WALL STREET DEVELOPMENT CORP.

REAL ESTATE DEVELOPERS

March 23, 2025

Bellingham Conservation Commission
Municipal Building
10 Mechanic Street
Bellingham, MA 02019

RE: Amended Notice of Intent – DEP File No. 105-0968 - Prospect Hill Village
Assessor Map 69 - Lot 87, Map 65 – Lot 20, Lot 22, Lot 22-01 and Lot 22-02

Dear Members of the Commission:

As the Commission may know, the Commission's agent and peer reviewer (BSC) met with Wall Street Development Corp. ("Wall Street") and its consultant ("EcoTec") on March 10, 2025 to discuss questions and concerns regarding the proposed project - Prospect Hill Village (the "Project"). As a result of that meeting it was possible to address questions and identify the additional information needed to complete the review of the Project by BSC. Attached for your reference is a copy of the additional information requested.

Thank you for your attention in this matter. Should any additional information be required for this Notice of Intent please feel free to contact me at 617-922-8700.

Sincerely,

WALL STREET DEVELOPMENT CORP.

Louis Petrozzi, President

cc. Paul McManus – EcoTec, Inc.
Rob Truax – GLM Engineering Consultants, Inc.
Thomas Rebula - MA – DEP Central Region

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AMENDED NOTICE OF INTENT – PROSPECT HILL VILLAGE
SUPPLEMENTAL INFORMATION REQUESTED
DEP FILE NO. 105-0968

PREPARED BY WALL STREET DEVELOPMENT CORP.
MARCH 12, 2025

Outlined below is a list of the additional information requested during the meeting with BSC on March 10, 2025 pertaining to the review of the Notice of Intent for Prospect Hill Village:

1. Construction Sequence:
   a. Gravity Sewer - Cross Street/Dupre Sewer Pump Station/Peters River, including plan for trench dewatering and method of installing pipe beneath culvert, (i.e. location, frac tank vs. filter bag, etc.);
   b. Gravity Sewer - Cross Street/Dupre Pump Station - Dewatering methodology (and treatment of effluent if required).
   c. Sewer Force Main - Railway Intermittent Stream.
   d. Sewer Force Main - Intermittent Stream Crossing - Railway, including water Management.
   e. Replacement of Main Roadway/Existing Culvert - Prior to constructing replication area. If replication area not approved – issue becomes moot (See Commission's Discretion Items below).

   SEE EXHIBIT 1.

2. Revised Plan Showing Riverfront Area of Hoag Brook not intermittent, including:

   a. Provide Calculations of total RFA and area of alternation
   b. Relocate Drainage Basin 4 Outside Riparian Zone, if required
   c. Alternatives - Drainage Basin 4, if required
   d. Alternatives – Grass Swale/Combine with Basin 4

   SEE EXHIBIT 2.

3. Discuss Stormwater Basins @ Road Entrance & Lake Street – Purpose & Functions, show compliance with Stormwater Standards.

   SEE EXHIBIT 3.

4. Stormwater Basins – Explain discharge through emergency outlet/overflow to wetlands.

   SEE EXHIBIT 4.

5. Memorandum – Water Resource Area compliance

   SEE EXHIBIT 5.

6. Bylaw Waiver Request – Filling IVW greater than 5,000 s.f.

   SEE EXHIBIT 6.

7. Wetland Bylaw – Stormwater Regulation Compliance.

   SEE EXHIBIT 7.

8. Evaluate isolated wetlands – G-series and H-series for vernal pool habitat.

   PENDING FIELD OBSERVATIONS.

9. Review Wetland A-21 to A-53 for vernal pool habitat.

   PENDING FIELD OBSERVATIONS.

10. Project - Sewer Pump Station.

    PUMP STATION DESIGN IS PENDING.

REQUIRED COMMISSION DISCRETION ITEMS

1. Railway intermittent stream Crossing – Open channel or wooden bridge with abutments.

2. Bylaw Waiver Request – Filling IVW greater than 5,000 s.f.

3. Proposed Replication – Additional Test Pits of replication area – if commission is in favor of IVW filling and replication area.

4. Construction Sequence - Existing Roadway Culvert/Construction Replication Area. If replication area not approved – issue becomes moot.

5. Additional ground water testing/depths in proposed replication area.

6. Relocating Building No. 9 and proposed roadway rotary in a northerly direction.

EXHIBIT 1

PROSPECT HILL VILLAGE – BELLINGHAM, MA
PROPOSED CONSTRUCTION SEQUENCE
CONSTRUCTION OF CROSS-COUNTRY SEWER FORCE MAIN VIA RAILWAY TO BLACKMAR STREET WITH STREAM CROSSING AND GRAVITY SEWER TO DUPRE ROAD PUMP STATION
DEP FILE NO. 105-968

PREPARED BY WALL STREET DEVELOPMENT
MARCH 17, 2025

The Project calls for the installation of a sewer main extension from the development site cross-country in the former Attleboro and Woonsocket Railway existing rail bed (the "Railway") out to Town Way (unpaved road),Blackmar Street and down Cross Street ending at the Dupre Sewer Pump Station. The sewer main extension will consist of both a gravity system and a force main section. The installation of the sewer main extension will be completed as shown on Sheets S-1 to S-4 of the site development plan (the "Sewer Plans"). As shown on the Sewer Plan the gravity portion of the sewer installation will be initiated at the Dupre Pump Station and run up Cross Street to Blackmar Street. At or near the intersection of Blackmar Street and Lakeview Avenue, the sewer main will transition from a gravity system to a force main system. The proposed sewer force main will be installed from the proposed sewer pump station servicing the project, within the Railway to the south out to the Blackmar Street/Lakeview Avenue connection where sewer will then proceed into the gravity sewer main to the Dupre Sewer Pump Station on Cross Street.

The work to install the sewer main extension, both the gravity and force main portions of the sewer, will include work within the buffer zone, degraded Riverfront Area, crossing of Peters River and a crossing of Hoag Brook (within the portion of the brook found to be an intermittent stream). The proposed gravity sewer is located entirely within existing paved roadways. The installation will follow the construction sequencing outlined below:

1. Stake the Limits of Work: The limits of work off the paved roadway are to be staked out just prior to the time of commencing construction. The stake out is to ensure that there will be no unauthorized wetland intrusion.

2. Tree and Brush Removal: Limited tree and brush in the work area, including the railway and side slopes, as required, are to be cut at the base and removed to the limit of the approved erosion control barriers in jurisdictional areas.

3. Install Erosion Controls: Place and stake siltation control barriers at staked limit of work for erosion control, in areas designated on the plans.

4. Sewer Line Stake-out: The centerline of the proposed sewer line will be painted on the paved roadway sections and staked with offset stakes in unpaved areas.

5. Dupre Pump Station Connection: The sewer main connection will commence at the Dupre Sewer Pump Station (the "Pump Station"). The project engineer has confirmed that Pump Station has provisions for a future extension/connection to Cross Street. In addition, the elevations of the existing provisions have been confirmed, and the sewer extension has been designed to be installed below the existing culvert at Peters River. The sewer installation will avoid the box culvert and will not result in any alteration to the culvert or Peters River.

6. Sewer Main Work: The gravity sewer main work will proceed from the Pump Station with the installation of an 8-inch SDR35 sewer pipe to the existing culvert at Peters River. As previously mentioned, the sewer main installation at the crossing of the culvert at Peters River will be below the existing channel. The crossing will be completed via a direct drilling operation. be As the work progresses with the gravity portion of the sewer installation within the paved public way of Cross Street to Blackmar Street, the work will include pipe installation with sewer manholes, backfill, compaction of the sewer trench and road restoration in compliance with Town of Bellingham specifications. A trench box will likely be employed in compliance with OSHA standards, which will minimize the width of the required excavation.

7. Sewer Project Material Staging: Pipe bedding, pipe, and manholes will be staged along the sewer main route and, where necessary transported to the work area as the work progresses. Pipe bedding will be placed directly into the trench and the limited excess soils (the volume of the pipe, bedding, and manholes) will be removed from the work area and reused at an appropriate location. Not more than one pipe length of trench will be left open during non-work hours.

8. Gravity Sewer to Force Main Sewer: The gravity sewer portion of the work will end at or near the intersection of Blackmar Street & Lakeview Avenue. At this point, the sewer installation will transition from a gravity system to the force main portion of the sewer installation to service the Project. The work to install the sewer force main will begin at the project development site at the north end of the proposed sewer force main at the location of the proposed pump station that will service the Project. The sewer installation will progress to the south along the railway. Due to the limited width of the railway, pipe bedding, pipe, and manholes will be transported to the work area along the railway. Pipe bedding will be placed directly into the trench and the limited excess soils (the volume of the pipe, bedding, and manholes) will be removed from the work area and reused at an appropriate location. Not more than one pipe length of trench will be left open during non-work hours. All surfaces will be restored to existing condition; however, the railroad bed surface may be modified (at the same elevation) for use as a walking path.

9. Force Main Installation: The proposed sewer force main will be a 4' diameter SDR21 pipe with pipe lengths varying from 10-feet to 20-feet in length and will be installed at a depth of approximately 4-feet +/-. As each pipe is installed, it will be placed in appropriate bedding materials as indicated on the plans in accordance with standard construction practice, and joints sealed as required. Backfill soil will be from the excavation for the next pipe segment, to minimize the need for soil removal.

10. Hoag Brook Stream Crossing Railway: The sewer force main installation will necessitate temporary impacts to Hoag Brook as the force main crosses below the bottom of the brook. The work is proposed to cross a segment of the brook with no associated BVW in the approximate location of an old bridge abutment/retaining walls. The work will be temporary in nature and conducted during a no-to-low-flow period. Any flow that is present will be halted with a sandbag dike upstream of the work location and stream channel crossing, where a large storage volume exists above the channel constriction just upstream of the crossing. If required, any channel flow will be pumped around the work area in accordance with best management practices. The affected bank and channel bottom will be stabilized with stone to match existing channel contours at the completion of the work..

11. Surface Finish: The final surface treatment of the sewer easement along the railway will be at the discretion of the Conservation Commission (i.e. gravel path, wood chips, etc.).

12. Completion: Upon completion of the sewer installation, the Railway is expected to be stabilized as a future walking path, at the discretion of the Commission and/or Planning Board.

Note: Installation of a wooden bridge at the existing Hoag Brook stream crossing/abutment may be installed at the Commission's discretion.

Dewatering Procedure

During the process of installing either the gravity sewer or the force main sewer groundwater may be encountered, particularly at or near the crossing of Peters River. If dewatering is required, water will be pumped to a settling tank (e.g. frac tank) to allow for suspended solids to be settled. At the appropriate time, the water in the tank will be discharged to the brook or adjacent wetlands through a flow dissipater (e.g., perforated barrel with stone) to prevent scour at any discharge point. Water will not be discharged with visible turbidity. If needed, anionic flocculant polymer and associated treatment medium such as jute mesh, may be employed to remove turbidity and suspended solids prior to discharge.

PROSPECT HILL VILLAGE – BELLINGHAM, MA
PROPOSED CONSTRUCTION SEQUENCE
MAIN ROADWAY & CULVERT CROSSING WITH UTILITIES
& WETLAND REPLICATION AREA
DEP FILE NO. 105-968

PREPARED BY WALL STREET DEVELOPMENT CORP.
MARCH 17, 2025

1. Stake the Limits of Work: The limits of work are to be staked out just prior to the time of commencing construction. The stake out is to ensure that there will be no unauthorized wetland intrusion.

2. Install Erosion Controls: Place and stake erosion control barriers at staked limit of work for erosion control, in accordance with the approved plans.

3. Tree and Brush Removal: Trees and brush in the work area, including the roadways, side slopes and replication area, as required, are to be cut at the base and removed. If necessary, steel plates or other temporary bridging will be employed to cross the stream and wetlands to safely and securely access the rear upland of the property. Areas where building and other accessory structures are to be located may be cut at this time, at owner's discretion. All trees are to be felled into the upland area and not across the limit of work barrier that delineates the upland area from the wetland or buffer.

4. Temporary Sediment Basins: As work progresses, temporary sediment basins will be added at critical areas in accordance with the SWPPP;

5. Stormwater Basins: Stormwater basins will be installed as the work proceeds, before the tributary

6. Roadway Construction: With all trees removed and all erosion controls in place, proceed with earthwork for the roadway up to the wetland crossing. Stumps are to be disposed during the excavation process in accordance with established rules and regulations. Materials, such as topsoil, that are set aside for future use on-site, are to be stockpiled as far from the wetlands as practical. Except for short-term use (e.g., pipe bedding material) all stockpiles will be outside of wetlands and buffer zone. Additional erosion control barrier will be placed around these stockpiles to prevent wind and water erosion. **(NOTE: It is intended for all excavated material to be re-used on site as fill.)**

7. Roadway Crossing/Stream Restoration: Remove low growth and vegetation in old stream channel on the easterly and westerly side of the proposed open-bottom box culvert (the "Culvert"). Stream flow may be diverted through a temporary diversion channel, or the stream flow may be interrupted with the installation of sandbags to hold back stream flow while the Culvert is installed. (Any dewatering required during construction will be pumped downgradient to a temporary sediment basin and discharged via a flow dissipater to the stream and wetland. Water will be discharged only if there is no visible turbidity. Alternatively, pumped water may be discharged to a temporary infiltration pit in open gravel mine area outside of the buffer zone.) Install footings for the Culvert, along with utilities, or sleeves for future utility installation if complete utility installation is not feasible at that time. In addition to the culvert, additional structures may be installed to facilitate the road crossing. Following the installation of the open-bottom box culvert the stream channel can be reconnected or the channel re-opened to accept the re-directed flow to the existing wetland. Construction of the road crossing will be completed using clean fill according to the plans.

8. Construct Wetland Replication: The wetland replication area will be completed in accordance with the Wetland Replication Protocol prepared by EcoTec, Inc dated February 3, 2025, a copy of which is attached hereto.

9. Roadway Excavation Rough Sub-Grade: Excavation of the entire roadway shall not proceed until all areas have been excavated to approximate rough sub-grade and all side slopes graded. Imported fill may be required to achieve the required sub-grade.

10. Installation of Drainage Facilities: Work shall commence on the installation of any drainage structures, such as piping, catch basins, manholes, headwalls, etc. as shown on the plan.

11. Installation of Water Main/Service: Work shall commence on the installation of any water services, including piping, hydrants, gate valves, shut-offs, water services etc., as shown on the plan.

12. Loam and Seed Side Slopes: Loam and seed side slopes of roadway, as needed. This will occur on an ongoing basis, to minimize the amount of exposed soil at any given time.

13. Installation of Sewer Main/Service: Excavate trench and install sewer main.

14. Electrical/Telephone/Cable: Excavate trench for installation of underground electrical, telephone and cable service as shown on the plan.

15. Binder Preparation: Deliver and place processed gravel to proper grade, including grading and compaction.

16. Binder Installation: Install base coat pavement for access drive, as required.

17. Final Pavement: Finish pavement of the access drive to be installed at Owner's discretion.

EcoTec, Inc.

ENVIRONMENTAL CONSULTING SERVICES
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Wetland Replication Protocol
Prospect Hill Village Bellingham, MA
DEP File No. 105-968

Prepared by:

Paul J. McManus, SPWS
President

February 3, 2025

Introduction: The proposed Prospect Hill Village townhouse development is depicted on the Plan set prepared by GLM Engineering Consultants Inc. ("GLM"). As detailed on the plans, including sheet SUP-A, Wetland Replication Plan, the proposed primary roadway into the project makes use of an existing gravel road that crosses a wetland system consisting of mapped Hoag Brook and an associated area of Bordering Vegetated Wetland ("BVW"). The Replication Plan identifies proposed BVW impacts at the existing/ proposed wetland crossing to be 480 sf (160 sf on north side of the crossing and 320 sf on south side). This calculation conservatively includes the defined stream channel.

The Massachusetts Wetland Regulations at 310 CMR 10.55(4)(b) state that discretionary wetland filling and replication may be allowed consistent with the criteria listed below ("and any additional, specific conditions the issuing authority deems necessary to ensure that the replacement area will function in a manner similar to the area that will be lost"). Although the project is filed as a "limited project" in accordance with 310 CMR 10.53(3)(e) which allows for potential deviation from the BVW replication provisions of the Regulations, the following criteria for discretionary BVW filling and replication are satisfied. Although it is never possible to fully replicate the horizontal configuration of a wetland crossing in a replication area, it is EcoTec's opinion that the proposed replication area complies with the BVW replication criteria listed below.

Note that the proposed replication area serves as mitigation for the BVW filling and for proposed filling of Isolated Vegetated Wetland ("IVW") located in the western portion of the site which is a remnant of past excavations in the former mining area. The BVW and IVW areas are described in a separate Performance Standards evaluation by EcoTec. Consistent with discussions on the site with BSC Group, the Commission's peer review consultant, mitigation for the proposed IVW filling has been paired with the smaller replication area required for BVW mitigation. Rather than replicate the poorly developed wetland conditions in the IVW, the replication proposed includes a layer of more productive topsoil and includes a grading plan to provide a range of hydrologic conditions, including seasonal standing water, to enhance wildlife habitat.

The BVW replication area regulations at 310 CMR 10.55(4)(b) specify the following provisions for a replication area (adherence to the provisions is provided below each).

<u>BVW Replication Regulatory Requirements and Project Conformance - From 310 CMR 10.55 4 b:</u>

1. the surface of the replacement area to be created ("the replacement area") shall be equal to that of the area that will be lost ("the lost area");
    - A larger area is proposed (2:1 for both IVW and BVW);

2 the ground water and surface elevation of the replacement area shall be approximately equal to that of the lost area;
    - The replication area has similar elevation (in part) to the BVW impact area, and provides for a wetter hydrology than the existing IVW, to enhance wetland function and wildlife habitat;

3. the overall horizontal configuration and location of the replacement area with respect to the bank shall be similar to that of the lost area;
    - The configuration and location of the replication is adjacent to Hoag Brook, which is similar to the BVW impact area, but the IVW is mitigated as BVW along the brook, rather than in the middle of the pit;

4. the replacement area shall have an unrestricted hydraulic connection to the same water body or waterway associated with the lost area;
    - the replication area has an unrestricted hydraulic connection to the Hoag Brook BVW. The IVW is not hydraulically connected to any water body or waterway, but will be connected to Hoag Brook;

5. the replacement area shall be located within the same general area of the water body or reach of the waterway as the lost area;
    - The replication area is in the same general area along Hoag Brook and satisfies this criterion for the BVW. The IVW is not hydraulically connected to any water body or waterway;

6. at least 75% of the surface of the replacement area shall be reestablished with indigenous wetland plant species within two growing seasons, and prior to said vegetative reestablishment any exposed soil in the replacement area shall be temporarily stabilized to prevent erosion in accordance with standard U.S. Soil Conservation Service methods;
    - The details below provide for soils and planting consistent with this requirement;

7. the replacement area shall be provided in a manner which is consistent with all other General Performance Standards for each resource area in Part III of 310 CMR 10.00.
    - As detailed in the EcoTec performance Standards Analysis, the replication area and all project components satisfy the Performance Stands for all Resource Areas on the site.

The Bellingham Wetlands Bylaw Regulations contain similar provisions, with additional criteria, including the requirement that: "The area of the wetland replication shall be at a 2:1 ratio to that area of wetland loss." As noted on the Replication Plan, an area of replication of 37,000 sf is proposed, in excess of the 2:1 mitigation ratio, including both the BVW fill (480 sf) and IVW fill (16,860 sf). The local regulations also include several provisions for which a waiver is sought, including replication area proximity to the proposed impact area and similarity of elevation and physical characteristics. As detailed in the EcoTec Performance Standards Analysis, it is our opinion that the proposed replication area significantly enhances the wetland function relative to the existing IVW area.

Details regarding construction, planting, and monitoring are proposed below. BVW replication requirements are summarized below.

Hydrology:

As indicated above and on the proposed replication area grading plan (Sheet "SUP-A" by GLM Engineering) the replication area has been designed to provide a range of hydrologic conditions. Information informing the proposed grading and anticipated hydrology includes the elevation of the adjacent BVW, and test pits within the proposed replication area. The replication area is located adjacent to the native BVW bordering Hoag Brook, which has a generally southerly flow. The replication area is approximately 300-feet long along measured parallel to the brook, and the elevation of the brook and wetland increases to the north (upstream). The BVW boundary at delineation flags along the length of the replication area is at the following approximate elevations:

Wetland Flag	Elev at Flag
Flag E-39	224'
Flag E-32	225'
Flag E-27	226'
Flag E-22	227'

Test pit data which includes detailed soil descriptions and estimated seasonal high-water table ("ESHWT") depths/ elevations were also evaluated. The plan includes two test pits (TP 22-7 and TP 22-8) with surface elevation and depth to ESHWT. Based on the plan information, the ESHWT at test pits in the replication area is:

- TP22-7: 223.1
- TP22-8: 222.7.

The replication area is proposed to have a fringe of wooded swamp wetland hydrology, with most of the area at a hydrology in the range of shrub swamp to wet meadow, and a central area that is proposed to be seasonally inundated.

As noted below, it is proposed that at the time of the replication area construction, the excavation to sub-grade be completed to conform <u>approximately</u> to the grades indicated on the replication plan, but that final sub-grade elevation across the replication area be determined based on a field determination by a qualified wetland/ soil scientist of hydrologic indicators in the area, to achieve the proposed hydrology.

BVW/IVW Replication Protocol:

1. Prior to initiating work at the replication area, the boundary of the existing BVW will be protected with a properly entrenched silt fence and minimum 6-inch staked straw wattle between the wetland and the work area, including access ways.

2. Access to the proposed replication area will be from the existing gravel road which is proposed to be upgraded to serve as the main project roadway.

3. Existing trees and other woody vegetation within the proposed replication area will be removed. A portion of this woody material will be set aside and used to provide coarse woody debris in the replication area, as described below (step #8). A minimum of 20 logs of at least 8-feet in length will be saved for use as habitat enhancement in the replication area. Smaller woody debris will also be saved for this use.

4. The replication area will be excavated to subgrade (approximately 12-inches below final grade). As indicated on the Replication Plan sheet, the precise depth of the subgrade excavation will be determined in the field by a qualified soil/ wetland scientist based upon soil features observed in the excavation. Subgrade will be 1* foot below the proposed finish grade. Side slopes will be graded as indicated on the plans, no steeper than 3:1 (H:V) and allowing for 4- to 6-inches of topsoil placement. Excess soil will be removed from the replication area vicinity for use in other areas of the site or stockpiled outside of the wetland Buffer Zone.

5. During the replication area excavation and grading, large boulders encountered may be left in place as habitat features, and several rockpiles may be formed at multiple locations (not more than 10% of the area to be covered by boulders or rock piles).

6. Because the BVW fill area is much smaller than the proposed replication area, and the IVW areas have developed only a trace of topsoil, the opportunity for translocation of wetland topsoil is very limited. To the extent feasible, organically enriched topsoil will be removed from the BVW proposed to be filled and transported to a storage location near the replication area, where it will be mixed with a 1 :1 mixture of high quality, loamy topsoil and leaf mold compost, as necessary, to provide for 12 inches in thickness throughout the replication area.

   Topsoil for wetland restoration shall be imported or manufactured and shall consist of a combination of loamy, mineral soil and organic matter. If manufactured, the specifications for the mineral soil and compost separates are found below. The organic matter content of finished wetland restoration soil shall be between 12 and 20 percent. The textural class shall be Mucky Sandy Loam or Mucky Fine Sandy Loam. Typically, a field mix of 50% rough-screened (1 inch-minus screen size), weed-free, loamy mineral soil and 50% compost results in an organic matter content within the suitable range.

Sandy loam mineral soil properties:

Particle Class	OLQf.JQ!aLUejgb.!	Aver-a q e %
Sand (0.05 - 2.0 mm dia. range)	45-75	60
Silt (0.002-0.05 mm dia. range)	15-35	25
Clay (less than 0.002 mm dia. range)	5-20	15
Gravel & Stone (>2.0 mm dia.)	<15%	

Field assessment by a qualified soil scientist will be used to assess compliance with the above criteria.

Compost - Compost shall be derived from leaf mould, clean ground wood, bark and/or sawdust that meets all State Environmental Agency requirements. The product shall be well composted, free of viable weed seeds and/or propagules and contain material of a generally humified nature capable of sustaining growth of vegetation, with no materials toxic to plant growth.

7. Following topsoil mix placement, the substrate will be roughly graded to provide an appropriate microtopography to mimic natural wetlands.

8. Wildlife enhancement measures including tree snags (logs installed to stand vertically), coarse woody debris, and rock piles will be installed within the replication area, to provide food, forage and cavity nesting opportunities. The rock piles will consist of multiple boulders/cobbles each piled to extend above final grade to create crevices and cavities for shelter and nesting. The wetland scientist will oversee this process.

9. Planting of the replication area will be conducted, as summarized in Table 1, below:
    a. Planting will be done only during the beginning (April 15 through June) or end (September 1 to November 15) of the growing season. Alternatively, planting in the mid-growing season is only acceptable if irrigation is provided;
    b. The plant species identified in the table below will be planted in the replication area from nursery stock;
    c. No planting is proposed in the central depression;
    d. The wetland seed mix is proposed throughout the replication area (excluding the central depression);
    e. The red maple saplings will be planted only at the periphery of the replication area;

f. The shrubs will be planted randomly throughout the flatter portions of the replication area, not planted in rows;

g. Woody vegetation planting will be conducted first, followed by herbaceous seeding;

Table 1: Planting Plan for Wetland Replication Area

SPECIES; SIZE; SPACING	NUMBER[1]
Saplings; min 6 to 8' height, container or balled, burlapped; Planted around perimeter	
Red Maple (Acer rubrum)	20
Shrubs; 2.5 to 3' in height, min 1 gal container;	
Planted in the interior of the replication area, excluding the central depression	200 total
Highbush blueberry (Vaccinium corymbosum)	
Arrow-wood (Viburnum recognitum)	
Sweet pepperbush (Clethra alnifolia)	
Nannyberry (Viburnum lentago)	
Winterberry (Ilex verticillata)	
Silky dogwood (Cornus amomum)	
Herbaceous;	
New England Wetland Plants, New England Wetmix (or approved substitute)	10 lb.

[1] Depending upon availability from local nursery stock, at least four (4) of the listed species will be selected, with at least twenty (20) specimens of each selected species planted, for a total of 200 shrubs.

10. The coarse woody debris salvaged during the initial clearing shall be replaced within the replication area to mimic a natural forested wetland surface. This may include short vertical snags. A minimum of 200 linear feet of 2-inch diameter or larger logs and branches will be placed haphazardly throughout the replication area. Any stones encountered during the replication area excavation may also be allowed to remain.

11. An erosion control barrier of silt fence or straw wattle will be placed around the outer edge of the replication area, at the toe of the side slopes;

12. A minimum of 4- to 6-inches of topsoil will be spread throughout the side slopes and any other areas disturbed for construction of the replication area;

13. The side slopes and access path will be planted with a native upland seed mix (e.g. New England Wetland Plants Restoration Mix for Wet Sites) designed to provide permanent cover. After seeding, the side-slopes may be mulched with a thin layer of straw to provide for temporary erosion control.

14. After the wetland replication area and side slopes have become vegetatively stabilized and following approval of the issuing authority, the perimeter siltation fence and all wooden stakes will be removed and disposed of properly.

15. The replication areas will be inspected, by a qualified Wetland Scientist, at the end of each growing season for a minimum of two years or until such time as the required 75% of vegetative cover with wetland species has been established. Monitoring will include vegetative species and cover assessment, soil evaluation and observation of groundwater/soil saturation. If invasive species are noted (e.g., knotweed, phragmites, etc.) these species will be removed by either hand-pulling the entire plant out by the roots or by cutting the above-ground portion and applying glyphosate herbicide to the stem with a drip applicator. The cut or pulled plants will be properly disposed of outside the wetlands and buffer zones and care will be taken not to distribute any seeds or berries that may be present.

EXHIBIT 2

PROSPECT HILL VILLAGE – BELLINGHAM, MA
RIVERFRONT STATUS
DEP FILE NO. 105-968

PREPARED BY WALL STREET DEVELOPMENT CORP.
MARCH 17, 2025

Riverfront Overview:

As previously noted, a named stream (a/k/a Hoag Brook) flows south across the Property from Prospect Street to Cross Street that had been previously mapped as a "perennial stream" on the current USGS Map. As a presumed perennial stream, there was an associated 200-foot Riverfront Area ("RFA") pursuant to 310 CMR 10.58(2)(a).1.d. In December, 2024, a Request for Determination of Applicability ("RDA") was filed with the Commission, along with other information, to document four days of no-flow conditions of the stream during a non-drought period. Based on the information, the RDA requested the Commission to find that the status of Hoag Brook was an intermittent stream without an associated 200-foot RFA. In January, 2025, the Commission issued an Order of Determination of Applicability ("ODA") that confirmed that there was no RFA associated with Hoag Brook up-gradient of Location No. 7 as shown on the EcoTec report dated September 30, 2024.

As a result of the ODA, the site plan has been revised to show the new limit of Hoag Brook as a perennial stream with an associated 200-foot RFA. Attached for reference purposes is Sheet 20 of the revised site plan dated March 19, 2025. As the plan shows, Stormwater Basin No. 4 will partially encroach within the outer riparian zone of the 200-foot RFA, along with a water quality grass swale and sediment basin.

Outlined below is a revised breakdown of the RFA on the property following the new delineation of Hoag Brook as a perennial stream:

Riverfront	Area
Lake Street – Unnamed Stream	273,661 s.f.
Hoag Brook	98,991 s.f.
Total Riverfront Area:	372,652 s.f.

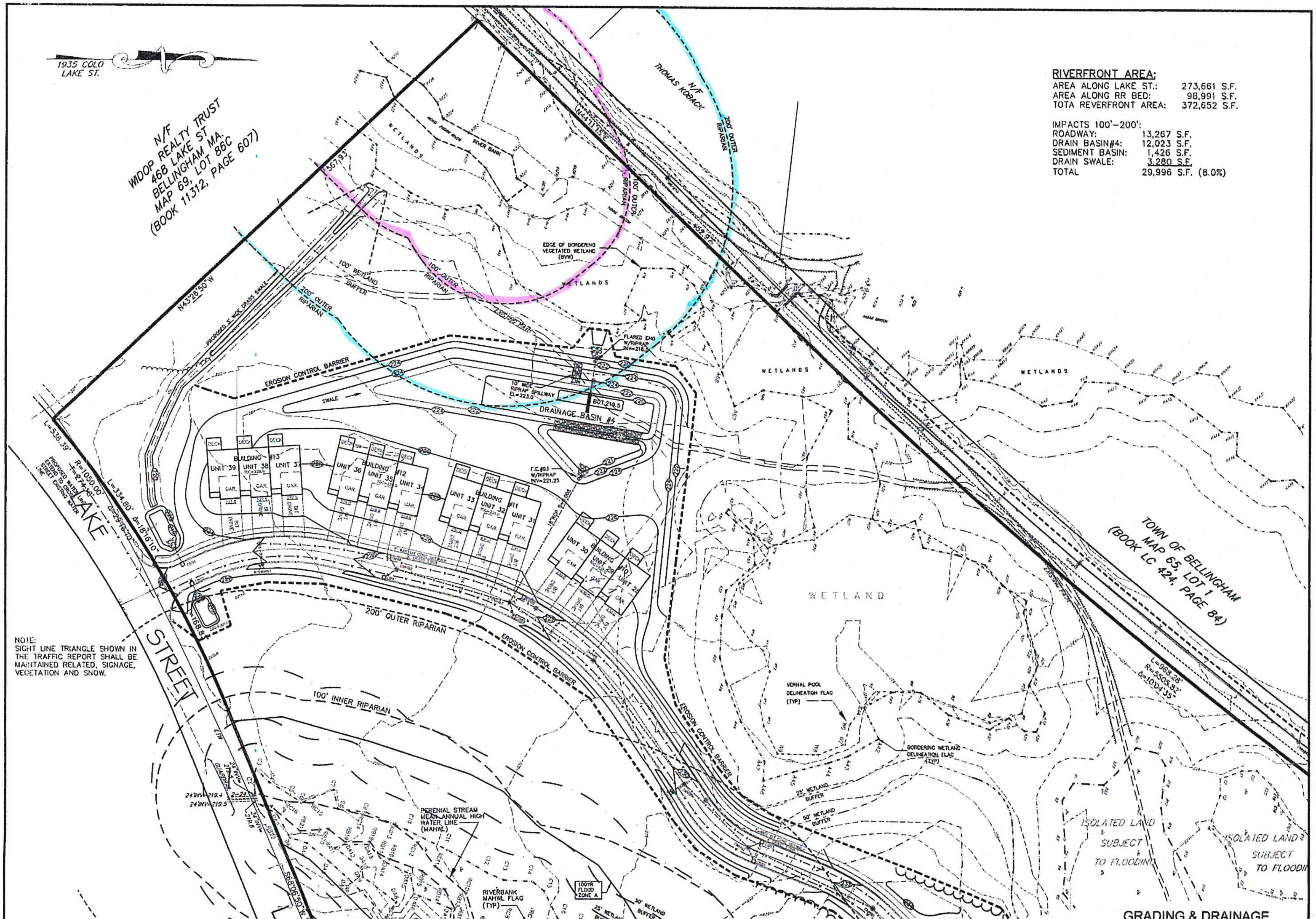
As mentioned above, there are proposed encroachments into the outer riparian (100'-200') RFA which will have the following impacts:

Feature	Area
Roadway	13,287 s.f.
Stormwater Basin No. 4	12,023 s.f.
Sediment Basin - Lake Street	1,426 s.f.
Drainage Water Quality Swale	3,280 s.f.
Total Impacts:	29,996 s.f.

The total of the impacted RFA is approximately eight percent (8%) of the total RFA on the Property. In addition, the proposed activity complies with the Regulations at 310 CMR 10.58(4)(d)1. a. and b., which provides as follows:

> (d) No Significant Adverse Impact. The work, including proposed mitigation measures, must have no significant adverse impact on the riverfront area to protect the interests identified in M.G.L. c. 131, § 40.
>
> 1. Within 200 foot riverfront areas, the issuing authority may allow the alteration of up to 5000 square feet or 10% of the riverfront area within the lot, whichever is greater, on a lot recorded on or before October 6, 1997 or lots recorded after October 6, 1997 subject to the restrictions of 310 CMR 10.58(4)(c)2.b.vi., or up to 10% of the riverfront area within a lot recorded after October 6, 1997, provided that:
>
> a. At a minimum, a 100-foot-wide area of undisturbed vegetation is provided. This area shall extend from mean annual high-water along the river unless another location would better protect the interests identified in M.G.L. c. 131 § 40. If there is not a 100-foot-wide area of undisturbed vegetation within the riverfront area, existing vegetative cover shall be preserved or extended to the maximum extent feasible to approximate a 100 foot wide corridor of natural vegetation. Replication and compensatory storage required to meet other resource area performance standards are allowed within this area; structural stormwater management measures may be allowed only when there is no practicable alternative. Temporary impacts where necessary for installation of linear site-related utilities are allowed, provided the area is restored to its natural conditions. Proposed work which does not meet the requirement of 310 CMR 10.58(4)(d)1.a. may be allowed only if an applicant demonstrates by a preponderance of evidence from a competent source that an area of undisturbed vegetation with an overall average width of 100 feet will provide equivalent protection of the riverfront area, or that a partial rebuttal of the presumptions of significance is sufficient to justify a lesser area of undisturbed vegetation;
>
> b. Stormwater is managed according to standards established by the Department in its Stormwater Policy

As the plan shows the proposed locations and activity related to Stormwater Basin No. 4, the drainage swale, the sediment basin and roadway will be less than Ten Percent (10%) of the total RFA and will provide "a 100-foot-wide area of undisturbed vegetation" and will have no adverse impacts to the RFA.



RIVERFRONT AREA:

AREA ALONG LAKE ST.:	273,661 S.F.
AREA ALONG RR BED:	98,991 S.F.
TOTA REVERFRONT AREA:	372,652 S.F.

IMPACTS 100'-200':

ROADWAY:	13,267 S.F.
DRAIN BASIN#4:	12,023 S.F.
SEDIMENT BASIN:	1,426 S.F.
DRAIN SWALE:	3,280 S.F.
TOTAL	29,996 S.F. (8.0%)

NOTE:
SIGHT LINE TRIANGLE SHOWN IN THE TRAFFIC REPORT SHALL BE MAINTAINED RELATED, SIGNAGE, VEGETATION AND SNOW.

GRADING & DRAINAGE

REVISIONS

No.	DATE	DESCRIPTION
1	04/02/2024	WETLAND DELINEATION
2	07/15/2024	PLG BRD ENG COMMENTS
3	03/19/2025	RIVERFRONT IMPACTS

3/19/25

SITE DEVELOPMENT PLAN
"PROSPECT HILL VILLAGE"
A MULTI-UNIT RESIDENTIAL DEVELOPMENT
BELLINGHAM, MASSACHUSETTS

PREPARED FOR:
WALL STREET DEVELOPMENT CORP.
P.O. BOX 272
WESTWOOD, MASSACHUSETTS

GLM Engineering Consultants, Inc
19 EXCHANCE STREET
HOLLISTON, MA 01746
P: 508-429-1100
F: 508-429-7160
www.GLMengineering.com

JOB No.	16,590
DATE:	NOV. 30, 202
SCALE:	1"=40'
SHEET:	20 of 43
PLAN #:	27,871

EXHIBIT 3

PROSPECT HILL VILLAGE – BELLINGHAM, MA
LAKE STREET SEDIMENT BASIN & SWALE
DEP FILE NO. 105-968

PREPARED BY WALL STREET DEVELOPMENT CORP.
MARCH 17, 2025

Lake Street Entrance – Catch Basins/Sediment Basins and Swale:

As noted on the Site Plan, the access drive entrance intersecting with Lake Street entrance shows two (2) deep sump catch basins installed in connection with the stormwater management system. The catch basins are provided to capture any surface water from flowing onto Lake Street.

The surface water captured in the catch basins is directed to the sediment forebays which will then discharge the water from the forebays into the water quality swale (biofilter swale) out to the wetland area. These features are part of the Best Management Practices included in the Massachusetts Stormwater Guidelines - Volume 2, Chapter 2. Attached for your reference is a copy of the design features for each component provided in the stormwater guidelines.

Deep Sump Catch Basin

Description: Deep sump catch basins, also known as oil and grease or hooded catch basins, are underground retention systems designed to remove trash, debris, and coarse sediment from stormwater runoff, and serve as temporary spill containment devices for floatables such as oils and greases.

Ability to meet specific standards

Standard	Description
2 - Peak Flow	Provides no peak flow attenuation
3 - Recharge	Provides no groundwater recharge
4 - TSS Removal	25% TSS removal credit when used for pretreatment. Because of their limited effectiveness and storage capacity, deep sump catch basins receive credit for removing TSS only if they are used for pretreatment and designed as off-line systems.
5 - Higher Pollutant Loading	Recommended as pretreatment BMP. Although provides some spill control capability, a deep sump catch basin may not be used in place of an oil grit separator or sand filter for land uses that have the potential to generate runoff with high concentrations of oil and grease such as: high-intensity-use parking lots, gas stations, fleet storage areas, vehicle and/or equipment maintenance and service areas.
6 - Discharges near or to Critical Areas	May be used as pretreatment BMP. not an adequate spill control device for discharges near or to critical areas.
7 - Redevelopment	Highly suitable.

Advantages/Benefits:

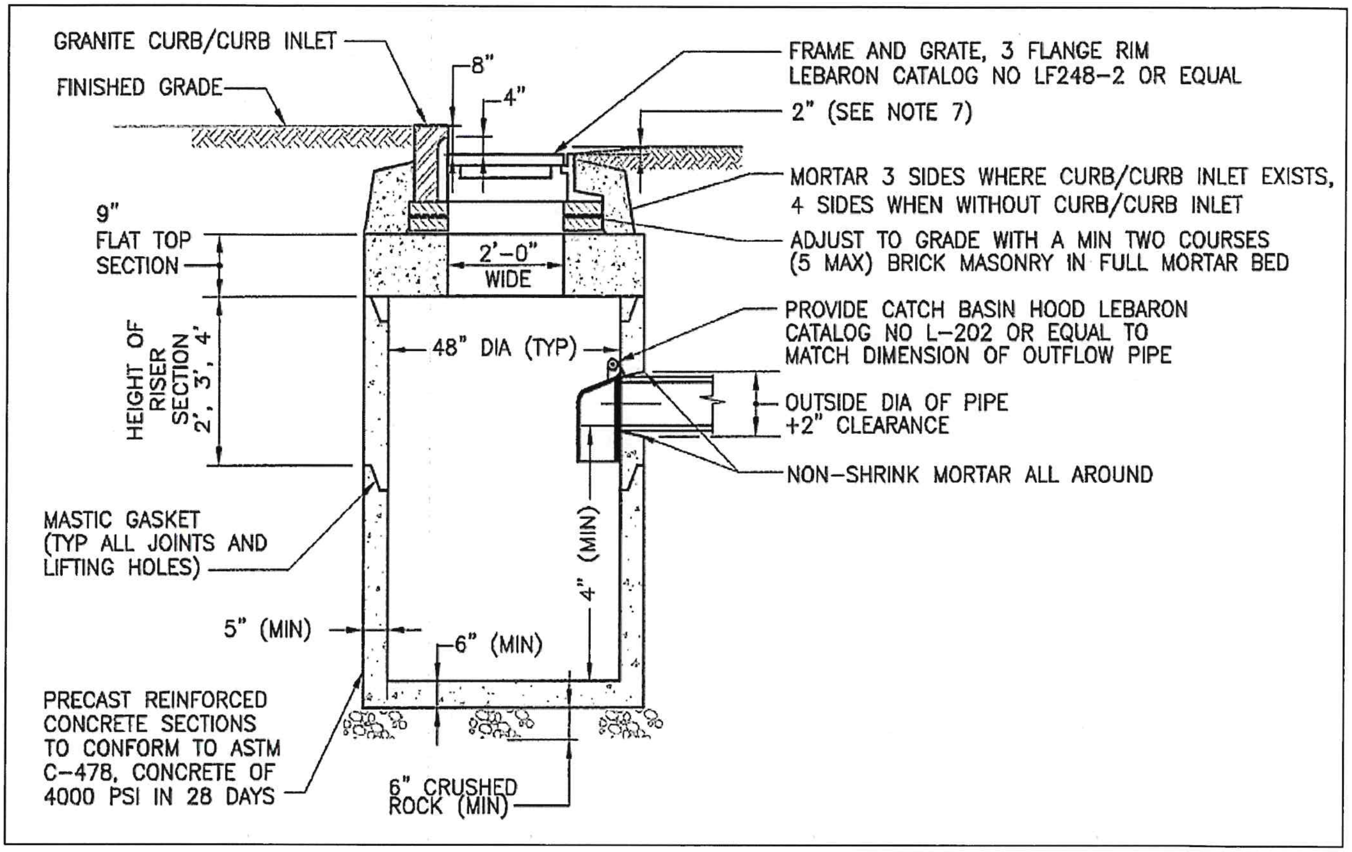
- Located underground, so limited lot size is not a deterrent.
- Compatible with subsurface storm drain systems.
- Can be used for retrofitting small urban lots where larger BMPs are not feasible.
- Provide pretreatment of runoff before it is delivered to other BMPs.
- Easily accessed for maintenance.
- Longevity is high with proper maintenance.

Disadvantages/Limitations:

- Limited pollutant removal.
- Expensive to install and maintain, resulting in high cost per unit area treated.
- No ability to control volume of stormwater
- Frequent maintenance is essential
- Requires proper disposal of trapped sediment and oil and grease
- Entrapment hazard for amphibians and other small animals

Pollutant Removal Efficiencies

- Total Suspended Solids (TSS) - 25% (for regulatory purposes)
- Nutrients (Nitrogen, phosphorus) - Insufficient data
- Metals (copper, lead, zinc, cadmium) - Insufficient data
- Pathogens (coliform, e coli) - Insufficient data



adapted from the University of New Hampshire

Maintenance

Activity	Frequency
Inspect units	Four times per year
Clean units	Four times per year or whenever the depth of deposits is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin.

Special Features

All deep sump catch basins must include hoods. For MassHighway projects, consult the Stormwater Handbook for Highways and Bridges for hood requirements.

LID Alternative

Reduce Impervious Surface
Disconnect rooftop and non-rooftop runoff
Vegetated Filter Strip

Deep Sump Catch Basin

Suitable Applications

- Pretreatment
- Residential subdivisions
- Office
- Retail

Design Considerations

- The contributing drainage area to any deep sump catch basin should not exceed ¼ acre of impervious cover.
- Design and construct deep sump catch basins as off-line systems.
- Size the drainage area so that the flow rate does not exceed the capacity of the inlet grate.
- Divert excess flows to another BMP intended to meet the water quantity requirements (peak rate attenuation) or to a storm drain system. An off-line design enhances pollutant removal efficiency, because it prevents the resuspension of sediments in large storms.

Make the sump depth (distance from the bottom of the outlet pipe to the bottom of the basin) at least four feet times the diameter of the outlet pipe and more if the contributing drainage area has a high sediment load. The minimum sump depth is 4 feet. Double catch basins, those with 2 inlet grates, may require deeper sumps. Install the invert of the outlet pipe at least 4 feet from the bottom of the catch basin grate.

The inlet grate serves to prevent larger debris from entering the sump. To be effective, the grate must have a separation between the grates of one square inch or less. The inlet openings must not allow flows greater than 3 cfs to enter the deep sump catch basin. If the inlet grate is designed with a curb cut, the grate must reach the back of the curb cut to prevent bypassing. The inlet grate must be constructed of a durable material and fit tightly into the frame so it won't be dislodged by automobile traffic. The inlet grate must not be welded to the frame so that sediments may be easily removed. To facilitate maintenance, the inlet grate must be placed along the road shoulder or curb line rather than a traffic lane.

Note that within parking garages, the State Plumbing Code regulates inlet grates and other stormwater management controls. Inlet grates inside parking garages are currently required to have much smaller openings than those described herein.

To receive the 25% removal credit, hoods must be used in deep sump catch basins. Hoods also help contain oil spills. MassHighway may install catch basins without hoods provided they are designed, constructed, operated, and maintained in accordance with the Mass Highway Stormwater Handbook.

Install the weep hole above the outlet pipe. Never install the weep hole in the bottom of the catch basin barrel.

Site Constraints

A proponent may not be able to install a deep sump catch basin because of:

- Depth to bedrock;
- High groundwater;
- Presence of utilities; or
- Other site conditions that limit depth of excavation because of stability.

Maintenance

Regular maintenance is essential. Deep sump catch basins remain effective at removing pollutants only if they are cleaned out frequently. One study found that once 50% of the sump volume is filled, the catch basin is not able to retain additional sediments.

Inspect or clean deep sump basins at least four times per year and at the end of the foliage and snow-removal seasons. Sediments must also be removed four times per year or whenever the depth of deposits is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin. If handling runoff from land uses with higher potential pollutant loads or discharging runoff near or to a critical area, more frequent cleaning may be necessary.

Clamshell buckets are typically used to remove sediment in Massachusetts. However, vacuum trucks are preferable, because they remove more trapped sediment and supernatant than clamshells. Vacuuming is also a speedier process and is less likely to snap the cast iron hood within the deep sump catch basin.

Always consider the safety of the staff cleaning deep sump catch basins. Cleaning a deep sump catch basin within a road with active traffic or even within a parking lot is dangerous, and a police detail may be necessary to safeguard workers.

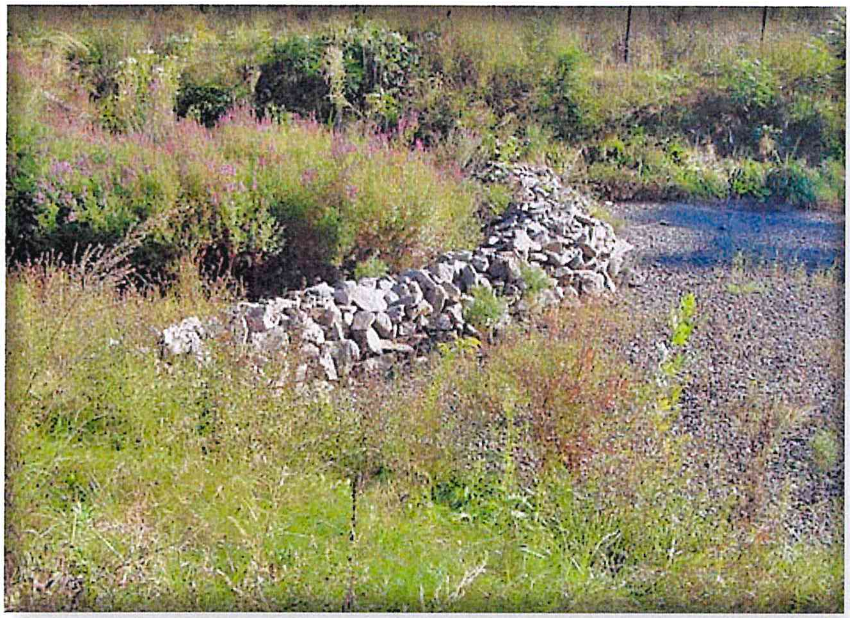
Although catch basin debris often contains concentrations of oil and hazardous materials such as petroleum hydrocarbons and metals, MassDEP classifies them as solid waste. Unless there is evidence that they have been contaminated by a spill or other means, MassDEP does not routinely require catch basin cleanings to be tested before disposal. Contaminated catch basin cleanings must be evaluated in accordance with the Hazardous Waste Regulations, 310 CMR 30.000, and handled as hazardous waste.

In the absence of evidence of contamination, catch basin cleanings may be taken to a landfill or other facility permitted by MassDEP to accept solid waste, without any prior approval by MassDEP. However, some landfills require catch basin cleanings to be tested before they are accepted.

With prior MassDEP approval, catch basin cleanings may be used as grading and shaping materials at landfills undergoing closure (see Revised Guidelines for Determining Closure Activities at Inactive Unlined Landfill Sites) or as daily cover at active landfills. MassDEP also encourages the beneficial reuse of catch basin cleanings whenever possible. A Beneficial Reuse Determination is required for such use.

MassDEP regulations prohibit landfills from accepting materials that contain free-draining liquids. One way to remove liquids is to use a hydraulic lift truck during cleaning operations so that the material can be decanted at the site. After loading material from several catch basins into a truck, elevate the truck so that any free-draining liquid can flow back into the structure. If there is no free water in the truck, the material may be deemed to be sufficiently dry. Otherwise the catch basin cleanings must undergo a Paint Filter Liquids Test. Go to www. Mass.gov/dep/recycle/laws/cafacts.doc for information on all of the MassDEP requirements pertaining to the disposal of catch basin cleanings.

Sediment Forebays



Description: A sediment forebay is a post-construction practice consisting of an excavated pit, bermed area, or cast structure combined with a weir, designed to slow incoming stormwater runoff and facilitating the gravity separation of suspended solids. This practice is different from a sediment trap used as a construction period BMP.

Ability to meet specific standards

Standard	Description
2 - Peak Flow	Provides no peak flow attenuation
3 - Recharge	Provides no groundwater recharge
4 - TSS Removal	MassDEP requires a sediment forebay as pretreatment before stormwater is discharged to an extended dry detention basin, wet basin, constructed stormwater wetland or infiltration basin. No separate credit is given for the sediment forebay. For example, extended dry detention basins with sediment forebays receive a credit for 50% TSS removal. Wet basins and constructed stormwater wetlands with sediment forebays receive a credit for 80% TSS removal. When they provide pretreatment for other BMPs, sediment forebays receive a 25% TSS removal credit.
5 - Higher Pollutant Loading	Recommended as a pretreatment BMP
6 - Discharges near or to Critical Areas	Recommended as a pretreatment BMP
7 - Redevelopment	Usually not suitable due to land use constraints

Advantages/Benefits:

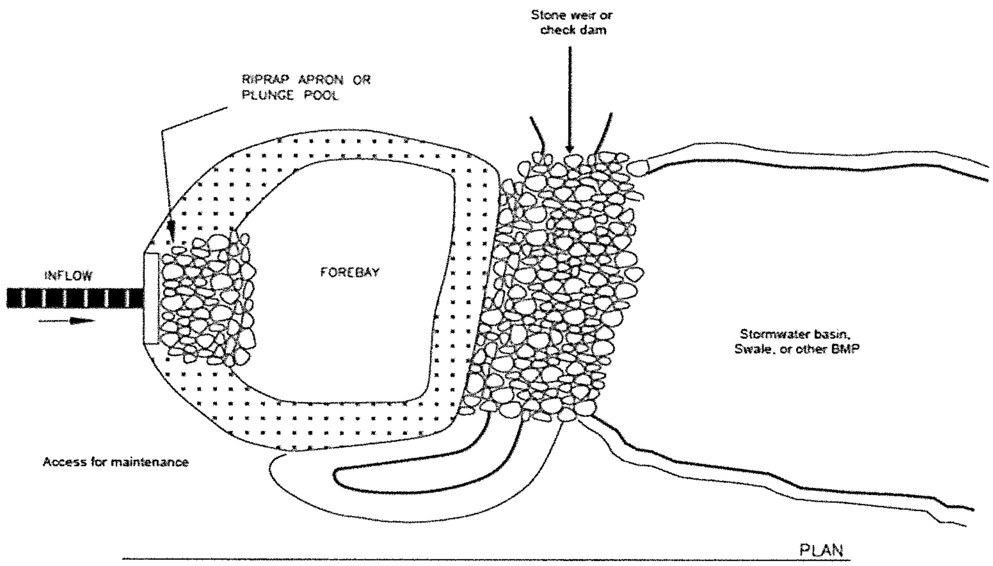
- Provides pretreatment of runoff before delivery to other BMPs.
- Slows velocities of incoming stormwater
- Easily accessed for sediment removal
- Longevity is high with proper maintenance
- Relatively inexpensive compared to other BMPs
- Greater detention time than proprietary separators

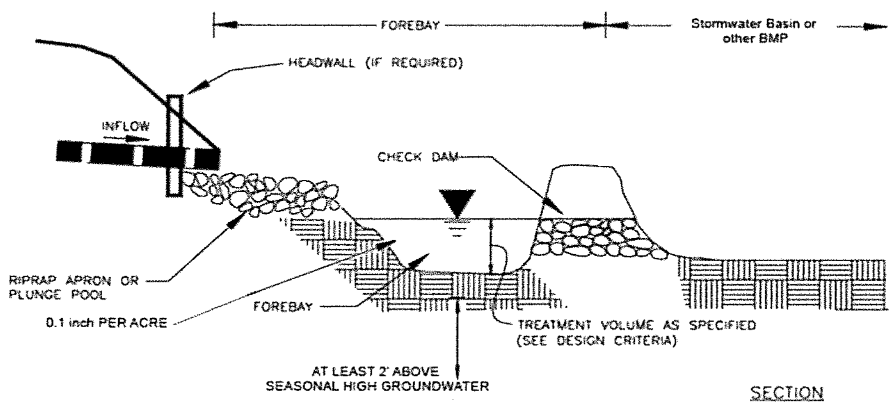
Disadvantages/Limitations:

- Removes only coarse sediment fractions
- No removal of soluble pollutants
- Provides no recharge to groundwater
- No control of the volume of runoff
- Frequent maintenance is essential

Pollutant Removal Efficiencies

- Total Suspended Solids (TSS) - 25%
- Nutrients (Nitrogen, phosphorus) - Insufficient data
- Metals (copper, lead, zinc, cadmium) - Insufficient data
- Pathogens (coliform, e coli) - Insufficient data





adapted from the Vermont Stormwater Handbook

Maintenance

Activity	Frequency
Inspect sediment forebays	Monthly
Clean sediment forebays	Four times per year and when sediment depth is between 3 to 6 feet.

Special Features

MassDEP requires a sediment forebay as pretreatment before discharging to a dry extended detention basin, wet basin, constructed stormwater wetland, or infiltration basin.

MassDEP uses the term sediment forebay for BMPs used to pretreat stormwater after construction is complete and the site is stabilized. MassDEP uses the term sediment trap to refer to BMPs used for erosion and sedimentation control during construction. For information on the design and construction of sediment traps used during construction, consult the Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers and Municipal Officials.

Sediment Forebays

Design

Sediment forebays are typically on-line units, designed to slow stormwater runoff and settle out sediment.

At a minimum, size the volume of the sediment forebay to hold 0.1-inch/impervious acre to pretreat the water quality volume.

When routing the 2-year and 10-year storms through the sediment forebay, design the forebay to withstand anticipated velocities without scouring.

A typical forebay is excavated below grade with earthen sides and a stone check dam.

Design elevated embankments to meet applicable safety standards.

Stabilize earth slopes and bottoms using grass seed mixes recommended by the NRCS and capable of resisting the anticipated shearing forces associated with velocities to be routed through the forebay. Use only grasses. Using other vegetation will reduce the storage volume in the forebay. Make sure that the selected grasses are able to withstand periodic inundation under water, and drought- tolerant during the summer. MassDEP recommends using a mix of grasses rather than relying upon a single grass species.

Alternatively, the bottom floor may be stabilized with concrete or stone to aid maintenance. Concrete floors or pads, or any hard bottom floor, greatly facilitate the removal of accumulated sediment.

When the bottom floor is vegetated, it may be necessary to remove accumulated sediment by hand, along with re-seeding or re-sodding grasses removed during maintenance.

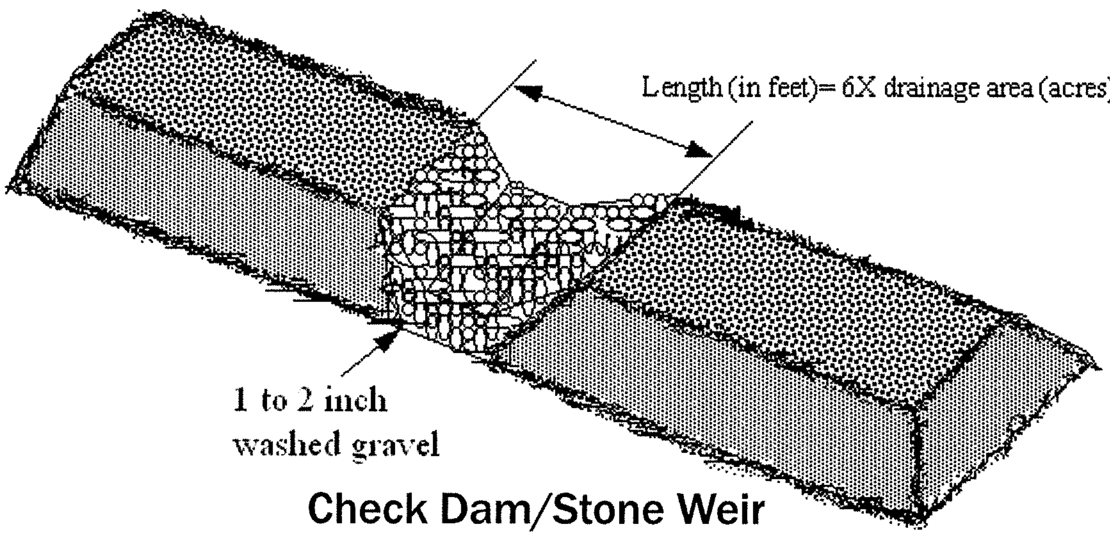
Design sediment forebays to make maintenance accessible and easy. If machinery is required to remove the sediment, carefully incorporate equipment access in the design. Sediment forebays may require excavation so concrete flooring may not always be appropriate.

Include sediment depth markers to simplify inspections. Sediment markers make it easy to determine when the sediment depth is between 3 and 6 feet and needs to be removed. Make the side slopes of sediment forebays no steeper than 3:1. Design the sediment forebay so that the discharge or outflow velocity can control the 2-year peak discharge without scour. Design the channel geometry to prevent erosion from the 2-year peak discharge.

Do not confuse post-construction sediment forebays with the sediment traps used as a construction-period control. Construction-period sediment control traps are sized larger than forebays, because there is a greater amount of suspended solids in construction period runoff. Construction-period sediment traps are sized based on drainage area and not impervious acre. Never use a construction-period sediment trap for post-construction drainage purposes unless it is first brought off-line, thoroughly cleaned (including check dam), and stabilized before being made re-operational.

Refer to the section of this chapter for information on the design of the check dam component of the sediment forebay. Set the minimum elevation of the check dam to hold a volume of 0.1-inch of runoff/ impervious acre. Check dam elevations may be uniform or they may contain a weir (e.g., when the top of the check dam is set to the 2-year or 10-year storm, and the bottom of the weir is set to the top of the 0.1-inch/impervious acre volume). When a weir is included in a stone berm, make sure that the weir is able to hold its shape. Fabric or wire may be required.

Unless part of a wet basin, post construction sediment forebays must be designed to dewater between storms. Set the bottom of the forebay at a minimum of 2 feet above seasonal high groundwater, and place pervious material on the bottom floor to facilitate dewatering between storms. For design purposes, use 72 hours to evaluate dewatering, using the storm that produces either the ½ inch or 1-inch of runoff (water quality volume) in a 24-hour period. A stone check dam can act as a filter berm, allowing water to percolate through the check dam. Depending on the head differential, a stone check dam may allow greater dewatering than an earthen berm.



MassDEP Stormwater Handbook, 1996

Maintenance

Sediments and associated pollutants are removed only when sediment forebays are actually cleaned out, so regular maintenance is essential. Frequently removing accumulated sediments will make it less likely that sediments will be resuspended. At a minimum, inspect sediment forebays monthly and clean them out at least four times per year. Stabilize the floor and sidewalls of the sediment forebay before making it operational, otherwise the practice will discharge excess amounts of suspended sediments. When mowing grasses, keep the grass height no greater than 6 inches. Set mower blades no lower than 3 to 4 inches. Check for signs of rilling and gullying and repair as needed. After removing the sediment, replace any vegetation damaged during the clean-out by either reseeding or re-sodding. When reseeding, incorporate practices such as hydroseeding with a tackifier, blanket, or similar practice to ensure that no scour occurs in the forebay, while the seeds germinate and develop roots.

Grassed Channel (Biofilter Swale)

Description: Grassed Channels (formerly known as Biofilter swales) are treatment systems with a longer hydraulic residence time than drainage channels. The removal mechanisms are sedimentation and gravity separation, rather than filtration. To receive TSS credit, a sediment forebay or equivalent must be provided for pretreatment. Note that the sediment forebay does not receive a separate TSS removal credit.

Ability to meet specific standards

Standard	Description
2 - Peak Flow	N/A
3 - Recharge	No infiltration credit
4 - TSS Removal	50% TSS with adequate pretreatment
5 - Higher Pollutant Loading	N/A
6 - Discharges near or to Critical Areas	Not suitable for vernal pools or bathing beaches. At other critical areas, may be used as a pretreatment device.
7 - Redevelopment	Typically not suited for retrofits.

Advantages/Benefits:

- Provides pretreatment if used as the first part of a treatment train.
- Open drainage system aids maintenance
- Accepts sheet or pipe flow
- Compatible with LID design measures.
- Little or no entrapment hazard for amphibians or other small animals

Disadvantages/Limitations:

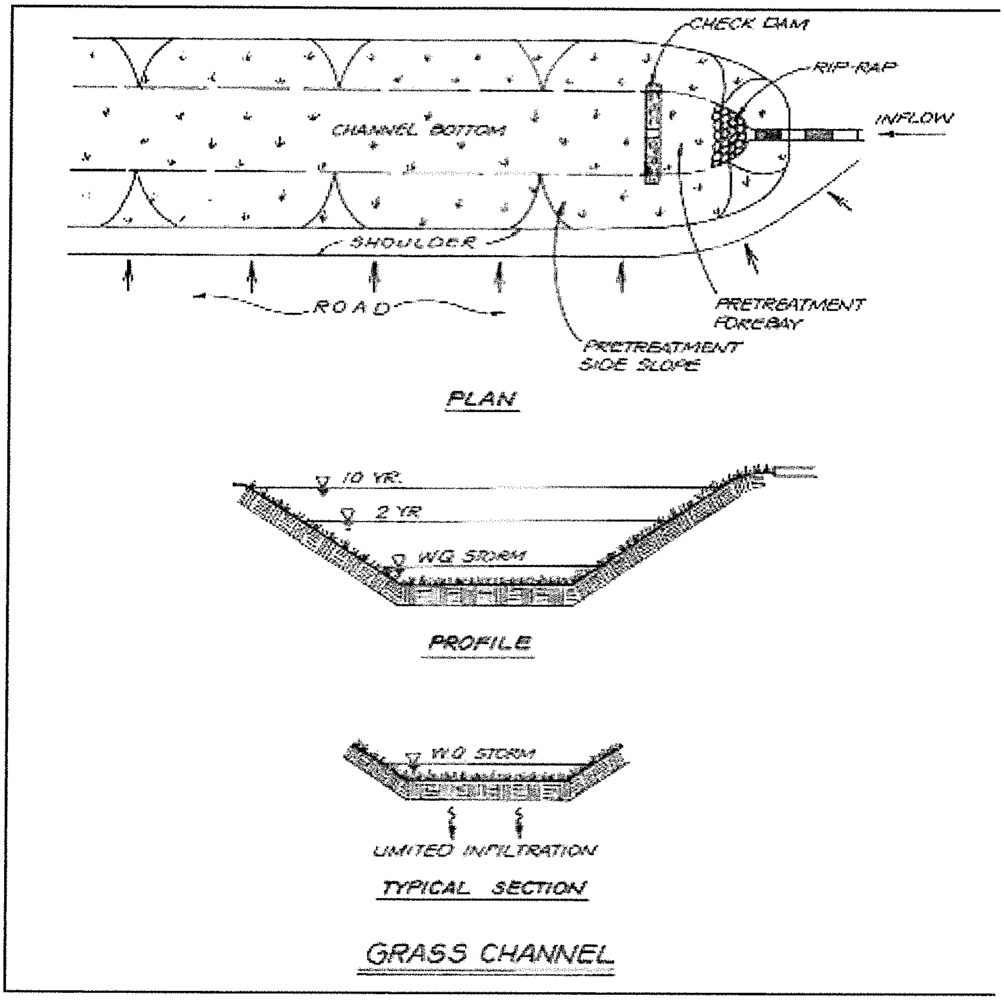
- Short retention time does not allow for full gravity separation·
- Limited biofiltration provided by grass lining.· Cannot alone achieve 80% TSS removal
- Must be designed carefully to achieve low flow rates for Water Quality Volume purposes (<1.0 fps)
- Mosquito control considerations

Pollutant Removal Efficiencies

• Total Suspended Solids (TSS)	50%[1] for Regulatory Purposes (47%)[2]
• Total phosphorus (TP)	-121%[2]
• Total Nitrogen	Insufficient Data
• Metals (copper, lead, zinc, cadmium)	Insufficient Data
• Pathogens (coliform, e. coli)	Insufficient Data

[1] Atlanta Regional Commission et al, 2001, Georgia Stormwater Manual, Volume 2, Section 3-3-2, http://georgiastormwater.com/vol2/3-3-2.pdf

[2] International Stormwater Database, based on MassDEP analysis of raw influent & effluent values reported in 2005.



adapted from the Vermont Stormwater Manual

Maintenance

Activity	Frequency
Remove sediment from forebay	Annually
Remove sediment from grass channel	Annually
Mow	Once a month during growing season
Repair areas of erosion and revegetate	As needed, but no less than once a year

Special Features

Reduces volume and rate of runoff.

Grass Channels

Grass channels convey and treat stormwater. Grass channels were referred to as biofilter swales in the 1996 MassDEP/CZM Stormwater Handbook, based on the nomenclature coined by the Center for Watershed Protection (CWP). The CWP is now referring to biofilter swales as grass channels – so MassDEP is adopting the same name as the CWP to minimize confusion.

Properly designed grass channels are ideal when used adjacent to roadways or parking lots, where runoff from the impervious surfaces can be directed to the channel via sheet flow. Runoff can also be piped to the channel. If piped, locate the sediment forebay at the pipe outlet and include a check dam separating the forebay from the channel. For sheet flow, use a vegetated filter strip on a gentle slope or a pea gravel diaphragm. Make the longitudinal slope as flat as possible. This increases the Hydraulic Residence Time (HRT) and allows gravity separation of solids and maximizes sediment removal. Install check dams to further increase the HRT.

Review of the International Stormwater Database, updated in 2005, indicates lower TSS removal when compared to similar treatment practices (dry water quality swales, wet water quality swales, and bioretention areas). The information in the International Stormwater Database indicates grass channels are likely to export phosphorus (hence the negative removal efficiency cited above). Grass channels are not a practice suitable for treating stormwater that discharges to waters impaired by phosphorus or for waters where phosphorus TMDLs have been established.

Differences from dry water quality swales, wet water quality swales, bioretention cells, and drainage channels: Dry water quality swales contain a specific soil media mix and underdrain, providing greater treatment than grass channels. Wet water quality swales are designed with a permanent wet channel, whereas grass channels must be designed to completely drain between storms. Bioretention areas, including rain gardens, are designed solely as a treatment practice, and not for conveyance. Lastly, drainage channels act solely as a conveyance, in contrast to properly designed grass channels where runoff flow is deliberately lagged to provide treatment.

Design Considerations

Sizing:

Water Quality Volume: Design grass channels to maximize contact with vegetation and soil surface to promote greater gravity separation of solids during the storm associated with the water quality event (either ½ inch or 1-inch runoff). Design the channel such that the velocity does not exceed 1 foot per second during the 24-hour storm associated with the water quality event. Do not allow the water depth during the storm associated with the water quality event to exceed 4 inches (for design purposes). Make sure the selected design storm provides at least 9 minutes of HRT within the channel. Increasing the HRT beyond 9 minutes increases the likelihood of achieving the 50% TSS removal efficiency. Adding meanders to the swale increases its length and may increase the HRT.

2-year and 10-year conveyance capacity: Design grass channels to convey both the 2-year and 10-year 24-hour storms. Provide a minimum of 1-foot freeboard above the 10-year storm. Make sure that the runoff velocities during the 2-year 24-hour storm do not cause erosion problems.

Channel Length: Length depends on design factors to achieve the minimum 9-minute residence time for the storm associated with the water quality event.

Channel Crossings: In residential settings, driveways will cross over the channel, typically via culverts (pre-cast concrete, PVC, or corrugated metal pipe).

Soils: Grass channels may be constructed from most parent soils, unless the soils are highly impermeable. Soils must be able to support a dense grass growth. MassDEP recommends sandy loams, with an organic content of 10 to 20%, and no more than 20% clay. Highly impermeable soils, such as clays, are not suitable for grass channels, because they do not support dense grass stands. Similarly, gravelly and coarse soils may not be suitable due to their lower moisture retention capability, leading to potential die-back of the grass lining during the summer when the inter-event period between storms is longer than during other times of the year.

Grasses: The grasses serve to stabilize the channel, and promote conditions suitable for sedimentation, such as offering resistance to flow, which reduces water velocities and turbulence. Select a grass height of 6 inches or less. Grasses over that height tend to flatten when water flows over them, inhibiting sedimentation. Select grasses that produce a fine, uniform and dense cover that can withstand varying moisture conditions. Regularly mow the channel to ensure that the grass height does not exceed 6 inches. Select grasses that are salt tolerant to withstand winter deicing of roadways. In the spring, replant any areas where grasses died off due to deicing. (Franklin 2002 and Knoxville 2003 provide recommendations for the best grass species.)

Pea Gravel Diaphragm: Use clean bank-run gravel, conforming to ASTM D 448, varying in size from 1/8 inch to 3/8 inch (No. 6 stone).

Outlet Protection: Must be used at discharge points to prevent scour downstream of the outlet.

Construction Considerations: Stabilize the channel after it is shaped before permanent turf is established, using natural or synthetic blankets. Never allow grass channels to receive construction period runoff.

Site Constraints

A proponent may not be able to install a grass channel swale because of:

- High groundwater;
- Presence of utilities; or
- Other site conditions that limit depth of excavation because of stability.

Maintenance

Access: Maintenance access must be designed as part of the grass channel. If located adjacent to a roadway, make the maintenance access at least 15 feet wide, which can also be combined with a breakdown lane along a highway or on-street parking along a residential street. When combined with on-street parking, post signs prohibiting parking when the swale is to be inspected and cleaned. Do not use travel lanes along highways and streets as the required maintenance access.

Mowing: Set the mower blades no lower than 3 to 4 inches above the ground. Do not mow beneath the depth of the design flow during the storm associated with the water quality event (e.g., if the design flow is no more than 4 inches, do not cut the grass shorter than 4 inches). Mow on an as-needed basis during the growing season so that the grass height does not exceed 6 inches.

Inspection: Inspect semi-annually the first year, and at least once a year thereafter. Inspect the grass for growth and the side slopes for signs of erosion and formation of rills and gullies. Plant an alternative grass species if the original grass cover is not successfully established. If grass growth is impaired by winter road salt or other deicer use, re-establish the grass in the spring.

Trash/Debris Removal: Remove accumulated trash and debris prior to mowing.

Sediment Removal: Check on a yearly basis and clean as needed. Use hand methods (i.e., a person with a shovel) when cleaning to minimize disturbance to vegetation and underlying soils. Sediment build-up in the grass channel reduces its capacity to treat and convey the water quality event, 2-year and 10-year 24-hour storm.

References:

Atlanta Regional Commission et al, 2001, Georgia Stormwater Management Manual, Volume 2, Section 3-3-2, Grass Channel, http://georgiastormwater.com/vol2/3-3-2.pdf

Center for Watershed Protection, undated, Stormwater Management Fact Sheet: Grass Channel, http://www.stormwatercenter.net/Assorted%20Fact%20Sheets/Tool6_Stormwater_Practices/Open%20Channel%20Practice/Grassed%20Channel.htm (accessed October 23, 2007)

Shanti R. Colwell, Richard R. Horner, Derek B. Booth, 2000, Characterization of Performance Predictors and Evaluation of Mowing Practices in Biofiltration Swales, http://depts.washington.edu/cwws/Research/Reports/swale%20mowing.pdf

Franklin, City of, 2002, PTP-05, Biofilters: Swales and Strips, http://www.franklin-gov.com/engineering/STORMWATER/bmp/ptp/ptp-05.pdf

Idaho Department of Environmental Quality, 2005, Storm Water Best Management Practices Catalog, BMP 1, Biofiltration Swale (Vegetated Swale).

International Stormwater BMP Data Base, 2005

Knoxville, City of, 2003, ST-05, Filter Strips and Swales, http://www.ci.knoxville.tn.us/engineering/bmp_manual/ST-05.pdf

Minton, G., 2002, Stormwater Treatment, Resource Planning Associates, Seattle, WA, p. 174

Water Quality Swale

Description: Water quality swales are vegetated open channels designed to treat the required water quality volume and to convey runoff from the 10-year storm without causing erosion.

There are two different types of water quality swales that may be used to satisfy the Stormwater Management Standards:

- Dry Swales
- Wet Swales

Unlike drainage channels which are intended to be used only for conveyance, water quality swales and grass channels are designed to treat the required water quality volume and incorporate specific features to enhance their stormwater pollutant removal effectiveness. Water quality swales have higher pollutant removal efficiencies than grass channels.

Ability to meet specific standards

Standard	Description
2 - Peak Flow	With careful design may be able to reduce peak flow at small sites
3 - Recharge	May not be used to satisfy Standard 3
4 - TSS Removal	Wet swales and dry swales achieve 70% TSS removal when provided with a pretreatment device such as a sediment forebay with a check dam.
5 - Higher Pollutant Loading	Dry swale recommended as pretreatment BMP. Must be lined. For some land uses with higher potential pollutant load, an oil grit separator or equivalent may be required before discharge to the swale.
6 - Discharges near or to Critical Areas	Dry and Wet Swales recommended as treatment BMPs for cold-water fisheries. Must be lined unless 44% TSS has been removed before discharge to swale. Should not be used near shellfish growing areas and bathing beaches.
7 - Redevelopment	Recommended for redevelopments and urban applications if sufficient land is available.

Pollutant Removal Efficiencies

- Total Suspended Solids (TSS)
    1. Dry Swale 70%
    2. Wet Swale 70%
- Total Nitrogen - 10% to 90%
- Total Phosphorus 20% to 90%
- Metals (copper, lead, zinc, cadmium) Insufficient data
- Pathogens (coliform, e coli) Insufficient data

Advantages/Benefits:

- May be used to replace more expensive curb and gutter systems.
- Roadside swales provide water quality and quantity control benefits, while reducing driving hazards by keeping stormwater flows away from street surfaces.
- Accents natural landscape.
- Compatible with LID designs
- Can be used to retrofit drainage channels and grass channels
- Little or no entrapment hazard for amphibians or other small animals

Disadvantages/Limitations:

- Higher degree of maintenance required than for curb and gutter systems.
- Roadside swales are subject to damage from off-street parking, snow removal, and winter deicing.
- Subject to erosion during large storms
- Individual dry swales treat a relatively small area
- Impractical in areas with very flat grades, steep topography or poorly drained soils
- Wet swales can produce mosquito breeding habitat
- Should be set back from shellfish growing areas and bathing beaches

Maintenance

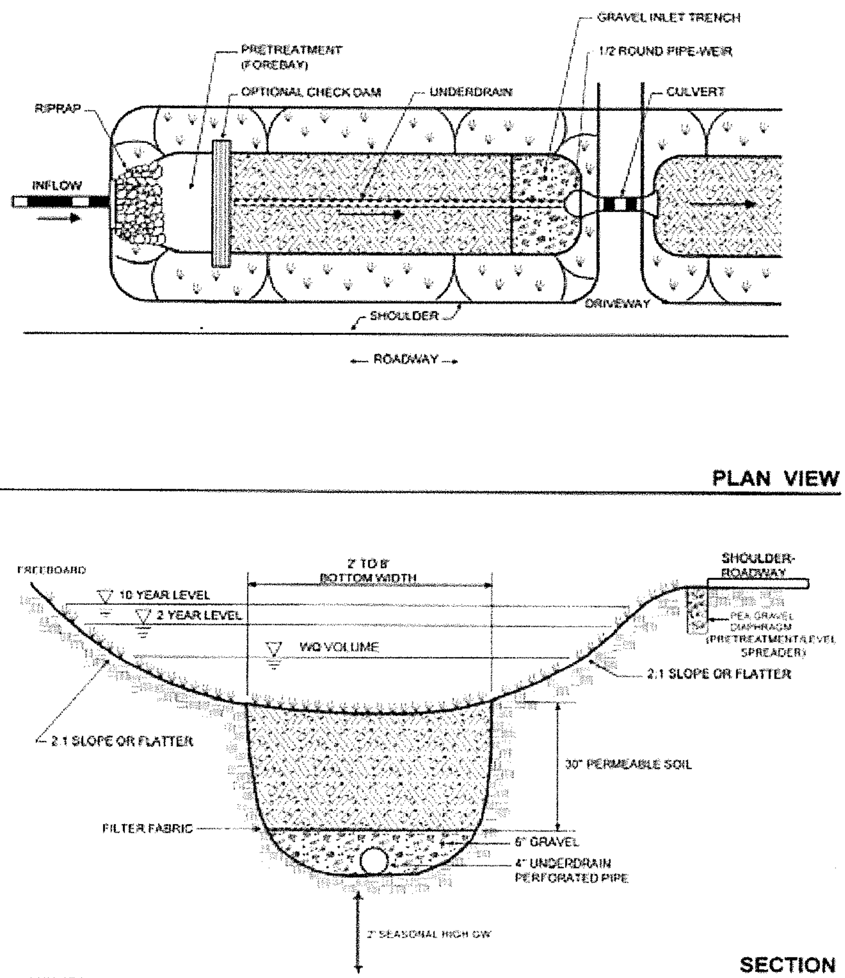
Activity	Frequency
Inspect swales to make sure vegetation is adequate and slopes are not eroding. Check for rilling and gullying. Repair eroded areas and revegetate.	The first few months after construction and twice a year thereafter.
Mow dry swales. Wet swales may not need to be mowed depending on vegetation.	As needed.
Remove sediment and debris manually	At least once a year
Re-seed	As necessary

Special Features

There are two types of swales that may be used to satisfy the Stormwater Management Standards - dry swales and wet swales.

Dry Swale

Dry swales are designed to temporarily hold the water quality volume of a storm in a pool or series of pools created by permanent check dams at culverts or driveway crossings. The soil bed consists of native soils or highly permeable fill material, underlaid by an underdrain system.

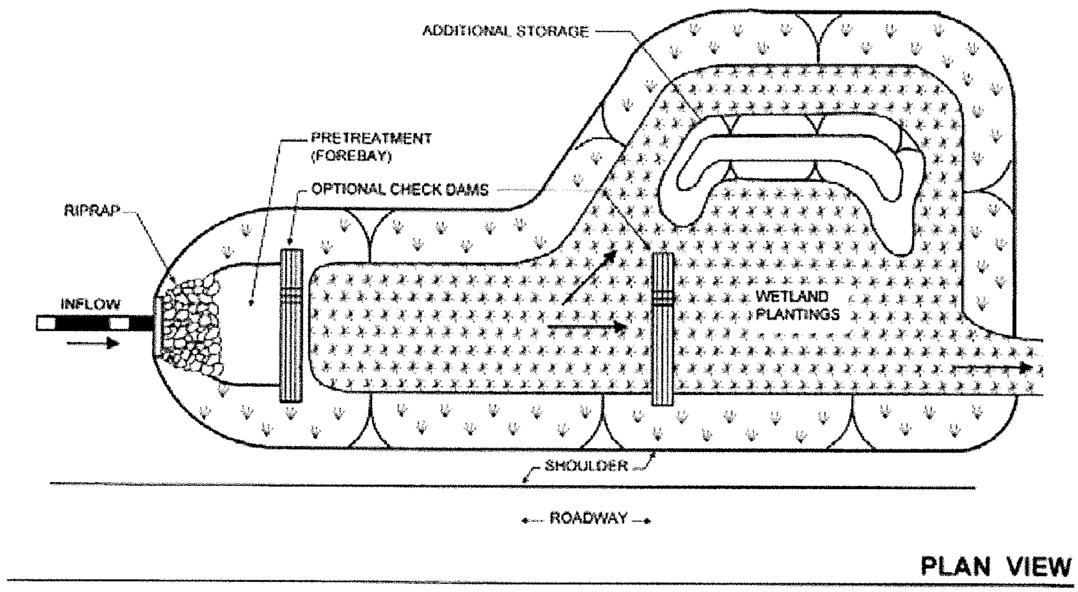


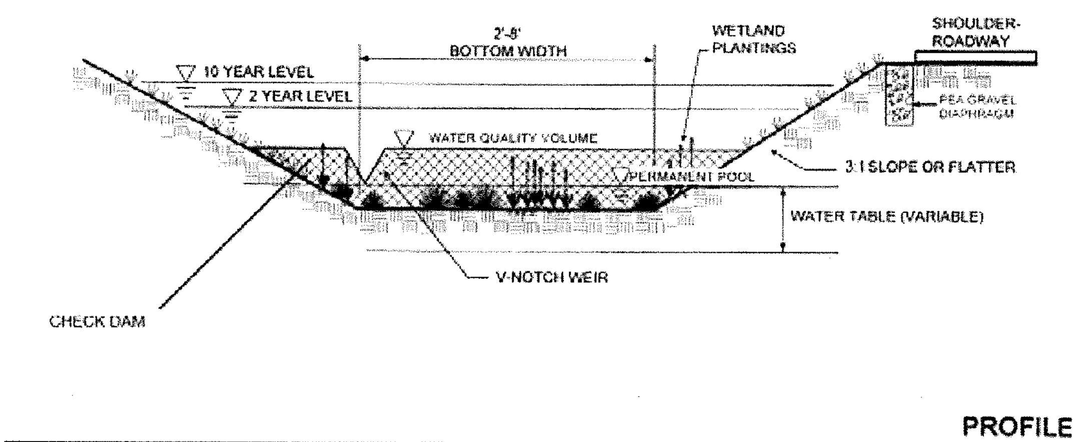
adapted from the Vermont Stormwater Manual

Example of Dry Swale

Wet Swale

Wet swales also temporarily store and treat the required water quality volume. However, unlike dry swales, wet swales are constructed directly within existing soils and are not underlaid by a soil filter bed or underdrain system. Wet swales store the water quality volume within a series of cells within the channel, which may be formed by berms or check dams and may contain wetland vegetation (Metropolitan Council, 2001). The pollutant removal mechanisms in wet swales are similar to those of stormwater wetlands, which rely on sedimentation, adsorption, and microbial breakdown.





Example of Wet Swale

adapted from the Vermont Stormwater Manual

Water Quality Swales

Applicability

Use water quality swales:

- As part of a treatment train
- As one of the best BMPs for areas discharging to cold-water fisheries if they are lined.
- As one of the best BMPs for redevelopments and urban applications.
- For residential and institutional settings (especially dry swales)

Water quality swales have many uses. Dry swales are most applicable to residential and institutional land uses of low to moderate density where the percentage of impervious cover in the contributing areas is relatively low. Wet swales may not be appropriate for some residential applications, such as frontage lots, because they contain standing water that may attract mosquitoes.

Water quality swales may also be used in parking lots to break up areas of impervious cover. Along the edge of small roadways, use water quality swales in place of curb and gutter systems. Water quality swales may not be suitable for sites with many driveway culverts or extensive sidewalk systems. When combining water quality swales with roadways and sidewalks, place the swale between the two impervious areas (e.g. between road and sidewalk or in-between north and south bound lanes of a roadway/highway).

The topography and soils on the site will determine what is appropriate. The topography should provide sufficient slope and cross-sectional area to maintain non-erosive flow velocities. Porous soils are best suited to dry swales, while soils with poor drainage or high groundwater conditions are more suited to wet swales. Design water quality swales to retain and treat the required water quality volume. Because they must also be designed to convey the 2-year and 10-year 24-hour storms, they may have to convey additional runoff volume to other downgradient BMPs.

Planning Considerations

The primary factors to consider when designing a water quality swale are soil characteristics, flow capacity, erosion resistance, and vegetation. Site conditions and design specifications limit the use of water quality swales.

Swale storage capacity should be based on the maximum expected reduction in velocity that occurs during the annual peak growth period. Usually the maximum expected drop in velocity occurs when vegetation is at its maximum growth for the year. Use the minimum level when checking velocity through the swale or the ability of the swale to convey the 2-year 24-hour storm without erosion. This usually occurs during the early growing season and dormant periods.

Other important factors to consider are land availability, maintenance requirements and soil characteristics. The topography of the site should allow for the design of a swale with sufficient slope and cross-sectional area to maintain a non-erosive flow rate, and to retain or detain the required water quality volume. The longitudinal slope of the swale should be as close to zero as possible and not greater than 5%. The grass or vegetation types used in swales should be suited to the soil and water conditions. Wetland hydrophytes (plants adapted to grow in water) or obligate species (i.e., species that occur 99% of the time under natural conditions in wetlands) are generally more water-tolerant than facultative species (i.e., species that occur 67% to 99% of the time under natural conditions in wetlands) and are good selections for wet swales, while dry swales should be planted with species that produce fine and dense cover and are adapted to varying moisture conditions.

Design

See the following for complete design references:
Site Planning for Urban Stream Protection. 1995. Schueler. Center for Watershed Protection.
Watershed Protection Techniques, Volume 2, Number 2, 1996. Center for Watershed Protection.
Biofiltration swale performance, recommendations, and design considerations.
1992. Metro Seattle: Water Pollution Control Department, Seattle,WA.

Access for maintenance must be incorporated into both designs. The maintenance access way must be a minimum of 15 feet wide on at least one longitudinal side of the swale to enable a maintenance truck to drive along the swale and gain access to any one point. When constructed along a highway, the breakdown lane can be used as the access. When constructed in a residential subdivision, an on-street parking lane may double as the maintenance access, provided signs are posted indicating no parking is allowed during periods when the swales are being maintained.

Dry Swales

- Size dry swales to provide adequate residence time for the required water quality volume. Hydraulic Residence Time (HRT) must be a minimum of 9 minutes. Use Manning's Equation to determine the HRT.
- Dry swales should have a soil bed that is a minimum of 18 inches deep and composed of approximately 50% sand and 50% loam.
- Pretreatment is required to protect the filtering and infiltration capacity of the swale bed. Pretreatment of piped flows is generally a sediment forebay behind a check dam with a pipe inlet. For lateral inflows (sheet flow), use a vegetated filter strip on a gentle slope or a "pea gravel diaphragm."
- Design dry swales to completely empty between storms. Where soils do not permit full dewatering between storms, place a longitudinal perforated underpipe on the bottom of the swale bed. The inter-event period used in design to dewater the swale must be no more than 72 hours.
- Dry swales must have parabolic or trapezoidal cross-sections, with side slopes no greater than 3:1 (horizontal: vertical) and bottom widths ranging from 2 to 8 feet.
- Size dry swales to convey the 10-year storm and design swale slopes and backs to prevent erosion during the 2-year event. At least one foot of freeboard must be provided above the volume expected for the 10-year storm.
- Make sure that the seasonal high water table is not within 2 to 4 feet of the dry swale bottom.
- Use outlet protection at any discharge point from a dry swale to prevent scour at the outlet.

Wet Swales

- Size wet swales to retain the required water quality volume.
- Use wet swales only where the water table is at or near the soil surface or where soil types are poorly drained. When the swale is excavated, keep the swale bed soils.
- Pretreatment is required to protect the filtering and infiltration capacity of the wet swale bed. Pretreatment is generally a sediment forebay behind a check dam with a pipe inlet. For lateral inflows, use gentle slopes or a pea gravel diaphragm.
- Use check dams in wet swales to achieve multiple cells. Use V-notched weirs in the check dams to direct low flow volumes.
- Plant emergent vegetation or place wetland soils on the wet swale bottom for seed stock.
- Wet swales are parabolic or trapezoidal in cross-section, with side slopes no greater than 3:1 (horizontal: vertical) and bottom widths ranging from 2 to 8 feet.
- Size wet swales to convey the 10-year 24-hour storm and design wet swale slopes to prevent erosion during the 2-year 24-hour event.
- Use outlet protection at any discharge point from wet swales to prevent scour at the outlet.

Construction

Use temporary erosion and sediment controls during construction. Select the vegetation mix to suit the characteristics of the site. Seeding will require mulching with appropriate materials, such as mulch matting, straw, and wood chips. Anchor the mulch immediately after seeding. Water new seedlings well until they are established. Refer to "Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers, and Municipal Officials" for information on seeding and mulching.

Maintenance

Incorporate a maintenance and inspection schedule into the design to ensure the effectiveness of water quality swales. Inspect swales during the first few months after installation to make sure that the vegetation in the swales becomes adequately established. Thereafter, inspect swales twice a year. During the inspections, check the swales for slope integrity, soil moisture, vegetative health, soil stability, soil compaction, soil erosion, ponding and sedimentation.

Regular maintenance includes mowing, fertilizing, liming, watering, pruning, and weed and pest control. Mow swales at least once per year. Do not cut the grass shorter than three to four inches, otherwise the effectiveness of the vegetation in reducing flow velocity and removing pollutants may be reduced. Do not let grass height exceed 6 inches.

Manually remove sediment and debris at least once per year, and periodically re-seed, if necessary, to maintain a dense growth of vegetation. Take care to protect water quality swales from snow removal and disposal practices and off-street parking. When grass water quality swales are located on private residential property, the operation and maintenance plan must clearly identify the property owner who is responsible for carrying out the required maintenance. If the operation and maintenance plan calls for maintenance of water quality swales on private properties to be accomplished by a public entity or an association (e.g. homeowners association), maintenance easements must be secured.

EXHIBIT 4

PROSPECT HILL VILLAGE – BELLINGHAM, MA
STORMWATER MANAGEMENT SYSTEM
DEP FILE NO. 105-968

PREPARED BY WALL STREET DEVELOPMENT CORP.
MARCH 17, 2025

In connection with the Project, a stormwater management system has been designed to manage peak rates of stormwater runoff and stormwater volumes from the property following full development of the Project. As noted in the Stormwater Management Report "Special Residential Townhouse Development – Prospect Hill Village, Bellingham, MA, dated January 30, 2025, prepared by GLM Engineering Consultants, Inc. (the Stormwater Report") the stormwater runoff will be controlled using "Best Management Practices" and in full compliance with the MADEP Stormwater Management Policy. The Stormwater Report and stormwater system design demonstrates the project will result in an improvement over existing conditions by constructing a stormwater management system that will provide treatment and **100% groundwater re-charge, while also reducing the peak rates of runoff and offsite runoff volumes.** The stormwater management system is pending review by the Planning Board.

Stormwater Basin – Ground Water Separation:

As noted on the site plan, there are four stormwater management basins proposed for the Project, Basins 1 through 4. Outlined below are the groundwater separation distances from the bottom of each basin to high ground water elevation:

Basin No. 1	2.3-feet
Basin No. 2	3.2-feet
Basin No. 3	4.3-feet
Basin No. 4	2.5-feet (estimated pending testing)

Each of the stormwater basins are in compliance with Massachusetts Stormwater Policy and Guidelines.

Stormwater Basin Outlets:

As shown on the Site Plan, each of the stormwater basins included a back-up underdrain for drain down purposes in the event of an emergency. Each of the basin outlets will consist of a 4-inch PVC outlet with a screw on cap at the end. Attached for reference purposes is a copy of the guidance document regarding infiltration basins showing the emergency cleanouts.

Infiltration Basins

Description: Infiltration basins are stormwater runoff impoundments that are constructed over permeable soils. Pretreatment is critical for effective performance of infiltration basins. Runoff from the design storm is stored until it exfiltrates through the soil of the basin floor.

Ability to meet specific standards

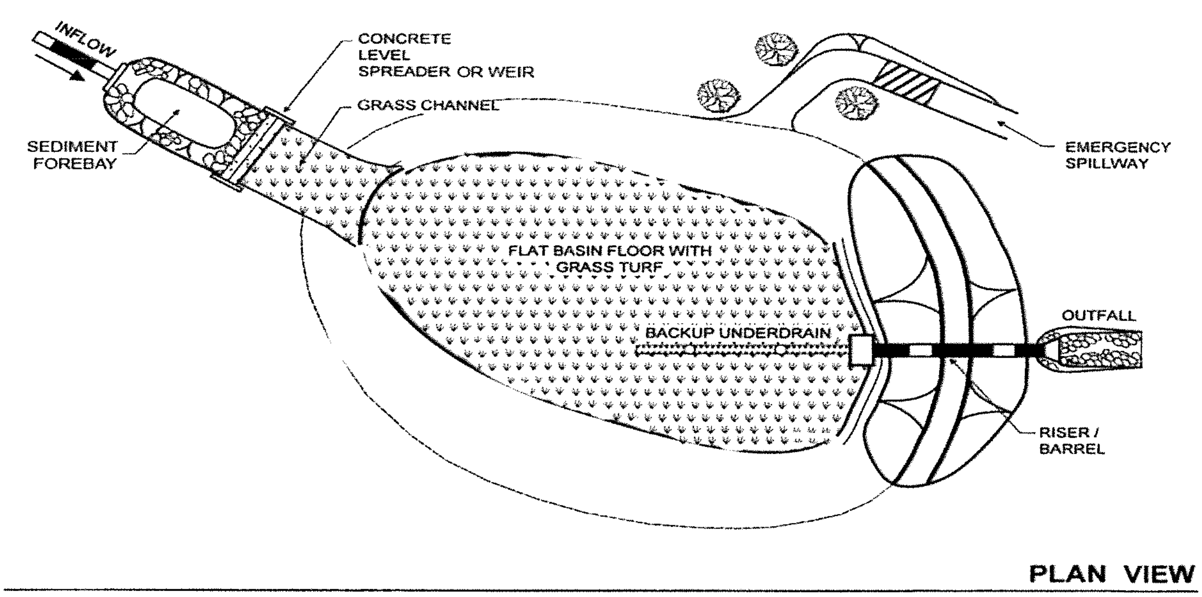
Standard	Description
2 - Peak Flow	Can be designed to provide peak flow attenuation.
3 - Recharge	Provides groundwater recharge.
4 - TSS Removal	80% TSS removal, with adequate pretreatment
5 - Higher Pollutant Loading	May be used if 44% of TSS is removed with a pretreatment BMP prior to infiltration. For some land uses with higher potential pollutant loads, use an oil grit separator, sand filter or equivalent for pretreatment prior to discharge to the infiltration basin. Infiltration must be done in compliance with 314 CMR 5.00
6 - Discharges near or to Critical Areas	Highly recommended, especially for discharges near cold-water fisheries. Requires 44% removal of TSS prior to discharge to infiltration basin
7 - Redevelopment	Typically not an option due to land area constraints

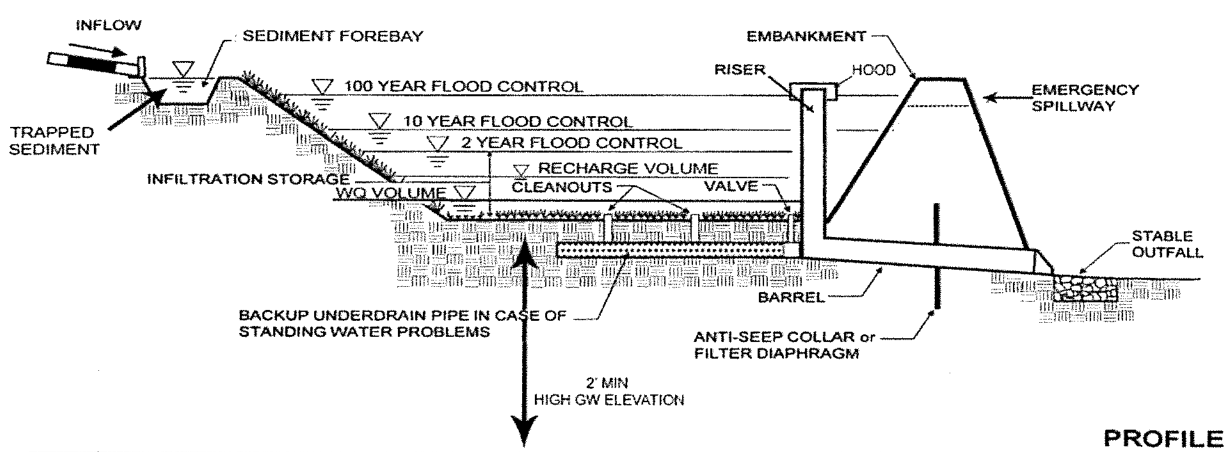
Advantages/Benefits:
- Provides groundwater recharge.
- Reduces local flooding.
- Preserves the natural water balance of the site.
- Can be used for larger sites than infiltration trenches or structures.

Disadvantages/Limitations:
- High failure rates due to improper siting, inadequate pretreatment, poor design and lack of maintenance.
- Restricted to fairly small drainage areas.
- Not appropriate for treating significant loads of sediment and other pollutants.
- Requires frequent maintenance.
- Can serve as a "regional" stormwater treatment facility

Pollutant Removal Efficiencies

• Total Suspended Solids (TSS)	80% with pretreatment
• Total Nitrogen	50% to 60%
• Total Phosphorus	60% to 70%
• Metals (copper, lead, zinc, cadmium)	85% to 90%
• Pathogens (coliform, e coli)	90%





adapted from the Vermont Stormwater Manual

Maintenance

Activity	Frequency
Preventative maintenance	Twice a year
Inspect to ensure proper functioning	After every major storm during first 3 months of operation and twice a year thereafter and when there are discharges through the high outlet orifice.
Mow the buffer area, side slopes, and basin bottom if grassed floor; rake if stone bottom; remove trash and debris; remove grass clippings and accumulated organic matter	Twice a year
Inspect and clean pretreatment devices	Every other month recommended and at least twice a year and after every major storm event.

Special Features: High failure rate without adequate pretreatment and regular maintenance.

LID Alternative: Reduce impervious surfaces. Bioretention areas

Infiltration Basins

The following are variations of the infiltration basin design.

Full Exfiltration Basin Systems

These basin systems are sized to provide storage and exfiltration of the required recharge volume and treatment of the required water quality volume. They also attenuate peak discharges. Designs typically include an emergency overflow channel to discharge runoff volumes in excess of the design storm.

Partial or Off-line Exfiltration Basin Systems

Partial basin systems exfiltrate a portion of the runoff (usually the first flush or the first half inch), with the remaining runoff being directed to other BMPs. Flow splitters or weirs divert flows containing the first flush into the infiltration basin. This design is useful at sites where exfiltration cannot be achieved by downstream detention BMPs because of site condition limitations.

Applicability

The suitability of infiltration basins at a given site is restricted by several factors, including soils, slope, depth to water table, depth to bedrock, the presence of an impermeable layer, contributing watershed area, proximity to wells, surface waters, and foundations. Generally, infiltration basins are suitable at sites with gentle slopes, permeable soils, relatively deep bedrock and groundwater levels, and a contributing watershed area of approximately 2 to 15 acres. Table IB.1 presents the recommended site criteria for infiltration basins.

Pollution prevention and pretreatment are particularly important at sites where infiltration basins are located. A pollution prevention program that separates contaminated and uncontaminated runoff is essential. Uncontaminated runoff can be infiltrated directly, while contaminated runoff must be collected and pretreated using an appropriate combination of BMPs and then rerouted to the infiltration basin. This approach allows uncontaminated stormwater to be infiltrated during and immediately after the storm and permits the infiltration of contaminated stormwater after an appropriate detention time. The Pollution Prevention and Source Control Plan required by Stormwater Standard 4 must take these factors into account. For land uses with higher potential pollutant loads, provide a bypass to divert contaminated stormwater from the infiltration basin in storms larger than the design storm.

Table IB.1 - Site Criteria for Infiltration Basins
1. The contributing drainage area to any individual infiltration basin should be restricted to 15 acres or less.
2. The minimum depth to the seasonal high water table, bedrock, and/or impermeable layer should be 2 ft. from the bottom of the basin.
3. The minimum infiltration rate is 0.17 inches per hour. Infiltration basins must be sized in accordance with the procedures set forth in Volume 3.
4. One soil sample for every 5000 ft. of basin area is recommended, with a minimum of three samples for each infiltration basin. Samples should be taken at the actual location of the proposed infiltration basin so that any localized soil conditions are detected.
5. Infiltration basins should not be used at sites where soil have 30% or greater clay content, or 40% or greater silt clay content.
6. Infiltration basins should not be placed over fill materials.
7. The following setback requirements should apply to infiltration basin installations: • Distance from any slope greater than 15% - Minimum of 50 ft. • Distance from any soil absorption system- Minimum of 50 ft. • Distance from any private well - Minimum of 100 ft., additional setback distance may be required depending on hydrogeological conditions. • Distance from any public groundwater drinking supply wells - Zone I radius, additional setback distance may be required depending on hydrogeological conditions. • Distance from any surface drinking water supply - Zone A • Distance from any surface water of the commonwealth (other than surface water supplies and their tributaries) - Minimum of 50 ft. • Distance from any building foundations including slab foundations without basements - Minimum of 10 ft. downslope and 100 ft. upslope.

Prior to pretreatment, implement the pollution prevention and source control program specified in the Pollution Prevention and Source Control Plan to reduce the concentration of pollutants in the discharge. Program components include careful management of snow and deicing chemicals, fertilizers, herbicides, and pest control. The Plan must prohibit snow disposal in the basin and include measures to prevent runoff of stockpiled snow from entering the basin. Stockpiled snow contains concentrations of sand and deicing chemicals. At industrial sites, keep raw materials and wastes from being exposed to precipitation. Select pretreatment BMPs that remove coarse sediments, oil and grease, and floatable organic and inorganic materials, and soluble pollutants.

Effectiveness

Infiltration basins are highly effective treatment systems that remove many contaminants, including TSS. However, infiltration basins are not intended to remove coarse particulate pollutants. Use a pretreatment device to remove them before they enter the basin. The pollutant removal efficiency of the basin depends on how much runoff is exfiltrated by the basin.

Infiltration basins can be made to control peak discharges by incorporating additional stages in the design. To do this, design the riser outlet structure or weir with multiple orifices, with the lowest orifice set to achieve storage of the full recharge volume required by Standard 3. Design the upper orifices using the same procedures as extended detention basins. The basins can also be designed to achieve exfiltration of storms greater than the required recharge volume. However, in such cases, make sure the soils are permeable enough to allow the basin to exfiltrate the entire volume in a 72-hour period. This may necessitate increasing the size of the floor area of the basin. Generally, it is not economically feasible to provide storage for large infrequent storms, such as the 100-year 24-hour storm.

Planning Considerations

Carefully evaluate sites before planning infiltration basins, including investigating soils, depth to bedrock, and depth to water table. Suitable parent soils should have a minimum infiltration rate of 0.17 inches per hour. Infiltration basis must be sized in accordance with the procedures set forth in Volume 3. The slopes of the contributing drainage area for the infiltration basin must be less than 5%.

Design

Infiltration basins are highly effective treatment and disposal systems when designed properly. The first step before design is providing source control and implementing pollution prevention measures to minimize sediment and other contaminants in runoff discharged to the infiltration basin. Next, consider the appropriate pretreatment BMPs.

Design pretreatment BMPs to pretreat runoff before stormwater reaches the infiltration basin. For Critical Areas, land uses with potentially higher pollutant loads, and soils with rapid infiltration rates (greater than 2.4 inches/hour), pretreatment must remove at least 44% of the TSS. Proponents may comply with this requirement by proposing two pretreatment BMPs capable of removing 25% TSS. However, the issuing authorities (i.e., Conservation Commissions or MassDEP) may require additional pretreatment for other constituents beyond TSS for land uses with higher potential pollutant loads. If the land use has the potential to generate stormwater runoff with high concentrations of oil and grease, treatment by an oil grit separator or equivalent is required before discharge to the infiltration basin.

For discharges from areas other than Critical Areas, land uses with potentially higher pollutant loads, and soils with rapid infiltration rates, MassDEP also requires some TSS pretreatment. Common pretreatment for infiltration basins includes aggressive street sweeping, deep sump catch basins, oil/grit separators, vegetated filter strips, water quality swales, or sediment forebays. Fully stabilize all land surfaces contributing drainage to the infiltration practice after construction is complete to reduce the amount of sediment in runoff that flows to the pretreatment devices.

Always investigate site conditions. Infiltration basins must have a minimum separation from seasonal high groundwater of at least 2 feet. Greater separation is necessary for bedrock. If there is bedrock on the site, conduct an analysis to determine the appropriate vertical separation. The greater the distance from the bottom of the basin media to the seasonal high groundwater elevation, the less likely the basin will fail to drain in the 72-hour period following precipitation.

Determine soil infiltration rates using samples collected at the proposed location of the basin. Take one soil boring or dig one test pit for every 5,000 feet of basin area, with a minimum of three borings for each infiltration basin. Conduct the borings or test pits in the layer where infiltration is proposed. For example, if the A and B horizons are to be removed and the infiltration will be through the C horizon, conduct the borings or test pits through the C horizon. MassDEP requires that borings be at least 20 feet deep or extend to the depth of the limiting layer.

For each bore hole or test pit, evaluate the saturated hydraulic conductivity of the soil, depth to seasonal high groundwater, NRCS soil textural class, NRCS Hydrologic Soil Group, and the presence of fill materials in accordance with Volume 3. Never locate infiltration basins above fill. Never locate infiltration basins in Hydrologic Soil Group "D" soils. The minimum acceptable final soil infiltration rate is 0.17 inches per hour. Design the infiltration basin based on the soil evaluation set forth in Volume 3.

If the proposed basin is determined to be in Hydrologic Soil Group "C" soils, incorporate measures in the design to reduce the potential for clogging, such as providing more pretreatment or greater media depth to provide additional storage. Never use the results of a Title 5 percolation test to estimate a saturated hydraulic conductivity rate, because it tends to greatly overestimate the rate that water will infiltrate into the subsurface.

Estimate seasonal high groundwater based on soil mottles or through direct observation when borings are conducted in April or May, when groundwater levels are likely to be highest. If it is difficult to determine the seasonal high groundwater elevation from the borings or test pits, then use the Frimpter method developed by the USGS (Massachusetts/ Rhode Island District Office) to estimate seasonal high groundwater. After estimating the seasonal high groundwater using the Frimpter method, re-examine the bore holes or test pits to determine if there are any field indicators that corroborate the Frimpter method estimate.

Stabilize inlet channels to prevent incoming flow velocities from reaching erosive levels, which can scour the basin floor. Riprap is an excellent inlet stabilizer. Design the riprap so it terminates in a broad apron, thereby distributing runoff more evenly over the basin surface to promote better infiltration.

At a minimum, size the basin to hold the required recharge volume. Determine the required recharge volume using either the static or dynamic methods set forth in Volume 3. Remember that the required storage volume of an infiltration basin is the sum of the quantity of runoff entering the basin from the contributing area and the precipitation directly entering the basin. Include one foot of freeboard above the total of the required recharge volume and the direct precipitation volume to account for design uncertainty. When applying the dynamic method to size the basin, use only the bottom of the basin (i.e., do not include side wall exfiltration) for the effective infiltration area.

Design the infiltration basin to exfiltrate in no less than 72 hours. Consider only the basin floor as the effective infiltration area when determining whether the basin meets this requirement.

Design the basin floor to be as flat as possible to provide uniform ponding and exfiltration of the runoff. Design the basin floor to have as close to a 0% slope as possible. In no case shall the longitudinal slope exceed 1%. Enhanced deposition of sediment in low areas may clog the surface soils, resulting in reduced infiltration and wet areas. Design the side slopes of the basin to be no steeper than 3:1 (horizontal: vertical) to allow for proper vegetative stabilization, easier mowing, easier access, and better public safety.

For basins with a 1% longitudinal slope, it will be necessary to incorporate cells into the design, making sure that the depth of ponded water does not exceed 2 feet, because sloped basin floors cause water to move downhill, thereby decreasing the likelihood of infiltration. Make lateral slopes flat (i.e., 0% slope).

After the basin floor is shaped, place soil additives on the basin floor to amend the soil. The soil additives shall include compost, properly aged to kill any seed stock contained within the compost. Do not put biosolids in the compost. Mix native soils that were excavated from the A or B horizons to create the basin with the compost, and then scarify the native materials and compost into the parent material using a chisel plow or rotary device to a depth of 12 inches. Immediately after constructing the basin, stabilize its bottom and side slopes with a dense turf of water-tolerant grass. Use low-maintenance, rapidly germinating grasses, such as fescues. The selected grasses must be capable of surviving in both wet and dry conditions. Do not use sod, which can prevent roots from directly contacting the underlying soil. During the first two months, inspect the newly established vegetation several times to determine if any remedial actions (e.g., reseeding, irrigating) are necessary.

Never plant trees or shrubs within the basin or on the impounding embankments as they increase the chance of basin failure due to root decay or subsurface disturbance. The root penetration and thatch formation of the turf helps to maintain and may even enhance the original infiltration capacity. Soluble nutrients are taken up by the turf for growth, improving the pollutant removal capacity. Dense turf will impede soil erosion and scouring of the basin floor.

In place of turf, use a basin liner of 6 to 12 inches of fill material, such as coarse sand. Clean and replace this material as needed. Do not use loose stone, riprap, and other irregular materials requiring hand removal of debris and weeds.

Design embankments and spillways to conform to the regulatory guidelines of the state's Office of Dam Safety (302 CMR 10.00). Design infiltration basins to be below surrounding grade to avoid issues related to potential embankment failure. All infiltration basins must have an emergency spillway capable of bypassing runoff from large storms without damage to the impounding structure. Design the emergency spillway to divert the storm associated with brimful conditions without impinging upon the structural integrity of the basin. The brimful condition could be the required recharge volume or a design storm (such as the 2-year, 10-year, or 100-year storm if the basin is designed to provide peak rate attenuation in addition to exfiltration). The storm associated with the brimful conditions should not include the one foot of freeboard required to account for design uncertainty. Design the emergency spillway to shunt water toward a location where the water will not damage wetlands or buildings. A common error is to direct the spillway runoff toward an adjoining property not owned by an applicant. If the emergency spillway is designed to drain the emergency overflow toward an adjoining property, obtain a drainage easement and submit it to the Conservation Commission as part of the Wetlands NOI submission. Place vegetative buffers around the perimeter of the basin for erosion control and additional sediment and nutrient removal.

Monitoring wells: Install one monitoring well in the basin floor per every 5,000 square feet of basin floor. Make sure the monitoring well(s) extend 20 feet beneath the basin floor or to the limiting layer, whichever is higher.

Access: Include access in the basin design. The area at the top of the basin must provide unimpeded vehicular access around the entire basin perimeter. The access area shall be no less than 15 feet.

Inlet Structures: Place inlet structures at one longitudinal end of the basin, to maximize the flow path from the inlet to the overflow outlet. A common error is to design multiple inlet points around the entire basin perimeter.

Outlet structures: Infiltration basins must include an overflow outlet in addition to an emergency spillway. Whether using a single orifice or multiple orifices in the design, at a minimum, set the lowest orifice at or above the required recharge volume.

Drawdown device: Include a device to draw the basin down for maintenance purposes. If the basin includes multiple cells, include a drawdown device for each cell.

Fences: Do not place fences around basins located in Riverfront Areas, as required by 310 CMR 10.58(4)(d)1.d. to avoid impeding wildlife movement. In such cases, consider including a safety bench as part of the design.

Construction

Prior to construction, rope or fence off the area selected for the infiltration basin. Never allow construction equipment to drive across the area intended to serve as the infiltration basin.

Never use infiltration basins as temporary sediment traps for construction activities.

To limit smearing or compacting soils, never construct the basin in winter or when it is raining. Use light earth-moving equipment to excavate the infiltration basin because heavy equipment compacts the soils beneath the basin floor and side slopes and reduces infiltration capacity. Because some compaction of soils is inevitable during construction, add the required soil amendments and deeply till the basin floor with a rotary tiller or a disc harrow to a depth of 12 inches to restore infiltration rates after final grading.

Use proper erosion/sediment control during construction. Immediately following basin construction, stabilize the floor and side slopes of the basin with a dense turf of water-tolerant grass. Use low maintenance, rapidly germinating grasses, such as fescues. Do not sod the basin floor or side slopes. After the basin is completed, keep the basin roped or fenced off while construction proceeds on other parts of the site. Never direct construction period drainage to the infiltration basin. After construction is completed, do not direct runoff into the basin until the bottom and side slopes are fully stabilized.

Maintenance

Infiltration basins are prone to clogging and failure, so it is imperative to develop and implement aggressive maintenance plans and schedules. Installing the required pretreatment BMPs will significantly reduce maintenance requirements for the basin.

The Operation and Maintenance Plan required by Standard 9 must include inspections and preventive maintenance at least twice a year, and after every time drainage discharges through the high outlet orifice. The Plan must require inspecting the pretreatment BMPs in accordance with the minimal requirements specified for those practices and after every major storm event. A major storm event is defined as a storm that is equal to or greater than the 2-year, 24-hour storm (generally 2.9 to 3.6 inches in a 24-hour period, depending in geographic location in Massachusetts).

Once the basin is in use, inspect it after every major storm for the first few months to ensure it is stabilized and functioning properly and if necessary take corrective action. Note how long water remains standing in the basin after a storm; standing water within the basin 48 to 72 hours after a storm indicates that the infiltration capacity may have been overestimated. If the ponding is due to clogging, immediately address the reasons for the clogging (such as upland sediment erosion, excessive compaction of soils, or low spots).
Thereafter, inspect the infiltration basin at least twice per year. Important items to check during the inspection include:

- Signs of differential settlement,
- Cracking,
- Erosion,
- Leakage in the embankments
- Tree growth on the embankments
- Condition of riprap,
- Sediment accumulation and
- The health of the turf.

At least twice a year, mow the buffer area, side slopes, and basin bottom. Remove grass clippings and accumulated organic matter to prevent an impervious organic mat from forming. Remove trash and debris at the same time. Use deep tilling to break up clogged surfaces, and revegetate immediately.

Remove sediment from the basin as necessary, but wait until the floor of the basin is thoroughly dry. Use light equipment to remove the top layer so as to not compact the underlying soil. Deeply till the remaining soil, and revegetate as soon as possible. Inspect and clean pretreatment devices associated with basins at least twice a year, and ideally every other month.

References:

Center for Watershed Protection, http://www.stormwatercenter.net/Manual_Builder/Construction%20Specifications/Infiltration%20Trench%20Specifications.htm

Center for Watershed Protection, http://www.stormwatercenter.net/Manual_Builder/Performance%20Criteria/Infiltration.htm

Center for Watershed Protection, Stormwater Management Fact Sheet, Infiltration Basin, http://www.stormwatercenter.net/Assorted%20Fact%20Sheets/Tool6_Stormwater_Practices/Infiltration%20Practice/Infiltration%20Basin.htm

EXHIBIT 5

PROSPECT HILL VILLAGE – BELLINGHAM, MA
BELLINGHAM ZONING BYLAWS - ARTICLE XX WATER RESOURCE DISTRICTS
SECTION 240: 131 - 140
STATEMENT OF COMPLIANCE
DEP FILE NO. 105-968

PREPARED BY WALL STREET DEVELOPMENT CORP.
MARCH 17, 2025

Overview:

The Water Resource District is an overlay district superimposed on the zoning districts. This overlay district applies to all new construction, reconstruction, or expansion of existing buildings and new or expanded uses. Applicable activities/uses in a portion of one of the underlying zoning districts that fall within the Water Resource District must additionally comply with the requirements of this district. Uses prohibited in the underlying zoning districts shall not be permitted in the Water Resource District.

Prohibit Uses:

The Bylaw at Section 240-137 provides a list of uses that are prohibited within the Water Resource District as follows:

A. Landfills and open dumps as defined in 310 CMR 19.006.

B. Automobile graveyards and junkyards, as defined in M.G.L. Ch. 140B, § 1.

C. Landfills receiving only wastewater and/or septage residuals, including those approved by the Department.

D. Facilities that generate, treat, store, or dispose of hazardous waste that are subject to MGL ch. 21C and 310 CMR 30.00, except for:

(1) Very small quantity generators as defined under 310 CMR 30.000;
(2) Household hazardous waste centers and events under 310 CMR 30.390;
(3) Waste oil retention facilities required by M.G.L. ch. 21, § 52A;
(4) Water remediation treatment works approved by DEP for the treatment of contaminated ground or surface waters.

E. Petroleum, fuel oil, and heating oil bulk stations and terminals, including, but not limited to, those listed under Standard Industrial Classification (SIC) Codes 5983 and 5171, not including liquefied petroleum gas.

F. Storage of liquid hazardous materials, as defined in MGL c. 21E, and/or liquid petroleum products unless such storage is:

(1) Above ground level; and
(2) On an impervious surface; and
(3) Either:

(a) In container(s) or above ground tank(s) within a building; or

(b) Outdoors in covered container(s) or above ground tank(s) in an area that has a containment system designed and operated to hold either 10% of the total possible storage capacity of all containers, or 110% of the largest container's storage capacity, whichever is greater.

G. Storage of sludge and septage, unless such storage is in compliance with 310 CMR 32.30 and 310 CMR 32.31.

H. Storage of deicing chemicals unless such storage, including loading areas, is within a structure designed to prevent the generation and escape of contaminated runoff or leachate.

I. Storage of animal manure unless covered or contained within a structure designed to prevent the generation and escape of contaminated runoff or leachate.

J. Earth removal, consisting of the removal of soil, loam, sand, gravel, or any other earth material to within four feet of historical high groundwater as determined from monitoring wells and historical water table fluctuation data compiled by the United States Geological Survey, except for excavations for building foundations, roads, utility works, or primarily agricultural purposes consistent with M.G.L. ch. 40A, § 3.

K. Discharge to the ground of non-sanitary wastewater, except:

(1) The replacement or repair of an existing treatment works that will not result in a design capacity greater than the design capacity of the existing treatment works;

(2) Treatment works approved by the Department designed for the treatment of contaminated ground or surface water and operating in compliance with 314 CMR 5.05(3) or 5.05(13); and

(3) Publicly owned treatment works.

L. Stockpiling and disposal of snow and ice containing deicing chemicals brought in from outside of the Water Resource District or Zone II.

M. Storage of commercial fertilizers, as defined in M.G.L. ch. 128, § 64, unless such storage is within a structure designed to prevent the generation and escape of contaminated runoff or leachate.

N. Gasoline or diesel fuel vehicle filling stations.

O. Motor vehicle service and repair.

P. Motor vehicle washing (car washes), unless equipped with a system by which no wash water is discharged to any form of underground soil absorption system.

Q. The rendering impervious of greater than 15% or 2,500 square feet of any lot or parcel, whichever is greater, unless a system of stormwater management and artificial recharge of precipitation is developed which is designed to prevent untreated discharges to wetland and surface water; preserve hydrologic conditions that closely resemble pre-development conditions; reduce or prevent flooding by managing peak discharges and volumes of runoff; minimize erosion and sedimentation; not result in significant degradation of groundwater; reduce suspended solids and other pollutants to improve water quality and provide increased protection of sensitive natural resources. These standards may be met using the following or similar best management practices:

(1) For lots or parcels occupied, or proposed to be occupied, by single- or two-family residences recharge shall be attained through site design that incorporates natural drainage patterns and vegetation in order to reasonably maintain pre-construction stormwater patterns and water quality to the extent practicable. Stormwater runoff from rooftops, driveways and other impervious surfaces shall be routed over lawn areas via sheet flow for no less than eight feet before discharging to a wetland, surface water, or impervious surface that lead to a street drain system. Dry well leaching pits can be used in lieu of eight feet of lawn for rooftop runoff. The site design must direct only the added impervious surface run off. No site design is needed, if the street drain system has water quality and recharge installed at the outfall.

(2) For lots occupied, or proposed to be occupied by other uses, a special permit from the Planning Board to ensure that an adequate system of stormwater management and artificial recharge of precipitation is developed.

Applicable Use Requiring a Special Permit:

The proposed Prospect Hill Village (the "Project") will not include any of the prohibited uses A. – P., as outlined above. However, the Project is subject to 240-137.Q, as the Project will render impervious greater than 15% or 2,500 square feet of the Property (whichever is greater). As such, a system of stormwater management and artificial recharge of precipitation is required to be designed to prevent untreated discharges to wetland and surface water; preserve hydrologic conditions that closely resemble pre-development conditions; reduce or prevent flooding by managing peak discharges and volumes of runoff; minimize erosion and sedimentation; not result in significant degradation of groundwater; reduce suspended solids and other pollutants to improve water quality and provide increased protection of sensitive natural resources.

The Project calls for the construction of 129 residential townhouses in forty-three (43), three (3) unit buildings. The Project is a permitted use pursuant to Article XV of the Bellingham Zoning Bylaws entitled – Special Residential Districts, specifically Section 240-100 and 101 in the Agricultural District. Notwithstanding the allowed use, the Project is subject to the requirements of the Article XX pertaining to Water Resource Districts, as further described in 240-137. Q. (2) which states:

> (2) For lots occupied, or proposed to be occupied by other uses, a special permit from the Planning Board to ensure that an adequate system of stormwater management and artificial recharge of precipitation is developed.

In connection with the Project, a stormwater management system has been designed to manage peak rates of stormwater runoff and stormwater volumes from the property following full development of the Project. As noted in the Stormwater Management Report "Special Residential Townhouse Development – Prospect Hill Village, Bellingham, MA, dated January 30, 2025, prepared by GLM Engineering Consultants, Inc. (the Stormwater Report") the stormwater runoff will be controlled using "Best Management Practices" and in full compliance with the MADEP Stormwater Management Policy. The Stormwater Report and stormwater system design demonstrates the project will result in an improvement over existing conditions by constructing a stormwater management system that will provide treatment and **100% groundwater re-charge, while also reducing the peak rates of runoff and offsite runoff volumes.** The stormwater management system is pending review by the Planning Board for compliance with the requirements of the Water Resource District.

EXHIBIT 6

PROSPECT HILL VILLAGE – BELLINGHAM, MA
CHAPTER 247 – BELLINGHAM WETLAND REGULATIONS
SECTION 247-20 (ISOLATED) VEGETATED WETLANDS
SECTION 247-22 – LAND SUBJECT TO FLOODING
SECTION 247-22D.(1) and (2) - REQUEST FOR WAIVER
DEP FILE NO. 105-968

PREPARED BY WALL STREET DEVELOPMENT CORP.
MARCH 17, 2025

Section 247-20 of the Bellingham Wetland Regulations (the "Regulations") provides for regulations related to Vegetated Wetlands, including Isolated Vegetated Wetlands ("IVW"). The regulations include provisions that allow for filling of IVW up to 5,000 s.f., provided the filled wetlands are replicated at a ratio of 2:1.

Section 247-22 of the Regulations also provides for regulations related to Bordering Land Subject to Flooding ("BLSF") and Isolated Land Subject to Flooding ("ILSF)). The Regulations are explicit in that there is no lower limit in ponding volume required for ILSF jurisdiction.

At the site, there are two depressions that are remnants of gravel mining that could be considered as combined ILSF/IVW under the Regulations.

Section 247-22.D. (1) and (2) regulates work in ILSF, as follows:

D. Restrictions on activity.

(1) Any activity which is allowed under this section on land subject to flooding shall not result in the following:

(a) Flood damage due to filling which causes lateral displacement of water that would otherwise be confined within said area;
(b) Adverse effect on public and private water supply or groundwater supply, where said area is underlain by pervious material;
(c) An adverse effect on the capacity of said area to prevent pollution of the groundwater, where the area is underlain by pervious material which in turn is covered by a mat of organic peat and muck.

(2) Any such activity shall provide compensatory flood storage for all flood storage volume that will be lost at each elevation. Compensatory flood storage shall be at a 2:1 ratio, minimum, for each unit volume of flood storage lost at each elevation. Compensatory flood storage shall mean a volume not previously used for flood storage, shall have an unrestricted hydraulic connection to the same waterway or water body, and, with respect to waterways, shall be provided within the same reach of the river, stream, or creek. No new parking areas or garages shall be used as compensatory flood storage. The Commission has found that use of such areas or garages results in a significant or cumulative effect upon the resource area values protected by the Bylaw and has

found that these facilities can result in the uncontrolled acute or chronic release of these harmful materials into the resource areas protected by the Bylaw. The Commission has also found that using these structures for flood storage can result in the damage of vehicles and property under flooding conditions.

Request for Waivers - Filling of Isolated Vegetated Wetlands/ Isolated Land Subject to Flooding:

The Regulations assert local jurisdiction of Isolated Vegetated Wetlands (IVW). As previously noted, the site contains two areas which are remnants of the former Varney Bros. gravel mining operation. These prior mining activities have resulted in the establishment of these two relatively small areas of IVW/ILSF that are non-state jurisdictional, but jurisdictional under the BellinghamWetland Bylaw. These IVW areas occur where the mining activities reached seasonal high-water tables. These areas are clearly artifacts of human activity over recent years and decades, and do not have a well-developed topsoil or plant communities. The IVW/ILSF areas total a combined 18,090 sq. ft. Ponding depths are minimal due to the lack of a deep depression and the presence of relatively low-lying "spillway" outlet where water percolates into the sand surface of the pit.

As part of the Project, it is proposed to fill these areas and provide replication of 37,000 sq. ft., a 2:1 ratio. More importantly, it is proposed that replication area be constructed adjacent and connected to the larger BVW associated with Hoag Brook. The proposed replication area is shown on Supplemental Sheet- A of the site development plan.

The replication area proposes to improve the wetland function of the areas through:

a. Connection to the larger BVW;
b. Establishing a range of hydrologic conditions which include seasonal open water, to improve and enhance wildlife habitat value;
c. Doubling the size the proposed impact area in the replication area; and
d. Providing topsoil that will sustain a wetland plant community.

Based on the above-mentioned improvements associated with the wetland replication area, a waiver is requested to permit the proposed filling of IVW under Section 247-1.D(6) of the Bellingham Wetland Regulations, which state in part:

> "...relief may be granted without detriment to the values protected by the Town wetland bylaw and these regulations and without substantially derogating from the extent or purpose of the Town wetland bylaw and these regulations."

Due to the location of the subject IVW areas, their current condition of poorly developed soils and plant communities, and the ability to replicate the areas in a location and manner that will increase wetland functions and values, it is believed that the critical criterion listed above is satisfied and a waiver pursuant to Section 247-1.D.(6) is justified. Additional testing in the replication area to confirm groundwater depths will be performed at the discretion of the Commission. In addition, a wetland replication protocol has been provided to support the waiver request and ensure enhancement of wetland interests.

EXHIBIT 7

PROSPECT HILL VILLAGE – BELLINGHAM, MA
CHAPTER 247 – BELLINGHAM WETLAND REGULATIONS
SECTION 247-33 – STORMWATER COMPLIANCE
STATEMENT OF COMPLIANCE
DEP FILE NO. 105-968

PREPARED BY WALL STREET DEVELOPMENT CORP.
MARCH 17, 2025

Section 247-33 of the Bellingham Wetland Regulations (the "Regulations") provides for regulations related to Stormwater Compliance for the protection of resource areas and for flood prevention required under the MA Wetlands Protection Act and the Bellingham Wetlands Bylaw. Section 247-33 provides the following:

A. Applicability.

(1) For the protection of resource areas and for flood prevention required under the MA Wetlands Protection Act and the Bellingham Wetlands Bylaw, the Bellingham Conservation Commission has established the following submittal standards for evaluating and mitigating development impacts from the following types of projects:

(a) Subdivisions.

(b) Commercial projects.

(c) Industrial projects.

(d) Transportation projects.

(2) These standards do not apply to the following projects:

(a) Subdivisions with upland areas in excess of 80,000 square feet per building lot.

(b) Developments of less than two acres.

Section 247-33.B - General Application Standards provides the following:

A development application shall include information to assess protection of resource areas and flood mitigation. A stormwater management evaluation shall be provided consistent with the DEP Stormwater Management Handbook, the Bellingham Stormwater Management and Erosion Control Handbook, the Bellingham Wetlands Regulations, and the following. Stormwater management designs shall meet the following criteria:

(1) Outside the Water Resource District, 2-foot minimum separation shall be provided between the stormwater management location[1] bottom and estimated seasonal high groundwater. Within the Water Resource District, 4-foot minimum separation shall be provided between the stormwater management location bottom and estimated seasonal high groundwater. Where seasonal high groundwater is not observable by redoximorphic features, the Frimpter method shall be used at each test location. The effects of groundwater mounding shall also be considered in meeting the minimum separation requirements.

(2) A minimum of three test pits shall be provided within each stormwater management location. Soils data from NRCS soils mapping shall be verified by witnessed, on-site soil and groundwater examinations, and soil types characterized accordingly.

(3) For areas storing stormwater for retention or detention, a minimum 1-foot freeboard shall be provided between the 100-year flood elevation and the emergency overflow elevation.

(4) Emergency spillways shall be sized for the 100-year peak basin inflow rate, while providing a 6-inch freeboard to the dike crest.

(5) Any basin outlet less than a 4-inch orifice or a 2-inch slot shall be considered plugged for purposes of flood routing calculations.

(6) Surface basins shall also be sized assuming frozen ground conditions within the basins — no infiltration — during a 25-year storm event.

(7) Pipe and basin sizing shall utilize the latest hydrologic data from Cornell University (or other current, accepted hydrological data) to determine the volumes of the 2-, 10-, 25- and 100-year storm for comparison of pre- and post-development runoff.

(8) Within the Water Resource District, vegetative pretreatment or equivalently effective system shall be utilized for all impervious area stormwater runoff prior to discharge.

(9) There shall be no increase in stormwater runoff rate for any of the above-specified storm events. There shall be no increase in runoff volume from a development for up to the 25-year storm.

(10) Other aspects of the stormwater management shall comply with the requirements of the DEP Stormwater Management Handbook (Volumes 1-3, latest edition).

C. Hydrogeologic assessment standards.

(1) A development application shall include a hydrogeologic assessment of nutrient impacts to groundwater and surface water. The analysis of the impacts of the development will vary depending on its location in relation to sensitive water resources within the Town. One of three categories will apply. They are:

(a) Water Resource District.
(b) Zone II protection areas to public drinking water supplies, per the MA GIS designation of a Zone II.
(c) The watershed of a surface water body.

(2) The standards for large projects do not apply, unless specifically required by the Commission to subdivisions with upland in excess of 80,000 square feet per buildable lot or developments of less than two acres.

(3) An application shall not be deemed complete unless the required information is submitted. Specific submittal standards may be found at the Town of Bellingham website at bellinghamma.org, Boards and Committees, Conservation Commission, Filing under Bellingham Wetlands Bylaw, Submittal Standards.

Conclusion:

Based on the provisions of Section 247-33. A.1. the proposed project is not a subdivision, commercial project, industrial project or transportation project; therefore Section 247-33 of the Regulations are not applicable.

Notwithstanding the inapplicability of Section 247-33, the Project has been designed with a Stormwater Management System that meets or exceeds the requirements of the regulation and the Massachusetts Stormwater Guidelines. Similarly, the project complies with the regulatory performance standards of state and local regulations for Bordering Land Subject to Flooding. In particular, the expansive wetland replication area proposed in conjunction with the required filling of the isolated vegetated wetlands in the gravel pit would provide for substantial increase of flood storage along Hoag Brook.