BEALS AND THOMAS

December 5, 2025

Town of Bellingham Planning Board
c/o Robert Lussier, Director of Planning and Engineering
10 Mechanic Street
Bellingham, MA 02019

Via: Email to rlussier@bellinghamma.org

Reference: Supplemental Peer Review – Stormwater and Engineering
Blackstone Street Improvements
Bellingham, Massachusetts
B+T Project No. 3608.01

Dear Members of the Board:

Beals and Thomas, Inc. (B+T) is pleased to continue assisting the Town of Bellingham Planning Board (the Board) with its review of the stormwater management system and general engineering design for the proposed Blackstone Street Improvements (The Project) located on Blackstone Street (the Site or Property) filed by Wall Street Development Corp (the Applicant).

B+T issued an initial review letter to the Board, dated September 6, 2025, that presented the results of our evaluation of the documentation submitted by the Applicant. As a result of our initial comments the Applicant has submitted the supplemental documentation as listed herein.

B+T received the following supplemental documentation which served as the basis for our supplemental review:

- Letter in reference to Comment Responses, Stormwater and Engineering, Blackstone Street Improvements, AEA Project – 00527, dated October 31, 2025, prepared by Allen Engineering & Associates.
- Plan entitled Blackstone Street Improvements, dated October 31, 2025, revised June 20, 2025, prepared by Allen Engineering & Associates, Inc. (14 sheets)
- Document entitled Drainage Analysis for Blackstone Street Improvements, dated February 14, 2025, revised October 31, 2025, prepared by Allen Engineering & Associates, Inc.
- Document entitled Long Term Operation & Maintenance Plan, dated October 31, 2025, prepared by Allen Engineering & Associates, Inc.

Review Format
To establish clarity for the Administrative Record, we have included the comments from our initial letter, dated September 6, 2025, followed by a summary of the Applicant's responses in *italicized* font, followed by our current responses in **bold** font to document the status of our original comment.

Town of Bellingham Procedural Rules

1. Please provide a dedicated Erosion and Sediment Control Plan in accordance with the Procedural Rules. While the Applicant acknowledges that a Stormwater Pollution Prevention Plan (SWPPP) will be required per the NPDES Construction General Permit, one has not been provided at this time. The SWPPP would serve as the Erosion and Sediment Control Plan. The Erosion and Sediment Control plan should depict erosion and sediment controls, temporary sedimentation basins, temporary seeding/stabilization, stockpile areas, waste materials to be temporarily stored onsite, and construction sequencing/phasing. The plan would also include additional information, including soil erodibility, steep slope delineation, and critical habitats. Refer to the Procedural Rules for additional required information. (§7.8.1)

   Allen Engineering Response: A separate Erosion and Sedimentation Control Plan has been added. See Sheets C-13 & 14)

   B+T Response: This comment has been adequately addressed by the Applicant. A SWPPP will be required. No further action is required.

2. We request the Applicant depict specimen trees 12" and larger in diameter proximate to the work area on the plan. (§7.8.1(C)2)

   Allen Engineering Response: A Waiver is being requested for this requirement.

   B+T Response: No further comment necessary.

3. The number of the mature trees to be removed shall be minimized. The existing trees to be retained and protected shall be suitable if there is an average of one 4"-caliper (or larger) tree per 30 feet of individual lot frontage as identified by the Tree Warden. (§7.9.1(B)). We request the Applicant provide a narrative documenting compliance with the regulation.

   Allen Engineering Response: Section 7.91(B) of the Procedural Rules refers to Ch. 245, Subdivision Regulations, which are not applicable to ANR lots.

   B+T Response: It is our opinion that the Procedural Rules default to the Subdivision Regulations for certain requirements, regardless of whether or not the project is a subdivision.

4. The Erosion and Sediment Control Plan shall include property/right-of-way/easement lines with metes and bounds. (§7.8.1(H))

   Allen Engineering Response: The Erosion and Sediment Control Plan is inclusive of these where proposed. Note that the lot lines, right-of-way lines, and some of the drainage easements are existing. See Sheets C-13 &14.

   B+T Response: Metes and bounds have been provided for the proposed drainage easements. This comment has been adequately addressed by the Applicant. No further action is required.

5. Provide the timing, schedules, and sequence of development including clearing, stripping, rough grading, construction, final grading, and vegetative stabilization. (§7.8.2(P))

   Allen Engineering Response: This information is included on the Erosion and Sediment Control Plan. See Sheets C- 13 & 14.

   B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

6. Provide an Operation and Maintenance Plan in accordance with the Procedural Rules. While some best management practice maintenance information was provided in the report, the items outlined in Standard 9 of the Checklist for Stormwater Report should be provided. The Procedural Rules emphasize respective easement information shall be included, as well. (§7.8.3)

   Allen Engineering Response: AEA has provided a "Stand Alone" Operation and Maintenance Plan with the easement language included.

   B+T Response: While a standalone Operation and Maintenance Plan noting the respective stormwater easements has been provided, there are several inconsistencies compared to the explanation of Standard #9 in the Drainage Analysis report. For example, post-construction system ownership/responsibility and BMP inspection frequency.

7. Stormwater management systems shall be designed to remove at least 90% of the annual pollutant load of Total Suspended Solids (TSS). Note, this requirement is above the standard 80% TSS removal rate required by MassDEP (and proposed by the Applicant). The Procedural Guidelines require 60% removal of the average annual load of Total Phosphorus is also required. As the three proposed basins retain and infiltrate runoff from the impervious areas routed to them, the requirement for Total Phosphorus is likely met, but the Applicant should document compliance. (§7.9.1(C)1)

Allen Engineering Response: AEA has provided TSS removal and phosphorus removal calculations in Section 3 of the revised Drainage Report.

B+T Response: While the TSS removal calculations demonstrate the 80% MassDEP removal requirement is met, the local 90% requirement is not. We defer to the Board on whether the 85% TSS removal is adequate in this case. Phosphorus removal calculations documenting compliance with the regulation has been provided.

8. The hydrology calculations utilize storm events from the NOAA Atlas 14 though the Wetland Regulations (§247-33.B(7)) suggest the Cornell Method (or equal). We note the depths associated with the 2, 10, & 25-year NOAA Atlas 14 storms (3.38", 5.23" and 6.38", respectively) are greater than those of the Cornell Method (3.26", 4.89" and 6.16"), with the exception being the 100-year storm (8.75" vs. 8.16" for NOAA 14). (§7.9.2(B))

   Allen Engineering Response: AEA has increased the 100-year rainfall to 8.75" in both the existing and proposed condition.

   B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

9. The proposed culverts shall safely pass the design storm (50-year rational storm event, at a minimum) based on MassDOT roadway functional classification. Adequate erosion protection shall be designed, as well. Rational calculations for the proposed culverts have not been provided. (§7.9.2(L))

   Allen Engineering Response: AEA has added the culvert design showing the 50-year storm event. SCS TR-20 calculations used with HydroCAD modeling is an industry standard which the Town of Bellingham has accepted numerous occasions.

   B+T Response: We defer to the Board if there is precedent for SCS TR-20 hydrologic modelling for culverts. This methodology can be appropriate for culverts, given the complexity of the tributary watershed (as opposed to a finite area of pavement directed to a catch basin, for example). We also note the culvert would generally not be subject to the MassDOT bridge/culvert standards as the span does not exceed ten feet. If the MassDOT bridge/culvert standard was deemed applicable, we note the current design would not meet the MassDOT freeboard requirement of 2 feet, as the culvert is only two feet high.

Subdivision Regulations – Stormwater Management §245-13

1. Section 7.9 of the Town of Bellingham Procedural Rules requires the applicants must meet the drainage requirements specified in the Rules and Regulations governing the Subdivision of Land as well as the Massachusetts Stormwater Management Standards. We offer the following comments relative to the Subdivision rules related to stormwater.

   Allen Engineering Response: No response required.

   B+T Response: No further comment necessary.

2. Post-development peak rates of runoff shall not exceed pre-development at the boundaries of the development. We defer to the Board if the resource area constitutes the boundary. If so, subcatchments and the respective time of concentration flow paths shall be adjusted accordingly. (§245-13.A.(2))

   Allen Engineering Response: Subcatchments and the respective flow paths have been adjusted based on other comments. The evaluation points are consistent with the proposed development.

   B+T Response: The hydrologic subcatchments include the wetland areas. As the wetland areas are tributary to the culverts, we don't take issue with this approach.

3. The Rational Method shall be used for sizing pipes culverts. (§245-13.A.(3))

   Allen Engineering Response: The rational method is an older form of computation. SCS TR-20 calculations used with HydroCAD modeling is an industry standard which the Town of Bellingham has accepted numerous occasions.

   B+T Response: The industry standard for hydraulic modelling (i.e. catch basin to manhole pipe networks) is the Rational Method. This calculates instantaneous flow rates for mostly-impervious areas tributary to the respective drain inlets. While there is a case for SCS TR-20 hydrologic modelling of the cross culvert given the complexity of the tributary watershed (as noted in other comments), we feel the Rational Method is appropriate for the design of the roadway drainage pipe network.

4. The vernal pool should be considered a hydrologic evaluation point (ultimately routed to EV1) as it impounds runoff. Modify the subcatchment boundaries and time of concentration flow paths accordingly.

Allen Engineering Response: The subcatchments have been adjusted as suggested.

B+T Response: The original comment has been adequately addressed by the Applicant. However, we note the totals depicted on the Summary of Hydrology total the peak flows to each design/evaluation point, which is not accurate. Design point EV-1 is an interim design point ultimately routed to EV-2, and these flows are being double-counted.

5. Please confirm the time of concentration flow path for existing (pre-development) subcatchment 3S. The path traverses a low point below the 310-contour before apparently climbing above the 312-contour elevation across the unimproved way. It is not clear if there is an existing culvert in this location. A calculation to determine if this area constitutes Isolated Land Subject to Flooding may be warranted.

   Allen Engineering Response: The subcatchments have been modeled to note the elevation changes as suggested.

   B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

6. The basin sediment forebays are modeled as separate ponds routed (in series) to the respective basins. It appears the intent was to model the forebays with the gabions modeled as weirs overflowing to the primary basin storage volumes, less the associated forebay volumes (at the respective stages). However, we request the Applicant confirm the contour areas in the HydroCAD Pond Summaries. For example, the area at upper elevation 288.50 for Basin #1 does not appear to include the area over the forebay; and the area at lower elevation 289.0 for Basin #3 appears to include the forebay footprint. Furthermore, runoff would likely flow right through the stone gabion voids, providing little to no actual retention within the forebay. Even if impermeable, the gabion would classify more as a broad-crested weir (as opposed to sharp-crested, which are relatively thin). We recommend the calculations be revised to accurately model the basin.

   Allen Engineering Response: AEA has modified the areas of the basins as suggested and modeled the gabion berm as a "broad" crested weir. The stone gabion baskets have been widely used and accepted in The Town of Bellingham on past projects.

   B+T Response: The surface areas at the incremental contour elevations were not updated. Our comment regarding basin volumes stands and, at the very least, we request the design is clarified. The design has been updated to model the gabion as a broad-crested weir, though the forebays would not necessarily perform as designed given the stone voids within the gabion. The water surface level within the forebay and basin would likely be equal; the forebay would not fill-up and subsequently spill into the larger basin volume.

7. The stormwater conveyance system shall use the rational formula for determining pipe and culvert sizes. The hydrologic calculations models the pipes at reaches, though the tributary flows are not based on rational storm events. (§245-13.A.(3))

   Allen Engineering Response: The rational method is an older form of computation. SCS TR-20 calculations used with HydroCAD modeling is an industry standard which the Town of Bellingham has accepted numerous occasions.

   B+T Response: As previously noted, the industry standard for hydraulic modelling (i.e. catch basin to manhole pipe networks) is the Rational Method. This calculates instantaneous flow rates for mostly-impervious areas tributary to the respective drain inlets. While there is a case for SCS TR-20 hydrologic modelling of the cross culvert given the complexity of the tributary watershed (as noted in other comments), we feel the Rational Method is appropriate for the design of the roadway drainage pipe network.

8. Detention basin berm (fill) slopes shall not exceed 4:1 (horizontal to vertical) and it appears the basin side slopes are proposed at 3:1 throughout. (§245-13.A.(3))

   Allen Engineering Response: The basin fill slopes have been adjusted from 3:1to 4:1.cp M

   B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

9. We request the Applicant revise the catch basin construction detail to clearly specify curb inlets (noting transition sections) as well as specifying SNOUT hoods (or equal). The LeBaron models depicted are no longer available.

   Allen Engineering Response: The catch basin detail has been revised accordingly.

   B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

10. A 6-foot chain link fence is required around the proposed basins. The construction detail depicts a 4-foot-high fence. (§245-13.D.(2)(g))

    Allen Engineering Response: The plans and details have been revised to specify a 6-foot fence height.

    B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

11. The Operation and Maintenance Plan shall include an estimated annual cost to maintain the stormwater management system and the Applicant is required to submit sufficient funds to cover these expenses for ten years. (§245-13.D.(2)(h))

    Allen Engineering Response: AEA has provided a "Stand Alone" Operation and Maintenance Plan with the estimated costs provided.

    B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

12. The soil tests for the proposed stormwater basins were performed November 5th and 6th of 2025. Deep tests shall be made between February 15th and May 15th. (§245-13.D(2)(b))

    Allen Engineering Response: Although the Applicant has made an effort to comply with the subdivision rules and regulation to the extent practicable, the project is technically not subject to the subdivision rules and regulations. Furthermore, soils testing to determine estimated seasonal high groundwater is commonly based on redoximorphic features (a.k.a. mottles) versus observed high groundwater. For this reason, the time of year is inconsequential.

    B+T Response: No further comment necessary.

13. Basin depth shall not exceed five feet. Infiltration Basin #1 has a depth of 7.5 feet from the bottom of the basin to the top of the berm, though the ponding depth does not appear to exceed five feet. It is unclear as to why the basin is approximately three feet deeper than the 100-year maximum ponding depth. (§245-13.D(2)(a))

    Allen Engineering Response: The ponded water elevation is below 5 feet in depth. With the increase in the 100- year rainfall amount to 8.75" the basin is slightly larger than required.

    B+T Response: As the basins are dependent on exfiltration, we recommend that at a minimum there be a condition of approval for seasonal monitoring for a period upon project completion to ensure the basins effectively dewater as designed. If the basins do not draw down, the ponded depth will exceed five feet before cresting the spillway.

14. We request the Applicant include a construction detail for the roadside swales consistent with the regulations. (§245-13.F(3))

    Allen Engineering Response: A construction detail has been provided for the roadside swale at station 0+50 to 2+50, right side. See Sheet C-11. There are no other roadside swales proposed.

B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

15. The post development subcatchment boundaries associated with the proposed roadway are difficult to ascertain on the Proposed Drainage Plan (1"=150' scale). We recommend the Applicant provide a separate plan of these areas at a more conducive scale.

    Allen Engineering Response: AEA has added smaller scale sheets to show the post development areas as suggested.

    B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

16. We request the Applicant provide recharge, drawdown, forebay sizing, and water quality volume calculations for Basin #3.

    Allen Engineering Response: These basin #3 calculations have been added to the revised Drainage Report.

    B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

17. The Checklist for Stormwater Report erroneously indicates there is no disturbance to any Wetland Resource Areas (under LID Measures), though the project includes wetland fill.

    Allen Engineering Response: The Stormwater Checklist has been revised to remove the erroneous information.

    B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

18. While not checked on the Checklist for Stormwater Report, it appears the site is subject to the 44% TSS pretreatment requirement for Standard 4. The requirement is met given the deep sump catch basins being routed to the forebays. The Water Quality Volume depth should be checked.

    Allen Engineering Response: It is AEA's opinion that this project does not meet the threshold to require 44% TSS removal prior to infiltration. The site is not considered a LUHPPL nor will any stormwater discharge within 100 feet of the vernal pool.

B+T Response: The site would be subject to the 44% pre-treatment requirement, The presence of rapid infiltrating soils triggers the 44% pre-treatment requirement for infiltration basins, regardless of critical areas or LUHPPLs. It appears the stormwater calculations accounted for the 1" water quality volume.

Wetland Regulations – Stormwater Compliance §247-33

1. The Regulations require three testing locations for each basin. There were three tests performed in and around Infiltration Basin #1. Two were performed in the vicinity of Infiltration Basin #2. While this testing may be adequate for these two basins (given the size and findings), there is no soil testing information for Basin #3. (247-33.B(2)).

   Allen Engineering Response: Basin 3 was added after the initial soil testing. Test pits were recently performed within Basin 3. Test pit logs have been added to Sheet C-8.

   B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

2. We request the Applicant confirm the emergency spillways are designed to pass the 100-year inflow rate with 6" of freeboard to the top of berm (i.e. basin in failure (§247-33.B(4))

   Allen Engineering Response: The revised Drainage Report shows that the ponding elevation does not reach any of the three overflow spillways under "failure" conditions even in the 100-year storm event. Thus the need to evaluate the spillway is not applicable.

   B+T Response: Our interpretation of the regulation is that spillways are to hydraulically designed to pass flows tributary to the basin (ignoring detention; flow-in is equal to flow-out) with a minimum of 6" of freeboard between maximum flow elevation and the top of the berm. For a basin in failure, the assumption is that retained runoff will not draw-down within a reasonable period of time and the water surface elevation could reach the spillway after consecutive storms.

General Engineering

1. There are roadway centerline grades proposed at 10%, though the Subdivision Rules and Regulations (§245-12.E.(2)) specify an 8% maximum. We note this for the benefit of the Board and understand the Applicant is not filing a Definitive Subdivision Plan.

   Allen Engineering Response: Blackstone Street is an existing right-of-way and the Applicant does not own or control all of the adjacent land. For this reason, the proposed vertical alignment is constrained by the grade of the existing gravel roadway.

B+T Response: While not a Definitive Subdivision Plan, the roadway will be utilized by the public in a residential area. Noting the referenced constraints, we defer to the Board on whether modifications to the design are warranted.

2. There are no sidewalks proposed. While we understand the Applicant is not filing a Definitive Subdivision Plan, a subdivision road would require a sidewalk per the Rules and Regulations (§245-15(A)(2)). The proposed roadway is a 1,900±-foot dead-end with restricted pedestrian access at wetland crossing approximately 250 to 500 feet west of the intersection with the existing road.

   Allen Engineering Response: The Applicant is not proposing a sidewalk due to the constraints noted in the response to Comment no. 3 below.

   B+T Response: While not a Definitive Subdivision Plan, the roadway will be utilized by the public in a residential area. Noting the referenced constraints, we defer to the Board on whether modifications to the design are warranted.

3. The rate of curvature (K) values for some of the proposed vertical curves are appropriate only for speeds up to approximately 25 miles per hour. For example, the crest curve at STA 11+15 has a K=13.2 (design K=12 for 25 MPH per MassDOT Exhibit 4-26) and the sag at STA 15+25 has a K=21.7 (design K=26 for 25 MPH). We defer to the Board as to if there will be a posted speed limit or the Town speed limit of 25 MPH in thickly settled or business districts would apply.

   Allen Engineering Response: Blackstone Street is an existing right-of-way and the Applicant does not own or control all of the adjacent land. For this reason, the proposed vertical and horizontal alignments are constrained by the width and grade of the existing gravel roadway. Furthermore, the nearest posted speed limit is on North Street at the intersection of Blackstone Street, which his 25 MPH. Designing for 25 MPH is consistent with the surrounding neighborhood.

   B+T Response: We understand the existing constraints, but recommend the Applicant explore increasing K values to a minimum of 26 for the sag vertical curve to achieve a minimum design speed of 25 MPH.

4. There does not appear to be adequate space to install the retaining wall in the vicinity of the wetland/vernal pool, especially along the southern wall. There appears to be approximately two feet between the face of the wall and sediment control barrier and there appears to be a one-foot toe per the wall detail. We request the Applicant provide a narrative on the anticipated retaining wall construction.

Allen Engineering Response: The Applicant's goal is to minimize the wetland impact to the extent possible. We do however, concur that the construction corridor is narrow. For this reason, we have adjusted the work limits on both sides to allow additional room for construction. This has resulted in a slight increase in BVW impact from 2,302 sf to 2,525 sf. In addition, at the discretion of the Planning Board, the width of the travel way may be reduced from 22 feet to 20 feet.

B+T Response: While the expanded work area may be adequate for construction of the wall, we recommend a condition requiring the staking and field confirmation of the sediment control barrier prior to commencement of the work. This will ensure additional wetland impacts are not warranted, as noted in the NOI review for the Conservation Commission.

5. Two existing culverts were observed below Blackstone Street connecting the WF-A and B Series wetlands but are not indicated on the plan. We request that the Applicant revise the plans to depict these features.

   Allen Engineering Response: After an extensive search, only a single 12" RCP culvert was found. It has been survey located and depicted on the plans.

   B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

6. Sediment control barriers should be provided/extended to areas downgradient of proposed earthwork/trenching. For example, along the eastern perimeter of the drainage easement to Infiltration Basin 1, south of the roadway off-grading west of STA 7+00±, and around Infiltration Basin 2 and associated easement.

   Allen Engineering Response: The sediment control barrier has been extended at Basin 1. All other areas referenced are far removed from any wetland resource areas and therefore do not warrant erosion controls

   B+T Response: It is generally good construction practice to provide sediment control barriers along the downgradient limit of work to minimize the potential transport of sediment to undisturbed woodland, even in non-jurisdictional areas.

7. The proposed 2-foot high box culvert (at STA 3+45) appears as if it will have one foot of substrate placed within (per the roadway profile and invert elevation). Please provide a construction detail specific to the culvert and confirm this is the intent. If so, this will leave a relatively shallow one-foot-high opening. Please provide an operation and maintenance plan outlining measures to keep the culvert clear and functional in the wooded environment. It is also unclear how the substrate will be placed within the 37± foot culvert length, if that is the intent.

Allen Engineering Response: There is no substrate proposed within the culvert. The profile view was simplified for clarity, which shows the left and right side of the culvert. A detail of the culvert has been added (see Sheet C-11).

B+T Response: The original comment has been adequately addressed by the Applicant. However, we note the longitudinal slope of the box culvert is 4.41%, though the detail indicates 4%.

8. The proposed 10-foot-wide box culvert appears as if it may have as little as 10 square feet of open area. Comparatively, the existing low point along the roadway extends at least 100 feet and excess runoff could theoretically crest over this length. Please confirm how the proposed culvert was sized and that it has adequate hydraulic capacity to convey any overflow from the vernal pool and wetland. Hydraulic analyses and water budgets may be warranted to demonstrate there are no adverse effects on the vernal pool or the wetlands.

   Allen Engineering Response: The proposed box culvert has an open area of 20 square feet. The culvert has been designed to convey the 50-year storm. Please refer to the drainage report. The inlet invert has been established at the same elevation as the gravel road where flow currently overtops the road in larger storm events. This will ensure that the vernal pool hydrology will function as it currently does.

   B+T Response: Existing culvert information has since been added to the plan. See General Engineering Comment #5. This culvert appears to have an inlet invert elevation of 291.31, indicating flows would pass below the existing gravel road prior to cresting over it. The new box culvert is proposed with an invert of 294.00, which would alter the hydrology, as the vernal pool would pond an additional 2.5+ feet in the post-development condition (as the existing culvert is being abandoned/filled).

9. There are multiple existing culverts crossing beneath the unimproved way providing hydraulic connections between the wetland systems proximate to the vernal pool. Please evaluate and provide documentation demonstrating the proposed design (consisting of the single box culvert) is consistent with the existing wetland hydrology.

   Allen Engineering Response: After an extensive search, only a single 12" RCP culvert was found. It has been survey located and depicted on the plans. The culvert was found to be blocked on the upstream side for an unknown period of time and is currently not functioning. The applicant has elected not to restore the existing culvert.

   B+T Response: See General Engineering Comment #8.

10. We recommend the Applicant investigate whether the proposed water main be insulated where it crosses beneath proposed culverts, as there is less than 5-feet of separation to the open-air.

    Allen Engineering Response: Insulation is to be provided. A notation has been added to the profile accordingly (see Sheet C-5).

    B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

11. Several stormwater drain pipes are proposed at slopes of 10%, including the 12" HDPE outlet pipe from DMH 3 and the 15" HDPE outlet pipe from DMH 5. This results in maximum flowing full velocities of 14.4 and 16.7 feet per second, respectively. Standard engineering practice is for maximum velocities to not exceed 12 feet per second.

    Allen Engineering Response: The outlet pipe from DMH-3 has been lowered to mitigate the excessive velocity. The outlet pipe from DMH-5 is sloped at 1%, not 10%.

    B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

12. We request that the Applicant extend the ends of the gabion at Infiltration Basin 3 to the 291± contour elevation.

    Allen Engineering Response: The gabion has been extended as requested.

    B+T Response: While the western end of the gabion was extended to the required elevation, the eastern end has not.

13. We request the Applicant provide maximum 100-year storm water surface elevations within the Basin Elevation Schedule on the Stormwater Collection and Infiltration Basin detail on C-11. In accordance with the Bellingham Wetlands Regulations Section 247-33.B(3), basins shall be designed with a minimum one foot of freeboard from the 100-year ponding elevation to the emergency spillway. Standard engineering practice dictates an additional one foot of freeboard above the emergency overflow spillway to the top of berm. Also, please revise this detail to delete what appears to be an erroneous top of berm elevation of 216.60.

    Allen Engineering Response: a row for maximum ponding has been added to the table on Sheet C-11. A foot of freeboard has been called for above the spillway for each of the three basins. Also, 216.60 has been removed.

B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

14. We request the Applicant consider proposing outlet control structures at each of the infiltration basins, in accordance with the MassDEP Stormwater Handbook. The design is dependent upon the infiltrative capacity of the soils. Under frozen/frost conditions, the basins may not dewater within 72 hours as required by the MassDEP Stormwater Management Policy.

    Allen Engineering Response: The basins have been designed with exfiltration and emergency spillways as their outlets. The result is a larger basin than if additional outlets were added. This conservative approach will allow for future outlet control structures to be inserted after the final development of the property has been designed.

    B+T Response: Generally, infiltration basins are designed with outlets at lower stages (below the emergency spillway) to efficiently mitigate peak rates and retain the necessary recharge volume. The current design is wholly dependent on exfiltration, and the Applicant acknowledges the basins are oversized, accordingly. We recommend there be a condition of approval for seasonal monitoring for a period upon project completion to ensure the basins effectively dewater as designed. We acknowledge future development could warrant modifications to these basins.

15. We recommend the Applicant propose a free-draining loam for the bottom of the infiltration basins. The loam shall not impede infiltrative capacity.

    Allen Engineering Response: The detail on Sheet C-11 has been revised accordingly.

    B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

16. We recommend drawdown devices be proposed to dewater each of the basins for maintenance, in accordance with the MassDEP Stormwater Handbook.

    Allen Engineering Response: As stated in response no. 14, there are no low flow structural outlet control devices designed. In the unlikely event that the basins do not drain, dewatering can be performed by using a temporary pump.

    B+T Response: As previously noted, we recommend that at a minimum there be a condition of approval for seasonal monitoring for a period upon project completion to ensure the basins effectively dewater as designed.

17. The paved widths on the roadway details on sheet C-11 are inconsistent with the notes. Assuming binder is paved 1.5 feet beyond traveled way, the binder width would be 25 feet (not 23 feet) to support the bituminous berm. Revise the roadway cross-sectional details to depict accurate pavement widths including pavement below the berm.

    Allen Engineering Response: The cross-sections have been revised accordingly.

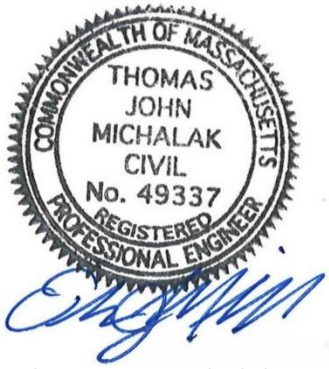
    B+T Response: This comment has been adequately addressed by the Applicant. No further action is required.

B+T is available to attend the public hearing, upon request, to present the results of our review and be available for discussion regarding the comments listed herein.

Thank you for the opportunity to assist the Town of Bellingham with the review of the Stormwater Management Permit and Development Plan Approval Applications. Feel free to contact our office with any questions.

Sincerely,

BEALS AND THOMAS, INC.



Thomas J. Michalak, PE
Senior Civil Engineer

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