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May 14, 2024

Geoffrey Jacobson, P.E.
Nathan L. Jacobson & Associates, Inc.
86 Main Street, P.O. Box 337
Chester, CT 06412

Re: Proposed Medical Office Building
52 Spencer Plain Road (Route 166)
Provence Land Co., LLC
Inland Wetlands Application

Dear Mr. Jacobson:

We received your Engineering Review comments dated May 1, 2024. We have revised our plans accordingly, including updated site plans, alternative analysis, drainage maps, and a drainage report (enclosed). Below are our responses to your comments:

1. In our revised plans, the stormwater management basin was expanded east to retain and infiltrate more runoff. This results in a little more work and tree clearing within the 100-foot upland review area, but addresses comment 4D (see below) by resulting in a reduction in the volume of runoff leaving the development for the 2- through 100-year storms. It should be noted, the additional work/clearing does not exceed what was previously approved in February 2023. Additionally, there is still a significant overall reduction in disturbance within the 100-foot upland review area as compared to the previously approved plans. See revised alternative analysis plan for more information.
2. The proposed drainage for the southwestern inland wetland area has been modified. There is no longer an outlet control structure that overflows to the stormwater basin behind the building. Instead, a 15-inch diameter culvert has been added underneath the access driveway to mimic the existing drainage path to the northwest wetlands. In regards to infiltration, while the southwest wetland area is very poorly drained, the soil beyond the wetland limits has better drainage class (per USDA NRCS). As runoff water fills the depression up to the culvert inlet, water will be spread far beyond the wetland limits. Therefore, for the purposes of modeling the southwest wetlands

area it seems appropriate to use a composite infiltration rate to represent these conditions. To do this, we assumed zero infiltration for the southwest wetland area at 50%, 0.26 inches per hour for the non-wetland soils surrounding the southwest wetland area at 50% (per permeability testing), and used the average of 0.13 inches per hour for the model.

3. The landscaping plan was not finalized at the time of submission. It was completed shortly thereafter and copies were then handed to the Commission at the first meeting and have since been revised. See revised landscaping plan for more information.

4.
 - A. The time of concentration for existing watershed B was updated to be 578 feet with a 0.5% slope for shallow concentrated flow. Additionally, the sheet flow slope was corrected to be 2.5%. As a result of these changes, the time of concentration increased by about 13 minutes and the peak rates decreased for the 2- through 100-year storms. See drainage report for more information.
 - B. The time of concentration for proposed watershed B was updated to reflect the changes in grading. The proposed flow path length is now 350 feet total and the time of concentration is 42.5 minutes, whereas the existing time of concentration is 44.7 minutes. Therefore, the proposed time of concentration is now 2.2 minutes less than before.
 - C. The notation for the outlet control structure outlet pipe has been corrected to match the stormwater model, which is now a 15-inch HDPE outlet pipe. See site plan sheet GUS-1 and drainage report for more information.
 - D. As a result of the changes, the overall volume of runoff leaving the development is slightly reduced for the 2- through 100-year storms. The reductions in volume are minimal in order to mimic pre-development conditions, while also avoiding adverse wetland impacts. See drainage report for more information.
 - E. The WQV area has been adjusted per comment 5 (see below). The sediment forebay berm is 3 feet in height and has a volume of 2,897 cubic feet, as determined by modeling it in the Autodesk Hydraflow drainage software. It should be noted, the bottom 1-foot of the forebay was excluded from the basin volume to account for sediment accumulation in this area. See drainage report for more information.
 - F. The sheet flow length for watershed D was reduced to 150 feet. See drainage report for more information.

5. The forebay was adjusted to meet the dimensional and volume criteria mentioned. The forebay now contains 27% of the WQV up to the sediment forebay berm. The bottom of the WQV area was set at elevation 21.0. We avoided deeper cuts into grade since seasonal high groundwater is about 2-feet down (per soil testing in that area). Furthermore, the outflow pipe from CB 6 was redirected to the WQV area without adding a manhole. See site plans and drainage summary for more information.

6. The access driveway passes directly between the northwest and southwest wetlands and is lighted for visibility and safety. Inevitably, some light extends beyond the edge of the pavement in this area and into the wetland fringes. Where this occurs, the light intensity is extremely low (0.1 to 0.2 foot-candles max) and to the minimal extent practical. There is no light intrusion into the northern or eastern wetlands. Light is within the 100-foot upland review since the development is within this area and it needs to be lighted for visibility and safety.

Please feel free to contact me at any time if you have any questions or need any additional information.

Very Truly Yours,

Joe Wren, P.E.

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