



FUSS & O'NEILL

July 10, 2019

Mr. Richard Harris, AICP  
Town Planner  
Town of South Hadley  
116 Main Street  
South Hadley, MA 01705

RE: Peer Review of the Stormwater Management  
Skinner Woods Flexible Development  
Fuss & O'Neill Reference No. 20150214.P32

Dear Mr. Harris:

Fuss & O'Neill has conducted a review of the documents submitted by The Zengineer related to the development of a residential condominium with ten detached single family homes. The overall concept of the project appears to be feasible; however, there are several technical items which need to be addressed in order to verify the proposed design meets the South Hadley Stormwater Bylaws. We have conducted a review of the following materials as they relate to the stormwater management and standard engineering practice.

#### **Materials Reviewed**

1. Plant Set, "Skinner Woods Flexible Development Preliminary Plan," prepared by The Zengineer, dated May 17, 2019, total 13 Sheet.
2. Skinner Woods Flexible Development Stormwater Report, prepared by The Zengineer, dated May 17, 2019.
3. Skinner Woods Flexible Development Application: Preliminary Plan, prepared by The Zengineer, dated May 17, 2019.
4. Transmittal Letter, prepared by The Zengineer, dated May 17, 2019.

#### **Stormwater Management**

1. Per Section 200-16 N and 200-16 T, of the Stormwater Management Bylaw, information showing seasonal high groundwater elevation in areas of infiltration must be provided. Applicant has stated this information will be provided after the preliminary approval of the flexible development. Once provided it is at the discretion of the Planning Board to have Fuss & O'Neill review the information.
2. Per section 200-16 M of the Stormwater Management Bylaw, a NHESP Priority Habitat Map has been provided, showing that the project is within the mapped Priority and Estimated Habitat of the Eastern Turtle (*Terrapene Carolina*) and Wood Turtle (*Glyptemis insculpta*) state-listed as special concern. Mass Wildlife have conditioned the project in order to avoid a

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prohibited “Take” of state-listed species. There are two items that must be addressed to ensure all conditions have been met:

- a. Mass Wildlife letter states that remaining land north of the limit of work ( $\pm 8$  acres) is proposed to be conveyed in fee to the Town of South Hadley Conservation Commission. This area appears to be 7.4 acres on Sheet 5 of the Preliminary Plan Set. Applicant shall demonstrate they are complying with Mass Wildlife letter.
  - b. Mass Wildlife letter states that the subdivision will result in a total of  $\pm 3.26$  acres. This area appears to be  $\pm 3.5$  acres on Sheet 8 of the Preliminary Plan Set. Applicant shall demonstrate they are complying with Mass Wildlife letter.
3. Per Section 200-16 T of the Stormwater Management Bylaw, soil information from test pit at the location of proposed stormwater management facilities must be provided. Applicant has stated this information will be provided after the preliminary approval of the flexible development. Once provided it is at the discretion of the Planning Board to have Fuss & O'Neill review the information.
  4. Per Section 200-20 A(6) of the Stormwater Bylaws, infiltration basins shall be constructed with a minimum three (3) feet of separation from the bottom of the structure to seasonal high groundwater elevations. MassDEP Stormwater Standards require a minimum two (2) feet of separation from the bottom of an infiltration structure to seasonal high groundwater elevations. The Applicant proposes an infiltration basin, they do not provide documentation on separation distances from high groundwater. It is Fuss & O'Neill's understanding the Applicant will provide test pit information after the preliminary approval of the flexible development. Once provided it is at the discretion of the Planning Board to have Fuss & O'Neill review the information to ensure proper separation has been provided.
  5. Per Section 200-20 F of the Stormwater Bylaws, where stormwater management plan involves direction of some or all runoff off directed to adjacent properties, the Applicant must obtain from adjacent property owners any easements or other necessary property interests concerning flowage of water.
  6. Per Section 200-21.I of the Stormwater Bylaws, protection and management of on- and off-site material storage areas shall be included on the Erosion and Sediment Control Plan. Proposed on-site stockpiles areas for during construction should be depicted on the Erosion and Sediment Control Plan.
  7. Per Section 200-22 of the Stormwater Bylaws of the Stormwater Bylaws, prior to any site work for which stormwater management is required, the Planning Board shall require the applicant or owner to execute an operation, maintenance, and inspection agreement binding on all

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subsequent owners of land served by the private stormwater management facility. No agreement has been provided.

8. Per Section 200-22 B of the Stormwater Bylaws, the operation and maintenance agreement must be recorded by the Applicant in the land records of the Registry of Deeds. Once the agreement has been finalized, the Applicant shall ensure it gets recorded and provide proof to the Planning Board.
9. Per Section 200-23 C of the Stormwater Bylaws, installation records of the stormwater facilities must be maintained in perpetuity and all maintenance and inspection records must be retained for a minimum three (3) years. Maintenance and inspection records and reports must be submitted to the DPW Superintendent within 30 calendar days of completion of the maintenance activity or inspection. To ensure compliance, the Applicant should update the Operation and Maintenance Plan to include these requirements.
10. Per Section 200-24 A, the Planning Board shall require from the developer/applicant/owner a financial guarantee in a form acceptable to the Planning Board prior to any site work for the construction of a development requiring a stormwater management facility. We defer to the Planning Board to request the financial guarantee.

#### **General**

11. Based on the Construction General Permit (CGP), site construction activities, that will disturb one or more acres of land, shall provide a Stormwater Pollution Prevention Plan (SWPPP). The Applicant has provided a Long Term Pollution Prevention Plan; however, this does not provide all the required information that must be in a SWPPP. Before beginning of construction the Applicant shall provide a copy of the SWPPP to the Board to ensure proper erosion and sedimentation control measures are provided. It is at the discretion of the Board if review of the SWPPP is required by Fuss & O'Neill.
12. For clarification purposes, Proposed Conditions Plans for Subcatchment Areas should be revised to show a clear delineation for each subcatchment. It is hard to understand limits of subcatchment used for HydroCAD calculations.
13. To ensure temporary sediment basin is sized to accommodate the site, calculations for temporary sediment basins should be provided per the "Massachusetts Erosion and Sediments Control Guidelines for Urbans and Suburban Areas".
14. Proposed materials laydown areas for during constriction should be depicted on the plans.



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15. Fuss and O'Neill recommends the addition of other sediment controls like compost filter socks or straw bales to provide additional stability to the silt fence. This will allow for extra protection for the turtle's habitat area to remain untouched.
16. Per Volume 2, Chapter 1 of the MassDEP Stormwater Handbook, snow storage areas shall be provided on site plans.
17. It is good engineering practice to provide one (1) foot of freeboard between the top of the basin and the emergency spillway. The Applicant has designed the emergency spillway for the stormwater basin with an elevation at top of basin (252.00). To reduce the chances of overtopping the embankment, it is recommended the Applicant redesign the spillway to provide one (1) foot of freeboard.
18. There appears to be a discrepancy between, Section 3.4 Standard 4 of the submitted Stormwater Report and various other submitted materials. The increased impervious area "Ai" in Section 3.4 lists an area of 33,833, however in other places this area is shown as 34,659.
19. The emergency spillway for infiltration basin has not been modeled in HydroCad. To ensure the model reflects the design, the model should be revised to show the spillway as one of the outlets devices.
20. When determining the provided recharge volume and water quality volume for proposed BMPs, standard engineering practice is the storage volume provided below at lowest outlet elevation. The proposed basin is designed with the lowest outlet at 248.00 which provides 1,648 CF of volume. This is below the required water quality volume of 2,888 CF. The basin should be revised to provide required water quality volume at the lowest orifice elevation.
21. Throughout the provided materials, the Stormwater Basin referred to as different types of BMPS. On the Site Plans it is shown as a detention basin, in all calculation applicant refers to it as an infiltration basin, and within Section 4.4 (c) of the Long-Term Operation Maintenance Plan it is referred to as an extended dry detention basin. To ensure the design meets the intent of the Stormwater Bylaws and the MassDEP Standards, please confirm if a detention basin or infiltration basin is proposed. Update Plans, details, the Long-Term Operation and Maintenance Plan, and calculation accordingly.
22. It is good engineering practice to provide a 10 feet wide berm on the downgradient side of the stormwater basins.
23. Applicant has stated that the stormwater basin shown on the plans is not the final design as this will be done once preliminary approval for the project has been obtained. Fuss and O'Neill



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wants to clarify once test pits have been performed this could change the assumptions used during the design of the drainage.

24. In Section 3.4 of the provided Stormwater Report, the Applicant indicates the inlet to the basin will be protected by a Fabco StormBasin; however, the Site Plans do not indicate where this proprietary system will be installed. For clarification, please show the location on the Site Plans.
25. To ensure the proposed proprietary system has been designed in accordance with the MassDEP requirements, the Applicant should provide calculations showing the system has been designed in accordance with the requirements outlined in the MassDEP "Standard Method of Converting Required Water Quality Volume to a Discharge Rate for Sizing Flow Based Manufacture Proprietary Stormwater Treatment Practices."
26. Per Volume 1 Standard 9 of the Massachusetts Stormwater Handbook, the provided O&M should be updated to provide information on the owner(s) of the stormwater management system and parties responsible for operation and maintenance.
27. In review of the Site Plans, a catch basin detail does not appear to have been provided. To ensure the project includes the deep sump catch basins proposed a detail should be provided.

The above comments are based on plans and documentation received at the time of review. Any revisions to the plans and documentation will require further review. Please feel free to contact us with any questions.

Sincerely,

Aimee Bell  
Project Engineer

Reviewed by:

Daniel F. DeLany, P.E.  
Associate – Department Manager