TOWN OF WATERFORD

CONNECTICUT

SUBDIVISION REGULATIONS

Revised Through Effective Date: April 5, 2018

Last Comprehensive Review of the Subdivision Regulations: April 5, 2018

First Subdivision Regulations Effective: May 4, 1948

The Town of Waterford Zoning Commission was created on June 3, 1939

The Planning & Zoning Commission was created on November 15, 1951

The Planning and Zoning Commission

Joseph Bunkley, Chairman

Susan Stott, Secretary

John Bashaw

Gregory Massad

Joseph DiBuono

Alternates:

Edwin J. Maguire

Staff

Abby Piersall, AICP	Planning Director
Mark Wujtewicz	Planner
Maureen FitzGerald	Environmental Planner
Thomas Lane	Zoning Official
Dawn Choisy	Recording Secretary

Contents

SECTION I - DEFINITIONS

ACRE shall be forty thousand (40,000) square feet.

AMENDED SUBDIVISION shall mean any change in a property line or improvement shown on a Subdivision or Re-subdivision map which has been approved and filed with the Town Clerk pursuant to these Regulations, other than a new subdivision or a re-subdivision.

APPLICATION shall mean the maps, prescribed forms, and fees duly and correctly completed for final subdivision approval as required by these Regulations and submitted to the Planning and Zoning Commission.

APPLICANT shall mean the party, whether a property owner or any person or entity acting as an agent for the property owner, applying for permits or other approval required by these regulations.

ARCHAEOLOGICAL RESOURCE shall mean a type of Cultural Resource consisting of prehistoric and historic remains of human activity, whether objects, structures or sites.

BUILDING shall mean any structure having a roof and intended for the shelter, housing, or enclosure of persons, animals, or materials. Any other structure more than six (6) feet high shall be considered as a building, including a solid fence or wall, but excluding an electric transmission line or an electric light, telephone or telegraph pole, radio or TV antenna, highway or railroad bridge, or flagpole.

BUILDING PERMIT CERTIFICATE OF COMPLIANCE shall mean that certification of zoning compliance issued by the Zoning Enforcement Officer prior to the issuance of a Building Permit by the Building Official, as required by Connecticut General Statutes Section 8-3(f).

CERTIFICATION shall mean a signed, written approval by the Commission that a soil erosion and sediment control plan complies with the applicable requirements of these regulations.

C.G.S. shall mean the Connecticut General Statutes.

COMMISSION shall mean the Waterford Planning and Zoning Commission.

CONSERVATION AREAS shall mean lands possessing or contributing to: significant geologic, cultural or archaeological features, important wildlife and/ or ecological habitats, forest, grassland, or wetland cover types, important agricultural soils, floodplains and floodways, coastal / marine resources and habitats, surface water and groundwater quality protection, and preservation and enhancement of the diversity and richness of natural communities.

CONSERVATION COMMISSION shall mean the Conservation Commission of the Town of Waterford as established in accordance with and pursuant to Chapter 2.52 of the Waterford Code of Ordinances and Chapter 5.3 of the Charter of the Town of Waterford as revised.

CULTURAL RESOURCE shall mean any location, landscape feature, or object of past human activity, identifiable through inventory, historical documentation, or oral evidence that represents history, lore, or identity deemed valuable to the community because of a significant historical event, aesthetic or scenic character, and/or sentiment that extends over generations of inhabitants.

CUL-DE-SAC shall mean a street or a portion of a street with only one (1) vehicular outlet to a through street, whose primary function is to provide access to abutting property, and which may be referred to as a dead-end street.

DATE OF RECEIPT shall mean the date of the Commission's next regularly scheduled meeting immediately following submission of an application, or thirty-five days after submission, whichever is sooner.

DEVELOPMENT shall mean any construction or grading activities to improved or unimproved real property, and includes but is not limited to the installation of required improvements and the disturbance of land related to the construction of a structure, installation of appurtenant utilities, operation or storage of equipment, installation of new infrastructure, and access from the existing or proposed public right of way.

DISTURBED AREA means an area where the ground cover is destroyed or removed, leaving the land subject to accelerated erosion.

DWELLING UNIT means a building or portion thereof, designated as the residence of one family or individual with suitable approved provisions for eating, sleeping, cooking, and sanitation.

EASEMENT shall mean a right of use for a specific purpose or purposes which one person or agency may have in a designated portion of land of another.

EROSION shall mean the detachment and movement of soil or rock fragments by water, wind, ice or gravity.

FINAL SUBDIVISION PLAN shall mean the plan containing all of the specifications and requirements of Section 4 of these Regulations.

FINAL APPROVAL shall mean all the following:

A. Vote of the Commission to approve or to modify and approve the plan of subdivision.
B. Posting of a bond to cover the cost of subdivision improvements and erosion and sedimentation control measures unless such improvements have been completed by

the applicant, unless no lots are to be sold in accordance with Section 6.13 of these Regulations.

C. Endorsement of approval by the Chairman or Secretary of the Commission on a mylar copy of the plan of subdivision that meets the requirements of Connecticut General Statutes Section 7-31 for filing with the Town Clerk and on a mylar copy and eight (8) white print paper copies of the plan for use by the Commission and other municipal agencies, all of such copies to be furnished by the applicant. The applicant shall also provide an electronic copy of the plan in PDF format and one of the following formats: Raster Image Files including but not limited to JPEG, TIFF, and BMP.
D. Submission of all data required by the Commission as a condition of approval, such as but not limited to, deeds, covenants and restrictions, revised plans, and homeowners association bylaws. Any conveyance to the Town shall be accompanied by a current Certificate of Title, prepared by an attorney admitted to the bar of the State of Connecticut, and certifying that such conveyance is free and clear of, or subordinated to, any mortgage, lien, restriction, or other encumbrance.

FLARED-END SECTION shall mean the prefabricated, flared end attached at the inlet and outlet to prevent erosion in a drainage system.

FRONTAGE shall mean the boundary of a lot abutting and having permitted vehicular access to a public street.

GRADING shall mean any excavating, grubbing, filling (including hydraulic fill), or stockpiling of earth materials or any combination thereof, including the land in its excavated or filled condition.

GROUNDWATER shall mean waters flowing through earth materials in a saturated zone beneath the ground surface.

IMPERVIOUS SURFACE shall mean any hard surface that prevents water from absorbing into the ground, such as rooftops, roadways, or compacted surfaces.

INSPECTION shall mean the periodic review of site work, stormwater control, and sediment and erosion control measures shown on the certified plan.

LOT shall mean a plot or parcel of land occupied or capable of being occupied by one principal building(s) and accessory buildings as specified under the Zoning Regulations.

LOT, FLAG shall mean a type of lot that has the following characteristics:

A. Smaller street frontage than what is typically required in a zoning district;
B. The smaller frontage generally serves as the access point for the lot, which continues as a long driveway (the “pole of the flag”);

C. The long driveway leads to lot that opens to a wider area capable of supporting the development of a house in accordance with the setbacks and other requirements of the Zoning Regulations.

LOW IMPACT DEVELOPMENT (LID) shall mean a site planning and design strategy intended to maintain or replicate predevelopment hydrology through the use of site planning, source control, and small-scale practices integrated throughout the site to prevent, infiltrate and manage runoff as close to its source as possible.

MAXIMUM EXTENT PRACTICABLE shall mean a measure of performance where: (1) all reasonable efforts have been made to meet a standard of these regulations in accordance with current local, state, and federal regulations; (2) a complete evaluation of all possible management measures has been performed; and (3) if full compliance cannot be achieved, the highest practicable level of management is being implemented.

OPEN SPACE shall mean land set aside for conservation or recreation purposes.

OVERFLOW WEIR shall mean a small dam commonly used in stormwater basins as an outfall control structure.

PERMEABLE shall mean any surface that allows water to absorb into the ground.

PERPETUITY shall mean of an indefinite duration.

PLAN OF PRESERVATION, CONSERVATION AND DEVELOPMENT (POCD) shall mean the Town of Waterford's most recently adopted community wide plan as required by Connecticut General Statutes Sec 8-23.

PLANNING OFFICE shall mean the Town of Waterford Department of Planning & Development

PIPE OUTLET shall mean an intentionally designed opening in a pipe that permits escape or release of liquid, etc.

RECHARGE shall mean the process by which water moves from sources above ground, into the subsurface environment, and adds to the groundwater supply. This process may happen naturally or may be engineered through the management of stormwater and wastewater.

RECREATION, ACTIVE shall mean activities engaged in for the purpose of relaxation, health and wellbeing, or enjoyment with the primary activity requiring physical exertion, and the primary focus on human activity. Such activities generally occur in areas that are intensively used and include but are not limited to playgrounds, ball courts, golf courses, and swimming pools.

RECREATION, PASSIVE shall mean activities engaged in for the purpose of relaxation, health and wellbeing, or enjoyment with the primary activity requiring limited or no physical exertion. Such

activities can occur in areas that are intensively used or areas that are seldom used and include but are not limited to walking trails, picnic areas, or posts set for resting, enjoying views, bird watching and similar activities.

REGULATIONS shall mean the Subdivision Regulations of the Town of Waterford, unless otherwise specified.

RESERVED AREAS shall mean sections of land reserved for future street connections, public facilities, foot paths, access ways or open space.

RESUBDIVISION shall mean a change in the map of an approved or recorded subdivision or resubdivision if such change:

A. Affects any street layout shown on such map.
B. Affects any area reserved thereon for public use.
C. Diminishes the size of any lot shown thereon and creates an additional building lot, if any of the lots shown thereon have been conveyed after the approval or recording of such a map.

RIGHT OF WAY shall mean a portion of land between property lines upon which a street, path, driveway, utility lines, or other improvements are built or reserved for future use. A right of way may be held under private or public ownership depending on its intended purpose.

RIGHT OF WAY WIDTH (STREET) shall mean the distance between property lines measured at right angles to the direction of the centerline of the street.

RIP-RAP shall mean the rock or other material used to armor shorelines, streambeds, bridge abutments, pilings and other shoreline structures against scour, water or ice erosion.

RUNOFF shall mean the draining away of water, and substances carried in it, from the surface of an area of land, a building or structure, etc.

SEDIMENT shall mean solid material, either mineral or organic, that is in suspension, is transported, or has been moved from its site of origin by erosion.

SEDIMENTATION shall mean the process of forming and depositing suspended matter carried in suspension in water through the action of gravity. It is usually accomplished when the velocity of water is below the point where it can transport the suspended material.

SHEET FLOW shall mean any form of unconfined runoff that occurs over a broad, expansive area, where a significant part of runoff is not conveyed in a single, well-defined channel.

SOIL shall mean any unconsolidated mineral or organic material of any origin.

SOIL EROSION AND SEDIMENT CONTROL PLAN shall mean a scheme that minimizes soil erosion and sedimentation resulting from development and includes, but is not limited to, a map and narrative and conforms to the Connecticut General Statutes and the Waterford Zoning Regulations.

STORMWATER shall mean water resulting from rain or snowmelt that runs off surfaces such as rooftops, paved streets, highways, parking lots and landscapes.

STORMWATER MANAGEMENT FACILITY shall mean a structural or landscaped component of any system designed to control or manage the path, storage, or rate of release of stormwater runoff and/or provide water quality treatment for stormwater.

STREET, ARTERIAL shall mean a major thoroughfare whose main function is to carry large volumes of traffic between major points. Arterials are designated in the Community Facilities Element of the Plan of Preservation, Conservation and Development.

STREET, COLLECTOR shall mean a street whose primary function is to carry moderate traffic volumes between local streets and arterial streets. It may also provide access to abutting properties. Collectors are designated in the Community Facilities Element of the Plan of Preservation, Conservation and Development.

STREET, LOCAL ACCESS shall mean a street whose primary function is to provide access to abutting properties. For the purpose of these Regulations, a local access street is any street other than an arterial or collector street as defined above, and includes cul-de-sacs.

STREETS shall include roads, avenues, boulevards, lanes or other vehicular ways, unless specifically specified as a Local Access Street, a Collector Street, or an Arterial Street as defined in this section. It shall mean a public way accepted by the Town of Waterford or the State of Connecticut, or a street in an approved subdivision, but shall not include private rights of way.

STREET RIGHT OF WAY shall mean that portion of land between property lines over which a public road is built and the adjacent area reserved for future widening and improvements.

STRUCTURE shall mean anything constructed or erected, the use of which requires i) location on, in, or under the ground or water; or ii) attachment to something having location on the ground or water including, but not necessarily limited to, buildings and other structures, fabric covered frame enclosures, swimming pools, tennis courts, towers, paddle or platform tennis courts, docks, balconies, open entries, porches, decks, handicap ramps, signs, permanent awnings, gas or liquid storage tanks that are principally above ground, ground-mounted antennas, ground-mounted solar panels or satellite dishes, and fences or walls more than six feet in height.

SUBDIVISION shall mean the division of a tract or parcel of land into three or more parcels or lots for the purpose, whether immediate or future, of sale or building development, expressly

excluding development for municipal, conservation or agricultural purposes and includes resubdivision.

SUBDIVISION, CLUSTER shall mean a residential development project permitted under the Subdivision Regulations that is designed and constructed to incorporate larger tracts of open space than what is required for conventional subdivisions, thereby providing greater protection to natural resources and/or providing greater opportunity for recreation. Larger tracts of open space are incorporated into these development projects primarily by reducing the dimensional requirements imposed in that zoning district (e.g., lot size, setbacks) thereby reducing the overall footprint of development.

SUBDIVISION, CONVENTIONAL shall mean a residential development project permitted under the Subdivision Regulations that is designed and constructed in compliance with the dimensional requirements of the zoning district in which it lies.

SWALE shall mean a depression created in the ground designed to carry water by gravity away from a structure or property.

TOPSOIL shall mean arable earth materials, including loam, that constitute the surface layer of the earth suitable for growing vegetation and supporting subsurface ecological systems due to the amount of organic matter and moisture therein.

TOWN shall mean the Town of Waterford.

TOWN STANDARD DETAILS shall mean specifications provided by the Director of Public Works or Utility Commission for the installation of infrastructure and public improvements.

TURF shall mean grass and the topsoil held together by its roots.

WATERCOURSES shall be as defined in the Waterford Inland Wetlands and Watercourses Regulations.

WETLANDS shall be as defined in the Waterford Inland Wetlands and Watercourses Regulations.

SECTION 2 – PRELIMINARY SUBDIVISION PLAN

2.1 PURPOSE AND PROCEDURE – The purpose of a preliminary subdivision plan is to provide an opportunity for both staff and potential applicants to review the proposal's compliance with the requirements of the subdivision regulations. Submittal of a preliminary subdivision plan is not required but is strongly recommended. Such reviews are primarily design oriented and all efforts must be made to create a proposal that meets not only the letter, but the intent, of the Subdivision Regulations.

Preliminary subdivision plans provide the Commission's staff and potential applicants with an opportunity to review the design's compliance with the Subdivision Regulations before potential applicants incur engineering, application, and legal costs in conjunction with a formal application. Preliminary reviews can point out potential areas of conflict that can be addressed through redesign at an early stage, thus simplifying the process during formal review with the Commission.

Before preparing a detailed subdivision plan for formal presentation to the Commission, potential applicants should provide a preliminary subdivision plan to the Commission's agent for review. These plans will also be referred to various Town departments for their review and comment. Review meetings can be scheduled with the Commission's agent upon request by contacting the Planning Office.

Preliminary plans have no official status and staff review with regard to their feasibility in no way implies approval of the final subdivision plan. No fee or application form is required for review of a preliminary subdivision plan. Questions involving interpretations of the regulations may be presented to the Commission if such conflicts have substantial impact on the preliminary design. In all cases, subdivisions shall be designed with respect to the parcel's unique characteristics and the capacity of the land to accommodate the design proposed.

2.2 CONTENTS – The preliminary subdivision plan, if submitted, shall be drawn to scale and shall contain the information required as part of the Preliminary Plan Checklist in Appendix A.

SECTION 3 – SUBDIVISION APPLICATION PROCEDURES

3.1 PURPOSE – The purpose of this section is to provide predictable, lawful, and clear procedures for the review of subdivision applications in the Town of Waterford. These procedures are designed to demonstrate compliance with all development standards found within these subdivisions regulations through the provision of plans and information to the Commission, and, within the framework set by state law, to provide the Commission with procedures for reviewing applications for subdivisions, discussing applications within a public setting, and rendering decisions.

3.2 CONTACT COMMISSION – All applications for a subdivision shall be submitted to the Planning Office. Applications shall be received at the next regularly scheduled meeting of the Commission immediately following the date of submission or 35 days after submission whichever occurs first.

3.3 REVIEWS BY THE WATERFORD CONSERVATION COMMISSION

3.3.1 Plans Including Regulated Wetlands/Watercourses – If an application includes land defined as an inland wetland or watercourse under the provisions of Chapter 440 of the Connecticut General Statutes or contains upland review areas as defined in the Town of Waterford Inland Wetland and Watercourse Regulations, the applicant shall submit an application to the Waterford Conservation Commission (the inland wetlands regulatory agency for the Town of Waterford) no later than the day the application is filed for the subdivision or resubdivision with the Commission. For purposes of this section, no application for subdivision or resubdivision which requires an Inland Wetlands Permit as determined by the Conservation Commission or its agent shall be approved by the Commission without an Inland Wetlands Permit.

Applications received without proof of submittal to the Conservation Commission for an Inland Wetlands Permit may be determined to be incomplete and may be denied. Withdrawal or denial of an Inland Wetlands Permit application while a concurrent application is pending before the Planning & Zoning Commission may be considered reason for denial of the application. When such conflicts arise, applicants should withdraw the application.

3.3.2 All Subdivision Plans – The Commission shall provide a copy of the received application to the Conservation Commission and request that the Conservation Commission evaluate the application for consistency with environmental, open space and recreational goals identified in the POCD. The Commission shall consider the Conservation Commission's report in taking final action.

3.4 SUBMISSION OF PLAN, APPLICATION AND FEE – The plan shall be submitted with an application in the form prescribed in Appendix B of these Regulations with the application fee. For those subdivisions located fully or partially within the coastal boundary as defined by CGS 22a-94 and as delineated on the Coastal Boundary Map for the Town of Waterford which are subject to a Coastal Site Plan Review pursuant to Connecticut General Statutes Section 22a-105 through 22a-109, the subdivision plan submitted shall in addition include an application for a Coastal Site Plan Review. Fees for subdivision applications and Coastal Site Plan Reviews are listed in the Waterford Code of Ordinances Chapter 16.08, as amended. In the case of a resubdivision, the fee or fees shall apply only to those lots proposed for change by the subdivision. The plan submitted shall be the plan upon which action is taken by the Commission. Modifications to the plan may be made by the applicant or by action of the Commission to approve a subdivision plan.

3.5 HEARING – The Commission may hold a public hearing regarding any subdivision proposal within sixty-five (65) days of the date of receipt thereof if, in its judgment, the specific circumstances require such action. No plan of resubdivision shall be approved by the Commission without a public hearing. Notice of the hearing shall be published in a newspaper of general circulation in the Town at least twice (2) at intervals of not less than two (2) days, the first not more than fifteen (15) days, nor less than ten (10) days, and the last not less than two (2) days prior to the date of such hearing, excluding the date of the hearing and the date of publication; and by sending a copy thereof by registered or certified mail to the applicant.

Additional public notice shall be provided for subdivision applications for which a public hearing is to be held, as follows: The applicant shall provide a list of property owners within 100 feet including names of all property owners, street address per the Assessor's map, and Assessor's map(s) and parcel number(s) for each property. Such list shall be provided at the time of application submission. Such notice shall be made by the applicant or his agent by contacting all property owners within 100 feet or less of the parcel to be subdivided. Such mailing shall be sent to at least one owner of each such property not more than 15 days nor less than 10 days before the date set for the public hearing, by transmitting the text of the public hearing notice as provided by the Commission or its agent. Evidence of such mailing, in the form of United States Post Office Certificates of Mailing, shall be submitted to the Planning & Zoning Commission office not less than 5 calendar days prior to the hearing date. Failure to provide notice as required herein may result in denial of the application.

3.6 REFERRAL TO REGIONAL PLANNING AGENCY – When a subdivision is proposed that will abut or include land in a neighboring municipality the Commission shall, before approving the plan of subdivision, submit a copy of the plan to the Southeastern Connecticut Council of Governments. The Agency shall, within thirty (30) days, report to the Commission and the applicant its findings on the inter-municipal aspects of the proposed subdivision. Such report shall be purely advisory and the failure of the Agency

to submit a report within thirty (30) days after transmittal shall imply that the Agency does not disapprove of the proposed subdivision.

3.7 VOTE BY THE COMMISSION – The Commission shall approve, modify and approve, or disapprove any subdivision application or maps and plans submitted therewith within sixty five (65) days after the public hearing thereon or, if no public hearing is held, within sixty five (65) days after the receipt thereof, provided, however, an extension of time not to exceed a further period of sixty-five (65) days for all time periods, cumulatively, may be had with the consent of the applicant. Notice of the decision of the Commission shall be published in a newspaper having a substantial circulation in the municipality and addressed by certified mail to the applicant by its secretary or clerk, under the secretary or clerk's r signature within fifteen (15) days after such decision has been rendered.

3.8 POSTING OF BOND – Prior to sale of any lots in the subdivision, the Commission shall require the applicant to post a performance bond in an amount and with surety and conditions satisfactory to it securing to the municipality the actual construction and installation of all improvements as required by Section 6 and measures for erosion and sedimentation control as required by Section 4.3 of these Regulations which have not been completed by the applicant. The amount of the performance bond shall be determined by the Commission after consultation with the Director of Public Works and the Utility Commission, as appropriate. The Planning and Zoning Commission shall not accept insurance bonds. Release of bonds and acceptance of improvements shall be governed by sections 6.14 and 6.15 of these Regulations.

3.9 CONDITIONAL APPROVAL – The Commission may allow the conditional endorsement of the approved subdivision plan to be filed prior to the submission of a performance bond. The plans shall have a signature block for the Chairman to endorse the conditional approval. The signature block shall be located below a notation which reads in bold print: "This subdivision has been conditionally approved. No transfer of title for any lot shall occur until the required improvements have been completed and final approval has been granted or upon the provision of a performance bond in accordance with these regulations ($1,000.00 penalty per lot)."

Above the required note shall be a blank space measuring 3" high by 5" wide for the final plan endorsement. The endorsement of this block shall constitute release of conditional approval and final plan approval. Prior to the filing of a subdivision plan conditionally approved, an erosion control and site restoration bond shall be submitted to the Commission. The bond shall be at least 10% of the total performance bond estimate and shall ensure compliance with the certified erosion control plan, and to allow for site restoration. Notice of conditional approval shall be posted in the land evidence records by the use of the form in Appendix C of these Regulations.

3.10 ENDORSEMENT OF THE PLAN – If the Commission votes to approve a plan or modify and approve a plan, its approval with the date thereof, together with a statement of any modifications applying to such approval, shall be endorsed and signed by the Chairman or Secretary of the Commission. Prior to endorsement, the Applicant shall provide two paper copies and one PDF copy of the plan to the Planning Office to serve as check prints. Other supporting electronic files shall be provided in accordance with the checklist requirements in Appendix A. These check prints shall be reviewed administratively to confirm that any conditions of approval have been met. Upon satisfactory review of the check prints, the Applicant shall provide one mylar copy and eight (8) white print paper copies with space provided for endorsement. Any lot not approved for building purposes shall be so marked on the plan prior to endorsement. Such endorsement shall occur, and the applicant notified, as follows:

3.10.1 Not more than thirty (30) days after the time for taking an appeal from the action of the Commission has elapsed; or not more than thirty (30) days after the date that plans modified in accordance with the Commission's approval and that comply with Connecticut General Statutes Section 7-31 are delivered to the Commission, whichever is later.

3.10.2 In the event of an appeal prior to endorsement, the Commission endorsement shall occur not more than thirty (30) days after the termination of such appeal by dismissal, settlement, withdrawal, or judgment in favor of the applicant, or not more than thirty (30) days after the date that plans modified in accordance with the Commission's approval and that comply with Connecticut General Statutes Section 7-31 are delivered to the Commission, whichever is later.

No such plan shall be recorded or filed in the Office of the Town Clerk until its approval has been endorsed thereon by the chairman or secretary of the Commission, and the filing or recording of a subdivision plan without such approval shall be void. At such time as the Commission Chairman or Secretary endorse the Final Subdivision Plan in accordance with the preceding paragraph, the Commission shall cause the applicant to be notified, by certified mail, that such endorsement has occurred. Such notice shall constitute "delivery" for the purposes of Connecticut General Statutes Section 8-25.

3.11 FILING THE PLAN – The endorsed mylar of the Final Subdivision Plan shall be filed by the applicant in the Office of the Town Clerk and any plan not so filed within ninety (90) days following the date of the Commission's vote to approve the subdivision or within ninety (90)days of the date upon which such plan is taken as approved by reason of the failure of the Commission to act, shall become null and void, except that the Commission may extend the time for such filing for two additional periods of ninety (90) days and the plan shall remain valid until the expiration of such extended time.

3.12 ALTERATION OF FINAL SUBDIVISION PLAN PRIOR TO FILING WITH TOWN CLERK – No Final Subdivision Plan may be altered without approval from the Planning and Zoning Commission. If the Final Subdivision Plan is altered, changed, erased or revised in any

way between the time the Commission's approval is endorsed thereon and the time the Plan is filed with the Town Clerk, the modification shall be void unless the alteration has been approved by the Commission and so indicated on the Plan.

3.13 ALTERATION OF FINAL SUBDIVISION PLAN AFTER FILING WITH TOWN CLERK – If the Final Subdivision Plan is altered, changed, erased, or revised in any way after the time the Plan is filed with the Town Clerk, the modification shall be void unless the Amended Subdivision has been approved by the Commission and a new Final Plan endorsed and filed with the Town Clerk.

3.14 AMENDMENT OF AN APPROVED SUBDIVISION – Amendments to an approved subdivision may be approved through a Zoning Compliance Permit when one or more of the following conditions are met and the amendments do not require resubdivision pursuant to Connecticut General Statutes:

3.14.1 Lot Line Revisions where no more than two lot lines are revised.
3.14.2 Corrections of clerical errors.
3.14.3 Minor modifications to proposed improvements not in areas reserved for public use, provided that the modifications do not adversely affect adjacent properties, stormwater management features, or otherwise impair public health, safety or welfare.

Where amendments to an approved subdivision do not meet the above criteria for administrative approval, the Commission may approve an amended subdivision upon request of the Applicant. All provisions of the original approved subdivision or re-subdivision shall be complied with, except as specifically approved by the Commission. No amended subdivision shall be deemed final until an endorsed Final Subdivision Plan has been filed in the Office of the Town Clerk. The Commission shall hold a public hearing when reviewing proposed amendments meeting the definition of resubdivision.

3.15 COMPLETION OF WORK – Any person, firm or corporation making any subdivision of land shall complete all work in connection with such subdivision within five years after the approval of the plan for such subdivision; the Commission's endorsement of approval on the plan shall state the date on which such five year period expires. For purposes of this section, the term "work" shall mean all physical improvements required by the approval plan, other than staking out lots, and includes but is not limited to the construction of roads, storm drainage facilities and water and sewer lines, the setting aside of open space and recreation areas, installation of telephone and electric services, planting of trees and other landscaping, and installation of retaining walls or other structures.

3.16 PENALTY FOR FAILURE TO COMPLY – In accordance with Connecticut General Statutes Section 8-25, any person, firm, corporation, partnership or association making the subdivision or re-subdivision of land without approval of the Commission shall be liable

to a fine of One Thousand ($1,000.00.) Dollars for each lot sold or offered for sale. In the event that any subdivider shall violate these Regulations, or the conditions or requirements of any subdivision approved hereunder, the Commission may, following a public hearing with notice by certified mail to the violator, void, in whole or in part, any such subdivision approval, and may cause notice thereof to be filed in the Land Records.

3.17 EXTENSION OF TIME – In accordance with Connecticut General Statues Section 8-26c, the Commission may grant extensions of time for the Applicant or Applicant's designee to complete all public improvements, such extensions of time not to exceed an additional five (5) years. In determining whether to grant such extensions of time, or the length of each such extension of time, the Commission shall consider:

3.17.1 The number of dwellings or other buildings occupied in the subdivision and served by such public improvements. As the occupancy of a subdivision increases, the need for the completion and acceptance of the improvements also increases.

3.17.2 The extent to which public improvements are incomplete and the amount of work required for final completion. The more work that remains to be done, the more time is appropriate and, conversely, the less work that remains to be done, the more feasible it is for the subdivider to finish the work and have the public improvement accepted.

3.17.3 The length of time that the public improvements have been at their current stage of completion. To the extent that the subdivider is not diligently working to complete public improvements, a shorter period of extension is appropriate.

3.17.4 The overall condition of access roads and other public improvements that are necessary for emergency services, resident access, visitor access, and other vehicles and pedestrians. To the extent that public improvements are difficult or inconvenient to use, a shorter period of extension is appropriate.

3.17.5 Changes in the zoning or subdivision regulations, or in applicable State laws, that render the subdivision noncompliant with current standards of public health, safety, welfare, environmental protection, coastal area management.

3.17.6 Other matters that the Commission may lawfully consider when acting on subdivision applications.

SECTION 4 – FINAL PLAN REQUIREMENTS

4.1 CONTENTS – An applicant for subdivision shall submit Final Plan materials in accordance with the application checklists attached as Appendix A to these regulations. These checklists are designed to provide information required by the Commission in order to determine compliance with the design standards within these regulations and render a decision. These plans include:

4.1.1 Context Plan – The purpose of this plan is to provide the geographic and planning context of the property and the surrounding environs.

4.1.2 Existing Conditions Plan – The purpose of this plan is to provide a comprehensive inventory of the physical opportunities and constraints on the property. Conditions beyond the property boundaries may be described on the basis of existing published data available from governmental agencies, and from aerial photographs.

4.1.3 Proposed Subdivision Plan Set – The purpose of this plan is to provide a fully engineered subdivision design that meets the design requirements of these regulations. Lot sizes and other bulk requirements shall be in accordance with Section 3.16 of the Zoning Regulations. The Commission shall review the plan to assess its accuracy, conformance with municipal regulations, and likely impact upon the natural and cultural resources on the property.

4.1.4 Supplementary Information – The purpose of this submittal is to provide narrative information or other documentation that substantiates the information on site plans.

4.1.5 Supporting Materials – The purpose of this submittal is to ensure the Town has information regarding other permits, utilities, encumbrances, and similar issues.

4.2 THIRD PARTY PEER REVIEW – Pursuant to the Waterford Code of Ordinance Chapter 16.08, the Commission may require third party peer review for conventional or cluster subdivisions in accordance with the following conditions:

4.2.1 The Commission shall require third party peer review for any proposed subdivision that will require site disturbance of more than ten (10) acres. This peer review shall include a review of the design and viability of the stormwater management system, the provision of access to the Town for enforcement or repair related to project infrastructure, and compliance with all applicable local regulations.

4.2.2 The Commission may require third party peer review for projects that disturb fewer than ten (10) acres, but have the potential to adversely impact municipal infrastructure, adjacent properties, require significant regrading of existing topography, or that may create hazardous conditions during or after construction.

4.2.3 The Commission may waive the requirement for third party peer review where there will clearly be no adverse impact to municipal infrastructure, and where site conditions do not require significant regrading of existing topography.

4.3 EROSION & SEDIMENT CONTROL PLANS AND NARRATIVE – In order to minimize the erosion of topsoil and the depositing of sediments in drainage structures and watercourses in the Town of Waterford, the Commission shall require that plans for the subdivision of land include measures the applicant will take to control erosion and sedimentation during the construction of the subdivision and to prevent its occurrence after completion of the subdivision. This requirement shall apply to both standard and cluster subdivisions. Erosion and Sediment Control measures shall be in conformance with all applicable provisions of the Town of Waterford Zoning Regulations.

SECTION 5 – DESIGN REQUIREMENTS

5.1 GENERAL CONSIDERATIONS – Land to be subdivided shall be of such character that it can be used for building purposes without danger to health and public safety. Every effort shall be made to locate streets, building lots and open space in a manner that avoids sensitive resources, reduces disturbance and associated impacts, and manages construction and post-construction impacts. To the extent possible, development shall be compatible with the landscape and existing cultural and archaeological resources, resulting in a minimum disturbance of the natural terrain and vegetation.

5.2 LAND SUBJECT TO FLOODING – In areas contiguous to water bodies subject to flooding, including tidal flooding, proper provisions shall be made for protective flood control measures. Such land as identified on Flood Insurance Rate Maps and in the Flood Insurance Study as amended shall not be subdivided unless the following conditions are met:

5.2.1 Water supply and sewage disposal systems shall be designed and located so as to avoid impairment or contamination from flooding, erosion or related circumstances.

5.2.2 All utilities shall be located and constructed to minimize or eliminate flood damage.

5.2.3 Drainage systems shall be designed to reduce exposure to flood hazards.

5.2.4 The Applicant shall demonstrate that proposed development conforms to all applicable FEMA requirements.

5.2.5 The Applicant shall demonstrate that proposed development meets the requirements of section 25.3 of the Waterford Zoning Regulations.

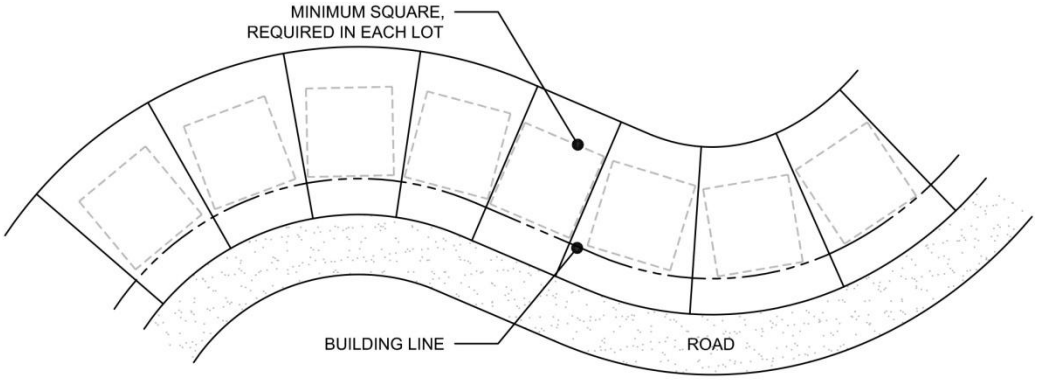
5.3 LOTS

5.3.1 Lot Sizes – All lots in proposed subdivisions shall conform to the requirements of the Zoning Regulations, except that the Commission may require larger lots if needed to conform to state or local health requirements and Section 3.34 of the Zoning Regulations.

5.3.2 Frontage – All lots shall have frontage on an approved street consistent with the Zoning Regulations of the Town of Waterford. Access to a lot shall be taken across the frontage of the lot except lots fronting on arterial roads and in the case where the Commission determines that a combined drive serving two lots will reduce traffic conflicts or reduce environmental impacts. In subdivisions which include or abut arterial streets, the layout of lots shall avoid having lot frontages on the arterial street, unless provisions are made for frontage improvements that control noise and limit access to a level of safety equivalent to a public road intersection with an arterial road as prescribed in Section 5.6.

5.3.3 Side Lot Lines – Wherever possible, side lot lines shall be at right angles to the road and radial to curves. The width of the lot shall not be reduced below the minimum frontage required from the front property line to the building line.

5.3.4 Minimum Square – Each lot shall be capable of containing a square, each of whose side dimensions shall be equal to the minimum lot width required in the zone in which it is located. The minimum square shall be located at the building line. The minimum buildable square, as required in Section 3.34 of the Zoning Regulations, shall be located within the minimum square. (See illustration).



BUILDABLE LOT AREA
NOT TO SCALE

MINIMUM SQUARE REQUIREMENT ALLOWS FLEXIBILITY IN FRONTAGE REQUIREMENTS AND RESULTS IN MORE UNIFORM LOT AREAS AT THE SAME RELATIVE DENSITY

5.3.5 Lots On Slopes – In the case of lots on land sloping more than ten (10) percent, the Commission shall require that the construction plan, as required pursuant to the Application Checklists of these Regulations, shall show the location of the proposed principal building, driveway, and sewerage leaching field, if any. Wherever possible, the first floor elevation of a principal structure shall be higher than the grade of the road on which it fronts.

5.3.6 All Land to Be in Lots – No land owned by the subdivider adjacent to the subdivision shall be withheld by the subdivider which is not capable of satisfactory independent subdivision into lots of the size specified. Nor shall there be any fragment of a lot or remainder in the subdivision area of less size than specified for lot dimensions. Fragments and remainders must be incorporated into full size lots complying with all provisions of these Regulations and the Zoning Regulations.

5.3.7 No Unapproved Lots – No lot, regardless of size, which is rendered useless for building due to utility easements, right–of–way, watercourses, topography, or

lack of compliance with the Public Health Code or Section 3.34 (Lot Design Standards) of the Town of Waterford Zoning Regulations shall be shown as building lots on any subdivision. Such property shall be included in adjoining lots or Open Space.

5.3.8 Flag Lots – No more than twenty percent (20%) of any subdivision lots shall be flag lots. No more than one (1) lot may be located between the flag lot and the street from which the lot is accessed. Flag lots shall not be permitted within Cluster Subdivisions.

5.4 OPEN SPACE

5.4.1 General Requirements – The Commission shall consider significant and sensitive natural characteristics, archaeological and cultural resources of the property when identifying meaningful and appropriate open space lands. The Commission may require open space for active recreation when it finds that active recreation is consistent with the POCD, with particular attention to open space recommendations in the Open Space and Recreation or Community Facilities element of the POCD. For subdivisions containing 15 lots or more, the Commission shall require active open space to be provided in addition to the minimum open space requirement below. When required, active open space area shall be calculated as no less than 10% of the minimum open space required.

5.4.2 Minimum Requirement – In a conventional subdivision, at least 25% of the gross area of the subdivision shall be set aside and dedicated in perpetuity as open space and recreation area. The Commission may accept additional open space in order to protect important resources identified on the Existing Conditions Plan pursuant to the checklists found in Appendix A. Stormwater management facilities shall not count toward the minimum required open space area. For cluster subdivisions, the minimum amount of open space shall comply with the requirements of the Zoning Regulations Section 3.16.4. The land included in the preserved open space for any subdivision shall be deemed as highly valuable conservation and/or recreation land by the Commission in accordance with the POCD. As each site will present different opportunities, the applicant shall use the narrative section of the Supplementary Information to provide a justification for the proposed open space. Characteristics of land area that may be used as part of this justification may include, but are not limited to:

5.4.2.1. Land that contains significant cultural or natural resources; or
5.4.2.2. Land that is contiguous with other permanently protected open space; or

5.4.2.3. Land that would not otherwise be protected by local, State, or federal law; or

5.4.2.4. Land that provides protective buffers to neighboring residents, wetlands, or water courses; or

5.4.2.5. Land identified by the POCD as valuable for conservation; or

5.4.2.6. Land that is well-suited to the development of active recreation due to physical characteristics.

5.4.3 Power Lines – The minimum Open Space requirement shall not include power line rights of way.

5.4.4 Access Requirements - Open Space lands shall be accessible to all residential lot owners in the subdivision by a single dedicated common access point.

5.4.5 Exemptions – No open space shall be required in subdivisions of fewer than five lots or having the total area of the subdivision less than five acres. The Commission may require open space in such subdivisions when the property includes areas designated as open space or recreation in the Open Space and Recreation or Community Facilities elements of the POCD. The open space requirements of this section shall not apply if the transfer of all land in a subdivision of less than five parcels is to a parent, child, brother, sister, grandparent, grandchild, aunt, uncle or first cousin for no consideration, or if the subdivision is to contain affordable housing, as defined in section 8-39a of the Connecticut General Statutes, equal to twenty per cent or more of the total housing to be constructed in such subdivision. Such intended transfer shall be evidenced by covenants, restrictions, contracts, or other legally binding documents as the Commission may approve, which documents shall be filed in the Land Records in accordance with the procedure and other requirements of these Regulations. If the Commission determines, based on events subsequent to the approval of such subdivision, that such transfers were intended to be temporary, and for the sole purpose of evading the requirements of this Section 5.4.4, the Commission may void the subdivision in accordance these Regulations.

5.5 STORMWATER MANAGEMENT

5.5.1 Purpose – To reduce impacts of stormwater run-off volume and quality on receiving wetlands, waterways, groundwater resources, aquatic habitat and municipal drainage infrastructure.

5.5.2 General Criteria

5.5.2.1. Connecticut Stormwater Quality Manual. At a minimum, all subdivisions shall comply with the performance standards of the most

recent version of Connecticut Stormwater Quality Manual, as amended, as well as the General Criteria below. Stormwater management practices and measures shall be in conformance with all applicable provisions of the Town of Waterford Zoning Regulations. Where there may be a perceived conflict between the standards provided in these regulations and the Connecticut Stormwater Manual, the standards in these regulations shall govern.

5.5.2.2. No Untreated Discharges. All stormwater runoff generated from subdivision activities shall not discharge untreated stormwater runoff directly to a wetland, local water body, municipal drainage system, or abutting property, without adequate treatment.

5.5.2.3. Use of Low Impact Development (LID). Incorporation of LID measures is required to the maximum extent practicable for new development in order to promote recharge, reduce runoff volumes, and minimize reliance on structural stormwater management measures. Low Impact Development measures are site design techniques and practices that serve to preserve and maintain a site's pre-development hydrology through implementation of small-scale controls to manage run-off. The Site Design Criteria require that the site planning process shall be documented and shall follow the objectives listed in the Low Impact Development Appendix to the Connecticut Stormwater Quality Manual, including:

A. Avoiding installation of roof drains that discharge to impervious surfaces.
B. Directing flows to vegetated areas.
C. Directing flows from paved areas to stabilized vegetated areas.
D. Breaking up flow directions from large paved surfaces.
E. Encouraging sheet flow through vegetated areas.
F. Locating impervious areas so that they drain to permeable areas.
G. Maximizing overland sheet flow.
H. Lengthening flow paths and increase the number of flow paths.
I. Maximizing use of open swale systems.
J. Increasing (or augmenting) the amount of vegetation on the site.
K. Restricting ground disturbance to the smallest possible area.
L. Reducing pavement and impervious surface areas.
M. Avoiding compaction or disturbance of highly permeable soils.
N. Avoiding removal of existing trees.
O. Reducing the use of turf and using more natural land cover.
P. Maintaining existing topography and drainage divides.

Q. Locating structures, roadways on Type C soils where feasible.

5.5.2.4. Stormwater Practices on Residential Lots. Wherever practicable, the design of individual subdivision lots should incorporate LID stormwater practices to reduce run-off volumes.

5.5.3. STORMWATER DESIGN CRITERIA

5.5.3.1 Groundwater Recharge Volume (R_e)

A. Annual groundwater recharge rates shall be maintained by promoting infiltration through the use of structural and non-structural methods. At a minimum, annual recharge from the post-development site shall approximate the annual groundwater recharge from pre-development site conditions.

B. The R_e should be determined using the methods prescribed in the latest version of the Connecticut Stormwater Quality Manual. The recharge requirements shall apply to all activities within the jurisdiction of these Regulations except as noted, and unless specifically modified by the Commission. The Commission may relax or eliminate the recharge requirement at its discretion, if the site is situated on unsuitable soils or is in a redevelopment area with documentation of prior contaminated soils.

C. Soil testing shall be performed in locations that can substantiate the ability of subsurface conditions to recharge stormwater in accordance with the proposed stormwater management facilities. Depth to seasonal high groundwater, restrictive layers, and infiltration rates as determined through appropriate field permeability tests shall be verified by a qualified professional registered in the State of Connecticut.

5.5.3.2 Water Quality Volume (WQ_v) – the amount of stormwater run-off from any given storm that should be captured and treated in order to remove a majority of stormwater pollutants on an average annual basis, equivalent to run-off associated with the first one inch of rainfall.

The prescribed water quality volume required in the sizing of a structural stormwater practice shall be determined using the methods prescribed in the latest version of the Connecticut Stormwater Quality Manual.

5.5.3.3 Structural Practices for Water Quality

A. All structural stormwater management facilities shall be selected and designed using the appropriate criteria from the most recent version of the Connecticut Stormwater Quality Manual and the guidelines provided in Appendix G of these regulations.

An applicant may propose other tested and documented stormwater treatment facilities provided the technical design criteria and supporting scientific studies of the facility performance are provided for the Commission's review and approval.

B. Structural stormwater management facilities must be designed to, at a minimum, capture and treat the water quality volume (WQv) from the development area, and to reduce post-development stormwater pollutant discharge to the maximum extent practicable. Stormwater treatment practices shall be implemented in series to attain increased attenuation of stormwater pollutants. It is presumed the stormwater management facility functions and achieves documented pollutant removal rates if it is:

i) Accurately sized to capture the prescribed water quality volume;
ii) Designed according to the specific design and siting criteria outlined in the Connecticut Stormwater Quality Manual;
iii) Constructed properly; and
iv) Maintained regularly.

The Commission may require a stormwater treatment design to attenuate specific stormwater pollutants of concern where the receiving waters are identified as impaired or susceptible to water quality impairment, or are in areas where Total Maximum Daily Loads (TMDLs) have been established. Applicants may be required to submit documentation to demonstrate the performance of the facility

in removal of pollutants based on available scientific literature/studies documenting pollutant removal efficiencies.

Designed water quality structures treating run-off from more than one [1] lot shall be located within a designated stormwater drainage easement or stormwater open space area with an identified access way for maintenance equipment. Access ways shall be designed in accordance with Appendix G. Where the materials in Appendix G are silent on the issue of access, a 15-foot wide access way or equivalent feature shall be provided to allow unobstructed traverse of required maintenance equipment.

5.5.3.4 Runoff Reduction – Designers shall use Low Impact Development (LID) strategies and site design techniques to reduce the generation of stormwater runoff to the maximum extent practicable such that there is no discharge from the 1-year, 24 hour Type III design storm (i.e., the entire runoff volume is reused, infiltrated, evaporated, and/or otherwise retained on site). Proposed projects meeting this standard automatically meet the Water Quality standard. Projects that do not retain the 1-year, 24 hour Type III design storm on site are required to retain the stormwater runoff volume generated by the first inch of rainfall on site, and must meet the requirements for Water Quality. If full compliance is not provided, the application must document why key steps in the process could not be met and what is proposed as mitigation. The objective of this standard is to provide a process by which LID is considered at an early stage in the planning process such that stormwater impacts are prevented rather than mitigated.

5.5.3.5 Stream Channel Protection – Consistent with the Connecticut Stormwater Quality Manual and CT E&S Guidelines, protection of channels from bank and bed erosion and degradation shall be provided by:

A. Controlling the 2-year; 24-hour post-development peak flow rate to 50 percent of the 2-year; 24-hour pre-development level; or
B. Controlling the 2-year; 24-hour post-development peak flow rate to the 1-year; 24-hour pre-development level.

5.5.3.6 Channel Protection Waiver – Requirements for stream channel protection may be waived for:

A. Small sites (i.e., sites requiring less than 1-inch orifice); or
B. Sites with post-development discharges less than 2 cfs; or
C. Direct discharges to 4th order or greater streams, lakes, and reservoirs, where the development area is less than 5% of the watershed area upstream of the development site; or
D. Indirect discharges to an existing drainage network with adequate capacity to accommodate the flows from the site where the ultimate discharge is to a 4th order or greater stream, lake, or reservoir.

5.5.3.7 Flooding Protection (Q_p) – Downstream flood, property, and public safety protection shall be provided by attenuating the post-development peak discharge rates for the 10-year, 25-year and 100-year 24-hour return frequency storm events to the pre-development rates. In addition, designers must demonstrate that runoff from the site for storms up to the 100-year, 24-hour Type III design storm events actually reach proposed structural practices designed to meet this standard. The objective of this standard is to prevent an increase in the frequency and magnitude of overbank flooding and to protect downstream and abutting structures from flooding.

5.5.3.8 Downstream Impacts – Analysis of potential impacts to downstream channels, infrastructure, or property shall be required consistent with the guidance provided in Chapter 7 of the Connecticut Stormwater Quality Manual.

5.5.3.9 Conveyance Criteria

Where practicable, low impact development practices to promote sheetflow of roadway run-off to vegetated areas, permeable soils and water quality treatment facilities shall be incorporated to reduce concentrated run-off volumes and velocities.

A. The proposed stormwater conveyance system shall, at minimum, accommodate the runoff from a 10-year storm event. The discharge from any stormwater facility must be conveyed through properly constructed water courses to provide for non-erosive flows during all storm events. Rip-rap (or other approved energy dissipaters) shall be placed at all flared-end sections, pipe outlets, overflow weirs, drainage swales, and any other location. Rip-rap shall be sized such that the stones will be able to resist movement due to discharge velocity.
B. Catchbasins shall be located on both sides of the roadway on continuous grades at intervals of not more than three

hundred feet (300'), at low points, and at the corners of intersecting streets. Where a roadway is not crowned, and is pitched to one side, catch basins shall be required only on the downgradient side. Intervals of less than three hundred feet (300') may be required on steep grades. The Commission may ask for an inlet capacity analysis on a case-by-case basis.

C. All drain lines to be connected to the municipal drain line shall be constructed by way of a drain manhole being installed between the existing drain line and the proposed drain line(s).

D. Emergency outlets must safely pass the post-development peak runoff from the 100-year design storm event in a controlled manner without erosion of the outlet works or downstream drainage system and provide a freeboard of at least one (1) foot.

5.5.4 Hydrologic Basis for Design of Structural Practices

For facility sizing criteria, the basis for hydrologic and hydraulic evaluation of development sites are as follows:

5.5.4.1 Impervious cover is measured from the site plan and includes any material or structure on or above the ground that prevents water from infiltrating through the underlying soil. Impervious surface is defined to include, without limitation: paved parking lots, sidewalks, roof tops, driveways, patios, and paved, gravel, and compacted dirt surfaced roads. Alternative surfaces (e.g., porous pavement, grass pavers, etc.) are encouraged for low-traffic sidewalks and parking lots, and these areas may be removed from the total impervious area calculations when designing the stormwater system for recharge and water quality criteria only. General design guidance is included in the most recent version of the Connecticut Stormwater Quality Manual.

5.5.4.2 Off-site areas draining to the site shall be included in the hydrologic and hydraulic analyses.

5.5.4.3 The models TR-55 and TR-20 (or approved equivalent) shall be used for sizing all stormwater practices other than those used strictly for conveyance.

5.5.4.4 Stormwater conveyance features shall be sized using the Rational Method.

5.5.4.5 For purposes of computing runoff and assigning hydrologic curve numbers, all pervious lands in the site prior to development shall be assumed to be in “good” condition regardless of conditions existing at the time of computation.

5.5.4.6 The specified design storms shall be defined as 24-hour, Type III distribution design storm events using the rainfall amounts specified

for New London County in the most recent database from the Northeast Regional Climate Center.

5.5.4.7 Subdivisions shall apply these stormwater management criteria to the land development as a whole. Hydrologic parameters shall reflect the ultimate land development and shall be used in all engineering calculations. The volume or rate of run-off reduced by LID practices on individual lots shall not be factored into the design of stormwater management systems that control and treat run-off from the contributing drainage area of the subdivision property.

5.5.5 Operations and Maintenance Requirements

An Operations and Maintenance (O&M) plan for all stormwater management systems, including structural and non-structural controls, shall be submitted for Commission approval as part of the application documents. The O&M plan shall be developed to ensure the system and its components function as designed and is maintained so as not to create or result in a nuisance condition, such as but not limited to flooding, erosion, pollutant discharge, excessive algal growth, over-grown vegetation, mosquito breeding, unsightly debris, or impairments to public safety and health. The property owner shall have primary responsibility for implementing the operations and maintenance plan and submitting the annual inspection report.

5.5.5.1 Operations and Maintenance Plan

The operations and Maintenance plan shall contain at a minimum the following:

A. Stormwater management system(s) owners.
B. The party or parties responsible for operation and maintenance, including how future property owners will be notified of the presence of the stormwater management system and the requirement for proper operation and maintenance.
C. The routine and non-routine inspection and maintenance tasks for each stormwater management practice, a schedule for implementing these tasks and identification of the professional qualifications or certifications required by the entity conducting the inspection and maintenance tasks to be undertaken after construction is complete.
D. An outline of the annual maintenance inspection report.
E. A maintenance log for tracking inspections and repairs.
F. A plan that is drawn to scale and shows the location of all stormwater management facilities along with the discharge point.

G. A description and delineation of public safety features.
H. An estimated operation and maintenance budget.
I. Funding source for operation and maintenance activities and equipment.
J. Annual Maintenance Inspection Report template (see Subsection 5.5.8.2).
K. The Seal and Signature of a registered Connecticut Professional Engineer.

5.5.6. Connections to the Storm Drain System – Illicit connections to the municipal stormwater system are prohibited in accordance with Town of Waterford Code of Ordinances 13.16.100. Applications for subdivision shall indicate where pre-existing illicit connections exist and how these will be removed.

5.5.7 Review of Stormwater Management System Design and Construction – In addition to any other reviews required by these Regulations, the Commission shall refer all storm water management system designs to the Waterford Department of Public Works for review and comment, and the Commission shall give due consideration to the recommendations of such Department. In addition, prior to the acceptance of any public improvement which uses a storm water management system, the Commission shall require an as-built plan and certification by a CT Professional Engineer that the construction of such systems conforms to the approved plans.

5.5.8 Stormwater Management System Operation and Maintenance Agreement. Prior to the conveyance or transfer of any lot or issuance of any permit for land development for land development activity on a subdivision site requiring a stormwater management facility which requires ongoing maintenance, the applicant or owner of the site must execute an Operation and Maintenance Agreement that shall be binding on all subsequent owners of the site, portions thereof, and lots or parcels served by the stormwater management facility, unless an on-site stormwater management facility is dedicated to and accepted by the Town of Waterford.

Where stormwater management facilities will not be accepted as public improvements, deed language for stormwater easements and open space areas shall allow for inspection of the stormwater structures by designated Town of Waterford agents, upon due notification of the owner(s), for purposes of compliance inspection and reporting.

5.5.8.1 The Operations and Maintenance Agreement shall meet the following requirements:

A. The agreement shall include a copy of, and require compliance with, the Long-Term Operation and Maintenance Plan.
B. The agreement shall grant to the Town a right of entry in the event that the Town has reasons to believe it is necessary to inspect, monitor, maintain, repair, or reconstruct the structural stormwater management facility; however in no cases shall the right of entry of itself, confer obligation on the Town to assume responsibility for the structural stormwater management facility.
C. The agreement shall grant to the Town right of access to any stormwater conveyance facility that connects directly to the municipal storm drain system.
D. The agreement shall allow the Town to recover from the property or homeowner's association and its members any and all costs the Town expends to maintain or repair the stormwater management facilities or to correct any operational deficiencies. Failure to pay the Town all of its expended costs, after 45 days written notice, shall constitute a breach of the agreement. The Town shall thereafter be entitled to bring an action against the association and its members to pay, or foreclose upon property, or both, in case of a deficiency. Interest, collection costs, and attorney fees shall be added to the recovery.
E. The agreement shall include a statement that this agreement shall not in any way diminish, limit, or restrict the right of the Town to enforce any of its regulations as authorized by law.
F. The agreement shall contain a provision indemnifying and holding harmless the Town for any stormwater management facilities, unless the Town has agreed in writing to assume the maintenance responsibility for any stormwater management facilities as part of permit approval.
G. The agreement pertaining to every stormwater management facility shall be referenced on the final subdivision plan and in covenants and shall be recorded with the Town Clerk and the Commission upon final site plan approval.
H. The owner of each stormwater management facility shall keep records of inspections, maintenance, and repairs for at least five years from the date of the record and shall submit the same upon reasonable request to the Town.

The Operations and Maintenance Agreement language must be approved by the Town Attorney and recorded in the land records of the Town of Waterford.

5.5.8.2 Annual Maintenance Inspection Report. The party responsible for the maintenance of any stormwater management facility installed pursuant to this section, where the Town is not the responsible party for maintenance of a stormwater management facility, shall prepare and submit to the Commission an annual inspection report. The report shall be submitted annually beginning one year from the date the first Certification of Occupancy is issued for the subdivision and each year thereafter on or before January 1. The report shall be certified by a registered Connecticut Professional Engineer and shall contain the following information:

A. The name and address of the land owner.

B. The recorded book and page number of the lot of each stormwater management facility or a representation of the geographic location of each stormwater management facility.

C. A statement that an inspection was made of all stormwater management facilities, and the date the inspection was made.

D. A statement that the inspected stormwater management facilities are performing properly and comply with the terms and conditions of the approved maintenance agreement required by this article.

E. Digital photos of the stormwater management facilities and pertinent components integral to their operation, including but not limited to inlet/outlet control structures, downstream receiving channel/area, embankments and spillways, safety features, and vegetation.

5.5.9 Review of Stormwater Management System Design and Construction – In addition to any other reviews required by these Regulations, the Commission shall refer all storm water management system designs to the Waterford Department of Public Works for review and comment, and the Commission shall give due consideration to the recommendations of such Department. In addition, prior to the acceptance of any public improvement which uses a storm water management system, the Waterford Department of Public Works shall certify that the construction of such systems conforms to the approved plans, subject to any field modifications approved by said Department.

Where permitted by the Planning and Zoning Commission, a stormwater management system serving the subdivision or a portion thereof is to be

owned by a homeowners association, such stormwater management systems, including all non-structural and structural stormwater controls and conveyances, must have an enforceable operation and maintenance plan and agreement to ensure that it continues to function as designed. The owner of each stormwater management system shall maintain it so as not to create or result in a nuisance condition, such as but not limited to flooding, erosion, excessive algal growth, overgrown vegetation, mosquito breeding habitat, existence of unsightly debris, or impairments to public safety and health. Approval of any application for a subdivision shall include the approval of a Long-Term Operation and Maintenance Plan; an Annual Maintenance Inspection Report; and an Operation and Maintenance Agreement. The owner shall receive constructive notice of such maintenance obligation by the filing of a declaration on the land records for each such lot at the time of endorsement, which declaration shall be in a form acceptable to the Commission's attorney. Stormwater Management systems located on a single lot to serve that lot shall be maintained by the owner of said lot, which obligation shall be enforceable in accordance with a declaration using the form in Appendix E.

5.6 STREETS

5.6.1 Design Objectives – Proposed streets shall be designed in a thoughtful manner that is consistent with the POCD. Design objectives include:

5.6.1.1 Streets shall be designed in harmony with existing and proposed thoroughfares as shown in the POCD, especially in regard to safe intersections with such thoroughfares, and so arranged and of such width as to provide an adequate and convenient system for present and prospective traffic needs.

5.6.1.2 Street design and the layout of streets shall consider existing terrain and site features, and, where possible, should work with existing grades and avoid disturbance or elimination of on-site natural resources and amenities.

5.6.1.3 Stormwater runoff shall be managed with Low Impact Development (LID) stormwater management techniques to the maximum extent practicable in order to achieve the stormwater management goals of these regulations.

5.6.1.4 Streets shall incorporate design elements such as bike lanes and sidewalks to encourage these modes of circulation in those areas identified as nodes on the Town's POCD or where pedestrian or bicyclist demands are not being met.

5.6.1.5 Applicants shall locate utilities in a manner that facilitates efficient and effective long-term maintenance and eventual repair/replacement.

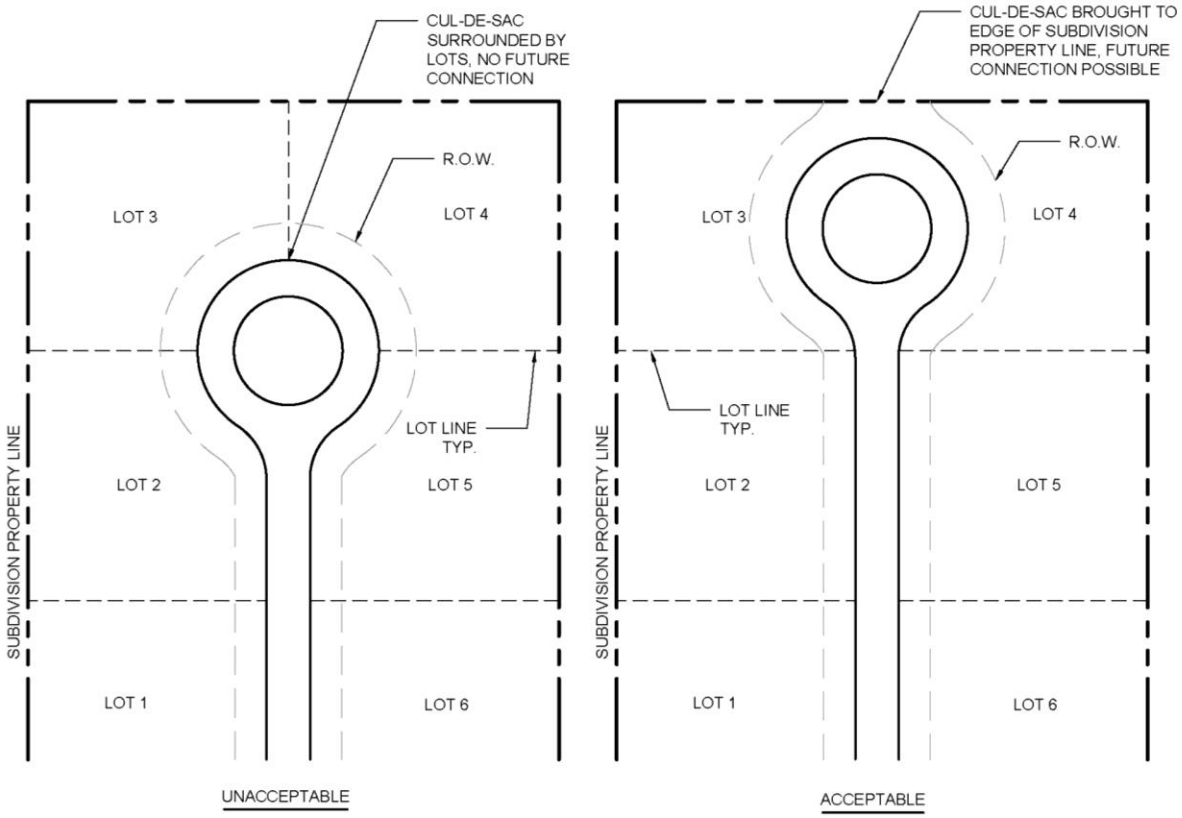
5.6.1.6 The elevations of proposed streets within Areas of Special Flood Hazard shall be at a minimum of 1 foot above the Base Flood Elevation (BFE).

5.6.2 Street Design Standards – Applicants shall design streets using the elements shown within the Town's Roadway Cross-Section Details (Appendix F). The purpose of these details is to illustrate how elements within the street right of way (e.g., sidewalks, swales, travel lanes, curbing, etc.) may be assembled to meet the design objectives in Subsection 5.6.1. Applicants may propose a cross-section as it is depicted in the Town's details, or may propose a different assembly of elements that better meet the design objectives in the context of existing site conditions. A summary of pavement width and street right of way width standards is provided in the table below and serves as a supplement to the Town's Roadway Cross-Section Details.

	Street Right of Way	Paved Width
Cul-de-Sac	50'	22' – 24'
Turn-around Area	58' radius	50' radius
Local Access	50'	24' – 26'
Collector	60'	32'
Arterial	60' – 100'	40'

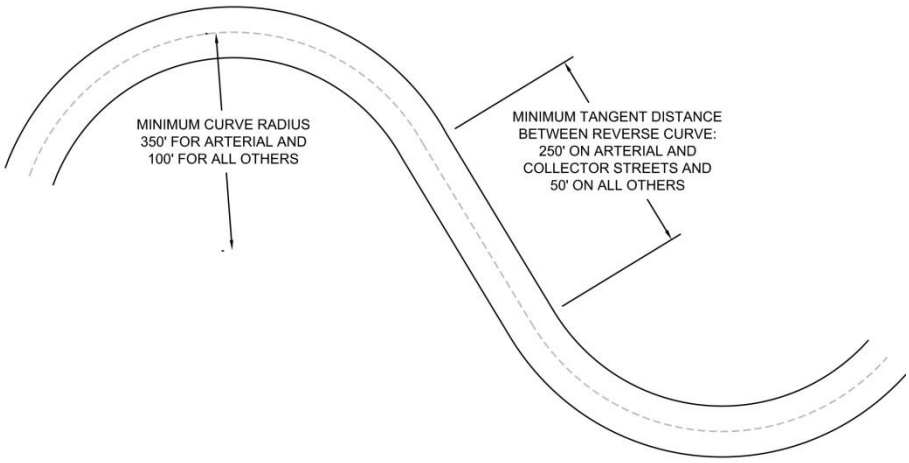
In addition to the street design standards provided above, the following shall apply:

5.6.2.1 Cul-de-Sac Length – A cul-de-sac shall not exceed eight hundred (800) feet in length unless it is of a temporary nature and is planned for extension and can reasonably be expected to connect with an existing or proposed road on adjoining land. For temporary cul-de-sacs, the pavement shall extend to the property line, and the turnaround at the end of the cul-de-sac shall include a temporary right of way for the area outside of the required street right of way width, which temporary right of way shall be released by the Town when the street is extended.



CUL-DE-SAC LAYOUT FOR FUTURE CONNECTION
NOT TO SCALE

5.6.2.2 Curves – The tangent distance between reverse curves shall not be less than two hundred fifty (250) feet on collector streets and fifty (50) feet on cul-de-sacs and local access streets. Except for intersections and turn-arounds on cul-de-sacs, no local access street curve shall have a radius of less than one hundred (100) feet and no collector street curve shall have a radius of less than three hundred fifty (350) feet, as measured radial to the center line. Curves greater than 8 degrees on collector roads may be super-elevated. Horizontal and vertical sight distances, horizontal and vertical rates of curvature, and super elevation shall satisfy the requirements of the Connecticut Department of Transportation Geometric Highway Design Standards (See illustration).



5.6.2.3 Intersections – Except where impractical because of topography or other conditions, cul-de-sacs and local access streets shall be perpendicular to intersections for a distance of at least one hundred (100) feet and collector streets shall be perpendicular to intersections for at least one hundred fifty (150) feet. Corners shall be rounded with a radius of not less than twenty-five (25) feet. Center lines of alternate side streets shall not be closer than one hundred twenty five (125) feet, measured along the center line. Wherever a cul-de-sac or local access road intersects with a collector or arterial road, a minimum sight distance of two hundred fifty (250) feet shall be required in each direction along the major road.

5.6.2.4 Grades – Street grades shall have a maximum allowable grade of eight percent (8%) on arterial and collector streets and ten percent (10%) for a distance of up to 500 feet on all other streets and a minimum allowable grade of one percent (1%). Whenever possible, grades shall be no greater than two percent (2%) within one hundred (100) feet of an intersection.

5.6.2.5 Sidewalks – Sidewalks shall be constructed in accordance with Town Standard Details, as amended, and shall be provided consistent with the design objectives listed in Subsection 5.6.1. At a minimum, a sidewalk shall be provided on one side of a collector street within five thousand (5,000) feet of an existing or proposed school, park, playground, or community facility or where shown in the POCD.

5.6.2.6 Street Trees – Trees shall be planted at fifty (50) foot intervals along the sides of every street abutting lots of the proposed subdivision except where, in the opinion of the Commission, existing trees are to be retained by the developer in sufficient number and location to meet the intent of this section. Where existing trees will be retained, snow fencing shall be installed prior to the start of construction to prevent disturbance of roots.

Street trees shall be planted at least twelve (12) feet from any underground utility. Where street trees are required in the vicinity of existing overhead utilities, street trees shall be placed at a distance at least equal to the average height of the selected species at maturity from overhead utilities. Determination of precise locations for trees shall consider future possible locations of driveways and utility connections. Street trees shall be installed in accordance with section 6.11 and appendix D of these regulations. The developer may request a waiver of street tree provisions where site conditions prohibit strict conformance with this section.

5.6.3 Future Street Connections – Streets shall be laid out to provide connections with existing streets on adjacent properties, where appropriate. Consideration shall be given to connecting with future streets on adjacent property where future subdivision appears probable. Where rights-of-way for future streets are to be deeded to the Town, easements shall be provided on abutting lots for sloping rights. Such easements shall be at least 10' wide, although a greater width may be required by the Commission upon recommendation of the Public Works Director where physical conditions make such additional width desirable.

5.6.4 Street Access – All streets in a subdivision shall have access to one or more accepted streets or highways, except that any section of a subdivision which may contain more than thirty-five (35) lots may be required by the Commission to be accessible from at least two directions.

5.6.5 Arterial Streets – Where a tract to be subdivided occurs in the vicinity of a proposed arterial street as shown on the Town POCD, the applicant shall build the appropriate paved road, but may be required to set drainage lines to accommodate a larger road in the future.

5.6.6 Street Names – No duplication of street names already in use shall be permitted unless they are joined or are in alignment with each other. Names that may be confused with ones already in use shall be avoided. All street names are subject to Commission approval.

5.6.7 Street Lights – An executed agreement for the installation and operation of street lights shall be provided to the Commission at the time of request for street acceptance. Street lights shall be approved in number, location, and type by the Director of Public Works during the final approval process.

5.6.8 Marking Proposed Streets – The developer will have his/her engineer place stakes at the even hundred foot stations on center lines of proposed streets before the subdivision plan is submitted for approval.

5.6.9 Traffic Signals – The plans for the design, maintenance and programming of traffic signals shall be submitted by the developer.

5.7 WAIVER OF REQUIREMENTS

5.7.1 General – Where the Commission finds that extraordinary hardships or practical difficulties may result from compliance with these Regulations, it may, by a three-quarters vote, approve waivers to these Subdivision Regulations so that substantial justice may be done and the public interest secured, provided that such waiver shall not have the effect of nullifying the intent and purpose of these Regulations; and further provided the Commission shall not approve waivers unless it shall make findings based upon evidence presented to it in each specific case that:

5.7.1.1 The granting of the waiver will not be detrimental to the public safety, health, or welfare, or have a significant adverse effect on other adjacent property;

A. The conditions upon which the request for a waiver is based are unique to the property for which the waiver is sought and are not applicable generally to other property;
B. Because of the particular physical surroundings, shape, or topographical conditions of the specific property involved, a particular hardship to the owner would result, as distinguished from a mere inconvenience, if these Regulations are carried out;
C. The waiver will not in any manner conflict with the provisions of the Zoning Regulations, POCD, or Regulations of any other Town Board or Commission.

5.7.2 Conditions – In approving waivers, the Commission may require such conditions as will, in its judgment, secure substantially the objectives of the standards or requirements of these Regulations.

5.7.3 Procedures – Petitions for any such waiver shall be submitted in writing by the subdivider at the time when the subdivision plan is filed for the consideration of the Commission. The petition shall state fully the grounds for the application and all of the facts called upon by the petitioner. The Commission shall hold a public hearing in accordance with Section 3.5 of the Regulations before acting on any such request. A three-quarters vote of the voting members of the Commission shall be required to approve a waiver and the Commission shall state on its record the reasons for granting the waiver.

5.8 ENERGY EFFICIENCY AND CONSERVATION

5.8.1 All subdivisions, including cluster subdivisions, shall be planned and designed to encourage energy conservation, energy efficient development patterns, and the use of renewable energy forms through use of as many of the following guidelines as possible:

5.8.1.1 Where natural features or other planning considerations do not limit street layout and location, streets should have an east-west orientation to the greatest extent possible with acceptable variations up to 15 degrees north or south of due east to provide for southerly building orientation.

5.8.1.2 Lot lines may be oriented in a fashion other than that provided in Section 5.3.3 of these Regulations if such orientation is necessary to secure, protect, or control solar access or enable solar-ready roof orientation.

5.8.1.3 Primary and reserve leaching field areas should be planned and located to the south of a proposed building location whenever such a location is suitable for such purposes and will aid in the use of solar energy systems due to tree removal and regrading associated with the sewage disposal system.

5.8.1.4 Species of street trees should be chosen taking into account their suitability in relationship with solar access objectives. Street trees should be located in such a manner as to avoid shading the most southerly side of proposed structures in order to facilitate the use of solar energy systems.

5.8.2 The subdivider shall demonstrate to the Commission that consideration has been given to the use of passive solar energy techniques which would not significantly increase the cost of the housing to the buyer after tax credits, subsidies, and exemptions, and maximize solar heat gain, minimize heat loss, and provide thermal storage within a building during the heating season and minimize heat gain and provide natural ventilation during the cooling season. The site design techniques shall include, but not be limited to: (1) house orientation; (2) street and lot layout; (3) vegetation; (4) natural and man-made topographical features; and (5) protection of solar access within the development. A written statement outlining how this requirement has been adhered to shall be required.

5.9 NON-RESIDENTIAL SUBDIVISIONS

5.9.1 General – A non-residential subdivision shall be subject to all the requirements of these Regulations.

5.9.2 Standards – In addition to these Regulations, the applicant shall demonstrate to the satisfaction of the Commission that the street, parcel, and block pattern proposed is specifically adapted to the uses anticipated and takes into account other uses in the vicinity. The following principles and standards shall be observed:

5.9.2.1 Street rights-of-way and pavement shall be adequate to accommodate the type and volume of traffic anticipated to be generated thereupon and special requirements may be imposed by the Town with respect to street, curb, gutter, swale, and sidewalk design and construction.

5.9.2.2 Special requirements may be imposed by the Town with respect to the installation of public utilities, including water, sewer, and storm water drainage.

5.9.2.3 Streets carrying non-residential traffic, especially truck traffic, shall not be extended to the boundaries of adjacent, existing, or potential residential areas.

SECTION 6 - IMPROVEMENTS

6.1 GENERAL – All subdivision improvements shall be made in accordance with the Connecticut Department of Transportation's Standard Specifications for Roads, Bridges, and Incidental Construction Form 817, and any amendments or revisions thereof, unless such specifications are modified or altered by these Regulations or other Town Standard Details.

6.2 CONTROL OF WORK – The Director of Public Works shall be responsible for the control of the work during construction. The Director of Public Works shall decide all questions as to the interpretation of plans and specifications. Working drawings, if necessary, for the construction shall be prepared by the developer and approved by the Director of Public Works.

6.3 STREETS – Work on any street shall not proceed unless the developer has given the Director of Public Works forty-eight (48) hours notice of the following, together with reasonable opportunity for inspection:

A. Completion of drainage systems.
B. Completion of preparation of subgrade.
C. Completion of curbing.
D. Completion of gravel subbase.
E. Commencement of construction of process gravel base course.
F. Commencement of construction of wearing surface.

Work on succeeding stages of construction shall not proceed until inspection by the Town and approval by the Director of Public Works.

The subgrade must be prepared with suitable material, and shall be examined by the Director of Public Works before it is covered. If the subgrade is unstable, or if the area is damp, material shall be removed to a depth necessary to insure subdraining and stability, and re-established with gravel or suitable fill. If the subgrade is in ledge or rock, ledge shall be removed twenty four (24) inches below subgrade to insure subdraining and eliminate the possibility of frost heave. Subgrade shall be compacted with a roller weighing at least ten (10) tons.

After completion of the road, the developer shall notify the Commission who shall notify the proper officials to make thorough inspection of the road to determine its conformity to Town specifications. The developer will be advised of any corrections or changes necessary and given a reasonable time in which to make them.

6.4 DRAINAGE – All roads shall be properly drained. Sufficient culverts, manholes, swales, and catch basins shall be installed as approved. Where catch basins are required, no portion of any road shall drain in one direction more than two hundred and fifty (250)

feet without catch basins on both sides of the road (unless a super-elevated roadway design is used, in which case catch basins are only required on the downgradient side of the street). All drainage pipes shall be at least fifteen (15) inches in diameter and installed with a minimum cover of eighteen (18) inches. Drainage pipes shall be composed of high-density polyethylene (HDPE) unless the Department of Public Works identifies the need for reinforced concrete pipe (RCP). Additional surface drainage of roads and under-drains for road beds may be required at any stage of the construction notwithstanding the fact that the same are not included in the road plans and specifications submitted with the application for approval of the subdivision plan. Such additional drainage requirements shall be made by the Commission after recommendation by the Director of Public Works and conference with the developer, if such subsurface or surface drainage is necessary or desirable.

Where required, type "C" Catch basins shall be used, unless otherwise specified by the Director of Public Works. Multiple grade basins will be installed where requested by the Director of Public Works

6.5 CURBS – Curbs, where required, shall be constructed of bituminous concrete in accordance with Connecticut Department of Transportation details, unless the proposed road or improvement is within a Zone District subject to design guidelines adopted through the Waterford Zoning Regulations.

6.6 SIDEWALKS – Sidewalks shall be provided in accordance with Section 5.6.2.5 of these Regulations and shall be constructed of concrete where the sidewalk is flush with the curb. Where the sidewalk is separated from the curb by a landscape feature or stormwater management facility, bituminous concrete may be used. Construction shall be in accordance with Town Standard Details.

6.7 MONUMENTS AND MARKERS – Granite or concrete monuments shall be placed at all points of curvature and tangency, at all angle points on street lines, and at front corners of each lot. Iron pipes or pins shall be placed at all other lot corners or angle points.

Monuments shall be not less than four (4) inches square and thirty (30) inches long, with a magnetic locator, drill hole, or cross marking the center of the monument. They shall be set flush with or slightly above finished grade. Iron pipes shall be at least one-half (1/2) inch nominal inside diameter, thirty-six (36) inches long. The top of pipes or pins shall normally be four (4) to six (6) inches above finished grade. At points of curvature, points of tangency, and angle points, monuments shall be six (6) inches square and thirty-six (36) inches long. The cost of placing such monuments, pipes, or pins shall be borne by the developer.

6.8 STREET SIGNS – Street signs shall be provided at all intersections as follows: at least two at a "four-way" intersection, located on diagonally opposite corners of the intersection, and at least one at a "T" intersection. Sign posts shall be nine (9) feet long, two and one

half (2 1/2) inch interior diameter, be Aluminum 16 gauge, have a 0.065” thickness, and shall be set in concrete to a depth of one (1) foot. Pipes shall be capped with a standard aluminum post cap for a two and one-half (2 1/2) inch pipe. The sign itself shall be provided and attached by the Town. Prior to issuing a building permit for a building on a lot fronting on a proposed new street, the street name shall be clearly displayed, either by permanent or temporary sign, in order to assist in directing emergency vehicles to locations of need prior to completion of the subdivision.

6.9 ROAD AND DRAINAGE AS-BUILT ACCEPTANCE - Before final acceptance by the Town, "As Built" plans of the roadway, stormwater drainage system, and street lighting, whether above or below ground, shall be submitted to the Commission for review.

6.10 UTILITIES – Underground utilities shall be located as shown in Town of Waterford Standard Details or in such other locations as may be approved by the Chief Engineer of the Utility Commission. Before final acceptance by the Town, "As Built" plans, showing the locations of all utilities, whether above or below ground, shall be submitted to the Commission for review.

6.10.1 Water – Water supplies and distribution systems shall be subject to approval by all appropriate governmental jurisdictions.

If any part of a proposed subdivision lies within two hundred (200) feet of the existing service area of the municipal water supply system, it shall be served by the municipal system unless an alternative arrangement is approved by the Waterford Utility Commission. A system to be connected to the municipal system shall, in accordance with the inter-local agreement between the Town of Waterford and the City of New London, conform to the specifications of workmanship and materials of the New London Water Department, and shall be in conformance with Standards and Specifications for Water Main Installation by Developers in the Town of Waterford. Water mains shall be sized to reflect consideration of future system growth and expansion and interconnection with other systems.

Fire hydrants shall be installed by the applicant in locations approved by the Fire Marshal of the affected district and the Waterford Utility Commission. The "As Built" plan shall show the location of all fire hydrants.

Private wells shall conform to the provisions of Section 19-13- B51 of the Connecticut Public Health Code, as amended.

In accordance with Section 8-25a of the Connecticut General Statutes, as amended by Public Act 84-330, any development providing water by means of a "water company", as that term is defined in Connecticut General Statutes Section 16-262m(a), shall provide to the Commission a certified copy of a

Certificate of Public Convenience and Necessity issued for the development by the Connecticut Department of Public Utility Control. No application for subdivision involving such a water company shall be deemed complete without said Certificate, unless the applicant shall provide a resolution of the Waterford Utility Commission waiving said Certificate and agreeing to be responsible for the operation of the subject water company in the event that the company is at any time unable or unwilling to provide adequate service to its consumers. The Commission may accept a Phase I-A Certificate of Public Convenience and Necessity and condition approval on the full Certificate of Public Convenience and Necessity prior to the issuance of a Building Permit Certificate of Compliance.

6.10.2 Sanitary Facilities – All sewage shall be disposed of by connection to public sewers or, if such are not available within 200 feet of the proposed subdivision, by individual lot private subsurface sewage disposal systems approved by the state Department of Health, all in accordance with the provisions of Section 19-13-B20 of the Connecticut Public Health Code and any other applicable regulations.

Any public sewer system shall be constructed in accordance with plans and specifications approved by the Waterford Utility Commission. All plans, specifications and work shall be conducted in accordance with "Standards and Specifications for Waste Water Collection Systems Installed by Developers in the Town of Waterford." The Commission may require that capped sewers be installed in a subdivision which is located within or abuts an area for which the planning and construction of sewers has been authorized and funded. The Utility Commission shall provide design capacities and elevations for such system and the applicant shall design and install the system to these specifications. All open ends of the system shall be capped and as-built plans provided showing exact locations and elevations so that capped ends can be readily located.

If the applicant proposes to utilize a community sewerage system, as defined in Connecticut General Statutes Section 7−245, the applicant shall provide a report from the Waterford Utility Commission indicating that all requirements of Connecticut General Statutes Section 7−246f have been satisfied.

6.10.3 Electrical, telephone and cable television lines shall be installed underground by the developer.

6.11 STREET TREES – Street trees shall be selected from and meet the requirements in Section 5.6.2.6 and Appendix D of these regulations. New trees shall be nursery grown, of specimen quality, balled and burlapped, straight stemmed, free from disease, and treated for any bark injuries. Each street shall have a mix of species selected from the

list in Appendix D. In no case shall more than 20% of trees provided be of the same species. The size of each tree to be planted shall conform to the most recent version of the American Standard for Nursery Stock ANSI Z60.1.

6.12 OPEN SPACE – The Commission shall require grading, seeding, planting, fencing, and other reasonable improvements to the open space to be used for active recreation purposes, unless a waiver of these activities has been granted. Open space land shall, at the Commission's discretion, be either deeded to the Town, deeded to a land trust, controlled through an undivided interest among the property owners or held in corporate ownership by property owners in the subdivision. In the event of the latter, a copy of the bylaws of homeowners association and the covenants of the warranty deed guaranteeing right of use by the members of such association and perpetual reservation of the property as open space shall be submitted to the Commission prior to the approval of the subdivision plan. Such open space shall be transferred to the homeowners association upon sale of seventy-five percent (75%) of the lots in the subdivision or section thereof. The HOA deed to the open space shall be provided at the time of application and shall be filed on the land records with the approved subdivision mylars. Such open space shall not be used for commercial activity.

In the event that the homeowners association established to own and maintain common open space, or any successor organization, shall fail to maintain such common open space in reasonable order and condition in accordance with the plan, the Commission, through its Chairman, may serve written notice upon such association or upon the residents of the subdivision setting forth the manner in which the organization has failed to maintain the common open space in reasonable condition. Such notice shall include a demand that such deficiencies of maintenance be cured within thirty days after the receipt of such notice and shall state the date and place of a hearing which shall be held within fourteen days after receipt of such notice. At such hearing the Commission may modify the terms of the original notice as to the deficiencies and may give an extension of time within which they shall be cured. If the deficiencies set forth in the original notice or in the modifications thereof have not been cured within thirty days or any extension of such time, the Commission shall so notify the First Selectman and the Town may take such actions within its legal right to enter onto the property and maintain the facility. Such entry and maintenance shall not vest in the public any rights to use the open space. If the First Selectman determines that such association is ready and able to maintain such common open space in reasonable condition, the Town shall cease to maintain such open space and all maintenance obligations to such common open space shall revert back to the homeowners association.

The cost of such maintenance and all related administrative costs incurred by the Town shall be assessed ratably against the properties within such subdivision that have a right of enjoyment of the open space, and, following such procedures as may be required by law, shall become a lien on said properties. The homeowners association documents

shall contain a requirement that if the Town must perform maintenance, repairs, or other work pursuant to this Section, that the Association shall reimburse the Town for its attorneys' fees and costs, including expert witness fees; and that such obligation may be secured by a lien against the individual lots.

6.13 CLEAN-UP – Upon suspension or completion of the installation of improvements or any portion thereof, the developer or contractor shall remove from all public or private property, all temporary structures, tools and equipment, tree stumps, excess earth materials, rubbish, or waste materials resulting from his operations. All ditches shall be filled; all sewers, drains, catch basins and manholes cleaned and flushed; streets, walks, curbs, and other structures cleaned and repaired, and the whole work area left in a neat and clean condition.

6.13.1 Prior to the issue of a certificate of occupancy, the site and surrounding areas shall be inspected and cleaned up to the satisfaction of the Zoning Enforcement Officer. The Zoning Enforcement Officer shall inspect the site at regular intervals to insure the removal of all unsightly piles of rock, earth, felled trees, brush, stumps, discarded building material and all other rubbish or debris. In the case of a subdivision involving several lots, the contiguous lots or "open space" may not be used as dumping areas for waste or excess material except that such materials may be used for land improvement purposes at the discretion of the Zoning Enforcement Officer or the Zoning Enforcement Officer's agent.

6.14 BONDING

6.14.1 The performance bond required pursuant to section 3.8 of these Regulations shall remain up to date and in effect until all improvements are accepted in accordance with Section 6.15. Application may be made to the Commission for release of a portion of the performance bond as portions of the total improvements are completed, except that no more than ninety (90) percent of the total performance bond shall be released prior to acceptance of all improvements by the Representative Town Meeting.

6.14.2 Release of the performance bond shall be made only after acceptance of all improvements and the substitution thereof by a maintenance bond in the amount of twenty-five hundred dollars ($2,500), or one-tenth (1/10) of the cost of improvements, whichever is greater, to continue for a period of one (1) year from the date of Town acceptance, guaranteeing to remedy construction or to indemnify the Town for repairing such defects.

6.14.3 The contractor or developer shall, when notified by the Director of Public Works or the Chief Engineer of the Utility Commission, promptly and at the contractor or developer's own expense, repair all failures in the construction

and operation of structures and appurtenances which may occur during the maintenance period; and the contractor or developer shall similarly repair all defects, settlements, and irregularities of the structures and appurtenances or drains, pipes, mains or conduits, curbs, gutters, sidewalks, road surfacing, land turfing, or any other structures and improvements on the line of the work or adjacent thereto, occurring during the maintenance period which are caused by or affected by the contractor or developer's work.

6.14.4 If the contractor or developer fails to remedy such defects within a reasonable time, the Board of Selectmen may, without prejudice to any other remedy and upon written notice to the contractor or developer, cause the required repairs to be made and bill the contractor or developer for the cost of the work then involved. A "reasonable time" shall be held to be a period not to exceed sixty (60) days, except that a longer period may be allowed by the Board of Selectmen during the winter months of the year, notwithstanding emergencies as identified by the Utility Commission or Director of Public Works. Emergency remedies shall be completed in the time specified by the Utility Commission or Director of Public Works.

6.14.5 Upon the conclusion of the one (1) year maintenance period, the contractor or developer shall submit a request to the Commission for the release of the maintenance bond. The Commission shall refer the request to the appropriate town agencies for their review. Upon favorable reports from those agencies, the balance of the maintenance bond shall be released.

6.15 ACCEPTANCE OF IMPROVEMENTS

6.15.1 Upon satisfactory completion of all improvements, the applicant shall submit a request to the Commission for acceptance of the improvements and release of the performance bond. Such request shall be accompanied by deeds, as-built plans, maintenance bond and any other documents necessary to support the request which documents shall be to the satisfaction of the Director of Public Works, Utility Commission and Town Attorney, as applicable. As-built plans shall be on mylar, certified by a Connecticut licensed land surveyor, and shall show the details of all features as constructed in the field, including the final placement of all monuments, iron pipes, or pins. Utility infrastructure shall be certified by a CT licensed Professional Engineer.

6.15.2 The Commission shall refer the request to the appropriate town agencies for their review. Upon receipt of favorable reports from these agencies, the Commission shall recommend to the Board of Selectmen that the improvements be accepted and the performance bond released.

6.15.3 Upon review and favorable action by the Board of Selectmen, the request shall be forwarded to the Representative Town Meeting (RTM).

6.15.4 Upon favorable action by the RTM, the deeds and plans shall be filed in the Town Land Records, the balance of the performance bond shall be released, and the maintenance bond shall go into effect.

6.15.5 Until such time as the subdivision street is accepted by the Town, The subdivider shall be responsible for all snow plowing, sanding, and other maintenance of roads and other improvements, including, but not limited to, the cleaning of catch basins and detention ponds, and the maintenance of erosion and sedimentation control measures. The subdivider shall erect and maintain at each terminus of each street, as it is laid out, a secure sign reading as follows:

THIS IS NOT A PUBLIC ROAD
NO PUBLIC SERVICES PROVIDED
MAINTAINED BY [NAME OF SUBDIVIDER]

The above required sign shall be at least eighteen (18") inches by twenty–four (24") inches with two inch (2") block lettering and shall be maintained by the subdivided until the road is accepted by the Town.

6.15.6 The Utility Commission may recommend review and favorable action by the RTM to accept utility easements where utilities are installed and inspected by the Utility Commission and the road has not been accepted by the Town.

SECTION 7 - CLUSTER SUBDIVISION

7.1 PURPOSES

To implement the objectives of the Plan of Conservation, Preservation and Development, pursuant to and consistent with Section 3.16 of the Zoning Regulations, the purposes of this section include:

7.1.1. To reduce overall development disturbance of land;
7.1.2. To provide an opportunity of greater flexibility in the design of subdivisions with a view toward preserving and enhancing the natural beauty of the landscape;
7.1.3. To protect areas with unique or fragile natural features, including but not limited to rare species and habitat;
7.1.4. To produce more attractive, safe, and healthy living environments;
7.1.5. To provide greater variety of housing types to meet community needs;
7.1.6. To provide opportunities for development patterns that are more energy efficient;
7.1.7. To conserve open land, including those areas containing unique and sensitive natural features such as woodlands, steep slopes, streams, floodplains, wetlands, aquifers and their recharge areas, and agricultural lands, by preserving and setting them aside from development;
7.1.8. To preserve historical and archaeological resources; and
7.1.9. To provide for the maintenance of open land set aside for active or passive recreational use, or conservation lands.
7.1.10. To coordinate the creation of open space parcels that connect into larger networks across the community.

7.2 PROCEDURES

Applications for a Special Permit for cluster development approval shall be made in accordance with the procedures listed in Sections 2 and 3 of these regulations and Section 3.16 of the Zoning Regulations.

7.3 PRELIMINARY PLAN MATERIALS

An applicant for cluster development is strongly encouraged to submit non-binding Preliminary Plans to the Commission in accordance with Section 2 of these Regulations. While not required, the Commission recommends submitting information for the Site Context Plan, Existing Conditions Plan, Preferred Development Area Plan and Yield Plan as listed below in Section 7.5 design. If the applicant chooses to present a Yield Plan at a Preliminary Plan meeting (Section 2 of these regulations), the Commission shall discuss the basic maximum number of lots/dwelling units. This initial determination shall not be binding upon the Commission or applicant, but shall provide guidance and direction to

the applicant regarding the maximum number of lots or dwelling units that appear to be feasible, taking into account the physical constraints to development present on the site. The applicant is encouraged to use this initial determination as the basis for submission of more detailed information during subsequent stages of review.

7.4 FINAL PLAN MATERIALS

An applicant for cluster subdivision shall submit materials in accordance with the application checklists associated specifically with cluster development attached as Appendix A to these regulations. These checklists are designed to facilitate the design process provided in Section 7.5 of these regulations and to provide information required by the Commission in order to render a decision. These plan requirements are designed specifically for cluster subdivision and shall be used instead of the requirements listed in Section 4 of these regulations. These plans include:

7.4.1. Site Context Plan – The purpose of this plan is to provide the geographic and planning context of the site and the surrounding environs.

7.4.2. Existing Conditions Plan – The purpose of this plan is to provide a comprehensive inventory of the physical opportunities and constraints that will eventually serve to shape the design of the cluster development. Conditions beyond the parcel boundaries may be described on the basis of existing published data available from governmental agencies, and from aerial photographs.

7.4.3. Preferred Development Area Plan – The purpose of this plan is to combine all of the resources identified in the Existing Conditions Plan into clearly demarcated areas that make it easy to distinguish the location of priority conservation areas in an aggregated manner. The Commission shall review the map to assess its accuracy, conformance with municipal regulations, and likely impact upon the natural and cultural resources on the property. The area of land unencumbered by these resources is considered the preferred development area.

7.4.4. Yield Plan – The purpose of this plan is to determine the basic maximum number of lots that could be developed under the regulations that govern conventional subdivisions in accordance with Section 5.3 of these regulations and Section 3.34 of the Zoning Regulations. This plan shall be prepared by the applicant as conceptual layout plans in accordance with the applicable Cluster Development checklist. Although the yield plan must be drawn to scale, it need not be based on a field survey. Upon further investigation and upon receipt of more detailed soils and environmental information as may be provided in subsequent stages of review, the Commission may increase or reduce the number of lots/dwelling units contained in the initial basic maximum number.

7.4.5. Proposed Cluster Plan Set – The purpose of this plan is to transition from the conceptual Cluster Sketch Plan to a fully engineered subdivision design that meets the design requirements of these regulations. Lot sizes and other bulk

requirements shall be in accordance with Section 3.16.3 of the Zoning Regulations.

7.4.6. Supplementary Information – The purpose of this submittal is to provide narrative information or other documentation that substantiates the information on site plans.

7.4.7. Supporting Materials – The purpose of this submittal is to ensure the Town has information regarding other permits, utilities, encumbrances, and similar issues.

7.5 DESIGN PROCESS

At the time of the application for a cluster subdivision, applicants shall demonstrate to the Commission that the following design process was used by a multidisciplinary team of qualified professionals to determine the layout of proposed streets, house lots, unit placement if treated as a condominium, including designation of all common areas and open space.

7.5.1. Identifying Conservation Areas. The preferred developable area of the site shall consist of land that does not include these conservation areas.

7.5.2. Locating House Sites. Locate the approximate sites of individual houses within the preferred developable area to the maximum extent practicable and include the delineation of private yards and shared amenities, so as to reflect an integrated neighborhood design.

7.5.3. Buffering. Identify areas where vegetation should be preserved or installed to protect existing or future adjacent development from impacts related to the conservation development.+

7.5.4. Aligning the Streets and Trails. Align streets in order to access the house lots or units. Additionally, new trails should be laid out to create internal and external connections to existing and/or potential future streets, sidewalks, and open space networks and trails.

7.5.5. Lot Lines. Draw in the property lot lines for each unit, using conceptual lot lines to demonstrate compliance with dimensional standards where the ownership is in condominium, cooperative, or other similar form of common ownership.

7.6 TYPES AND LOCATION OF BUILDINGS

7.6.1. For the purposes of determining compliance with the basic maximum number, a single-family dwelling, whether attached or detached, shall be counted as one dwelling or unit.

7.6.2. Lots having reduced area or frontage shall not have frontage on a street other than on a street created by the cluster development. Lots having reduced areas may be allowed on existing roads, provided that each lot fronting on an existing road meets the frontage, front, and side yard setbacks in the zone district.

7.7 BUILDING DESIGN

Housing typologies selected for cluster development shall be generally consistent with residential development patterns in Waterford and traditional New England styles. Bungalow, Cape Cod, Colonial, Cottage, Craftsman, Victorian, and other similar traditional styles shall be used to create a common architectural theme along cluster subdivision streets. Individual homes shall be designed in a manner that shows architectural variation within the broader theme established along individual streets. The same house model shall not be repeated on individual dwelling units for more than twenty (20) percent of the total dwelling units in a cluster housing development. Dwelling units with the same combination of features and treatments shall not be located adjacent to each other. The applicant shall provide architectural plans demonstrating conformance with above styles and placement within the proposed subdivision.

7.8 OPEN SPACE CREATED AS PART OF THE SUBDIVISION

In considering the efficacy of the open space in meeting the goals and objectives of the POCD, the Commission shall consider the following:

7.8.1. The amount of open space included in the cluster subdivision shall comply with Section 3.16 of the Zoning Regulations.
7.8.2. Open space created as part of the cluster subdivision process may contain uses as allowed in Section 3.16 of the Zoning Regulations.
7.8.3. The composition of open space shall comply with Section 5.4 of these Subdivision Regulations.
7.8.4. Ownership of open space shall comply with Section 6.12 of these regulations.
7.8.5. Open space shall be contiguous with existing open space that abuts the cluster subdivision whenever possible.

7.9 STORMWATER MANAGEMENT

7.9.1. The stormwater management system for a cluster development shall conform to the town's subdivision regulations (Section 5.5), with particular attention to protecting on-site resources through the use of Low Impact Development techniques. Stormwater management facilities shall not count toward the minimum required open space area.

SECTION 8 - AMENDMENTS, VALIDITY, EFFECTIVE DATE

8.1 AMENDMENTS – These Regulations may be amended from time to time in accordance with the procedures specified in Section 8-25 of the Connecticut General Statutes, 1958 Revision, as amended.

8.2 VALIDITY – If any portion of these Regulations shall, for any reason, be held invalid or unconstitutional, the validity of any other section or remaining portion of these Regulations shall not be affected or impaired.

8.3 EFFECTIVE DATE – These Regulations amend and replace Subdivision Regulations adopted April 21, 1975, and subsequently amended. These amended Regulations shall become effective April 5, 2018.

APPENDIX A: SUBDIVISION CHECKLISTS

Preliminary Plan Set Checklist

GENERAL REQUIREMENTS - All maps, plans and profiles shall be presented on good quality white prints and shall be not more than thirty-six (36) inches long or twenty-four (24) inches wide. Three sets of the following information should be provided. All such prints shall bear the following information:

Basic Information. All sheets must contain the following basic information (if applicable):

1._____ Name of the proposed subdivision.

2._____ Name and address of property owner and applicant.

3._____ Name, address and telephone number of person or firm preparing pre-application plan and/or materials.

4._____ Date of plan/materials preparation, with revision date(s) if applicable.

5._____ Graphic scale and true north arrow on any graphic representations.

6._____ Plat and lot number(s) of the land being subdivided.

7._____ Zoning identified for each parcel on all plan materials and listed in any narrative materials, including any applicable overlay districts. Zoning district boundary lines must also be shown.

8._____ Perimeter boundary lines of the subdivision drawn so as to distinguish them from other property lines.

9._____ Location, width and names of existing streets within and immediately adjacent to the parcel being subdivided.

10._____ Names of abutting property owners and property owners immediately across any adjacent streets; with plat and lot numbers also indicated.

11._____ Location of proposed roads, building lots, and open space.

Site Context Plan drawn to a scale of one inch equals 400 feet or as necessary to show the area within one-half mile of the subdivision parcel(s) and superimposed on an aerial photograph. The use of readily available GIS information from the town and the state may be acceptable.

1._____ Basic information from the above checklist as applicable.

2._____ The locations of all streets with street names labeled.

3._____ Existing lot lines in the vicinity of the proposed development as determined by the scale of the plan.

4._____ Open spaces, conservation areas, and parks.

5._____ Wetlands, rivers and streams.

6._____ Name of the watershed(s) within which the site lies. Where there is more than one watershed on the site, approximate topographic divides shall be shown.

7._____ For each watershed on the site, the presence of any impairment listing on the most recent federal/state-level 303(d) list of impaired waters.

8._____ Agricultural areas.

9._____ State natural diversity database areas.

10._____ Flood plains or flood hazard areas.

11._____ Significant public facilities.

12._____ Coastal features.

13._____ Locations of archaeological resources as available from the most recent State GIS data.

14._____ On-site soils as mapped by the Soil Conservation Service or a qualified Soil Scientist.

15._____ Topography at a minimum of 5-foot contour intervals.

Final Plan Checklist

DRAFTING REQUIREMENTS - All maps, plans and profiles shall conform with Class A-2 of the Code of Recommended Practice for standards of accuracy of maps prepared by the Connecticut Technical Council, Incorporated. All maps, plans and profiles shall be presented on good quality white prints and shall be not more than thirty-six (36) inches long or twenty-four (24) inches wide. All such prints shall have a one-half (1/2) inch border on three (3) sides and a two (2) inch border on the left side. If more than one sheet is submitted, they shall be bound. All such prints shall bear the following information:

Electronic Submittal - Digital file of the site plan in PDF format and one of the following formats, or as approved by the Office of Planning and Development: Raster Image Files including but not limited to JPEG, TIFF and BMP formats

Number of Copies – The Town of Waterford is committed to reducing the number of hard copy submittals required of the applicant during the review process to the extent practicable. The desire to reduce the number of hard copies must be balanced with the need to have the number of copies required to effectively disseminate information and provide for an efficient and transparent review process. The applicant is therefore encouraged to contact Waterford's staff to the Commission to determine whether there is an opportunity to reduce the required number. Where there is no direction from staff on the matter, or where staff deems it necessary, the applicant shall submit twelve (12) copies of the required materials.

Basic Information. All sheets must contain the following basic information (if applicable):

1._____ Name of the proposed subdivision.

2._____ Name and address of property owner and applicant.

3._____ Name, address and telephone number of person or firm preparing pre-application plan and/or materials.

4._____ Date of plan/materials preparation, with revision date(s) if applicable.

5._____ Graphic scale and true north arrow on any graphic representations.

6._____ Assessor map and lot number(s) of the land being subdivided.

7._____ Zoning identified for each parcel on all plan materials and listed in any narrative materials, including any applicable overlay districts. Zoning district boundary lines must also be shown.

8._____ Perimeter boundary lines of the subdivision drawn so as to distinguish them from other property lines.

9._____ Location, width and names of existing streets within and immediately adjacent to the parcel being subdivided.

10._____ Names of abutting property owners and property owners immediately across any adjacent streets; with plat and lot numbers also indicated.

11._____ Certification by a Professional Land Surveyor that a perimeter survey of the land being subdivided has been performed and conforms to the Town's drafting requirements.

12._____ List of all waivers requested

Site Context Plan drawn to a scale of one inch equals 400 feet or as necessary to show the area within one-half mile of the subdivision parcel(s) and superimposed on an aerial photograph. The use of readily available GIS information from the town and the state may be acceptable.

1._____ Basic information from the above checklist as applicable.

2._____ The locations of all streets with street names labeled.

3._____ Existing lot lines in the vicinity of the proposed development as determined by the scale of the plan.

4._____ Open spaces, conservation areas, and parks.

5._____ Wetlands, watercourses.

6._____ Name of the watershed(s) within which the site lies. Where there is more than one watershed on the site, approximate topographic divides shall be shown.

7._____ For each watershed on the site, the presence of any impairment listing on the most recent federal/state-level 303(d) list of impaired waters.

8._____ Agricultural areas.

9._____ State natural diversity database areas.

10._____ Flood plains or flood hazard areas.

11._____ Significant public facilities.

12._____ Coastal features.

13._____ Locations of archaeological resources as available from the most recent State GIS data.

14._____ Topography at a minimum of 10-foot contour intervals.

Existing Conditions Plan

1._____ Basic Information from the above checklist.

2._____ Site Context Map information from the above checklist.

3._____ Location of existing property lines, easements, and rights-of-way within and immediately adjacent to the parcel(s).

4._____ Topographic survey of the site displayed as two-foot contours.

5._____ Vegetative cover map for the complete property according to general cover type including cultivated land, agricultural land, permanent grass land, meadow, pasture, old field, hedgerow, woodland and wetland. Trees with a caliper in excess of 18 inches DBH, if located within an area proposed for disturbance or alteration shall also be indicated. Vegetative types shall be described by plant community, relative age and condition.

6._____ Soil series, types and map units, as mapped by the U.S. Department of Agriculture, Soil Conservation Service in the latest published soil survey for the state, and accompanying data published for each soil relating to its suitability for construction and for septic suitability.

7._____ Location of Primary Constraints as follows:

- a._____ Wetlands as determined through surveyed field flagging
- b._____ Watercourses or other surface water bodies as determined through surveyed field flagging
- c._____ 100-year flood zones and velocity zones as identified by flood zone elevations.
- d._____ Coastal habitat features identified by the State
- e._____ Areas within the easement of a high voltage power line or other utility
- f._____ Areas proposed to be developed as part of a public or private way

g._____ Vernal pool delineations
h._____ Historic or archaeological sites or structures
i._____ Location of ledge and rock/boulder outcrops

8._____ Approximate location of Secondary Constraints

a._____ Areas where topographic slope equals or exceed 25% as determined through the required topographic survey.
b._____ Regulatory setbacks pursuant to all State regulations
c._____ Significant trees
d._____ Surveyed location of stonewalls
e._____ Places where residents or visitors can experience views of culturally significant landscapes, buildings, or natural resources.

9._____ Location and approximate size of existing buildings, roads or significant aboveground structures on or within 100 feet of the subdivision.

10._____ Location of trails that have been in public use (pedestrian, equestrian, bicycle, etc.).

11._____ Location of all easements and other encumbrances of property which are or have been filed of record with the land evidence records of the town. Include volume and page numbers from land evidence records.

12._____ Location of all existing above and below-grade utilities on or immediately adjacent to the subdivision, including septic tanks and fields.

Proposed Subdivision Plan Set (Site Plans and Construction Plans). Site plans for the proposed subdivision shall be drawn in accordance with the drafting standards provide at the beginning of the Final Plan Set checklist. Where the site must be divided into multiple sheets in order to accommodate scale, a plan key shall be provided.

1._____ Basic information from the above checklist.

2._____ Site Context Map information from the above checklist.

3._____ Overall Development Plan.

a._____ Location of proposed lot lines and the footprint of housing units with depiction of setbacks from lot lines.
b._____ Proposed developer's lot numbers

c._____ Proposed emergency 911 numbers
d._____ Proposed assessor's lot numbers
e._____ The location of any rights of way, easements, proposed sidewalks or pedestrian ways, and dimensions of pavement
f._____ The proposed location of all structures and associated setbacks
g._____ Delineated area of dedicated open space with overall area calculation.
h._____ Location of permanent stone boundary markers or other delineation, including markers sufficient to delineate the location of open space areas.
i._____ Location of any structures, trails recreational uses, or other built features that may be allowed in dedicated open space.
j._____ Location of any areas that may be used as buffers to adjacent properties.
k._____ Identification of any areas that may be altered as part of the development process in the form of landscape restoration, removal of invasive species, fortification of vegetated buffers, regrading to accomplish necessary drainage improvements, or other objectives consistent with the purposes of cluster development.
l._____ Location of any structures, trails recreational uses, or other built features that may be allowed in dedicated open space.
m._____ Location for on-site septic systems with regulatory setbacks
n._____ Location of water supply infrastructure with regulatory setbacks.
o._____ Location of stormwater management infrastructure.
p._____ Location of Minimum Square and minimum buildable area
q._____ Zoning Bulk Standards table

4._____ Erosion & Sediment Control Plan / Stormwater Management Plan

a._____ Erosion and sediment control plan and narrative in accordance with Section 25.5 of the Zoning Regulations
b._____ Site Stormwater Management Plan and supporting documents/calculations in accordance with Section 25.6 of the Zoning Regulations
c._____ Stormwater system Operations Maintenance Plan in accordance with Section 25.6 of the Zoning Regulations

5._____ Landscaping Plan

a._____ All site dimensions including parking lots, parking lot planters, landscaped areas, street yards, walks, etc.
b._____ Location, type and size of all existing trees to be retained.
c._____ All existing and proposed landscaping, including landscaping and screening, the location, species, size of new trees in landscaped areas
d._____ All existing or proposed fences and/or walls

e._____ All loading and storage facilities, utilities, trash enclosures, transformers, or other elements outlined in this ordinance

f._____ Landscape grading plan indicating berming, swales, and drainage easements

g._____ List of plants used for the entire site and identification of those specifically used as part of stormwater management practices.

h._____ Signature and date of the individual licensed to prepare the plans, including the address, name and phone number of the preparer.

6._____ Roads and Utilities

a._____ Profiles showing existing and proposed elevations along the centerline of all roads. Where a proposed road intersects an existing road or roads, the elevation along the centerline of the existing road or roads, within one hundred (100) feet of the intersection, shall be shown.

b._____ Plans and profiles showing the location, type and typical section of road pavements, including curbs and gutters, sidewalks, manholes, catch basins, and street lights.

c._____ Street cross-sections, with location of utilities indicated

d._____ Location and dimension of all proposed utilities within and immediately adjacent to the subdivision, including gas, electric, phone, cable TV, fire alarm, hydrants, utility poles, stormwater drainage facilities or other proposed above or underground utilities.

e._____ Proposed street names.

f._____ Proposed pedestrian ways (sidewalks or bike paths).

g._____ Street lighting plan

h._____ Location of all test pits performed on the site with date and observed or calculated high groundwater elevation.

i._____ Construction details for all stormwater management practices being proposed for the site.

j._____ Construction details for all on-site septic facilities proposed for the site.

k._____ Construction details for all proposed water supply facilities for the site and, where applicable, the location of connection to the municipal water supply.

l._____ Construction details for all proposed sewer facilities for the site and, where applicable, the location of connection to the municipal sewer system.

Supplementary Information. The applicant shall submit a narrative report, with the appropriate number of copies, to provide necessary administrative materials and supplement the plans developed as part of a master plan submittal.

1._____ Narrative summary of basic information (previous submittals may be accepted or an addendum may be submitted)

2._____ Narrative summary of existing conditions (previous submittals may be accepted or an addendum may be submitted)

3._____ Narrative describing waivers requested if applicable.

4._____ Narrative summary and any additional documentation of strategy to provide water supply.

5._____ Narrative summary and any additional documentation of strategy to treat and dispose of wastewater including a description of on-site soils, depth to groundwater throughout the site, and any test pit investigations that may have been performed.

6._____ Stormwater Management report detailing how stormwater volume and quality are managed on the property and, where applicable, the relationship between the stormwater management strategy and any impairment identified on the watershed 303(d) list.

7._____ All documentation for subsurface soil investigations referenced by code or key to locations of testing sites on submitted plans.

8._____ Stormwater flow calculations associated with all best management practices shown on submitted plans including, but not limited to, volume calculations for required storm frequencies, peak discharge rates for required storm frequencies, and soil percolation rates.

9._____ Maintenance plans associated with all on-site utilities, responsible parties, descriptions of associated covenants, and funding sources where applicable.

10._____ The results of any water yield testing or water quality testing performed on-site to determine suitability of soils to provide adequate water supply.

11._____ Calculations associated with wastewater design flows.

12._____ Description of proposed phasing (if any)

13._____ Narrative description of the use of the open space including the uses that are proposed, the management structure for the open space, and a description of the restrictions that will be placed upon the open space area.

14._____ Where two-, three-, or four-family units are proposed, architectural elevations and floor plans for those structures.

15._____ Documentation of the estimated cost to complete all public improvements and stormwater facilities.

Supporting Materials

1._____ Administrative filing fee

2._____ Completed application form signed by the applicant and the property owner(s)

3._____ Proof of tax collector that all taxes due on the land have been paid prior to filing the Final Plan.

4._____ The names and addresses of owners of all properties, agencies or communities requiring notification as required by these regulations.

5._____ Letters of approval from utility companies (as applicable).

6._____ Written statement from the Utility Commission Office that water is available to the development with sufficient volume and pressure to meet fire flow requirements, based on water system model if required by water department.

7._____ List of all other state and federal agency approvals that may be required.

8._____ Two draft copies and one digital copy of all legal documents describing the property, proposed easements and rights-of-way, dedications, restrictions, or other required legal documents in Word editable format

9._____ Proposed arrangements for completion of the required public improvements, including construction schedule and financial guarantees.

10._____ Statement identifying any waivers from development standards, zoning variances or special use permits required or requested.

Final Plan Set Checklist for Cluster Development

The applicant shall submit the following information to the Commission for a Cluster Subdivision Final Plan.

Drafting Standards - All maps, plans and profiles shall conform with Class A-2 of the Code of Recommended Practice for standards of accuracy of maps prepared by the Connecticut Technical Council, Incorporated. All maps, plans and profiles shall be presented on good quality white prints and shall be not more than thirty-six (36) inches long or twenty-four (24) inches wide. All such prints shall have a one-half (1/2) inch border on three (3) sides and a two (2) inch border on the left side. If more than one sheet is submitted, they shall be bound.

Electronic Submittal - Digital file of the site plan in PDF format and one of the following formats, or as approved by the Office of Planning and Development: Raster Image Files including but not limited to JPEG, TIFF and BMP formats.

Number of Copies – The Town of Waterford is committed to reducing the number of hard copy submittals required of the applicant during the review process to the extent practicable. The desire to reduce the number of hard copies must be balanced with the need to have the number of copies required to effectively disseminate information and provide for an efficient and transparent review process. The applicant is therefore encouraged to contact Waterford's staff to the Commission to determine whether there is an opportunity to reduce the required number. Where there is no direction from staff on the matter, or where staff deems it necessary, the applicant shall submit twelve (12) copies of the required materials.

Basic Information. All sheets must contain the following basic information (if applicable):

1._____ Name of the proposed subdivision.

2._____ Name and address of property owner and applicant.

3._____ Name, address and telephone number of person or firm preparing pre-application plan and/or materials.

4._____ Date of plan/materials preparation, with revision date(s) if applicable.

5._____ Graphic scale and true north arrow on any graphic representations.

6._____ Assessor map and lot number(s) of the land being subdivided.

7._____ Zoning identified for each parcel on all plan materials and listed in any narrative materials, including any applicable overlay districts. Zoning district boundary lines must also be shown.

8._____ Perimeter boundary lines of the subdivision drawn so as to distinguish them from other property lines.

9._____ Location, width and names of existing streets within and immediately adjacent to the parcel being subdivided.

10._____ Names of abutting property owners and property owners immediately across any adjacent streets; with plat and lot numbers also indicated.

11._____ Certification by a Professional Land Surveyor that a perimeter survey of the land being subdivided has been performed and conforms to the Town's drafting requirements.

Site Context Plan drawn to a scale of one inch equals 400 feet or as necessary to show the area within one-half mile of the subdivision parcel(s) and superimposed on an aerial photograph. The use of readily available GIS information from the town and the state may be acceptable.

1._____ Basic information from the above checklist as applicable.

2._____ The locations of all streets with street names labeled.

3._____ Existing lot lines in the vicinity of the proposed development as determined by the scale of the plan.

4._____ Open spaces, conservation areas, and parks.

5._____ Wetlands and watercourses.

6._____ Name of the watershed(s) within which the site lies. Where there is more than one watershed on the site, approximate topographic divides shall be shown.

7._____ For each watershed on the site, the presence of any impairment listing on the most recent federal/state-level 303(d) list of impaired waters.

8._____ Agricultural areas.

9._____ State natural diversity database areas.

10._____ Flood plains or flood hazard areas.

11._____ Significant public facilities.

12._____ Coastal features.

13._____ Locations of archaeological resources as available from the most recent State GIS data.

14._____ Topography at a minimum of 10-foot contour intervals.

Existing Conditions Plan

1._____ Basic Information from the above checklist

2._____ Site Context Map information from the above checklist.

3._____ Location of existing property lines, easements, and rights-of-way within and immediately adjacent to the parcel(s).

4._____ Topographic survey of the site displayed as two-foot contours.

5._____ Vegetative cover map for the complete property according to general cover type including cultivated land, agricultural land, permanent grass land, meadow, pasture, old field, hedgerow, woodland and wetland. Trees with a caliper in excess of 18 inches DBH, if located within an area proposed for disturbance or alteration shall also be indicated. Vegetative types shall be described by plant community, relative age and condition.

6._____ Soil series, types and map units, as mapped by the U.S. Department of Agriculture, Soil Conservation Service in the latest published soil survey for the state, and accompanying data published for each soil relating to its suitability for construction and for septic suitability.

7._____ Location of Primary Constraints as follows:

- a._____ Wetlands as determined through surveyed field flagging
- b._____ Watercourses or other surface water bodies as determined through surveyed field flagging
- c._____ 100-year flood zones and velocity zones as identified by flood zone elevations.
- d._____ Coastal habitat features identified by the State

e._____ Areas within the easement of a high voltage power line or other utility
f._____ Areas proposed to be developed as part of a public or private way
g._____ Vernal pool delineations
h._____ Historic or archaeological sites or structures

8._____ Approximate location of Secondary Constraints

a._____ Areas where topographic slope equals or exceed 25% as determined through the required topographic survey.
b._____ Regulatory setbacks pursuant to all State regulations
c._____ Significant trees
d._____ Surveyed location of stonewalls
e._____ Places where residents or visitors can experience views of culturally significant landscapes, buildings, or natural resources.
f._____ Location of ledge and rock/boulder outcrops

9._____ Surveyed location and approximate size of existing buildings, roads or significant aboveground structures on or immediately adjacent to the subdivision.

10._____ Location of trails that have been in public use (pedestrian, equestrian, bicycle, etc.).

11._____ Location of all easements and other encumbrances of property which are or have been filed of record with the land evidence records of the town. Include volume and page numbers from land evidence records.

12._____ Location of all existing above and below-grade utilities on or immediately adjacent to the subdivision, including septic tanks and fields.

Preferred Development Area Plan

1._____ Applicable Basic Information

2._____ Applicable information from the Site Context Map

3._____ Display of Primary Constraints as a single unified polygon.

4._____ Display of Secondary Constraints as a single unified polygon readily distinguishable from Primary Constraints.

Proposed Yield Plan

1._____ Applicable Basic Information

2._____ Applicable information from the Site Context Map

3._____ Layout and extent of road rights of way and pavement

4._____ Layout of lot lines with area of the lot displayed.

5._____ Approximate location of housing units

6._____ Conceptual location for on-site septic systems with regulatory setbacks.

7._____ Conceptual location of water supply infrastructure with regulatory setbacks.

8._____ Conceptual stormwater management infrastructure consistent with on-site grading and topography and consistent with stormwater management requirements of the Town of Waterford.

9._____ Location of open space and approximate delineation of wetland/upland, conservation land, and recreation land.

Proposed Conservation Subdivision Plan Set (Site Plans and Construction Plans). Site plans for the proposed conservation development shall be drawn in accordance with the drafting standards provide at the beginning of the Final Plan Set checklist. Where the site must be divided into multiple sheets in order to accommodate scale, a plan key shall be provided.

1._____ Basic information from the above checklist.

2._____ Site Context Map information from the above checklist.

3._____ Overall Development Plan.

- a._____ Boundary of the Preferred Development Area
- b._____ Location of proposed housing units with depiction of setbacks from lot lines or, where lot lines will not exist in cases of common ownership or condominium arrangements, setbacks from adjacent structures that demonstrate compliance with the Zoning Regulations.
- c._____ Proposed developer's lot numbers
- d._____ Proposed emergency 911 numbers
- e._____ Proposed assessor's lot numbers

f._____ The location of any rights of way, easements, proposed sidewalks or pedestrian ways, and dimensions of pavement

g._____ The proposed location of all structures and associated setbacks

h._____ Delineated area of dedicated open space with overall area calculation.

i._____ Location of permanent stone boundary markers or other delineation, including markers sufficient to delineate the location of open space areas.

j._____ Location of any structures, trails recreational uses, or other built features that may be allowed in dedicated open space.

k._____ Location of any areas that may be used as buffers to adjacent properties.

l._____ Identification of any areas that may be altered as part of the development process in the form of landscape restoration, removal of invasive species, fortification of vegetated buffers, regrading to accomplish necessary drainage improvements, or other objectives consistent with the purposes of cluster development.

m._____ Location of any structures, trails recreational uses, or other built features that may be allowed in dedicated open space.

n._____ Location for on-site septic systems with regulatory setbacks

o._____ Location of water supply infrastructure with regulatory setbacks.

p._____ Location of stormwater management infrastructure.

q._____ Location of Minimum Square and minimum buildable area

r._____ Zoning Bulk Standards Table

4._____ Erosion & Sediment Control Plan / Stormwater Management Plan

a._____ Erosion and sediment control plan and narrative in accordance with Section 25.5 of the Zoning Regulations

b._____ Site Stormwater Management Plan and supporting documents/calculations in accordance with Section 25.6 of the Zoning Regulations

c._____ Stormwater system Operations Maintenance Plan in accordance with Section 25.6 of the Zoning Regulations

5._____ Landscaping Plan

a._____ All site dimensions including parking lots, parking lot planters, landscaped areas, street yards, walks, etc.

b._____ Location, type and size of all existing trees to be retained.

c._____ All existing and proposed landscaping, including landscaping and screening, the location, species, size of new trees in landscaped areas

d._____ All existing or proposed fences and/or walls

e._____ All loading and storage facilities, utilities, trash enclosures, transformers, or other elements outlined in this ordinance

f._____ Landscape grading plan indicating berming, swales, and drainage easements

g._____ List of plants used for the entire site and identification of those specifically used as part of stormwater management practices.

h._____ Signature and date of the individual licensed to prepare the plans, including the address, name and phone number of the preparer.

6._____ Roads and Utilities

a._____ Profiles showing existing and proposed elevations along the centerline of all roads. Where a proposed road intersects an existing road or roads, the elevation along the centerline of the existing road or roads, within one hundred (100) feet of the intersection, shall be shown.

b._____ Plans and profiles showing the location, type and typical section of road pavements, including curbs and gutters, sidewalks, manholes, catch basins, and street lights.

c._____ Street cross-sections, with location of utilities indicated

d._____ Location and dimension of all proposed utilities within and immediately adjacent to the subdivision, including gas, electric, phone, cable TV, fire alarm, hydrants, utility poles, stormwater drainage facilities or other proposed above or underground utilities.

e._____ Proposed street names.

f._____ Proposed pedestrian ways (sidewalks or bike paths).

g._____ Street lighting plan

h._____ Location of all test pits performed on the site with date and observed or calculated high groundwater elevation.

i._____ Construction details for all stormwater management practices being proposed for the site.

j._____ Construction details for all on-site septic facilities proposed for the site.

k._____ Construction details for all proposed water supply facilities for the site and, where applicable, the location of connection to the municipal water supply.

l._____ Construction details for all proposed sewer facilities for the site and, where applicable, the location of connection to the municipal sewer system.

Supplementary Information. The applicant shall submit a narrative report, with the appropriate number of copies, to provide necessary administrative materials and supplement the plans developed as part of a master plan submittal.

1._____ Narrative summary of basic information (previous submittals may be accepted or an addendum may be submitted)

2._____ Narrative summary of existing conditions (previous submittals may be accepted or an addendum may be submitted)

3._____ Narrative summary of proposed yield calculations and plan (previous submittals may be accepted or an addendum may be submitted)

4._____ Summary of any proposed density bonuses and associated calculations

5._____ Narrative summary and any additional documentation of strategy to provide water supply.

6._____ Narrative summary and any additional documentation of strategy to treat and dispose of wastewater including a description of on-site soils, depth to groundwater throughout the site, and any test pit investigations that may have been performed.

7._____ Stormwater management report detailing how stormwater volume and quality are managed on the property and, where applicable, the relationship between the stormwater management strategy and any impairment identified on the watershed 303(d) list.

8._____ All documentation for subsurface soil investigations referenced by code or key to locations of testing sites on submitted plans.

9._____ Stormwater flow calculations associated with all best management practices shown on submitted plans including, but not limited to, volume calculations for required storm frequencies, peak discharge rates for required storm frequencies, and soil percolation rates.

10._____ Maintenance plans associated with all on-site utilities, responsible parties, descriptions of associated covenants, and funding sources where applicable.

11._____ The results of any water yield testing or water quality testing performed on-site to determine suitability of soils to provide adequate water supply.

12._____ Calculations associated with wastewater design flows.

13._____ Description of proposed phasing (if any)

14._____ Narrative description of the use of the open space including the uses that are proposed, the management structure for the open space, and a description of the restrictions that will be placed upon the open space area.

15._____ Where two-, three-, or four-family units are proposed, architectural elevations and floor plans for those structures.

16._____ Documentation of the estimated cost to complete all public improvements and stormwater facilities.

Supporting Materials

1._____ Administrative filing fee

2._____ Completed application form signed by the applicant and the property owner(s)

3._____ Proof of tax collector that all taxes due on the land have been paid prior to filing the Final Plan.

4._____ The names and addresses of owners of all properties, agencies or communities requiring notification as required by these regulations.

5._____ Letters of approval from utility companies (as applicable).

6._____ Written statement from the Utility Commission Office that water is available to the development with sufficient volume and pressure to meet fire flow requirements, based on water system model if required by water department.

7._____ List of all other state and federal agency approvals that may be required

8._____ Two draft copies and one digital copy of all legal documents describing the property, proposed easements and rights-of-way, dedications, restrictions, or other required legal documents in Word© editable format.

9._____ Proposed arrangements for completion of the required public improvements, including construction schedule and financial guarantees.

10._____ Statement identifying any waivers from development standards, zoning variances or special use permits required or requested.

11._____ Architectural drawings, renderings and design plans.

As Built Plan Checklist

DRAFTING REQUIREMENTS - All maps, plans and profiles shall conform with Class A-2 of the Code of Recommended Practice for standards of accuracy of maps prepared by the Connecticut Technical Council, Incorporated. All maps, plans and profiles shall be presented on good quality white prints and shall be not more than thirty-six (36) inches long or twenty-four (24) inches wide. Plans shall be drawn at a scale of 1 inch = 40 feet. All such prints shall have a one-half (1/2) inch border on three (3) sides and a two (2) inch border on the left side. If more than one sheet is submitted, they shall be bound. All such prints shall bear the following information:

Electronic Submittal - Digital file of the site plan in PDF format and one of the following formats, or as approved by the Office of Planning and Development: Raster Image Files including but not limited to JPEG, TIFF and BMP formats.

Number of Copies – The Town of Waterford is committed to reducing the number of hard copy submittals required of the applicant during the review process to the extent practicable. The desire to reduce the number of hard copies must be balanced with the need to have the number of copies required to effectively disseminate information and provide for an efficient and transparent review process. The applicant is therefore encouraged to contact Waterford's staff to the Commission to determine whether there is an opportunity to reduce the required number. Where there is no direction from staff on the matter, or where staff deems it necessary, the applicant shall submit twelve (12) copies of the required materials.

Basic Information. All sheets must contain the following basic information (if applicable):

1._____ Name of the subdivision.

2._____ Name and address of property owner and applicant.

3._____ Name, address and telephone number of the designers of record.

4._____ Date of plan/materials preparation, with revision date(s) if applicable.

5._____ Graphic scale and true north arrow on any graphic representations.

6._____ Assessor map and lot number(s) of the subdivision.

7._____ Perimeter boundary lines of the subdivision drawn so as to distinguish them from other property lines.

8._____ Location, width and names of existing streets within and immediately adjacent to the parcel being subdivided.

Subdivision Plan Set. Site plans for the proposed subdivision shall be drawn in accordance with the drafting standards provide at the beginning of the As Built Plan Set checklist. Where the site must be divided into multiple sheets in order to accommodate scale, a plan key shall be provided.

1._____ Basic information from the above checklist.

2._____ Overall Development.

a._____ Location of proposed lot lines and the footprint of all structures with depiction of setbacks from lot lines.
b._____ The location of any rights of way, easements, sidewalks or pedestrian ways, and dimensions of pavement.
c._____ Delineated area of dedicated open space.
d._____ Location of permanent stone boundary markers or other delineation, including markers sufficient to delineate the location of open space areas.
e._____ Location of any structures, trails recreational uses, or other built features that may be allowed in dedicated open space.
f._____ Location of any structures, trails recreational uses, or other built features that will be allowed in dedicated open space.
g._____ Location for on-site septic systems with regulatory setbacks.
h._____ Location of water supply infrastructure with regulatory setbacks.
i._____ Location of stormwater management infrastructure.
j._____ Location of sewer system infrastructure
k._____ Location and design of all stormwater management practices including inlets, inverts, conveyance, detention/retention, and discharge points as applicable.
l._____ Location of road features, including curbs and gutters, sidewalks, manholes, catch basins, and street lights.
m._____ Street cross-sections, with location of utilities indicated
n._____ Location and dimension of all proposed utilities within and immediately adjacent to the subdivision, including gas, electric, phone, cable TV, fire alarm, hydrants, utility poles, stormwater drainage facilities or other proposed above or underground utilities.

Town of Waterford

Department of Planning and Development

www.waterfordct.org

Office Use Only

Date Submitted:_____

Processed By:_____

App. No.: _____

Total Fee: $_____

Electronic Submission Waived: _____Yes _____No

PZC Form 1

Planning and Zoning Application

1. Type of Application(s), Use and Property Information *(check all that apply)*

☐ Informal Staff Review	☐ Site Plan/Design Review	☐ Municipal Project (CGS§8-24)
☐ Special Permit/Design Review[1]	☐ Subdivision /Resubdivision	☐ Lot line Adjustment
☐ Zoning Map Change	☐ Regulation Amendment(s)	☐ New District
☐ Multifamily Development	☐ Coastal Area Management [2]	☐ Earth Excavation
☐ Flood Hazard Area	☐ Other: _____	☐ Other: _____

Specify all uses and corresponding section for which this application applies[3]:

Use: _____ Section: _____

Use: _____ Section: _____

Use: _____ Section: _____

Name of proposed development/subdivision: _____ If subdivision how many lots?: _____

If applicable, are roadways proposed to be private, public or both:

☐ Private ☐ Public ☐ Both[4]

Parcel 1

Map/Block/Lot: ____/____/____ ____/____/____

Street No. & Name: _____

Size SF/AC: _____/_____

Zoning District(s): _____

Parcel 2

Map/Block/Lot: ____/____/____ ____/____/____

Street No. & Name: _____

Size SF/AC: _____/_____

Zoning District(s): _____

[1] Include a completed list of property owners with Parcel ID, name, address and mailing address. It is the applicant's responsibility to distribute all notices certified return receipt. Evidence of mailing shall be submitted prior to the start of the hearing. Failure to do so will delay the opening of the hearing.

[2] Coastal Site Plan reviews under Coastal Area Management §25.4 must submit a completed PZC Form 2 in addition to this PZC Form 1.

[3] The use listed must correspond to the exact use term noted within the zoning district as a permitted use allowed through site plan or special permit.

[4] A plan must accompany the application clearly delineating the limits of public and private roads.

2. Applicant Information

Name: _____

Title: _____

Company: _____

Address: _____

City/State: _____ _____

Zip Code: _____

Telephone: _____ Fax: _____ Email: _____

Applicant's Authority to File Application[5]

- ☐ Legal Owner of Record
- ☐ Power of Attorney
- ☐ Contract to Purchase
- ☐ Other _____

3. Agent Information; if applicable

Name: _____

Title: _____

Company: _____

Address: _____

City/State: _____ _____

Zip Code: _____

Telephone: _____ Fax: _____ Email: _____

Specify Nature of Agent

- ☐ Attorney
- ☐ Civil Engineer
- ☐ Land Surveyor
- ☐ Design Professional; _____
- ☐ Other: _____

Bar/License/Reg. No.:_____

4. Property Owner(s) and Parcel(s) Information

Is owner co-applicant? ☐ **Yes** ☐ **No**

Note: If landowner is an LLC, Corporation, Trust or other legal entity, attach the names, addresses and title of each member or officer, including agent(s). If same as applicant list 'Same'.

Name: _____

Title: _____

Company: _____

Address: _____

City/State: _____ _____

Zip Code: _____

Telephone: _____

Fax: _____

Email: _____

Name: _____

Title: _____

Company: _____

Address: _____

City/State: _____ _____

Zip Code: _____

Telephone: _____

Fax: _____

Email: _____

[5] Applicant must submit evidence attesting to the authority to file application (i.e. deed, option for purchase, etc.)

5. Statement of Use

Attached a typed statement of use in conformance with the Zoning Regulations as described in Section 22.4.2. In addition include all hours and days of operation, size of buildings and number of stories, utilities servicing the parcel, variances received, number of employee and structures to be demolished.

6. Statement of Design Compatibility (Site Plans and Special Permits only)

Attach a statement describing how the building and site design is compatible with the neighborhood, character of Waterford and Zoning Regulations.

7. Consistency with Adopted Plan of Preservation, Conservation and Development (all applications)

Attach a statement attesting to how the proposed use, zone change, amendment or design is consistent with the most recent adopted Plan of Preservation, Conservation and Development (the Plan). Note relevant Plan section numbers and pages.

8. Natural and Cultural Resources

Yes	No		% of Property
☐	☐	a. Are inland wetlands present on site? Total SF/AC _____/_____	_____
☐	☐	b. Are tidal wetlands present on site? Total SF/AC _____/_____	_____
☐	☐	c. Are their known or suspected vernal pools on the property?	
☐	☐	d. CT DEEP NDDB: Are endangered, threatened or species of special concern suspected to be located on the property? *Applicant must attach an 8 ½ x 11 map of the most current CT DEEP Natural Diversity Database with site clearly identified regardless of response provided. If you answered yes to item d., attach a letter from CT DEEP stating the name of the specie(s) that are suspected to be on the property. See Section 22 of the Zoning Regulations for additional information.*	
☐	☐	e. Are floodplains or flood hazard areas on the property?	
		Identify: _____	
☐	☐	f. Is the property located within a local, state of national historic district?	
		If yes identify district name: _____	
☐	☐	g. Does the site possess any structures or sites listed on the local, state or national register of historic landmarks?	
		If yes, identify: _____	

9. Additional Information

Yes	No		
☐	☐	a.	Is any part of the site within 500' of the Town line? Which town: _____
☐	☐	b.	Will any egress or ingress for the property use streets within an adjoining municipality?
☐	☐	c.	Is any work proposed in wetlands or watercourses? Explain in Statement of Use
☐	☐	d.	Is any work proposed within 100 feet of a wetlands or watercourse? Explain in Statement of Use
☐	☐	e.	Is any work proposed within a floodplain or flood hazard area? Explain in Statement of Use
☐	☐	f.	Is public water available or proposed to the site? Identify: _____
☐	☐	g.	Are public sanitary sewers available or proposed to the site? Identify: _____
☐	☐	h.	Is there a utility, drainage or other easement(s) on the site? Specify:_____
☐	☐	i.	Is open space proposed on the property?

How much open space is proposed (SF/AC)? _____/_____ Percent of property(s)_____

Use and purpose of open space: _____

10. Previous Land Use Permits Associated with the Property(s)

Have previous permits been issued for the Property: ☐ Yes ☐ No (List singularly; attached additional pages if necessary)

Date Issued	Issuing Agency	Approved Use/Activity
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

11. Change of Zone, Regulation Amendment or New Zoning District, if applicable

Yes No

☐ ☐ a. Is this application for a new zoning district and/or regulation not presently established within the Zoning Regulations? If a new zoning district, distinguish type of zone proposed:

☐ Fixed Zone

☐ Floating Zone

☐ Overlay Zone

Identify proposed zone name: _____

For new regulations, list proposed section number(s) and titles(s):

i. _____

ii. _____

iii. _____

☐ ☐ b. Is this application an amendment to an existing regulation? Attach proposed amendments, clearly noting any deletions, modifications or additions. List sections proposed to be modified:

i. _____

ii. _____

iii. _____

☐ ☐ c. Is this application for a change to a district already established within the regulations? Identify:

_____

Supporting materials:

For new zoning districts or a change in zone provide a legal description of the land involved in the zone district change including the following:

- Location map at 1"=1000'
- Accurate description and acreage of tract(s) to be changed with existing buildings and uses
- Show existing features including but not limited to contours at two-foot intervals, wetlands and watercourses, flood plains, all improvements and structures,
- All lots or parts of lots contained in an area within 500 feet in all directions of the zone change tract
- All lots shown in this area and within the zone change tract shall contain the name and address of owners as recorded in the Assessor's records and shall show the nature of use
- North point, and distance along road from nearest road intersection.
- Scale of map(s)

12. Bulk Zoning Requirements Table

Complete the following table, which must also be included on applicable drawings:

Zoning District(s): _____		
Item	**Required**	**Proposed**
Minimum Lot Size		
Frontage		
Front Yard		
Side Yard		
Rear Yard		
Building Line		
Building Coverage		
Parking[6]		
Landscaping		
Impermeable Coverage		

[6] Attach method used to determine the number of parking spaces required.

13. Planning, Design and Engineering Team

Provide a list of all professionals responsible for the project. Additional pages attached, if necessary: ☐ Yes ☐ No

Discipline: ____________________ Telephone: ____________________

Name: ____________________ Fax: ____________________

Company: ____________________ Email: ____________________

License(s)/
Accreditations: ____________________ License(s)/
Accreditation No(s): ____________________

Discipline: ____________________ Telephone: ____________________

Name: ____________________ Fax: ____________________

Company: ____________________ Email: ____________________

Licenses and/or
Accreditations: ____________________ License/
Accreditation No(s): ____________________

Discipline: ____________________ Telephone: ____________________

Name: ____________________ Fax: ____________________

Company: ____________________ Email: ____________________

Licenses and/or
Accreditations: ____________________ License/
Accreditation No(s): ____________________

Discipline: ____________________ Telephone: ____________________

Name: ____________________ Fax: ____________________

Company: ____________________ Email: ____________________

Licenses and/or
Accreditations: ____________________ License/
Accreditation No(s): ____________________

Discipline: ____________________ Telephone: ____________________

Name: ____________________ Fax: ____________________

Company: ____________________ Email: ____________________

Licenses and/or
Accreditations: ____________________ License/
Accreditation No(s): ____________________

14. Supporting Documentation

Itemize, including additional attachments, all information provided in support of the application. Titles, dates and sheet/map numbers shall correspond exactly with the corresponding information provided.

Additional pages attached, if necessary: ☐ Yes ☐ No

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

15. For Informal Staff Review Use Only

Sec. 7-159b – Pre-application review of use of property. Notwithstanding any other provision of the general statutes, prior to the submission of an application for use of property under chapters 124, 126, 440 and 541 or any other provision of the general statutes authorizing an authority, commission, department or agency of a municipality to issue a permit or approval for use of such property, such authority, commission, department or agency or authorized agent thereof may separately, jointly, or in any combination, conduct a pre-application review of a proposed project with the applicant at the applicant's request. Such pre-application review and any results or information obtained from it may not be appealed under any provision of the general statutes, and shall not be binding on the applicant or any authority, commission, department, agency or other official having jurisdiction to review the proposed project.

I have read and understand the above provision of the Connecticut General Statutes and understand and agree that whatever discussion, comments and/or recommendations are made through this review are non-binding upon the parties.

Further, I acknowledge and agree that this pre-application review meeting is being conducted prior to and in anticipation of a formal application to the Waterford Planning and Zoning Commission or Conservation Commission to obtain feedback and response to the proposal or design, as it exists on this date, in the interest of preparing an application consistent with the Subdivision, Zoning or Wetlands regulations of the Town of Waterford as the case may be.

Signature	**Printed Name**	**Date**
_____ Applicant	_____	_____
_____ Agent	_____	_____
_____ Land Owner	_____	_____
_____ Land Owner	_____	_____

16. Technical Assistance Review Fee

In accordance with the Waterford Code of Ordinance Chapter 16.08, the Commission may require third party technical assistance review for the evaluation of applications associated with but not limited to site plans, special permits, zone change and regulation amendments and may collect payment for costs associated with the review. This includes but is not limited to civil engineering, architecture, legal assistance, traffic engineering and environmental protection.

17. Acknowledgements; All applications

Application Content

The undersigned herby acknowledges that this application and statements submitted herewith are true to the best of my knowledge and approval of the application is contingent upon compliance with all requirements of said regulations.

Right of Entry and Inspection

The undersigned hereby authorizes the Waterford Planning and Zoning Commission or its agents, to enter the subject property for the purposes of inspection and enforcement for the said Zoning Regulations until receipt of final Certificate of Occupancy and Certificate of Zoning Compliance.

Electronic Data Accuracy and Transmission

If applicable, the undersigned hereby acknowledges that all electronic data submitted as part of this application is an accurate and true representation of all paper transmissions provided as part of this application and may be transmitted publically when requested and all applicable fees are paid in full by the requesting party.

Signature	**Printed Name**	**Date**
_____ Applicant	_____	_____
_____ Agent	_____	_____
_____ Land Owner	_____	_____
_____ Land Owner	_____	_____

APPENDIX C: NOTICE OF CONDITIONAL APPROVAL

RESTRICTIVE COVENANTS

WHEREAS, ^ [owner of property upon which subdivision rests - not necessarily subdivider] is a Connecticut corporation/partnership having its principal place of business at ^, ^, Connecticut (hereinafter, "Owner"); and

WHEREAS, Owner is the owner, in fee simple, of real property located in the Town of ^, County of ^ and State of Connecticut, being [ADDRESS OR ASSESSOR'S MAP/NUMBER], said real property being more particularly described on Schedule A [the deed to the property], attached hereto and made a part hereof (hereinafter, "the Property"); and

WHEREAS, a subdivision known as [SUBDIVISION NAME] has been approved by the Waterford Planning and Zoning Commission on the Property, which approval is predicated upon certain plans and other application materials, and which is subject to the Subdivision Regulations of the Town of Waterford (hereinafter, "the Regulations") and to certain conditions or modifications as may be disclosed in the records of the said Commission (hereinafter, "the Subdivision"); and

WHEREAS, the Subdivision requires the construction of certain improvements, which improvements are required to be bonded in accordance with [Section _____] of the Regulations prior to the endorsement and filing of the Subdivision in the Office of the Waterford Town Clerk; and

WHEREAS, the parties acknowledge that the purpose of such bonding is to guarantee the construction of all improvements in the Subdivision, and compliance with the Regulations, the subdivision plans and submissions, the conditions and modifications of approval, and similar requirements applicable to the Subdivision, prior to the offering of any lot in the subdivision for sale or development; and

WHEREAS, the Subdivider desires to postpone the posting of said bonds, and the Commission has indicated a willingness to accept such postponement provided that Subdivider and Owner are willing to covenant that no lots in the Subdivision shall be conveyed, under any circumstances, to any party, until the required bonds are posted.

NOW, THEREFORE, ^ [owner] declares and covenants that none of the lots in the Subdivision shall be conveyed to any party, other than the Town of Waterford, prior to the submission to, and approval by, the Waterford Planning and Zoning Commission of suitable bonds for Subdivision improvements, in accordance with the Regulations. The lots may be encumbered by mortgages junior in right to this Covenant. [OWNER] further declares and covenants that no construction activity of any kind, including but not limited to the clearing, grading, or excavation of land, shall occur on the subdivision property prior to the posting of such bonds. This Covenant shall run with the land and shall be binding on all persons claiming title to said premises under Owner.

IN WITNESS WHEREOF, ^ [owner] has caused this instrument to be executed in

^his/her/their/its name, on this ^ day of ^, 20^.

Signed, Sealed and Delivered
In the Presence of:

_____

_____

STATE OF CONNECTICUT)
) ss. ^ ^, 20^
COUNTY OF ^)

Personally appeared ^, signer and sealer of the foregoing instrument and acknowledged the same to be his/her free act and deed before me, the undersigned officer.

^
Commissioner of the Superior Court
Notary Public
My Commission Expires:

STATE OF CONNECTICUT)
) ss. ^ ^, 20^
COUNTY OF ^)

Personally appeared ^ [NAME & TITLE/OFFICE OF SIGNER FOR CORPORATE OR

PARTNERSHIP OWNER], signer and sealer of the foregoing instrument and acknowledged the same to be his/her free act and deed as such [TITLE/OFFICE], and the free act and deed of said corporation/partnership, before me, the undersigned officer.

^
Commissioner of the Superior Court
Notary Public
My Commission Expires:

NOTES:

THIS COVENANT MUST BE ACCOMPANIED BY A CURRENT CERTIFICATE OF TITLE INDICATING THAT THE PROPERTY IS IN THE NAME OF THE "OWNER" AND IS FREE AND CLEAR OF ANY AND ALL ENCUMBRANCES (SUCH AS LIENS, ATTACHMENTS, MORTGAGES) WHICH MIGHT IMPAIR ITS PRIORITY IN RIGHT; OR SUBORDINATION AGREEMENTS FOR ANY SUCH ENCUMBRANCES.

THIS ENCUMBRANCE MUST BE FILED IN THE LAND RECORDS, INDEXED UNDER THE NAME OF THE OWNER. IT SHOULD BE FILED FOLLOWING THE FILING OF THE ENDORSED SUBDIVISION MAPS AND ANY DEEDS OF OPEN SPACE. DEEDS TO ROADS, DRAINAGE EASEMENTS, AND OTHER RIGHTS INCIDENTAL TO A NEW ROAD, SHOULD NOT BE FILED UNTIL ACCEPTANCE OF THE COMPLETED ROAD (THOUGH THE DEEDS CAN AND SHOULD BE HELD IN ESCROW).

IT IS THE RESPONSIBILITY OF THE BONDED PARTY (BE IT OWNER OR SUBDIVIDER OR DEVELOPER) TO INSURE COMPLIANCE OF ALL SUBDIVISION IMPROVEMENTS AND CLEAR TITLE TO THE ROAD AND APPURTENANT EASEMENTS UPON ACCEPTANCE. IF THE BONDED PARTY IS NOT THE OWNER OR DEVELOPER, IT IS INCUMBENT ON THE BONDED PARTY TO NEGOTIATE SUITABLE CONTRACTUAL AGREEMENTS WITH THE OWNER AND DEVELOPER. BONDS WILL BE CALLED, OR WILL NOT BE RELEASED, REGARDLESS OF THE IDENTITY OF THE PARTY CAUSING NONCOMPLIANCE, INCLUDING THE OWNER OF AN INDIVIDUAL LOT.

THE USE OF THIS COVENANT IN LIEU OF BONDING IS NOT AUTHORIZED BY EITHER THE FORMER OR CURRENT SUBDIVISION REGULATIONS. IT HAS BEEN PREPARED TO ACCOMMODATE A PRACTICE SPORADICALLY FOLLOWED BY THE COMMISSION AT THE EXPRESS URGING OF SUBDIVIDERS. THE USE OF THIS COVENANT IS ENTIRELY AT THE SUBDIVIDER'S AND OWNER'S RISK, AND ANY JUDICIAL DETERMINATION OF INVALIDITY OF THIS COVENANT SHALL REQUIRE THE IMMEDIATE POSTING OF BONDS BY THE SUBDIVIDER OR OWNER.

APPENDIX D: STREET TREES

Street Tree Requirements

Street trees shall be provided in accordance with the Sections 5 and 6 of the Subdivision Regulations. Where existing trees will be retained, snow fencing shall be installed prior to the start of construction to prevent disturbance of roots. Street tree species shall be selected from the list below. The Commission may approve other tree species provided it finds that the proposed tree species are appropriate for the area climate and specific site conditions. Unless otherwise approved by the Director of Public Works, trees shall have a minimum caliper of two (2) inches.

Street Trees Waterford, CT

Scientific Name	Common Name
Acer campestre	Hedge Maple
Acer rubrum	Armstrong Red Maple
Celtis occidentalis	Common Hackberry
Cornus Florida	Flowering Dogwood
Crataegus viridis **'Winter King'**	Winter King Hawthorn
Fraxinus pennsylvanica **X**	Seedless Green Ash
Gleditsia triacanthos inermis	Thornless Honeylocust
Magnolia virginiana	Sweetbay Magnolia
Ostrya virginiana	Hop Hornbeam
Oxydendron arboreum	Sourwood
Platanus x acerifolia	London Plane Tree
Quercus coccinea	Scarlet Oak
Quercus palustris	Pin Oak
Syringa reticulate	Japanese Tree Lilac
Tilia americana	Redmond American Linden
Tilia cordata	Littleleaf Linden
Ulmas americana x	American Elm Cultivar
Zelkova **serrata**	Zelkova

APPENDIX E: DECLARATION OF MAINTENANCE OBLIGATION FOR STORMWATER BEST MANAGEMENT PRACTICES

Declaration

WHEREAS, [Subdivider], hereinafter, "the Declarant," has obtain approval of the [Subdivision], hereinafter, "the Subdivision," as shown on plans entitled, "[Subdivision Plan title]", hereinafter "the Subdivision Plans;" and

WHEREAS, the Town of Waterford, acting by and through its Planning and Zoning Commission and in consultation with the Connecticut Department of Energy and Environmental Protection, has determined that the protection of both surface and subsurface water quality in the Town requires that stormwater runoff from roofs, driveways, and other impervious surfaces be treated before being discharged into streams, lakes, and wetlands; and

WHEREAS, treatment of stormwater from impervious surfaces is achieved by one of two general methods: (1) impoundments on the surface of the ground that are planted with vegetation, and that allow the contaminants in stormwater to be taken up by the vegetation, immobilized by dense soils, and broken down by sunlight; and (2) structures located beneath the ground that collect stormwater and allow it to seep into the ground, where it is purified by filtration through the soil before reaching subsurface groundwater levels or surface waters; and

WHEREAS, the Subdivision Plans depict one or both of these stormwater treatment methods, depending on the soil and groundwater conditions encountered on each lot; and

WHEREAS, each of these stormwater treatment systems require regular maintenance in order to operate as designed; and

WHEREAS, failure of these stormwater treatment systems could result in damage to the lots in the Subdivision, to downstream owners, and/or to waters that are used for domestic wells, recreation, and wildlife habitat;

NOW THEREFORE, the Declarant creates the following obligations for the protection and maintenance of the stormwater treatment systems on the lots in the Subdivision, which obligations shall run with the land and be binding on the heirs, successors, and assigns of the Declarant.

1. Protection and Maintenance of Stormwater Management Systems. No owner of a lot in the Subdivision shall remove any subsurface stormwater treatment system, or sever, re-route, or otherwise alter any drainage line leading to such system, nor take any other action which prevents water from reaching such system and flowing through it as designed. Likewise, no owner of a lot in the Subdivision shall remove any surface stormwater treatment system, or regrade or fill the same, or sever, re-route, or otherwise alter any drainage line leading to such system, nor take any other action which prevents water from reaching such system and flowing through it as designed. Owners of lots with surface stormwater treatment systems shall control the growth of trees or shrubs on or into any berm or other barrier which forms the impoundment. No less than every two (2) years, the lot owner shall be remove accumulated

sediment, leaves, litter, or other material which may have accumulated within either surface or subsurface stormwater treatment systems.

2. Access by Town in the Event of Default. In the event that any lot owner fails to maintain any stormwater treatment system, or alters it so that it cannot operate as designed, the Town of Waterford shall have the authority, but not the obligation, to enter onto such lot and perform such repairs or maintenance to the stormwater treatment system as may be required to restore it to proper operation. For this purpose, the Town shall have the right to enter onto any lot with equipment and personnel sufficient to perform the work required, and to remove any landscaping, accessory structures, fences, walls, or other obstacles which might prevent such access. It is the duty of the owner to insure that a viable access to the stormwater treatment system exists on the lot for normal maintenance and repair, and, in the event that the Town performs such work due to the lot owners failure to do so, the Town shall have no obligation to restore any disturbed areas, other than to rough grade and seed such areas. Before exercising any access, maintenance, or repair rights under this paragraph, the Town shall provide written notice at least thirty (30) days before such access, such notice to be by certified mail, return receipt requested, and setting forth the work required to be done. If the lot owner performs the specified work at its own cost and expense, and notifies the Town of its completion, the Town shall not enter onto the lot unless such work has not been performed fully or correctly.

3. Lien to Secure Town Work in Event of Default. In the event that the Town of Waterford performs maintenance, repairs, or other corrective action due to any action of the lot owner, or the failure of the lot owner to perform the maintenance work described in this Declaration, the lot owner shall reimburse the Town of Waterford for the cost of performing said work. The Town shall notify the lot owner by certified mail, return receipt requested, and setting forth the work performed and the cost thereof. The lot owner shall pay said sum to the Town within thirty (30) days of receipt. The Town may secure the payment of such reimbursement by a filing a lien against the lot, indexed in the name of the record owner thereof.

4. Payment of Attorney's Fees. Any party to this Declaration may enforce the provisions hereof against any other party in an action for compensatory damages, injunction, or such other remedy as the conditions may indicate. In the event that any party to this Declaration seeks to enforce its provisions, the non-prevailing party shall be liable to the prevailing party for the prevailing party's reasonable costs, including, but not limited to, attorney's fees, witness fees, court entry fees, marshal's fees, and transcription costs.

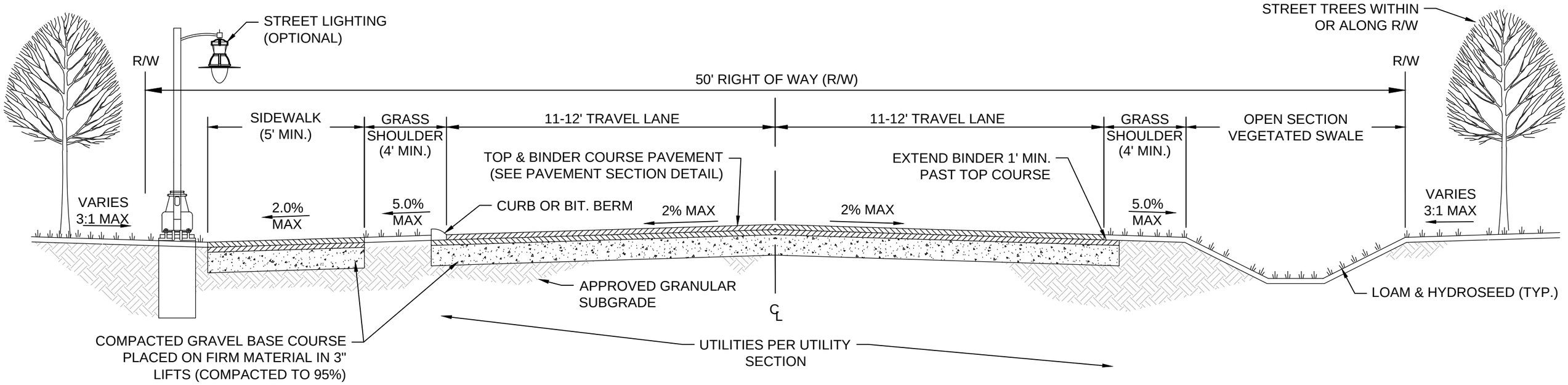
Dated at Waterford, Connecticut, this _____ day of _____, 20___.

Declarant, [name of property owner]

By

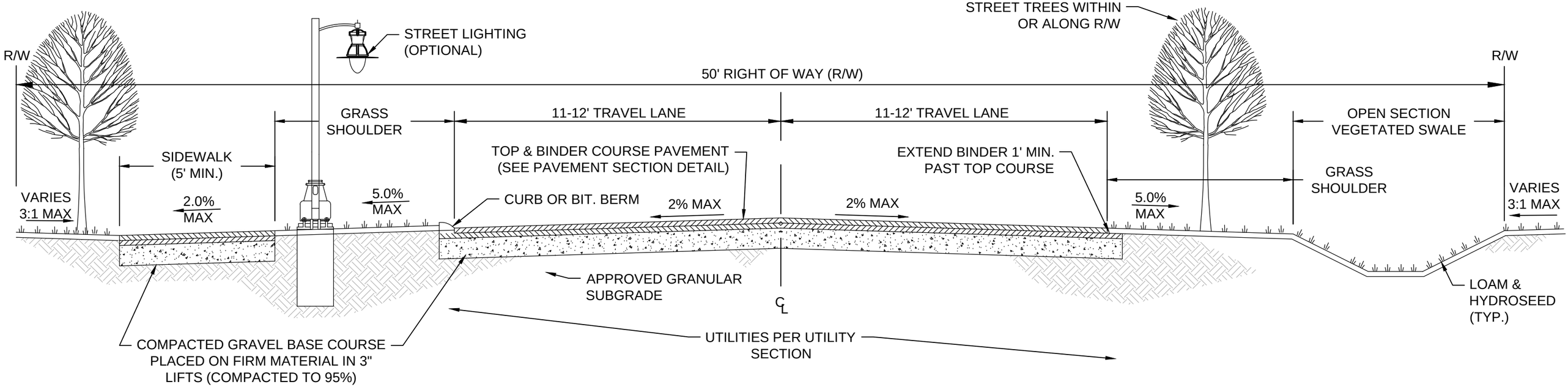
_____, Duly Authorized
[witness line and acknowledgement].

APPENDIX F: STREET AND UTILITY CROSS-SECTIONS



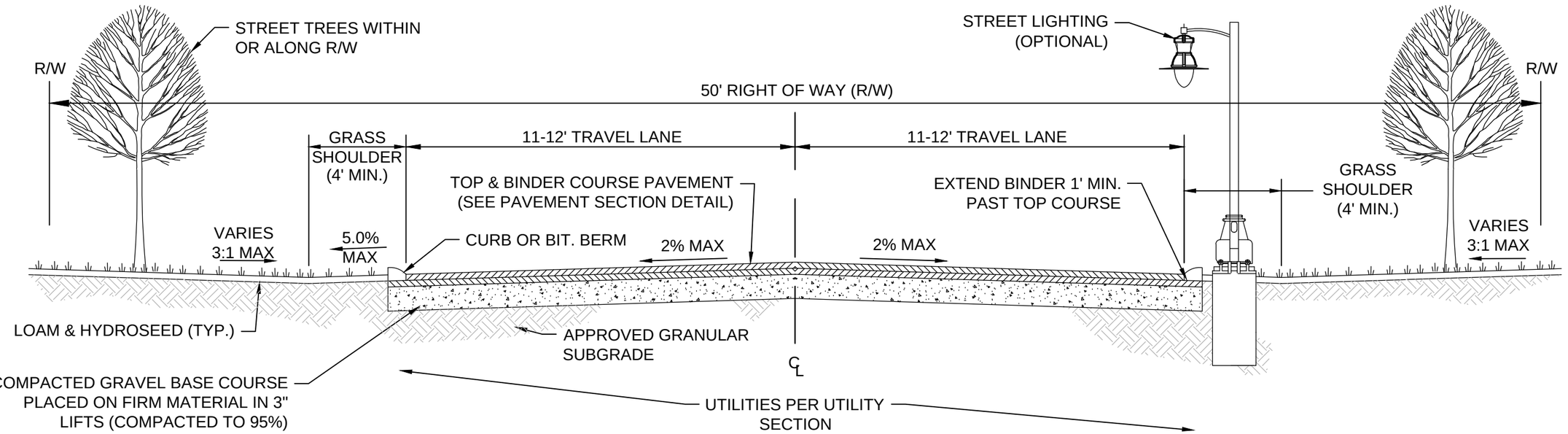
TYPICAL 2-LANE ROADWAY CROSS SECTION
CROWNED-OPEN SECTION

NOT TO SCALE



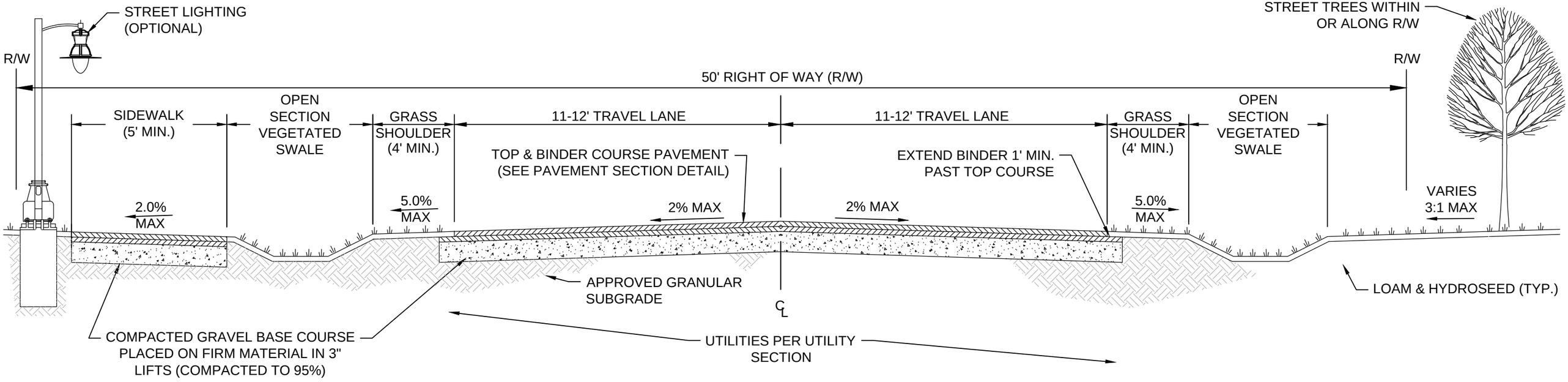
TYPICAL 2-LANE ROADWAY CROSS SECTION
CROWNED-OPEN SECTION 2

NOT TO SCALE



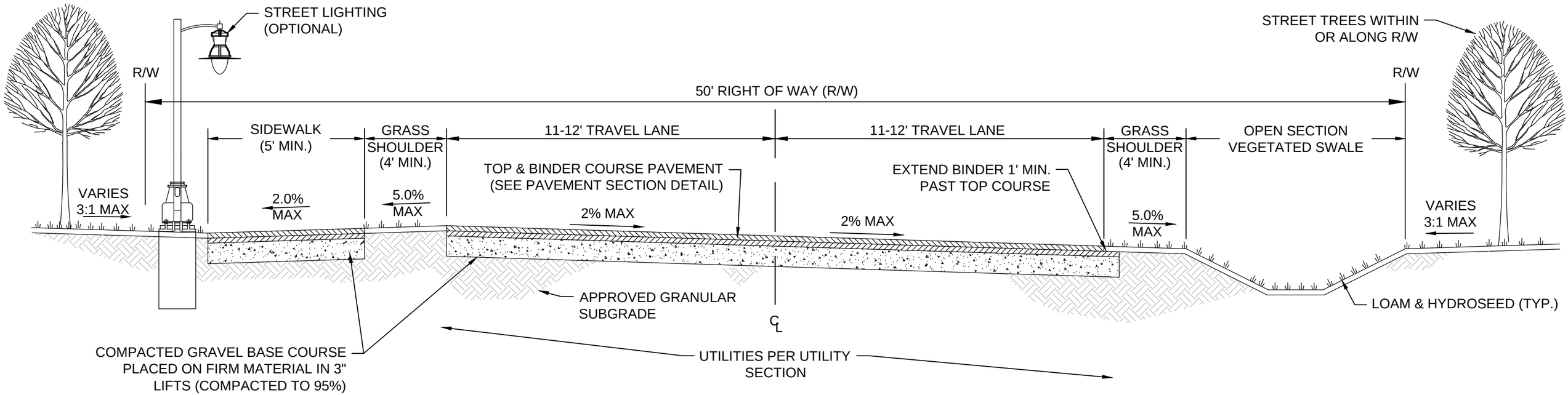
TYPICAL 2-LANE ROADWAY CROSS SECTION
CROWNED-CURB OR BERM

NOT TO SCALE



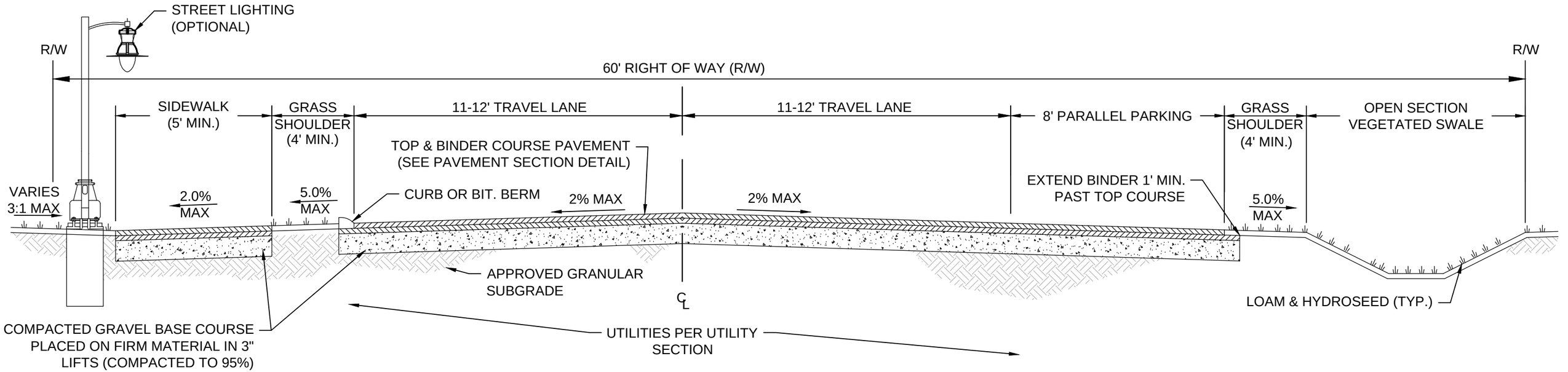
TYPICAL 2-LANE ROADWAY CROSS SECTION
CROWNED-OPEN SECTION BOTH SIDES

NOT TO SCALE



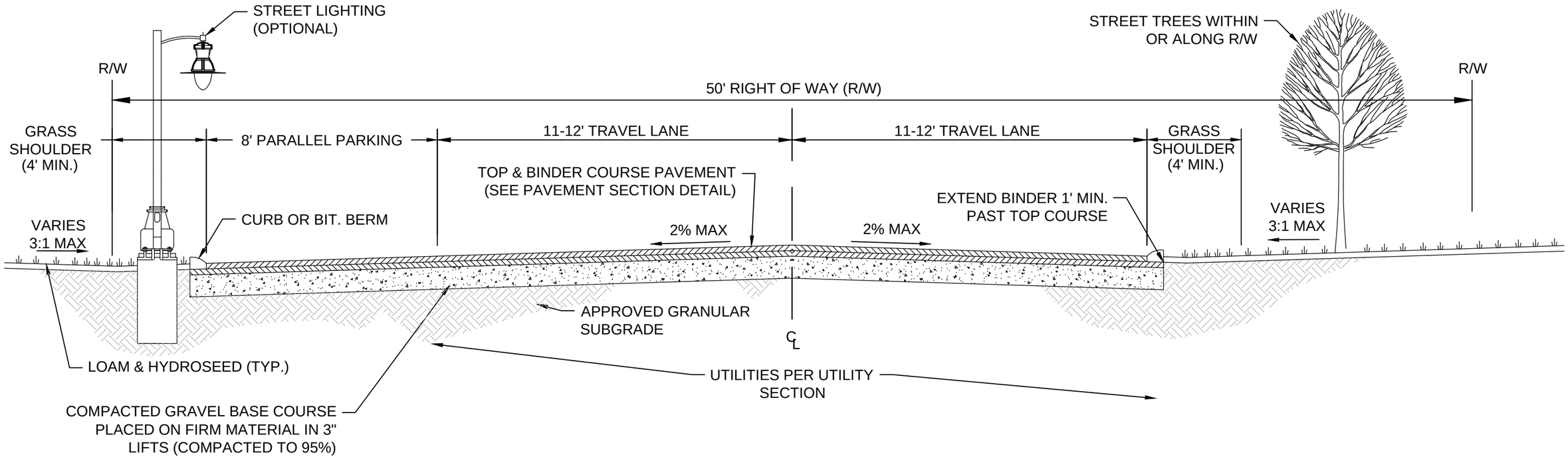
TYPICAL 2-LANE ROADWAY CROSS SECTION
SUPER ELEVATED-OPEN SECTION

NOT TO SCALE



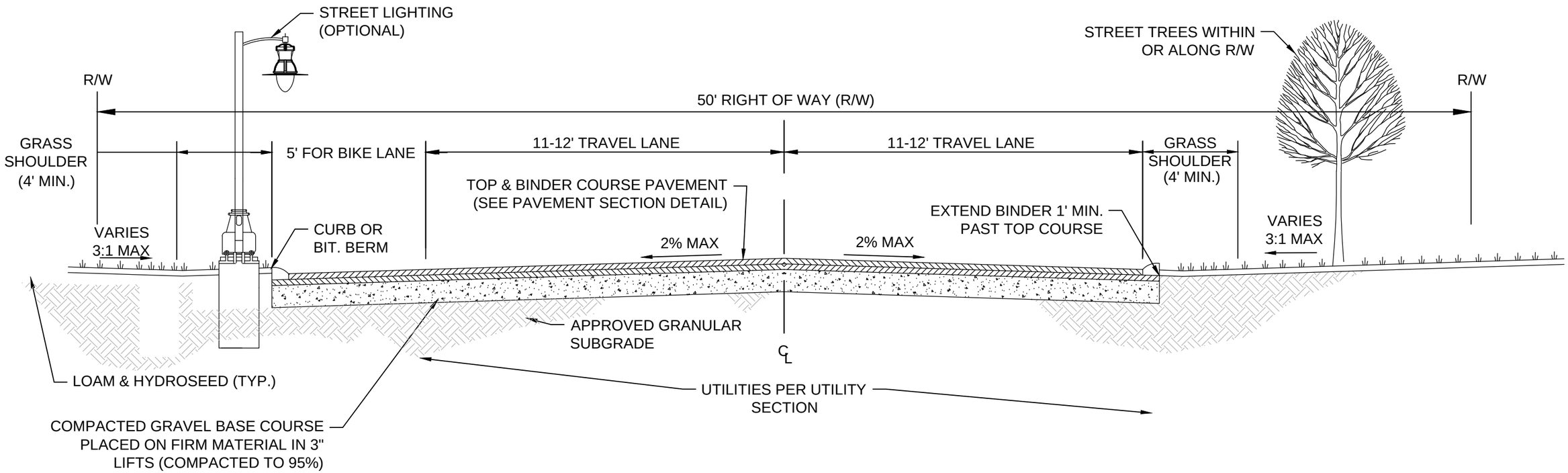
TYPICAL 2-LANE ROADWAY CROSS SECTION
ON STREET PARKING OPEN SECTION

NOT TO SCALE



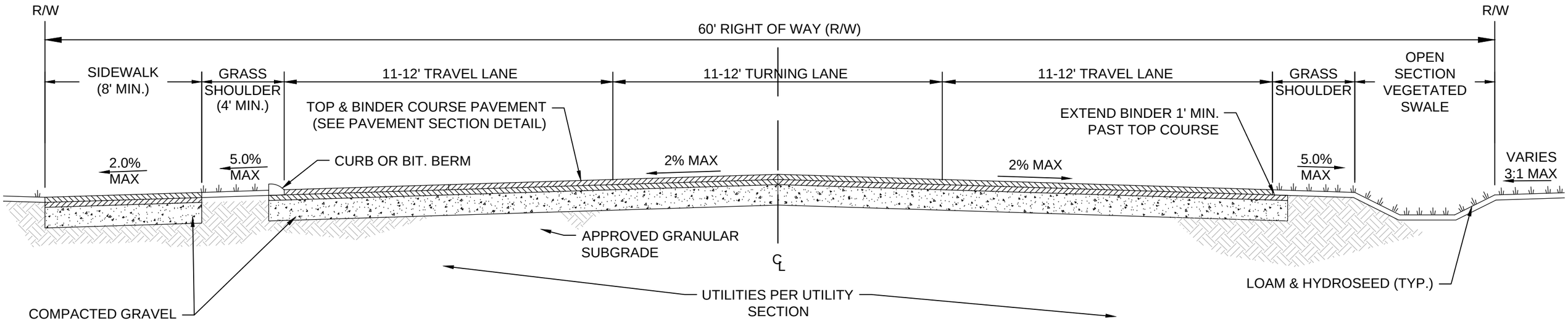
TYPICAL 2-LANE ROADWAY CROSS SECTION ON STREET PARKING

NOT TO SCALE



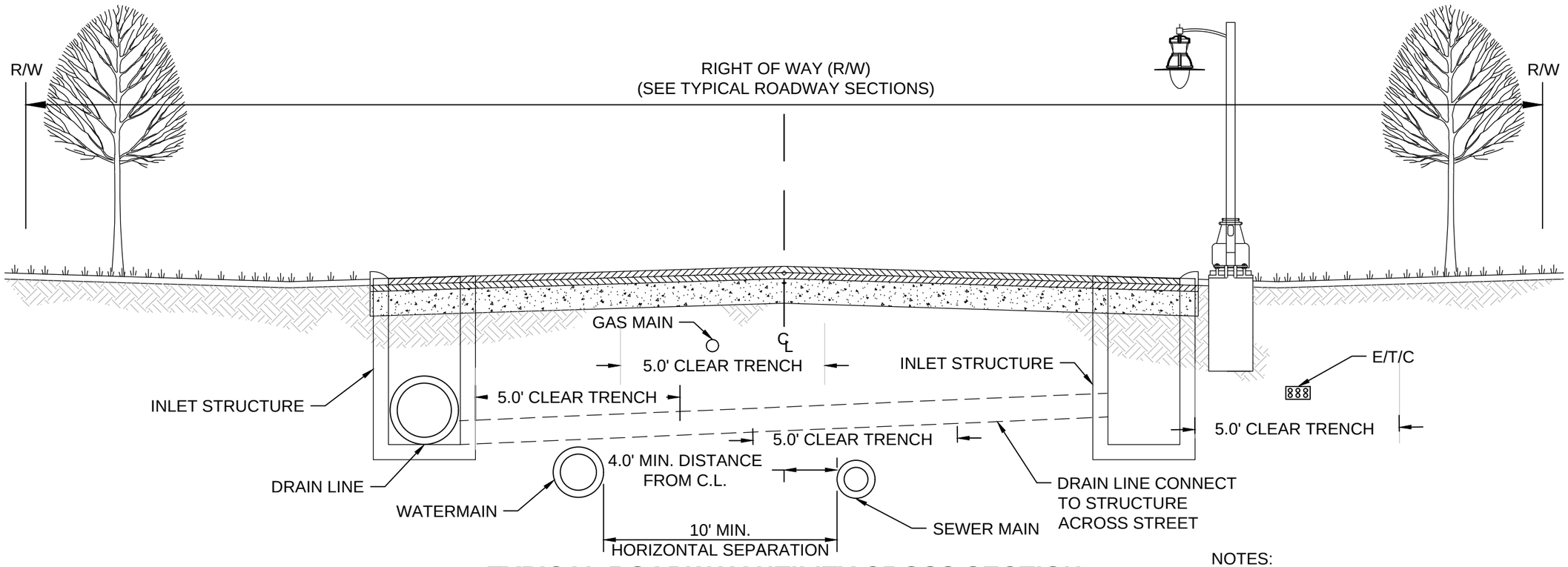
TYPICAL 2-LANE ROADWAY CROSS SECTION WITH BIKE LANE

NOT TO SCALE



TYPICAL 3-LANE ROADWAY CROSS SECTION
CROWNED-OPEN SECTION

NOT TO SCALE



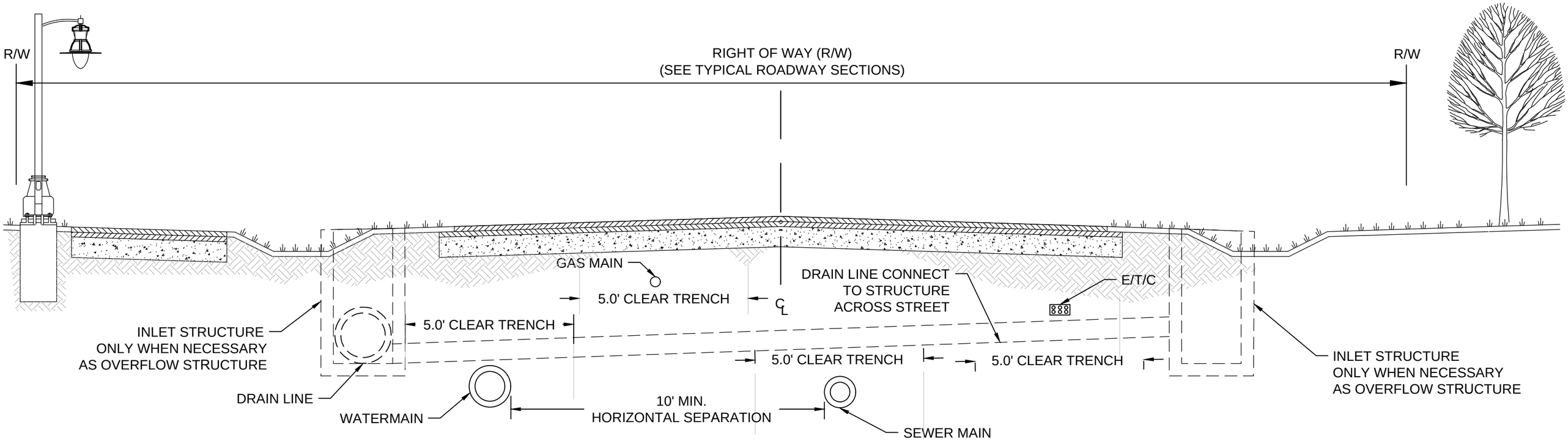
TYPICAL ROADWAY UTILITY CROSS SECTION
NO SWALE
NOT TO SCALE

NOTES:

- A MINIMUM OF 10 FEET SEPARATION BETWEEN WATER AND SEWER MAINS SHALL BE MAINTAINED. THIS SEPARATION NEED NOT BE HORIZONTAL, HOWEVER THE WATER MAIN SHALL IN ALL CASES BE UPGRADIENT OF THE SEWER MAIN BY 3 FEET MINIMUM.

NOTES:

HORIZONTAL UTILITY DISTANCES ARE SHOWN FOR MINIMUM SEPARATIONS, SEE SITE PLAN FOR ACTUAL LOCATIONS. SEE TYPICAL DETAILS FOR EACH SEPARATE MINIMUM UTILITY DEPTH.



NOTES:

- A MINIMUM OF 10 FEET SEPARATION BETWEEN WATER AND SEWER MAINS SHALL BE MAINTAINED. THIS SEPARATION NEED NOT BE HORIZONTAL, HOWEVER THE WATER MAIN SHALL IN ALL CASES BE UPGRADIENT OF THE SEWER MAIN BY 3 FEET MINIMUM.

TYPICAL ROADWAY UTILITY CROSS SECTION WITH SWALES

NOT TO SCALE

NOTES:

HORIZONTAL UTILITY DISTANCES ARE SHOWN FOR MINIMUM SEPARATIONS, SEE SITE PLAN FOR ACTUAL LOCATIONS. SEE TYPICAL DETAILS FOR EACH SEPARATE MINIMUM UTILITY DEPTH.

APPENDIX G: STORMWATER FACILITY DESIGN GUIDELINES

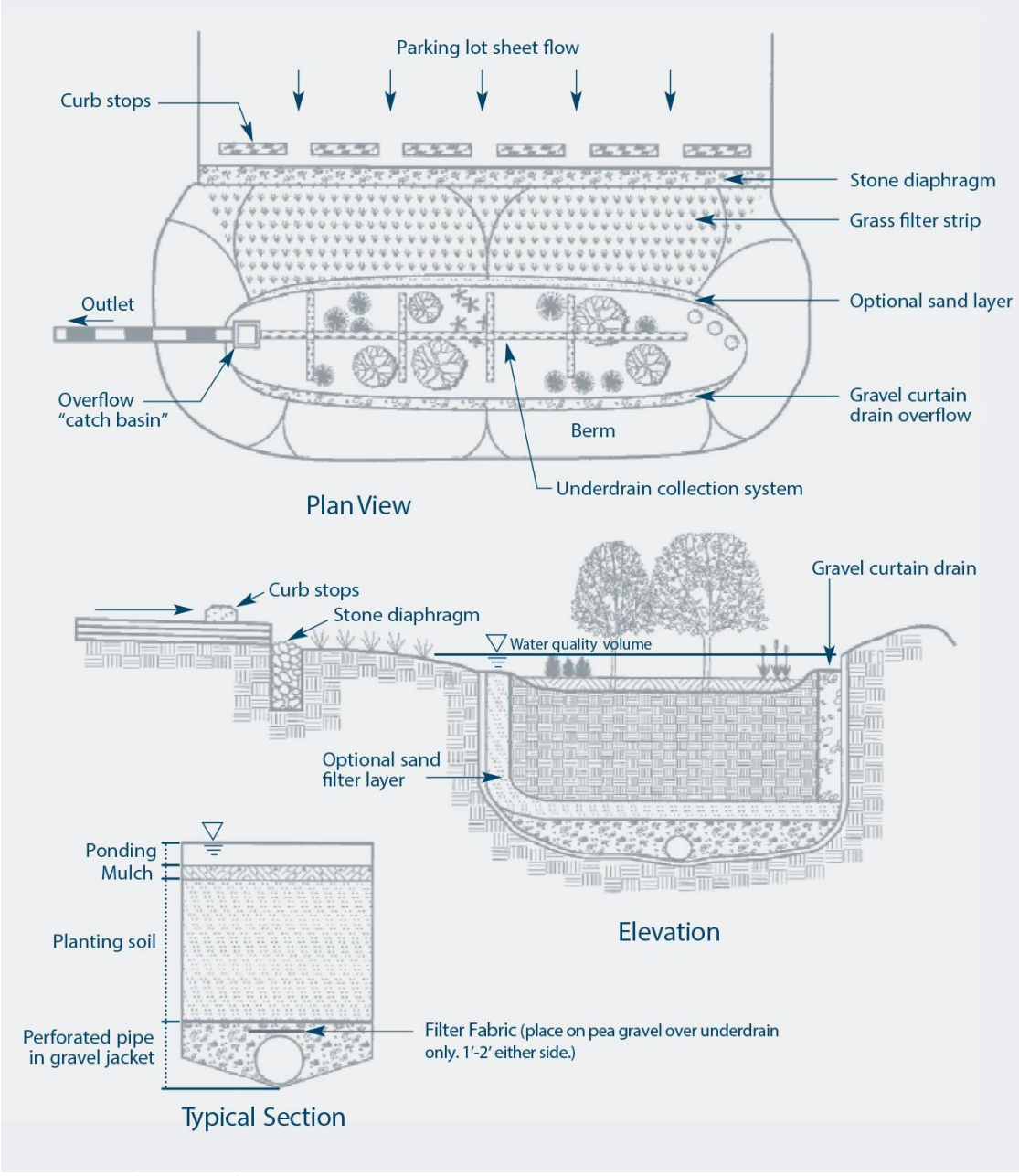
The following guidelines are provided as guidance material for applicants that must develop stormwater treatment systems pursuant to the applicable Town of Waterford Regulations. These guidelines are adapted from the 2004 Connecticut Stormwater Quality Manual, other state stormwater manuals that have applicable material, research from the University of New Hampshire's Stormwater Center, and other research. It is important to note that, particularly for those practices adapted from the 2004 Connecticut Stormwater Quality Manual, some of the design elements have been changed to reflect more recent accepted best practices in stormwater quality facility design. Applicants are strongly encouraged to read these guidelines carefully.

These guidelines are designed to provide summaries of some of the most important aspects of stormwater quality facility design to ensure engineers are working within a framework that meets the Town of Waterford's goals. Importantly, these guidelines do not represent a comprehensive technical document for stormwater facility design. Details related to sequencing of facilities in treatment trains, maintenance schedules, specific calculations for water quality treatment, water quantity management, and other technical items are not addressed in this guidance. It is the responsibility of an applicant to ensure all of the necessary information called for in Waterford's application checklists is provided.

Bioretention Systems

Bioretention systems are shallow landscaped depressions designed to manage and treat stormwater runoff. Bioretention systems are a variation of a surface sand filter, where the sand filtration media is replaced with a planted soil bed designed to remove pollutants through physical and biological processes.

Figure 1: Bioretention System



Source: Adapted from Center for Watershed Protection, 2000.

Siting Considerations

Drainage Area

- The maximum contributing drainage area for most surface and underground filtering practices is five acres.

Slopes and Head Requirements:

- Bioretention systems can be used on sites with slopes of six percent or less.
- Bioretention designs require at least two feet of head difference between the inlet and outlet.

Soils

- Stormwater filtering systems that return filtered runoff to the conveyance system and do not infiltrate into the ground can be used in almost any soil type.
- Bioretention designs that rely on infiltration can be used only when the soil infiltration characteristics are appropriate.

Water Table

- At least three feet of separation shall occur between the bottom of the filter and the seasonal high groundwater table.

Design Criteria

The design criteria presented in this section are applicable to bioretention systems. Considerations for specific design variations are also included.

Pretreatment

- Pretreatment shall be provided to manage at least 25 percent of the water quality volume and release it to the filter media over a 24-hour period.
- Where a sediment forebay is used for pretreatment, a length-to-width ratio of between 1.5:1 and 3:1 is recommended.

Design Volume

- Bioretention facilities should provide at least 75 percent of the water quality volume in the practice (including pretreatment, storage above the filter bed, and in the filter media voids) and be designed to completely drain in 24 hours or less.

Filter Bed

- Bioretention systems shall consist of the following treatment components: A 24” to 48” deep engineered planting soil bed (depending on requirements of proposed vegetation), a surface mulch layer, and a 6” to 9” deep surface ponding area.
- Engineered planting soils shall consist of USDA loamy sand to sandy loam classification and meet the following graduation: sand 85-88%, silt 8-12%, clay 0-2%, and organic matter (in the form of leaf compost) 3-5%.

- If an underdrain system is needed, the system should consist of four-inch diameter or larger PVC perforated pipes reinforced to withstand the weight of the overburden (schedule 40 PVC or greater). Cleanouts should be provided at both ends of the main collector pipe and extend to the surface of the filterbed.
- An impermeable liner (clay, geomembrane, or concrete) should be used for excavated bioretention facilities when infiltration below the facility could result in groundwater contamination.

Landscaping/Vegetation

- Use native plant species to the extent practicable. Where non-native species are proposed, these shall be non-invasive.
- Planting of bioretention facilities with a grass cover is not allowed.

Winter Operation

- Where possible, the filter bed should extend below the frost line.
- Filters that receive significant road sand should be equipped with a larger pretreatment sediment chamber or forebay.

Infiltration Practices

Stormwater infiltration practices are designed to capture stormwater runoff and infiltrate it into the ground over a period of days.

Siting Considerations

Drainage Area: The maximum contributing drainage area for infiltration trenches should not exceed two acres. The maximum contributing drainage area for infiltration basins should not exceed ten acres.

Soils: Underlying soils should have a minimum infiltration rate of 0.5 inches per hour, as initially determined from NRCS soil textural classifications, and subsequently confirmed by a field investigation acceptable to the review authority.

Slopes: Infiltration basins are not recommended in areas with natural slopes greater than 15 percent, and should be located at least 50 feet from slopes greater than 15 percent, since steep slopes can cause water leakage in the lower portions of the basin and may reduce infiltration rates due to lateral water movement.

Water Table: The bottom of the infiltration facility should be located at least three feet above the seasonal high water table or bedrock, as documented by onsite soil testing.

Miscellaneous: Infiltration practices should not be placed over fill materials and, except where recommended by local or state health departments or by the Department of Energy and Environmental Protection, should be located at least 75 feet away from:

- Drinking water supply wells
- Septic systems (any components)
- Surface water bodies
- Building foundations (at least 100 feet upgradient and at least 25 feet downgradient from building foundations)

Design Criteria

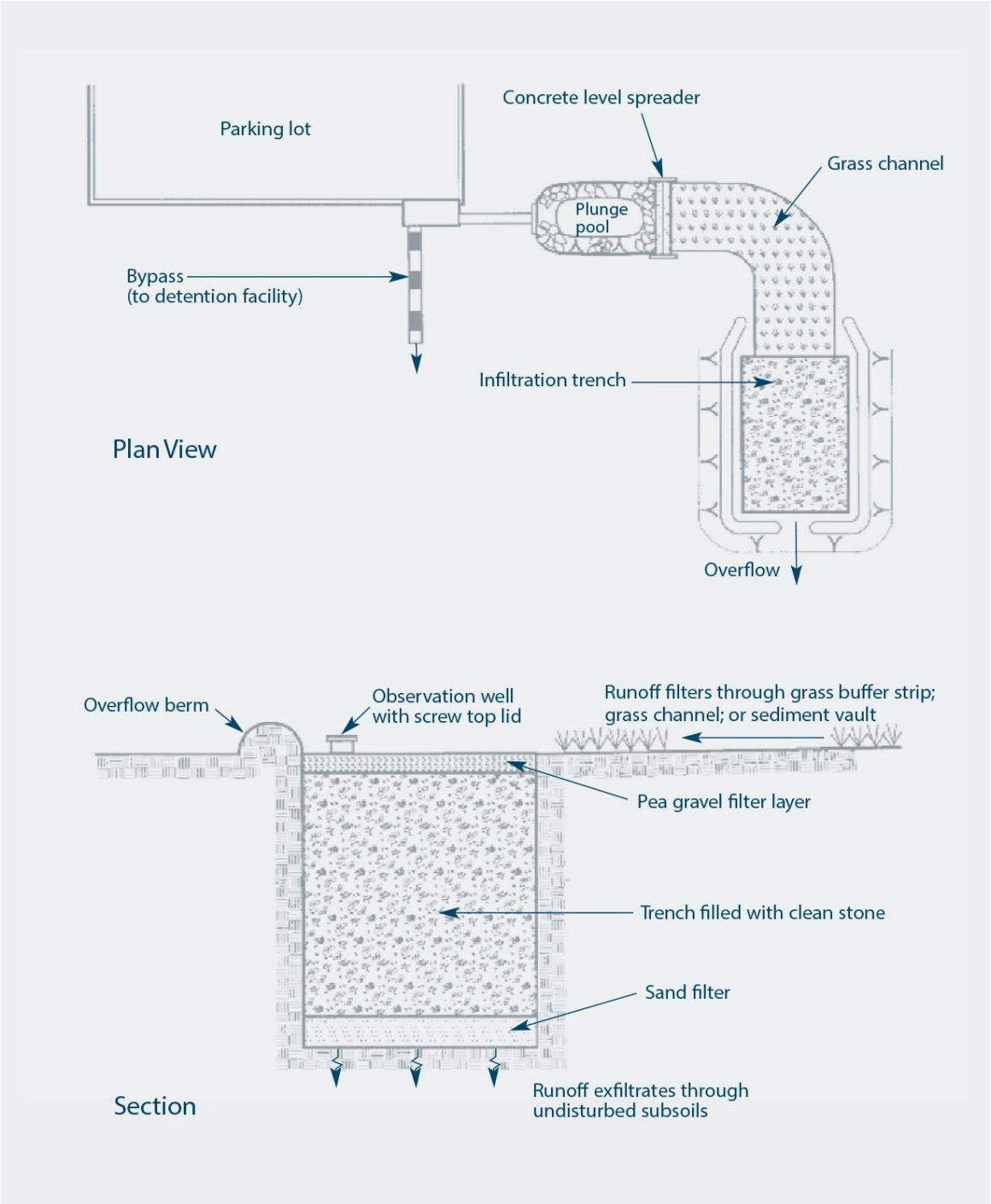
Parameter	Design Criteria
Design Volume	Entire water quality volume (WQV)
Pretreatment Volume	Pretreatment of 25% of WQV is required.
Maximum Draining Time	48 to 72 hours after storm event (entire WQV)
Minimum Draining Time	12 hours (for adequate pollutant removal)
Maximum Contributing Drainage Area	Trench: two acres Basin: ten acres
Minimum Infiltration Rate	0.3 in/hr (as measured in the field), lower infiltration rates may be acceptable provided sufficient basin floor area is provided to meet the required WQV and drain time
*Maximum Infiltration Rate	5.0 in/hr (as measured in the field); pretreatment required for infiltration rates over 3.0 in/hr. Where measured infiltration rates

	exceed the maximum, or where existing maps suggest this may be the case, water entering the infiltration system must have already achieved water quality treatment standards.
Depth	Trench: two to ten feet (trench depth) Basin: three feet (ponding depth) recommended, unless used as combined infiltration and flood control facilities.

Source: Adapted from Wisconsin Department of Natural Resources, 2000; NYDEC, 2001; Metropolitan Council, 2001; MADEP, 1997; Lee et al., 1998.

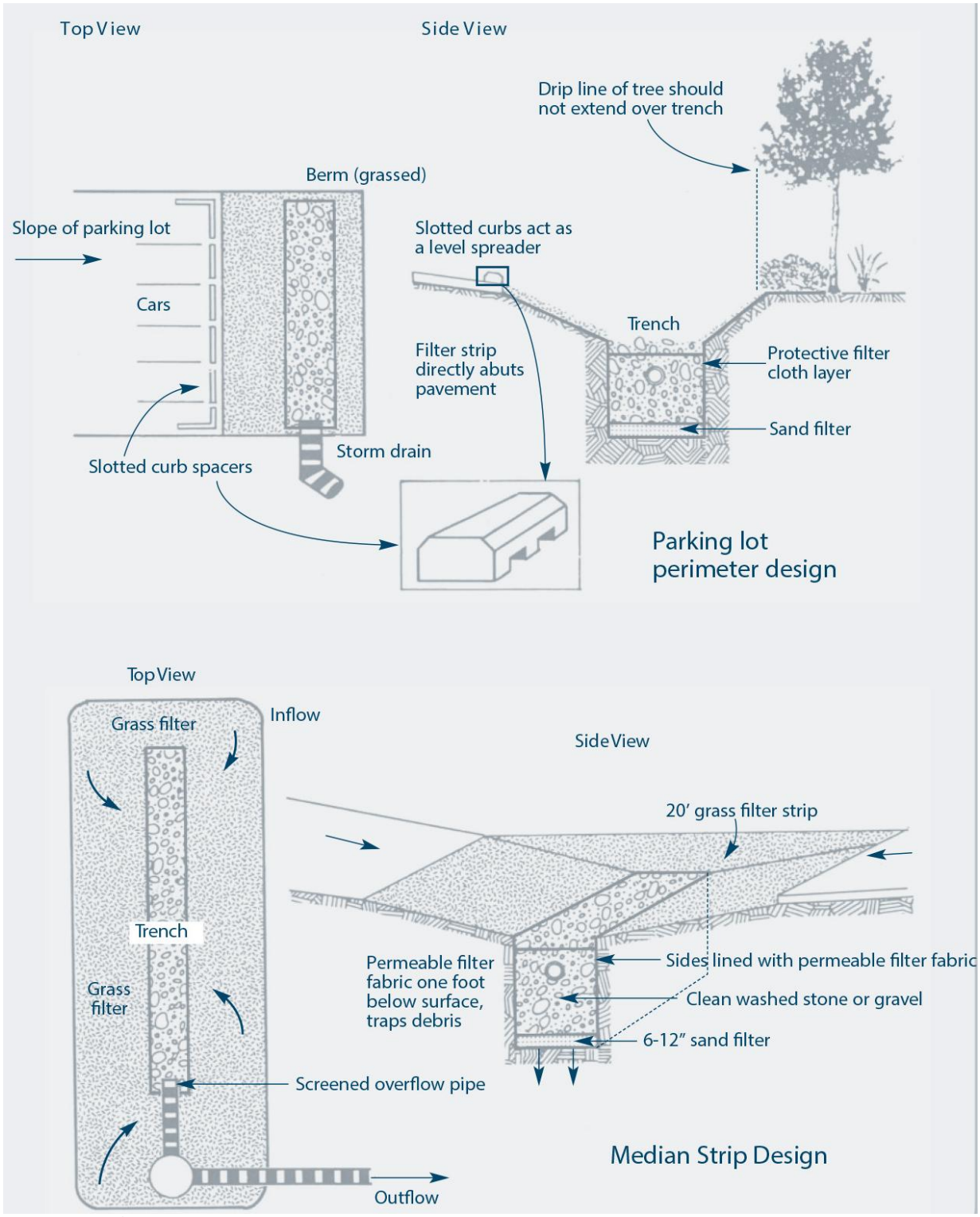
- *Infiltration rates as determined through appropriate field permeability tests*

Figure 1: Infiltration Trench



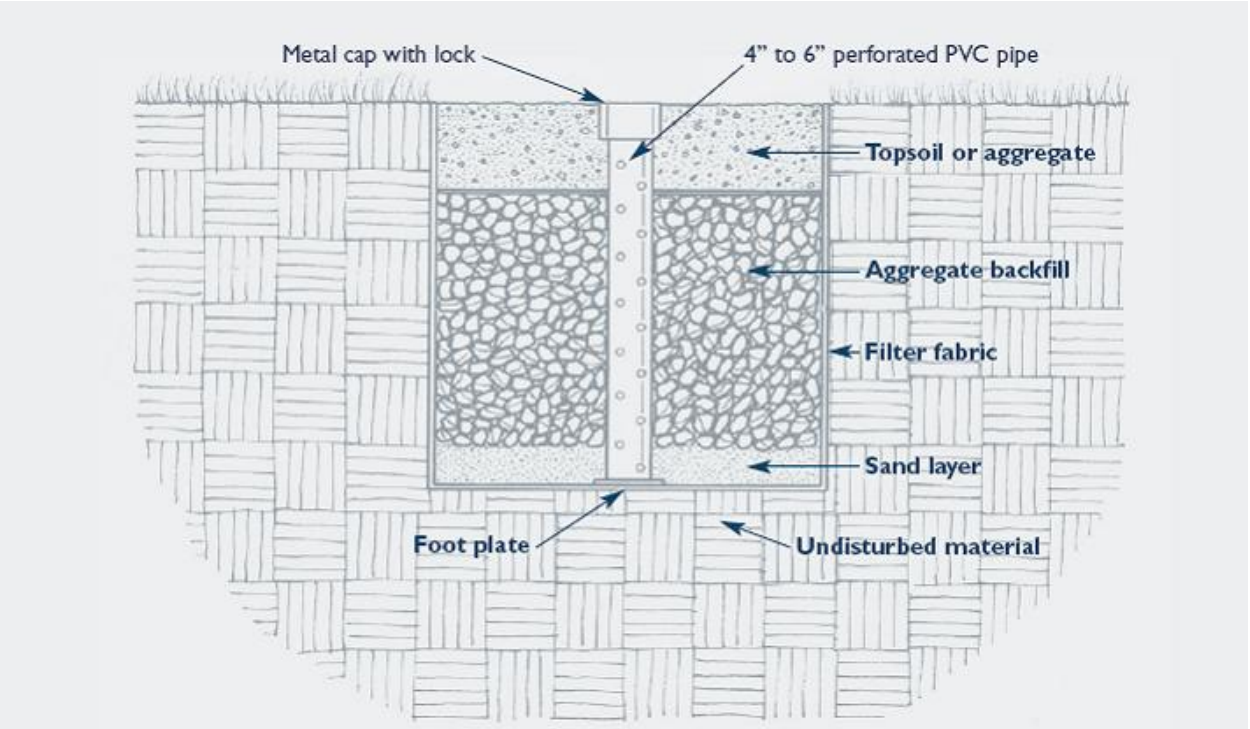
Source: Adapted from Center for Watershed Protection, 2000.

Figure 2: Infiltration Trench Designed for Parking Lots



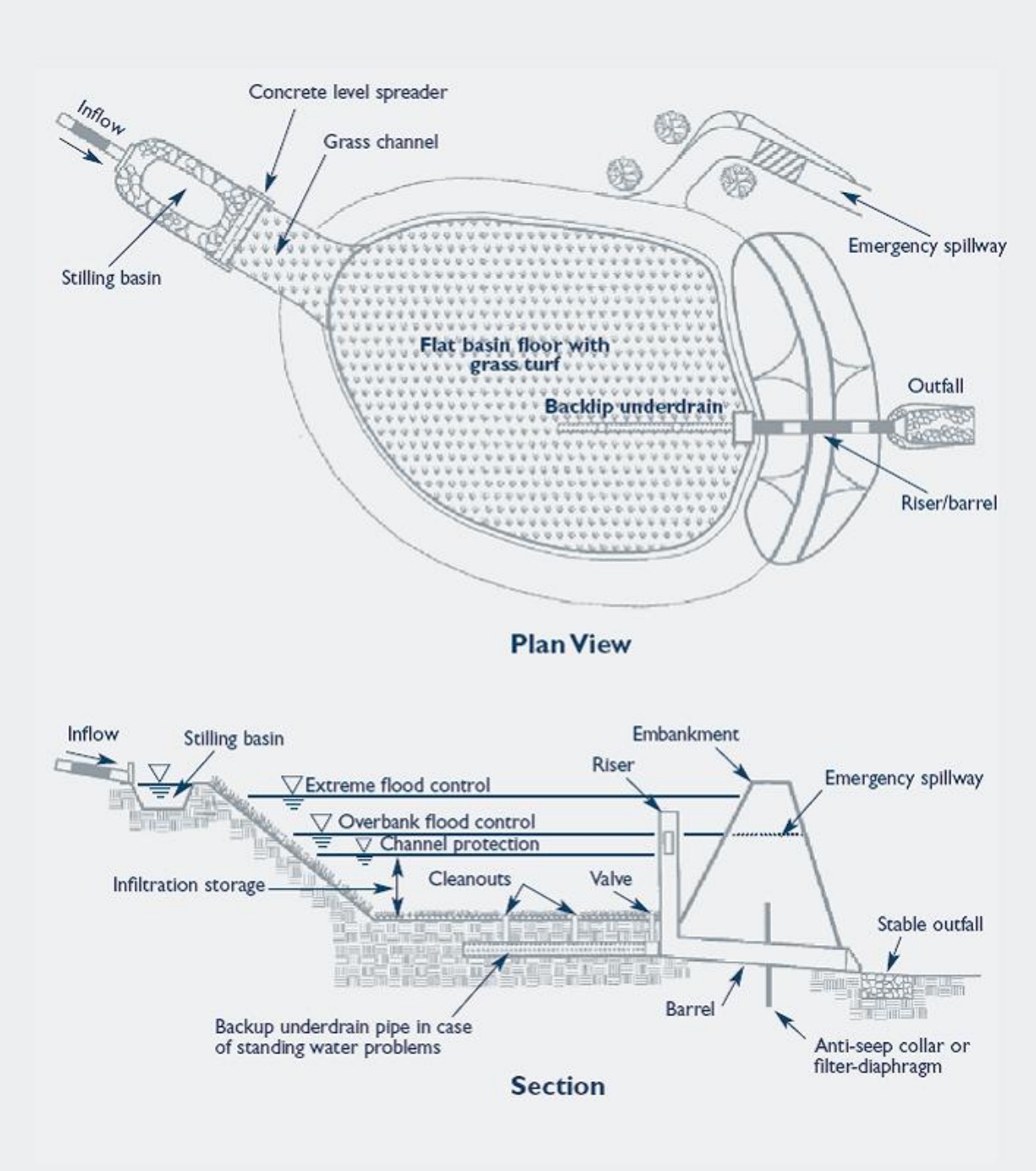
Source: Adapted from Schueler, 1987.

Figure 3: Observation Well Detail



Source: Wisconsin DNR, 2000.

Figure 4: Infiltration Basin



Source: Wisconsin DNR, 2000.

Permeable Pavement

Permeable paving practices capture and temporarily store the water quality volume before allowing it to infiltrate into the soil or conveying it to another stormwater practice.

Siting Considerations

Drainage Area

- Permeable pavements should only be used to manage precipitation that falls directly on the permeable pavement area to protect the surface from clogging. Contributing drainage areas should be kept to a minimum (i.e., runoff from upgradient impermeable or permeable surfaces should be minimal).

Area of Application

- Permeable paving surfaces are best used in low traffic areas such as overflow parking, residential driveways, sidewalks, plazas and courtyard areas. Areas with high amounts of sediment particles and high traffic volumes may cause system failures. Should not construct adjacent to areas subject to significant wind erosion.
- To protect groundwater from possible contamination, runoff from land uses or activities that may generate high levels of pollution and/or hazards materials must not be directed to permeable pavement unless designed as a detention facility (with an impermeable liner).

Groundwater

- The bottom of an infiltrating permeable pavement practice shall be separated by at least three feet vertically from the seasonal high groundwater elevation or bedrock layer (when treating water quality volume), as documented by on-site soil testing.

Minimum Horizontal Setbacks from Infiltrating Permeable Pavements

	From small-scale applications serving residential properties OR non-vehicle surface applications (ft)	**For all other applications (ft)**
Public Drinking Water Supply Well – Drilled (rock), Driven, or Dug	200	200
Public Drinking Water Supply Well – Gravel Packed, Gravel Developed	400	400
Private Drinking Water Wells	25	100
Surface Water Drinking Water Supply Impoundment with Supply Intake	100	200
Tributaries that Discharge to the Surface Drinking Water Supply Impoundment	50	100
Coastal Features	50	50
All Other Surface Waters	50	50
Up-gradient from Natural slopes > %15	25	50
Down-gradient from Building Structures	10	25
Up-gradient from Building Structures*	10	50
Septic systems	15	25

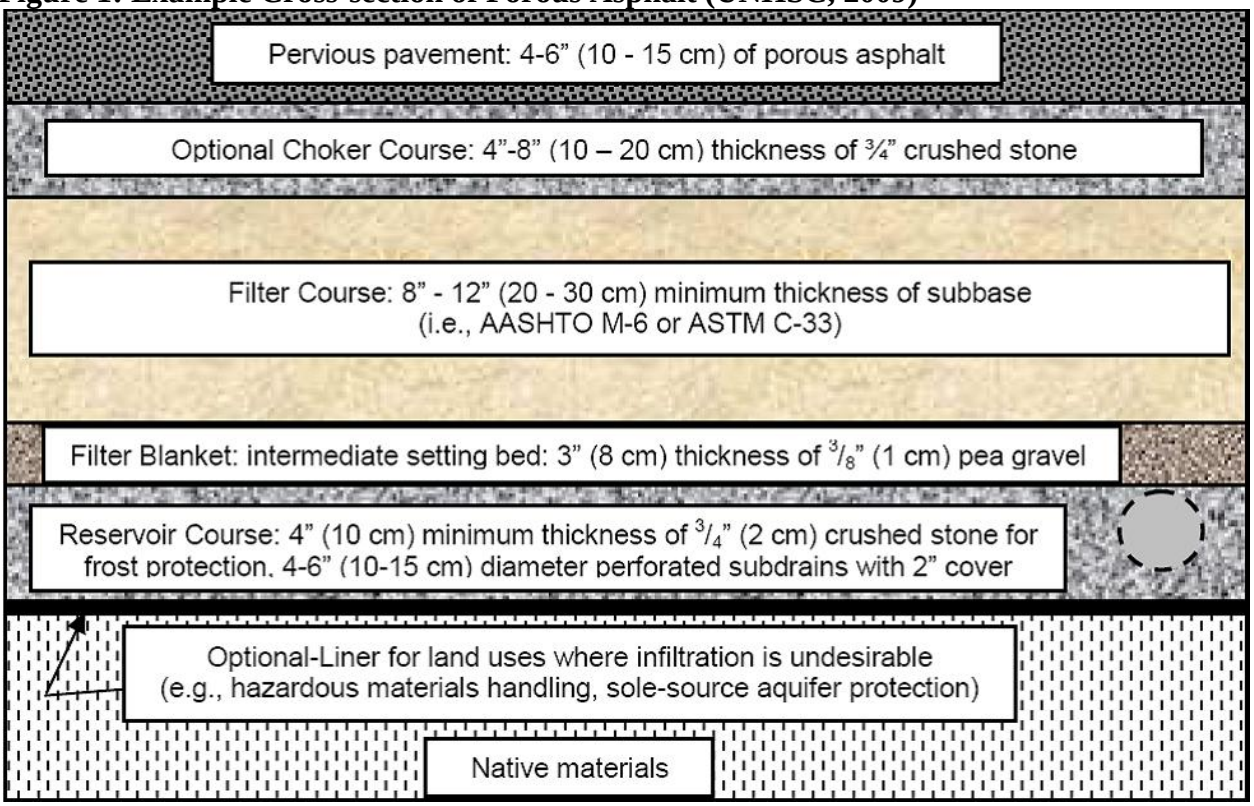
*Setback does not apply where basement or slab is at or above the surface elevation of the permeable pavement.

Design Criteria

There are two major types of permeable paving:

1. Porous asphalt and pervious concrete: Although they appear to be the same as traditional asphalt or concrete pavement, they have 10%-25% void space and are constructed over a base course that doubles as a reservoir for the stormwater before it infiltrates into the subsoil or is directed to a downstream facility. A sample cross-section is provided for illustration purposes only in Figure 1.

Figure 1: Example Cross-section of Porous Asphalt (UNHSC, 2009)



2. Pavers: Two alternative paver configurations will be acceptable to the approving agency as water quality BMPs. These are as follows:

   A. *Permeable solid blocks or reinforced turf:* This type of permeable paving surface includes permeable solid blocks (where the blocks have a minimum void ratio of 15%) and contain open-cell grids filled with washed aggregate (for paving blocks) or sandy soil and planted with turf (for reinforced turf applications).
   B. *Solid blocks with open-cell joints:* This type of paver surface includes interlocking impermeable solid blocks or open grid cells that contain permeable void areas (between the impermeable blocks).

A permeable pavement system can fall under one of two categories: An Infiltration Facility or a Detention Facility. The infiltration restrictions noted in this section do not apply to Detention Facilities.

- Use permeable paving only on gentle slopes (less than 5%).
- The bottom of infiltrating permeable pavement practices must be located in the soil profile. Where a TMDL goal requires maximum treatment of runoff, the bottom shall be within the uppermost soil horizons (A or B) or another stormwater management practice is required.
- To be suitable for infiltration, underlying soils shall have an in-situ infiltration rate of at least 0.5 inches per hour, as initially determined from NRCS soil textural classification, and subsequently confirmed by field geotechnical tests.
- For infiltrating permeable paving practices, underlying soils shall also have a clay content of less than 20% and a silt content of less than 60%.
- The bottom of an infiltrating permeable pavement practice cannot be located in fill with the exception for strictly residential land uses, for which the bottom may be located in up to two feet of fill consisting of material suitable for long-term infiltration.
- Permeable paving practices should be designed with an impermeable liner when used where subsurface contamination is present from prior land use due to the increased threat of pollutant migration associated with increased hydraulic loading from infiltration systems, unless contaminated soil is removed and the site is remediated.
- All permeable pavement systems shall be designed to fully de-water the entire water quality volume within 24 hours after the storm event.
- Install signage identifying areas with pervious pavement and prohibiting stockpiling of snow, mulch, soil, or any other like materials.

Stormwater Wetlands

Stormwater wetlands are constructed wetlands that incorporate marsh areas and permanent pools to provide enhanced treatment and attenuation of stormwater flows. Stormwater wetlands differ from stormwater ponds in that wetland vegetation is a major element of the overall treatment mechanism as opposed to a supplementary component. Stormwater wetlands are different from Gravel Wetlands in that storage of water is generally on the surface with Stormwater Wetlands and includes various levels of temporary ponding depending on design. Gravel wetlands rely primarily on subsurface gravel media to store and convey stormwater horizontally.

Shallow Wetlands: Most shallow wetland systems, also referred to as shallow marsh wetlands, consist of aquatic vegetation with a permanent pool ranging from 6 to 18 inches during normal conditions. Shallow wetlands are designed such that flow through the wetlands is conveyed uniformly across the treatment area. **Figure 1** depicts a typical schematic design of a shallow wetland.

Extended Detention Shallow Wetlands: Extended detention shallow wetlands provide a greater degree of downstream channel protection as they are designed with more vertical storage capacity. The additional vertical storage volume also provides extra runoff detention above the normal pool elevations. Water levels in the extended detention shallow wetland may increase by as much as three feet after a storm event and return gradually to pre-storm elevations within 24 hours of the storm event. **Figure 2** depicts a typical schematic design of an extended detention shallow wetland.

Pond/Wetland Systems: Multiple cell systems, such as pond/wetland systems, utilize at least one pond component in conjunction with a shallow marsh component. The first cell is typically a wet pond, which provides pretreatment of the runoff by removing particulate pollutants. The wet pond is also used to reduce the velocity of the runoff entering the system. The shallow marsh then polishes the runoff, particularly for soluble pollutants, prior to discharge. **Figure 3** depicts a typical schematic of a pond/wetland system.

Siting Considerations

Drainage Area

- A typical minimum drainage area is 25 acres unless the system intercepts groundwater or is lined to maintain adequate minimum water levels.
- Stormwater wetland surface area must be minimum of 1.5% of contributing drainage area.

Groundwater and Soils

- Unlined wetland basins must: 1) intersect the groundwater table in order to maintain the desired permanent pool volume; or 2) be lined with a geomembrane or soils; or 3) be already comprised of soils that are suitable to maintaining the desired permanent pool.

Flood Zones

- Constructed stormwater wetlands shall not be located in floodways, floodplains, or tidal lands, especially those that require construction of an embankment.

Receiving Waters

- The sensitivity of receiving waters should be evaluated to determine whether effects of warmer stormwater discharges from the system could be detrimental to cold-water fish or other sensitive aquatic species.

Natural Wetlands

- Natural wetlands and vernal pool depressions shall not be used, either temporarily or permanently, as a stormwater wetland.

Design Criteria

Parameter	Design Criteria
Setback requirements	• 50 feet from on-site sewage disposal systems • 50 feet from private wells • 10 feet from a property line • 20 feet from any structure • 50 feet from any steep slope (greater than 15%)
Preferred Shape	Curvilinear
Side Slopes	3:1 maximum or flatter preferred
Pretreatment Volume	Pretreatment is required for wetlands and shall be sized to contain at least ten percent of the WQV. Where forebays are used, a minimum length:width ratio of 2:1 shall be applied.
Treatment Volume	100% of the entire Water Quality Volume (WQV) shall be treated.
Drainage Area	Minimum contributing drainage area is 25 acres unless system intercepts groundwater or is lined to maintain wetland hydrology and permanent pool.
Underlying Soils	Low permeability soils are best (NRCS Hydrologic Soil Group A and B soils require modifications to maintain a wetland unless groundwater is intercepted).
Plantings	The system should be planted to achieve a dense cover of emergent wetland vegetation on the bench, shelf and in shallow marsh areas with appropriate native wetland vegetation.
Depth	Average water levels in the marsh/wetland areas can vary between 0.5 and 1.5 feet. Maximum water depths will depend on the site topography and the design of the system. Forebays and micropools should typically have a permanent pool depth of between four and six feet.
Low Flow Orifice	A low flow orifice shall be provided, sized and protected to prevent clogging.
Outlet Protection	Outlet protection is required to reduce flow velocities and prevent erosion. An armored emergency spillway is required to pass flood flows.

Maintenance Access:

- A maintenance right-of-way or easement shall extend from a public right of way and should be designed to allow access to all components of the facility.
- Maintenance access should be at least 15 feet wide, have a maximum slope of no more than 15 percent, and be appropriately stabilized to withstand maintenance equipment and vehicles.
- Provisions for vehicle turnaround shall only be needed where backing a vehicle back onto the public way would be hazardous due to steeper slopes or limited sight lines.

Figure 1: Shallow Wetland System

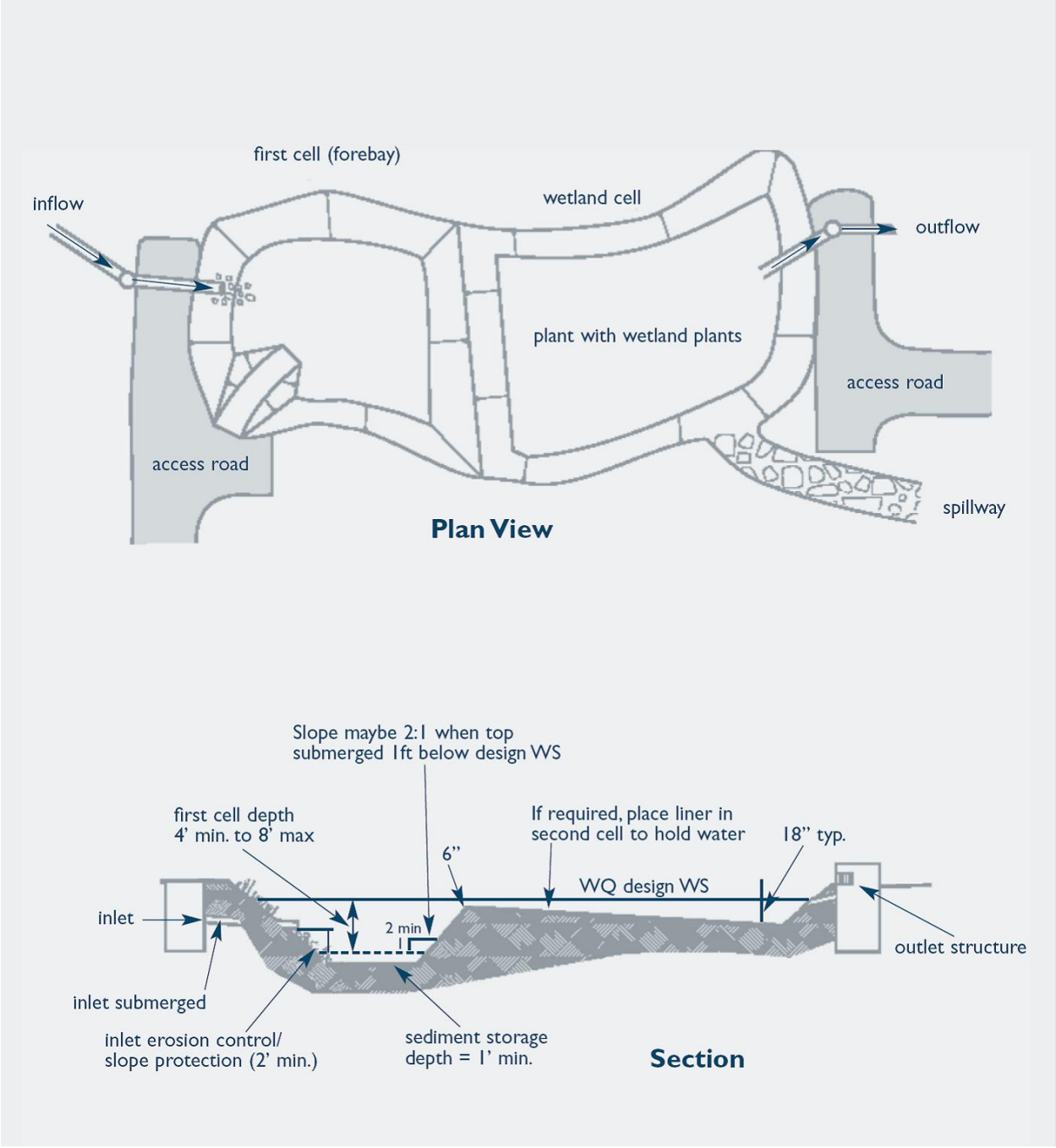


Figure 2: Extended Detention Shallow Wetland

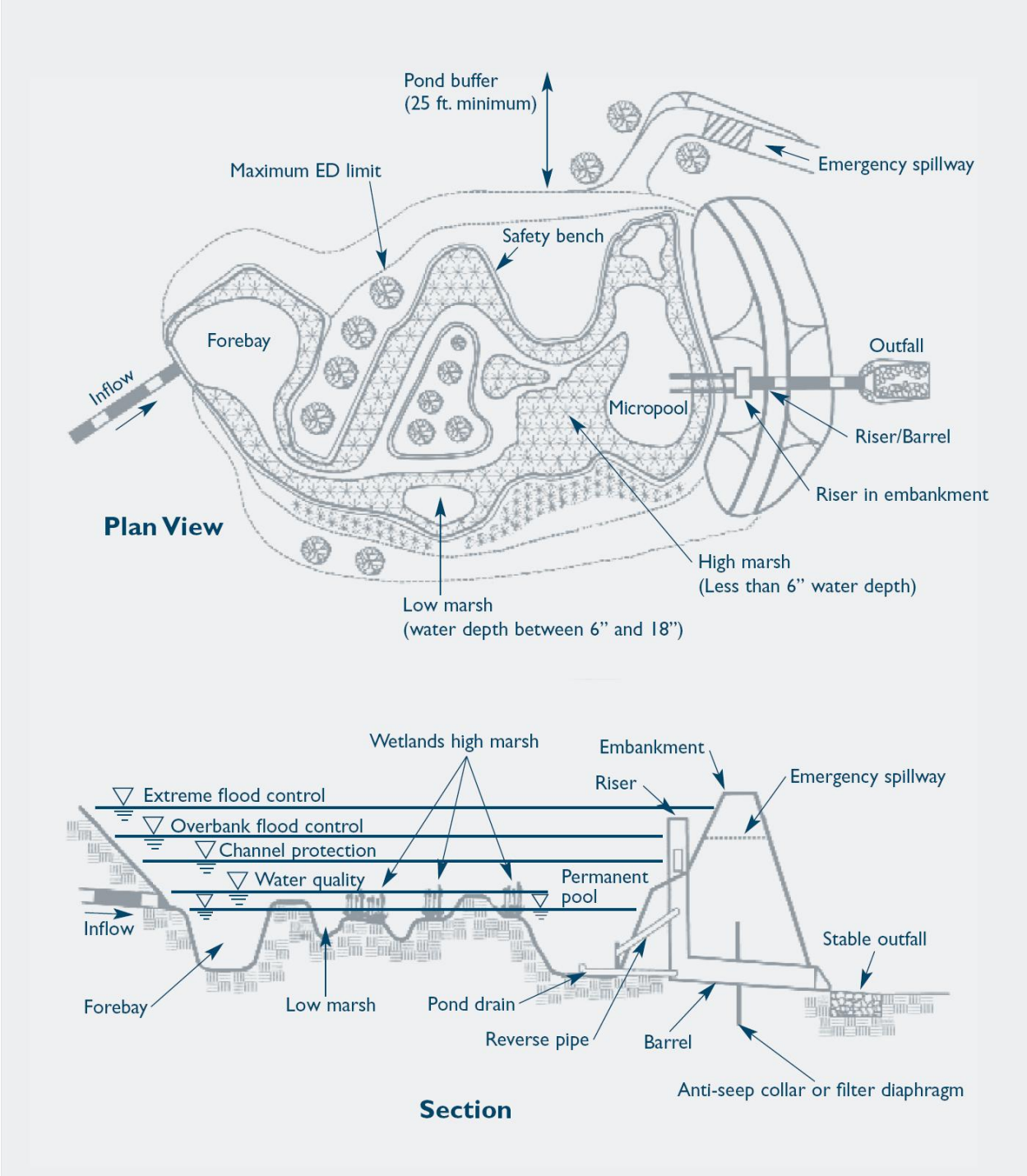
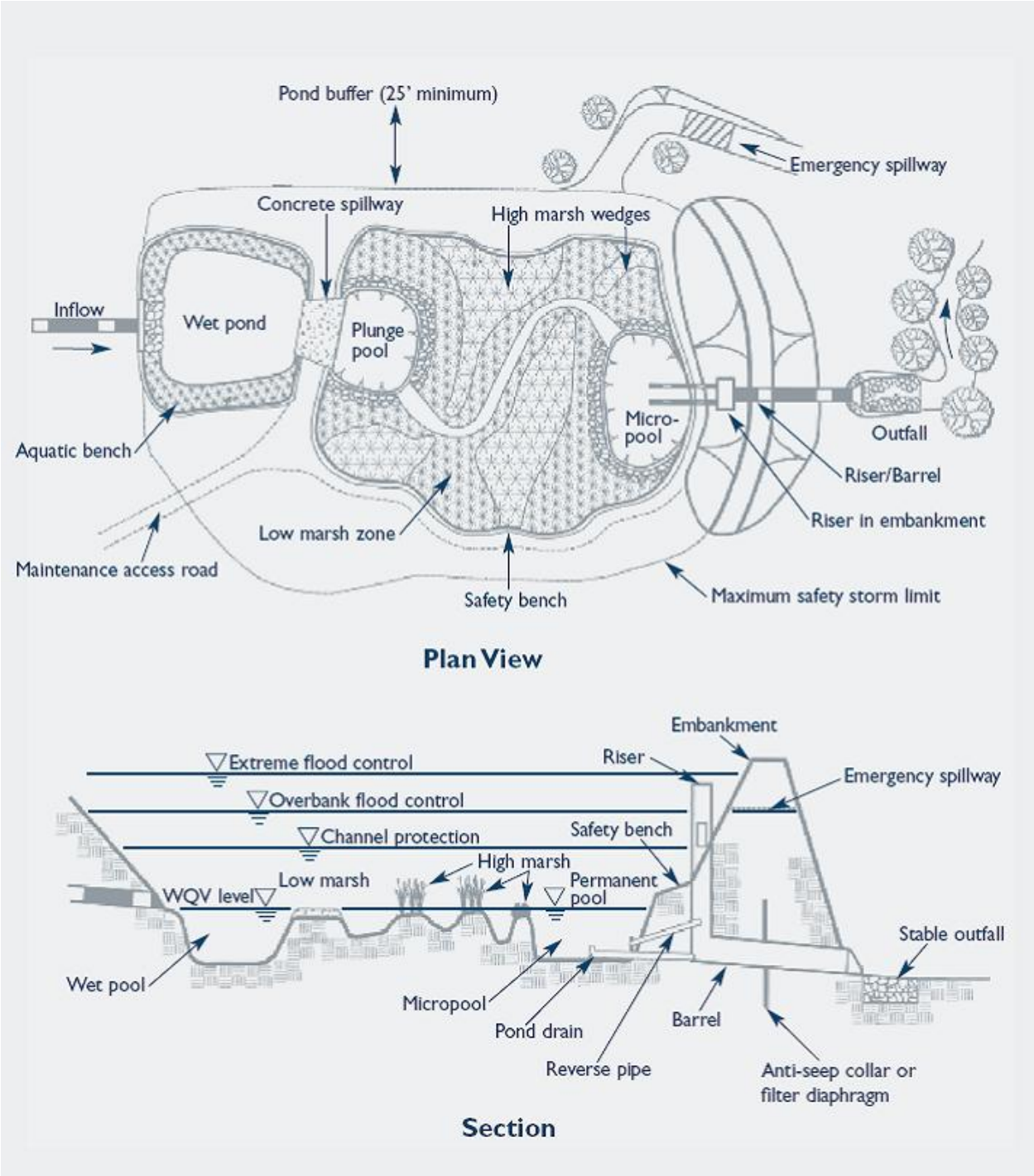


Figure 3: Pond/Wetland System



Subsurface Gravel Wetland

A subsurface gravel wetland (SGW) is designed as a series of horizontal flow-through treatment cells, preceded by a sedimentation basin (forebay). Two schematic options for SGW design are provided below. The SGW is designed as flow through treatment, where the stormwater passes through a gravel substrate that is a microbe rich environment.

Siting Considerations

Groundwater and Soils

- The wetlands cell soils should maintain saturation below a depth of four inches (10 cm) from the ground surface in order to both promote water quality treatment conditions and support wetland vegetation.
- Unlined wetlands must either intersect the groundwater table in order to maintain the desired vegetation or be comprised of soils that are suitable to maintaining the desired hydrology and vegetation.

Flood Zones

- Gravel wetlands shall not be located in floodways, floodplains, or tidal lands, especially those that require construction of an embankment.

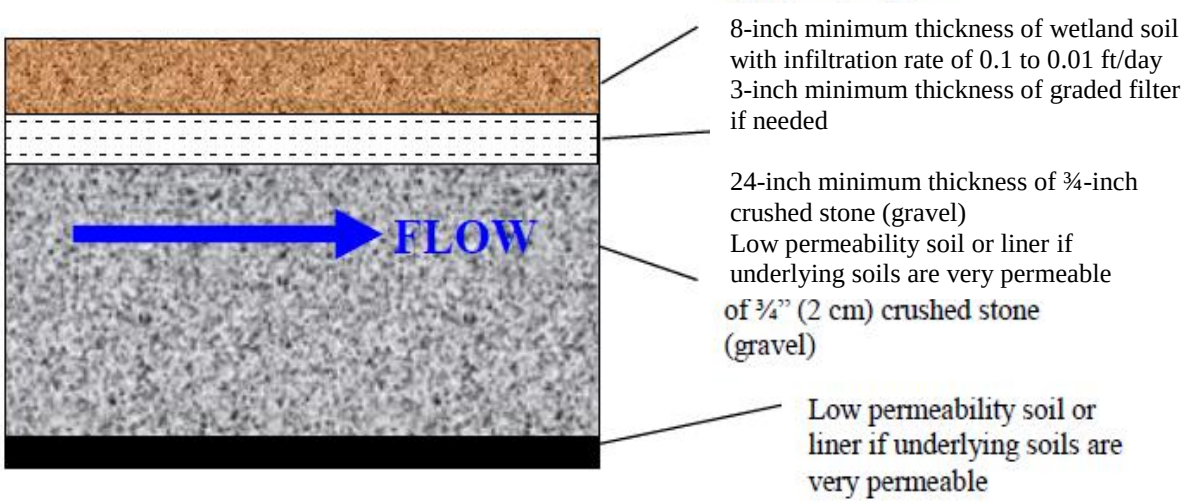
Natural Wetlands

- Natural wetlands and vernal pool depressions shall not be used, either temporarily or permanently, as a gravel wetland.

Design Criteria

Parameter	Design Criteria
Setback requirements	• 50 feet from on-site sewage disposal systems • 50 feet from private wells • 10 feet from a property line • 20 feet from any structure • 50 feet from any steep slope (greater than 15%)
Side Slopes	3:1 maximum or flatter preferred
Pretreatment Volume	Forebays are highly recommended for wetlands and sized to contain ten percent of the WQV.
Treatment Volume	Manage the entire WQV. At least 10% of the WQv shall be provided in a sediment forebay or other pretreatment practice. The remaining 90% of the WQv may be provided in some combination of one or more basins filled with gravel and extended detention storage above the gravel. Extended detention storage volume shall not exceed 50% of the WQv and shall drain over 24 hours.
Underlying Soils	Low permeability soils are best with recommended hydraulic conductivity of <0.03 ft/day. (NRCS Hydrologic Soil Group A and B soils require modifications to maintain a wetland unless groundwater is intercepted).
Plantings	The system should be planted to achieve a rigorous root mat with grasses, forbs, and shrubs with obligate and facultative wetland species.

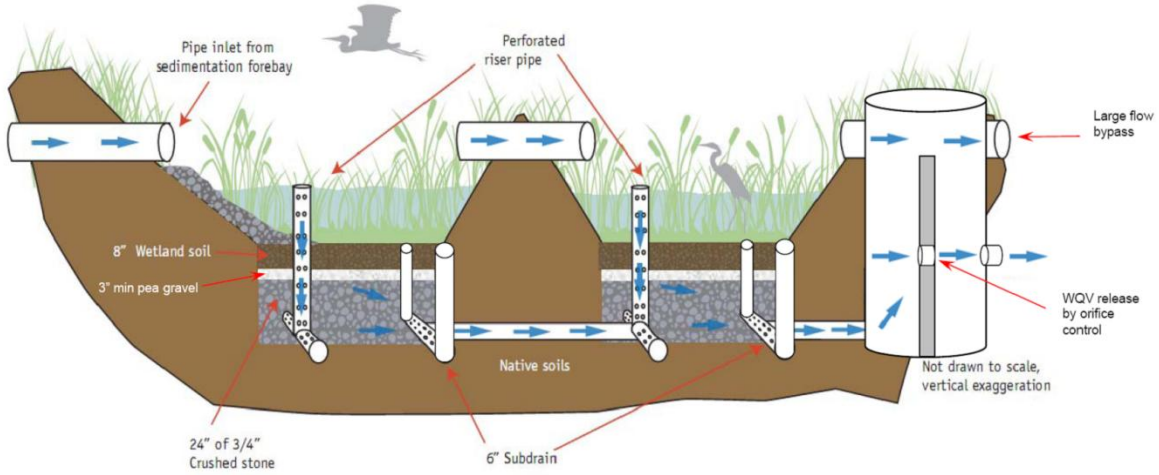
(Schematic Design Option 1) Materials Cross-Section (adapted from UNHSC Subsurface Gravel Wetland Design Specifications, 2016)



Maintenance Access:

- A maintenance right-of-way or easement shall extend from a public right of way and should be designed to allow access to all components of the facility.
- Maintenance access should be at least 15 feet wide, have a maximum slope of no more than 15 percent, and be appropriately stabilized to withstand maintenance equipment and vehicles.
- Provisions for vehicle turnaround shall only be needed where backing a vehicle back onto the public way would be hazardous due to steeper slopes or limited sight lines.

Figure 1: Schematic Design



Source: Gravel Wetland Design and Maintenance, UNH Stormwater Center (2009)

Water Quality Swales

Water quality swales are vegetated open channels designed to treat and attenuate the water quality volume and convey excess stormwater runoff. This section includes two types of water quality swales:

Siting Considerations

Drainage Area

- The maximum contributing drainage area for water quality swales should be limited to five acres.

Slopes

- Site topography should allow for the design of a swale with sufficient slope and cross-sectional area to maintain non-erosive velocities. In areas of steep slopes, swales should run parallel to contours.

Soils and Water Table:

- Dry swales can be sited on most moderately or well-drained soils. The bottom of the swale should be two to four feet above the seasonal high water table.
- Wet swales should only be used where the water table is at or near the soil surface or where soil types are poorly drained.

Design Criteria

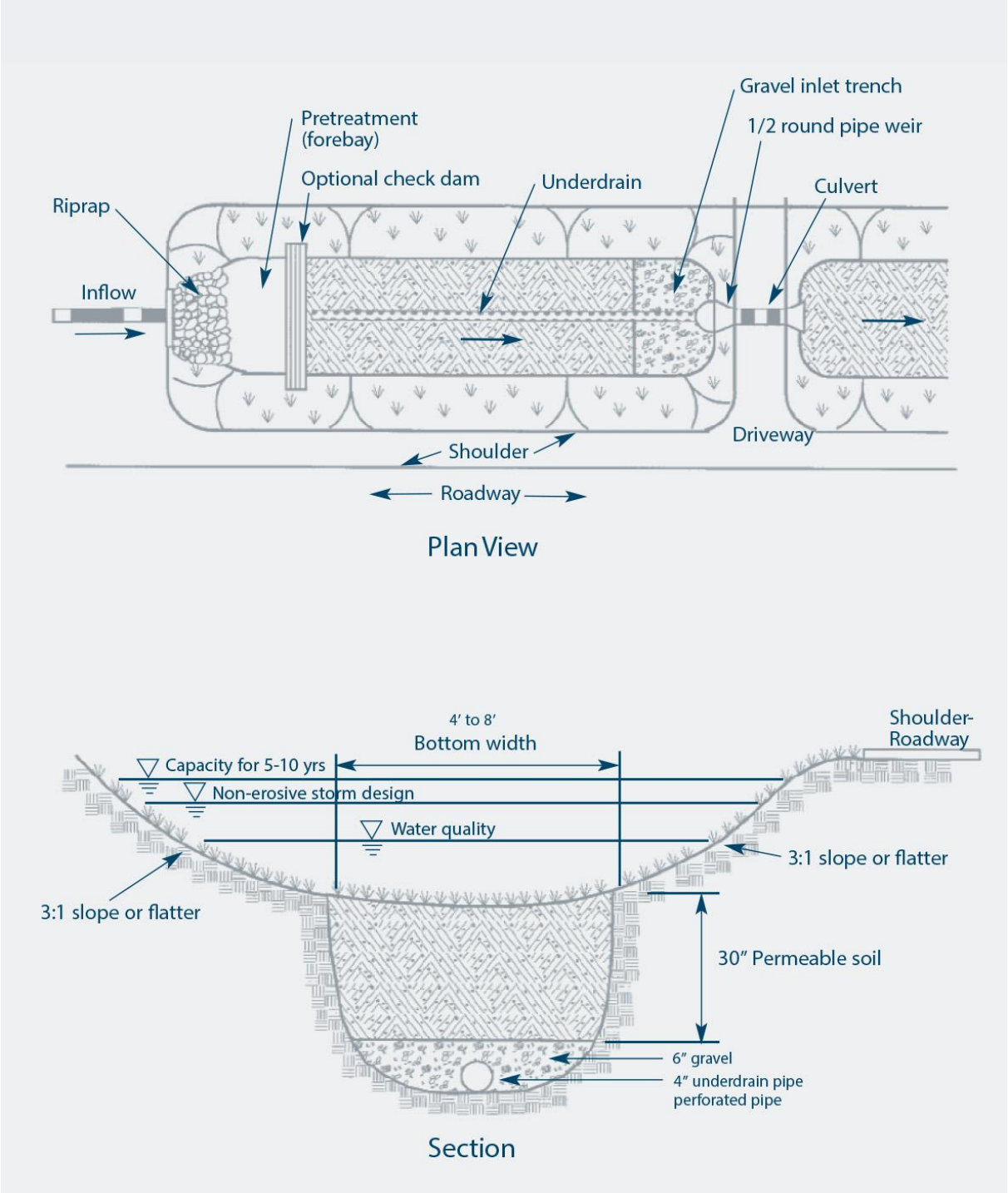
Parameter	Design Criteria
Pretreatment Volume	25% of the water quality volume (WQV) shall be captured for pre-treatment using a sediment forebay, underground chamber or other method suitable to the conditions on-site and for the intended use.
Preferred Shape	Trapezoidal or parabolic
Bottom Width	Four feet minimum recommended for maintenance, eight feet maximum, widths up to 16 feet are allowable if a dividing berm or structure is used
Side Slopes	3(h):1(v) maximum, 4:1 or flatter recommended for maintenance
Longitudinal Slope	Dry Swale: Up to 2% without check dams. Check dams may be used for steeper slopes to achieve the appropriate storage volumes in separate cells and control flow velocity. Wet Swale: Less than 1%
Sizing Criteria	Length, width, depth, and slope needed to provide surface storage for the WQV. Dry Swale: Maximum ponding time of 24 hours Wet Swale: retain the WQV for 24 hours; ponding may continue longer
Underlying Soil Bed	Dry Swale: Permeable soil layer shall be an engineered media that consists of USDA loamy sand to sandy loam classification and meets the following gradation: sand 85-88%, silt 8-12%, clay 0-2%, and organic matter (in the form of leaf compost) 3-5%. Underdrains may be required depending on underlying native soils and groundwater table. Wet Swale: undisturbed soils, no underdrain system
Depth and Capacity	• Surface storage of WQV with a maximum ponding depth of 18 inches • Safely convey 2-year storm with non-erosive velocity • Adequate capacity for 10-year storm with six inches of freeboard

Source: Adapted from Claytor and Schueler, 1996.

Vegetation

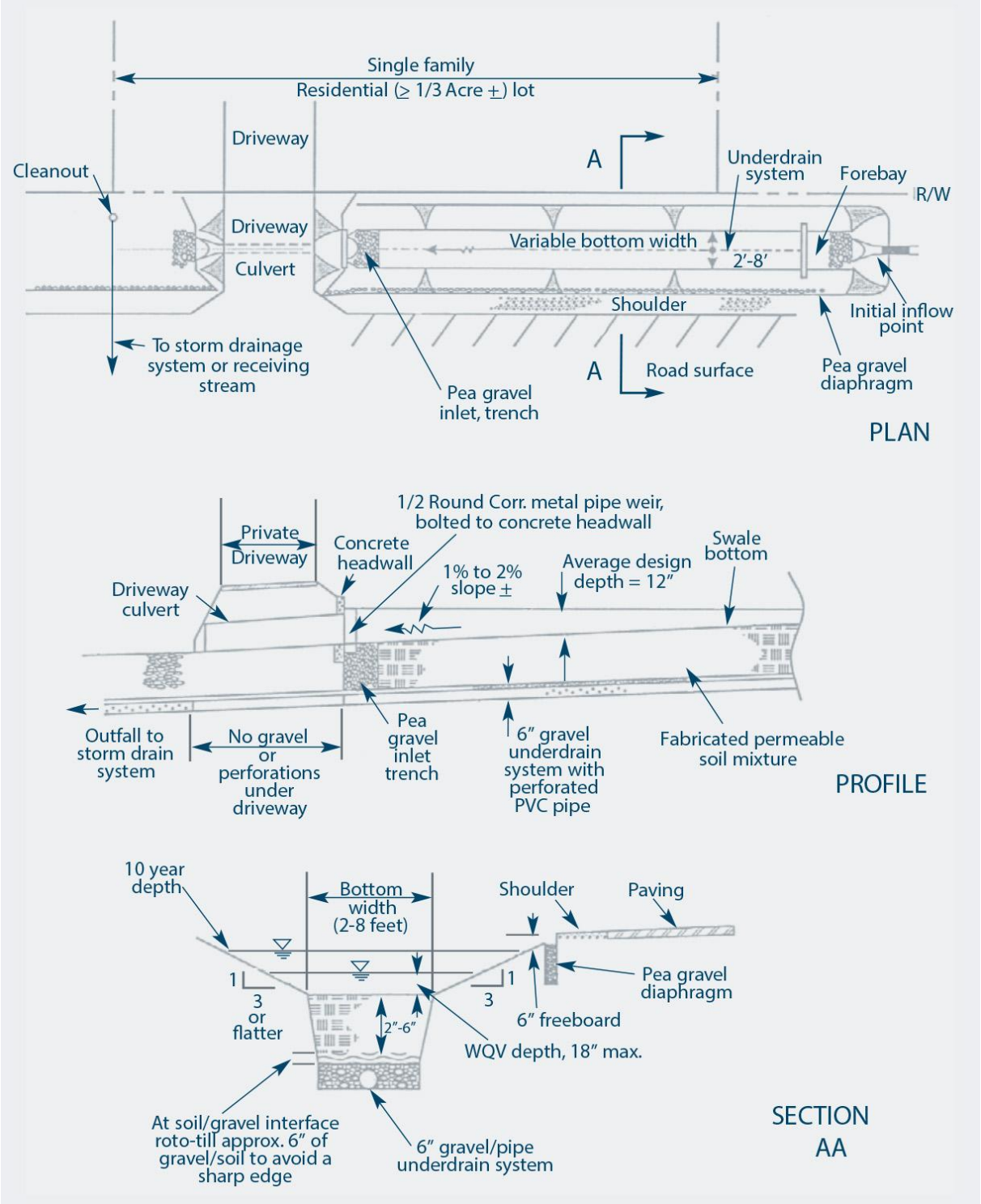
- Dry swale vegetation should be designed for periodic mowing.
- Wetland species shall be used for the bottom of a wet swale.
- Native species are preferred for enhanced biodiversity, wildlife habitat, and drought tolerance.
- The maximum velocity should not exceed erosive velocities for the soil type and vegetation condition of the channel (see **Connecticut Guidelines for Soil Erosion and Sediment Control** for maximum permissible velocities).

Figure 1: Dry Swale - Parabolic Cross Section



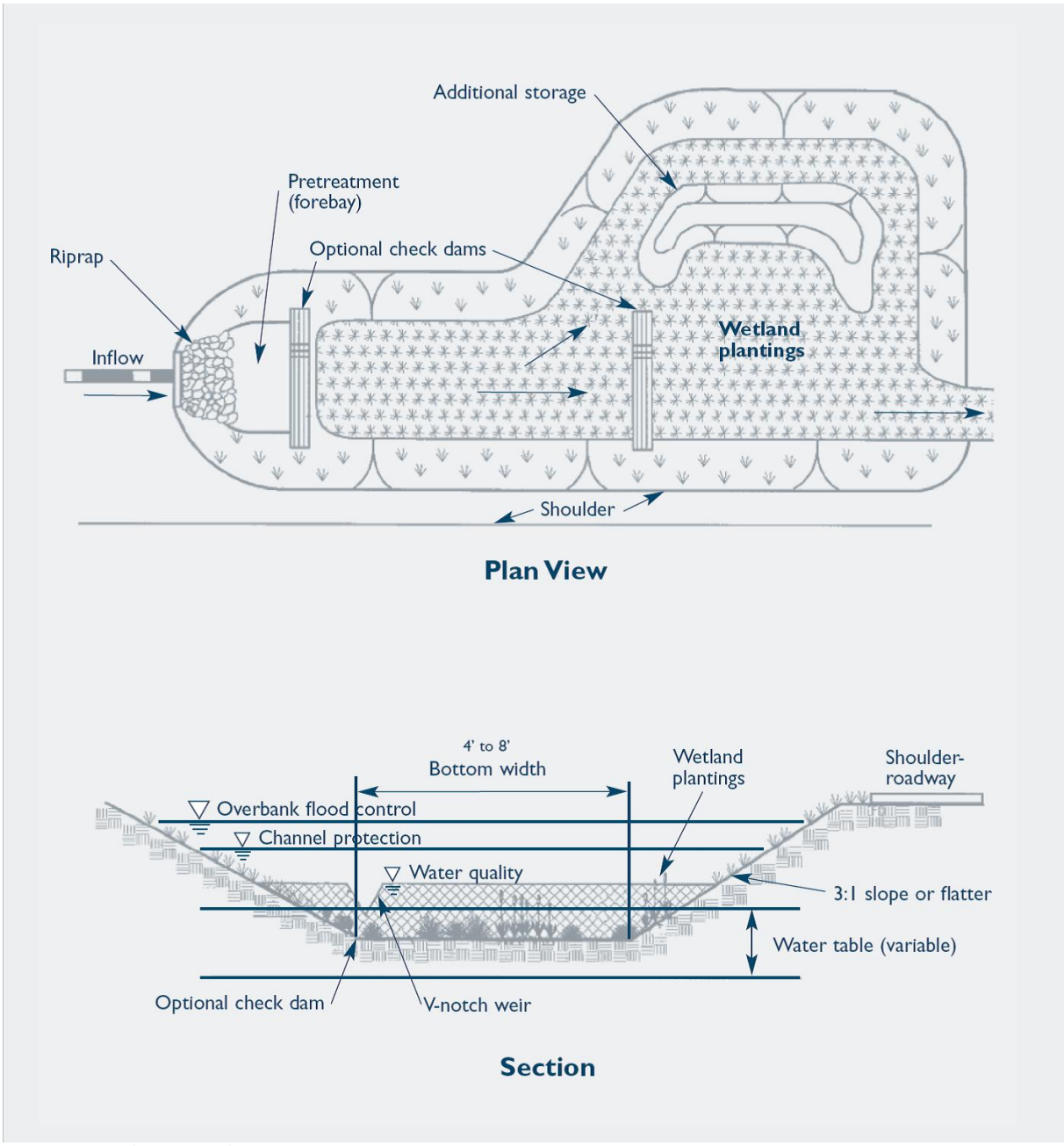
Source: Center for Watershed Protection, 2000.

Figure 2: Dry Swale - Trapazoidal Cross Section



Source: Claytor and Schueler, 1996.

Figure 3: Wet Swale



Source: Adapted from Center for Watershed Protection, 2000.

Wet Extended Detention Pond

Stormwater ponds are vegetated ponds that retain a permanent pool of water and are constructed to provide both treatment and attenuation of stormwater flows. The design of wet extended detention ponds is focused on attenuating peak runoff flows. As a result, more storage volume is committed to managing peak flows as opposed to maximizing the wet pool depth. The configuration of the outfall structure provides additional storage volume above the level of the permanent pool (Figure 1).

Siting Considerations

Drainage Area

- Typical minimum drainage area is 25 acres. May be varied where minimum depth of water will be maintained.

Groundwater

- Unlined basins must intersect the groundwater table in order to maintain the desired permanent pool.

Baseflow:

- A small amount of baseflow is desirable to maintain circulation and reduce the potential for low dissolved oxygen levels during late summer.
- Baseflow can be provided by groundwater infiltrating into either the basin or the collection system above the pond.

Site Slopes

- Steep on-site slopes may result in the need for a large embankment to be constructed to provide the desired storage volume, which could require a dam construction permit from the Connecticut DEEP.

Receiving Waters

- The sensitivity of receiving waters should be evaluated to determine whether the effects of the warmer stormwater discharges from the wet pond could be detrimental to cold water fish or other sensitive aquatic species.

Flood Zones

- Ponds shall not be located in floodways, floodplains, or tidal lands, especially those that require construction of an embankment.

Natural Wetlands/Vernal Pools

- Natural wetlands and vernal pool depressions shall not be used, either temporarily or permanently, as a stormwater pond or wetland.
- Stormwater ponds should be located at least 750 feet from a vernal pool and shall not be sited between vernal pools, or in areas that are known primary amphibian overland migration routes.

Design Criteria

Parameter	Design Criteria
Setback requirements[1]	•50 feet from on-site sewage disposal systems •50 feet from private wells •10 feet from a property line •20 feet from any structure •50 feet from any steep slope (greater than 15%) •750 feet from a vernal pool
Preferred Shape	Curvilinear
Side Slopes	3:1 maximum or flatter preferred
Length to Width Ratio	3:1 minimum along the flow path between the inlet and outlet; flow length is the length at mid-depth (avg. top width + avg. bottom width)/2
Pretreatment Volume	Forebays are highly recommended for wet ponds and shall be sized to contain 10% of the WQV.
Pond Volume	100% WQV treatment must be provided with a combination of pretreatment, permanent pool volume, and extended detention. Extended detention shall be less than or equal to 50% of the WQV.
Drainage Area	Minimum contributing drainage area is ten acres for extended detention basins.
Underlying Soils	Low permeability soils are best (NRCS Hydrologic Soil Group A and B soils require modifications to maintain a permanent pool unless groundwater is intercepted).
Capacity	The minimum ratio of pool volume to runoff volume must be greater than 2:1 and preferably 4:1. A 4:1 ratio provides 85-90% sediment removal based on a residence time of two weeks.
Depth	•An average pool depth of three to six feet is recommended and varying depths in the pond are preferred. •The aquatic bench should be 12-18 inches deep. •Ponds should not be greater than eight feet deep.

Forebay

- A sediment forebay shall be sized to contain at least ten percent of the WQV and be of an adequate depth to prevent resuspension of collected sediments during the design storm, often being four to six feet deep. The goal of the forebay is to remove particles consistent with the size of medium sand. The forebay storage volume may be used to fulfill the total WQV requirement of this system. The forebay must also include additional sediment storage volume that may not be used for WQV calculations.
- Direct access for appropriate maintenance equipment should be provided to the forebay.

Wet Pool

- Stormwater pond design shall provide water quality treatment storage to capture the computed WQV from the contributing drainage area in the proposed forebay, permanent pool, extended detention area, and marsh. The division of storage between the permanent pool and extended

detention is 50 percent minimum in permanent pool and 50 percent maximum in extended detention pond.

- Provide variable pond depths of four to six feet but *n*ot exceeding depths of eight feet.
- Maintain pond water quality sufficient to support mosquito-feeding fish where practicable.

Pond Vegetation

- Wetland plantings should be used in a pond design, either along the aquatic bench (fringe wetlands), the safety bench and side slopes, or within shallow areas of the pool.
- Avoid species that require full shade, are susceptible to winterkill, or are prone to wind damage.
- Woody vegetation may not be planted or allowed to grow within 25 feet of the toe of the embankment and 25 feet from the principal spillway structure.

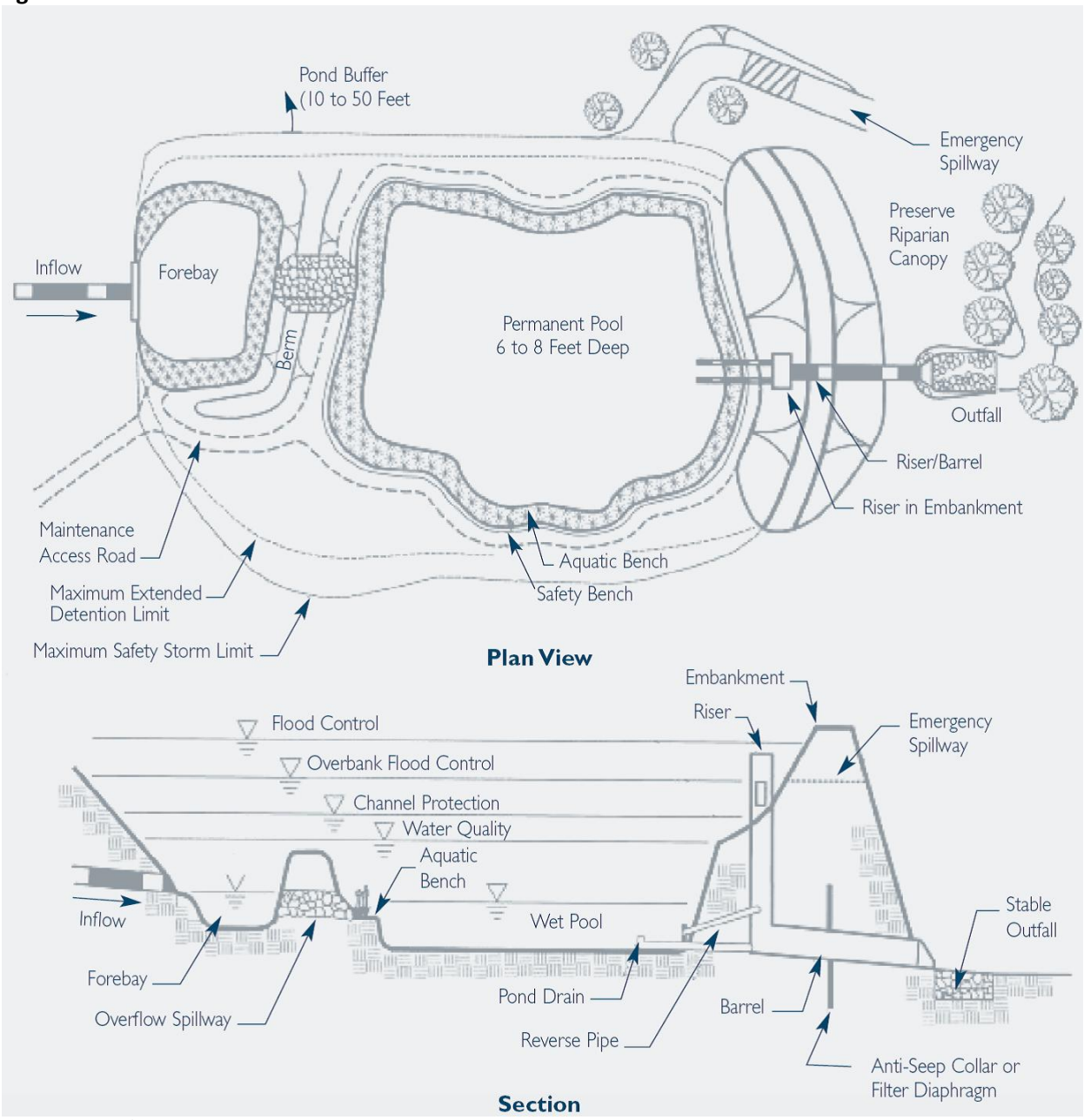
Outlet Protection

- Outlet protection is required to reduce flow velocities and prevent erosion.
- An armored emergency spillway is required to convey flood flows.

Maintenance Access

- A maintenance right-of-way or easement shall extend from a public right of way and should be designed to allow access to all components of the facility.
- Maintenance access should be at least 15 feet wide, have a maximum slope of no more than 15 percent, and be appropriately stabilized to withstand maintenance equipment and vehicles.
- Provisions for vehicle turnaround shall only be needed where backing a vehicle back onto the public way would be hazardous due to steeper slopes or limited sight lines.

Figure 1: Wet Extended Detention Pond



Source: Adapted from NYDEC, 2001.