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September 29, 2022

Andover Planning Board
C/o Jacki Byerley, Planner
36 Bartlet Street
Andover, MA 01810

RE: **Stormwater Peer Review 2 Response**
William Wood Way Subdivision
22 William Street
Map 52 Lot 106

Applicant: **Steven Leed**
22 William Street
Andover, MA 01810

Dear Ms. Byerley and Board Members:

We are in receipt of a second review of the project from Horsley Witten Group (HW) via a letter to the Board c/o of Jacki Byerley, dated September 15, 2022. We have omitted the comments that were addressed by the last revision and reproduced the remaining comments requiring a response in *italics,* with our latest response noted below in **bold**.

c. The peak discharge rate at the southern property boundary increases by 0.2 cubic feet per second (cfs) during the 2-year 24-hour storm event. Per the Andover Stormwater Regulations, the post-development peak discharge rate shall be equal to or less than the pre-development peak discharge rate. HW understands that the increased flow is attributed to DEV3 which consists primarily of vegetation that sheet flows towards the southern property boundary. HW recommends that the Applicant consider measures to eliminate the minimal increased flow.

The Applicant has revised the HydroCAD model and Stormwater Report to reflect a decrease in peak rates to the southern property boundary. The proposed design allows for a minimal discharge onto William Street from the northern end of the driveway. During a 25-year storm event the flow is proposed to be 0.1 cfs. HW recommends that the DPW confirm that this minimal flow will not negatively impact the municipal drainage system in William Street.

Response: The plans were revised per comment from Arthur Martineau, Town Engineer, at the Project IDR meeting in order to eliminate two catch basins and one drain manhole at the entrance, which were previously included in the design to capture a trivial amount of runoff. Mr. Martineau did not express concern over the small amount of runoff to the existing street.

d. The Applicant has used a curve number (CN) of 39 with a description of >75% grass cover area for EX1 and EX2. During the site visit conducted on May 25, 2022, HW observed several large pine trees throughout the property. HW recommends that the Applicant revise the existing curve number value considering the site partially wooded.

The Applicant has noted that the existing wooded areas have been modeled as >75% Grass cover, Good, HSG A because they are underlain by maintained grass and the overstore is primarily evergreens. It is HW's opinion that the existing site has a large area that should be modeled as woods-grass combination with a CN value of 32 based on TR-55.

Response: The existing model has been revised to a woods-grass combination, CN of 32, as suggested. Based on site visits and pictures provided by HW, the existing ground cover does appear to be grass in good condition, so the used CN value of 32 should prove to be conservative for our design.

e. The Applicant has utilized a woods/grass combination within DEV1 and DEV3, HW recommends that the Applicant clarify the extent of the wooded area under proposed conditions.

The Applicant has stated that the developed areas modeled as woods-grass combination are the areas proposed to be re-naturalized with pollinator seeding. HW notes that the hatched areas indicated by the Applicant to be a woods grass combination include two large subsurface chamber systems and a Drainage and Sewer Easement that should not be covered with trees. HW views these areas as proposed pasture, grassland which would be modeled with a CN value of 39 per TR-55. Per Section IX.E.4. of the Town of Andover Stormwater Regulations, post- construction runoff curve numbers should be modeled as "poor" and therefore it is HW's opinion that a value of 68 should be utilized for this open space/grassland.

Response: The areas to be allowed to re-naturalize are proposed to be seeded with a perennial wildflower seed mix (XERCES Northeastern Pollinator Mix - XERC00103). It is our opinion that these areas are more similar to a non-grazed meadow and was modeled as such with a CN=30 per TR-55 table.

g. HW recommends that the Applicant confirm that the underground stormwater chamber systems can be installed as proposed. HW recommends that the Applicant consider placing the chambers on 6 inches of crushed stone.

The Applicant believes that the underground stormwater chamber systems can be installed as proposed. HW recommends that a condition be included in any approval issued requiring inspection of the bottom of the system prior to installation of the chambers.

Response: Added Note 9 to the chamber detail on sheet 7 of 8 to address this comment which requires the contractor notify the engineer for bed bottom inspection.

h. HW recommends that the Applicant include a detail illustrating the installation of the 4- foot diameter manholes to be installed beneath the chambers, including a means to inspect the manholes from above the chambers.

The Applicant has included a detail of the chamber manholes on Sheet 5 of 8. However, it is not obvious how the manholes will be inspected if needed. HW recommends that the Applicant clarify the access point.

Response: The inspection manhole frames and covers will be set at finished grade. The sections were revised, with notes, to depict this. Two additional ports, also to grade, were added, one per each chamber area, more centralized, for additional inspection locations. See sheet 5 of 8 for the revisions. The professional hired to inspect the system would lift and remove the covers and look inside the chambers for inspection.

i. HW recommends that the Applicant provide a detail for the proposed drainage swale. Furthermore, documentation will be necessary to alert the new homeowners that the swale must be maintained and cannot be altered in the future.

The Applicant has provided a detail for the proposed drainage swale on Sheet 4 of 8. HW recommends that the Applicant address Comment 9b below to appropriately alert the new homeowners that the swale must be maintained and cannot be altered in the future.

Response: As the swale is located within a drainage easement, an easement document will also be recorded which will alert the owner(s) of the swale and that it cannot be altered. The maintenance of the swale will

be the responsibility of the HOA as part of the Operation and Maintenance schedule. The deed restriction/easement will transfer along the chain of ownership into the future.

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

a. Test Pit 2 (TP-2) data indicates fill to 6 feet below the surface. HW recommends that the Applicant conduct an additional test pit within the footprint of the proposed chamber system to demonstrate adequate separation to the estimated seasonal high groundwater (ESHGW) per MSH Volume 2 Chapter 2 Page 88 as well as the depth to natural material.

The Applicant has stated that soil testing locations were limited because the property is highly developed. TP-2 contained fill because of an old water line. Since the Web Soil Survey indicates that the entire lot and abutting properties is within a Hinckley loamy sand deposit in an area where the topography is relatively flat, the Applicant does not believe that additional soil testing is needed. The Planning Board may choose to require additional soil testing during the installation of the chambers with confirmation by a professional engineer that the bottom of the system is a minimum of 2 feet above ESHGW.

Response: The Applicant has no objection to a condition of approval requiring the additional soil testing be conducted at the time the system is constructed.

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 proposed catch basins, a Stormcepter (STC 900), and subsurface infiltration structures to provide TSS removal. HW recommends that the Applicant provide documentation for the TSS removal rate used for the STC 900.

The Applicant has listed the resources it used to determine the water quality flow rate and the TSS removal rate. HW recommends that the New Jersey TARP document is provided to the Planning Board to be included in the file.

Response: The document from which the removal rate of 50% was used is available at *https://nj.gov/dep/stormwater/pdf/stormceptor-stc-imbrium-combined.pdf* and a hard copy is attached to this response memo.

b. HW recommends that the Applicant provide supporting calculations for the 60% total phosphorus removal per the Andover Stormwater Regulations.

The Applicant has provided the source used to determine the TP removal rate for the subsurface infiltration structure. HW recommends that the applicable table from the Stormwater BMP Performance Analysis is provided to the Planning Board to be included in the file.

Response: The document for the removal rate of phosphorous per treatment chain is available at https://www3.epa.gov/region1/npdes/stormwater/tools/BMP-Performance-Analysis-Report.pdf *and a hard copy of the applicable pages are attached to this response memo.*

b. Projects that disturb one acre of land or more are required to obtain coverage under the NPDES Construction General Permit (CGP) issued by EPA and prepare a Stormwater Pollution Prevention Plan (SWPPP). HW recommends that a copy of the SWPPP be provided to the Town a minimum of 14 days prior to land disturbance.

The Applicant is amenable to a condition requiring a copy of the SWPPP to be provided to the Town at least 14 days prior to land disturbance.

Response: Applicant agrees to a Condition requiring this submittal a minimum of 14 days prior to land disturbance.

d. HW recommends that the Applicant include temporary inlet protection for existing and proposed catch basins within the project site as well as within 100 feet of the construction entrance.

The Applicant has added haybale barriers around the proposed catch basins, along with a detail, on Sheet 8. HW recommends that the Applicant also provide inlet protection for the catch basins on William Street that are within 100 feet of the construction entrance.

Response: A notation, on sheet 8 of 8, to provide "Siltsacks", as manufactured by ACF Environmental, has been added to the existing catchbasins near the entrance onto William Street.

b. Water line easement:

a) The existing property at 24 William Street includes a 20-foot-wide utility easement that the Applicant is using to loop the proposed water line. There is several large pine trees within this easement that may be impacted by the six-foot-deep trench needed to install a water line. HW recommends that the Applicant revisit the proposed location of the water service and discuss alternative locations with the Andover Water Department or document what will happen to these trees.

The Applicant has revised the location of the looped water main to be within the proposed Right of Way. The water main is no longer proposed along the western property boundary therefore the existing trees will remain if approved by the Andover Water Department.

Response: The proposed new loop was rejected by the DPW, and the looped water main has been restored to the previous location and trees will be removed as necessary for installation of the water main.

b) Existing trees and vegetation: As noted above, HW recommends that the Applicant revisit the curve number and description of the surface conditions under pre-development and post-development conditions.

The Applicant has noted that the existing wooded areas have been modeled as >75% Grass cover, Good, HSG A because they are underlain by maintained grass and the overstore is primarily evergreens. It is HW's opinion that the existing site has a large area that should be modeled as woods-grass combination with a CN value of 32 based on TR-55. Furthermore, HW does not agree that under post development conditions the naturalized area can be modeled as woods-grass combination.

Response: The existing model was revised to a woods-grass combination, CN of 32 and the seeded areas as a non-grazed meadow CN of 30 per TR-55 Table.

c) HW believes that the proposed water line within the utility easement is proposed to loop the water line that is proposed within the roadway. Waterlines are frequently looped as a requirement of the water department to provide adequate water pressure throughout the main. HW recommends that the Applicant review the need for the water line within the easement with the water department.

The Applicant has provided an alternative water line loop location, which is pending approval by the Water Department. HW has no further comment.

Response: The new loop was rejected by the DPW, and the original location restored.

b) Trees within existing utility easement. During the site visit, HW observed several trees within the utility easement. If a water line is required by the Andover Water Department HW recommends that the Applicant document what will happen to these trees.

The Applicant has indicated that any trees within the limit of the proposed work will be saved, if possible, or removed as needed due to differences in proposed and existing grades or proximity to dwellings. As noted

above it is HW's opinion that if the water line is relocated to the Right of Way the trees along the western property boundary will not be impacted by the proposed development.

Response: The proposed new loop was rejected by the DPW, and the original location restored, any trees in the way will need to be removed.

k. Utilizing easement as driveway: The plan indicates a 20-foot utility easement. It is HW's understanding that a utility easement cannot be used as a vehicle easement without prior approval by the Planning Board. Any changes from the proposed subdivision plans would require the Applicant to return to the Planning Board.

The Applicant has re-looped the water main to fall within the Right of Way of the proposed street. In addition, the Applicant has added a note on Sheet 5 of 8 to the existing easement along the westerly side of the property that it shall not be used to access Lots 3 and 4. HW has no further comment.

Response: The note that the existing easement shall not be used for access to the site has been retained, however the proposed loop was rejected by the DPW, and the original location was restored to the original location.

If you have any questions concerning these latest revisions, or require anything further, please feel free to contact me at your convenience.

Sincerely,

Andover Consultants Inc.

Dennis A. Griecci

Dennis A. Griecci, P.E., LEED AP
Enclosures