

# Horsley Witten Group

*Sustainable Environmental Solutions*

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March 28, 2016

Ms. Jody Kablack  
Director of Planning and Community Development  
Town of Sudbury  
278 Old Sudbury Road  
Sudbury, Massachusetts 01776

Re: Peer Review for Phase 1 Meadow Walk at Sudbury: Grocery Store  
Boston Post Road  
Sudbury, Massachusetts

Dear Ms. Kablack and Board Members:

The Horsley Witten Group (HW) is pleased to provide the Sudbury Planning Board with this letter report summarizing our initial review of Phase 1 Meadow Walk at Sudbury: Grocery Store (Site). The plans and calculations were prepared for BPR Sudbury Development LLC (Applicant) by VHB. The project involves the demolition of two existing buildings and the reconfiguration of parking areas on the site. The proposed project consists of a 45,000 square foot building and associated parking, access roadway, landscape, utilities, and stormwater management system. The proposed stormwater management system consists of drywells for recharge of clean roof runoff, and best management treatment trains consisting of deep sump catch basins and proprietary water quality units as well as a vegetated drainage channel, with deep sump drainage structures, and a subsurface infiltration system.

The following documents and plans, prepared by VHB, were reviewed by HW:

- Preliminary Stormwater Management Master Plan, dated November 2015
- Phase 1 Meadow Walk at Sudbury: Grocery Store, Stormwater Management Plan, dated March 2016
- Site Plans: Grocery Store at Meadow Walk Sudbury, latest issue date March 3, 2016

## **Stormwater Review**

HW has reviewed the proposed stormwater management designs as per the standards of the Massachusetts Stormwater Handbook (MSH) dated February 2008 and the Town of Sudbury Stormwater Management Bylaw Regulations (Stormwater Bylaws), revised January 23, 2013.

In accordance with Section 8.0 of the Stormwater Bylaws, this project is required to comply with the performance standards of the MSH. Therefore, we have used the MSH as the basis for organizing

our comments. However, in instances where the additional criteria established in Section 8.A.3 of the Stormwater Bylaws requires further recommendations; we have referenced these as well.

1. *Standard 1: No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

The Applicant has stated that all stormwater will be discharged to existing closed drainage systems and does not propose any new outfalls to wetlands. To verify Phase 1 is in compliance with Standard 1, HW recommends that the Applicant provide the velocities at the outfalls to verify that erosion will not occur within any on-site wetland resource area. For Phase 1 it appears that the specific outfalls to be documented would be from DMH-4 and DMH-5 towards Wetland 6.

2. *Standard 2: Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*
  - a. The Applicant has provided both the preliminary Existing and the Proposed Drainage Conditions watershed maps and HydroCAD modeling analysis in the Master Plan submission. Pond P-1B located on the southwest property line adjacent to Wetland 6 indicates that the flow to this wetland/swale will not have any increased peak discharge rate under proposed conditions as a result of the construction of Phase 1. Dry wells have been proposed as part of the Phase 1 design to capture roof runoff. The dry wells have not been included in the HydroCAD calculations due to the possibility of high ground water. If the dry wells are installed they should further reduce the final discharge rates towards Pond P-1B.
  - b. Pond P-1C is the subsurface infiltration system located within the parking lot of the grocery store and aids in the reduction of post development peak discharge rates at the 48-inch culvert located at Boston Post Road. A vegetated channel has been proposed as part of Phase 1 as a conveyance means prior to stormwater discharging into the subsurface infiltration system. The vegetated channel has not been included in the HydroCAD modeling calculations but acts as a conveyance similarly to the preliminary design closed piped system.
  - c. It is not clear how stormwater runoff east of the proposed access drive and west of the existing access drive will be captured. There do not appear to be many catch basins within this area. HW recommends that the Applicant verify that stormwater can be directed towards a catch basin and will not pond within the existing access road adjacent to the area proposed to be developed as retail buildings in a future phase.

- d. The Applicant has reduced impervious area for Phase 1 in a manner consistent with the Preliminary Master Plan for the entire site. The Applicant appears to be in compliance with Standard 2.

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

The Applicant has noted that the impervious area of the entire site will be reduced under the proposed layout and therefore the recharge criteria are met. To provide additional recharge the Applicant is proposing a subsurface infiltration system and drywells that are considered acceptable best management practices (BMPs) per the MSH. It appears that the Applicant is in compliance with Standard 3 however, soil test pits will need to be performed to verify soils and separation to groundwater. Additionally, a mounding calculation may be required if the vertical separation from the bottom of the infiltration system to estimated seasonal high groundwater is less than four feet and the system will infiltrate the 10-year storm event.

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 stated that the stormwater management system is designed to remove a minimum of 80% of the Total Suspended Solids (TSS) from all proposed impervious surfaces as well as 44% pretreatment prior to infiltration BMPs. In order to meet the 80% TSS removal rate, the Applicant has proposed deep sump catch basins and water quality units or an infiltration system. The trench drain in front of the loading dock does not have the required depth of a deep sump catch basin. HW recommends that the Applicant revisit the trench drain outlet at the loading dock and provide a means to meet the TSS removal criteria for this treatment train.
- b. Though the curb cuts and gutter inlets discharging to the vegetated channel are not designed as deep sump catch basins and cannot be counted towards the 44% TSS removal rate prior to discharging to an infiltration system, the Applicant has added a Channel Outlet structure with a deep sump that does meet the TSS removal criteria.
- c. The Applicant has provided HydroCAD modeling calculations to support the design of the infiltration system treating 1.0-inch of volume for 2.0 acres of impervious area. The Applicant has noted that there is a potential for the ground water to be too high and the infiltration system may be eliminated. HW recommends that if the infiltration system is eliminated the Applicant should provide documentation to verify that the proposed BMP replacing the subsurface infiltration system is sized to treat the required Water Quality Volume per the MSH.

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

The parking lot is considered a Land Use of Higher Potential Pollutant Loads (LUHPPL) because it is anticipated to exceed 1,000 vehicle trips per day. The Applicant has used stormwater practices such as deep sump catch basins, water quality units, and subsurface infiltration, which are all appropriate BMPs for a LUHPPL per the MSH. The Applicant appears to be in compliance with Standard 5.

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.*

The project site is located within a Zone II Interim Wellhead Protection Area. The site has been designed to treat the one inch Water Quality Volume and has proposed stormwater practices such as deep sump catch basins, water quality units, and subsurface infiltration, which are all appropriate BMPs for a Zone II Interim Wellhead Protection Area per the MSH. Additionally, the Applicant has identified proposed source controls and pollution prevention measures in the submission. The Applicant appears to be in compliance with Standard 6.

7. *Standard 7 is related to projects considered Redevelopment.*

The proposed project is considered a redevelopment and the Applicant has stated that the Project will be designed to be substantially compliant with the MSH for new development. It appears that the design will improve the quantity and quality of stormwater discharging from the site by reducing impervious surfaces, proposing stormwater pretreatment, providing recharge, and providing a long term Operation and Maintenance plan. The Applicant appears to be in compliance with Standard 7.

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

- a. The Applicant has provided a draft erosion control plan and a draft Stormwater Pollution Prevention Plan (SWPPP) for Phase 1 of the project. In the event that various phases are constructed simultaneously the Applicant should verify that the proposed erosion control methods function in harmony. For instance it may be reasonable to utilize the same construction entrance for various phases and verify that the location of the erosion control barriers (e.g. straw bale or silt sock) for one phase are not in conflict with the vehicle access to a separate phase.
- b. Prior to any land disturbance, the limit of no disturbance shall be marked per Section 8.0.B.6.b of the Stormwater Bylaw.

- c. HW recommends that the Applicant verify that all of the items listed in Sections 9.0.B.3 and 9.0.C.2 are included on the inspection forms. Additionally, HW recommends that the Applicant identify the location of any proposed dewatering facilities per Appendix C of the Stormwater Bylaw.

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

The Applicant has included a Long Term Operation and Maintenance (O&M) Plan in the submission that includes checklists for maintenance. HW recommends that the Applicant verify the correct depth of sediment requiring removal for the Water Quality Units (it is noted as both 3" and 8" on the same form) and add the name of the inspector on all forms per section 8.0.C.6.b of the Stormwater Bylaws.

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

The Applicant has stated that the wastewater and stormwater designs as well as the long term Pollution Prevention Plan will include measures to prevent illicit discharges from occurring post construction. HW recommends that as stated in Volume 1, Chapter 1, page 25 of the Massachusetts Stormwater Handbook, a Certificate of Compliance should not be issued by the Sudbury Conservation Commission until it has been determined that the Illicit Discharge Compliance Statement has been submitted and that it has been verified that there are no illicit discharges occurring on the site.

11. *Plan Details*

- a. HW recommends adding a detail for the inlets to the vegetated channel. The Applicant should also provide a means to ensure that these areas do not erode or scour.
- b. The Applicant should verify that the proposed Water Quality Units can accommodate multiple inlet pipes in the proposed configuration.

12. *Drainage Calculations*

The Applicant has provided storm drain calculations for the 25-year design storm. HW offers the following comments:

- a. There is no information for the existing outfalls from DMH 4 and DMH 5, HW recommends adding these existing pipes to the calculations.
- b. There are a few downstream inverts in the calculations that appear to be different than what is proposed on the plan (specifically CB-14 to WQU-1 and WQU-2 to DMH-3). HW recommends that all values be verified and updated as necessary.

- c. The slope for the pipe from DMH-4 to DMH-5 is 0.004; this is less than the standard minimum value 0.005. Additionally, the flow through this pipe appears to be greater than its capacity. HW recommends that the Applicant review this closed pipe configuration and adjust the inverts to allow for a greater pipe slope and/or increase the pipe size if necessary.

### **Conclusions**

HW recommends that the Sudbury Planning Board require that the Applicant 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 Town of Sudbury Codes and Bylaws, Commonwealth of Massachusetts laws, and federal regulations as applicable to this project. Please contact Janet Carter Bernardo at [jbernarado@horsleywitten.com](mailto:jbernarado@horsleywitten.com) or at 857-263-8193 if you have any questions regarding these comments.

Sincerely,

HORSLEY WITTEN GROUP, INC.



Janet Carter Bernardo, P.E.  
Senior Project Manager