

Horsley Witten Group

Sustainable Environmental Solutions

294 Washington Street • Suite 801 • Boston, MA 02108
857-263-8193 • horsleywitten.com



June 18, 2019

Ms. Jacki Byerley, Planner
Andover Planning Board
Town Office
36 Bartlett Street
Andover, MA 01810

Re: 2nd Peer Review of The Dascomb Road Project
146 Dascomb Road
Andover, Massachusetts

Dear Ms. Byerley and Board Members:

The Horsley Witten Group, Inc. (HW) is pleased to provide the Andover Planning Board with this letter report summarizing our second review of the Stormwater Report for The Dascomb Road Project. The plans were prepared for Dascomb Road Redevelopment, LLC (Applicant) by The Engineering Corp (TEC, Inc.). The proposed project is a redevelopment consisting of 524,000 square feet (SF) of retail, office, hotel, fitness, grocery store, and restaurant space along with associated parking, landscaping, utility and stormwater management. Parts of the existing warehouse and office building with associated parking and loading areas located at 146 Dascomb Road are proposed to be demolished. The stormwater management for the proposed development includes pavement sweeping, deep sump catch basins with hoods, water quality units, and subsurface infiltration basins with isolator row technology.

HW received the following documents and plans related to the proposed stormwater management and prepared by TEC, Inc.:

- Letter to Andover Planning Board, referencing Response Letter – Peer Review, prepared by TEC, dated June 5, 2019;
- Drainage Report, The Dascomb Road Project, 146 Dascomb Road, Andover, Massachusetts, dated October 26, 2018, revised June 5, 2019;
- Site Plans, The Dascomb Road Project, Andover, Massachusetts (Assessors Map 203, Lot 2A-1), dated October 31, 2018, revised June 5, 2019, which includes:
 - Title and Index Sheet C-1
 - Legend & General Notes C-2
 - Proposed Site Plan C-3
 - Demolition Plan C-4
 - Layout & Materials Plan C-5
 - Grading and Drainage Plan C-6
 - Utility Plan C-7
 - Erosion & Sedimentation Control Plan C-8
 - Drainage Profiles C-9 – C-13
 - Sewer Plan & Profile C14 – C-16
 - Construction Details C-17 – C-23
 - WB-67 & WB-50 Truck Turning Movements C-24

- Andover Fire Truck Turning C-25
 - Stream Restoration Plan C-26
 - Stream Restoration Plan and Profile C-27
- Partial Topographic Plan, 146 Dascomb Road Andover & Tewksbury, prepared by Feldman Professional Land Surveyors, dated April 30, 2015

Stormwater Management Peer Review

The following numbered comments correlate to the HW April 11, 2019 peer review letter.

Additional comments are provided in **bold** font.

Massachusetts Stormwater Handbook

HW reviewed the documents above and has the following comments concerning the stormwater management design presented by the Applicant. The following documents have been considered while conducting this review: the Massachusetts Department of Environmental Protection (MassDEP) Wetlands Protection Act (CMR 310 10.00), the Massachusetts Stormwater Handbook (MSH) dated February 2008, the Town of Andover Stormwater Management and Erosion Control Bylaw and Regulations and the Town of Andover Conservation Commission Wetland Protection Regulations.

The project is considered new development and therefore is required to fully comply with the MassDEP Stormwater Management Standards. Below are comments relating to the standards as presented in the MSH. Where the more stringent requirements of the Andover Stormwater Regulations are applicable those comments are included.

1. *Standard 1 states that no new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*
 - a) The project includes the relocation of a stream on the north property boundary adjacent to Dascomb Road. The stream relocation is currently under construction and under the purview of the Andover Conservation Commission. There is also a large stormwater basin located along the southern property boundary. The proposed stormwater management design includes three subsurface infiltration systems and overflows into the existing drainage network towards the existing detention basin. As designed no new untreated stormwater discharges or causes erosion into wetlands or waters of the Commonwealth.
No response required.
 - b) The Applicant includes a discharge point (DP3) to a swale adjacent to Interstate 93. The discharge point is not within 100-feet of a wetland however it appears that a riprap apron would be useful to reduce erosion from this proposed flared end section (FES-1). HW recommends that the Applicant include a riprap apron at the end of FES-1 or confirm that riprap exists in this location.
A riprap apron has been added at the outlet of FES-1. No further comment is necessary.
2. *Standard 2 requires that post-development runoff does not exceed pre-development runoff off-site.*
 - a) According to the MSH Vol. 2, Ch. 2, p. 104 at least 2 test pits per subsurface structure

should be conducted at the actual location of the infiltration structure. While the Applicant has provided 9 test pits for 3 infiltration structures, only 4 of them are in the approximate location of the proposed infiltration structures. HW recommends conducting additional test pits to verify the ground water elevation beneath the systems.

TEC performed three additional test pits in the appropriate locations. The Soil Logs can be found in Appendix E of the Drainage Report and summarized on Sheet C-6 of the plan set. HW is satisfied.

- b) The Applicant has provided calculations which show that the total post-development runoff does not exceed pre-development runoff to the existing stormwater basin and the existing drainage swale. HW recommends that the Applicant confirm that the existing stormwater basin and drainage swale are functioning as designed.

TEC performed a site inspection on May 2, 2019 and provided an inspection report in Appendix F of the Drainage Report indicating that the current system is functioning appropriately. HW is satisfied.

- c) The Applicant has utilized a direct entry of 5 and 6 minutes for time of concentrations (Tc) flow paths. Both values are acceptable however it is typical engineering practice to use either 5 or 6 minutes consistently throughout the modeling analysis. As utilized the design appears to be slightly conservative.

The Tc value has been adjusted to by 5 minutes consistently. No further comment is necessary.

- d) HW agrees that the hydrologic soil group (HSG) for the entire parcel is documented as HSG A. Under proposed conditions the Applicant has utilized HSG B for a small area with subcatchment area PR3. This assumption may be considered conservative.

The HSG for subcatchment PR3 has been changed to HSG A. No further comment is necessary.

- e) Section IX.C.5. in the Andover Stormwater Regulations requires Applicants to utilize the approved curve number (CN) values listed in Table 1 of the Regulations. The open space CN values for lawns assumes a "poor" condition for grass cover since the post-construction amount of grass cover cannot be predicted or guaranteed. The Applicant has utilized a surface condition of "good" in subcatchments PR-1, PR-5, PR3, and PR6. HW recommends that the Applicant revise the surface conditions to poor and revise the HydroCAD model or provide justification for the use of "good".

The Applicant has increased the CN values from existing to post-development conditions. No further comment is necessary.

3. *Standard 3 requires that the annual recharge from post-development shall approximate annual recharge from pre-development conditions.*

- a) The Applicant has stated that all infiltrating best management practices (BMPs) have been designed to provide four feet minimum separation from estimated seasonal high ground water (ESHGW). The provided test pit data indicates a separation of less than four feet for Infiltration basins #1 and #3. HW recommends that the Applicant document the separation to ground water for each infiltration practice.

The Applicant has included a table showing all ESHGW values on Sheet C-6. The table indicates a separation of at least 2 feet as required.

- b) In accordance with the MSH Vol. 3, Ch. 1, p. 28 a mounding analysis is required when the vertical separation from the bottom of an exfiltration system to seasonal high groundwater is less than four (4) feet and the recharge system is proposed to attenuate the peak discharge from a 10-year or higher 24-hour storm. HW recommends that the Applicant confirm the depth to ESHGW and provide a mounding analysis if applicable.

None of the three infiltration basins attenuates a 10-year storm event, therefore a mounding analysis is not necessary. No further comment is necessary.

- c) The Applicant has indicated that the three proposed infiltration systems provide the required recharge volume noting that the volumes listed were obtained from the HydroCAD analysis. HW agrees that the infiltration systems provide sufficient volume however we were not able to confirm the values provided on page 9 of the Stormwater Narrative. HW recommends that the Applicant provide additional documentation confirming the values listed.

The Applicant has revised the volume provided for each of the three basins, clarifying the volume provided is below the lowest outlet and including the Stage-Area-Storage HydroCAD printout for each of the basins. No further comment is necessary.

- d) The Applicant has provided calculations indicating that the proposed Infiltration structures will drain within 72 hours. The calculations appear reasonable however HW was not able to confirm the Volume of Storage Below Outlets or the Footprint Area of the systems. HW recommends that the Applicant provide additional documentation to confirm the values utilized in the calculations.

The Applicant has provided the additional documentation. HW is satisfied.

- e) HW recommends that the Applicant provide an additional calculation based on the MSH Vol. 3, Ch. 1, p. 27 to verify that at least 65% of the site is being directed to an infiltration system.

The Applicant has provided calculations verifying that 83.55% of the impervious area will be directed towards an infiltration basin. HW is satisfied.

4. *Standard 4 requires that the stormwater system be designed to remove 80% Total Suspended Solids (TSS) and to treat 1.0-inch of volume from the impervious area for water quality.*

- a) The Applicant has sized the Water Quality Units (Stormceptors), per the Town of Andover Stormwater Regulations. For documentation purposes, HW recommends that the Applicant also include the calculations required by MassDEP as described in the *Standard Method to Convert Required Water Quality Volume to a Discharge Rate for Sizing Flow Based Manufactured Proprietary Stormwater Treatment Practice*, issued by MassDEP Wetlands Program in 2013.

The Applicant has provided the necessary calculations. For WQU1 and WQU4 the calculations were done for STC-900, the Applicant acknowledged that the larger STC1200 will be used to satisfy the Town of Andover's more stringent standards.

- b) The Applicant has included details for Water Quality Units STC-900, STC-1200 and STC-2400 on Sheet C-20, however the sediment volume calculations on page 11 of the Stormwater Narrative specify Water Quality Unit types STC-450, STC-900, STC-1200, STC-3600. HW recommends that the Applicant include the correct details on the Construction Detail sheet C-20 and label each Water Quality Unit with the applicable size on sheets C-6 and C-7.

The Applicant has provided the appropriate details. No further comment is necessary.

- c) The Applicant has provided Water Quality Volume calculations on page 11 of the Stormwater Narrative, HW agrees with the impervious area flowing to P1, P2, and P3 however the Overall Site Water Quality Volume calculation should include the pavement within subcatchments PR-6, PR-7, and PR-8. HW recommends that the Applicant revise the overall calculation and confirm that the site complies with Standard 4. As applicable the Applicant may need to provide the *De Minimis* calculations described in the MSH Vol. 3, Ch. 1, p. 35.

The Applicant noted in its response letter that the De minimis calculations were provided in response to this comment. HW was not able to locate the calculation in the Drainage Report however we have provided the necessary calculation below and request that the Applicant confirm our input values.

- PR-1 – 55,733 sf, no impervious area therefore water quality not required.
- PR-2 – 136,422 sf, 99% TSS removal
- PR-3 – 174,957 sf, 99% TSS removal
- PR-4 – 84,569 sf, 99% TSS removal
- PR-5 – 77,878 sf, 99% TSS removal
- PR-6 – 25,405 sf, 83% TSS removal
- PR-7 – 79,925 sf, 83% TSS removal
- PR-8 – 2,011 sf, 0% TSS removal to Smith Way, <1 cfs, qualifies as De minimis

PR-2 + PR-3 + PR-4 + PR-5 = 473,836 sf @ 99% TSS removal

PR-6 + PR-7 = 105,330 sf @ 83% TSS removal

$$\frac{473,836(99\%) + 105,330(83\%)}{473,836 + 105,330 + 2,011} = \frac{556,522}{581,177} = 96\% \text{ weighted TSS Removal}$$

96% weighted TSS > 80% required therefore okay

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

- a) The proposed project is considered a project with a LUHPPL. The Applicant has provided appropriate stormwater practices in compliance with Standard 5. The water quality comments noted above for Standard 4 are applicable to Standard 5 as well.

No further comment is necessary.

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

- a) Standard 6 is not applicable to this site.

No further comment is necessary.

7. *Standard 7 is related to projects considered Redevelopment. A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve*

existing conditions.

- a) The proposed project could have been considered a mix of new and redevelopment however the Applicant has chosen to design the project as a new development therefore Standard 7 is not applicable to this site. HW agrees with this decision.

No further comment is necessary.

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

- a) The Applicant has provided an erosion and sediment control plan. Erosion control measures to prevent sediment from entering the intermittent stream are only included on the stream restoration plans. HW recommends including those erosion controls also on the erosion control plan.

The Erosion and Sediment Control Plan has been updated. HW is satisfied.

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

The Applicant has provided a Long-Term O&M Plan. HW offers the following comments:

- a) MSH Vol. 1, Ch. 1, p. 9 requires that the following provisions be added to the O&M Plan:
- The party or parties responsible for operation and maintenance, including how future property owners will be notified of the presence of the stormwater management system and the requirement for proper operations and maintenance;
 - A plan that is drawn to scale and shows the location of all stormwater BMP's in each treatment train along with the discharge point; and
 - An estimated operations and maintenance budget.

The provisions have been added to the O&M Plan. HW is satisfied.

- b) MSH Vol. 2, Ch. 2, p. 23 specifies that the Catch Basins need to be cleaned four times a year. HW recommends adding this provision into the maintenance schedule for the Catch Basins.

The provision has been added to the O&M Plan. HW is satisfied.

- c) MSH Vol. 2, Ch. 2, p.104 specifies that the Subsurface Structures Inlets need to be inspected at least twice a year; any debris that might clog the system should be removed; and mosquito controls should be included in the Operations and Maintenance Plan. HW recommends adding these provisions into the maintenance schedule for the subsurface infiltration basins.

The provision has been added to the O&M Plan. HW is satisfied.

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

- a) Standard 10 requires proponents of projects within Wetlands jurisdiction to demonstrate compliance with this standard by submitting an Illicit Discharge Compliance Statement. HW recommends that an Illicit Discharge Compliance Statement signed by the owner be submitted to the Planning Board prior to any land disturbance.

The Applicant has stated that an Illicit Discharge Statement has been sent to the owner to be signed and will be submitted to the Planning Board. HW recommends that a condition be included requiring the receipt of the signed statement prior to the

discharge of any stormwater.

11. Additional Comments

- a) The Applicant has not provided a site plan showing existing conditions at the project site. HW recommends adding this information to the site plans.

The existing conditions plan was included in the latest plan set. HW is satisfied.

- b) The Applicant has not provided any closed drainage system design calculations. HW recommends adding these to the Drainage Report for review.

The Applicant included the closed drainage calculations in the Drainage Report as requested. The Applicant has included ten drainage locations listed as "NULL" which appear to be the intersection of two pipes without a drain manhole or other structure. Typically, a structure is installed at all intersections for maintenance purposes. HW recommends that the Applicant clarify how these lines will be maintained in the future.

Conclusions

HW recommends that the Planning Board require that the Applicant clarify its response for comments 4.c and 11.b. HW is satisfied with the remaining responses. The Applicant is advised that provision of these comments does not relieve him/her of the responsibility to comply with all Town of Andover Codes and By-Laws, Commonwealth of Massachusetts laws, and federal regulations as applicable to this project. Please contact Janet Bernardo at 857-263-8193 or at jbernarado@horsleywitten.com if you have any questions regarding these comments.

Sincerely,

HORSLEY WITTEN GROUP, INC.



Maria Pozimski
Staff Planner



Janet Carter Bernardo, P.E.
Senior Project Manager