

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 jbernardo@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

Horsley Witten Group

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April 12, 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 second 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 following documents and plans, prepared by VHB, were reviewed by HW:

- Preliminary Stormwater Management Master Plan, revised April 2016
- Site Plans: Grocery Store at Meadow Walk Sudbury, latest issue date April 5, 2016
- Stormwater Management Report Phase 1 Meadow Walk at Sudbury: Grocery Store, revised April 2016

Stormwater Review

HW has reviewed the proposed stormwater management design 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. Our follow up comments are provided below in **bold** font.

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.

The Applicant has adequately responded to our comment. Velocities at the discharge pipes into Wetland 6 do not seem likely to cause erosion. The Applicant further states that this area will be monitored throughout construction and should erosion become a problem they will work with the Town to remedy the same.

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.

No further comment is necessary.

- 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.

No further comment is necessary.

- 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.

The Applicant has adequately responded to our comment. Temporary inlets have been indicated on Drawing C-3.

- 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.

No further comment is necessary.

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.

The Applicant has adequately responded to our comment and has stated that a mounding analysis will be provided if required. HW recommends that the Planning Board consider including a condition that states: "Deep test pits shall be conducted immediately following demolition of the buildings. The Applicant shall provide documentation verifying that the subsurface infiltration system has been sized and located properly."

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.

The Applicant has adequately responded to our comment. A drain manhole located down gradient of the trench drain will contain a deep sump and hood to assist with TSS removal.

- 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.

No further comment is necessary.

- 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.

The Applicant has adequately responded to our comment. In the event that it is infeasible to install the infiltration system, Water Quality Unit 3 (WQU 3) will be adjusted to treat the larger catchment area. HW is satisfied that the adjusted WQU 3 is sized adequately.

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.

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.*

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.

No further comment is necessary.

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.

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 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.

The Applicant has adequately responded to our comment and agrees that erosion controls will need to be updated as the work progresses through phases.

- 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.

The Applicant has agreed that the limit of no disturbance shall be marked in the field.

- 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.

The Applicant has adequately responded to our comment. The Inspection forms included in the SWPPP have been revised.

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.

The Applicant has adequately responded to our comment. The Inspection forms have been revised. HW recommends that the Planning Board confirm that the owner understands the long term O&M requirements.

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.

No further comment is necessary.

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.

The Applicant has adequately responded to our comment. A detail has been provided on drawing C-7.1.

- b. The Applicant should verify that the proposed Water Quality Units can accommodate multiple inlet pipes in the proposed configuration.

The Applicant has adequately responded to our comment. They have included a statement confirming that the Contech Water Quality Units can accommodate the multiple inlet pipes as designed.

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.

The Applicant has adequately responded to our comment. The existing outfalls have been added to the pipe 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.

The Applicant has adequately responded to our comment. Inverts have been revised and the calculations match the plans.

- 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.

The Applicant has adequately responded to our comment. The pipe between DMH-4 and DMH-5 is acting as an equalization connection; therefore the slope of 0.004 is acceptable.

Conclusions

HW is satisfied that the Applicant has adequately responded to our concerns. 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 jbernardo@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

Horsley Witten Group

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March 22, 2016

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

Re: Peer Review for Preliminary Stormwater Management Master Plan
Meadow Walk, 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 the Preliminary Stormwater Management Master Plan for 526 & 528 Boston Post Road Redevelopment, Sudbury, Massachusetts (Site). The plans and calculations were prepared for BPR Sudbury Development LLC (Applicant) by VHB. The Full Build Redevelopment project, known as Meadow Walk, involves the demolition of nearly all of the existing buildings and parking areas on the site. The proposed development will maintain an existing 15,000 square foot building and will upgrade the existing wastewater treatment plant. The redevelopment of the entire 50 acre site will be completed in Phases, including a new grocery store, various retail/restaurant buildings, multi-family housing, age-restricted housing, senior housing, and open space. In the center of the site is a large existing stormwater retention basin that will be incorporated into the proposed design.

The Applicant has provided a Full Build Master Plan with a preliminary stormwater management plan intending to meet the Massachusetts Wetlands Protection Act regulations, as well as the Massachusetts Stormwater Standards; the Water Quality Certification regulations; and the Town of Sudbury Stormwater Management Regulations. The Master Plan will provide the general stormwater framework. Each Phase of design will provide specific details and additional documentation.

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

- Preliminary Stormwater Management Master Plan, dated November 2015
- Utility Infrastructure Memorandum, dated February 8, 2016
- Existing Conditions Plan of Land, Sv-1 – Sv-6, dated January 25, 2016
- Preliminary Master Development Plan, Z-1, dated February 8, 2016
- Draft Proposed Conditions Site Plan, printed February 11, 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 untreated stormwater discharging to or causing erosion in wetlands or water bodies will not be allowed in connection with this project. A review of the preliminary Master Plan suggests that at a minimum prior to discharging to the central retention basin (Wetland 3) stormwater will be treated by deep sump catch basins and forebays and that no new outfalls will be created. However the potential discharge into the various other wetland areas is not clear. It appears that there are existing discharge points into Wetland 1, Wetland 2, Wetland 4, and Wetland 6. HW recommends that the final stormwater design for each phase of development confirm that an appropriate treatment train is being provided prior to each discharge point and that the velocities at the outfalls be provided to verify that erosion will not occur within any on-site wetland resource area.

2. *Standard 2: Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*

The Applicant has provided both the preliminary Existing and the Proposed Drainage Conditions watershed maps and HydroCAD modeling analysis for the various phases of development. From a preliminary perspective the watershed areas, times of concentration (Tc), and curve numbers (CN) appear appropriate for the various catchment areas and the post-development peak discharge rates and volumes do not exceed the pre-development peak discharge rates. HW recommends that the preliminary Master Plan calculations be included as a reference with the design of each phase to verify that the design features such as the amount of impervious area and the sizing of any proposed best management practices (BMPs) are consistent with the approved Master Plan.

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

- a) 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. The Applicant has

provided Table 3 under Proposed Drainage Conditions that will be used as a comparison to verify that each phase of construction is consistent with the Master Plan. Moving forward with each phase of development, the Applicant will be held to the maximum amount of impervious area allowed within each phase as listed in Table 3. HW recommends that the Applicant include in the Master Plan a list of potential recharge practices that are approvable by the Town of Sudbury as well as acceptable BMPs and an anticipated volume to recharge based on proposed impervious area.

- b) The Applicant has provided Recharge Calculations in the Master Plan; however it is not clear where the additional 2.2 acres of HSG A is located on the site.

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.*

The Applicant has stated that the stormwater management system is designed to remove a minimum of 80 percent of the Total Suspended Solids (TSS). To confirm compliance with this standard, HW recommends that the Applicant provide potential BMP trains that are anticipated with TSS removal rates. The trains may include deep sump catch basins, infiltration, water quality units, forebays (with sizing criteria considered), and the existing wet pond. It is important to note that the 80% TSS removal rate must be achieved at each outlet discharging to a receiving wetland and that 44% TSS removal rate must be achieved prior to discharging to an infiltration system. HW recommends that the Master Plan document the anticipated water quality volume required for each phase based on the expected impervious area.

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

The Applicant has acknowledged that the site will include parking lots with high-intensity-uses and that these areas of the project site will be considered Land Use of Higher Potential Pollutant Loads (LUHPPL). HW recommends that the Applicant provide guidance in the Master Plan listing the BMPs recommended for the project areas designated as LUHPPLs.

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; HW recommends that the Applicant provide guidance in the Master Plan listing recommended BMPs that would be appropriate for this site.

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. The

intention to design the site in accordance with the new development criteria, except where impractical due to depth to groundwater, appears reasonable and is required. The Redevelopment criteria as described in the MSH also requires improving existing conditions. It appears that the intentions described in the Preliminary Stormwater Management Master Plan will improve the quantity and quality of stormwater discharging from the site. The recommendations suggested by HW are to further manage future designs in the event the proposed development is put on hold for a significant period of time.

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

The Applicant has stated that an erosion control plan and a Stormwater Pollution Prevention Plan (SWPPP) will be developed individually for each phase of construction. It is reasonable to evaluate the specific details during the permitting process for each phase. 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.

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

The Applicant has stated that the Long Term Operation and Maintenance (O&M) Plan will be developed during the review process of the future filings. If the O&M Plan will be specific to each phase of development it appears reasonable to evaluate the specific details during the permitting process for each phase of development. If the property owner for the entire 50 acre parcel will be the same party it would be reasonable to provide the name and contact information of the property owner at the Master Plan stage. The maintenance of the stormwater basin in the center of the project site is critical to the success of the entire stormwater management system. It may be valuable to the Town of Sudbury to have a commitment from the property owner for future maintenance of the central stormwater basin.

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. Water Quality Certification Regulations

The Applicant has stated that the Preliminary Stormwater Management Master Plan has been prepared to demonstrate compliance with the Water Quality Certification Regulations (314 CMR 9.00). It is not clear from the submitted documents how this project triggers the Certification or how they have demonstrated compliance.

12. Massachusetts Category 5 Waters

The Applicant has stated that Site lies within the Nobscot sub-watershed which flows via an unnamed stream to Hop Brook. Hop Brook is listed as "Waters requiring a TMDL". HW recommends that the Applicant contact MassDEP to determine whether the discharge from this Site is required to comply with the TMDL for Hop Brook.

Conclusions

HW recommends that the Sudbury Planning Board require that the Applicant address these comments as part of the Master Plan acceptance process. The Planning Board may choose to include a condition for future phases of development within the Project Site, stating that any future design must meet the design standards as outlined in the Preliminary Stormwater Management Master Plan as well as the most current MSH and the most current Sudbury Stormwater Bylaws.

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 jbernardo@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

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April 12, 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 second 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 following documents and plans, prepared by VHB, were reviewed by HW:

- Preliminary Stormwater Management Master Plan, revised April 2016
- Site Plans: Grocery Store at Meadow Walk Sudbury, latest issue date April 5, 2016
- Stormwater Management Report Phase 1 Meadow Walk at Sudbury: Grocery Store, revised April 2016

Stormwater Review

HW has reviewed the proposed stormwater management design 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. Our follow up comments are provided below in **bold** font.

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.

The Applicant has adequately responded to our comment. Velocities at the discharge pipes into Wetland 6 do not seem likely to cause erosion. The Applicant further states that this area will be monitored throughout construction and should erosion become a problem they will work with the Town to remedy the same.

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.

No further comment is necessary.

- 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.

No further comment is necessary.

- 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.

The Applicant has adequately responded to our comment. Temporary inlets have been indicated on Drawing C-3.

- 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.

No further comment is necessary.

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.

The Applicant has adequately responded to our comment and has stated that a mounding analysis will be provided if required. HW recommends that the Planning Board consider including a condition that states: "Deep test pits shall be conducted immediately following demolition of the buildings. The Applicant shall provide documentation verifying that the subsurface infiltration system has been sized and located properly."

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.

The Applicant has adequately responded to our comment. A drain manhole located down gradient of the trench drain will contain a deep sump and hood to assist with TSS removal.

- 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.

No further comment is necessary.

- 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.

The Applicant has adequately responded to our comment. In the event that it is infeasible to install the infiltration system, Water Quality Unit 3 (WQU 3) will be adjusted to treat the larger catchment area. HW is satisfied that the adjusted WQU 3 is sized adequately.

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.

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.*

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.

No further comment is necessary.

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.

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 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.

The Applicant has adequately responded to our comment and agrees that erosion controls will need to be updated as the work progresses through phases.

- 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.

The Applicant has agreed that the limit of no disturbance shall be marked in the field.

- 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.

The Applicant has adequately responded to our comment. The Inspection forms included in the SWPPP have been revised.

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.

The Applicant has adequately responded to our comment. The Inspection forms have been revised. HW recommends that the Planning Board confirm that the owner understands the long term O&M requirements.

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.

No further comment is necessary.

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.

The Applicant has adequately responded to our comment. A detail has been provided on drawing C-7.1.

- b. The Applicant should verify that the proposed Water Quality Units can accommodate multiple inlet pipes in the proposed configuration.

The Applicant has adequately responded to our comment. They have included a statement confirming that the Contech Water Quality Units can accommodate the multiple inlet pipes as designed.

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.

The Applicant has adequately responded to our comment. The existing outfalls have been added to the pipe 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.

The Applicant has adequately responded to our comment. Inverts have been revised and the calculations match the plans.

- 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.

The Applicant has adequately responded to our comment. The pipe between DMH-4 and DMH-5 is acting as an equalization connection; therefore the slope of 0.004 is acceptable.

Conclusions

HW is satisfied that the Applicant has adequately responded to our concerns. 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 jbernardo@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

Horsley Witten Group

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April 12, 2016

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

Re: Peer Review for Preliminary Stormwater Management Master Plan
Meadow Walk, 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 second review of the Preliminary Stormwater Management Master Plan for 526 & 528 Boston Post Road Redevelopment, Sudbury, Massachusetts (Site). The plans and calculations were prepared for BPR Sudbury Development LLC (Applicant) by VHB.

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

- Preliminary Stormwater Management Master Plan, revised April 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. Our follow up comments are provided below in **bold** font.

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 untreated stormwater discharging to or causing erosion in wetlands or water bodies will not be allowed in connection with this project. A review of the preliminary Master Plan suggests that at a minimum prior to discharging to the central retention basin (Wetland 3) stormwater will be treated by deep sump catch basins and forebays and that no new outfalls will be created. However the potential discharge into the various other wetland areas is not clear. It appears that there are existing discharge points into Wetland 1, Wetland 2, Wetland 4, and Wetland 6. HW recommends that the final stormwater design for each phase of development confirm that an appropriate treatment train is being provided prior to each discharge point and that the velocities at the outfalls be provided to

verify that erosion will not occur within any on-site wetland resource area.

As part of the final design for each phase of development the Applicant has agreed to provide the appropriate treatment train to each discharge point impacted by that phase of development. It is possible that a future phase of development may not trigger a permit from the Sudbury Planning Board or the Conservation Commission. In order to ensure compliance with the Master Plan, HW recommends that the Planning Board consider including the following condition as part of the Master Plan permitting: “The stormwater design for all future development within the Meadow Walk 50 acre parcel, shall include documentation that shall be submitted to the Planning Board demonstrating appropriate stormwater treatment, velocities, and potential erosion at all wetland outfalls impacted by the future development even if a particular phase of development does not trigger the filing of an individual permit application to the Sudbury Planning Board or the Conservation Commission.”

2. *Standard 2: Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.*

The Applicant has provided both the preliminary Existing and the Proposed Drainage Conditions watershed maps and HydroCAD modeling analysis for the various phases of development. From a preliminary perspective the watershed areas, times of concentration (Tc), and curve numbers (CN) appear appropriate for the various catchment areas and the post-development peak discharge rates and volumes do not exceed the pre-development peak discharge rates. HW recommends that the preliminary Master Plan calculations be included as a reference with the design of each phase to verify that the design features such as the amount of impervious area and the sizing of any proposed best management practices (BMPs) are consistent with the approved Master Plan.

HW recommends that the Planning Board consider including the following condition as part of the Master Plan permitting: “Future developments shall provide documentation to verify consistency with the Preliminary Stormwater Management sections of the Master Plan. Documentation shall include comparison of the planned development phase with Table 3: Proposed Conditions Hydrologic Data, Figure #3: Existing Drainage Conditions, and Figure #4: Proposed Drainage Conditions.”

3. *Standard 3 requires that the annual recharge from post-development shall approximate annual recharge from pre-development conditions.*
 - a) 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. The Applicant has provided Table 3 under Proposed Drainage Conditions that will be used as a comparison to verify that each phase of construction is consistent with the Master Plan. Moving forward

with each phase of development, the Applicant will be held to the maximum amount of impervious area allowed within each phase as listed in Table 3. HW recommends that the Applicant include in the Master Plan a list of potential recharge practices that are approvable by the Town of Sudbury as well as acceptable BMPs and an anticipated volume to recharge based on proposed impervious area.

The Applicant has adequately responded to our comment. Potential recharge practices are included in the Preliminary Stormwater Management Master Plan under Standard 3. It is HW's opinion that the BMPs listed are acceptable practices.

- b) The Applicant has provided Recharge Calculations in the Master Plan; however it is not clear where the additional 2.2 acres of HSG A is located on the site.

The Applicant has adequately responded to our comment. Revised calculations have been provided with the correct HSG listed.

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.*

The Applicant has stated that the stormwater management system is designed to remove a minimum of 80 percent of the Total Suspended Solids (TSS). To confirm compliance with this standard, HW recommends that the Applicant provide potential BMP trains that are anticipated with TSS removal rates. The trains may include deep sump catch basins, infiltration, water quality units, forebays (with sizing criteria considered), and the existing wet pond. It is important to note that the 80% TSS removal rate must be achieved at each outlet discharging to a receiving wetland and that 44% TSS removal rate must be achieved prior to discharging to an infiltration system. HW recommends that the Master Plan document the anticipated water quality volume required for each phase based on the expected impervious area.

It is possible that future designs may include utilizing existing catch basins that discharge directly to a wetland resource area. Therefore HW recommends that the Planning Board consider including the following condition as part of the Master Plan permitting: "The stormwater design for future development within the Meadow Walk 50 acre parcel shall include documentation that 80% TSS removal rate will be achieved at each outfall impacted by the future development. This documentation shall be submitted to the Planning Board even if an individual permit is not required."

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

The Applicant has acknowledged that the site will include parking lots with high-intensity-uses and that these areas of the project site will be considered Land Use of Higher Potential Pollutant Loads (LUHPPL). HW recommends that the Applicant provide guidance in the Master Plan

listing the BMPs recommended for the project areas designated as LUHPPLs.

The Applicant has adequately responded to our comment. Potential BMPs are included in the Preliminary Stormwater Management Master Plan under Standard 5. It is HW's opinion that the BMPs listed are acceptable practices.

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; HW recommends that the Applicant provide guidance in the Master Plan listing recommended BMPs that would be appropriate for this site.

The Applicant has adequately responded to our comment. Potential BMPs are included in the Preliminary Stormwater Management Master Plan under Standard 6. It is HW's opinion that the BMPs listed are acceptable practices to be used within a Zone II.

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. The intention to design the site in accordance with the new development criteria, except where impractical due to depth to groundwater, appears reasonable and is required. The Redevelopment criteria as described in the MSH also requires improving existing conditions. It appears that the intentions described in the Preliminary Stormwater Management Master Plan will improve the quantity and quality of stormwater discharging from the site. The recommendations suggested by HW are to further manage future designs in the event the proposed development is put on hold for a significant period of time.

No further comment is necessary.

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

The Applicant has stated that an erosion control plan and a Stormwater Pollution Prevention Plan (SWPPP) will be developed individually for each phase of construction. It is reasonable to evaluate the specific details during the permitting process for each phase. 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.

HW notes that a SWPPP is a living document that must be available for review during the entire construction process. HW recommends that during the permitting of each future phase of development, the Planning Board evaluate the status of previously approved Phases, the need to revise an active SWPPP to accommodate future development, and any potential enforcement actions that may have been issued on the Meadow Walk parcel.

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

The Applicant has stated that the Long Term Operation and Maintenance (O&M) Plan will be developed during the review process of the future filings. If the O&M Plan will be specific to each phase of development it appears reasonable to evaluate the specific details during the permitting process for each phase of development. If the property owner for the entire 50 acre parcel will be the same party it would be reasonable to provide the name and contact information of the property owner at the Master Plan stage. The maintenance of the stormwater basin in the center of the project site is critical to the success of the entire stormwater management system. It may be valuable to the Town of Sudbury to have a commitment from the property owner for future maintenance of the central stormwater basin.

The Applicant has adequately responded to our comment. HW recommends that the Planning Board consider including the following condition as part of the Master Plan permitting: "Within 45 days of the sale of the property, the contact information of the new owner and/or maintenance operator shall be provided in writing to the Town of Sudbury."

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.

The Applicant has adequately responded to our comment. The Conservation Commission should be aware that the Applicant has agreed to provide an illicit discharge statement in support of each phase of the project.

11. *Water Quality Certification Regulations*

The Applicant has stated that the Preliminary Stormwater Management Master Plan has been prepared to demonstrate compliance with the Water Quality Certification Regulations (314

CMR 9.00). It is not clear from the submitted documents how this project triggers the Certification or how they have demonstrated compliance.

The Applicant has adequately responded to our comment. A Water Quality Certification is not required for this project.

12. *Massachusetts Category 5 Waters*

The Applicant has stated that Site lies within the Nobscot sub-watershed which flows via an unnamed stream to Hop Brook. Hop Brook is listed as "Waters requiring a TMDL". HW recommends that the Applicant contact MassDEP to determine whether the discharge from this Site is required to comply with the TMDL for Hop Brook.

The Town of Sudbury may wish to document the removal of impervious area from this site within the Nobscot Watershed. The NPDES MS4 General Permit is anticipated to be issued in the next month. Documentation of outfalls will likely be required.

Conclusions

HW is satisfied that the Applicant has addresses our previous comments. The Planning Board may choose to include a condition for future phases of development within the Project Site, stating:
"Any future design must meet the design standards as outlined in the Preliminary Stormwater Management Master Plan as well as the most current MSH and the most current Sudbury Stormwater Bylaws."

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 jbernardo@horsleywitten.com or at 857-263-8193 if you have any questions regarding these comments.

Sincerely,

HORSLEY WITTEN GROUP, INC.

A handwritten signature in blue ink that reads "Janet Carter Bernardo".

Janet Carter Bernardo, P.E.
Senior Project Manager