



January 26, 2022

Ms. Valerie Oorthuys, Town Planner
Bolton Town Hall
663 Main Street
Bolton, MA 01740

Re: Third Peer Review
Comprehensive Permit Application
Mallard Lane, Bolton MA

Dear Ms. Oorthuys:

The Horsley Witten Group (HW) is pleased to provide the Bolton Zoning Board of Appeals (ZBA) with this letter report summarizing our third review of the residential development proposed along South Bolton Road between Wheeler Road and Spectacle Hill Road in Bolton, MA. Ducharme & Dillis Civil Design Group, Inc. have prepared the Comprehensive Permit Plan set and Stormwater Report on behalf of James Morin (Owner). The proposed development includes eleven detached age-restricted single family residential dwellings with one common driveway. The 4.70-acre undeveloped parcel includes an off-site wetland area as shown on the project plans. HW understands through conversations with the Bolton Conservation Agent that a Determination of Applicability was issued by the Bolton Conservation Commission indicating the need for the Applicant to file a Notice of Intent (NOI) with the Conservation Commission for work proposed within the 100-foot buffer to the wetland area.

The following additional documents and plans regarding the stormwater and site design were received by HW in response to our initial peer review letter dated October 14, 2021. A second peer review regarding the wetlands comments was issued on January 11, 2022:

- Letter re: Initial Stormwater & Wetlands Peer Review Comprehensive Permit Application – Mallard Lane, Bolton, MA from Ducharme & Dillis Civil Design Group, Inc., dated December 16, 2021 (14 pages).
- Letter from Brittany Bethune & Christopher Hoyt, 342 S. Bolton Road (3 pages).
- Email comments from the Fire Chief, September 3, 2021.
- Correspondence from DHCD – Local Initiative Program Policy Regarding Restrictions on Children in Age-Restricted 55+ Housing (1 page).
- Comprehensive Permit Plan, Mallard Lane, Bolton, MA, prepared by Ducharme & Dillis Civil Design Group, Inc., stamped December 9, 2021 which includes:
 - Title Sheet C1.0
 - Existing Conditions Plan C1.1
 - Layout Plan C2.0
 - Grading & Drainage Plan C3.0
 - Grading & Drainage Details 1 C3.1

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|--------------------------------|------|
| ○ Grading & Drainage Details 2 | C3.2 |
| ○ Erosion Control Plan | C4.0 |
| ○ Erosion Control Details | C4.1 |
| ○ Utilities Plan | C5.0 |
| ○ Utility Detail Plan | C5.1 |
| ○ Landscape Plan | C6.0 |

Stormwater Review

HW offers the following comments concerning the stormwater management design per the requirements of the Massachusetts Department of Environmental Protection (MassDEP) Massachusetts Stormwater Handbook (MSH) dated February 2008.

The following comments correlate to our October 14, 2021, initial peer review. Follow up comments are provided in **bold font**.

1. *Standard 1 states that no new stormwater conveyances may discharge untreated stormwater directly to or cause erosion in wetlands of the Commonwealth.*

- a) Approximately 1,500 square feet (sf) of the roadway entrance appears to flow untreated into South Bolton Road, and ultimately into the wetland across the street. The calculations show that the peak runoff rate will be less under proposed conditions than existing however, the entrance is located very close to Infiltration Area A and it appears that runoff from the entrance could be captured in catch basins and piped to the proposed closed drainage system fairly easily. HW recommends that the Applicant consider this as an option.

HW 1/26/22: The Applicant has relocated catch basins 1 & 2 to capture runoff prior to leaving the site. HW has no further comment.

- b) HW recommends that the Applicant confirm that any stormwater runoff flowing into a wetland resource area will be treated and will not cause erosion into the wetland including the resource area across South Bolton Road.

HW 1/26/22: The Applicant has relocated catch basins 1 & 2 to capture runoff prior to leaving the site. HW has no further comment.

2. *Standard 2 requires that the stormwater management systems be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*

- a) The Applicant provided the HydroCAD model for the 2-year, 10-year, 25-year, and 100-year storm events. The precipitation rates utilized are not comparable to the NOAA Atlas 14, the Cornell Extreme Precipitation, or the Technical Paper-40 (TP-40) rates for Worcester County. HW recommends that the Applicant clarify where the precipitation rates used were derived from and adjust to use the higher values from the commonly used references mentioned. HW understands that MassDEP is in the process of revising the Massachusetts Stormwater Handbook and will likely be requiring the use of the NOAA Atlas 14 depths of precipitation.

| Storm event | Applicant's values inches | TP-40 values inches | NOAA Atlas 14 inches |
|-------------|------------------------------|------------------------|-------------------------|
| 2-year | 3.10 | 3.0 | 3.25 |
| 10-year | 4.50 | 4.5 | 4.98 |
| 25-year | 5.40 | 5.3 | 6.05 |
| 100-year | 7.00 | 6.5 | 7.71 |

HW 1/26/22: The Applicant has not provided a revised Stormwater Report as of January 26, 2022. HW's comment stands.

- b) Pipe sizing calculations were not included in the submittal, HW recommends that the Applicant provide sizing calculations for a 25-year storm event using the rational method.

HW 1/26/22: The Applicant has not provided a revised Stormwater Report as of January 26, 2022. The Applicant stated that pipe sizing calculations were provided but were not included in the submission; HW's original comment stands.

- c) A proposed tree line is not shown on the plans making it difficult to verify the types of cover used in the calculations. HW recommends that the proposed tree line be added to the plans.

HW 1/26/22: A proposed tree line has been added to the plans along the southern property line. It does not reflect any individual trees within the limit of work (if any) to be retained. HW has no further comment.

- d) There appears to be an error for the rim elevation for DMH-2. HW recommends that the Applicant review and revise as needed.

HW 1/26/22: The elevation for DMH-2 has been revised. HW has no further comment.

- e) There appears to be only 2.5-feet of cover over several pipes. HW recommends that the Applicant confirm that this is adequate for loading under pavement and that the drainage structures will be able to be constructed with inverts at the proposed elevations.

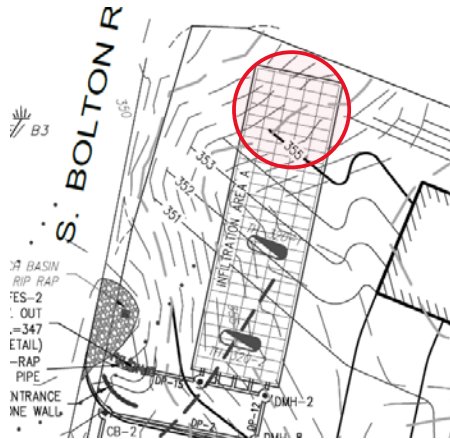
HW 1/26/22: The Applicant has specified ductile iron pipe for drainage pipes 1 and 2 with 2-feet of cover. It appears that there is actually less than 1-foot of cover over these pipes at the structures. HW recommends that the Applicant confirm that this is adequate for loading under pavement and that the structures will be able to be constructed with the inverts at the proposed elevations.

- f) The proposed roofs are directed towards the closed drainage system and through the proprietary treatment devices prior to infiltration. Roof runoff is considered "clean" and could be infiltrated directly from the downspouts. HW recommends that the Applicant investigate this option to decrease the amount of flow through the proprietary treatment device.

HW 1/26/22: The Applicant states that the roof runoff is intended to be recharged through sub-surface systems to preserve the maximum amount of space around units. HW again suggests infiltrating directly from the downspouts to individual sub-surface units in order to decrease the flow through the proprietary treatment as well as decreasing the size of infiltration areas A and B, possibly decreasing the required clearing/grading along the roadway.

- g) As currently shown, there is a maximum of nine feet of cover over Infiltration Area A. The grading appears off, the proposed grades tie back to the existing grades however the entire area will need to be cleared and excavated to install the subsurface system. HW recommends that the Applicant revisit the proposed grading over Infiltration Area A and confirm that the amount of cover is suitable over the proposed structures.

HW 1/26/22: The Applicant has reduced the amount of proposed cover to approximately 6-feet. However, it appears that the proposed grades can still be reconfigured to reduce the fill and should tie back to the existing topography at the property line. As shown the existing contours that are illustrated to remain will be impacted when the subsurface infiltration system is installed.



- h) The plans illustrate an existing leaching catch basin off South Bolton Road that is close to the proposed Infiltration Area A. During the site visit it was confirmed that this basin has been recently replaced by the Town to be a catch basin with a beehive grate that pipes stormwater under South Bolton Road towards the wetland across the street. HW recommends that the Applicant confirm that construction in this area will not impact the existing catch basin.

HW 1/26/22: The Applicant states that the beehive grate has been located and that the proposed construction will not impact the existing drainage structure. It should be noted that the layout/dimensions and location of Infiltration Area A has been revised. HW has no further comment.

- i) There is no emergency overflow for the infiltration chambers. The 100-year storm peak elevation is only four-inches below the flood elevation of the chambers for Infiltration Area B. HW recommends that the Applicant include an emergency overflow should there be a clog or failure in the future.

HW 1/26/22: The plans have been revised to include overflow pipes for both infiltration areas. Dimensions have not been provided on the riprap for the flared ends. The Applicant has not provided a revised Stormwater Report as of January 26, 2022. HW recommends that the Applicant include these overflow pipes in the HydroCAD model and provide riprap sizing calculations, as applicable.

- j) The calculations provided refer to a sediment forebay but it does not appear that a sediment forebay is proposed. HW recommends that the calculations be revised as needed.

HW 1/26/22: The proposed infiltration systems have been redesigned to include isolator rows. Although this is not defined as a sediment forebay, the proposed stormwater system will achieve adequate pretreatment to achieve the required TSS removal. HW has no further comment.

- k) HW recommends that the Applicant consider adding an isolator row to the subsurface infiltration chambers to extend the life expectancy of the system.

HW 1/26/22: The Applicant has revised the design of the infiltration systems to include isolator rows. HW has no further comment.

- 3. *Standard 3 requires that the annual recharge from the post-development site approximate the annual recharge from pre-development conditions based on soil type.*

- a) The Applicant has indicated that the hydrologic soil group (HSG) is A, B, and B/D as listed on the Natural Resources Conservation Services (NRCS) soil survey. Subsurface test pits were conducted on-site specifically for the proposed subsurface wastewater treatment system, but these locations are not shown and soil logs were not provided. It does not appear that any test pits were performed for the proposed subsurface stormwater system. In accordance with Volume 2, Chapter 2, page 97 of the MSH the Applicant is required to conduct a minimum of two test pits within each infiltration system. HW recommends that the Applicant conduct additional testing as required in the MSH.

HW 1/26/22: The Applicant has provided information for soil test pits performed in March of 2020. There are two test pits located in Infiltration Area A and one in Infiltration Area B. HW defers to the Board if additional testing is required prior to approval.

- b) The separation distance to estimated seasonal high groundwater (ESHGW) is not clear from the information provided, and the Applicant is proposing to infiltrate the stormwater entering the systems from a 100-year storm event. HW recommends that the Applicant determine the elevation of the ESHGW and provide a mounding analysis in accordance with Volume 3, Chapter 1, page 28 of the MSH if applicable.

HW 1/26/22: The Applicant has provided an elevation for ESHGW on Sheet C3.1 but this value differs from that shown on the soil test data on Sheet C1.1 for Infiltration Area A (El. 343 in the detail vs. El. 346 in the soil data). It appears that the bottom of the infiltration area may be in the water table. HW recommends that the Applicant review the elevations, adjust as needed, and provide a mounding analysis if required.

- 4. *Standard 4 requires that the stormwater system be designed to remove 80% Total Suspended Solids (TSS) and to treat 0.5-inch of volume from the impervious area for water quality.*

- a) The Applicant has provided the required water quality calculations to verify compliance with Standard 4 in Appendix F of the Stormwater Report. The calculations as presented appear reasonable. However, HW recommends that the Applicant confirm that the proprietary device has adequate capacity for the bypass flow during larger storm events.

HW 1/26/22: The Applicant stated that it has updated the water quality calculations and that there is adequate capacity for bypass flow. However, the Applicant has not provided a revised Stormwater Report as of January 26, 2022. HW's comment stands.

5. *Standard 5 relates to projects with a Land Use of Higher Potential Pollutant Loads (LUHPPL).*

- a) A residential development is not considered a LUHPPL; therefore, Standard 5 is not applicable to this site. No further action required.

HW 1/26/22: HW has no further comment.

6. *Standard 6 relates to projects with stormwater discharging into a critical area, a Zone II or an Interim Wellhead Protection Area of a public water supply.*

- a) The project site does not appear to discharge into a critical resource area; therefore, Standard 6 is not applicable to this site. No further action required.

HW 1/26/22: HW has no further comment.

7. *Standard 7 relates to projects considered Redevelopment.*

- a) The proposed development is considered new development; therefore, Standard 7 is not applicable to this site. No further action required.

HW 1/26/22: HW has no further comment.

8. *Standard 8 requires a plan to control construction related impacts including erosion, sedimentation or other pollutant sources.*

- a) HW recommends that the Applicant include a tree protection detail and clearly illustrate on the plans any specific trees to be protected and the proposed tree line. HW further recommends that trees greater than 10-inch diameter be located on the existing conditions plan and trees within the Town right of way be clearly documented.

HW 1/26/22: A tree protection detail has been added to the plans. No specific trees have been identified on the plans. HW again recommends that trees greater than 10-inch diameter be located on the existing conditions plan and trees within the Town right of way be clearly documented.

- b) HW recommends adding construction fence surrounding the infiltration areas during construction to protect from compaction due to equipment. Adjustment of the construction sequence may be required for the infiltration area underneath the cu-de-sac.

HW 1/26/22: The plan has been revised to include construction fencing around the proposed infiltration areas. It does not appear that any revisions have been made to the construction sequencing as suggested.

- c) A note on the ESC Detail Sheet (B5) indicates that dewatering will be provided as needed. HW recommends that a detail for dewatering be provided along with proposed locations.

HW 1/26/22: Dewatering is not anticipated; however, the Applicant has added a dewatering detail to the plans. No further comment.

- d) Note C5 mentions that stockpiles are to be protected. HW recommends that stockpile locations be indicated on the plans and that these areas be located outside of the buffer zones as well as away from any proposed infiltration areas.

HW 1/26/22: Approximate stockpile locations have been added to the plan. No further comment.

- e) Notes under Section D of the ESC Details contain conflicting depths for loam and specifications for erosion control blankets. HW recommends that these notes be reviewed for consistency. HW also recommends that all slopes that require erosion control blankets be indicated on the plan.

HW 1/26/22: The notes have been revised and the location of the erosion control blankets have been identified on the plans. No further comment.

- f) Snow storage areas are noted to be away from wetlands but are not clearly indicated on the plans. HW recommends adding locations for snow storage to the plans.

HW 1/26/22: Sheet C2.0 has been revised to indicate potential snow storage locations. These areas are located along the western side of the road, behind the berm, sidewalk, and community mailbox location. These locations may be difficult for snowplows to store snow from the roadway. HW recommends that the Applicant confirm that the locations shown are feasible.

- g) The property will be disturbing more than 1 acre of land and will therefore be required to develop a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Stormwater Program. The Applicant has noted on that it will provide the Town of Bolton with a copy of its SWPPP prior to construction.

HW 1/26/22: The Applicant states that a filing will be made with the EPA and a copy of the SWPPP will be provided to the Town prior to construction. The ZBA may choose to include receipt of the SWPPP prior to construction as a condition of approval.

9. *Standard 9 requires a Long-Term Operation and Maintenance (O&M) Plan be provided.*

The Applicant has provided an O&M plan for this project in the Stormwater Report. HW has the following comments:

- a) Subsurface infiltration areas are noted to be maintained “regularly” this should be modified to state twice per year per the MSH.

HW 1/26/22: The Applicant states that the O&M has been updated accordingly. A revised O&M has not been received as of January 26, 2022. HW’s initial comment stands.

- b) The O&M Plan should clearly document who is responsible for the long-term maintenance of the stormwater practices.

HW 1/26/22: The Applicant states that the parties responsible will be determined at a later date and will be provided in the SWPPP.

- c) A simple figure should be attached to the O&M Plan noting the location of the various stormwater practices.

HW 1/26/22: The Applicant states that the O&M has been updated to include a figure outlining the stormwater practices. A revised O&M has not been received as of January 26, 2022.

10. *Standard 10 requires an Illicit Discharge Compliance Statement be provided.*

- a) To comply with Standard 10 an Illicit Discharge Compliance Statement signed by the property owner must be provided to the Town prior to the discharge of stormwater.

HW 1/26/22: The Applicant states that a statement will be signed by the property owner prior to the discharge of stormwater.

11. *Water and Wastewater Comments:*

- a) The Applicant is utilizing a flow of 150 gallons per day per two-bedroom unit for the wastewater flow. Floor plans submitted clearly show three bedrooms for all three proposed home styles. HW recommends that that Applicant revise the design flow to reflect 110 gallons per day per bedroom. Typically, the 150 gallons per day per two-bedroom unit is reserved for apartment style/nursing home buildings, not single family detached homes. The Applicant has stated that it has documentation from MassDEP stating that these detached houses can each be considered one unit. HW recommends that this documentation is provided to the ZBA prior to a decision.

HW 1/26/22: The Applicant states that it intends to use the flow specified for housing for the elderly (150 gallons per day per two-bedroom unit) and that the number of bedrooms will be clarified by the Applicant. It appears that there may need to be a deed restriction on the units to restrict the age of the residents (i.e. no minors/children). This may be in conflict with the Housing and Community Development (DHCD) policy “Local Initiative Program Policy Regarding Restrictions on Children in Age-restricted 55+ Housing).

- b) The Applicant has proposed a single location for the septic tanks for all 11 homes. HW recommends providing tanks closer to the homes to allow for solids to settle prior to discharging down the entire length of the roadway. The Applicant informed HW that the wastewater design will be changed to provide individual septic tanks for each house. HW recommends that a revised plan be submitted illustrating the locations of the septic tanks.

HW 1/26/22: The Applicant has elected to utilize the septic tank configuration depicted on the Comprehensive Permit Plans opposed to individual tanks at each unit. HW defers to the Board of Health.

- c) HW recommends that the Applicant add the proposed drainage pipe, sewer gravity pipe as well as the sewer force main to the road profile on Sheet C3.2 with pipe sizes and manhole structures clearly labeled. There is approximately 1,500 feet of sanitary pipe proposed to be installed and there appear to be alternative designs that may be preferable. Long lengths of sewer pipe increase the likelihood of clogs.

HW 1/26/22: The Applicant states that the sewer gravity pipe has been depicted on the profile and additional inverts and details will be depicted on the Subsurface Sewage Disposal System Design plans to be submitted to the Board of Health at a future date. HW defers to the Board of Health.

- d) It is unclear if the well should be considered a community water service based on the number of people served. This should be clarified by the appropriate Town Department and MassDEP. HW recommends that formal documentation approving this well as a community well be provided to the ZBA prior to a decision.

The Applicant has revised the plans to include individual wells on each lot. HW recommends that the Applicant confirm that the well locations will conform to the Well Regulations (Section 4.1 Well Location Requirements), specifically the setback distances to public/private ways and common drives (50-feet) and sewer line/force mains (50-feet), as well as all of the other dimensional requirements.

12. *Additional Comments:*

- a) Signatures/stamps are missing from the Stormwater Management Checklist and the Stormwater Report Form. HW recommends that these documents be signed/stamped.

HW 1/26/22: A revised Checklist has not been received as of January 26, 2022. HW's initial comment stands.

- b) The Applicant states in the narrative that the project has been laid out in a manner that works with the existing topography. During the site visit the Applicant stated that the cut/fill for the site was balanced by the design engineer. It appears that there may be a significant amount of earthwork (both cut and fill) for the proposed roadway and throughout the site. Several steep slopes (2:1) and a retaining wall 12-feet in height at one point are proposed. HW recommends that the Applicant revisit the proposed grading, provide slopes at 3:1 to the maximum extent practicable and provide cut/fill calculations. Furthermore, HW recommends that the Applicant estimate the number of truck trips required for the proposed grading (either fill or soil removal).

HW 1/26/22: The Applicant has stated that erosion control blankets have been specified on 2:1 slopes and that approximately 79 truck trips will be required for excess material export (1,300 cubic yards).

- c) There are several discrepancies in the document submitted, the number of bedrooms varies in different locations in the documents and the plans do not reference the site being permitted as an over 55 development. The existing conditions narrative does not mention the gravel drive and states that most of the development occurs outside of the 100-foot buffer zone however there is a retaining wall proposed just outside of the 25-foot buffer zone. HW recommends that the Applicant revisit the narrative and revise as applicable.

HW 1/26/22: The Applicant has agreed to reply to this comment and provide the requested narratives. However, as of January 26, 2022, HW has not received this information.

- d) The Applicant states that the cul-de-sac has been designed to meet the Subdivision standards, but it does not appear that the outside pavement diameter meets the requirement of 120-feet (100-feet proposed) or the center island diameter of 50-feet. As designed, the entire cul-de-sac is paved. Increasing the outside diameter to the minimum requirements should allow for adequate emergency vehicle access. HW recommends that the Applicant review the design with the applicable town departments including the Fire Department and the Department of Public Works. A pervious inner island would allow opportunity for infiltration while also decreasing the proposed impervious surface.

HW 1/26/22: The cul-de-sac has been revised to include a pervious center island and a turning exhibit will be submitted to applicable Town departments. The cul-de-sac as proposed, appears to meet the Subdivision standards but should be reviewed by the

Fire Department for adequate turning maneuvers for its equipment. As a safeguard, a reinforced drivable grass could be installed to provide additional structure.

- e) The proposed retaining wall appears to range in height from one to twelve feet and is located just a few feet from the pavement edge. HW recommends that the Applicant consider a guard rail barrier at the edge of the roadway.

HW 1/26/22: The plans have need revised to include a guardrail along the retaining wall. HW has no further comment.

- f) It is unclear what will happen to the portion of the existing gravel drive located outside of the property. HW recommends that the Applicant consider contacting the adjacent property owner to see if this area could be restored to protect the wetland buffer as part of this project.

HW 1/26/22: The Applicant is not proposing to conduct work on adjacent property and anticipated that this area will naturalize once access is removed.

- g) There are a few areas on the plan where grading appears to be incomplete (behind homes 1, 3, 8, and 9 and Infiltration Area A). Additionally, there are a few areas on the plan where existing topography is missing (behind homes 2 and 3 and Infiltration Area A). HW recommends that the Applicant revise the plans to include grading for these areas.

HW 1/26/22: The plans have been revised to show additional survey and proposed grading. HW has no further comment.

- h) HW recommends that a Landscape Plan be provided. At a minimum, a proposed tree line should be indicated on the plans to show any existing trees to remain and to provide buffers to neighboring properties.

HW 1/26/22: The plan set includes a landscape plan that indicates a proposed treeline, proposed street trees, and some proposed buffer areas. An abutter has expressed concern about proposed landscaping/screening. HW defers acceptance of the landscape plan to the Board.

- i) HW recommends that existing and proposed grades be added to the roadway profile and that the scale for the profile be comparable to the site layout. Additionally, pipes (water, sewer, drainage, etc.) should be shown on the profile to check for conflicts.

HW 1/26/22: The roadway profile has been revised to include sewer and drainage pipes. The proposed houses will have individual wells. The Applicant has stated that the sewage disposal system design and plans will be submitted to the Board of Health once waivers associated with the Comprehensive Permit are established.

- j) It is unclear if the proposed development will have above ground or underground electric, telephone, and cable. Locations for anticipated services should be added to the plans to determine conflicts with other below ground utilities, and to ensure there is adequate room for utility poles or manholes/transformers to be placed given the proposed grading/retaining walls.

HW 1/26/22: Underground electric, telephone, and cable lines have been added to the plan along with propane tanks. The Applicant has stated that the contractor will coordinate the installation of utilities with the appropriate service companies

- k) In accordance with the Federal Highway Administration, stopping sight distance to an intersection should be 200 feet from a road posted at 30 miles per hour. HW recommends that the Applicant confirm the available sight distance for exiting the site. It appears that the sight distance to the east on South Bolton Road may be adequate however the stopping sight distance to the west may be short. HW further recommends that no plantings are proposed within the sight distance triangle in either direction.

HW 1/26/22: The Applicant will confirm the posted speed limit at the site and update plans to include a sight distance triangle. The Police Chief has stated that the road is unposted at 40 miles per hour. Our previous comment stands.

Conclusions

HW recommends that the Bolton Zoning Board of Appeals require that the Applicant provide a written response to address these comments as part of the permitting process. The Applicant is advised that provision of these comments does not relieve him/her of the responsibility to comply with all Commonwealth of Massachusetts laws, and federal regulations as applicable to this project. Please contact Janet Carter Bernardo at jbernardo@horsleywitten.com or at 508-833-6600 if you have any questions regarding these comments.

Sincerely,

Horsley Witten Group, Inc.



Janet Carter Bernardo, P.E.
Associate Principal



Beth Kittila
Design Engineer