

01/23/2026

Ashland Conservation Commission
Greg Wands - Chair
101 Main Street
Ashland, MA 01721

61 Waverly Street Comprehensive Permit / 24142

RE: Comment Letter Responses

Dear Mr. Wands and members of the Commission:

SMMA in collaboration with Sanborn Head & Associates, and Goddard Consulting is pleased to provide this memorandum on behalf of the Applicant, The Gutierrez Company, to respond to the comments prepared by GCG Associates in their letter dated December 17, 2026.

GCG Associates original comments are below in black font followed by the responses in *blue italics*.

Comment Responses

General Comments

1. The site plan set consists of 16 plan sheets. However, the cover sheet listed 15 plan sheets only. Plan C-131 should be Grading and Drainage Plan, and plan sheet C-141 - Utilities Plan was not included in the plan list.
Response: The cover sheet is updated with the correct drawing list.
2. The project consists of approximately 10 acres of proposed work limit, which exceeds the 1-acre limit of work threshold and requires a NPDES (National Pollutant Discharge Elimination System) CGP (Construction General Permit) and requires a SWPPP to be filed at least 14 days prior to start of construction.
Response: Agree. No further response required.

3. There were wetland resource areas located on-site delineated by Goddard Consulting, (see NOI package, Appendix 4.04 - Wetland Border Report). Three sets of wetland flags were marked on the field, BVW (Bordering Vegetated Wetland) Group 1 - GCA1-GCA95; BVW Group 2 - GCC1-GCC20; and Bank of Intermittent Stream Group 3 - GCS1-GCS11. All three sets of wet flags shown on the plan were labeled GCG#, there were three flags labeled GCG#53, there were missing flags #A1, #A79, #C9, #C10, #S2, and #S10. GCG recommends relabeling the wet flag numbers to match the A, C, and S series as referenced on the wetland border report. The wetland boundary requires Conservation Commission approval.

Response: The drawings are revised to reflect the wetland flagging to match the Wetland Border Report prepared by Goddard Consulting. Additional wetland flag and delineation revisions have been incorporated based on comments from the Conservation Commission and the wetland peer reviewer, Beals and Thomas.

Proposed works (drainage outlet connection) within Waverly Street:

4. The proposed bioretention area and the surface infiltration basin are equipped with outlet pipes, which connect and discharge to an existing catch basin and drainpipe system within Waverly Street. The drain carries the outflow from the site to the downstream stone box culvert located at the northern side of 73 Waverly Street crossing beneath the roadway. The Ashland DPW has identified the box culvert consists of a 12" RCP inlet pipe (east side) and transitioned to a 3-foot wide field stone, open bottom culvert with varies height (approximately 3' to 4'). The ceiling of stone culvert is equipped with steel beams support (which are rusty/rotting conditions). The proposed drainage connection requires DPW Road Opening Permit approval. Based on the DPW provided site photos, the stone box culvert is in poor condition. The condition of the current conditions of the existing 12" RCP pipe on Waverly from the existing catch basin (proposed to be converted to drainage manhole - DMH 1-1 for connection) should be evaluated which should include a Closed-Circuit Television (CCTV) inspection of the pipe at minimum. Visual inspection of existing photos from inside the culvert by the DPW shows the pipe to appear to be disjointed and not at a uniform grade. This drain line is approximately 6" to 12" below the catch basin rim, as shown on the DPW photo, the RCP does not have the recommended minimum pipe cover (12" minimum). This pipe is too shallow for constant vehicle live load with lacking pipe cover protection. The applicant should provide calculations and documentation that the existing RCP's condition and capacity are suitable to handle the overflows from this development.

Response: The Applicant maintains, and the record demonstrates, that the proposed project complies with the Massachusetts Stormwater Management Standards and does not result in a material increase in discharge or a material alteration of any protected resource area, with only a de minimis modeled difference occurring during the 100-year storm event of 1.60 CFS, across all design points. The 12" RCP pipe within Waverly Street can support 2.5 CFS, based on conservative assumptions, more than sufficient capacity to support the Design Point-1 post-development peak discharge rate of 1.80 CFS. (See calculations attached). Notwithstanding this, and without conceding that any mitigation is required under the Wetlands Protection Act, the Applicant is willing, as a voluntary and conditional goodwill measure, to replace the existing 12-inch reinforced concrete pipe within the roadway, subject to issuance of a road opening permit by the Town and provided that the remaining terms and conditions of the Order of Conditions are otherwise acceptable to the Applicant. This replacement is proposed to address an apparent pre-existing infrastructure condition and provide a public benefit. The work shall be authorized under this Order of Conditions and shall not require the filing of a separate Notice of Intent or additional wetland delineation, provided it is conducted in accordance with the approved plans. This voluntary improvement shall not be construed as an acknowledgment of project-related impact or a regulatory requirement.

Prior to construction, the Applicant shall submit to the Ashland Department of Public Works, for administrative review and approval, a complete set of drawings consistent with the approved Notice of Intent plans, detailing the proposed work. All work shall be performed in accordance with applicable Town of Ashland rules, regulations, and building codes. The Town shall reasonably cooperate with the Applicant in the issuance of any required local permits. Upon completion of the work, the Applicant shall provide record ('as-built') drawings to the Department of Public Works. Ownership, operation, maintenance, and long-term responsibility for the pipe shall remain with the Town, and the Applicant shall have no ongoing maintenance obligations or liability related thereto.

5. GCG recommends having the applicant to assess if there is any intermittent stream associated with the existing Stone Box Culvert, (upstream and downstream). The MassMapper/MassGIS contours layer indicated the intermittent stream (Wet flags series GCC1 to GCC20) slopes toward the downstream 12" RCP stone box culvert inlet. Typically, the 12" RCP creates a contraction at the entrance and form an intermittent stream/drainage swale in front of the RCP. Which would require Conservation

Commission review as stated in 310 CMR 10.02(2)(d) and 310 CMR 10.05(6)(b). 10.02(2)(d) stated that activities outside the areas subject to protection under M.G.L. c. 131, § 40., could altered an area subject to protection and 10.05(6)(b) stated that the Order shall impose conditions setting limits on the quantity and quality of discharge from a point source (both closed and open channel), when said limits are necessary to protect the interests identified in M.G.L. c. 131, § 40. Therefore, the Conservation Commission may also have jurisdiction over the resource area located at the stone culvert area.

Response: The Applicant acknowledges the peer reviewer's comment regarding the potential presence of an intermittent stream associated with the open drainage swale system upstream of the stone box culvert. As previously discussed, the Applicant does not object to characterizing the open, daylighted swale conveying flow from the on-site wetland toward the culvert as an intermittent stream for purposes of this review.

However, under the Wetlands Protection Act and its implementing regulations, the identification of a potential intermittent stream is a threshold consideration and does not, in and of itself, establish that the proposed project will result in a material alteration of a protected downstream resource area. The applicable regulatory standard under 310 CMR 10.02(2)(d) and 10.05(6)(b) requires a showing that a project activity is reasonably likely to alter a protected interest, and that any limits on discharge quantity or quality are necessary to protect those interests.

In this case, the project's stormwater system has been designed in accordance with and evaluated for compliance with all applicable Massachusetts Stormwater Management Standards, based on predictive hydrologic modeling. The modeling demonstrates no increase in peak discharge to the on-site wetland or intermittent stream system for the 2-year and 10-year storm events, with only a de minimis incremental discharge occurring during the 100-year storm event. The project discharges to an enclosed municipal storm drainage system that conveys flows through existing pipe and culvert infrastructure prior to any downstream daylighting, providing attenuation and mixing with existing watershed contributions.

Based on the de minimis magnitude of the incremental discharge, the enclosed nature of the intervening conveyance, and the absence of any site-specific evidence or analysis demonstrating that the project's incremental flow would be reasonably likely to cause a material alteration of a downstream protected resource area, the Applicant respectfully submits that additional assessment of intermittent stream jurisdiction at the stone box culvert itself is not warranted. Accordingly, while the Conservation Commission may review activities where necessary to protect the interests of the Act, the record does not support a conclusion that the proposed project will materially alter a protected resource area or require additional discharge limitations beyond those already incorporated into the project design.

6. The proposed DMH 1-1 and CB 1-1 rims grade are approximately 7" higher than the existing catch basin rim which would not work with the existing roadway grade and should be addressed. (Lowering the proposed drain manhole and catch basin rims to match existing catch basin rim would create an insufficient pipe cover issue. GCG recommends using ductile iron pipe for locations where it has less than 2 feet of cover over pipe.

Response: Drawing C-131: Grading & Drainage Plan is revised to show the proposed DMH 1-1 and CB 1-1 with rim elevations to match the existing catch basin. The 5 LF pipe between the two proposed structures is revised to ductile iron.

7. The existing stone culvert under the road appears to be connected to the wetland located on site which the development discharges into. An evaluation and understanding of the connection should be performed to have a full understanding of the impact of the development on the stone culvert which is in very poor shape. Additional wetlands may

need to be flagged. Adding flow or impacting the flow to this culvert should not be permitted as it may impact the stability of the culvert. The visual inspections reveal the steel beams on top of the culvert have corroded as mentioned above which support the slab above it.

Response: The Applicant acknowledges the peer reviewer's observations regarding the existing stone box culvert and notes that it is a long-standing component of the municipal drainage system that predates the proposed development and conveys runoff from multiple upstream sources. As discussed in Response to Comment 5, the relevant inquiry under the Wetlands Protection Act is whether the proposed project is reasonably likely to cause a material alteration of a protected resource area or interest.

The project's stormwater system has been evaluated through predictive modeling and demonstrates compliance with all applicable Massachusetts Stormwater Management Standards, including no increase in peak discharge to the on-site wetland or associated open swale system for the 2-year and 10-year storm events, and only a de minimis incremental discharge during the 100-year storm event, conveyed through an enclosed municipal drainage system prior to reaching the culvert. No site-specific analysis or evidence has been identified demonstrating that this de minimis incremental discharge would be reasonably likely to impair the structural integrity of the existing culvert or alter downstream wetland resources.

Accordingly, while the existing condition of the culvert is acknowledged, it does not establish a basis to prohibit discharge from an otherwise compliant stormwater system or to require additional wetland delineation beyond that already shown on the approved plans.

Site Plan Set

C-101 – Existing Conditions Plan

1. Soil test pits SH-TP-105 and SH-TP-106 were both terminated by refusal (on boulders) at elevation 230.5 and 234.5, respectively. Also, there is an exposed surface of ledge shown approximately 10 feet west of TP-106 on this plan. There appeared to be a series of boulders or probably ledge beneath the proposed subsurface infiltration basin B-2B. Soil logs indicated gravelly loamy sand found at both pits, which is considered well drained soil. If these two pits were refusal on boulders and not ledge, should the (estimated seasonal high groundwater) ESHGW be aligned with the nearby wetland surface elevation 228+. The proposed infiltration pipe/stone bed system's bottom of stone is at elevation 229 and with the required minimum 2' separation to bedrock, the bottom of the excavation would be approximately 15 feet below the surface ledge and 3' below the nearby wetland. GCG recommends performing additional soil test pits (with heavy equipment) at the proposed infiltration system B-2B location to clarify any ledge and ESHGW concerns. GCG recommends providing surface spot grades at wetland flags GCA-26 to GCA-29, which should provide reasonable indication of the actual ESHGW elevation near the area. (The ESHGW elevations found in TP-102 and TP-103 were relatively close to the nearby wetland surface elevation).

Response: SH-TP-105 and SH-TP-106 were excavated to refusal on boulders at approximate depths of 5.5 and 7.5 feet, respectively. The determination of refusal as boulders (as opposed to ledge) at these two locations was based on the shallow depth relative to SH-TP-8 and SH-TP-7, as well as the excavator response/interaction with the in-place soil, such as localized pitting of the excavation bottom and/or movement of the excavation bottom and sidewall. In general, surface and buried boulders can also be commonly found across the site as noted in the subsurface logs. In particular, a large surface boulder up to 6 feet in diameter can be found west of SH-TP-106. Sanborn Head excavated at the base of this boulder to confirm this was not a surface bedrock protrusion and encountered a soil subgrade – refer to the photographs in Attachment 5.

Refusal on bedrock was encountered to the west of the proposed basin B-2B, renamed SIS-2, now at El. 225 feet in SH-TP-8. Bedrock is anticipated to climb in elevation as you move further west and toward the central ridge, and drop as you move east towards proposed basin B-2B.

Consistent with Sanborn Head's data report, SHA further notes that bedrock or large boulders encountered at the subgrade for the stormwater system at the time of construction will need to be removed to allow for installation of the system and to create a uniform, free-draining layer below the system for even distribution of the groundwater recharge. Based on the absence of groundwater observations and redoximorphic features in the explorations within and in the vicinity of proposed B-2B, renamed SIS-2, ESHGW is anticipated to be at El. 225 feet, or lower.

The wetland in the north corner of the site appears to be a 'losing' system with respect to groundwater, meaning it adds to the groundwater rather than be fed by it. The wetland generally conveys surface runoff and discharge from the upgradient wetland system to an outlet stream to the north, with small amounts of water entering the ground below and at the fringe of the system as groundwater, and develops a dipping (or losing) gradient away from the wetland edge. Over time, fine sediments and plant detritus build up a low permeability layer along the bottom and edge of the wetland, limiting groundwater recharge and causing the wetland to be 'perched' on the landscape. This is seen by the redoximorphic features in SH-TP-102 and SH-TP-103, at approximately El. 225 feet, being 'downgradient' from the wetland edge at approximately El. 228 feet. Similarly, this would be the likely condition further south along the wetland edge when approaching proposed B-2B, renamed SIS-2. This is further supported by the general lack of observed groundwater; the existing wetland cannot 'gain' from groundwater when the groundwater is not consistently present above the bedrock. We therefore believe that extending the wetland surface elevation (of El. 228 feet) 100 or more feet to the west, is not consistent with the hydrogeologic conceptual site model.

2. GCG does not recommend installing large infiltration systems in ledge or bedrock. Removal of ledge to allow for infiltration may open up fissures/cracks in bedrock which can redirect flow paths of the groundwater possibly drying up wetland or opening up other avenues for the water to flow. Since this site is directly upgradient of Waverly Street and has a ledge face along the street, the stormwater design and building construction need to prevent any possibility of groundwater breakout through this ledge face onto Waverly Street. Blasting or hammering of ledge could very easily redirect the groundwater flow.

Response: Refer to response above.

C-131 – Grading and Drainage Plan

3. The Legend's CPE (Corrugated Polyethylene Pipe) shall be specified with smooth interior.

Response: Drawing C-131: Grading & Drainage Plan is revised so the CPE pipe material is specified with smooth interior.

4. The proposed southeastern subsurface infiltration basin label should be B-2B, (B-2A labeled), the northern subsurface infiltration basin label should be B-2A, (B-1A labeled), to match Details A5, plan sheet C-505 and the HydroCAD models.

Response: Drawing C-131: Grading & Drainage Plan is revised to label the subsurface and surface basins with a more simple nomenclature.

5. Both subsurface infiltration basin B-1A and B-2B consist of 48" diameter CMPs (corrugated metal pipe) embedded in stone bed, which are identified as Shallow UIC Class V Injection Wells. MassDEP requires a minimum 10 feet setback to water supply line. Both proposed systems are within 10 feet of the proposed water supply line, 10' minimum

setback required. The proposed CMP is not a durable material, considering buried in a high moisture environment and 7 to 8 feet below surface. GCG recommends replacing it with more durable pipe material.

Response: Drawings C-131: Grading & Drainage Plan and C-141: Utilities Plan are revised to shift the water main at least 10 feet from the subsurface systems. Corrugated metal pipe (CMP) is an industry standard material for infiltration systems and 48-inch diameter pipe can be buried to depths far greater than those proposed. Detail A5/C-504 is updated to provide an impermeable membrane liner over the top of CMP pipes to reduce the risk of corrosion from salts in the parking areas above the systems.

6. Roof drain pipe size (diameter) along the building perimeter should be specified on the plan.

Response: Drawing C-131: Grading & Drainage Plan is updated to include roof drain sizes. Enclosed is a pipe sizing calculation spreadsheet to support the pipe sizing.

7. The two subsurface infiltration basins outlet pipe connect to OCSs 2-1 and 3-1, should have the pipe diameter specified on the plan.

Response: Drawing C-131: Grading & Drainage Plan is updated to provide the connection pipe diameters and lengths between the subsurface infiltration basins and outlet control structures.

8. Architecture building roof plan should be provided to show roof runoff collection system directing the portion of roof runoff to the assigned roof drain according to the watershed map. Proposed parking lot garages' roof plan should be provided to ensure the roof runoff drains to the assigned watershed.

Response: The building architecture design is preliminary and the roof drainage plan is not available at this time. As demonstrated on the enclosed Proposed Hydrology Map, the assumed drainage divides are typical for rooftop drainage. The project design team will coordinate the rooftop drainage and routing of the roof drains to reflect the hydrology model.

9. The proposed 12" roof drain pipe at the northern side of building connects to WQU 2-1 has a pipe slope of 8%, which would have a flow full velocity of 12.8 feet per second, not accounting the roof height's hydraulic head unless there is a substantially small flow from the roof runoff, the flow velocity is expected to exceeded the 12 feet per second. CBs 2-2, 2-5, 2-12, 3-1 3-2, 3-3 and 3-4 outlet pipes were set at 5.0%, with a flow full velocity of 10.2 feet per second, since the inflow watersheds are relatively small, the flow velocity could be below 10 feet per second. The eastern 12" roof drain connects to DMH 1-4 pipe slope should be 0.015 ft/ft. The plan has utilized 12" diameter drain pipe for the entire site, GCG recommends providing pipe sizing, capacity, and velocity analysis for review.

Response: Drawing C-131: Grading & Drainage Plan is revised to incorporate these comments and reflect the enclosed pipe sizing calculations.

10. All drain manholes should have a minimum of 0.1 feet internal drop to compensate the hydraulic drop within the structure.

Response: Drawing C-131: Grading & Drainage Plan is revised to incorporate a minimum of 0.1 foot internal drops.

11. OCS 1-2, an inlet pipe is needed to connect the basin to the OCS to allow outflow at 231.50.

Response: Drawing C-131: Grading & Drainage Plan is revised and detail A1/C-504 is provided to show a connection pipe from the surface detention basin to OCS 1-2.

12. Bioretention basin surface area did not match the HydroCAD calculations.

Response: The bioretention basin has been replaced with a subsurface detention system.

13. WQU 1-1 is a 3' diameter structure with proposed three 12" pipe connection. GCG recommends increasing the structure to 4' diameter. DMH 2-2 and DMH 2-7 should be considered with 5' diameter structure.

Response: The drawings are revised to reflect the enclosed sizing worksheets provided by Contech. Detail A5/C-503 DMH Note #2 is added to specify 5-foot 6-foot inner diameter for multiple inlets and/or larger pipe diameters as required by the manufacturer.

14. The proposed DMH 1-1 and CB 1-1 rim elevations are 7" +/- above the existing Waverly Street ground grade and should be addressed.

Response: Drawing C-131: Grading & Drainage Plan is revised to show the proposed DMH 1-1 and CB 1-1 with rim elevations to match the existing catch basin.

15. The plan stated no ESHGW find at elevation 225' (TP-8). Is the foundation drain at 234.30 necessary?

Response: The foundation drains are provided as a continuous loop to redirect groundwater and are not typically segmented.

16. The proposed retaining wall at the northern side of CMP infiltration basin B-2B should be designed to support the hydraulic pressure from the nearby CMP infiltration basin and with impervious function prevent breakout through the wall surface.

Response: The proposed subsurface infiltration basin is proposed at an elevation that will not adversely affect the proposed retaining wall – refer to previously submitted Exhibit: Bedrock Elevation Plan/Profile (Approx.) and Section A-A Profile. As an extra precaution, an impermeable liner is added to the north side of the subsurface infiltration basin to prevent horizontal migration towards the retaining wall and Waverly Street – refer to drawings C-131: Grading & Drainage Plan and detail A5/C-504.

C-505 – Details V

17. Detail C1 – OCS 1-2 “E” elevation should be 223.55.

Response: The details and hydrology model have been updated accordingly.

18. Detail C1 – OCS 3-1 “A” elevation 231.42' did not match the plan C-131 (232.42 shown).

Response: The details and hydrology model have been updated accordingly.

19. Detail C1 – OCS 3-1 “B” elevation 231.46' did not match the HydroCAD (232.46 used).

Response: The details and hydrology model have been updated accordingly.

20. Detail C1 – OCS 3-1 “E” elevation 231.42' did not match the plan C-131 (FES = 232.20 shown).

Response: The details and hydrology model have been updated accordingly.

21. Detail C1 – OSC inlet pipe size should be specified, where applicable.

Response: The details and hydrology model have been updated accordingly.

22. All OCS structures have a standard width of 4' and equipped with 2.0' long sharp-crested rectangular weir (at invert “D”). The details should call out the 2" weir width on the top view and specify the top of the weir wall, where it widened to 4'.

Response: The details and hydrology model have been updated accordingly.

C-507 – Details VII

23. Detail A5 Bioretention Area Section – the detail shows the bottom of bioretention soil at elevation 216.67, which does not match the HydroCAD storage bottom elevation (215.67), the base of the bioretention basin area should be specified on the plan. Based on the HydroCAD report, the bottom of the bioretention soil (Engineered Soil Mix) area should align with the surface area at elevation/contour 202. This detail calls for 1'-4" depth of bioretention soil (min.), but the HydroCAD calculations were based on 2.33', MassDEP MSH requires the depth of the soil media between 2 and 4 feet, and a minimum of 30 inches for nitrogen removal credit. See additional Bioretention comments under the "Hydrologic Modeling and Supporting Information" below.

Response: The bioretention area has been replaced with a subsurface detention system.

24. The proposed surface infiltration basin is constructed in fill; the proposed earth berm is approximately 7.5+/- feet over the existing grade. An earth berm construction detail should be provided, the berm should be constructed with an impervious (low permeability) material core embedded into the existing earth base, pipe should be bedded in the low permeability core material.

Response: Detail E1/C-504: Surface Detention Basin – 1 Section A-A has been added to shows the existing and proposed grades, materials, and an impermeable clay membrane installed in the center of the berm to reduce the risk of erosion.

Hydrologic Modeling and Supporting Information (NOI Package Appendix 4.02)

HydroCAD Report – Existing Hydro

1. Majority of the existing site surface coverage was modeled as Woods/grass combination, which means 50% woods and 50% grass per Technical Release 55, (TR55), Table 2-2c. Footnote #5. GCG reviewed the historic aerial image from 1995 to current street view image and found that the site consists of predominantly dense woods coverage for the past 30 plus years. GCG recommends replacing the Woods/grass combination surface to Woods, in good condition. The portion of >75% Grass cover surface used in sub-catchments EX 1.2 and Ex 1.3 were deemed reasonable, where relatively matching the open area at the northerly portion of the site as shown on current aerial image. Sub-catchment EX 2.1 Tc should start from the high point, (GCG scaled approximately 200'+/- of total flow length). Minimum Tc should be 6 minutes (0.1 hour) per TR55. However, the Tc in this case should have relatively minor impact on calculations.

Response: The hydrology model has been revised to incorporate the comment regarding Woods in good condition. The enclosed calculations reflect these revisions.

2. Existing Hydro analysis points: GCG recommends setting the design points (DP) based on the existing runoff flow direction. The existing sub-catchments EX-1.1 and EX-1.2 surface runoff drains toward Waverly Street and flows southwestward to DP-1. However, Sub-catchments EX 1.3 and 2.1, both drains north and northwestward to the existing wetland and intermittent stream (wet flag series GC S1 – S10) and onto the abutting property at 63 Waverly Street. A new design point should be added to the northern property boundary at the intermittent stream. Subcatchment EX 3.1 drains southwestward onto the East Union Street drainage system (DP-3); Sub-catchment EX2.2 drains southeastward onto East Union Street drainage system (DP-2). There is an existing high point in front of utility pole #20 on Waverly Street. Therefore, majority of the existing project site runoff drains southwestward along Waverly Road with small portion of the site runoff drains northward to the existing catch basin (proposed DMH 1-1).

Response: The hydrology model has been revised to incorporate the recommended Design Points. The enclosed calculations reflect these revisions.

HydroCAD Report – Proposed Hydro

3. As recommended in comment #1 above, all existing Woods/grass combination surface cover to remain should be modeled as Woods, good cover.

Response: Refer to response above.

4. Sub-catchment PR 1.2, this watershed consists of the proposed bioretention basin surface area, since the bottom of the bioretention soil (engineered soil mix media) at 215.67 (HydroCAD), or at 216.67 (shown on Detail A5, C507), discrepancy to be resolved, is below the ESHGW at 217.5 (SB-TP-101). The bioretention area's base will be lined with impervious liner, which eliminated all exfiltration function of the system (become Bio-detention system). GCG is not against modeling the bioretention/biodetention area surface with grass CN value. However, the HydroCAD Pond BIO 1: Bioretention model also takes 35% void credit within the engineered soil mix layer for stormwater storage, then the bioretention area surface (in sub-catchment PR 1.2) should be modeled as water surface CN=98. GCG recommends keeping the bioretention area surface with grass surface CN value and eliminate the 35% void credit used in the pond model BIO 1.

Response: The bioretention area has been replaced with a subsurface detention system.

5. Tc used in TR-55 should be 0.1 hour or 6 minutes minimum.

Response: The hydrology model has been revised to incorporate the recommended time of concentration. The enclosed calculations reflect these revisions.

6. Sub-catchment PR 1.3 – The proposed Tc slope should be verified; there appeared to be 3H:1V side slope along the basin earth berm. The Tc with 29' flow length and 2% slope used on the calculation should be verified.

Response: The hydrology model has been revised to incorporate the recommended time of concentration. The enclosed calculations reflect these revisions.

7. Sub-catchments PR 1.4, the surface infiltration area (100-year event ponding surface) should be modeled as water surface with 98 CN value. The exfiltration rate has been credited to the basin surface area during the pond modeling.

Response: The hydrology model has been revised to incorporate the recommended CN value. The enclosed calculations reflect these revisions.

8. Pond B-2A: CMP Infiltration – the proposed 2' long weir in a 4' wide concrete structure should have the top of weir wall elevation specified in the design.

Response: The hydrology model and drawings have been revised to incorporate the recommended weir design.

9. Pond B-2B: CMP Infiltration – the proposed bottom of system (229.00) is 13' below the exposed surface ledge (242 contour) shown on the existing conditions plan. The two nearby test pits (TPs 105 & 106) were terminated due to refusal on boulders (the extent of the boulders should be determined, by additional test pits performed with heavy excavator equipment capable of removing boulders). This is relatively large subsurface infiltration system, buried in ledge should be avoided. The proposed outlet 2" orifice invert at elevation 232.46 is a foot higher than the invert" B" elevation shown on Detail C1, sheet C-505. The proposed 2' long weir in a 4' wide concrete structure should have the top of weir wall elevation specified in the design.

Response: Refer to response above regarding the geotechnical explorations at subsurface infiltration system #2 (formerly B-2B).

The hydrology model and drawings have been revised to incorporate the comments regarding orifices and weirs.

10. Pond B-2C: Surface Infiltration – the proposed 12” outlet pipe length and inverts do not match with plan sheet C131. The proposed 2’ long weir in a 4’ wide concrete structure should have the top of weir wall elevation specified in the design. Should the proposed 1” orifice and two (2) – 4” orifice be vertical? (horizontal modeled). The proposed outlet orifices appeared to be buried in the earth berm; a connection pipe from the basin to the OCS is needed. The Board-Crested Rectangular Weir dimensions should be specified on the plan with erosion control armor. Emergency spillway sizing calculation should be provided, based on brimful conditions, (no pond storage, no outlet and capable to allow 100-year inflow passing through without overtopping the earth berm), MSH Vol. 2, Ch. 2, Pg. 91.

Response: The hydrology model and drawings have been revised to incorporate the comments regarding pipes, orifices, and weirs. Enclosed are emergency spillway sizing calculations.

11. Pond BIO 1: Bioretention – The bioretention soil layer thickness ($215.67 - 218.00 = 2.33'$) does not match with the Detail A5, C-507, which shown 1' - 4". GCG does not recommend using the 35% voids in the bioretention soil layer for stormwater storage volume, since the bioretention area surface was modeled as grass cover surface in sub-catchment PR 1.4. The calculated bioretention surface area appeared to be larger than the contours surface area shown on the plan. The proposed 2’ long weir in a 4’ wide concrete structure should have the top of weir wall elevation specified in the design. The proposed bioretention soil/engineered soil mix depth should be between 2’ to 4’, and 30” minimum depth to qualify for Nitrogen removal credit. T

Response: The bioretention area has been replaced with a subsurface detention system.

12. Design Points – the pre-development site runoff mainly flows toward Waverly Street (southwest direction, due to the high point in front of utility pole #20, sub-catchments EX 1.1 and EX 1.2). and majority of the remaining site runoff drains northeastward to the on-site wetland and discharges to the house 65 Waverly Street intermittent stream. There are minor runoff drains southward to East Union Street (east and west directions). Therefore, the CMP infiltration basins B-2A and B-2B overflow to the on-site wetland should be compared with the predevelopment flow toward 65 Waverly Street (recommended a new Existing Hydro design point). The proposed surface infiltration and bioretention area outflows are designed to discharge to the existing catch basin on Waverly Street, which discharge northeastward to the stone box culvert. This discharges to the opposite direction of the pre-development flow pattern, drainage pattern should not be altered especially the downstream outfall discharge to a private property. Moreover, the proposed DMH 1-1 and CB 1-1 rim elevations are approximately 7” higher than the road grade, based on Google street view image, which is infeasible.

Response: The hydrology model has been revised to incorporate the recommended Design Points. The enclosed calculations reflect these revisions.

13. Operation and Maintenance Plan, the catch basin should be inspected, and inlet grate be cleaned at a minimum of 4 times per year. There is no indication of any roof drain collection system shown on the NOI package. The building (main structure and garages) roof collection system, gutter and leader or roof drain inlet should be part of the roof runoff inlet system and should be inspected and cleaned at a minimum of twice per year.

Response: The Operation and Maintenance Manual has been updated to include catch basin and roof drain inspection and maintenance as recommended.

14. The proposed development generated more than 1,000 vehicle trips per day as stated in the project narrative and is a Land Uses with Higher Potential Pollutant Loads (LUHPPL), the proposed BMPs appeared to meet the treatment requirements for LUHPPL project. However, the bioretention area should be modified to meet the minimum engineered soil mix layer depth.

Response: The bioretention area has been replaced with a subsurface detention system.

15. The bottom of the bioretention area is proposed below the ESHGW, buoyancy calculations should be provided, to ensure there will be sufficient soil weight to counter the buoyancy force.

Response: The bioretention area is revised to a subsurface detention system – refer to detail C5/C-504: Subsurface Detention System (Stormtech SC-310). The bottom of system is at elevation 215.76 which is below the SH-TP-101 observed seasonal high ground water at elevation 217.5. Buoyancy calculations are enclosed that demonstrate a factor of safety against floatation of 6.0.

16. TSS Removal Calculation Worksheet – this worksheet was not intended to address 90% TSS removal requirements. The Bioretention Area requires pretreatment to achieve a total of 90% TSS removal, (Bioretention/Biodetention soil media thickness should be addressed). The proposed surface infiltration basin and CMP infiltration basin/ (Subsurface Structure). Both require pretreatments to qualify for the 80% TSS removal credit. This project is a LUHPPL and with rapid soil, the proposed deep sump hooded catch basin (25% TSS removal credit) combined with the WQU (50% TSS removal credit) do meet the 44% TSS removal pretreatment requirements. GCG recommends utilizing the US EPA (Region 1), BMP Performance Analysis (Curve or Extrapolation Tool) to address the 90% TSS removal rate and nutrient removal requirements, as recommended by MassDEP.

Response: Enclosed are TSS removal worksheets that demonstrate both the pre-treatment only TSS removal and the entire treatment train TSS removal for each stormwater BMP.

Summary

The applicant should verify the ESHGW and boulders/ledge extent at the CMP infiltration system (B2B) location. The overflow discharges to Waverly Street should be re-evaluated, the existing site runoff flows southwestward to the Waverly Street drainage system, but the post-development overflow drains northeastward to the stone box culvert and altering the pre-development drainage pattern. Any runoff discharge or overflow connection to a municipal drainage system should require the Ashland DPW approval. GCG recommends providing documentation that the existing drainage system conditions and sufficient capacity to handle the development flows. Runoff peak and volume should be controlled when discharges to existing drainage system to avoid downstream flooding. Provided evidence that the blasting or hammering of ledge will not impact the groundwater flow on site which could adversely impact the wetlands and Waverly Street.

Response: Responses to the above comments have been provided throughout the memo.

Sincerely,

A handwritten signature in blue ink that reads "Will Park". The signature is written in a cursive style.

Will Park, PE

Principal / Senior Civil Engineer / SMMA / wpark@smma.com / 617.520.9210

CC: *The Gutierrez Company*

Enclosures: Site Design Plans, 25yr Pipe Sizing, Existing Waverly St 12-IN RCP Capacity, Existing Hydrology Report, Proposed Hydrology Report, Existing Hydrology Map, Proposed Hydrology Map, Peak Discharge Rate Summary, Contech Water Quality Unit Sizing Calculations, Infiltration System WQV, Recharge & Drawdown, SDS-1 Buoyancy Calculations, TSS Removal, O&M Manual, Bedrock Contour Plan