

December 16, 2021
5293

Town of Bolton Board of Appeals
663 Main Street
Bolton, MA 01740

**RE: Initial Stormwater & Wetlands Peer Review
Comprehensive Permit Application – Mallard Lane
Bolton, MA**

Dear Members of the Board of Appeals:

We have received review comments from Horsley Witten Group regarding the above-mentioned project in a letter addressed to the Bolton Town Planner dated October 14, 2021. On behalf of our client, Mr. James Morin, please find enclosed a plan set addressing these items. We have included a summary of the changes addressed below. The review comments from Horsley Witten Group are *italicized* and dated with the responses from Dillis & Roy Civil Design Group, Inc. below them in **bold**.

Wetland Review Comments from Horsley Witten Group dated October 14, 2021:

The applicant has informed our office that he will work with his environmental consultant to address Wetland Review Comments 1-6. The applicant's consultant will submit a response to these items under separate cover.

Stormwater Review Comments from Horsley Witten Group dated October 14, 2021:

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.*

CDG Response: Catch basins 1 & 2 have been relocated to capture stormwater from the roadway entrance. This flow will be routed to Infiltration Area A for treatment.

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.*

CDG Response: Catch basins 1 & 2 have been relocated just inside the R.O.W. to capture any stormwater runoff leaving the site.

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.*

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

CDG Response: The HydroCAD storm events have been revised to use the NOAA Atlas 14 precipitation rates. The stormwater design has been revised accordingly. Please refer to the attached Stormwater Report to observe the resulting calculations.

- 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.*

CDG Response: Pipe sizing calculations shall be submitted under separate cover for review.

- 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.*

CDG Response: A proposed tree line has been added to the revised plans.

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

CDG Response: The rim elevation for DMH-2 has been revised. Please refer to plan sheet C3.3.

- 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.*

CDG Response: Drainage pipes 1 & 2 have been specified to be ductile iron material. Due to existing elevations and the approach of capturing all impervious runoff leaving the site, the cover over the subject pipes is 2-feet.

- 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.*

CDG Response: The runoff associated with the roofs is intended to be recharged through the sub-surface systems to preserve the maximum amount of space around units.

- 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.

CDG Response: The grading has been revised in the subject location. The maximum allowable cover over this system is 12-feet. As proposed, there is approximately 6-feet of cover with the revised grading.

- 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.*

CDG Response: Our office has located the newly installed beehive grate and the location is reflected on the enclosed plans. The annotations have been revised accordingly. The proposed construction as shown will not impact the existing drainage structure.

- 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.*

CDG Response: Infiltration Area B has been revised to propose an emergency overflow outlet for the system.

- 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.*

CDG Response: The proposed infiltration systems have been revised to propose an isolator row to provide additional treatment to the captured runoff. Two TSS calculation sheets have been provided. A calculation sheet showing a deep sump catch basin into a sediment forebay shows proper pre-treatment before entering the

infiltration chambers. The isolator row within the infiltration chambers will act as the sediment forebay. The calculation sheet showing a deep sump catch basin into a subsurface infiltration structure shows there is enough TSS removal within the whole system. See Appendix F for detailed calculations.

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

CDG Response: The proposed infiltration systems have been revised to propose an isolator row to provide additional treatment to the captured runoff. Please refer to Appendix F within the attached revised stormwater report.

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.*

CDG Response: Test holes in the stormwater management system locations were completed in March of 2020. The locations of these test holes has been depicted on the plans with test hole logs noted on sheet C1.1. The site was historically utilized as a gravel pit and testing encountered sand soils.

- 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.

CDG Response: ESHGW elevations are stated on plan sheet C3.1.

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.*

CDG Response: The water quality calculations have been updated per the revisions outlined in this response letter. The attached hydraulic calculations confirm adequate capacity for bypass flow. System B now has an emergency outlet & system A has been upsized substantially.

5. *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.*

CDG Response: A tree protection detail has been added to plan sheet C4.1.

- 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.*

CDG Response: Plan sheet C4.0 has been revised to propose construction fencing around each infiltration area.

- 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.*

CDG Response: Plan sheet C4.1 has been revised to include a dewatering detail. Due to the former use of the site as a gravel pit, it not anticipated that dewatering methods will be required during construction. If dewatering is deemed required during construction, the discharge will be located outside all resource areas.

- 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.*

CDG Response: Approximate stockpile areas have been added to plan sheet C4.0. All proposed stockpile areas are located outside of the buffer zones & away from each sub-surface infiltration system.

- 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.*

CDG Response: Plan sheet C4.1 has been revised to remove any conflicts within the notes. Plan sheet C4.0 has been revised to indicate all of the locations that will require erosion control blankets.

- 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.*

CDG Response: Plan sheet C2.0 has been revised to indicate potential snow storage locations.

- 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.

CDG Response: Acknowledged. A filing will be made with the EPA & a copy of the SWPPP will be submitted to the Town prior to construction.

6. *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.*

CDG Response: Acknowledged. The O&M has been updated accordingly.

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

CDG Response: Parties responsible for the maintenance of the proposed systems will be determined at a later date, prior to construction. The selected personnel will be provided a copy of the SWPPP once it’s filed with the EPA.

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

CDG Response: The O&M has been updated to include a simple figure outlining the location of the various stormwater practices.

7. *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.

CDG Response: Acknowledged. An Illicit Discharge Compliance Statement signed by the property owner will be provided to the Town prior to the discharge of stormwater.

Water & Wastewater Review Comments from Horsley Witten Group dated October 14, 2021:

- 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.*

CDG Response: The applicant intends utilize the design flow specified in 310 CMR 15.203 specified for housing for elderly and the number of bedrooms will be specified clarified by the applicant.

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.

CDG Response: The applicant has elected to utilize the septic tank configuration depicted on the Comprehensive Permit Plans opposed to individual tanks at each unit.

- b) *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.

CDG Response: The sewer gravity pipe has been depicted on the profile. 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.

- c) *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.*

CDG Response: The plan has been revised to incorporate an individual private well for each unit.

Additional Review Comments from Horsley Witten Group dated October 14, 2021:

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

CDG Response: The enclosed Stormwater Report has been updated per HW comments and signed/stamped.

- 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).

CDG Response: Erosion control blankets have been specified on sheet C4.0 where 2:1 slopes are necessary. Preliminary estimates anticipate the project will result in a net cut of approximately 1,300 cubic yards resulting in an estimated 79 truck trips for material export.

- 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.*

CDG Response: The applicant will reply to this comment and provide the requested narratives.

- 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.*

CDG Response: The cul-de-sac has been revised to propose a previous center island (50-feet in diameter). A turning exhibit will be submitted under separate cover to be reviewed by the applicable town departments.

- 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.*

CDG Response: A guardrail has been proposed along the subject edge of roadway.

- 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.*

CDG Response: At this time, the applicant is not proposing to conduct work on property of others. It is anticipated that this portion of the gravel drive will naturalize once access to it 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.*

CDG Response: Additional survey has been conducted to include existing topography of the subject areas. The attached site plans have been revised accordingly.

- 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.*

CDG Response: The attached site plans have been revised to include a proposed tree line.

- 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.

CDG Response: The roadway profile has been revised accordingly. The applicant will submit sewage disposal system design & plans to the Board of Health once waivers associated with the Comprehensive Permit are established. Drainage utilities have been added to the profile.

- 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.*

CDG Response: The contractor shall coordinate the installation of all utilities with the appropriate service company.

- 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.*

CDG Response: We will confirm the posted speed limit at the site and update plans to include a sight distance triangle

We trust this meets your needs at this time. If you have any questions or require any additional information, please contact the undersigned

Regards,
DILLIS & ROY
Civil Design Group, Inc.



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