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OCT 29 2020
MILLSBURY PLANNING BOARD

October 28, 2020

Mr. Richard Gosselin, Chairman
Millbury Planning Board
Municipal Office Building
127 Elm Street
Millbury, MA 01527
Attn: Ms. Laurie Connors, Town Planner

Via: email LConnors@townofmillbury.net

Re: Stormwater Management Permit
26 Davis Road
Millbury, MA

Dear Mr. Gosselin and Members of the Board:

We are in receipt of comments from Stantec Consulting, dated October 22, 2020, regarding the above noted application. Additionally, we participated in the October 26, 2020 Planning Board meeting. During the meeting you (as Chairman) asked for a Certified Plot Plan prepared by the surveyor be provided, which we have attached, but there were no other comments from the Board, staff, or abutters.

The Stantec comments are provided below, paraphrased where appropriate, and our responses are in italics.

Stormwater Management

1. A locus map was not included in the plan set.

Acknowledged. A locus map has been added to the plan set. We note a locus map was provided in the Stormwater Management Report.

2. Location of existing and proposed utilities are not clearly shown on the site plan. We recommend an existing conditions plan showing all utilities near the site be provided by LDC. We note the site plan does not clearly show where the proposed sewer line from the septic system to the house.

Acknowledged. The septic tank, distribution box, and piping have been added to the plan set. We note the septic system was designed by another designer and we understand the system has been approved by the Board of Health.

3. The site's existing topography with contours at one (1) foot intervals are not shown.

We acknowledge the comment and note the site is not flat, therefore providing one (1) contours for the existing topography is unnecessary with respect to making the plan understandable. The proposed topography includes one (1) foot intervals as the proposed grades result in relatively flat slopes at the front of the site, which warrant more detail.

4. The proposed site hydrology analysis appears inconsistent between the included proposed watershed map, HydroCAD model and proposed conditions as shown on the site plan. Items to address include surface runoff to Davis Road, proposed driveway area, infiltration system and wetland area to the west.

We acknowledge that a berm to divert the driveway runoff at the rear of the house (subcatchment S101 P) to the area drain is required, this was an oversight on the plan. A berm has been added to the plans. There is no surface runoff to Davis Road, rather runoff from Davis Road flows onto the property as the road is higher than the lot. Under proposed conditions the front of the site will be pitched northerly or southerly parallel to David Road with runoff flowing to swales to prevent runoff from reaching the road.

The limits of the roof tops within subcatchment S101 P are based on the architectural drawings provided LDC. Roughly half the roof area is tributary to the infiltration system (i.e., within S101 P). We contend that with the addition of the berm along the western edge of the driveway that runs behind the proposed home, the watershed map is accurate.

5. Estimated seasonal high groundwater elevation in area of the infiltration chamber system was not provided by LDC. We recommend additional test pits be performed within the footprint of the infiltration subsurface chamber system to verify estimated seasonal high groundwater elevation and soil texture.

We acknowledge and understand the interest in site specific testing as it pertains to stormwater design. We note soils testing occurred in two locations on the property (as shown on the site plan) for purposes of designing the sewage disposal system. Groundwater depth was found to be consistent across the testing locations at two (2) feet below grade, which we used for design of the stormwater infiltration system. We contend additional testing is unnecessary in this instance and creates unwarranted expense and delay.

6. Stantec recommend cross section of the proposed subsurface infiltration system identifying items such as existing and proposed grades, refusal and/or seasonal high groundwater be provided on the site plan.

A cross section with the noted information has been added to the plan. We note a typical section of the recharge system was included on Sheet C-102 with the original plan set and application.

7. We recommend pre and post watershed area maps include drainage areas and stormwater flow paths. As previously noted, post watershed map needs to address surface runoff to Davis Road, infiltration system and wetland area to the west.

The pre and post maps show the flow paths, though perhaps they are not obvious. The maps have been revised to include the subcatchment areas and more clearly show the flow paths.

8. Provide calculations regarding the average annual load of Total Phosphorus and estimated pollution removal.

The infiltration system (StormTech chambers) is analogous to an infiltration basin or trench, which attain upwards of seventy (70) percent phosphorus removal per MassDEP Stormwater Handbook Volume 2 Chapter 2. The infiltration system retains ("discards" in HydroCAD speak), roughly eight hundred (800) cubic feet of stormwater during the 2-year event. This equates to 0.8 inches of retention, less than the one (1) inch required for new developments; however, we contend the natural wooded buffer adjacent to the wetland of more than one-hundred thirty (130) feet, and the additional hundred (100) feet of natural vegetation (meadow) to the free standing building, provide ample opportunity for phosphorus removal due to vegetation and soil contact without additional structural methods. The proposed site plan meets the Low Impact Design Credit 1 (Handbook Volume 3 Chapter 1) in terms of technical criteria, with only about ten (10) percent of the lot area to become impervious surfaces and nearly sixty-five (65) percent of the lot remaining undisturbed, which we further contend demonstrates the minimal impact the project will have on the surroundings and downstream wetland resources. Based on the foregoing, we respectfully request the Board grant a waiver to full compliance with Section 13.15.070(b)(5)(a)(ii).

MassDEP Stormwater Standards

1. We note the applicant has not provided clarification on treatment of the proposed driveway pavement surface runoff. We question if the driveway cross section is curbed and drainage structures are proposed to control the surface runoff. Also confirm level spreader separation from groundwater and need for stone riprap downgradient from level spreader.

The lower portion of the driveway, behind the home, flows to an inlet with a sump prior to discharge to the infiltration system. As noted above, a berm has been added to direct the runoff to the area drain. The upper portion of the driveway, in front of the house, flows southerly or northerly to flat, vegetated swales. We note the front portion of the driveway is more than three hundred (300) feet from a wetland resource, and in fact all proposed impervious areas are more than two hundred (200) feet from a wetland. We contend the distances to the wetland and the significant naturally vegetated buffer, in conjunction with the structural Best Management Practices (BMP's), provide far greater treatment than is required. Lastly, there is no obvious source of pollution from this site as it is not a commercial site requiring significant de-icing chemicals or fertilizer treatment to maintain lawn areas.

The level spreader is not meant as a recharge BMP, therefore offset to groundwater is not relevant. Any water reaching the level spreader will have already been treated upstream. The intent of the stone bed is to allow slow dispersal of any overflow from the recharge system. The level spreader could be set on grade, but we believe a buried system, in contact with soil, will provide additional opportunity for recharge and water quality mitigation.

2. The post-development peak flow rates do not exceed pre-development peak flow rates. However, as previously noted we recommend the post development analysis be reevaluated by LDC.

As noted above, with the addition of the berm at the rear of the driveway, the calculations are accurate. This oversight has been corrected on the revised plans, which show the berm.

3. We recommend additional test pits be performed within the footprint of the subsurface infiltration system to verify estimated seasonal high groundwater elevation and soil texture.

As noted above, two areas were tested for purposes of designing the sewage disposal system. Groundwater depth was found to be consistent at two (2) feet, which was used for design of the infiltration system. We contend there is no need for additional testing and the related cost and delay for a single-family home.

4. The TSS calculations provided are not in agreement with the Massachusetts Stormwater Handbook or the proposed BMPs referenced in the stormwater report. Please clarify.

Two BMP's are cited, being a deep sump catch basin (i.e., the area drain) and the infiltration system (i.e., the StormTech chambers). We have revised the naming convention in the stormwater management report. Deep sump structures are afforded twenty-five (25) percent TSS removal and qualify as pre-treatment. Infiltration systems with pretreatment are afforded eighty (80) percent TSS removal. We contend the TSS calculations are accurate and provide more than required by Standard 4.

5. The project is not associated with a land use with higher potential pollutant load; therefore, this standard is not applicable.

Acknowledged and agreed.

6. The project is not within a critical area; therefore, this standard is not applicable.

Acknowledged and agreed.

7. This project is a new development; therefore, this standard is not applicable.

Acknowledged and agreed.

8. Erosion and sedimentation control measures are identified on the Stormwater Management Plan and further described in the submitted Stormwater Pollution Prevention Plan. We recommend erosion control barriers be extended along the northerly and southerly property line and the Stormwater Pollution Prevention Plan, as required by the NPDES General Permit, be submitted to the Board prior to the start of any construction activities.

We acknowledge providing a limit of work line is valuable during construction; however, we have revised the plans to show construction fencing at the limit of work along the northerly and southerly ends of the property. Erosion barriers tend to channel water, often unintentionally, concentrating flow to low points of the erosion barriers and reducing opportunity for infiltration near the source of runoff.

9. An operation and maintenance plan has been included in the Stormwater Management Report. As noted in the report, the proposed stormwater management facilities shall be owned, operated, and maintained by the applicant.

Acknowledged and agreed.

10. LDC has stated that no illicit discharges are proposed to the stormwater management system. We recommend the illicit statement be signed.

Acknowledged, a signed illicit discharge statement will be provided by the Owner upon completion of construction, at which time it will be possible to confirm that no illicit connections have been installed.

We trust the revised plans and stormwater management report, along with the responses herein, adequately address the comments and concerns of the Planning Board and Stantec acting as your peer review engineer. We appreciate your attention to this revised information and look forward to discussing the project and any remaining questions.

Sincerely,

LAND DESIGN COLLABORATIVE



Michael J. Scott, PE
Principal

cc: Mr. David Glenn, PE, Stantec Consulting (via email)
Ms. Leanne Maloney (via email)
Mr. Jim Powers (via email)

https://ldcollaborative.sharepoint.com/sites/LandDesignCollaborative/Shared Documents/_PRO:ECTS/20-0048 - 26 Davis Road, Millbury/Permits/Stormwater/20-0048 Comments A.docx