

March 29, 2022
Neil Angus
Environmental Planner
Devens Enterprise Commission
33 Andrews Parkway
Devens, MA 01434

Re: **Patton Road and Bulge Road Intersection**

Dear Mr. Angus:

On behalf of the Applicant, MassDevelopment, Weston & Sampson would like to provide the following comments to the stormwater review letter prepared by Nitsch Engineering, dated March 8, 2022. The original comments have been included below and W&S response is provided below each comment in bold.

CONFORMANCE WITH THE DEC STORMWATER DESIGN STANDARD

1. *974 CMR 4.08(2)(c)vi. requires all projects shall incorporate low-impact development (LID) techniques for stormwater management to the maximum extent feasible. For projects proposing traditional closed drainage systems, the Applicant shall demonstrate to the satisfaction of the DEC why LID stormwater management design methods are not feasible. The Applicant should consider LID approaches, such as a roadside swale for the more moderately sloped portions of Bulge Road or provide clarification on feasibility*

Following pre-application meeting with DEC, the Applicant evaluated feasibility of roadside swale in the upper section of Bulge Road (Sta 11+50 to Sta 14+00), however the presence of existing utilities just off the road shoulder (water main and telecom in the south shoulder and gas main in the north shoulder) prohibited swale placement without reducing the minimum cover over the utilities. Additionally, several mature trees are located along the southern edge of Bulge Road, with root systems extending close to the edge or roadway, which would prevent construction of continuous swale without impacting the roots of these trees. The Applicant have incorporated the roadside swale in the only section of Bulge Road where it is feasible due to the absence of existing utilities, and/or suitable slope, from Sta 21 to Sta 22+50.

2. *974 CMR 4.08(3)(b) requires the post-development peak rate of stormwater discharge off-site shall not be greater than the pre-development peak rate of stormwater discharge for the 2-, 10-, 25-, 50-, and 100-year storm events from any point of discharge on the site. Table 1.0 provided in the Appendix B of the Stormwater Report indicates that this requirement has been met for all storms except the 50-year storm. Although the overall runoff is reduced, the individual drainage area (POA-1) is not. The Applicant should review and address the requirement. Additionally, it appears there is a typo in Table 1.0 listing the 50-year storm twice, instead of the 100-year storm. The Applicant should address for clarity.*

The project area was separated into two points of analysis (POA-1 and POA-2) to differentiate between the stormwater discharged over land and pipe discharge. However, the entire project is discharging into the same point of discharge, Cold Springs Brook, therefore a total combined discharge rate was used to determine compliance with 974 CMR 4.08(3)(b). The typo in the Table 1.0 is noted and will be revised in the conformance set of stormwater report.

3. *974 CMR 4.08(3)(g) recommends post-construction erosion control methods include geotextile and/or biodegradable erosion control fabrics staked or anchored to the slope, with loose weave to allow vegetative cover to be established. Vegetative cover shall consist of native woody plant species installed as live brush or nursery stock, or native grasses. The Applicant should review this recommendation as there are steep slopes on the edges of the roadway that will be disturbed during the construction.*

The Applicant agrees. The plans will be amended to specify erosion control blanket on slopes 3:1 or greater and New England Erosion Control/Restoration seed mix for stabilizing of grassed areas along roadway edges following construction.

4. *947 CMR 4.08(4)(d) requires emergency outlet to accommodate storm flows in excess of the 100-year storm event. A minimum 1-foot freeboard distance shall be established between the 100-year flood elevation and the top of embankment. It does appear that an emergency spillway is modeled in HydroCAD for INF-1 (Device #5?). However, it is not indicated on the Plans where the emergency overflow is located on INF-1 or INF-2. Additionally, as indicated in the HydroCAD model there is less than 1-foot of freeboard for both INF-1 and INF-2. The Applicant should review and address this requirement.*

The outlet structures will be modified to provide 1' of freeboard between top of embankment and the 100-year elevation. The plans will be amended to identify the emergency spillway for INF-1 and INF-2. These changes will be incorporated into the conformance set of plans and stormwater report.

5. *947 CMR 4.08(6)(b) requires Closed Drainage Systems (CDS) and swales shall be designed to accommodate the 25-year storm event based on the Rational Method without surcharging. The Applicant did not provide Closed Drainage calculations. The Applicant should review and address this requirement.*

The proposed Closed Drainage System has been designed to accommodate 25-year storm. The calculations will be incorporated into the Appendix B of the stormwater report issued for conformance.

STORMWATER DESIGN AND CALCULATIONS

6. *Under the Regulatory Compliance section of the Stormwater Report there is a reference to Hospital Road. The Applicant should update for clarity.*

The Hospital Road reference is a typo and will be corrected in the conformance set of the stormwater report.

7. *The Operations and Maintenance Plan mentions four (4) Stormwater Treatment Units but only one (1) is indicated on the plans. The Applicant should update for clarity.*

The project has one Stormwater Treatment Unit, to provide pre-treatment prior to discharge to INF-2, since construction of forebay was not feasible due to space constraints. The Operation and Maintenance report will be corrected accordingly.

8. *A few inconsistencies in values were noted between the Recharge Calculations and the Phosphorous Calculations. The Recharge Calculations indicate 1.67 acres (72,862 sf) of proposed impervious while the Phosphorus Calculations indicate 1.64 acres. Additionally, the Recharge Calculations indicate 3,360 cf of recharge volume below the outlet while the Phosphorus Calculations indicate 9,534 cf below the outfall. The Applicant should review all calculations for consistency.*

The inconsistencies in the stormwater report have been corrected.

9. *A few inconsistencies were noticed in the Drainage Structures Table and listed as follows. The Applicant should review and address for clarity and consistency.*

a. The rim elevation of OCS2 does not match between the Table and HydroCAD. Additionally, the rim is modeled as 24 feet by 24 feet but the detail indicates 30 feet by 30 feet.

The rim elevation of OCS2 have been coordinated between the detail and HydroCAD. The rim of the grate has been modeled as 24"x24" because that is the inside dimension of the outlet structure and represents the size of the hydraulic opening of the grate, however the detail indicates a 30"x30" grate because portion of the grate overlaps the concrete walls of the structure.

b. DMH1 is not listed in the Table.

DMH-1 is not listed because it is an existing catch basin that will remain and will be modified into a drain manhole.

c. A 0.1' drop between the invert in and invert out is recommended at DMH3, DMH6, DMH8, and DMH14.

0.1' drop will be incorporated into recommended structures.

d. The invert in is lower than the invert out at DMH5 and DMH10.

Inverts for DMH5 and DMH10 will be corrected.

CONFORMANCE WITH THE MASSDEP STORMWATER STANDARDS

10. *Standard 8 requires a plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities shall be developed and implemented. It is noted that a Construction General Permit a Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan narrative document was included as part of Appendix D, and a portion of the erosion control components have been indicated on the Plans and details. However, the plans are not inclusive of all the erosion control elements. For example, an Inlet Sediment Control detail is provided on Sheet C701, but the Construction Plans do not indicate the location of any inlet protection. The Applicant should update the Plans to be inclusive of all soil erosion and sediment controls.*

The proposed soil erosion and sediment control measures include compost filter tubes downslope of the soil disturbance, and inlet protection. The inlet protection detail on sheet C701 specifies that inlet protection to be installed on all catch basins withing project limits. For clarity, the inlet protection symbol will be added to the plan as well. As mentioned above, the erosion control blanket will also be utilized for erosion control and will be added to the plans and detail sheets.

11. *Standard 10 prohibits illicit discharges to the stormwater management systems. The Illicit Discharge Statement should be signed by the Engineer of Record.*

A signed Illicit Discharge Statement is included in the conformance set of stormwater report.

Sincerely,

WESTON & SAMPSON ENGINEERS, INC.



Elena Compter, PE
Senior Project Engineer