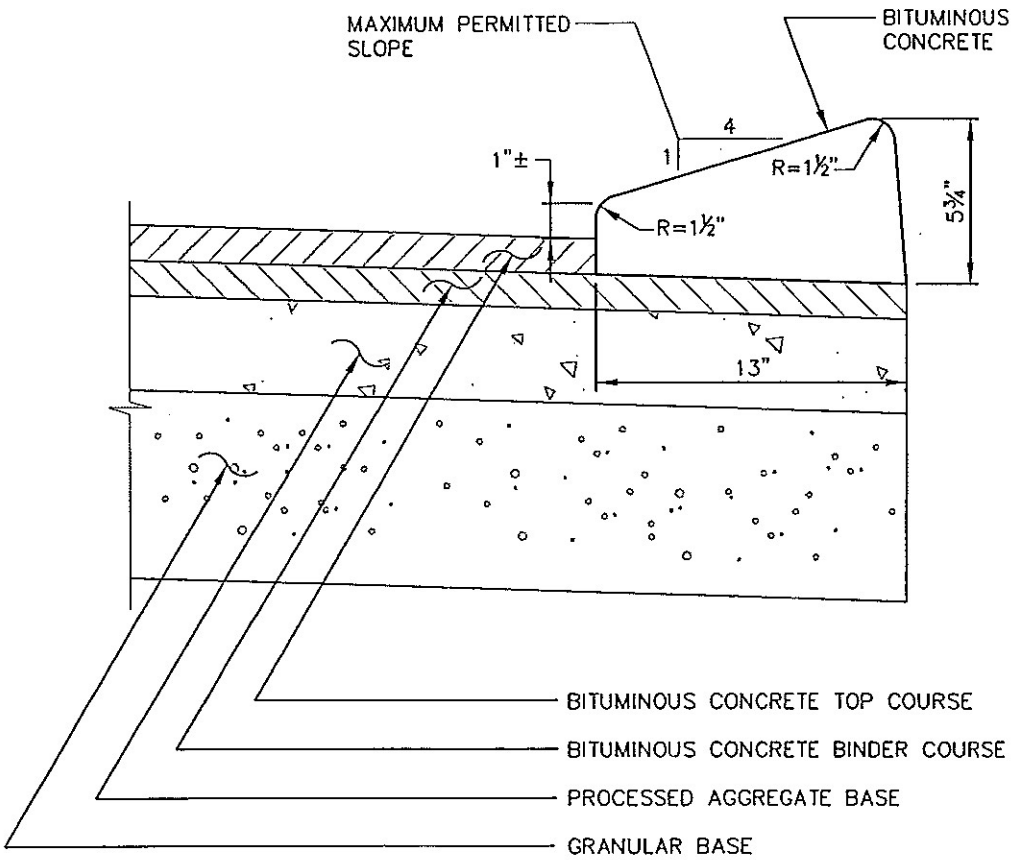
SCALE: NONE

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 3



STANDARD DETAIL DRAWING

CAPE COD CURBING

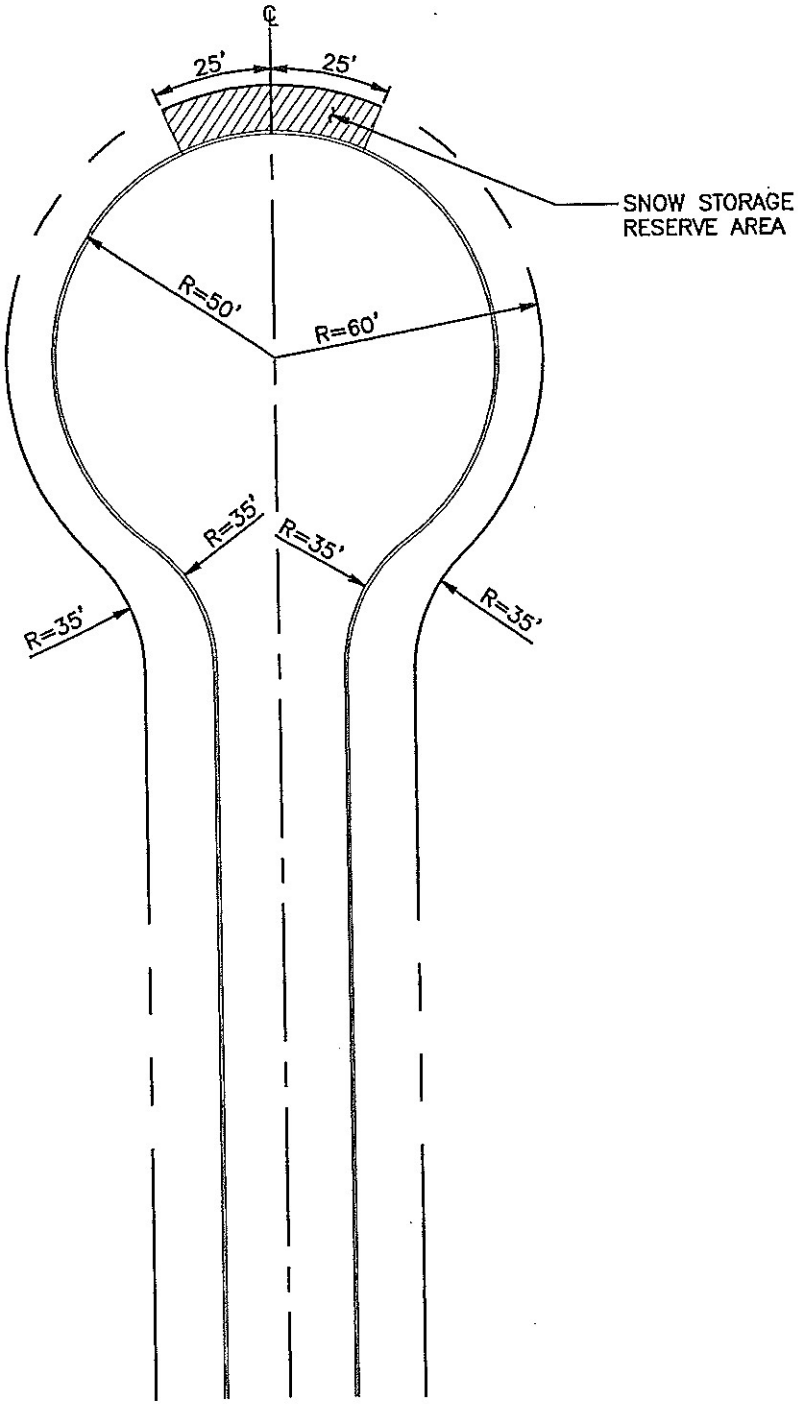
SCALE: NONE

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 4



STANDARD DETAIL DRAWING

CUL-DE-SAC
(CIRCULAR)

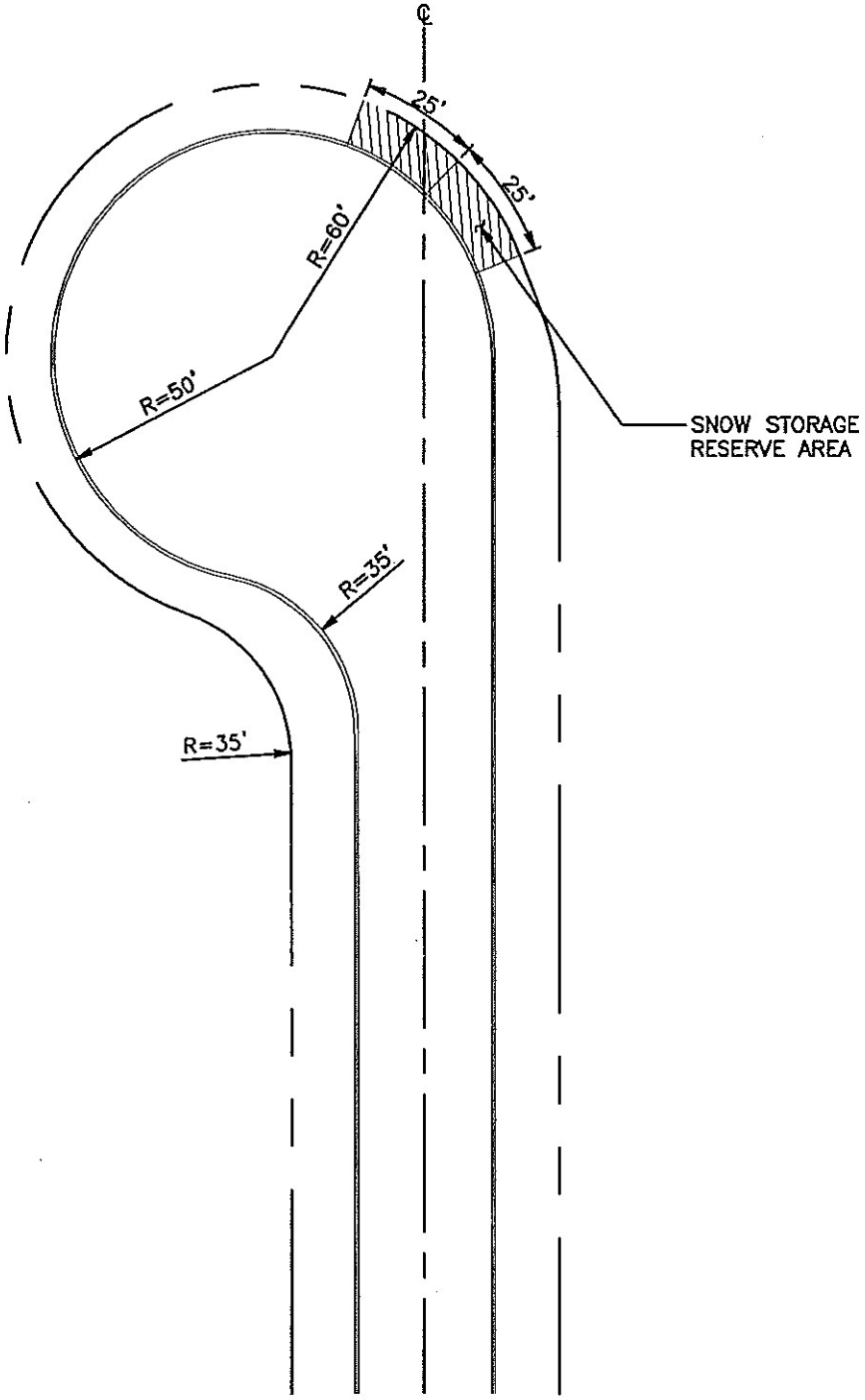
SCALE: 1"=40'

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 5



STANDARD DETAIL DRAWING

CUL-DE-SAC

(OFFSET)

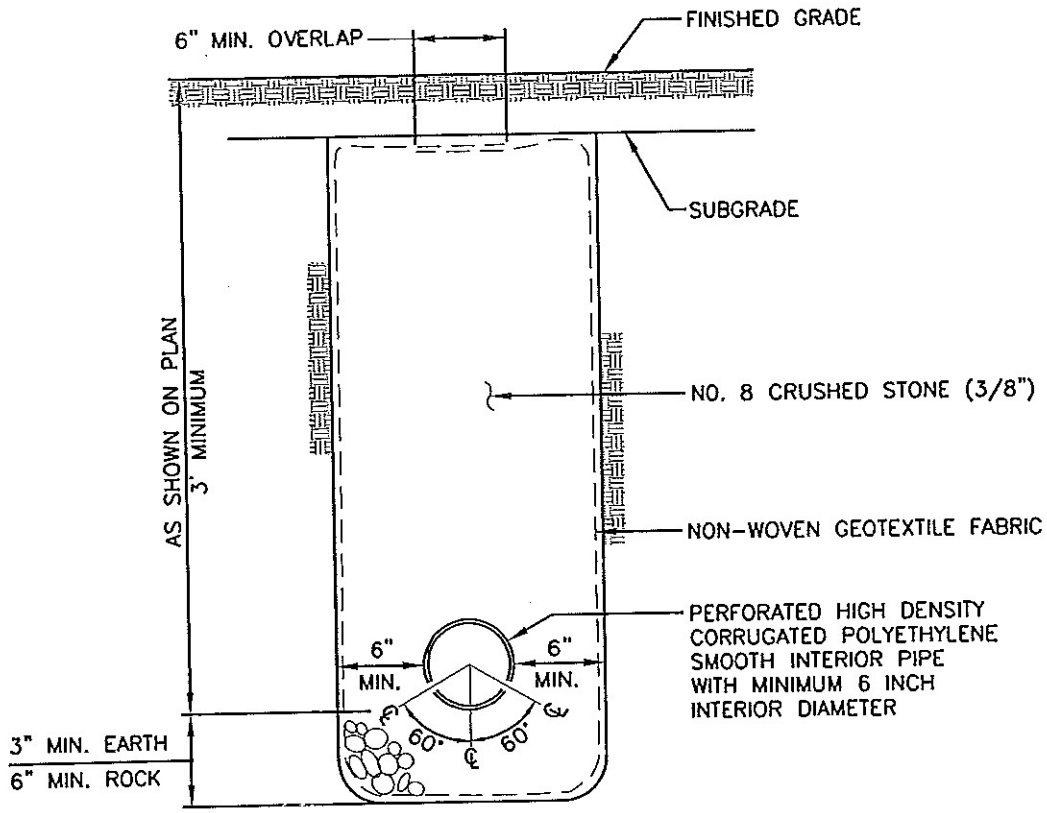
SCALE: 1"=40'

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 6



NOTES:

1. CONTRACTOR SHALL PROTECT EXCAVATIONS BY SHORING, BRACING, SHEET PILING, UNDERPINNING OR OTHER METHODS TO PREVENT CAVE-IN OR LOOSE SOIL FROM FALLING INTO THE EXCAVATION AND DAMAGING THE WORK OR ADJACENT STRUCTURES AND UTILITIES.
2. GRADED STONE FILTERS WITHOUT GEOTEXTILE FABRIC MAY BE USED WITH APPROVAL OF THE DIRECTOR OF PUBLIC WORKS.

STANDARD DETAIL DRAWING

UNDERDRAIN

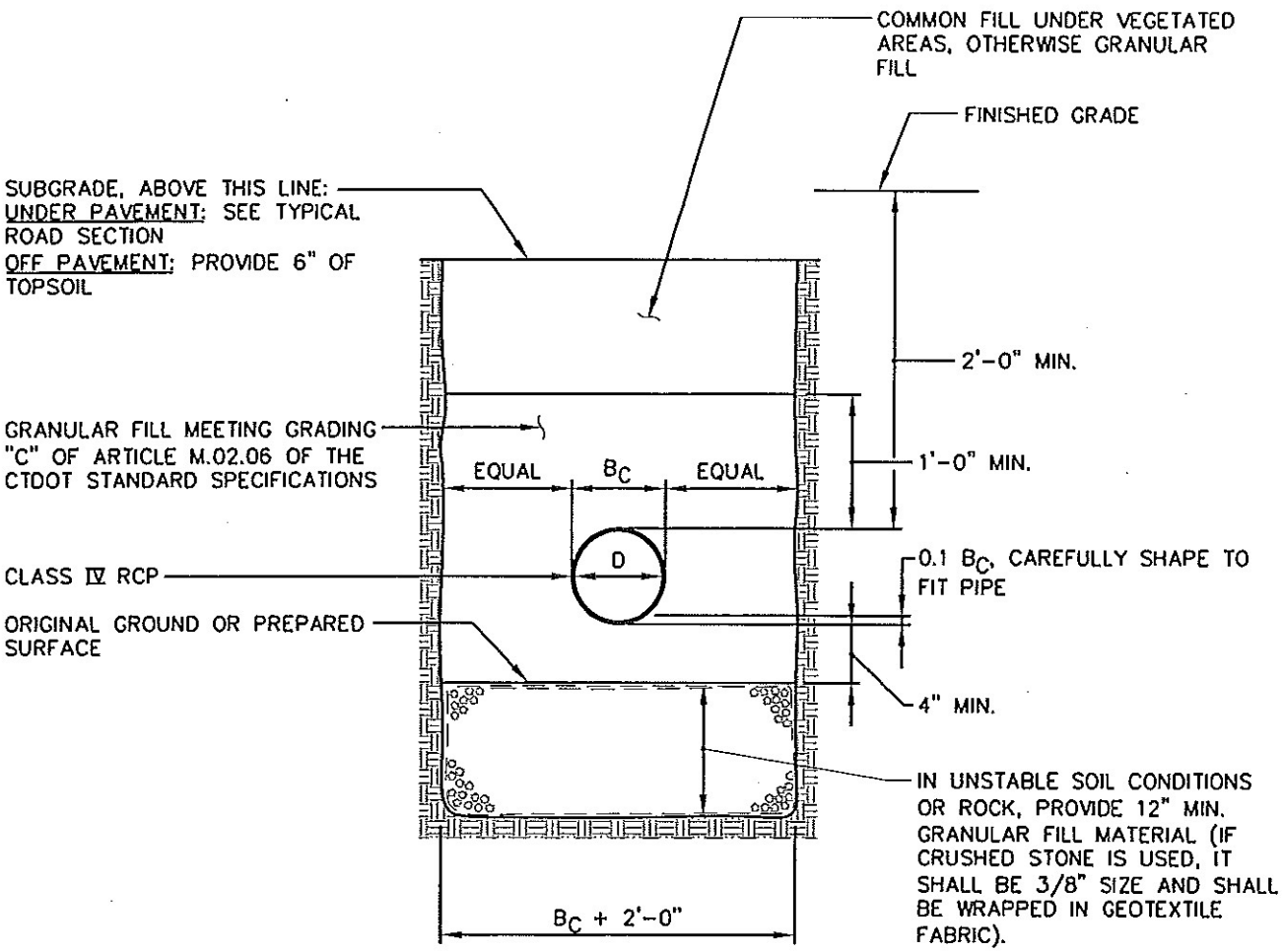
SCALE: NONE

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 7



NOTES:

1. CONTRACTOR SHALL PROTECT EXCAVATIONS BY SHORING, BRACING, SHEET PILING, UNDERPINNING OR OTHER METHODS TO PREVENT CAVE-IN OR LOOSE SOIL FROM FALLING INTO THE EXCAVATION AND DAMAGING THE WORK OR ADJACENT STRUCTURES AND UTILITIES.

STANDARD DETAIL DRAWING

STORM TRENCH SECTION REINFORCED CONCRETE PIPE

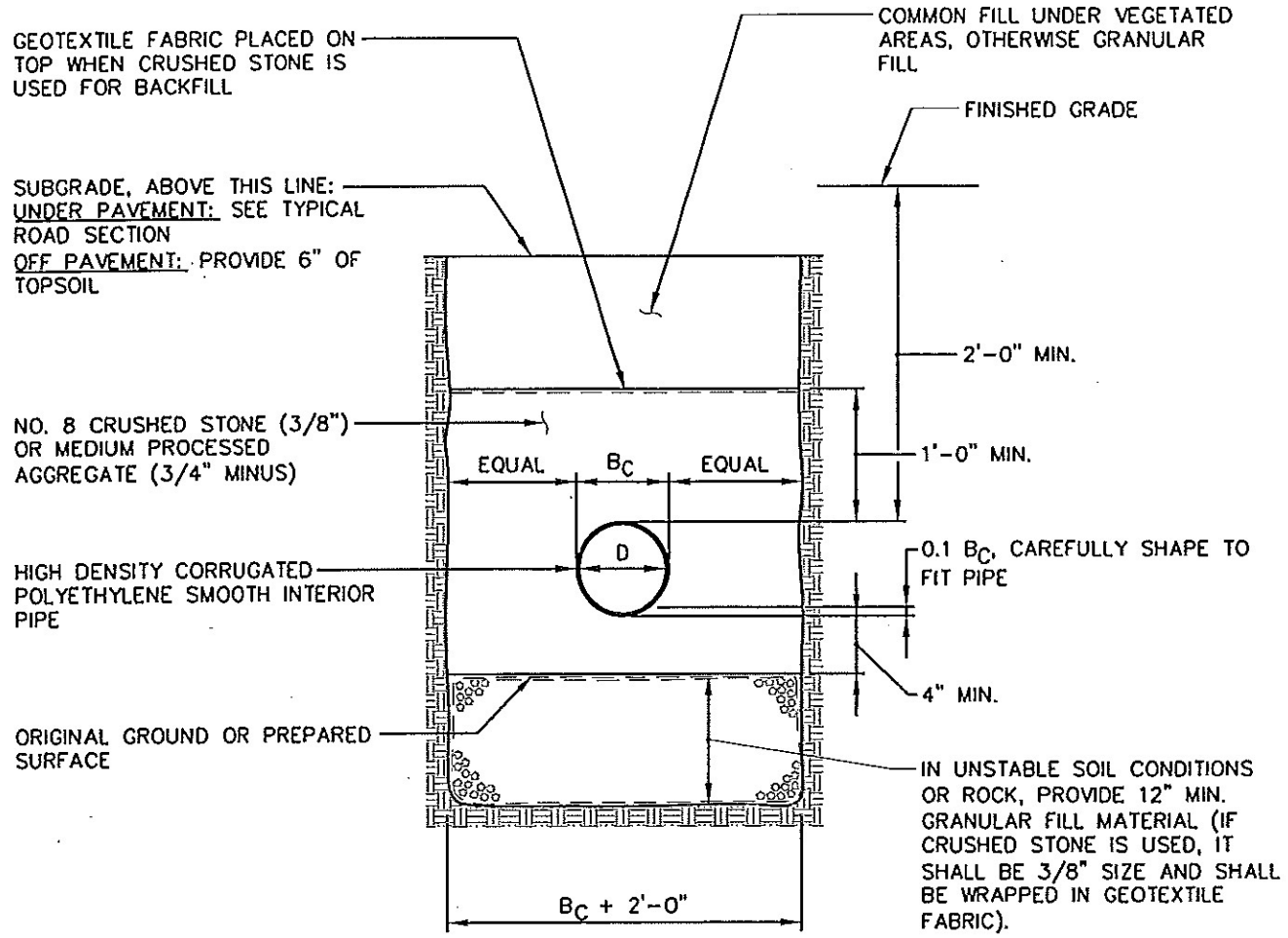
SCALE: NONE

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 8



NOTES:

1. CONTRACTOR SHALL PROTECT EXCAVATIONS BY SHORING, BRACING, SHEET PILING, UNDERPINNING OR OTHER METHODS TO PREVENT CAVE-IN OR LOOSE SOIL FROM FALLING INTO THE EXCAVATION AND DAMAGING THE WORK OR ADJACENT STRUCTURES AND UTILITIES.

STANDARD DETAIL DRAWING

STORM TRENCH SECTION
HIGH DENSITY CORRUGATED POLYETHYLENE SMOOTH INTERIOR PIPE (CPEP)

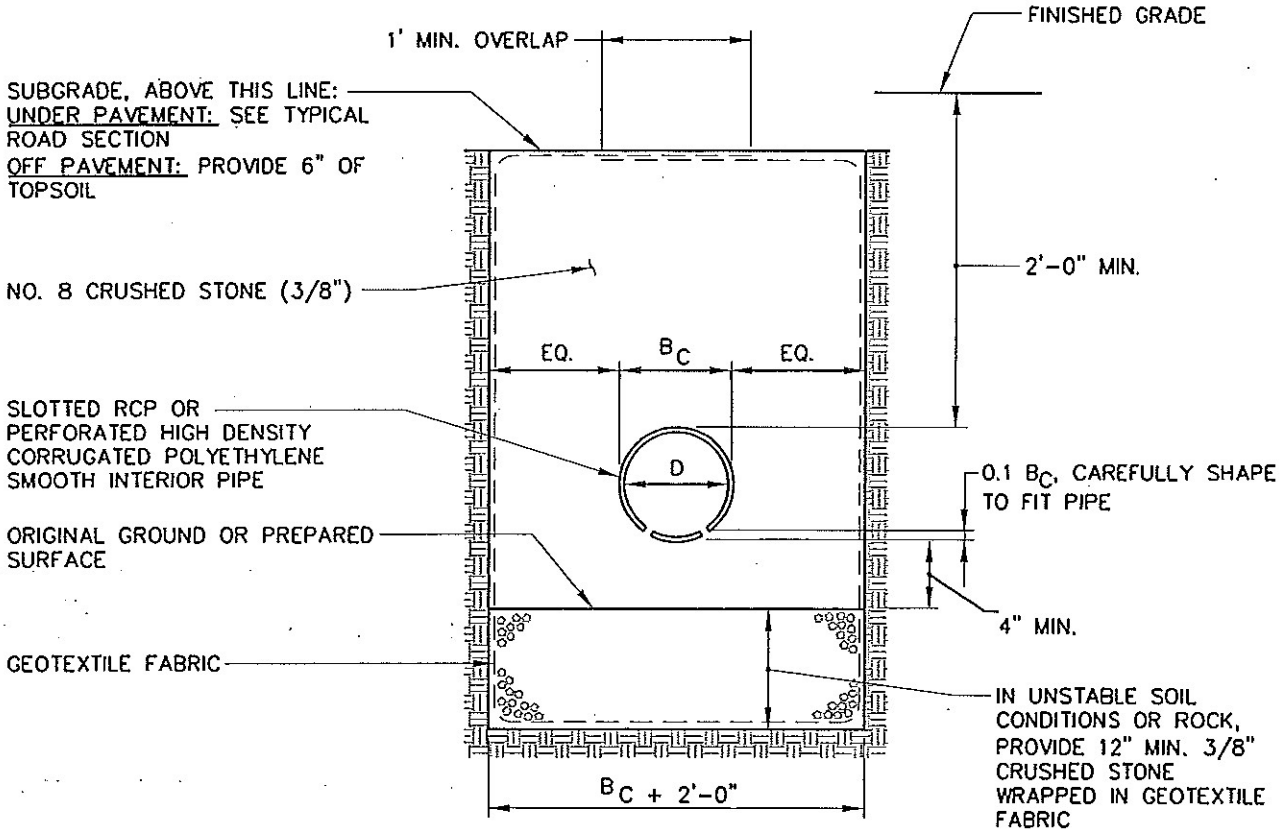
REVISIONS:

SCALE: NONE

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 9



NOTES:

1. CONTRACTOR SHALL PROTECT EXCAVATIONS BY SHORING, BRACING, SHEET PILING, UNDERPINNING OR OTHER METHODS TO PREVENT CAVE-IN OR LOOSE SOIL FROM FALLING INTO THE EXCAVATION AND DAMAGING THE WORK OR ADJACENT STRUCTURES AND UTILITIES.

STANDARD DETAIL DRAWING

STORM TRENCH SECTION
SLOTTED PERFORATED STORM DRAIN

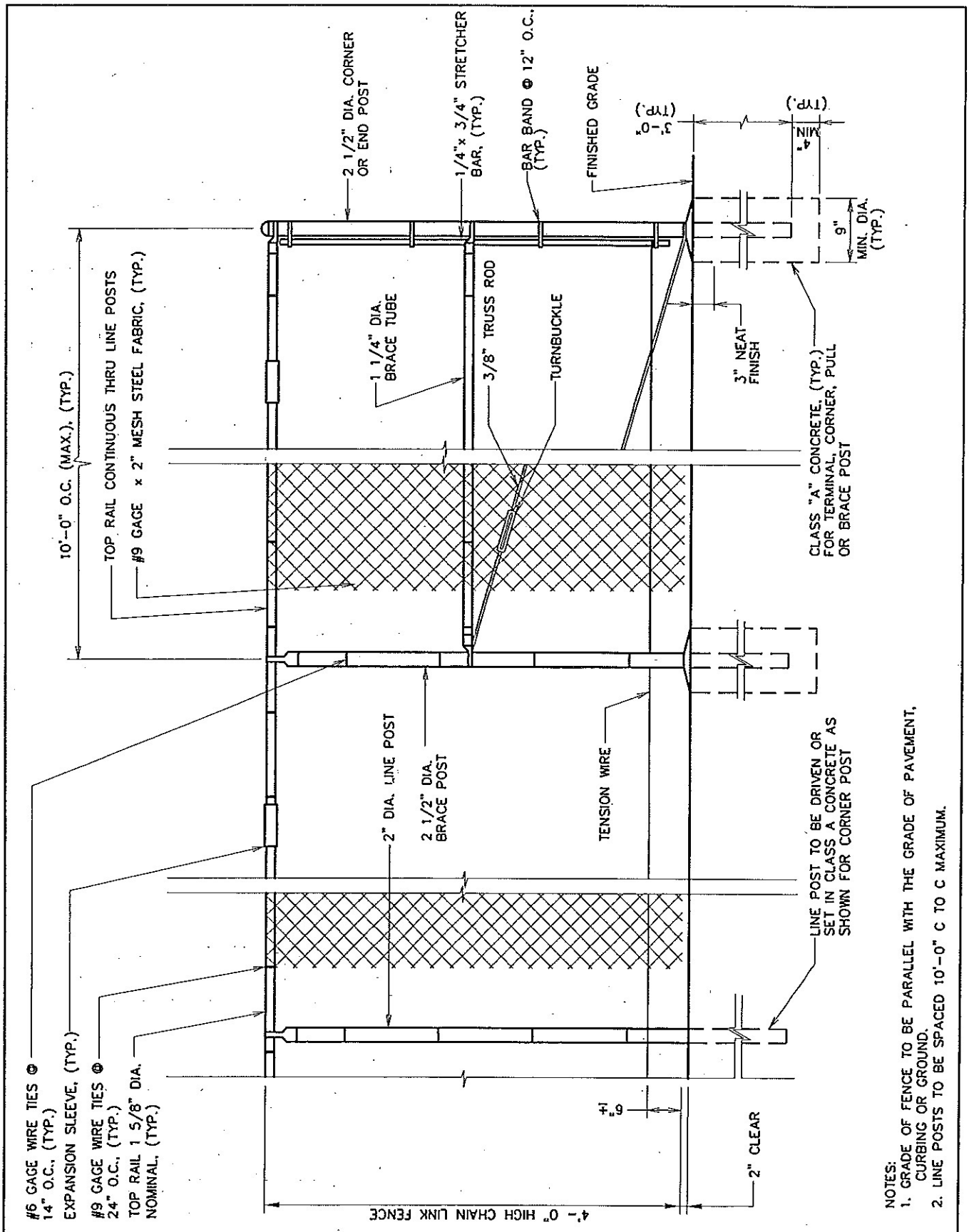
SCALE: NONE

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 10



NOTES:
1. GRADE OF FENCE TO BE PARALLEL WITH THE GRADE OF PAVEMENT, CURBING OR GROUND.
2. LINE POSTS TO BE SPACED 10'-0" C TO C MAXIMUM.

STANDARD DETAIL DRAWING

CHAIN LINK FENCE

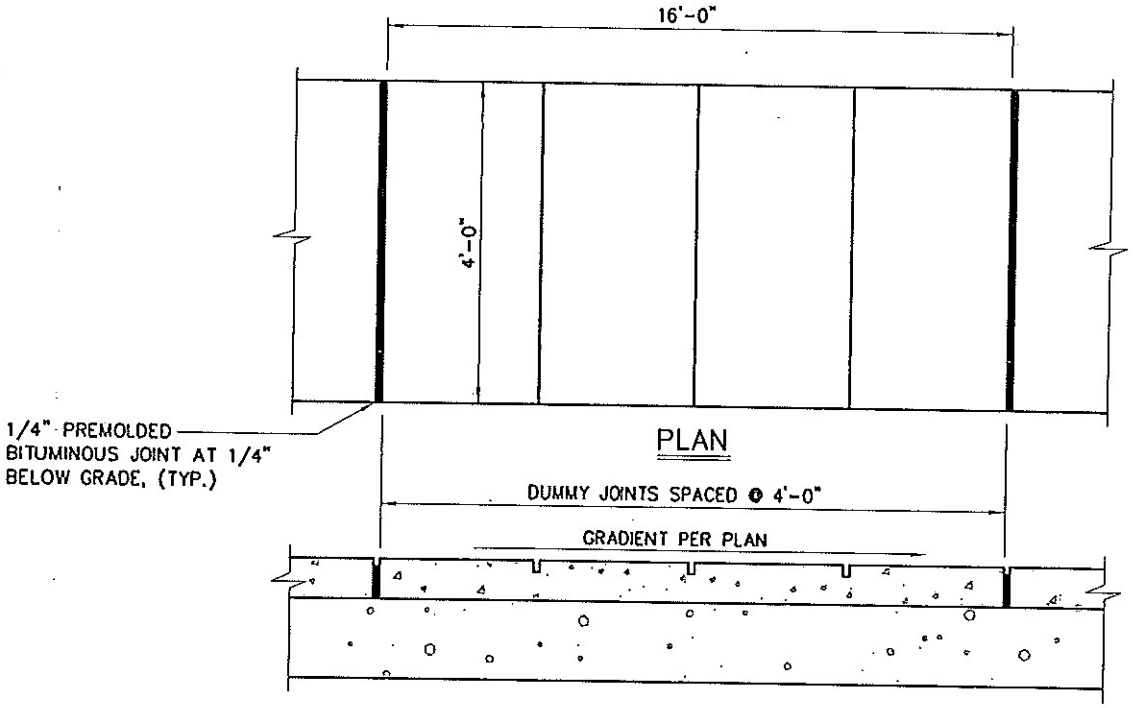
SCALE: NONE

REVISIONS:

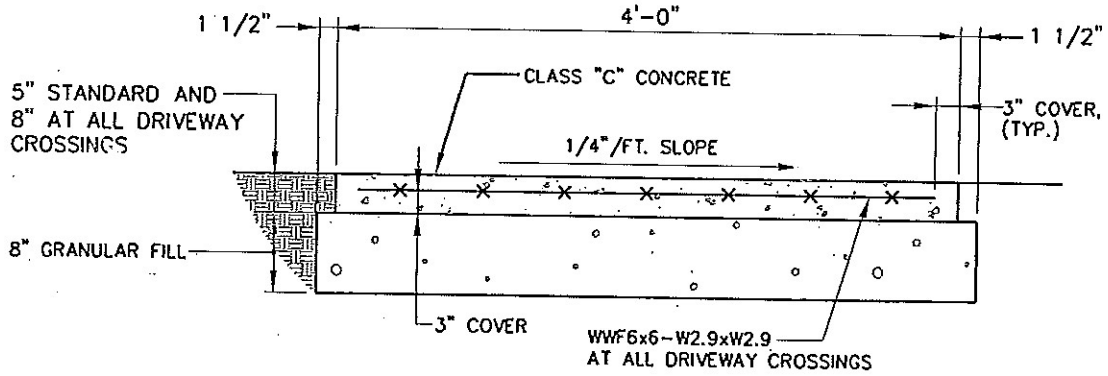
REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 11



LONGITUDINAL SECTION



CROSS SECTION

NOTES:

1. PROVIDE TRANSVERSE BROOM FINISH.
2. OUTSIDE EDGES OF SLAB AND ALL JOINTS TO BE EDGED WITH A 1/4" RADIUS EDGING TOOL.

STANDARD DETAIL DRAWING

CONCRETE SIDEWALK

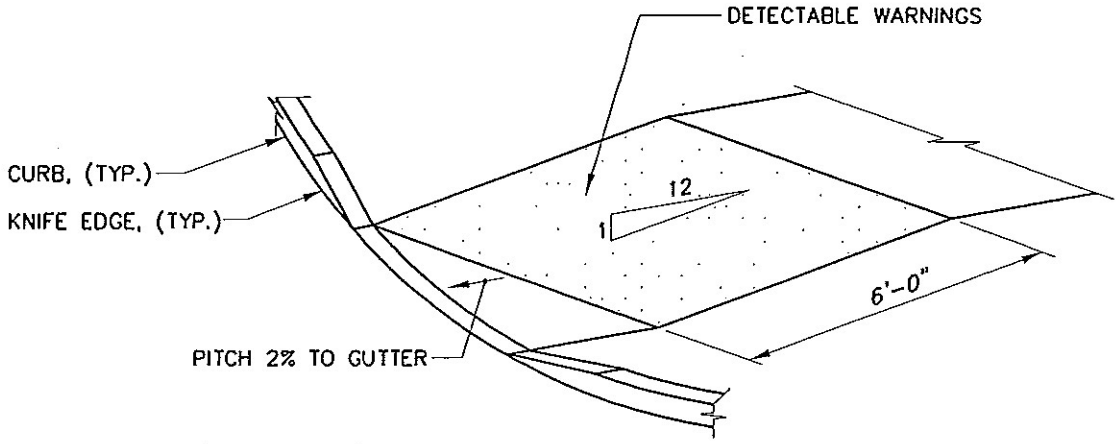
SCALE: NONE

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 12



NOTES:

1. ORIENTATION OF RAMP SHALL BE AS SHOWN ON PLAN.

STANDARD DETAIL DRAWING

CURB RAMP-TYPE I

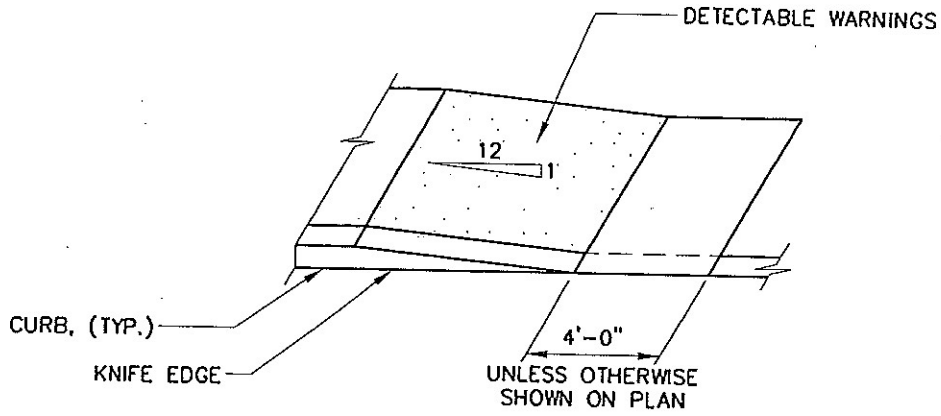
SCALE: NONE

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

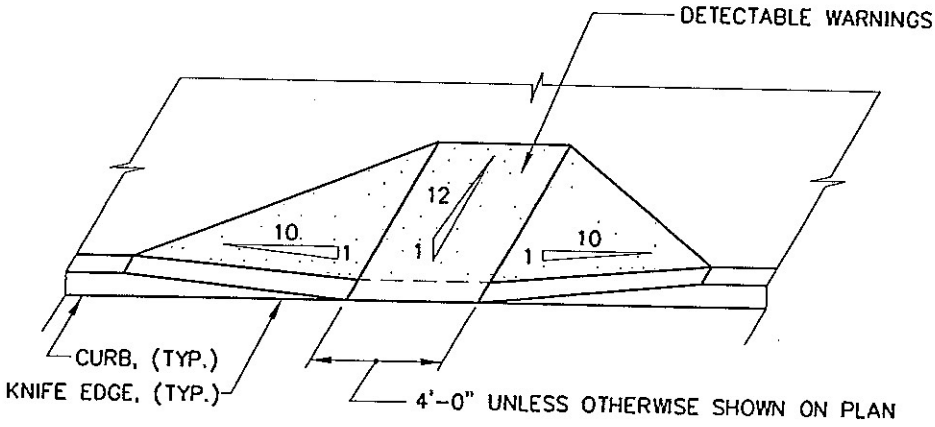
FIGURE 13



TYPE II

NOTES:

1. ORIENTATION OF RAMP SHALL BE AS SHOWN ON PLAN.



TYPE III

STANDARD DETAIL DRAWING

CURB RAMP-TYPE II & III

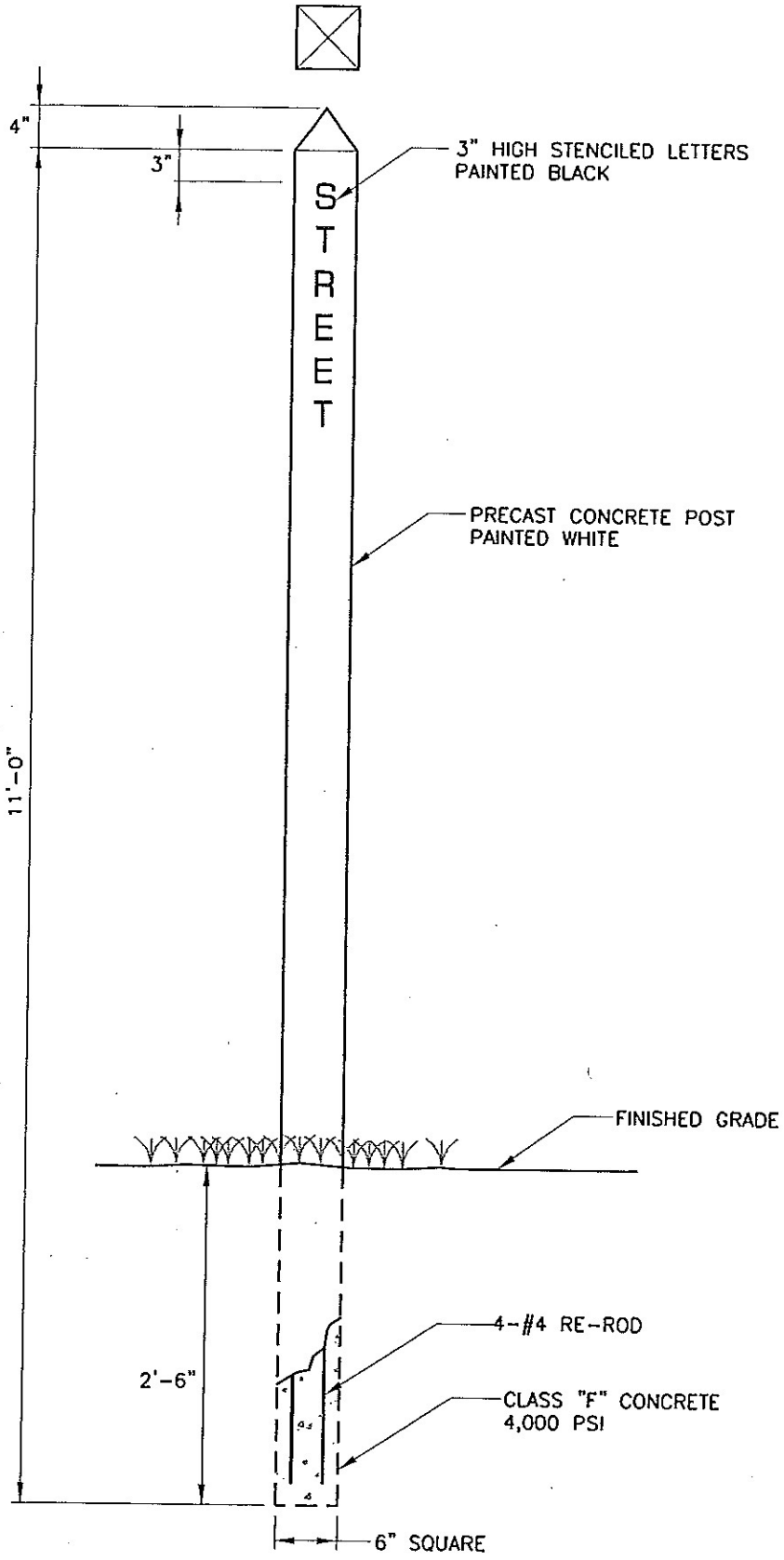
SCALE: NONE

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 14



STANDARD DETAIL DRAWING

ROAD NAME SIGN

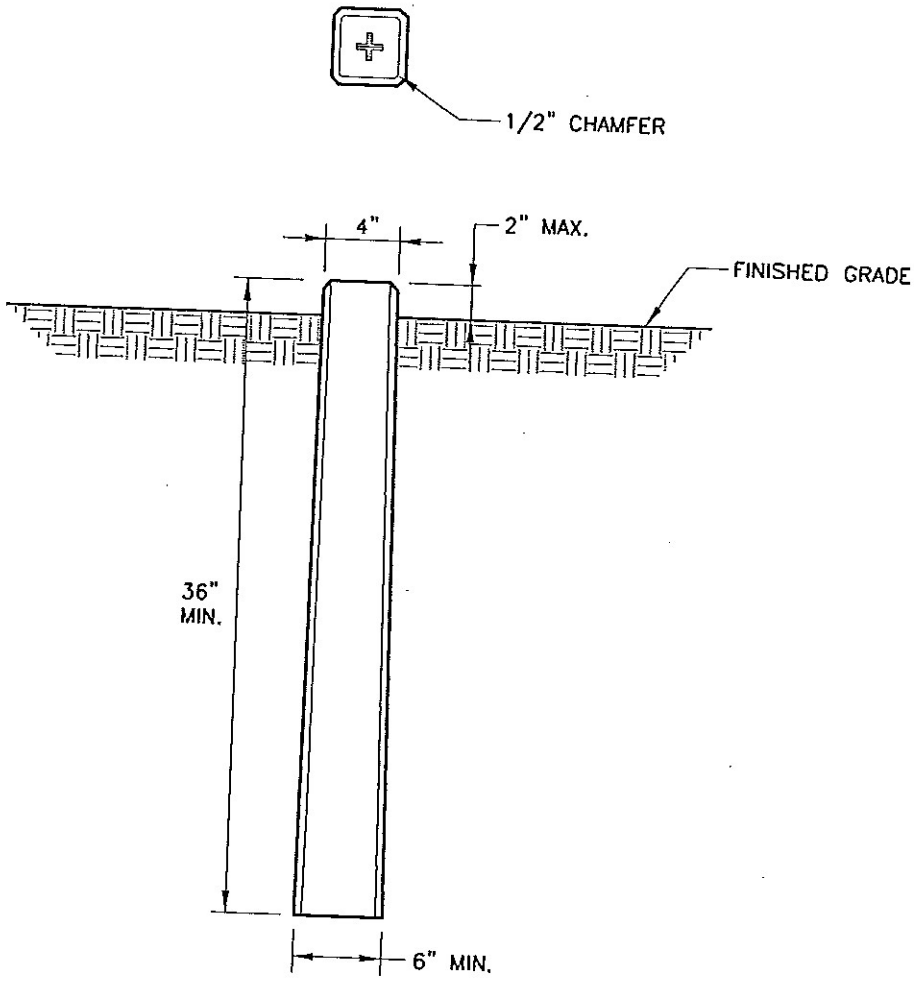
SCALE: NONE

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 15



STANDARD DETAIL DRAWING

CONCRETE MONUMENT

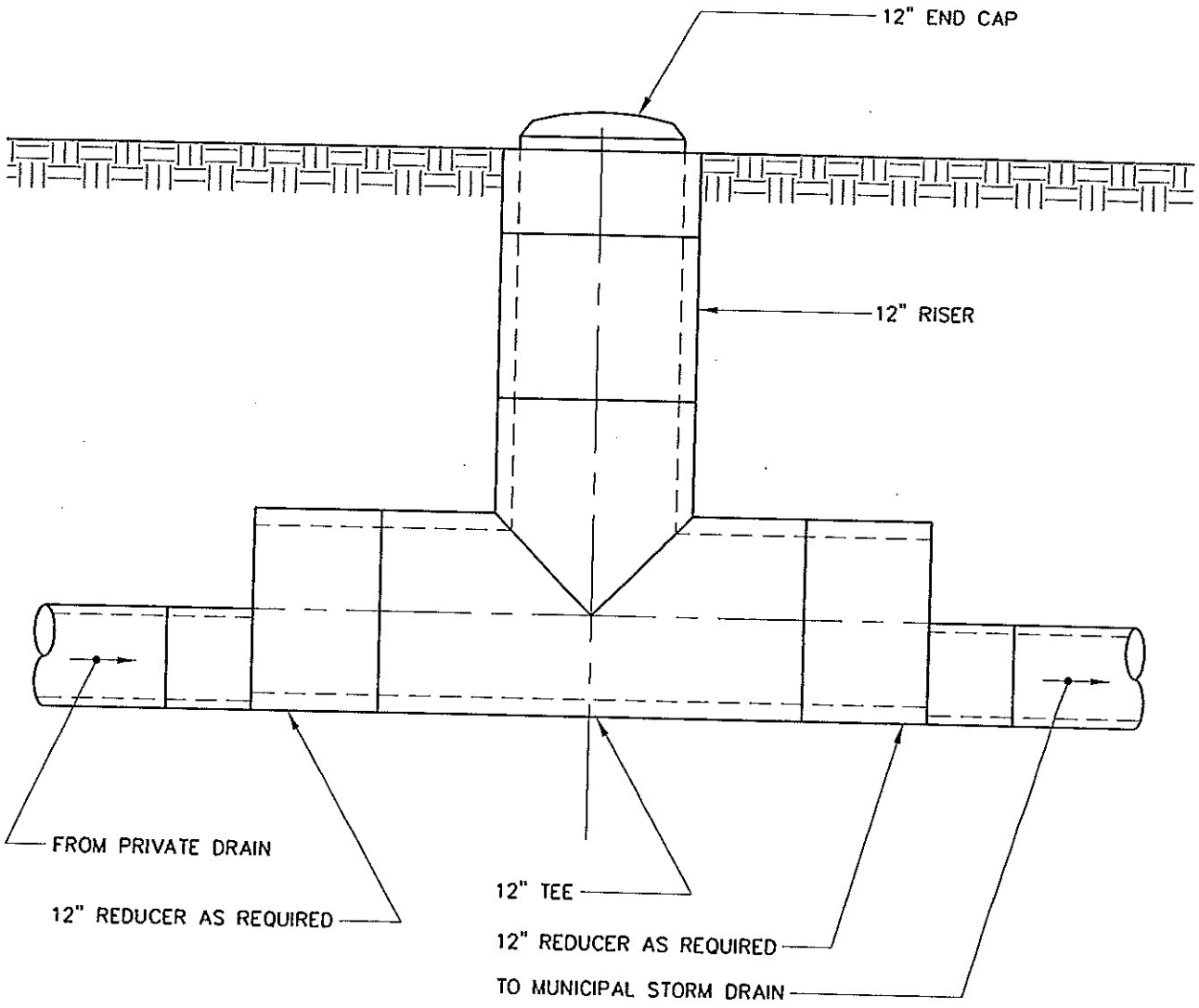
SCALE: NONE

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 16



STANDARD DETAIL DRAWING

PRIVATE DRAIN ACCESS STRUCTURE

SCALE: NONE

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: JUNE, 2004

FIGURE 17

SPECIFICATIONS CONCERNING CONSTRUCTION
OF DRIVEWAYS ABUTTING TOWN HIGHWAYS

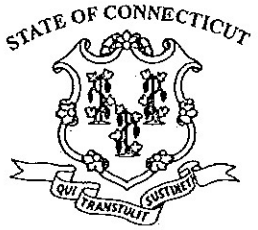
TOWN OF PORTLAND, CT

1. A driveway or access road serving private property and intersecting with a Town Highway shall be constructed in such a manner that it does not interfere with the existing drainage, the movement of traffic, or the removal of snow from the abutting highway.

2. The driveway shall be constructed in such a manner that it does not permit the runoff of water from the abutting Town Highway to enter into the property of the owner or adjacent properties thereby creating a nuisance to the Town and a property owner, unless an easement, in form satisfactory to the Town Attorney and approved by the Board of Selectmen, is granted by such owner to the Town for such runoff.

3. Driveways shall be graded for a minimum distance of twenty (2) feet into the private property from the right-of-way line of an abutting Town Highway so as to prevent erosion of earth materials onto Town property and shall be designed in a manner so as to confine the surface water to the gutter areas and permit free flowage of the water in the drainage ways of the Town Highway. Driveway grades within the street right-of-way shall not exceed eight (8) percent, and within private property shall not exceed fifteen (15) percent. Paved driveway aprons shall be provided at each intersection of a driveway with an abutting Town Highway. The driveway apron is that portion of the driveway extending from the Town Highway pavement to the right-of-way line of the Town Highway or to a distance of ten ((10) feet in from the edge of Town Highway pavement, whichever is greater. In case of uncertainty as to the true location of a street right-of-way line in a particular instance, for the purposes of this specification a reference right-of-way line shall be established by measuring twenty-five (25) feet from the centerline of the existing road pavement. However, this clause shall not be construed as establishing any rights in ownership of land, its purpose being merely to establish a reference line for driveway improvement purposes. The minimum width of driveway pavement shall be ten (10) feet and the minimum corner radius at the intersection of a Town Highway and sides of a driveway apron shall be five (5) feet. The maximum width of driveway and maximum (15FT MAX) corner radii shall be as approved by the Director of Public Works. Driveways which ascend into private property shall e paved from the driveway apron to the high point in the driveway. Driveways which descend into private property shall rise a minimum of six (6) inches in elevation within the Town Highway right-of-way before descending. The driveway and driveway apron paving shall consist of a minimum of two (2) inches, after compaction, of CONNDOT Class II bituminous concrete over a minimum of eight (8) inches of CONNDOT Class A gravel base. All driveway aprons shall have a minimum lip of one (1) inch at the Town Highway gutterline. The Director of Public Works may waive the requirement for the bituminous concrete surface course if the Town Highway adjacent to the proposed driveway does not have any type of bituminous surface course.

4. Where culverts under driveways are required by the Director of Public Works within the Town Highway right-of-way, such culverts shall be constructed of asphalt coated corrugated metal pipe, corrugated aluminum pipe, or reinforced concrete pipe and shall e of such size, not less than fifteen (15) inches in diameter, as to adequately convey under the driveway all surface runoff which may be reasonably expected to reach the culvert inlet during a storm of a 10-year recurrence interval. All culverts shall be of such design to withstand AASHTO H-20 loadings and shall have a minimum cover over the top of the culvert of two (2) feet, unless otherwise approved by the Director of Public Works or his duly authorized representative. Inlet and outlet ends of culverts shall have rubble stone or concrete endwalls or end sections.



House Bill No. 5219

Public Act No. 14-67

AN ACT CONCERNING MAINTENANCE OF PRIVATE EASEMENTS AND RIGHTS-OF-WAY.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. (NEW) (*Effective October 1, 2014*) (a) As used in this section: (1) "Residential real property" has the same meaning as provided in section 20-325c of the general statutes, but does not include property owned by the state or any political subdivision thereof; (2) "benefited property" or "property that benefits" includes residential real property burdened by an easement or right-of-way, the owner of which residential real property uses such easement or right-of-way; and (3) "easement" or "right-of-way" means a private appurtenant easement or right-of-way.

(b) The owner of any residential real property that benefits from an easement or right-of-way, the purpose of which is to provide access to such residential real property, shall be responsible for the cost of maintaining such easement or right-of-way in good repair and the cost of repairing or restoring any damaged portion of such easement or right-of-way. Such maintenance shall include, but not be limited to, the removal of snow from such easement or right-of-way.

(c) If more than one residential real property benefits from such

easement or right-of-way, the cost of maintaining and repairing or restoring such easement or right-of-way shall be shared by each owner of a benefited property, pursuant to the terms of any enforceable written agreement entered into for such purpose. In the absence of such agreement, the cost of maintaining and repairing or restoring such easement or right-of-way shall be shared by each owner of a benefited property in proportion to the benefit received by each such property.

(d) Notwithstanding the provisions of subsections (b) and (c) of this section, any owner of a benefited property who directly or indirectly damages any portion of the easement or right-of-way shall be solely responsible for repairing or restoring the portion damaged by such owner.

(e) If any owner of a benefited property refuses to repair or restore a damaged portion of an easement or right-of-way in accordance with subsection (d) of this section, or fails, after a demand in writing, to pay such owner's proportion of the cost of maintaining or repairing or restoring such easement or right-of-way in accordance with subsection (c) of this section, an action for specific performance or contribution may be brought in the Superior Court against such owner by other owners of benefited properties, either jointly or severally.

(f) In the event of any conflict between the provisions of this section and an agreement described in subsection (c) of this section, the terms of the agreement shall control.

Approved May 28, 2014

REGULATIONS FOR PUBLIC IMPROVEMENTS

SECTION 130 - DESIGN & CONSTRUCTION OF DRIVEWAYS

130A - PERMIT REQUIREMENTS

130A.1 Purpose

The purpose for establishing regulations governing the construction of driveways serving private property is to maintain the physical integrity of existing Town roads and future Town roads located within an approved subdivision; to protect the public from adverse situations that may otherwise endanger their health, safety and welfare; and, to establish basic standards for providing access by emergency service vehicles. This section of the Road Regulations shall serve as the specifications adopted by the Board of Selectmen as referenced in the Ordinance entitled "Construction of Driveways and Drains Abutting Town Highways and Excavation on Town Property".

130A.2 General

A driveway or access road serving private property and intersecting with a Town or private road shall be constructed and/or reconstructed in such a manner that it does not interfere with the existing drainage, movement of traffic, or removal of snow from the abutting road. No person, firm or corporation shall conduct work or make improvements of any kind within an existing or future Town road or associated right-of-way, including but not limited to clearing, excavating or grading, until a permit has been obtained from the Land Use Department at least seventy-two (72) hours prior to the commencement of any work. A driveway or access road serving private property and intersecting with a State road or roadway within an adjacent Town shall also meet the Standards of the applicable governing authority. Driveways serving more than one lot shall conform to the standards established in this section, except as may otherwise be required by the Haddam Subdivision Regulations.

130A.3 Application

Application for a permit shall be made on forms provided by the Land Use Department and shall be accompanied by a sketch or drawing showing the proposed work to be done. The sketch or drawing shall be in sufficient detail to facilitate an inspection of the work by Town personnel. The Town Engineer or Assistant Director of Public Works may require the submission of detailed plans, specifications and other engineering data with the application when he shall deem it to be necessary. No permits shall be issued unless all proposed work conforms to the requirements outlined in this section and the Standard Detail Drawings.

130A.4 Application Fees, Certificate Of Insurance & Driveway Completion Bond

Application fees, in an amount prescribed on the most current Town Fee Schedule, shall be submitted with all applications. In addition, prior to approval of the permit, a Certificate of Insurance conforming to current Town requirements with respect to the types of coverage

and limits of liability shall also be submitted. No permit shall be issued until the application fee has been paid, and the Certificate of Insurance received.

130A.5 Repair of Pre-existing Driveways

The Permit Requirements and Driveway Criteria included within this section are not intended to preclude the routine maintenance, repair, or reconstruction of driveways constructed prior to the adoption of these regulations. As such, the Town Engineer or Assistant Director of Public Works may, at their discretion, waive any Permit Requirement and Driveway Criteria included within Sections 130A and 130B respectively, except that the application required in Section 130A.3 shall be submitted.

130A.6 Inspection

All construction work covered by a Driveway Permit shall be subject to the inspection and approval of the Town Engineer or Assistant Director of Public Works or their authorized representative. It is the responsibility of the owner to notify the Town Engineer or Assistant Director of Public Works at least seventy-two (72) hours prior to each of the following inspection points and for ensuring that the contractor performing the work completes the required CBYD pre-marking and notification call:

1. After rough grading of the driveway has been completed and prior to the placement of any base materials.
2. After placement and fine grading of the base materials.
3. After placement of bituminous concrete pavement.

If in the opinion of the Town Engineer or Assistant Director of Public Works or their authorized representative there is some question if the driveway exceeds the maximum grades permitted in this section, then it is the responsibility of the owner to retain the services of a licensed land surveyor to prepare a profile based on an actual field survey. Any driveway that is not found to be in conformance with the requirements in this section shall be reconstructed as required to conform.

130A.7 Completion Time

All proposed construction work shall be completed within one hundred eighty (180) calendar days after the date of issuance of the Driveway Permit or at the time of issuing a Certificate of Occupancy unless an extension of time is granted by the Town Engineer or Assistant Director of Public Works, upon written request by the owner for such extension, and for good cause shown. Any such extension of time shall be limited to a maximum additional period of one hundred eighty (180) calendar days. No extensions of time shall be permitted beyond three hundred sixty (360) calendar days from the date of issuance of a driveway permit.

130A.8 Final Approval

The Town Engineer or Assistant Director of Public Works or their authorized representative shall have final approval of the completed driveway. If due to the time of year or other extenuating circumstances, the driveway paving can not be completed prior to issuance of a Certificate of Occupancy, a Driveway Completion Bond shall be provided to the Town of Haddam to ensure that all work is completed no later than July 31 of the next paving season. Driveway Completion Bonds shall be in the form of a certified check in an amount determined as follows, plus any additional amount deemed necessary by the Town Engineer and Assistant Director of Public Works due to unusual or difficult site conditions such as ledge, surface and subsurface drainage problems, sight line improvements, etc.:

Driveway Apron Serving a Single Residential Lot $1,000 (1)
Driveway Apron Serving More Than One Residential Lot $2,000 (1)
Driveway Apron Serving a Commercial Business or Industrial Lot.. $3,000 (1)
Additional Amount Required for Driveway Culvert ..... $ 750 (1)
Additional Amount Required for Driveway Length to High Point.... $2.00 per square foot (1)
Driveway Repairs ..... No bond required

(1) 2010 base rates which shall be adjusted on an annual basis as determined by the Assistant Director of Public Works.

Should the owner fail to complete the driveway improvements by July 31 of the following paving season or within any extension of time as specified above, the bond shall be forfeited, and the Town shall utilize the funds to complete the required work. Any excess funds remaining after completion of the improvements shall accrue to the Town of Haddam.

130A.9 Waivers and Appeals

Requests for waivers from the specifications, and appeals, when any party or individual is aggrieved by a decision or determination made by the Town Engineer or Assistant Director of Public Works, shall be made to the Board of Selectman in accordance with the procedure included in the Ordinance entitled, "Construction of Driveways and Drains Abutting Town Highways and Excavation of Town Property".

130B - DRIVEWAY CRITERIA

130B.1 Driveway Aprons

Paved bituminous concrete driveway aprons shall be provided at each intersection of a driveway with an abutting road. The driveway apron is that portion of the driveway extending from the Town road pavement to the right-of-way line of the Town road or to a distance of ten (10) feet in from the edge of the Town road pavement, which ever is greater. In the case of uncertainty as to the true location of a Town road right-of-way line, for the purposes of this section a reference right-of-way line shall be established by measuring twenty-five (25) feet from the centerline of the existing road pavement. However, this

clause shall not be construed as establishing any rights in ownership of land, its purpose being merely to establish a reference line for driveway improvement purposes. Where a Town road adjacent to a proposed driveway does not have any type of bituminous surface course, the Director of Public Works may waive the requirement for a bituminous concrete driveway apron.

130B.2 Driveway Lip

All paved driveway aprons along curbed roads, or where otherwise required by the Town Engineer or Assistant Director of Public Works, shall have a minimum lip of one and one-half (1-1/2) inches at the Town road gutter line. If a driveway apron is constructed prior to the placement of the top or surface course of a subdivision road to be dedicated to the Town of Haddam at some future date, then the driveway lip shall be increased in height so that after completion of the road construction, a minimum lip of one and one-half (1-1/2) inches is maintained.

130B.3 Driveway Width

Driveways serving a single residential dwelling unit shall have a minimum pavement width of ten (10) feet, and a maximum pavement width of twenty (20) feet. Common driveways, which shall serve a maximum of three (3) lots, shall have a minimum width of sixteen (16) feet and shall be constructed to the same road cross section shown in the Standard Detail Drawings for a Local Road. The minimum corner or curb radius at the intersection of a Town road and driveway shall be five (5) feet. All brush, trees and any other obstructions shall be cleared and removed for a distance of three (3) feet beyond the edge of pavement along both sides of the entire length of the driveway, and to a height of twelve (12) feet above the driveway surface.

130B.4 Maneuvering Area

All driveways shall include a suitably sized maneuvering area, located on the private property that it serves, so that for vehicles entering the property there is sufficient area to turn around and exit from the property without backing out into the street.

130B.5 Side Line Setback

Unless otherwise permitted, the side or edge of a driveway shall not be located any closer than five (5) feet from an adjacent property line. In addition, the point at which the driveway curb radius intersects the edge of pavement or curb line of a Town road shall not encroach beyond the point where the extension of the property line meets the Town road.

130B.6 Horizontal Alignment

For all driveways the minimum radius of centerline curvature shall be 50 feet.

130B.7 Vertical Alignment

To facilitate access for emergency service vehicles, driveway grades shall have gradual transitions so as to prevent "bottoming out" on a crest and "bumper drag" in sags. Such transitions shall be sufficient to permit transit by a vehicle with a twenty (20) foot wheel base and four (4) foot front and six (6) foot rear bumper overhang.

130B.8 Sight Distance

The visibility at driveway intersections with Town roads shall be such as to allow a stopped vehicle on the driveway, located ten (10) feet back from the gutter line, to see, and to be seen, from a vehicle approaching from either direction along the Town road, a distance of not less than one hundred fifty (150) feet, based on a height of eye and object of 3.5 feet. The Town Engineer or Assistant Director of Public Works may require the removal of sight obstructions including but not limited to trees, bushes, shrubs, boulders, rocks, stonewalls, and adjustments of cut slopes adjacent to intersections of a private driveway with a Town road in order to assure an adequate sight distance and to ensure a safe and efficient means of access for emergency vehicles.

130B.9 Gradient

Driveway grades within the street right-of-way shall not exceed eight (8) percent, and within private property shall not exceed fifteen (15) percent.

130B.10 Ascending Driveways

Driveways which ascend into private property shall be paved from the driveway apron to the high point in the driveway. Unless otherwise approved by the Town Engineer or Assistant Director of Public Works, driveways shall be cross sloped so as to establish sheet flow drainage and avoid the discharge of concentrated runoff into Town roads.

130B.11 Descending Driveways

For driveways which descend into private property, driveway aprons shall rise in elevation from the Town road gutter line to the Town road right-of-way line a minimum of six (6) inches before descending into the property.

130B.12 Drainage

Driveways shall be constructed in such a manner that they do not permit the runoff of water from the abutting Town road to enter into the property of the owner, or adjacent properties, thereby creating a nuisance to the Town and the property owner, unless an easement in a form satisfactory to the Town of Haddam is granted by such owner to the Town for such runoff. Under no circumstances shall a driveway apron be constructed so as to obstruct or alter the free flow of water in the road gutter line or other drainage ways of the Town of Haddam. In addition, if in the opinion of the Town Engineer or Assistant Director of Public Works, discharges from concentrated surface runoff or groundwater seeps will adversely

impact upon a Town road or associated right-of-way, then they shall require the installation of a storm drainage and/or subdrainage system to intercept and convey such discharges to an acceptable outlet location.

130B.13 Driveway Culverts

Where culverts under driveways are required by the Town Engineer or Assistant Director of Public Works within the Town road right-of-way, such culverts shall be constructed of reinforced concrete pipe, or when the cover over top of the culvert exceeds twenty-four (24) inches, high density corrugated polyethylene smooth interior pipe. Culverts shall be of such size, not less than fifteen (15) inches in diameter, as to adequately convey under the driveway all surface runoff which may reasonably be expected to reach the culvert inlet during a storm with a 10-year recurrence interval. All culverts shall be of such design to withstand AASHTO HS20 loadings and shall have a minimum cover over the top of the culvert of one (1) foot, unless otherwise approved by the Town Engineer or Assistant Director of Public Works or their authorized representative. Culverts shall be installed in accordance with the Standards established in Section 100A. Inlet and outlet ends of culverts shall have flared end sections of the same type of material as the culvert except when high density corrugated polyethylene smooth interior pipe is utilized, metal culvert ends shall be provided.

130B.14 Private Bridges

When a driveway crosses a watercourse or other feature such that a bridge is required, plans shall be prepared and sealed by a licensed professional engineer registered in the State of Connecticut who is competent in the field of structural engineering. Such plans shall be accompanied by a written statement from the engineer certifying that the bridge has been designed to withstand AASHTO HS20 Live Loads, and that any waterway opening conforms to the standards established in Section 90A.11 of these Regulations. Upon completion of construction of a private bridge, the licensed professional engineer shall be required to provide a written statement to the Town Engineer or Assistant Director of Public Works that the bridge was constructed in substantial conformance with the design drawings and specifications.

130B.15 Removal of Guide Rails

To the extent possible, driveways shall avoid the removal of existing guide rail systems. Any driveway installation which requires the removal of a portion of a guide rail shall be secured with concrete end anchorages on each side of the driveway. Concrete end anchorages shall conform to the requirements outlined in Section 80I of these Regulations. All such work shall be the responsibility, and at the expense of, the applicant.

130B.16 Crossing of Existing Sidewalks

Any driveway installation that crosses over an existing sidewalk shall require the complete removal and reconstruction of that portion of the sidewalk extending to the closet construction joint located beyond the edge of driveway. The reconstructed sidewalk section

shall match the grade and width of the original sidewalk unless otherwise approved by the Assistant Director of Public Works. Construction of the sidewalk shall conform to the Construction Standards outlined in Section 80M of these Regulations and the Standard Detail Drawing entitled "Driveway Apron with Sidewalk", and shall be the responsibility, and at the expense of, the applicant.

130B.17 Damage to Existing Sidewalks

Any damage to an existing sidewalk including, but not limited to, cracking and chipping, shall be repaired by, and at the expense of the applicant. Such repair shall include the complete removal of the damaged section of sidewalk extending to the closest construction joint located on each side of the damaged area. The reconstructed sidewalk section shall match the grade and width of the original sidewalk and shall conform with the Construction Standards outlined in Section 80M of these Regulations.

130B.18 Disturbance of Monuments or Property Markers

Driveways shall be located and constructed such that no disturbance of road right-of-way monumentation occurs. In the event of accidental disturbance of a monument or property marker, the owner of the property served by the driveway shall be responsible for retaining and paying for the services of a land surveyor licensed in the State of Connecticut to reset the monument or property marker and to provide a Letter of Certification to the Town Engineer or Assistant Director of Public Works. Where driveways are constructed on new roads which have not yet been monumented, they shall be located so as not to interfere with the future placement of monuments.

130B.19 Final Grading and Stabilization

Where grading is required within a Town road right-of-way, slopes shall not be steeper than one (1) unit vertical to two (2) units horizontal, and shall provide a smooth transition to adjacent grades. All disturbed areas shall be covered with a minimum of six (6) inches of topsoil, and limed, fertilized, seeded and mulched. When, in the opinion of the Town Engineer or Assistant Director of Public Works, additional measures are necessary to maintain the stability of slopes, special measures as outlined in Section 70H.4 of these Regulations may be required.

130B.20 Placement of Protective Barriers Along Driveways

It shall be the property owner's responsibility to place protective barriers along driveways as needed to minimize the risk of personal injury resulting from a vehicle departing from the driveway.

130C - DRIVEWAY CONSTRUCTION STANDARDS

130C.1 Paving Materials

Driveway apron paving shall consist of bituminous concrete pavement or concrete pavement. Required driveway paving beyond the driveway apron shall consist of a non-erodable all weather surfacing including, but not necessarily limited to, bituminous concrete pavement; concrete pavement; brick, concrete, or stone pavers; or, penetration macadam.

130C.2 Base Materials

For a driveway serving a single residential lot, the prepared base upon which paving materials are placed shall consist of a minimum depth of eight (8) inches, after compaction, of a "Rolled Granular Base" that conforms to the State Standard Specifications Sections M.02.03 and M.02.06 (Grading C). Regardless of the type of paving surface to be utilized, the base materials shall be capable of supporting AASHTO HS20 loadings. Base materials for all remaining portions of the driveway that extend beyond the required limits of paving shall also be capable of supporting AASHTO HS20 loadings.

For a driveway serving more than one residential lot, the base shall consist of the same depth and type of materials required for construction of a local road as specified in Sections 80E and 80D.

130C.3 Bituminous Concrete Pavement

For a driveway serving a single residential lot, the bituminous concrete pavement surface shall consist of a minimum of two (2) inches, after compaction, of Class II bituminous concrete. Class II "Bituminous Concrete" materials shall conform to the State Standard Specifications Sections M.04.01 and M.04.03.

For a driveway serving more than one residential lot, the bituminous concrete pavement surface shall consist of the same depth and type of materials required for construction of a local road as specified in Section 80G.

REGULATIONS FOR PUBLIC IMPROVEMENTS

SECTION 140 - EXCAVATION WITHIN A TOWN ROAD RIGHT-OF-WAY AND PUBLIC LAND

140A - PERMIT REQUIREMENTS

140A.1 Purpose

The purpose for establishing regulations governing excavation of Town property, including excavation within a Town road right-of-way and public land is to maintain the physical integrity of existing Town Roads and to protect the public from adverse situations that may otherwise endanger their health, safety and welfare.

140A.2 General

No person, firm or corporation shall conduct work or make improvements of any kind within a Town road right-of-way and public land, including but not limited to clearing, excavating, grading, paving or installation of any utility lines until an Encroachment Permit has been obtained from the Assistant Director of Public Works or his authorized agent at least seventy-two (72) hours prior to the commencement of any work.

140A.3 Application

Application for an Encroachment Permit shall be made on forms provided by the Land Use Department and shall be accompanied by a sketch or drawing showing the proposed work to be done. The sketch or drawing shall be in sufficient detail to facilitate an inspection of the work by Town personnel. The Town Engineer or Assistant Director of Public Works may require the submission of detailed plans, specifications and other engineering data with the application when he shall deem it to be necessary. No permits shall be issued unless the application and all drawings conform to the requirements outlined in this section and the attached Standard Detail Drawings.

140A.4 Application Fees, Certificate of Insurance & Performance Bond

Application fees, in an amount prescribed on the most current Town Fee Schedule, shall be submitted with all applications. In addition, prior to final approval of the Encroachment Permit, a Certificate of Insurance naming the Town of Haddam as an additional insured, which shall conform to current Town requirements with respect to the types of coverage and limits of liability, and a Performance Bond in the amount determined by the Assistant Director of Public Works, shall be submitted. No Encroachment Permit shall be issued until the application fee and any inspection fees have been paid, and the Certificate of Insurance and Performance Bond received. Furthermore, should the contractor employ any subcontractors, it shall be the contractor's sole responsibility to ensure that all subcontractors provide the types of coverage and limits of liability required by the Town, and the

contractor shall not permit any subcontractor to commence any work until they have obtained evidence in the form of a Certificate of Insurance.

140A.5 Performance Bond

A Performance Bond shall be provided to the Town of Haddam to ensure that all work is completed within a one hundred eighty (180) calendar day period or at the end of any subsequent extension of time granted by the Assistant Director of Public Works. Performance Bonds shall be in the form of a certified check.

All such bonds and insurance coverages shall be for a term of at least one year and shall be kept in force continuously until the maintenance provisions hereinafter specified in Section 140B.8 are satisfied. Evidence of renewal of coverage shall be furnished annually to the Assistant Director of Public Works. The applicant may request a release of bonds and insurance after completion of any required corrective work following the one year maintenance period.

The contractor shall hold harmless and indemnify the Town of Haddam and any of its agents for any and all liability, damages, and costs which may in any manner be incurred by the Town of Haddam and its agents by reason of, or in connection with, the issuance of a permit for such excavation, or by reason of any act or omission of the contractor or his agents.

Contractors and public service corporations may dispense with the filing of a separate insurance policy for each excavation by filing annually with the Assistant Director of Public Works the proper evidence of insurance coverage.

140A.6 Completion Time

All proposed construction work shall be completed within one hundred eighty (180) calendar days after the date of issuance of the Encroachment Permit unless an extension of time is granted by the Assistant Director of Public Works, upon written request by the owner for such extension, and for good cause shown. Any such extension of time shall be limited to a maximum additional period of one hundred eighty (180) calendar days. No extensions of time shall be permitted beyond three hundred sixty (360) calendar days from the date of issuance of an Encroachment Permit.

140A.7 Inspection

All construction work covered by an Encroachment Permit shall be subject to the inspection and approval of the Assistant Director of Public Works or his authorized representative. It is the responsibility of the owner to notify the Assistant Director of Public Works at least seventy-two (72) hours prior to conducting any work. Any work that is not found to be in conformance with the requirements in this section shall be reconstructed as required to conform. Any periodic inspections made by the Assistant Director of Public Works or his authorized representative shall be strictly limited to making general observations regarding the progress of the work and general conformance of the work with the provisions of these

regulations. In making these inspections, neither the Assistant Director of Public Works nor his authorized representative shall have authority over, or responsibility for, the means, methods, techniques, sequences or procedures of construction selected by contractor(s); for supervision, direction and control over contractor(s) work; for safety precautions and programs incident to the work of contractor(s); for enforcing any requirements with respect to safety precautions and programs incident to the work of the contractor(s) or any of contractor(s)' subcontractors; or for any failure of contractor(s) or any of contractors(s) subcontractors to comply with laws, rules, regulations, ordinances, codes or orders applicable to contractor(s) furnishing and performing their work, all of which are under the direct control, and are the sole responsibility, of the contractor(s).

The Assistant Director of Public Works may require the Town Consulting Engineer to provide inspection services on his behalf. In such cases, the Director of Public Works shall notify the applicant of his decision, and the applicant shall be responsible for reimbursing the Town of Haddam for all associated inspection service costs. In this regard, the applicant shall pay the estimated cost of inspection services to the Town of Haddam prior to the start of any work. Any funds remaining after final completion of the work shall be returned to the applicant. Should the applicant fail to fully reimburse the Town for the cost of inspection services, any remaining amount due shall be deducted from the Performance Bond, prior to its release.

140A.8 Exemptions

All municipal departments, authorities, commissions, municipal utilities or agencies shall be exempt from the requirements of Section 140A.4 and 140A.5 when using their own work force and equipment. No permit fee shall be required of a private contractor or contractors doing work for the Town of Haddam or any department, authority, commission, municipal utility or agency when done under the direction of the Director of Public Works of the Town of Haddam.

140B - EXCAVATION CRITERIA

140B.1 Excavations

The applicant shall ensure that the Contractor performing the work completes the required CBYD pre-marking and notification call, and at all times take all proper precautions to safeguard any sewer lines, water mains, storm drains, electrical conduits, telephone conduits, cable TV conduits, gas mains, or appurtenances encountered in the excavation, and shall properly maintain such installations so as to provide uninterrupted service of the same. In locations where the use of power equipment will endanger such installations, the work must be done by hand labor. It shall be the applicants' sole responsibility to ensure that all excavations are braced and sheeted as required to conform with applicable State and Federal safety regulations.

All excess material removed from a Town road right-of-way and public land shall remain the property of the Town of Haddam, and at the option of the Director of Public Works,

shall be removed and disposed of at a location within the Town that he designates. If the Director of Public Works determines that any such excess material is not needed by the Town, the applicant shall be responsible for disposing of the excess material in a lawful manner.

140B.2 Protection of Excavations and Public Safety

While the Assistant Director of Public Works may prescribe such measures that he deems necessary to permit the safe passage of pedestrian and vehicular traffic through the work area, it shall be the applicant's sole responsibility to maintain public safety. All excavations shall be protected at all times by barricades, danger warning signs, and during the night by warning lights. When deemed necessary by the contractor, or as required by the Assistant Director of Public Works or the Haddam Resident State Trooper, traffic control personnel shall be provided. All measures necessary to protect excavations and maintain public safety shall be the sole responsibility, and at the expense, of the contractor.

Excavations shall only be permitted on one half of the traveled portion of a street, so as to allow the safe passage of vehicular traffic on the remaining half. Under no circumstances shall an excavation or opening be made across the width of the entire street or highway, or in such a manner as to prohibit the safe passage of vehicular traffic without the written permission of the Assistant Director of Public Works. Such written permission shall be obtained in advance of such excavation or opening.

140B.3 Conduits and Casings

All power, communications and cable TV wires and cables placed under the roadway shall be installed within schedule 40 PVC conduits with a minimum diameter conforming to the respective utility company requirements. Water, sanitary sewer and other pipes with a diameter of two inches or less that are placed under the roadway surface shall be installed by trenchless technology methods or within a suitably sized pipe casing so as to facilitate any future maintenance or replacement without disturbance of the roadway surface.

140B.4 Restoring Excavations

All excavations shall be backfilled with granular base material conforming to specifications established in Section 80E.2. Material removed from the excavations may be used for backfill only with permission of the Assistant Director of Public Works or his authorized agent. No muck, clay, frozen earth, topsoil, stones over 6 inches in any dimension or other deleterious material shall be placed in the excavation. All backfilling must be done in properly compacted layers not exceeding 12 inches in depth after compaction. The dry density after compaction shall not be less than 95 percent of the dry density for the material when tested in accordance with AASHTO T-180, Method D. Where bituminous concrete pavement is to be placed over the surface of an excavated area, a twelve inch depth of processed aggregate base shall be provided directly under the pavement. Materials and methods of placement shall conform to the requirements outlined in Section 80F.2 of these regulations.

140B.5 Restoration of Paved Surfaces

Within roadway areas, the existing pavement shall be cut back to the locations indicated by the Assistant Director of Public Works and saw cut to create vertical faces. The vertical faces shall be sealed with a tack coat to ensure a good bond between the old and new pavement material. All roadway areas shall be surfaced with a 4-inch compacted depth of bituminous concrete consisting of a 2-1/2 inch depth of Class I Binder Course and a 1-1/2 inch depth of Class II Top Course. The placement of bituminous concrete shall be flush with the adjacent pavement and shall conform with the Construction Standards outlined in Section 80G of these regulations. Curbs are considered to be part of the paved surface and are to be replaced in accordance with the Construction Standards outlined in Section 80H of these regulations.

140B.6 Restoration of Off Road Surfaces

Within off road areas all disturbed surfaces shall be provided with a minimum depth of six inches of topsoil, limed, fertilized, seeded and mulched in conformance with the final grading and stabilization criteria outlined in Section 120A of these regulations. All other off road features, include but not limited to mail boxes, paper boxes, street signs, traffic control signs and pavement markings shall be reset or replaced so as to conform to their original location and condition before the excavation was made.

140B.7 Restoration of Sidewalks

Any excavation that crosses over or damages (cracking, chipping, etc.) an existing sidewalk shall require the complete removal and reconstruction of that portion of the sidewalk extending to the closest construction joint located beyond the edge of the excavation. The reconstructed sidewalk section shall match the grade and width of the original sidewalk unless otherwise approved by the Assistant Director of Public Works. Construction of the sidewalk shall conform to the Construction Standards outlined in Section 80M of these regulations and the Standard Detail Drawing.

140B.8 Disturbance of Monuments

Excavations shall be conducted such that no disturbance of road right-of-way monumentation occurs. In the event of accidental disturbance of a monument or property marker, the contractor shall be responsible for retaining and paying for the services of a land surveyor licensed in the State of Connecticut to reset the monument or property marker and to provide a Letter of Certification to the Assistant Director of Public Works.

140B.9 Maintenance

The insurance and Performance Bond specified in Sections 140A.4 and 140A.5 of these regulations shall remain in full force and effect for a one year period following acceptance of the final restoration work by the Assistant Director of Public Works. Such insurance and Performance Bond shall indemnify the Town against costs and expenses of labor and materials necessary or appropriate to correct or replace improper or defective materials or

faulty workmanship, including any damage to any property of the Town resulting therefrom, or to complete construction in conformity with the standards, criteria and specifications prescribed in these regulations.

In the event that any required repairs have not been promptly completed by the contractor, the Assistant Director of Public Works may make whatever repairs are necessary, or arrange for a private contractor to do so. All costs associated with any such repairs shall be billed to, and paid by, the contractor. The contractor shall be liable for all costs of collection, including attorney's fees, and no further permits shall be issued to the contractor until the balance owed to the Town is paid in full.

REGULATIONS FOR PUBLIC IMPROVEMENT

SECTION 150 - WATER SUPPLY FOR FIRE PROTECTION

150A - WATER SUPPLY

150A.1 Water Supply

Any new subdivision, including any subsequent or prior resubdivisions of the same parcel of land, which contains more than 4 building lots, or dwelling units, shall provide water supply for fire protection. Water supply for fire protection must be installed before any building permits will be issued. For dwellings up to 8,000 square feet, in such a subdivision a year round water supply of 20,000 gallons shall be provided within 1,000 foot truck travel distance of the nearest lot line of the farthest lot. For larger structures, commercial buildings, or different occupancies, usable volume shall be calculated in accordance with NFPA 1142 Standard on Water Supplies for Suburban and Rural Fire Fighting. The arrangement of the tank shall be as shown of Figures 18 through 22.

150A.2 Authority Having Jurisdiction

The Authority Having Jurisdiction (AHJ) is the Water Resources Committee of the Haddam Volunteer Fire Department. Plans and details for proposed water supplies shall be submitted to the Authority Having Jurisdiction and the Town Engineer for approval. Plans submitted for approval shall be drawn to scale and shall include a site plan, tank top plan and section showing tank dimensions and piping configuration.

150A.3 Locations

The locations of water supplies shall be approved by the Authority having Jurisdiction, the Assistant Public Works Director and the Town Engineer.

150A.4 Property

Water supply sources shall be located within the Town Road right of way or the Town shall be granted property control by increased right of way width or deeded easement granting control to the Town for operation and maintenance of the water supply. Property control granted to the town shall extend a minimum of 12 feet outside the limit of tank walls in every direction. Property shall include the pull off area required for truck parking.

If the water supply is located on a private road or driveway an easement shall be provided to the Town granting right of access, but the Town shall not be responsible for maintenance of said access which shall be the sole responsibility of the owners of the driveway or road.

No landscaping, trees, or shrubs will be permitted within a minimum of 12 feet of the limit of the tank walls.

150A.5 Tank Requirements

Tank shall be watertight precast concrete and rated for highway loading AASHTO H-20. Tank shall also be designed for dead and live loads imposed during the installation of the tank. Cast in place concrete tanks will not be acceptable for tank volumes under 40,000 gallons.

150A.6 Fiberglass Tanks

Fiberglass tanks may be used as an alternate to precast concrete tanks if permitted by the authority having jurisdiction. Application for approval to use a fiberglass tank shall include product data, manufacturer's installation instructions, details of a 30-inch manway extension to grade and anti-flotation design. Manufacturer's installation requirements for AASHTO H-20 load rating shall be provided.

150A.7 Excavation

Excavation shall be ample for installation of the tank and shall be compliant with OSHA regulations. The applicant shall be solely responsible for construction methods, means, techniques, and for construction site safety programs. Conduct construction operations in conformance with all applicable local, State and Federal safety laws, rules, regulations and codes. The excavation area for the tank shall not remain open longer than one week. While excavation is open it shall be guarded with barriers for protection of the public.

The bottom of the excavation shall be provided with a 6-inch minimum thickness of crushed stone leveling bed.

150A.8 Suction Piping

All suction piping shall be 6-inch ductile iron pipe. The suction piping system shall be capable of delivering 1,000 gpm. Any reducer fitting used in the piping shall be an eccentric reducer. The final suction connection shall be 4-1/2" male National Standard Hose Thread and shall have a plastic cap. The plastic cap shall have a vent hole to permit drainage and venting of the suction line. The suction pipe connection must be 30-36 - inches above the level of the shoulder where the vehicle wheels will be located when the tank is in use. All horizontal suction piping must slope slightly uphill toward the pumper connection. The bottom of the suction pipe to the pumper connection must not exceed a 14 foot vertical distance. The suction pipe shall be positively supported to the top of the tank. The bottom of the suction pipe shall be cut on a 45 degree angle.

150A.9 Fill Piping

Fill piping shall be 3-inch ductile iron pipe. The fill connection shall be a 2-1/2-inch female NST. The fill connection shall be 30-36-inches above final backfill grade.

150A.10 Access Hatch

A 30-inch square clear inside diameter access shall be provided to the tank. The access cover shall be an insulated aluminum hatch. Hatch shall have a lifting handle and safety latch to hold the cover open at the 90 degree full open position. The hatch shall be designed for a minimum live load of 150 pounds per square foot. The hatch shall include a hasp for provision of a padlock. All hatch hardware shall be stainless steel. The hatch cover shall be of a skid resistant design. The walls of the access shall be formed concrete or masonry block set in mortar. If masonry block is used, parge the entire interior and exterior surfaces with mortar.

150A.11 Vent Piping

Vent piping shall be 8-inch ductile iron pipe. Vent pipe shall terminate with a 180 degree return bend. Return bend shall be fitted with #4 mesh stainless steel bird screen.

150A.12 Pipe Support

All piping shall be positively supported at the tank top so that no vertical displacement of the pipe can take place. Provide galvanized steel pipe sleeves for pipe penetrations through the concrete ballast slab. Fill annulus with oakum and provide one inch mortar seal at the top and bottom of the opening.

150.A.13 Piping Color Coding

All piping above grade shall be primed and painted with two coats of the following colors:

Suction Piping	Red
Fill Piping	Blue
Vent Piping	Gray or white
Bollards	Yellow with reflective tape wrapping.

150A.14 Backfill

Backfill over the top of the tank shall be 2 feet of concrete ballast over a 2-inch thick polystyrene insulating board. The insulation board shall be secured during concrete placement with mechanical fastener or adhesive to prevent displacement. The ballast slab shall be broom finished. Earth backfill must extend a minimum of 6 feet at 1/4" per foot slope beyond the edges of the tank and then have maximum 3:1 slope, loamed and seeded. Tank backfill shall exclude stones larger than 6" within four feet of the tank and shall be compacted to a minimum of 92% of optimum density determined by ASTM D1557. Maximum backfill lift shall be 12-inches before compaction.

150A.15 Bollards

Provide concrete filled steel bollards at 5-foot on center to protect the pipe connections from vehicle contact. Bollard pipe shall be 6-inch schedule 40 steel pipe and shall be buried a minimum of 42" and backfilled with concrete. Bollard height shall be 42-inches above grade.

150A.16 Flotation

Tank installation shall be designed so that the tank will not float when empty. Provide temporary protection against flotation as necessary during the installation.

150A.17 Signage

Provide "W" sheet aluminum sign to identify and mark the water supply source. Sign shall be 24' aluminum sheet with retroreflective sheeting. A blue W shall be present on a white background.

150A.18 Inspections and Testing

Applicant shall provide 48 hours notice of need for inspection. Inspections by the Town Engineer are required at the following points:

- Preconstruction
- Excavation prior to tank setting
- Tank inspection and leakage test prior to backfilling
- Placement of concrete ballast slab
- Suction flow test

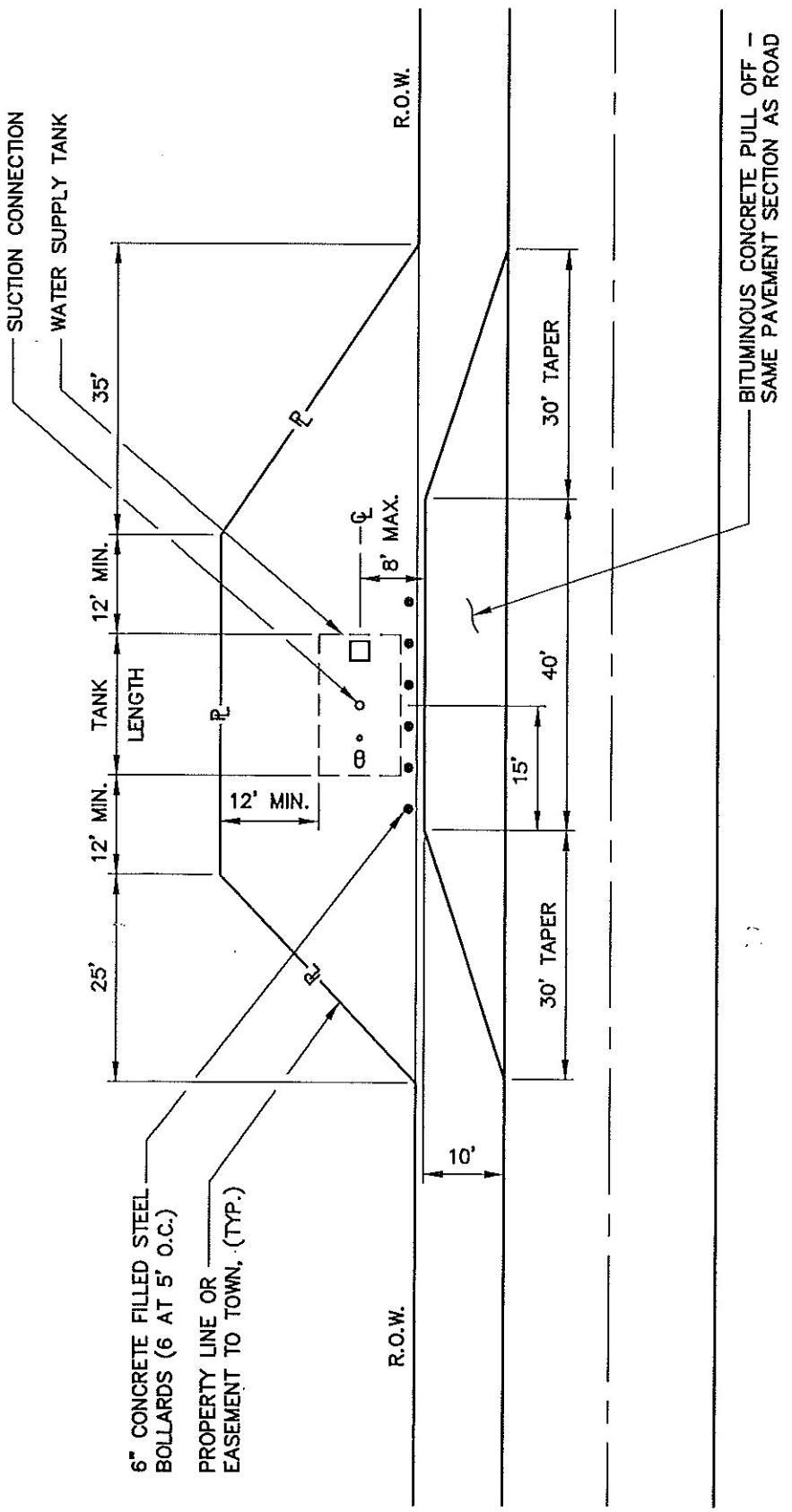
Tank shall be inspected by the Town Engineer prior to backfilling. Prior to backfilling the tank shall be filled and leakage tested. Any visible leaks or seeps on the exterior of the tank shall be repaired to the satisfaction of the Town Engineer. Prior to witnessing of the leakage test by the Town Engineer, the tank may be presoaked to account for absorption. The test will be acceptable if there is no measurable drop in water level over a 72 hour period.

After backfilling of the tank and completion of piping, the Authority Having Jurisdiction will arrange for a suction flow test with the Fire Department. The suction flow test will be acceptable if the suction can be primed in one minute or less and water can be flowed at 1,000 gpm or more.

All water required for leakage and flow testing shall be provided by the applicant. The applicant shall refill the tank upon completion of all testing and prior to final acceptance.

150A.19 Record Drawings

Provide record drawing of the installation of the water supply for fire protection. Record Drawing shall provide as-built information and include a site plan showing tank location and property ownership of the Town or easement in favor of the Town. Provide tank section drawn to scale showing piping and elevations.



STANDARD DETAIL DRAWING

WATER SUPPLY FOR FIRE PROTECTION
TYPICAL SITE PLAN

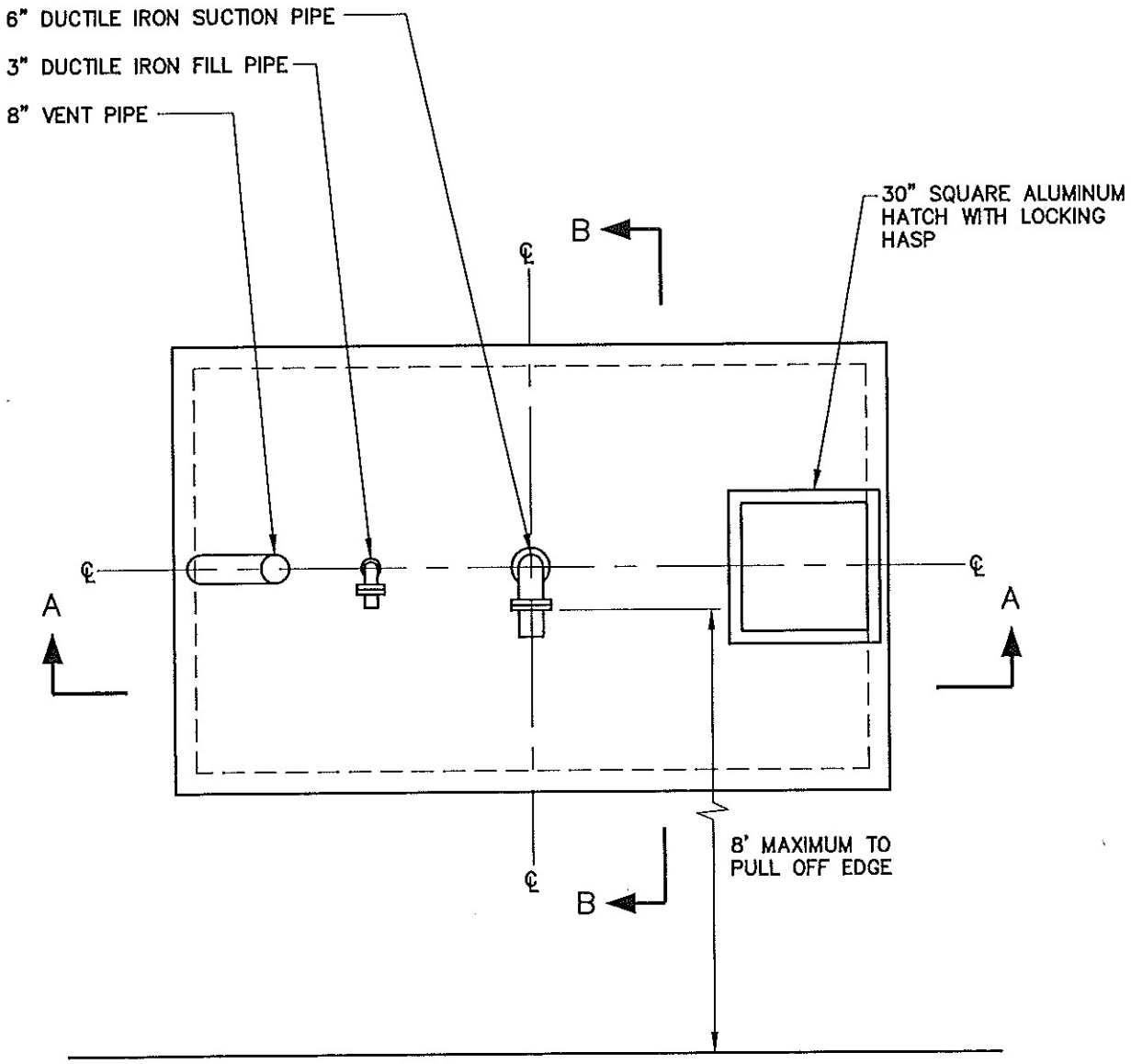
SCALE: NONE

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: APRIL 2013

FIGURE 18



STANDARD DETAIL DRAWING

WATER SUPPLY FOR FIRE PROTECTION TANK PLAN

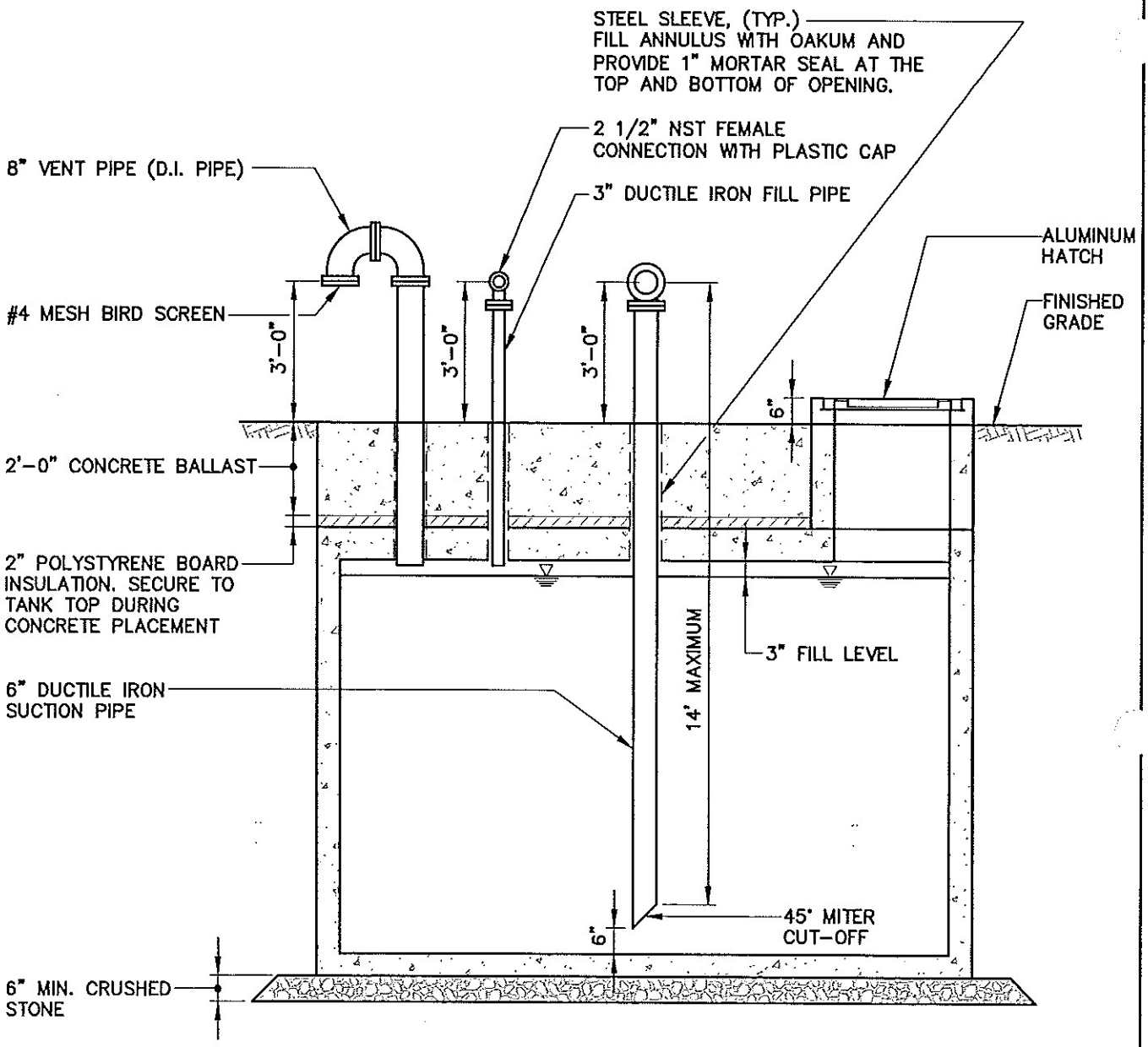
SCALE: NONE

REVISIONS: 10/8/2013

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: APRIL 2013

FIGURE 19



STANDARD DETAIL DRAWING

WATER SUPPLY FOR FIRE PROTECTION SECTION 'A-A'

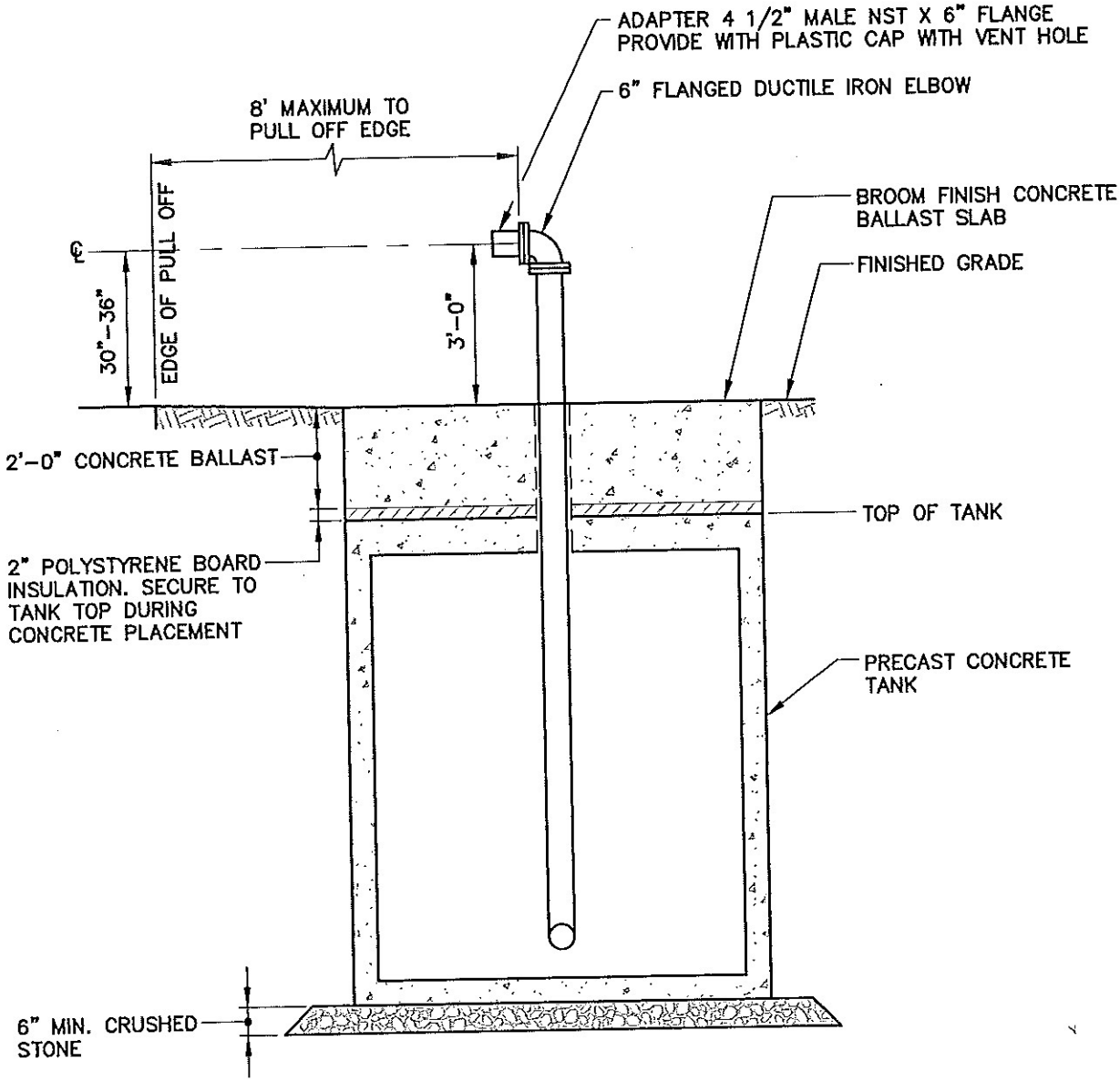
SCALE: NONE

REVISIONS: 10/8/2013

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: APRIL 2013

FIGURE 20



STANDARD DETAIL DRAWING

WATER SUPPLY FOR FIRE PROTECTION
SECTION 'B-B'

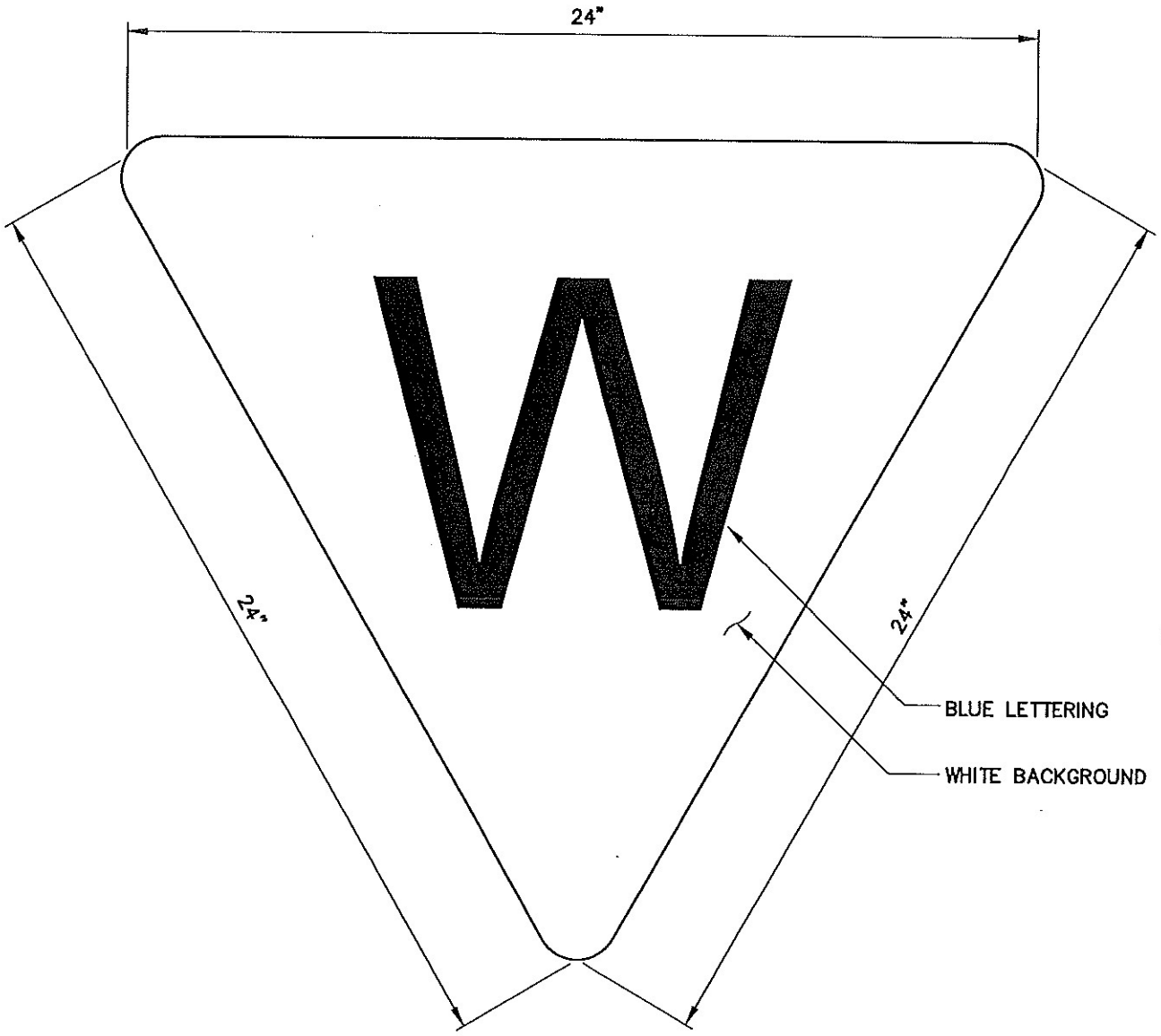
SCALE: NONE

REVISIONS: 10/8/2013

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: APRIL 2013

FIGURE 21



STANDARD DETAIL DRAWING

WATER SUPPLY SIGN FOR FIRE PROTECTION

SCALE: NONE

REVISIONS:

REGULATIONS FOR PUBLIC IMPROVEMENTS

DATE: APRIL 2013

FIGURE 22

Specification No. 322 - 2" Bituminous Concrete Overlay

Scope of Work

Under this item, the Contractor shall construct bituminous concrete pavement overlay of two inch compacted thickness. This work shall be performed in conformity with the line, grade and dimensions shown on the plans or as directed.

Materials and Method of Construction

Materials and method of construction shall conform to applicable provisions of CONN-DOT Specifications, Form 816, 2004, Section M 4.04, Bituminous Concrete, Super Pave.

Method of Measurement and Basis for Payment

This work will be measured for payment by the actual number of square yards of completed and accepted bituminous concrete overlay and will be paid for at the contract unit price per square yard for "2" Bituminous Concrete Overlay," which price shall include all the work described above and for all labor, materials, equipment, tools and incidentals necessary to complete this item.

Specification No. 405 - Concrete Pavement Removal

Scope of Work

Under this item the Contractor shall remove and dispose of concrete pavements, including bituminous covered concrete pavements, plain or reinforced and of whatever thickness encountered, where shown on the plans or as directed by the Engineer.

Materials and Method of Construction

At locations where the limit of the concrete pavement to be removed is not along the line of an existing joint, the pavement shall be removed by sawcutting prior to the removal, so as to establish a neat, true joint line between the existing concrete and the abutting new pavement.

The equipment for sawing shall be a rotary-blade, power-driven concrete saw of an approved type and of sufficient capacity to effectively accomplish the required work. The depth of cut shall be at least twenty (20) percent of the existing pavement thickness but in no case less than one inch. All cuts shall be plumb and cut in such a manner as will permit breaking and removal without damage to the sawn face of the concrete. The Contractor shall protect the portions of existing pavements to remain against loss of foundation material at cutting planes.

In locations where bituminous pavement is covering the concrete slab(s), the contractor shall remove the concrete and bituminous pavement in such a manner so as not to disturb adjacent pavement within the limits as shown. Repairs to any damage outside the shown limits will be the responsibility of the Contractor.

Method of Measurement and Basis of Payment

Payment for this work will be made at the unit price bid for each square yard of "Concrete Pavement Removal" as actually removed and shall include the cost of saw cutting, breaking up, removal and disposal of concrete and all labor, tools and equipment necessary to complete the item as specified.

KISTNER CONCRETE PRODUCTS INC.
8713 READ ROAD
E. PEMBROKE, N.Y.
14056
(716) 894-2267

PRODUCT DESIGNATION

MANHOLE 4' DIA. SHALLOW STORM CATCH BASIN

DWG. NO.
MH4CB-RVL ©
5/23/12

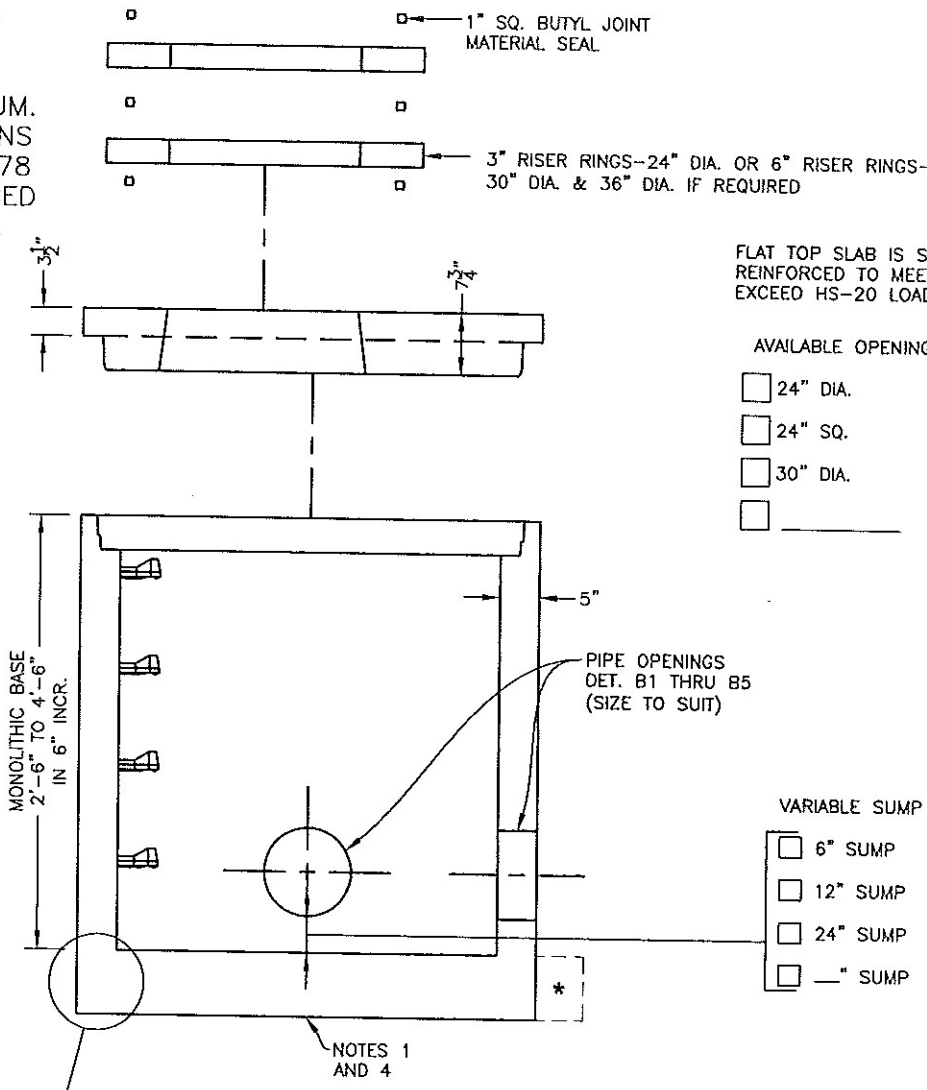
GENERAL NOTES:

1. REINFORCED STEEL CONFORMS TO ASTM A185 SPEC. 0.12 in^2/LF AND 0.12 in^2/LF B/W IN BOT. SLAB 48" DIA. BARREL.
2. CONCRETE COMPRESSIVE STRENGTH 4,000 PSI. MINIMUM.
3. MANHOLE DESIGN SPECIFICATIONS CONFORM TO LATEST ASTM C478 SPEC. FOR PRECAST REINFORCED CONCRETE MANHOLE SECTIONS.
4. ONE POUR MONOLITHIC BASE SECTION.
5. DOGHOUSE:
   H= _____
   W= _____

DIMENSION FROM INVERT TO START OF CONE _____

BITUMASTIC COATINGS
(IF REQ'D) 2 COATS PER FACE

- ☐ INSIDE
- ☐ OUTSIDE
- ☐ NONE



FLAT TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED HS–20 LOADING.

AVAILABLE OPENINGS

- ☐ 24" DIA.
- ☐ 24" SQ.
- ☐ 30" DIA.
- ☐ _____

VARIABLE SUMP

- ☐ 6" SUMP
- ☐ 12" SUMP
- ☐ 24" SUMP
- ☐ —" SUMP

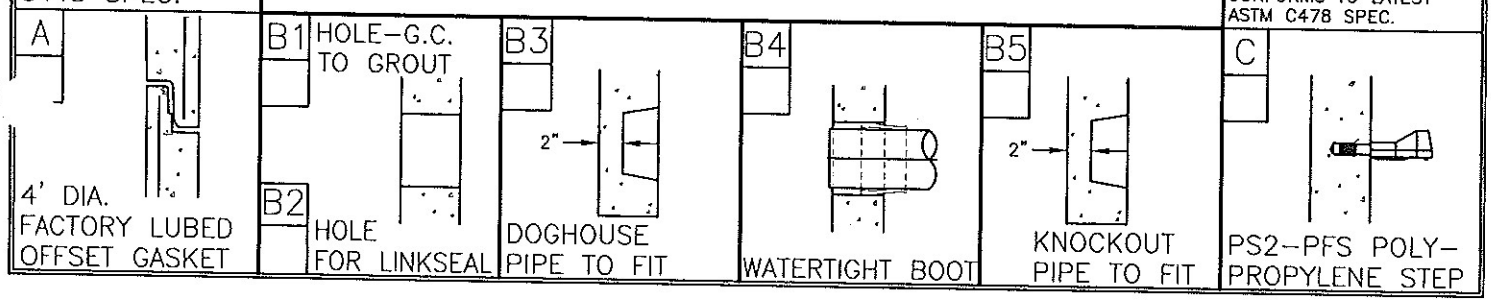
☐ **MONOLITHIC BASE**

- ☐ STANDARD BASE 8" THK.
- * OPTIONAL FLANGE – 6" WIDE
- ☐ OPTIONAL – 6" THK.
- ☐ OPTIONAL – 8"THK.

BASE SECTION TO BE SET PER JOB SPECIFICATIONS

O–RING SECTION JOINT CONFORMS TO LATEST ASTM C443 SPEC.

NOTE: STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC STEP CONFORMS TO LATEST ASTM C478 SPEC.



O:\Drawings\0New Stuff after 2-26-10\MANHOLES\4' DIA MANHOLES\Types\Storm Catch Basin\Mh4stcb-rvl.dwg