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May 8, 2020

Ms. Whitney McClees & Mr. Paul Foley  
Conservation Commission and Planning Board  
Town Hall  
40 Center Street  
Fairhaven, MA 02719

RE: Proposed Auto Dealership, Fairhaven, MA.  
Notice of Intent / Site Plan  
250 Bridge Street.

Dear Ms. McClees and Mr. Foley:

GCG Associates, Inc. has reviewed the following information for the 250 Bridge Street, proposed auto dealership site plan in Fairhaven, MA with respect to stormwater and Stromwater related requirements under 310 CMR 10.00 Wetlands Protection Act Regulations.

Plan References: Proposed Auto Dealership, 250 Bridge Street, Fairhaven, MA prepared by Prime Engineering, Inc. dated April 27, 2015, last revised March 10, 2020.

Documents: Supplemental Drainage Calculations prepared by Prime Engineering, Inc. dated April 13, 2020

Cover letter with waiver requests dated prepared by Prime Engineering, Inc. dated March 17, 2020

Based upon our review of the above information, we offer the following general comments and comments with respect to compliance with Town Bylaws: Chapters 192 – Wetlands; 194 - Stormwater Management, Illicit Discharge, Soil Erosion, Sediment Control By-Law; 198-31.1 – Zoning - Stormwater Management and 310 CMR 10.00 Wetlands Protection. The numerical section of the regulations is referenced at the beginning of each comment unless it is a general comment. Prime Engineering, Inc. response shown in *Italic Arial*, GCG latest comments shown in [blue](#).

### **GENERAL PLAN AND DEVELOPMENT COMMENTS**

The following are general comments with respect to the plans and development of the project.

1. This is a partially developed lot located at the northwest side of Bridge Street and Route 240 intersection, as identified as Assessor's Map 36 Lot 15. The parcel consists of 5.35+/- acres. The site was improved with an existing pavement driveway approximately 23'+/- wide by 350'+/- length connecting Bridge Street to Lot 15C, where an existing auto dealership uses.
2. The applicant has filed a Notice of Intent for a commercial site plan development for auto dealership uses, the project calls for a single storage building for automobile show room, office, vehicles maintenance uses, and associated pavement parking lot and utilities. The proposed work area is over 1 acre and requires filing an US EPA - NPDES permit and associated SWPPP. (NPDES NOI shall be filed 14 days prior to construction start.)
3. The proposed work limit also exceeds the Land Disturbance Permit (Chapter 194) threshold and requires filing a permit with the Fairhaven Board of Public Works.
4. The proposed Auto Sale and Services (Auto Dealership) is permitted by right in the Industrial Zone. This site development requires a Planning Board Special Permit approval per Chapter 198-29. Which requires site design in compliance with Chapter 198-31.1 Stormwater management standards. Hence, stormwater management design is being reviewed to meet 198-31.1 requirements.
5. The project is located within Zone X, Area of Minimal Flood Hazard, (FIRM 25005C0394G, effective 7/16/2014), four series (A, Y, Z, and HS) of wetland resource area were identified on the property and requires to file a Notice of Intent with the Fairhaven Conservation Commission and MassDEP.
6. There is no NHESP estimated habitats of rare wildlife or rare species identified in the site vicinity per MassGIS.

## PLAN SET

Drawing Sheet 1 - Title Sheet.

1. *Plan note #2. A variation is requested to Stormwater Management – Section 198-31.1. A(1)(a)[2], to allow the increase in volume of runoff due to the D soil and near surface ground water. This is a local regulation requirement only and is not regulated by MassDEP. 198-31.1.C(2)(k)[1], requires the volume control shall be by infiltration; [2] requires infiltration areas shall be located in areas with a Hydrologic Soil Group (HSG) of A, B, or C. The subject site is entirely located within HSG 'D' soil per NRCS soil survey. Therefore, infiltration is impractical and without the waiver, the site would be un-developable. No response necessary. **The latest calculations shown post-development runoff volume net increases of 0.274 AF (193%) and 0.329 AF (162%) for 2-year and 10-year storm events, respectively. A waiver has been requested due to the physical soil limitation on the site. The latest calculations shown post-development runoff volume net increase of 0.282 AF (194%) and 0.332 AF (163%) for 2-year and 10-year storm events, respectively. Waiver for 198-31.1.A(1)(a)[2] and C(1)(a), have been requested.***
2. *Plan note #3. A variation is requested to Stormwater Management – Section 198-31.1. B(2)(a)[h]&[i], to not provide soil logs since the infiltration is not proposed due to the D soil and near surface ground water. GCG recommends deep hole tests be performed at the proposed pocket wetland location to determine the seasonal high ground water (ESHGW) elevation and verify the available storage volume (above the ESHGW) and available water table to support the wetland vegetation. Soil deep hole test should also be performed at the rain garden #1 culvert outlet location to assure the pipe invert are*

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not submerged below ESHGW. A hand dug test pit was dug on December 1, prior to any precipitation. There had been no significant antecedent precipitation for 5 days. The location of the test pit is shown on Sheet 4-Grading and Drainage Plan. The fine sandy silt at an 8-inch depth (elevation 43.0) was wet and indicative of the water table. The log is enclosed in Attachment A. We have determined that the constructed pocket wetland will be notched into the seasonally high-water table. There will be adequate storage above the seasonally high-water table because the elevation of the detention basin outlet culvert will assure that the water in the basin is always at the outlet invert elevation 43 .0 except during significant surficial rainfall runoff events. The existing pipe invert elevation downgradient of the raingarden will assure that the pipe will not be submerged by the groundwater. **Resolved. This item is also for supporting waiver request item 1 above. This note has been removed from plan.**

3. *Plan note #4. A variation is requested to Stormwater Management – Section 198-31.1. C(2)(g)[6], to allow the side slopes to be 2:1 to minimize impacts to wetland. This requirement is regulated by the local regulation as well as the State regulations. The local regulation requires a 4:1 grade or approved by the Conservation Commission. The regulation also requires a 10' wide bench at 0% slope surround any permanent pool. The Massachusetts Stormwater Handbook (MSH) requires the sediment forebay side slope not steeper than 3:1. And requires a 15' wide maintenance path surrounding the constructed wetland. The proposed plan shown a 1:1 slope along the west side of sediment forebays and pocket wetland. GCG recommends providing a 3:1 minimum slope along the sediment forebays to meet MDEP requirements. Constructed wetland should maintain a minimum of 2:1 side slope with a 10' wide top bench for maintenance access. The proposed rain gardens could utilize the paved drive aisle for maintenance access. Granting a waiver for the State required access path width does not relief the developer to future actions imposed by MDEP. Alternative would be reducing the proposed pavement area to meet the local and MDEP requirements. Over the past 50 years of designing detention basins and fore bays, we have determined that the fore bays require regular cleaning prior to the ground being fully stabilized. Once the ground is stable, the main source of sediment is the occasional sand that is spread on the parking lot during winter icing events. That sand is swept on a regular basis. The small amount of sand that is not swept is captured in the deep sump catch basins. The volume of sediment that reaches the forebay from a .41-acre parking lot can be removed by a hand shovel into a 5-gallon bucket and carried out by foot. There is no need for other equipment access, nevertheless, a 4:1 slope has been provided to access both forebays. **Both State and Town regulations are for equipment and vehicle access. MSH also requires clean out sediment in basin/wetland system once every 10-year, which would be difficult without equipment. The two proposed forebays have 4:1 side slope on 1 side. GCG recommends widening the northern forebay 4:1 area to 10 feet wide and provide a 10' wide access, (6' width proposed). Pocket wetland #1 has side slopes of 2:1 and 1:1; Pocket wetland #2 has 2:1 side slope. A 10' wide access has been provided for pocket wetland #1. Waiver for 198-31.1. C(2)(g)[6] to allow detention basin side slope to be 2:1 rather than 4:1 has been requested. There is no minimum requirement for constructed wetland side slope by the MSH.***
4. *Plan note #5. A variation is requested to Stormwater Management – Section 198-31.1.C(3), to allow the low impact development (LID) design meet the bmp requirements, as requested by the conservation commission. This requirement is regulated by the local regulation. The proposed pocket wetland basin and rain gardens BMPs could meet the MSH stormwater management standards. See additional comments regarding the BMPs below. No*

response necessary. **See BMPs comment below.** [This note has been removed from plan.](#)

#### Drawing Sheet -2 – Existing Conditions Plan.

1. Wetland delineation line as shown requires Conservation Commission approval. *The Conservation Commission has approved the wetland delineation.* **Resolved.**
2. Plan shown depression contours (47) along four rip-rap patches on the west side of existing paved driveway, and a rip-rap weir east of wet flag A32. It appears existing driveway runoff was designed to drain into the depressions through rip-rap patches for retention and overflow through the westerly rip-rap weir onto the west wetland. The pre-development drainage calculations should include this ponding element or based on the previous calculations. *Attachment A presents the soil log.* **Resolved.**
3. There is an existing catch basin located at the south side of wet flag A30. The two connected catch basin rim, inverts and outlet should be identified on the plan. The proposed rain garden #1 outlet pipes are located within 10' of the catch basin and may cause interference with the catch basin's function. *The drainage structure information has been added to Sheets 2 and 4.* **The project engineer clarified that the site drains southward to the Bridge Street catch basin. The pair of 12" RCP connected to the Bridge Street catch basin inverts (North side) are lower than the two outlet inverts (South side), which would cause sediment built up inside these two catch basins. GCG recommends to add the on-site catch basin to the Operation and Maintenance plan. [The existing on-site catch basin should be included in the O&P plan for inspection and maintenance.](#)**

#### Drawing Sheet 3 – Erosion Control Plan.

1. **Catch basin silt sack should be installed at the two catch basin located west of the site driveway and catch basin at the intersection of Route 240 and Bridge Street.** [These two offsite and one onsite existing catch basins silt sack installation should be called out on the plan.](#)

#### Drawing Sheet 3 (New Sheet 4) – Site Layout Plan.

2. The easterly parking lot edge of pavement should have a curb/berm to direct surface runoff to the two catch basins and forebays for treatments. *The curbing is shown on Sheet 3.* **Cape cod berm needs an opening in front of Rain Garden 2 to collect runoff.** [Resolved.](#)
3. Access path openings should be provided for the constructed wetland and forebays maintenance. *The curbing is shown on Sheet 3.* **There are parking spaces assigned in front of the maintenance path accesses. Since this is an automobile dealership use, the owner should have full control of the parking arrangement. The operator should be responsible to clear the parking spaces during system maintenance.** [Guard rail should be shortened to clear maintenance access.](#)
4. Snow storage areas should be called out on the plan, snow should be stored outside the stormwater BMPs. *A snow storage has been added.* **The proposed snow storage area is located at the entrance of a one-way parking area, which will block the section of parking spaces. GCG does not see any suitable location for snow storage. We recommend the applicant to call out "Snow shall not be disposed within the Stormwater BMPs and excess snow to be removed off site by the owner with no**

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costs to the Town.” And specify on the Stormwater Operation and Maintenance (O&M) plan that snow shall not be stored within the stormwater BMPs. O&M plan shall be signed by the operator. [Note added to the site layout.](#) [Resolved](#)

#### Drawing Sheet 4 (New Sheet 5) – Grading and Drainage Plan

1. Plan should identify the portion of roof area drains to rain garden. Calculations shown only drop off vehicle roof area drains to rain garden. Roof drain pipe sizing calculations should be provided. *The entire building's roof slopes down from the front (south) end to the rear (north) end. For the 100-year storm  $Q = ciA = (.95) (8.4) (.29) = 2.32$  CFS. The proposed 12-inch HDPE roof drain can pass 5.0 CFS at a velocity of 6 FPS.* **Plan should identify the section of roof drains to rain garden through the eight-inch diameter ductile iron pipe, which does not have the capacity to handle the entire roof runoff. The divide is shown in the HydroCAD report and should also be identified on the plan for the contractor. The 8" DI roof drainpipe should be identified for the drive through overhang roof only.**
2. Curb or berm should be installed along the easterly edge of pavement to assure surface runoff be treated by the deep sump hooded catch basin and sediment forebay. *There is a cape cod berm. The curbing is shown on the Site Layout Plan.* **Resolved.**
3. Curb or berm should be installed along the Bridge Street access between the high point 47.20 to rain garden #1 crushed stone berm. *There is slope granite curb as shown on the Site Layout Plan.* **Resolved.**
4. Provide rip-rap protection at the rain garden #1 spillway and pipe outfalls. *A stone apron has been added.* **Resolved.**
5. The proposed three feet wide grass strip does not meet grass filter strip pretreatment requirements, filter strip length should be sizing per MSH Vol.2, Ch.2, Pg. 26. *The Stormwater Manual allows an 18-inch width of gravel followed by 3 feet of sod as shown on the detail on Sheet 4.* **The proposed 8 inches of gravel followed by 3 to 5 feet sod pre-treatment is based on the North Carolina Stormwater Manual (NCSM) as referenced by MSH. NCSM requires the bottom of the bioretention system to have two feet separation to seasonal high groundwater table and minimum media soil depth of 3 feet thickness and side slope not to excess 3h:1v. Therefore, the proposed pre-treatment filter strip does not meet the application. Another suitable pre-treatment should be provided.** [Rain garden deleted.](#) [Resolved.](#)
6. Please identify the circular object next to the southeast forebay. *The former silo has been deleted from the plan.* **Resolved.**
7. MSH requires side slopes of sediment forebay no steeper than 3:1 (MSH Vol.2, Ch.2, Pg. 15), and requires a minimum width of 15 feet access for maintenance. (MSH Vol.2, Ch.2 , Pg.45). *A waiver is being requested.* **The applicant has provided a 4:1 slope on one side and 1:1 and 2:1 on the remaining sides of both forebays. GCG recommends widening the 4:1 side slope on the north forebay to 10 feet width and provide a 10 feet wide access path on top of the earth berm (6' width proposed). GCG recommends the wavier be considered with these modifications. However, the recommended modified system still not meeting the MSH (MDEP) requirements. But it will provide a reasonable access for maintenance and repair if necessary. Granting this wavier should not relief the applicant for any further actions imposed by MDEP.** [Forebays 1 and 2 \(Pocket wetland basin #1\) have 4:1 side slope on 1 side and 2:1 and 1:1 on other 3 sides. Forebay 3 \(Pocket wetland #2\) has 2:1 slope on four sides. MSH requires sediment forebay side slope not to excess 3:1. One side of forebays 1 & 2 have 4:1 slope. Forebay 3 is relatively small and located next to](#)

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the parking lot. The forebays are accessible for maintenance and constructed wetland forebay requires cleaning once per year.

8. 198-31.1(C)(2)(g)[6] – requires basins/ponds designed for stormwater runoff control shall have side slopes at a no steeper than a 4H to 1V grade. And a ten-foot wide bench surround any permanent pool. 1:1 and 2:1 side slopes proposed, Applicant is seeking a various, see Cover sheet comment #3. *A waiver is being requested. MSH does not specify a minimum side slope for constructed wetland. Since MSH only requires clean out sediment in basin/wetland systems once every ten years, steep side slopes could be ramped during the infrequency maintenance. GCG does not see any adverse impacts for granting this waiver. However, a minimum 10 feet wide access path should be provided, (MSH requires a minimum of 15' wide access). Nevertheless, the same waiver could not be apply to the rain garden/ bioretention area, MSH requires pre-treatment for rain garden BMP, a minimum vegetated filter strip length of 15' to 25' is required depends on using the Georgia Stormwater Manual or MSN chapter 2 - Vegetated Filter Strips calculations. MSN also requires bioretention area must not located on slopes greater than 20%. The intention of the mild slope is to slow the sheet flow velocity to allow vegetation pre-treatment. Waiver for 198-31.1. C(2)(g)[6] to allow detention basin side slope to be 2:1 rather than 4:1 has been requested.*
9. 198-31.1(C)(2)(k) - Forebays [1][b] requires forebays to be sized to contain 0.25 inches per impervious acre of contributing drainage and [d] requires forebay be four feet deep. Volume calculations per each forebay should be included in the report. *Attached are computations for forebay sizing (Attachment 8). A 2-foot deep forebay will be provided. A waiver is requested. The calculations were based on 0.1 inch of impervious surface area as required by MSH sediment forebay design. However, the proposed forebays are part of the constructed wetland and should be sized as such per MSH Table CSW.1, Vol.2, Ch.2,Pg.43. According to the MSH constructed wetland pollutant removal efficiencies rating, a constructed wetland would meet the Fairhaven's TSS, total Nitrogen and total Phosphorus removal standards. Therefore, granting a waiver for 198-31.1(C)(2)(k) should not have any adverse impacts if the constructed wetland meets all MSH requirements. Forebays 1 & 2 requires 0.25 inches volume. Forebay 3 volume calculation shown on sheet 9 does not match the depth shown on the plan (forebay 3, bottom 42 to stone dike elevation 43), height should be 1'. The volume per plan should have a volume of 82+/- C.F. or equals 1.6 inches of the impervious area volume. Waiver for 198-31.1.C(2)(k) has been required. (see waiver requests letter).*
10. 198-31.1(C)(4)(a)[2] – requires 48-hour detention time for the water quality (198-31.1(A)(1)(b) - First Flush = (1.25"), see 198-33 Definitions) storm. This regulation should be included in the variance seeking Section 198-31.1.C(3), see Cover Sheet comments #4. The regulation would require the pocket wetland to provide the 1.25" storage volume for treatments. *A constructed pocket wetland has been selected due to its better performance compared to extended detention basins (infiltration units were rejected due to the poor soils, high water table and their inherent propensity for failure). In accordance with the MassDEP Stormwater Manual, the following are projected removal rates:*

Removal Efficiency	Nitrogen	Phosphorus	Total Suspended Solids
Constructed Wetlands	20-55%	40-60%	80%
Extended Detention Basins	10-30%	15-50%	50%

*It is clear the proposed treatment system meets the performance standards of Fairhaven's Stormwater Management Regulations and the MassDEP Stormwater Standards.*  
**GCG concurs that a proper constructed wetland and raingarden/bioretention systems designed would meet the performance standards of Fairhaven's**

**Stormwater Management Regulations and the MassDEP Stormwater Standards. However, both systems need to meet all standards required by MSH. GCG recommends granting the waiver be considered subject to all other requirements meeting MSH standards. [Waiver for 198-31.1C \(3\)\(d\) – Approval of constructed pocket wetlands and Stormceptor as water quality BMPs](#) has been requested.**

11. 198-31.1(C)(4)(a)[1 & 6] – requires establishment of, and the methodology with which to maintain, wetland vegetation on the bottom of the basin. GCG recommends soil testing to determine the ESHGW, see Cover Sheet comment #2. *The regulations focus on the establishment of a methodology with which to maintain wetland vegetation on the bottom of the basin because extended detention basins are almost always inundated and, therefore, establishing vegetation in an extended detention basin is difficult, if not impossible. This results from the fact that on average it rains every three days (approximately 120 times per year) and the local soils are slow to infiltrate and tend to clog by the fine particles that settle in extended detention basins. The proposed constructed wetlands, on the other hand, will typically empty within hours of the end of the runoff events. The plants for each level of the marsh (high marsh, low marsh and semi-wet marsh) have been selected for those specific water depths. The Constructed Pocket Wetland Plan (Sheet 9) presents the planting schedule and Section 4 of the submitted Stormwater Report presents maintenance procedures. There was no soil testing on the proposed rain garden area, based on the same 10” below surface ESHGW assumption as indicated in TP-1, the rain garden would be in the ESHGW. Therefore, the two rain gardens would not meet the 2’ to 4’ depth soil media for pollutant removal requirements. MSH requires 30” minimum media depth for total nitrogen removal. GCG recommends considering constructed wetland BMP design or lining the rain garden to provide the required media soil depth treatment. [Two constructed pocket wetlands have been proposed. Resolved.](#)*
12. MSH Vol.2, Ch.2, Pg. 45 - requires constructed stormwater wetland to have an emergency spillway capable of bypassing runoff from large storms without damage to the impounding structure. Emergency spillway sizing calculations should be provided based on the brimful conditions. *The constructed wetland has been designed to contain the entire 100-year storm. The emergency spillway can pass 26 CFS. This can readily accommodate the 8.03 CFS 100-year peak flow into the basin (Refer to Attachment E). Resolved.*
13. MSH Vol.2, Ch.2, Pg. 45 – requires an access for maintenance. *A 4: 1 slope to the basin has been provided. MSH requires an access for maintenance, with a minimum width of 15’ and maximum slope of 15%. A 6 feet wide top of berm width was proposed. GCG recommends a minimum of 10 feet wide access be provided. [A 10’ wide access earth berm proposed.](#)*
14. Pipe(s) length and slope should be labeled. *The pipe lengths have been labeled. Please verify the Rain Garden #1, 4” HDPE outfall pipe invert on sheet 5 plan view. Rain Garden #1 10” HDPE pipe should length and slope should be labeled. The calculations used a 26’ pipe with slope at 0.0385 ft/ft. The plan scaled pipe length 20’+/. The earth berm elevation on top of the 10” HDPE should be labeled. The calculations shown a peak ponding elevation at 46.48 during the 100-year storm event rip-rap berm protection should be provided. GCG recommends to re-direct the two outlet pipes toward to the open field. [Rain Garden removed.](#)*
15. Provide pre-treatment in front of rain gardens per SMH Vol. 2, Ch.2, Pg. 25. *A one-foot width of stone, followed by a three-foot width of grass is shown in the cross section on Sheet 5. The pre-treatment strip was based on North Carolina Stormwater Manual (NCSM) design, which requires 3’ minimum soil media with 2’ separation to the ESHGW. MSH referenced two other pre-treatment vegetated grass strip designs based on MSH Chapter 2 and Georgia Stormwater Manual. Both manuals have similar requirement of 15’ to 25’ minimum grass strip length. In addition, the ESHGW*

(based on the assumption of similar depth shown on TP-1), the bottom of the two rain gardens are at or below seasonal high ground water. See additional soil media comments below. Please note, filter strips are restricted to the outer 50 feet of the buffer zone. (MSH Vol. 2, Ch.2, Pg.20.) [Rain Garden removed.](#)

16. Rain garden soil layer should be Engineered Soil Mix for Bioretention Systems Designed to Exfiltrate, MSH Vol.2, Ch.2, Pg.26. *The engineered soil has been revised.* **MSH stated that most of the pollutant removal occurs within the first 2 feet of soil, and where nitrogen removal is required should have a soil media with a depth of at least 30 inches. The proposed soil media depth of 1.5' and 1.2' for rain gardens #1 and #2, respectively, are within the ESHGW and not suitable for pollutant removal. GCG recommends lining the bottom of the soil media to allow a minimum of 30" depth soil media for treatment.** [Rain Garden removed.](#)
17. Pocket wetland area component (percentage calculations based on MSH Vol. 2., Ch.2, Pg.43) should be provided and shown on the plan. *The pocket wetland components have been presented on Sheet 9.* **See comment Sheet 9 below.** [Resolved.](#)
18. Site erosion control plan should be included, at a minimum, silt sack and silt fence/wattle/haybale should be installed during construction, existing pavement could be utilized for construction exit with inspection and sweeping operation. *An erosion control plan has been added.* **Catch basin silt sack should be installed at the two catch basin located west of the site driveway and catch basin at the intersection of Route 240 and Bridge Street.** [Silt sack should be shown on the Bridge Street catch basins.](#)
19. [Verify CB 3 Frame and Grate elevation. It should be 48.00 instead of 47.00.](#)
20. [Pocket wetland 12" outfall headwall invert should 42.63 instead of 42.75.](#)
21. [Cross Section A-A should show cape cod berm to assure surface runoff flows to deep sump catch basins for pre-treatment.](#)

#### Drawing Sheet 5 (**New Sheet 6**) –Utilities Plan

1. Subject to Planning Board review and approval.

#### Drawing Sheet 6 (**New Sheet 7**) – Lighting Plan

1. Subject to Planning Board review and approval.

#### Drawing Sheet 7 (**New Sheet 8**) – Landscape Plan

1. Constructed Pocket Wetland planting should be specified on this plan. *A blow up of the pocket wetlands with plantings has been added to sheet 9.* **See comment for Sheet 9 below. Resolved.**

#### Drawing Sheet 9 – Construction Wetland Plan

1. Please clarify the 38,147SF impervious area used to calculate the WQV. The Water Quality Volumes shown in the report called out 33,000 SF (non-roof) impervious area and the proposed building roof is scaled approximately 13,500+/- SF. (GCG was unable to verify the impervious area on the HydroCAD sub-catchment 1A, which included the forebays and constructed wetland surface areas.) MSH-Vol. 1, Ch.1, Pg.9 specified WQV should be based on the total impervious area, which should be based on approximately 46,500+/- SF. The % volume design criteria

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should match with the MSH Table CSW.1 Pocket Wetland requirements. The proposed wetland volume should meet SCW.1 requirement. [Resolved](#).

2. [Verify Forebay 3 volume calculations, height should be 1'](#).
3. [Construction pocket wetland schematic cross-section calls for see Crushed Stone Infiltration Berm detail. Detail drawing not provided.](#)

#### Drawing Sheet 8 (New Sheet 10) – Site Details

1. Please verify the 18" HDPE outlet pipe shown on the Headwall with orifice plate detail. *The 18-inch HOPE has been changed to 12-inch RCP. **Resolved**.*
2. Erosion control device, silt sack, wattle etc. should be included in the details sheet. A separate *Erosion Control Plan has been added with details. **See comment for new Sheet 3 above.*** [Provide silk sack detail.](#)

#### Drawing Sheet 9 (New Sheet 11) – Vehicle Movement Plan

1. Is there a function of the two-way driveway located north of the dumpster? The Vehicle movement plan shown no use of this driveway. Can it be eliminated for lawn area or snow storage? *The drive north of the building is to allow vehicle circulation around the building in the event that the property to the north is in separate ownership. **In the event of separating ownership, access and utilities cross easements would be generated for emergency vehicles access, dumpster pickup access, and sewer service. Reducing impervious area would improve the post-development runoff volume.***

#### STORMWATER REPORT COMMENTS

1. MSH Vol.2, Ch.3, Pg. 1 Checklist for Redevelopment projects – Only the existing paved driveway is considered re-development, and all other new impervious area needs to meet all MSH standards. *Previously developed is not limited to impervious areas. The area east of the existing drive has been maintained as lawn for many years. **All new impervious area would consider new development and required to meet MSH standards to the full extent.***
2. The existing paved driveway appears to be treated with rip-rap swales/pads and retention (depression at contours 47) BMPs along the west side of the pavement. Previous calculations or existing retention/ponding conditions should be included in the pre-development flow calculations. *The shallow swales west of the existing drive only have the capacity to hold the initial 1,800 cubic feet of runoff. Hydrocad software does not allow the addition of this initial abstraction to the computations. On Attachment C, we have shown the initial abstraction on the hydrograph in red. This initial abstraction does not impact the peak rate of runoff. In order to be conservative, we did not model these 1,800 square feet of standing water as impervious with a runoff curve of 98 since this would lead to a higher rate of runoff and a higher peak runoff under existing conditions. **The 1,800 cubic feet volume appears to fit mitigation volume for the existing 7,900 s.f. paved driveway. GCG recommends modelling the pre-development conditions with the existing 7,900 SF paved driveway as Meadow, non-grazed, HSG D (CN=78) to represent the original pre-development flow (prior to the existing driveway installation). And control the post-development flow to equal or below the original pre-development conditions. The surrounding abutters are fully developed, any increased in post-development runoff would affect the downstream properties. [The Existing Conditions Drainage Plan clearly shows drainage mitigation treatments \(several riprap check-dams and](#)***

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depressions) for the existing driveway. GCG recommend applicant to perform the calculations to analyze the development based on the original landform, (without the existing paved driveway), as required by MSH Standards #2.

3. The proposed layout/use appears to equip with vehicle maintenance and repair bays, and possible storage of petroleum product and may considered as fleet storage area. (applicant should verify our assumptions). Therefore, it is considered Land Uses with Higher Potential Pollutant Loads (LUHPPL). MSH Vol.1, Ch.1, Pg.14. Therefore, the vegetated filter strip, MSH Vol.1, Ch.1, Pg.14. and constructed wetland, Vol.2, Ch.2, Pg.36 and rain gardens, V Vol.2, Ch.2, Pg.23 should be lined and sealed for LUHPPL uses. *All vehicle maintenance will be indoors with mass standard oil and water separator discharging to the municipal sewer. The small volume of fuel and oil storage will be indoors and properly labelled. There is extremely little jeopardy for the proposed BMPs. There is no intention to line or seal the BMPs. A waiver is being requested.* **“Land Uses with Higher Potential Pollutant Loads (LUHPPL)” is based on uses classified by the EPA. Automobile repair services would involve impaired vehicles parked outdoor queuing for service/repair, which could cause higher potential for pollutant. GCG recommends BMPs to comply with MSH’s LUHPPL standards. In addition, the proposed rain gardens are in the ESHGW and would require lining to allow soil media treatment prior to contact with ground water. 310 CMR 22.20C.2(i) motor vehicle repair operations, are defined as LUHPPL. However, the proposed BMPs are suitable for LUHPPL uses.**
4. Forebays [1][b] requires forebays be sized to contain 0.25 inches per impervious acre of contributing drainage, please provide calculations. There were some calculations included in the page after the Drainage Summary table. However, the copy was very light and not readable. Please provide a clean copy. *The forebay computations are enclosed as Attachment B. The computations were based on (0.1” times impervious area) dry forebay sizing per MSH standard and does not meet the 0.25 inches required by this local regulation. However, these two forebays are part of the constructed wetland component and the required surface area and volume shown are specified in MSH Table CSW.1. A constructed wetland meeting all MSH requirements is rated with the pollutant removal rate meets or exceeds the Fairhaven’s performance standards and design specifications. Therefore, it should be considered as other water quality BMPs under 198-31.1(C)(3)(d). GCG recommends the applicant to request a waiver for the forebay sizing requirements. Waiver for 198-31.1.C(2)(k) has been requested.*  
198-31.1(A)(1)(b) - requires treatment of the Water quality (First Flush = (1.25” of entire impervious area on site), see First Flush definition for calculation formula (198-33). This regulation could be complied with the 1.25” volume storage within the wetland basin. *The first flush runoff will pass through the constructed pocket wetlands which has been verified as removing 80% of the suspended solids. A waiver is being requested to allow a .5-inch depth be the water quality volume. A review of many years of local rainfall reveals that 77% of all storms are less than .5 inches of total rainfall. The goal of treating the water quality volume is to treat the runoff from the day to day storms and worry less about the 23% of storms that have over ½ inch of rainfall. Although the first flush of those larger storms will also have their first flush treated.* **MSH rated constructed wetland and rain garden BMPs are suitable for LUHPPL uses and appears to meet Fairhaven’s performance standards and design specifications and should qualify as other water quality BMPs under 198-31.1(C)(3)(d). However, the BMPs design should be in full compliance with the MSH standards. Waiver for 198-31.1C (3)(d) – Approval of constructed pocket wetlands and Stormceptor as water quality BMPs has been requested.**

5. 198-31.1(A)(1)(a)[2] - No increase will be allowed in the volume of runoff off of the site up to the ten-year, twenty-four-hour design storm. The proposed drainage calculations shown increase of runoff volume during 2-year and 10-year storm events. The pre-development and post-development 10-year storm runoff volumes (combined DP-1 and DP-2) were 0.525 a.f. and 0.854 a.f., respectively. The applicant has requested a waiver, see Cover Sheet comment #1. *A waiver has been requested.* **The latest calculations shown post-development runoff volume net increases of 0.874 AF (193%) and 0.329 AF (162%) for 2-year and 10-year storm events, respectively. GCG recommends modifying the pre-development HydroCAD model to reflect the original pre-development conditions (prior to existing paved driveway development). The runoff volume could be controlled by reducing proposed new impervious area. Waiver for 198-31.1.A(1)(a)[2] and C(1)(a), have been requested.**
6. 198-31.1(C)(2)(n)[1-7] – storm drainage system capacity should be calculated based on 25-year storm event. Catch basin inlet and drain pipe capacity calculations should be provided. *Inlet and drain pipe computations are presented in Attachment D.* **Resolved.**
7. Both proposed Rain Gardens requires pre-treatment to qualify for 90% TSS removal. *The vegetated filter strips will provide pre-treatment.* **The proposed vegetated filter strip is not compatible with this design, the design as presented require 3' depth soil media and additional 2 feet separation to ESHGW. Resolved.**
8. 198-31.1(C)(4)(a)[2] - provide water quality volume (First Flush) 24 hour detention volume. *There is no requirement to detain the first flush for 24 hours. The constructed pocket wetlands have been confirmed to effectively treat the first flush.* **The applicant needs to request a waiver by proposed other water quality BMPs under 198-31.1(C)(3)(d). Waiver for 198-31.1C (3)(d) – Approval of constructed pocket wetlands and Stormceptor as water quality BMPs has been requested.**
9. The post-development HydroCAD report did not include the 25-year and 100-year events and GCG was unable to verify the capacity of the drainage design. Freeboard and emergency spillway sizing calculations should also be provided. *The 25- and 100-year drain computations are enclosed. They were inadvertently omitted.* **Resolved.**
10. MSH standard 3 requires 0.1" groundwater recharge volume over proposed HSG 'D' impervious area. The site is entirely in HGS 'D' soil and recharge is impossible and non-suitable in HSG 'D' soil. MSH calls for "maximum extent practicable" for ground water recharge in this situation. Therefore, the proposed without recharge volume is acceptable for this site. *No response is necessary.*

**OPERATIONAL AND MAINTENANCE (O&M) PROGRAM COMMENTS** (O&M plan dated February 18, 2020.)

1. Temporary Erosion Control should include catch basin silt sack erosion silt fence/wattle type of control. **Silt sacks should be added. Off-site catch basin silt sack should be shown.**
2. Snow storage area should be identified on the plan, since both sides of the development are bounded by BMPs. Snow storage areas should not be in the BMPs. **GCG recommends specifying no snow storage within the stormwater BMPs area. Excess snow should be removed off-site by the property owner.**
3. Long term O&M plan catch basin should be inspected and cleaned 4 times per year. Stormceptor is not part of the BMPs proposed. Grass/vegetated filter strip, rain garden, sediment forebays and constructed (pocket) wetland should be included in the O&M plan. **GCG recommends adding clean catch basin including existing on-site catch basin four times per year as required by MSH. Forebay clean out could be reduced**

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to once a year, these forebays are part of the pocket wetland system with ponding water and require less maintenance; Rain gardens requires inspect and remove trash monthly, mow 2 to 12 times per year, mulch, fertilize, remove dead vegetation and prune annually; Pocket wetland requires clean out sediment in basin/wetland once every 10 years; Specify disposal of removed sediment and debris off site according to the Federal, State, and local regulations. Remove rain garden from O&M plan.

4. O&M plan should provide a signature block for responsible party/operator signature. **Resolved.**
5. O&M plan should include estimated annual operation budget and long-term O&M (sample) log. **Resolved.**
6. Update O&M plan to include Stormceptor unit.

Summary:

1. The proposed layout has maximized the site and unable to provide the required drainage mitigation with the required side slopes and maintenance access. **GCG believes the site has been maximized to the limit that suitable location for snow storage was unavailable and requires excess snow to be removed offsite. Furthermore, the recommended stormwater maintenance access and pre-treatment for rain garden system would require additional lot area and may affect the development layout.** The proposed pocket wetlands are suitable BMPs for this high seasonal water site. This development would require a few waivers as stated in their waiver requests letter. Without the waivers, the site would have to reduce the proposed impervious coverage to satisfy the regulations. The forebay side slope and maintenance path width are required by MSH. The proposed BMPs with the 10 feet wide path are reasonable for maintenance access.

If you have any questions regarding this matter, please contact our office.

Respectfully Submitted,  
GCG Associates

*Anthony Ma*

Anthony C. Ma, P.E.  
Senior Project Engineer

**Auto Dealership Site Plan  
250 Bridge Street  
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May 11, 2020

Fairhaven Conservation Commission  
40 Center Street  
Fairhaven, MA 02719

**RE: Bridge Street, Fairhaven  
Response to May 5 GCG comments**

Dear Commission Members,

The following are our responses to the letter which we received from GCG on May 5, 2020.

Plans

Comment on plan set Sheet 1, Item 1 - A waiver has been requested for increased volume of runoff 198-31.1A(1)(a)[2] and C(1)(a)

*Response: We agree*

Sheet 1, Item 3 - A waiver of 2:1 side slopes to the pocket wetlands has been requested 198-31.1C(2)(g)[6].

*Response: We agree*

Sheet 2, Item 3 - Include catch basin in Operation and Maintenance Plan.

*Response: The O&M Plan has been revised.*

Sheet 3, Item 1 - The existing catch basins should have silt sacs.

*Response: Silt sacs have been added.*

Sheet 4, Item 3 - Shorten guard rail to allow maintenance access.

*Response: The guard rail has been shortened.*

Sheet 4, Item 1 - The roof drain for the drive through shall be for that roof only.

*Response: A note has been added.*

Sheet 4, Item 7 - Same comment as Sheet 1, Item 3. A waiver is requested for 2:1 side slopes.

*Response: We agree.*

Sheet 4, Item 8 - Same as above.

*Response: We agree*

Sheet 4, Item 9 - There is insufficient forebay volume for forebay #3.

*Response: The forebay dike has been shown to be elevation 44, which provides adequate forebay volume.*

Sheet 4, Item 10 - A waiver is needed to allow superior stormwater treatment BMPs.

*Response: This is not a waiver. The regulations specifically allow superior BMPs to be approved by the Planning Board.*

Sheet 4, Item 18 - Same as Sheet 3, Item 1 comment.

*Response: Silt sacs have been added.*

Sheet 4, Item 19 - CB3 F&G should be 48.0.

*Response: Change has been made.*

Sheet 4, Item 20 - 12" outfall should be 42.63 instead of 42.75.

*Response: Revision made*

Sheet 4, Item 21 - Section A-4 should show Cape Cod berm.

*Response: The revision has been made.*

Sheet 9, Item 2 - Verify volume computations for forebay.

*Response: 2' depth provides required volume.*

Sheet 9, Item 3 - Add forebay dike detail.

*Response: Detail was added.*

Sheet 10, Item 2 - Add silt sac detail.

*Response: A silt sac detail has been added.*

### Stormwater Report

Item 2 - GCG recommends using historic pre-existing conditions for drainage calculations.

*Response: Existing Conditions has been used for existing conditions computations. The area behind the existing check dams was assumed to be full with 100% runoff coefficient. This is a conservative computation because it doesn't take credit for existing detention capacity.*

Item 3 - The proposed BMPs are suitable.

*Response: We agree*

Item 4 - Waiver would be required for forebay sizing, if the applicant had not provided for .25 inches of runoff.

*Response: The .25 inches of runoff was used in the computation so no waiver is required.*

Item 4 - A waiver should be requested in order to allow the applicant to use superior BMPs than listed in the regulations.

*Response: A waiver is not required to provide superior treatment. The regulations specifically allow superior treatment to be used with Planning Board approval.*

Item 5 - See plan set Sheet 1, Item 1 for initial waiver request.

*Response: This is a regurgitation of Plan comment Sheet 1, Item 1.*

Item 8 - This is a repeat of Plan Sheet 4, Item 10 and Stormwater Report Item 4 with the notion that superior BMPs can't be employed without a waiver.

*Response: The regulations allow the Planning Board to approve superior BMP treatment. This is not a waiver.*

Operation and Maintenance Plan Comments:

Item 1: Silt sacs should be shown. This is a repeat of comments on Sheet 3, Item 1 and Sheet 4, Item 18.

*Response: Silt sacs have been shown.*

Item 3 - Remove rain garden from O&M.

*Response: Done*

Item 6 - Add Stormceptor to O&M Plan.

*Response: Done*

In conclusion, all items have been done.

Sincerely,

**PRIME ENGINEERING, INC.**



Richard J. Rheume, P.E., LSP

Chief Engineer

Phone: (978) 657-9714  
Fax: (978) 657-7915

May 11, 2020

Planning Board and Conservation Commission  
Town Hall  
40 Center Street  
Fairhaven, MA 02719

RE: Lewis Landing, Fairhaven, MA.  
Proposed Multi-Unit Residential Development  
Huttleston Ave.

Dear Planning Board and Conservation Commission Members:

GCG Associates, Inc. has reviewed the following information for the Lewis Landing Multi-Unit Residential Development off Huttleston Avenue in Fairhaven, MA with respect to stormwater and Stormwater related requirements under 310 CMR 10.00 Wetlands Protection Act Regulations.

- Plan References: "Lewis Landing, Fairhaven, MA. Proposed Multi-Unit Residential Development, Huttleston Ave., Fairhaven, MA prepared by Prime Engineering, Inc. dated September 9, 2019, last revised February 14, 2020.
- Documents: Drainage Report prepared by Prime Engineering, Inc. dated February 18, 2020.

Based upon our review of the above information, we offer the following general comments and comments with respect to compliance with Town Bylaws: Chapters 192 – Wetlands; 194 - Stormwater Management, Illicit Discharge, Soil Erosion, Sediment Control By-Law; 198-31.1 – Zoning - Stormwater Management and 310 CMR 10.00 Wetlands Protection. The numerical section of the regulations is referenced at the beginning of each comment unless it is a general comment. Prime Engineering responses shown in *Italic* and GCG latest comments in **Red**.

**GENERAL PLAN AND DEVELOPMENT COMMENTS**

The following are general comments with respect to the plans and development of the project.

1. This is a vacant parcel located at the south side of Huttleston Avenue (U.S. Route 6) across street from New Boston Road as identified as Assessor's Map 31 Lots 115A & 117C. The parcel consists of 2.463+/- acres.

2. The applicant has filed a Notice of Intent for a Multi-Unit Residential Development consists of four 3-unit buildings, two storage buildings, one maintenance shed and associated pavement parking lot and utilities. The proposed work area is over 1 acre and requires filing an US EPA - NPDES permit and associated SWPPP. (NPDES NOI shall be filed 14 days prior to construction start.)
3. The proposed work limit also exceeds the Land Disturbance Permit (Chapter 194) threshold and requires filing a permit with the Fairhaven Board of Public Works.
4. The proposed multi-family site development in RC Zoning District requires a Planning Board Special Permit approval per Chapter 198-29. Which requires site design in compliance with Chapter 198-31.1 Stormwater management standards. Hence, stormwater management design is being reviewed to meet 198-31.1 requirements.
5. The project is located within Zone X, Area of Minimal Flood Hazard, (FIRM 25005C0413F, effective 7/7/2009), two series (A1- A-30 and B-1 to B-6) of wetland resource area were identified on the property and requires to file a Notice of Intent with the Fairhaven Conservation Commission and MassDEP.
6. There is no NHESP estimated habitats of rare wildlife or rare species identified in the site vicinity per MassGIS.

## PLAN SET

Cover – No comment.

Drawing Sheet -1 – Existing Conditions Plan.

1. Wetland delineation line shown was based on a plan by Allen D. Quintin, dated January 11, 2017 and was not field located by Prime Engineering, Inc. Wetland delineation shown on the plan and Non-Jurisdictional Isolated Land Subject to Flooding status require Conservation Commission review and approval. *The Conservation Commission has approved the wetland line. Resolved.*
2. Plan shown three drain pipes (10"?, 15" and 18") connect to the on-site wetland south of wet flag #A-10, and a dilapidated drainage manhole. The 15" drainpipe appears to collect Huttleston Avenue surface runoff through a pair of catch basins located in front of development site and discharges to the wetland without a benefit of an easement. GCG recommends obtaining an easement to preserve the right of the existing drainpipes. *A drainage easement will be granted to MassDOT and the Town. Applicant to prepare easement. Once the project is approved, an easement will be granted. Applicant to prepare easement after approval. Easement should be provided as part of the approval conditions.*
3. Existing drainage inverts along Huttleston Avenue should be identified on the plan. Assuming the existing 15" and 18" drainpipes have three feet of cover over pipe and they will be exposed at the bottom of proposed constructed wetland basin. *The inverts have been surveyed and elevations have been added to the plans. The plan shown 12" RCP inlet at the Huttleston Ave. culvert and 18" RCP underneath Route 6 and at the downstream DMH. Assuming the pipe size at the bottom of proposed wetland basin is 18", the top of the concrete pipe (with 2.5" pipe thickness) is at elevation 59.9. and pipe bell will be exposed above the basin bottom at 60.0+/- . The side slopes at this location is 2H:1V. without an access drive. Pipe cover should be provided. There will be no vehicle traffic in the constructed wetland, so a localized protuberance of a pipe bell will be of no consequence. Pipe cover will not be provided. MSH requires cleanout sediment in basin/wetland system once every 10 years. GCG recommends mounting a foot of rip-rap stone cover over the*

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two existing RCPs. The rip-rap stones allow water to flow through and protecting the pipes during sediment removal. Development footprint had been substantially reduced; pipe cover no longer an issue, resolved.

4. Additional soil testing should be performed at the proposed wetland basin area to identify ESHGW by mottling. Applicant needs to proof sufficient water table to support the constructed wetland vegetation. 198-31.1(B)(2)(A)(1)[h] requires soil logs signed by a DEP Certified Soil Elevator. *The test pits were recorded by an approved Soil Evaluator who has signed the existing conditions plan on which the logs are presented. There was no mottling in the 5 feet of fill. The presence of muck at 5 feet is indicative of the water table. Submit Soil Evaluator signed copy to Conservation Commission. The test pit logs are presented on Sheet 1, Existing Conditions, and the signator of that sheet is an approved Soil Evaluator, therefore, the requested signed soil log has been provided. Resolved.*

#### Drawing Sheet 2 – Site Layout and Landscaping Plan.

1. Proposed infiltration area vegetation should be cleared and replaced with loam and seed for maintenance. A cleared access path should be provided.
2. Relocate planting along edge of pocket wetland to provide maintenance access.

#### Drawing Sheet 3 – Grading and Utilities Plan

1. The proposed roof drain chamber infiltration practices are considered UIC Class V Well by US EPA and required to comply with the MassDEP setback requirements. The proposed 4-unit chamber between storage building #2 and south 3-unit building does not meet the 50' wetland setback and 10' building foundation setback; the 2-unit chamber west of storage building #1 does not meet the 10' foundation setback requirement; the single unit chamber northeast of maintenance shed does not meet the 10' foundation setback and 10' open, surface drain (rain garden) setback requirements. *The infiltration southeast of Storage Building 2 has been deleted. Since this is a re-development project consisting of Type C and D soils, the infiltration only needs to be to the extent practicable. The infiltrators west of Storage Building 1 have been shifted to be east of Building 1. Only the existing pavement area qualified for re-development project and requires maximum extent practicable treatments. (See MSH Vol. 2 Ch. 3 Checklist for Redevelopment Projects.) Project components within undeveloped areas must meet all the standards. The expanded chamber units east of storage building #1 does not meet the 15 feet setback to Downhill slope (3:1) setback. (Applicant should consider rotate the chambers 90 degree and move it southward and provide 3:1 basin side slope at the chambers location.) The proposed system calculations should show compliance with the MSH 65% rule (Vol.3, Ch. 1, Pg. 27). Additional infiltration BMP may be required to meet the 65% rule and Fairhaven Zoning Bylaw 198-31.1-4 (C)(a)[2] - Water Quality Storm treatment requirements. The infiltration units east of storage building # 1 has been relocated to achieve the 15-foot separation from a 3:1 slope. The increase in impervious area on the site is 32,883 SF proposed impervious, minus 5,475 SF existing impervious= 27,408 SF. 65% of 27,408 SF is 17,815 SF that must be infiltrated. The roof areas being infiltrated is 12,102 SF. A waiver is being requested. Based on the latest HydroCAD report, the proposed impervious area is 37,427 SF (including 5,475 SF pre-development pavement), the required recharge volume for 'C' soil is 779.7 CF. The current plan has provided 795 CF of recharge volume through roof drain chambers infiltration system. The proposed recharge volume meets the MSH requirements and roof drains are considered clean water per MDEP and does not require treatments. Nonetheless, MSH stated that "When less than 65% of impervious surface on a site are directed to infiltration BMPs, the system cannot capture sufficient runoff to infiltrate the*

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Required Recharge Volume” (Vol.3, Ch.1, Pg.27). The proposed design does not meet the 65% rule and the applicant is requesting a waiver. This is MSH requirement and part of the Wetland Protection Act (MGL Ch.131 Sect. 40), the Commission could grant a waiver for the requirements. However, MDEP could supersede the decision. GCG recommends the applicant to provide an adjusted recharge volume based on MSH Vol.3, Ch.1, Pg.28. to justify the waiver request. Alternately, the applicant may consider berm up down stream of the splash pool outlet and create an infiltration basin at the south side of proposed maintenance shed. Since the runoff has already treated through the constructed wetland. Zoning-Chapter 198-31.1 C.2(j) allows the basin to act as stormwater systems for both water quality and volume control. Furthermore, 198-31.1 C.2k[3] & [4] allow the bottom of the infiltration area at or above the maximum high ground water elevation, with calculations assumed the surface of the volume control structure to be impervious. Identify roof sections to be connected to Chambers system. The infiltration area proposed at downstream of pocket wetland outfall should be utilized to comply with the MSH recharge volume and the 65% rule. 198-31.1.C(2)k[2] allows “Infiltration for volume control shall be designed and constructed with the bottom of the infiltration area at or above the maximum high ground water elevation.” The proposed infiltration area bottom elevation and outline should be provided on the grading plan (to evaluate side slope). Infiltration area should be cleared and replace with loam and seed with an access path for maintenance.

2. 198-31.1(C)(2)(g)[6] – requires basins/ponds designed for stormwater runoff control shall have side slopes at a no steeper than a 4H to 1V grade. And a ten-foot wide bench surround any permanent pool. 2:1 and 3:1 side slopes proposed. *The eastern slope of the basin has been flattened to a 4: 1 slope to provide access by foot.* **Applicant has requested a waiver, see comments below. A waiver is being requested. The applicant has provided an accessible 4H to 1V side slope on one side of the sediment forebay and the micropool, where sediment forebay requires annual maintenance/clean-out. The constructed pocket wetland requires clean out sediment at least once every ten year and MSH does not specify the minimum side slope of constructed wetland. Granting a waiver for the local requirement of 4H to 1V side slope should not have any impact to the function of the drainage system. This basin will be maintained by the private owner association. GCG does not see any adverse impact for granting the waiver. However, MDEP has the jurisdiction over the required 15 feet wide access path around the construction wetland. The proposed constructed pocket wetland BMP with sediment forebay pre-treatment meets the pollutant removal rate as required by 198-31.1.C(1). And 198-31.1.C(3)(d) allows the Board to approve other water quality BMPs which meets the pollutant removal requirements. The proposed forebay has 4:1 side slope on one side and 2:1 on the other sides. Forebay side slope does not meet MSH’s maximum 3:1 side slope standard. However, the forebay is accessible on one side. Proposed pocket wetland has 2:1 slope on two sides and 4:1 slope at the ends. MSH does not specify a minimum side slope for constructed wetland. Waiver for 198-31.1©(2)(g)[6] has been requested.**
3. 198-31.1(C)(2)(k) - Forebays [1][b] requires forebays to be sized to contain 0.25 inches per impervious acre of contributing drainage and [d] requires forebay be four feet deep. *The forebay has been deepened to be 4 feet and contain .25 inches of runoff over the impervious area.* **Applicant has requested a waiver for the 4:1 side slope, see comments below. No response necessary. A waiver is being requested. See Comment #2 above. 0.25 inches per impervious acre volume has been provided.**
4. 198-31.1(C)(2)(l) - Fence enclosure for the stormwater basin may be required, depends on permanent pool depth. *The Planning Board will decide whether a fence will be required.* **Planning Board approval is required. Fence and planting location should be incorporated with the basin maintenance access. A waiver is being requested. Planting has been proposed on the north side of the constructed pocket wetland. The applicant should be responsible for replacing any damaged planting and vegetation during the once every ten years pocket wetland maintenance. GCG does not see any adverse impact for granting**

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**this waiver.** This comment was to alert that fence enclosure was not proposed, and the Board may require fence enclosure as deems necessary under Section 198-31.1(C)(2)(I). There is no waiver required unless the Board ask for fence.

5. 198-31.1(C)(2)(n)[6] – CB-1 pipe (all pipes) should have a minimum 24” cover, proposed HDPE pipe requires a waiver. *Pipes are required to have 2 feet of cover where they are subjected to vehicle loads. A waiver is being requested since no pipe with less than 2 feet of cover will be subjected to vehicle loads. A request to allow HDPE pipe is being made. The proposed CB-1 frame and grate to 12 pipe invert has 2.18 feet separation. The pipe wall is approximately 2” thick, that left 12” between the top of the pipe to rim grade. The proposed CB frame has a thickness of 3.5” and the concrete structure top slab thickness is 8”. There is no room to physically fit a CB hood. GCG recommends raising the driveway grade to provide additional pipe cover at CB-1. Trees has been proposed at the west side of the micropool and the only access to the wetland basin is over the CB-1 outlet pipe. GCG recommends applicant to provide sufficient pipe cover to support maintenance equipment/vehicle loads. The elevations have been adjusted so the hood can fit. Resolved.* Please verify the inverts at the 18” HDPE & existing 18” RCP crossing. The 18” RCP invert appears to be 125’+/- from upstream headwall. The proposed 18” HDPE pipe slope should label 0.0143 ft/ft (per HydroCAD report and pipe inverts) instead of 0.02 ft/ft. The two pipes have 0.68’ separation. Pipes with less than 18” separation should be encased in concrete. The proposed 18” HDPE pipe is used to handle a 3” orifice flow with 0.37 cfs during the 100-year storm event. Applicant may consider reducing the pipe size to gain addition separation between the two pipes.
6. 198-31.1(C)(4)(a)[2] – requires 48-hour detention time for the water quality (198-31.1(A)(1)(b) - First Flush = (1.25”), see 198-33 Definitions) storm. *The 48-hour detention time requirement only applies to extended detention basins (that are in the Nasketucket Basin zone). The subject site is not in the Nasketucket Basin zone and the proposed basin is not an. This section is required for 80% total suspended solids, 30% total phosphorus, and 15% total nitrogen removal only. (For development within the Nasketucket Basin would require additional treatment to removal 30% nitrogen and 50% phosphorous per 198-31.1 (A)(b)[2], which would require a wet extended detention pond/basin (WP).) Please provide the 1.25” storage volume below the outlet orifice or request a local regulation waiver. A constructed pocket wetland has been selected due to its superior performance compared to extended detention basins. Infiltration units were rejected due to the poor soils, high water table and their inherent propensity to failure. In accordance with the MassDEP Stormwater Manual, the following are projected removal rates:*

Removal Efficiency	Nitrogen	Phosphorous	Total Suspended Solids
Constructed Wetlands	20-55%	40-60%	80%
Extended Detention	10-30%	15-50%	50% Basins

*It is clear the proposed treatment system meets the performance standards of Fairhaven Stormwater Management regulations. GCG concurs with the % removal efficiency listed above per MSH. The applicant should request a waiver for 198-31.1(C)(4)(a)[2]. Alternately, the applicant may request Board approval of other water quality (constructed pocket wetland) MBPs which provided the pollutant removal requirements, per 198-31.1(C)(3)(d).*

198-31.1(C)(4)(a)[1 & 6] – requires establishment of, and the methodology with which to maintain, wetland vegetation on the bottom of the basin. *This also only applies to extended detention basins. Extended detention basins contain water most of the time since on average it rains every three days. The proposed pocket wetland basin will not have that problem. As stated in comment #6 above, these two requirements apply to this development. However, item (4)(a)[1] requires a minimum contributing watershed area of 10 acres is not feasible to enforce, since the development site is only 2.463 acres. GCG recommends applicant to*

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request a waiver. Item (4)(a)(6) has been proven that the proposed basin bottom at 59.00 is below the estimate seasonal high ground water at 59.3. In addition, the basin may require modification to provide the 1.25" storage volume. The Fairhaven regulations require that, if an extended basin is being designed, it needs a 10-acre plus contributing drainage area. The proposed constructed pocket wetlands are suitable for drainage areas of 1 to 10 acres. (The Site is an area of 2.46 acres). No below the outlet storage volume is required in a constructed pocket wetland. **The applicant should request a waiver for 198-31.1(C)(4)(a)[1]. The subject site is less than 10 acres, and the applicant has limited control of the offsite drainage. The proposed pocket wetland bottom is below seasonal high ground water and suitable for wetland vegetation growth. Applicant should request Board approval of other water quality (constructed pocket wetland) MBPs which provided the pollutant removal requirements, per 198-31.1(C)(3)(d).**

7. MSH Vol.2, Ch.2, Pg. 45 - requires constructed stormwater wetland to have an emergency spillway capable of bypassing runoff from large storms without damage to the impounding structure. *The proposed basin has an emergency spillway at the top of the basin control structure. The spillway can handle the 100-year storm without damage to the impounding structure. The 23" diameter inlet grate and 15" HDPE at 0.5% slope, both do not have the capacity to handle the 7.83 cfs inflow during the 100-year storm event. The emergency spillway should be sized with brimful conditions, without any outlets. (Considering the orifice and open grate are both clog during the extreme storm.) The armored spillway should be located near the outlet structure southwestward and allow overtop the private driveway and flows to the onsite wetland. Spillway should be sized to eliminate overflow onto Huttleston Ave. Attachment B demonstrates that the emergency spill water (inlet grate) has the capacity to pass the 100-year storm. If that failed, the excess flow would go over the drive to the wetlands. Resolved. New proposed emergency spillways (pocket wetland and infiltration area) dimensions should be shown on the plan,*
8. MSH Vol.2, Ch.2, Pg. 45 – requires an access for maintenance. *A waiver of the 15% slope access drive is being requested. This is MSH requirement and under MassDEP's jurisdiction and subject to potential Superseded Order of Conditions. The Conservation Commission approval should not be responsible for future MassDEP actions. The applicant is also requested waiver for the 4:1 side slope requirement under 198-31.1 (c)(2)(g)[6]. GCG recommends a minimum of 3H:1V side slopes along the sediment forebay area, (as also required by MSH), and provide a minimum of 10' wide access path along the basin area with steeper than 3H:1V side slope. The proposed sewer line at the northeasterly corner of sediment forebay should be relocated, the sewer pipe as shown is above the forebay finish grade. The applicant should show a reasonable maintenance access to support the waiver request. A 4: 1 slope has been provided on the east and west ends. The sewer line has been shifted in order to provide more cover. The sediment forebay and pocket wetland layout provided a reasonable maintenance. Granting a waiver should not have any adverse impact to the system. In addition, the system will be maintenance by private contractor with appropriate equipment. The proposed forebay side slopes do not meet MSH requirements but is accessible with the one side 4:1 slope. A 10 feet wide access path has been provided along the top of pocket wetland. (landscape planting is proposed along the access path, may consider relocating planting to clear the maintenance access.*
9. Forebay inlet pipe slope should be labeled. *The slope of the pipe has been labeled. Resolved.*
10. DMH to Forebay rim should be specified. *The rim of the manhole has been added. Resolved.*
11. Verify there will be enough cover on top of the two existing 15" and 18" drainpipes. *There is adequate cover over the 15" and 18" diameter pipes since they will not be subjected to vehicle loads. The top of existing 18" RCP is at the wetland basin surface. The construction wetland requires clean out sediment in basin/wetland system once very 10-year per MSH. Pipe cover or similar protection should be provided. We certify that the basin as designed*

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will be easily maintained. **GCG recommends mounting a foot of rip-rap stone cover over the two existing RCPs. Resolved.**

12. Provide pre-treatment in front of rain garden per SMH Vol. 2, Ch.2, Pg. 25. *A grass filler strip has been added in front of the rain garden. Please clarify the proposed curb location, there is no curb or cape cod berm specified on the plan, a cape cod berm detail was included in the plan sheet 5 of 7, but not called out on the plan. (GCG recommends cape cod berm be installed in the binder course surface instead of top course) and the contour at this location did not indicate any grade changes along the pavement. MSH requires a vegetated filter strip with a stone diaphragm, to promote sheet flow, for rain garden pre-treatment (See MSH Vol.2, Ch.2, Pg.26 for design requirements.) As in standard protocol the curbing is called out on the Site Layout Plan (showing curbing on the Grading and Utilities Plan would make that plan cluttered and difficult to read). The Cape Cod berm detail has been revised. The grass strip filter has been modified. Resolved.*
13. Show forebay bottom contours 57, 58, 59 and 60.
14. Show infiltration area bottom elevation and contour and outline bottom area, Infiltration area should be cleared with loam and seed suitable for maintenance per infiltration basin standard and provide maintenance access path. Since the stormwater has been treated through sediment forebay and pocket wetland, the water met the pollutant removal requirements and the bottom of the infiltration area are allowed to be at or above the maximum high ground water elevation per 198-31.1(C)(2)(k)[3].
15. Infiltration basin side slope should not exceed 3:1. And should be equipped with 1 foot freeboard.

#### Drawing Sheet 4 – Erosion Control Plan

1. The Construction entrance (exit) should have a minimum length of 50 feet. *The construction entrance has been lengthened to be 50 feet. Resolved.*
2. Silt sack should be installed at the east entrance catch basin on Huttleston Avenue. *Silt sacks have been added to the Huttleston Avenue catch basins. Resolved.*

#### Drawing Sheet 5 – Detail Sheet-1

1. No comment
2. *Rename Detention Basin Outlet structure to Pocket Wetland Outlet Structure. Verify 15" diameter opening, plan shown 18' pipe outlet pipe. Detail labeled Cross Section A-A but no plan view. Specify the top of structure with frame and cover.*
3. *Orifice Plate Detail labeled outlet control structure (see detail). Add outlet control structure detail to plan. Clarify structure type, this detail shown flat wall surface, and plan shows round structure. Orifice plate material should be called out.*
4. *Verify drainage pipe trench detail called for 5' minimum cover.*

#### Drawing Sheet 6 – Detail Sheet-2

1. *Splash pool surface dimension should be called out (or show on the utilities plan). The splash pool has been dimensioned. Resolved.*
2. *Rain Garden should consist of 2" – 3" mulch on top of 2.5' to 4' thick Planting Soil (Engineered soil mix for bioretention systems designed to exfiltrate, MSH Vol.2. Ch.2 Pg. 26). The mulch and underlying soil has been dimensioned and detailed. The soil layer depth dimension should match with the label. The soil as specified is suitable for MassDOT planting soil, but not for exfiltration. Please refers to 30" minimum depth of Engineered Soil Mix with 40% sand, 20-30% topsoil, and 30-40% compost as specified on MSH Vol.2. Ch.2 Pg. 26. The detail has been revised as requested. Resolved.*

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3. Show constructed wetland detail to indicate required volume for deep marsh and shallow marsh. *The percentages of the deep and shallow marsh areas has been specified. Please include the detention basin calculations % area table in the plan set. The pocket wetland ratios are presented on Detail Sheet 2 and Attachment A. Resolved.*
4. **Pocket wetland bottom elevation of 60.0 is above the estimate seasonal high ground water. (ESHGW at 59.3 per TP #1). Pocket wetland should be excavated to the groundwater table to maintain adequate water levels. (MSH Vol.2, Ch.2, Pg.41)**
5. **Micro pool bottom elevation is at the 3" orifice invert at 60.0. Micro pool should have sufficient depth before the outlet to prevent clogging. Provide a micro pool capacity of at least 10% treatment volume. (MSH Vol.2, Ch.2, Pg.45).**
6. **Water quality volume should be provided below the outlet orifice invert.**
7. **Crushed Stone Filtration Berm detail called out on pocket wetland cross section; detail should be provided.**
8. **Provide emergency spillway detail.**

#### Drawing Sheet 7 – Architectural

1. No comment

#### STORMWATER REPORT COMMENTS

1. 198-31.1(C)(2)(k) - Forebays [1][b] requires forebays be sized to contain 0.25 inches per impervious acre of contributing drainage. *The forebay has been sized for .25 inches per impervious contributing area. The 0.25 inches volume has been provided. However, the proposed 2:1 side slope does not meet MSH requirements and the sewer pipe is above the forebay surface. The sewer pipe has been relocated. Resolved.*
2. 198-31.1(A)(1)(b) - requires treatment of the Water quality (First Flush = (1.25" of entire impervious area on site), see First Flush definition for calculation formula (198-33). *1.25 inch of runoff from the site will be routed through the storm treatment system. The 1.25" water quality storm should be provided within the wetland basin with 48 hours detention time. 198-31.1(C)(4)(a)[2]. The water quality volume will pass through the constructed pocket wetland and receive the required treatment. This is not an extended detention basin, so there is no need for 24-hour detention. Attachment A demonstrates that the constructed pocket wetland meets the design criteria. GCG concurs that the proposed pocket wetland meets the % removal efficiency requirements. Applicant should request a waiver for 198-31.1(A)(1)(b). Show the bottom and stage pocket wetland contour, pocket wetland should be excavated to the groundwater table, and update calculation sheet.*
3. 198-31.1(A)(1)(a)[2] - No increase will be allowed in the volume of runoff off of the site up to the ten-year, twenty-four-hour design storm. The proposed drainage calculations shown increase of runoff volume during 2-year and 10-year storm events. *A waiver on not increasing the volume of runoff is being requested. The poor onsite soils are not suitable for infiltration. The applicant has requested a waiver for the runoff volume increase during the 2-year and 10-year storm events. Based on the HydroCAD report the pre-development and post-development runoff volume during 10-year storm event were 0.269 and 0.411 acre feet, respectively. This requirement is under local regulation and is not required by the MSH. This regulation would require approximately additional 6,000 square feet of infiltration area to contain the post-development runoff volume increase, based on the HSG 'C' site soil with 72 hours draw down time. A waiver is being requested. The latest HydroCAD calculations shown a net increase of post-development runoff volume of 0.149 AF and 0.148 AF during the 2-year and 10-year storm events, respectively. MSH has no requirement for post-development runoff volume control. The Applicant has requested a*

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waiver for the runoff volume increases. In order to meet the volume control requirements, the applicant would have to create an additional infiltration basin at the south and southeast sides of the proposed maintenance shed. 198-31.1(A)(1)(a)[2] waiver has been requested. Please verify DP-1 pre-development and post-development volumes shown on the drainage summary, it should match with the HydroCAD report. The plan proposed an infiltration area downstream of pocket wetland outfall. Plan calls for 1,750 S.F. 400 CU. FT. of storage which is 0.23 feet depth. The infiltration area is wooded and would be impossible to maintain the required volume without proper maintenance. This area should be sized as an infiltration basin per MSH standard to control the post-development volume up to the 10-year storm event. Infiltration area/basin calculations should be included in the HydroCAD report.

4. 198-31.1(C)(2)(n)[1-7] – storm drainage system capacity should be calculated based on 25-year storm event. *The pipes have been sized to carry the 25-year design storm. CB-1 grate capacity was calculated based on 0.25' head over the grate, the surface water will excess beyond the 3' gutter width. (C)(2)(n)[3]. GCG recommends to replace CB-1 with 5' diameter double grates catch basin. Double grates have been added as requested. Resolved. The proposed single catch basin grate is located at the development entrance and is at capacity (with ponding) during the 25-year storm event. GCG recommends installing a double catch basin grates with 5' diameter structure.*
5. Please provide roof drain infiltration unit storage volume calculations to meet Groundwater Recharge volume. *The roof infiltration computations were presented on the bottom of sheet 3. There appears to be less than 65% of the site impervious area drains into the infiltration BMPs. Storage volume calculations should be increased per MSH Vol.3, Ch.1, Pg.27 with sample calculations shown on pg. 28. The calculations as presented was based on the MSH requirements and does not meet the Fairhaven Water Quality Storm requirements, a waiver was requested for increase of runoff volume above. A waiver has been requested. See Drawing Sheet 3, item 1 comment. Infiltration area/basin calculations should be credited for the recharge volume, with the roof drain chambers to meet the 65% rules.*
6. The proposed Rain Garden requires pre-treatment to qualify for 90% TSS removal. *A grass filler strip was added upgradient of the rain garden. A grass swale was proposed, a vegetated filter strip with stone diaphragm should be used. The 10-foot filter strip has been added. Resolved.*
7. Please verify pre-development paved parking area. The two sub-catchments combined 7,889 s.f. of pavement area. GCG scaled approximately 5,550+/- s.f. *The pre-development paved area has adjusted to 5,488 square feet. Resolved.*  
198-31.1(C)(4)(a)[2] - provide water quality volume (First Flush) 24 hour detention volume. *The 24-hour first flush detention time applies only to extended detention basins which are required in the Nasketucket Basin. The subject site is not in the Nasketucket Basin. The 24 hour detention is required for 80% total suspended solids, 30% total phosphorus, and 15% total nitrogen removal only. (For development within the Nasketucket Basin would require additional treatment to removal 30% nitrogen and 50% phosphorous per 198-31.1 (A)(b)[2], which would require a wet extended detention pond/basin (WP).) Refer to response to Grading and Utilities Item 6. Based on MSH's Constructed Stormwater Wetlands listed Pollutant Removal Efficiencies, the proposed pocket wetland meets the % removal efficiency requirements of 198-31.1(C)(4)(a)[2]. GCG recommends the applicant request a waiver for the 24 hour detention of First Flush volume. Applicant should request Board approval of other water quality (constructed pocket wetland) MBPs which provided the pollutant removal requirements, per 198-31.1(C)(3)(d).*
8. *Reduce pocket wetland outlet pipe size to gain separation between drainpipes. The proposed 18" pipe carries 0.37 cfs during the 100-year storm event.*

## OPERATIONAL AND MAINTENANCE (O&M) PLAN COMMENTS

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1. Temporary Erosion Control should include catch basin silt sack. *Silt sacks have been added. Resolved. Silt sacks (on-site and off-site) should be included in the construction phase erosion control plan.*
2. Long term O&M plan 4.0 should include catch basin, street sweeping, constructed wetland, splash pool and rain garden operation and maintenance schedule. *The maintenance of catch basins, street sweepers, constructed wetlands, etc. have been added. Catch basin should be inspected and cleaned 4 times per year. Constructed pocket wetland shall be inspected twice a year for the first 3 years and clean out forebay once a year. Clean out sediment in basin/wetland once every ten years. Rain garden should be inspected monthly & remove trash. Vegetated filter strip mow 2-12 times per year. Mulch, fertilize, remove dead vegetation and prune annually. The Operation and Maintenance Plan has been modified. GCG recommends to remove the detention basin item from the O&M plan; The infiltration units and inlet shall be inspected twice a year; Catch basin should be inspected and cleaned 4 times per year; Pocket wetland forebay should be clean out once a year, pocket wetland should be inspected twice a year for the first three years, clean out sediment in basin/wetland system once every 10 years; Rain garden should be inspected & trash removed monthly, mow 2 to 12 times per year, mulch, fertilize, remove dead vegetation and prune annually; Disposal of removed sediment and debris according to federal, State and Local Regulations. Include infiltration area/basin in the permanent stormwater O&M Plan*
3. O&M plan should provide a signature block for responsible party/operator signature. *A signature block has been added. Resolved.*
4. O&M plan should include estimated annual operation budget and long-term O&M (sample) log. *The annual budget and log have been added. Update per comment #2. The Operation and Maintenance Plan has been revised. See Comment #2 above. Include infiltration area/basin O&M.*

Summary:

The proposed drainage system layout and design were based on Massachusetts Stormwater Handbook and did not meet the Fairhaven Chapter 198-31.1 Stormwater management standards.

Waivers requested:

1. *A 4: 1 side slope to the forebay is being provided. It is requested to allow all other slopes to be 3:1 and 2: 1 in order to save the large linden tree and to provide more separation from the wetlands (Section 198-31.1 (c)(2)(g)[6]. A 4:1 slope has been provided at the micropool area but not in the sediment forebay. GCG recommends providing at a minimum of 3:1 side slope (as required by MSH) along the sediment forebay, which requires annual cleaning and provide access path where side slope steeper than 3:1. The applicant has proposed a reasonable maintenance access with a 4:1 slope on one side of the sediment forebay, where annual maintenance is required. Although, the design does not meet the 15 feet width access path as required by MSH, which is under MDEP jurisdiction. Since the pocket wetland requires sediment clean once every ten years and will be maintained by a private contractor. GCG recommends the waiver be considered. Waiver Requested.*
2. *To allow the existing pipes in the detention basin and the proposed pipes that are not under paved areas to have less than 2 feet of cover since they will not be subjected to vehicle loads. Also, to allow HDPE pipe (c)(2)(n)[6]. Cover over the existing 18" RCP should be provided for maintenance equipment loads. Using HDPE pipe with*

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appropriate cover (depth as recommended by pipe manufacturer) in a private development site should have no adverse impacts to the drainage system. The existing RCPs are located at the bottom of constructed pocket wetland, which requires sediment clean out once every 10 years. GCG recommends the 2 feet minimum pipe cover waiver be considered. However, GCG recommends the applicant to install a foot of rip-rap stone over the two pipes for protections during sediment clean out. N/A

3. *The onsite soil is not suitable for infiltration. We request a waiver from not increasing the volume of runoff from the 10 year design storm Section (A)(1)(a)[2]. This is a Town of Fairhaven requirement and as proposed the post-development 10-year storm event would increase the runoff volume from pre-development condition's 0.269 a.f. to 0.411 a.f. It would require approximately additional 6,000 square feet of infiltration area to control the runoff volume. The latest calculations shown an increase of runoff volume of 0.148-acre feet (6,447 cubic feet) during the 10-year storm event. This is a local requirement, MSH does not control the post-development runoff volume. If a wavier is not considered, this would require an addition infiltration basin be designed at the down stream of pocket wetland outfall. Waiver Requested. GCG recommends to properly sizing the infiltration area based on MSH requirements without the required ESHGW separation. Infiltration volume calculations at the downstream of pocket wetland should be included in the HydroCAD report.*
4. *To allow an increase in the volume of runoff since the soils are not suitable for infiltration Section (A) (1) (a) [2]. See comment #3 above. See comment #3 above.*

If you have any questions regarding this matter, please contact our office.

Respectfully Submitted,  
GCG Associates

*Anthony Ma*

Anthony C. Ma, P.E.  
Senior Project Engineer

Lewis Landing  
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Huttleston Ave.  
GCG Job#1974



May 13, 2020

Fairhaven Conservation Commission  
40 Center Street  
Fairhaven, MA 02719

**RE: LEWIS LANDING – HUTTLESTON AVENUE**

Dear Commission Members:

On May 11, 2020, GCG submitted a series of thoughtful comments on our February 18<sup>th</sup> plan submission. We were obviously disappointed that it took three months to review a set of plans for a project that they had previously reviewed. Prior to revising the plans, there are several items on which we would like the Commission to opine.

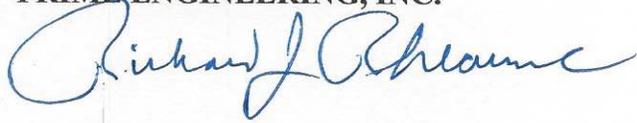
GCG Comment on Sheet 2, Item 1 – Following removal of over 90% of the suspended solids, the outflow from the constructed pocket wetlands is shown to flow to a wooded upland area where a low earth dike allows much of the flow to be detained and infiltrated. The remainder will over top the dike spillway and flow southerly. GCG recommends that, rather than have preserved the upland woodlands, the area be cleared, stumped, loamed and seeded and that an access road be built in case someday there is need to mobilize heavy equipment to maintain the area. We prefer to preserve the natural tree stand and, if in the unlikely event that years from now there is need for maintenance, that it be done by hand labor.

Sheet 2, Item 2 – The constructed pocket wetlands are bordered by deciduous and evergreen landscaping in order to comply with zoning requirements and as a significant aesthetic element of the design. GCG recommends that all vegetation be eliminated in the unlikely event that years from now heavy equipment is required to maneuver around the entire constructed wetland systems for deep excavation/maintenance of the constructed wetlands. We prefer to keep the vegetation as proposed and allow bobcats and other light equipment to access the constructed wetland at the southeast access point and the southeast access points that were designed for access. It is our firm belief that constructed pocket wetlands do not need heavy equipment to perform deep excavations

for replacement of the wetlands any more than natural wetlands need periodic deep excavation replacement by heavy equipment.

Sincerely,

**PRIME ENGINEERING, INC.**



Richard J. Rheaume, P.E., LSP



February 13, 2020

Email [wmcclees@fairhaven-ma.gov]

Ms. Whitney McClees, Agent
Fairhaven Conservation Commission
40 Center Street
Fairhaven, MA 02179

Re: Preliminary Peer Review Report
DEP File No. SE 23-1309, 23-1101, 23-1127, & 23-1161
1 Bella Vista Island
Fairhaven, Massachusetts

[LEC File #: TOFai\20-018.01]

Dear Members of the Commission:

LEC Environmental Consultants, Inc., (LEC) is pleased to submit this initial Preliminary Peer Review Report associated with the Notice of Intent (NOI) Application and Request for Certificate of Compliance (COC) filed for the above-referenced site in Fairhaven, Massachusetts. LEC has been retained by the Commission to review the filings for compliance with the Massachusetts Wetlands Protection Act (M.G.L., Ch. 131, s. 40), and its implementing Regulations (310 CMR 10.00) and the Town of Fairhaven Wetlands Bylaw (Chapter 192).

LEC reviewed the NOI and COC submittals and relevant documents in the project file, and attended an on-site meeting and site walk with the Commission on February 9, 2020. Due to the complicated and extensive history of enforcement actions and Conservation filings dating back to the Applicant's purchase of the property in 2009, this letter is intended to be a preliminary review report outlining our initial comments and requests for information. Once the comments provided below are addressed, we will provide a more specific review of the project under the above-referenced state and local Regulations.

Permitting Overview and Background

The current NOI has been filed to permit activities referenced in an Administrative Consent Order with Penalty (ACOP) and Notice of Noncompliance (#00004701) issued by Massachusetts Department of Environmental Protection (MassDEP), dated June 25, 2019 for violations of the State Act and Regulations. The ACOP provides a detailed procedural history for the property dating back to 1970 when the existing driveway bridge was permitted through a DEP Waterways License, with a focus on Conservation Commission filings, enforcement actions, and other environmental permit applications which have occurred since 2009.

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The Applicant purchased the property in 2009 and in 2010 the Commission issued the first of three Enforcement Orders (EO) for unpermitted activity. MassDEP also issued EOs in 2010 and 2013. In response to the EOs, the Applicant filed multiple NOIs, documented under DEP File No. SE 23-1101, 23-1127, and 23-1161. Based on our preliminary review, it appears that only certain aspects of the work permitted under these file numbers were completed as reviewed below:

### **Previous Conservation Filings**

As noted above, there are three DEP file numbers associated with the property, each of which informs the current filing (DEP SE #23-1309) in some manner.

#### DEP File No. SE 23-1101

The Commission issued an Order of Conditions (OOC) dated February 7, 2011, approving the project, including improvements to the stone revetment and various landscaping activities including wetland restoration, as depicted on the *Plan of Site and Proposed Improvements*, prepared by Charon Associates, Inc., dated January 21, 2011. There is no record of a COC for this project and while the current NOI provides a list of activities permitted under the OOC, it states that “most of the items were completed” without specifying which items were not completed.

#### DEP File No. SE 23-1127

According to the current NOI, the NOI filed under this file number included a request for an access drive to the beach, beach nourishment, elimination of the wetland restoration stipulated in File No. SE 23-1101, *Phragmites* removal, and installation of a floating pier. The filing was significantly modified during the review process and the Commission ultimately issued an OOC dated February 13, 2012, which permitted general invasive species control for the island, dune restoration, restoration plantings, *Phragmites* removal from the “non-jurisdictional wetlands.” In addition, the Applicant was required to pay for wetland restoration at the Fairhaven DPW site as mitigation for filling the non-jurisdictional wetlands and converting them to rain gardens. The restoration plantings were detailed on a *Proposed Planting Plan*, prepared by Prime Engineering with consultation from G. Bourne Knowles & Company, Inc. The Applicant has requested a COC for this permit; however, it appears that the rain gardens were never created and the proposed plantings were never installed.

#### DEP File No. SE 23-1161

According to the current application, this NOI from 2013 sought permission to construct an access drive to the beach, a groin expansion, and installation of a pier, ramp and float. During review by the Commission, it was determined that some groin expansion had already occurred and that groin expansion was not supported by DMF. The subsequent chronology of events is uncertain, but according to the current NOI, no decision was issued, and the Applicant is requesting this file to be reopened so that the groin work and pier can be reviewed. It is our understanding that the Conservation file for this filing is missing, but that



MassDEP has indicated a denial was issued February 11, 2014. Since the hearing was closed and a denial issued, we recommend a new NOI filing for pier, ramp, and float.

### **Current NOI Filing DEP No. SE 023-1309**

The current NOI filing scope of work includes items stipulated in the ACOP issued by MassDEP, including removal and reconstruction of 70 feet of seawall, dredging beneath the bridge, nourishment of the beach with the dredge spoils, beachgrass plantings, coastal dune fencing and construction of a coastal dune. The scope of work was approved by MassDEP pending approval by the Commission. The Commission is not mandated to approve the project because the MassDEP-ordered NOI filing resulting from the ACOP negotiations is based on MassDEP's view that the activities proposed generally meet the performance standards under the state *Act*. The Commission may review and comment on all aspects of this filing under the Act and Bylaw regardless of the ACOP. As noted above and further detailed below, the complexity of the filing and the need for additional details on the plans prevents a comprehensive review of the NOI at this time. Once the comments below are addressed we will provide a more thorough review of the current NOI.

### **Preliminary Findings and Recommendations**

Based on our review of the site and the previous and current NOI filings, we have the following Preliminary Findings and Recommendations for the Commission to consider:

- The site plans submitted with the NOI are lacking information and should be updated to reflect existing conditions and clarify the scope of work proposed. The plans are lacking a current wetland delineation, including the boundaries of Salt Marsh, any Freshwater Wetlands (IVWs or BVWs), Coastal Dune, Coastal Beach, and Coastal Bank. These boundaries should be delineated by a qualified professional and depicted clearly on an Existing Conditions Plan, which should be a separate sheet in the plan set. Other resource areas should also be shown on the Existing Conditions Plan including Land Containing Shellfish, Land Subject to Coastal Storm Flowage, Rocky Intertidal Shore (if present), Land Subject to Tidal Action and any eelgrass beds in the vicinity of the island.
- The Existing Conditions Plan should be based on a current land survey that includes topography, all existing landscaping features, seawalls and toe plates, plantings specified under previous orders, the limit of lawn, mulch planting beds (identify species planted), lighting and benches along the perimeter of the island, and utilities (including perimeter electric). The Existing Conditions Plan should clearly label all features which are the subject to the ACOP and current NOI. No proposed features or activities should be depicted on the Existing Conditions Plan.
- The Applicant should clarify which activities have been completed and which activities have not been completed under DEP File No. SE 23-1101 and File No. SE 23-1127. It appears that the plantings depicted on the *Proposed Planting Plan* under File No. 23-1127 were not planted, and the area that was supposed to be mowed to no less than four inches twice per year is at least partially



manicured lawn. The isolated wetlands, also referenced as “isolated depressions,” that were to become rain gardens under File No. SE 23-1127 are now part of the lawn. If any incomplete work permitted under File No. SE 23-1101 or No. SE 23-1127 are included in this filing, they should be clearly identified on the plans and in writing.

- It is our understanding that the NOI filing under DEP File No. SE 23-1161 was denied by the Commission; therefore, we recommend the Applicant submit a new NOI for those activities, including the pier, ramp and float after the current NOI review is completed.
- We recommend the Commission seek additional clarification of the permitting status of the “toe plate” located at the base of the seawall. While we understand the purpose of the toe plate, it appears that it extends further seaward and includes two rows of flat stones which function more as a walking path than as support for the seawall. Consultation with MassDEP Waterways and DMF may also be advisable.
- Numerous items should be removed from resource areas as soon as possible, including booms, anchors, and associated wires, the wooden float, and the 6” x 6” wooden posts along the property line near the entrance.
- The Commission should not issue a COC for File No. SE 23-1127 since the landscaping activities have not been completed as noted above.
- The Applicant should address the comments provided in DMF’s letter in response to the NOI dated January 7, 2020.

Thank you for the opportunity to assist you with this project. If you have any questions or require additional information regarding this review, please don’t hesitate to contact me.

Sincerely,

**LEC Environmental Consultants, Inc.**

Mark L. Manganello

Assistant Director of Ecological Services

cc: Dave Hill, MassDEP Waterways  
Shaun Walsh, MassDEP  
Eileen Feeney, Division of Marine Fisheries

NASKETUCKET BAY

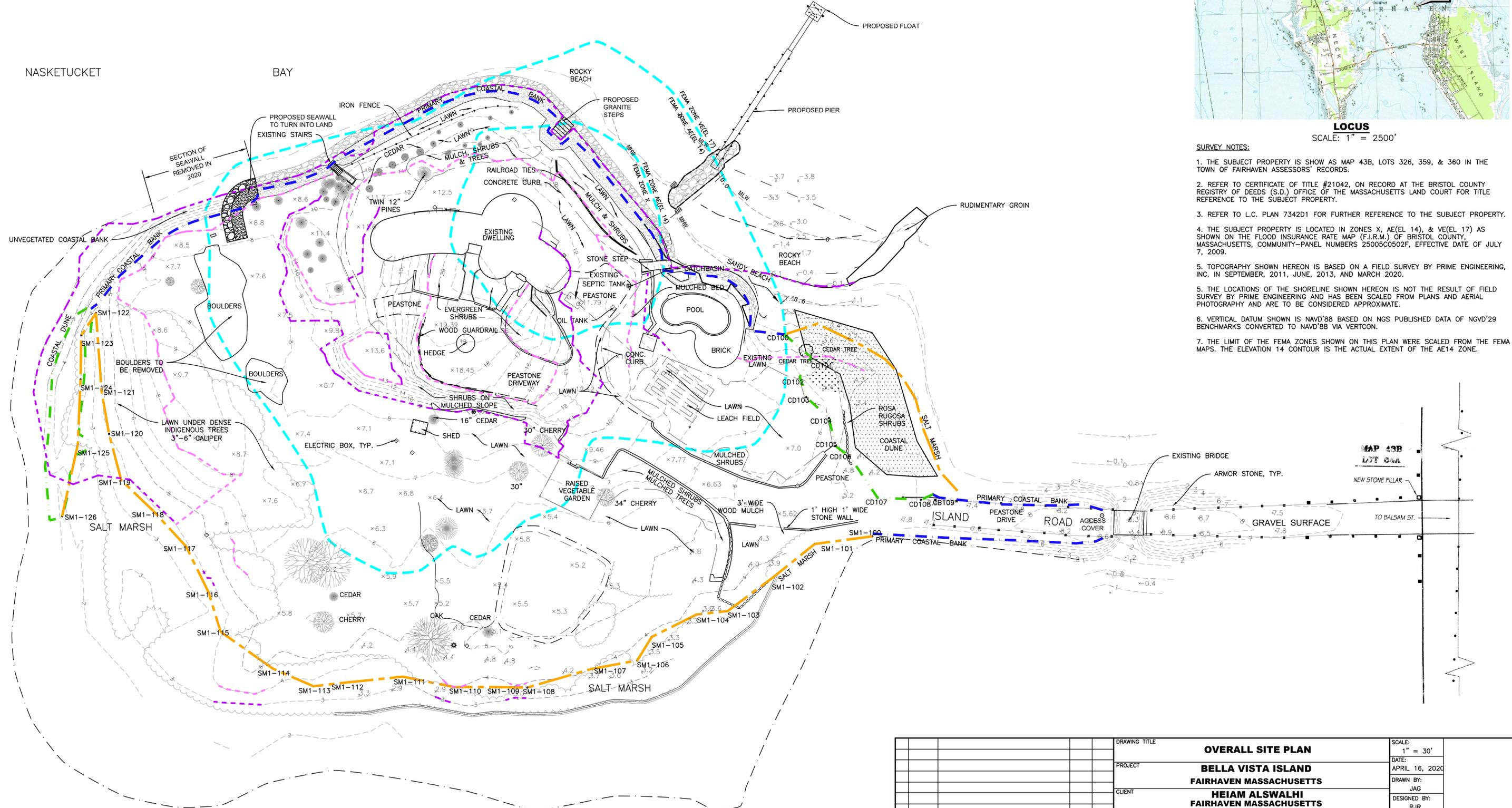
- LEGEND**
- PRIMARY COASTAL BANK
  - COASTAL DUNE
  - SALT MARSH
  - FEMA ZONE
  - BOTTOM OF COASTAL BANK
  - TOP OF COASTAL BANK

**GENERAL NOTES:**  
 1. THE SHOREFRONT IMPROVEMENTS ARE REQUIRED TO BE ON MEAN LOW WATER DATUM. REFER TO SEPARATE PLANS FOR THOSE FEATURES.



**LOCUS**  
 SCALE: 1" = 2500'

- SURVEY NOTES:**
1. THE SUBJECT PROPERTY IS SHOWN AS MAP 43B, LOTS 326, 359, & 360 IN THE TOWN OF FAIRHAVEN ASSESSORS' RECORDS.
  2. REFER TO CERTIFICATE OF TITLE #21042, ON RECORD AT THE BRISTOL COUNTY REGISTRY OF DEEDS (S.D.) OFFICE OF THE MASSACHUSETTS LAND COURT FOR TITLE REFERENCE TO THE SUBJECT PROPERTY.
  3. REFER TO L.C. PLAN 7342D1 FOR FURTHER REFERENCE TO THE SUBJECT PROPERTY.
  4. THE SUBJECT PROPERTY IS LOCATED IN ZONES X, AE(EL 14), & VE(EL 17) AS SHOWN ON THE FLOOD INSURANCE RATE MAP (F.I.R.M.) OF BRISTOL COUNTY, MASSACHUSETTS, COMMUNITY-PANEL NUMBERS 25005C0502F, EFFECTIVE DATE OF JULY 7, 2009.
  5. TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD SURVEY BY PRIME ENGINEERING, INC. IN SEPTEMBER, 2011, JUNE, 2013, AND MARCH 2020.
  6. THE LOCATIONS OF THE SHORELINE SHOWN HEREON IS NOT THE RESULT OF FIELD SURVEY BY PRIME ENGINEERING AND HAS BEEN SCALED FROM PLANS AND AERIAL PHOTOGRAPHY AND ARE TO BE CONSIDERED APPROXIMATE.
  7. VERTICAL DATUM SHOWN IS NAVD'88 BASED ON NGS PUBLISHED DATA OF NGVD'29 BENCHMARKS CONVERTED TO NAVD'88 VIA VERTCON.
  8. THE LIMIT OF THE FEMA ZONES SHOWN ON THIS PLAN WERE SCALED FROM THE FEMA MAPS. THE ELEVATION 14 CONTOUR IS THE ACTUAL EXTENT OF THE AE14 ZONE.



DRAWING TITLE		<b>OVERALL SITE PLAN</b>		SCALE:	1" = 30'
PROJECT		<b>BELLA VISTA ISLAND FAIRHAVEN MASSACHUSETTS</b>		DATE:	APRIL 16, 2020
CLIENT		<b>HEIAM ALSWALHI FAIRHAVEN MASSACHUSETTS</b>		DRAWN BY:	JAG
DESIGNED BY:		RJR		CHECKED BY:	RJR
APPROVED BY:		RJR		PROJECT NO.:	1779-01-01
SHEET NO.:		<b>1 OF 1</b>		P.O. BOX 1088 350 BEDFORD ST. LAKEVILLE, MA 02347 TEL: 508.947.0050 FAX: 508.947.2004 <b>PRIME ENGINEERING</b> INC.	
REV.	DATE	DESCRIPTION	BY	APP.	

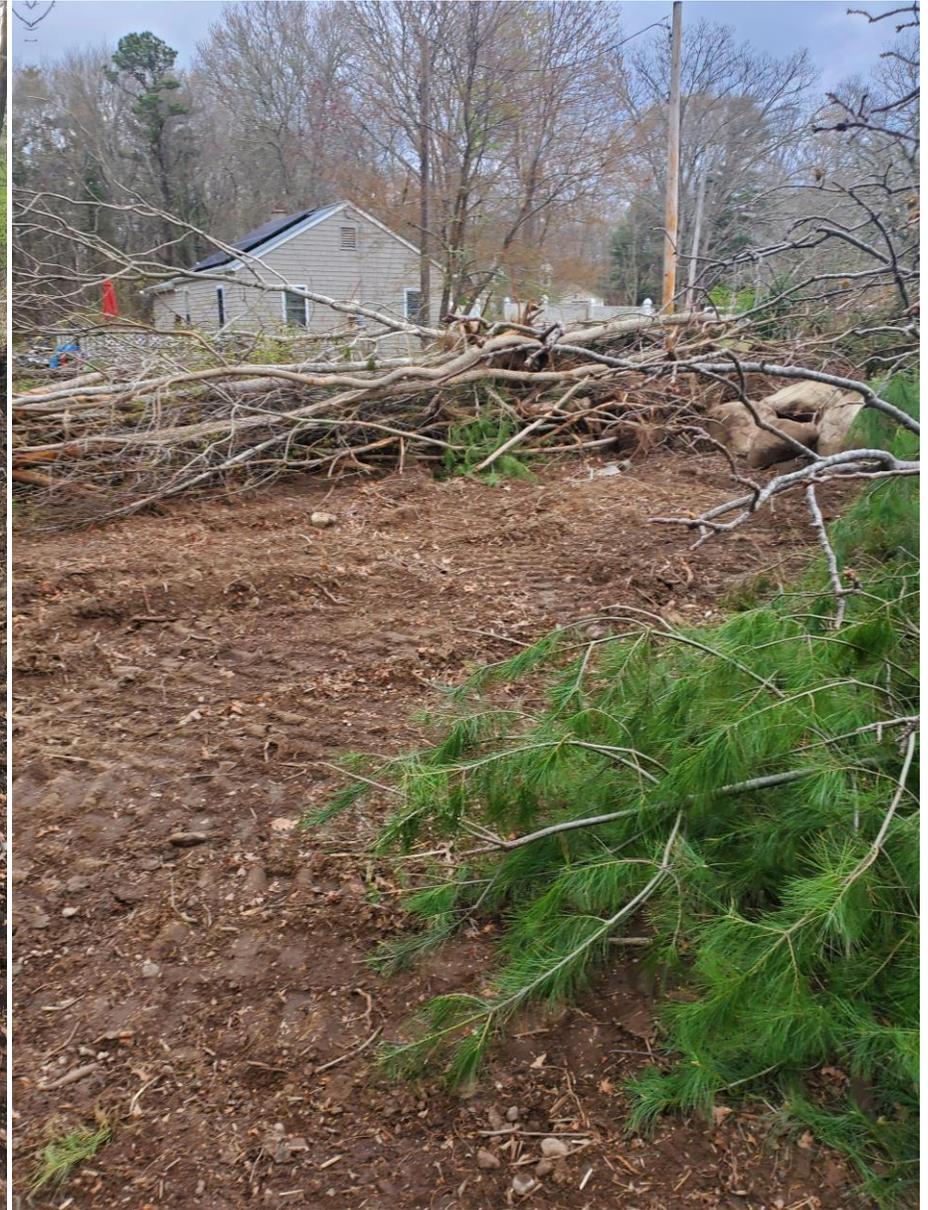
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