

January 25, 2021

Ms. Meghan N. Lally, Chair  
Andover Inland Wetlands and Watercourses Commission  
17 School Road  
Andover, CT 06232

RE: IWWC 20-36 26 Old Farms Road

Dear Ms. Lally,

As requested, I performed a review of the following documents received for the above referenced project.

1. Permit Application packet, dated 10/30/20.
2. Plan set entitled “Plan Prepared for George Correia, Pine Ridge Drive, Andover, CT”, Sheets 1 of 3 through 3, dated 11/12/2020, as revised through 1/11/2021.
3. Letter from Mr. Hank Gruner, Herpetologist, dated January 12, 2021.
4. Letter from REMA Ecological Services, LLC, dated January 22, 2021.

Following are review comments for consideration by the Commission.

1. The plan proposes to cross an existing wetland system with two (2) 36” diameter HDPE culverts. Given the proximity of abutting properties to the new crossing, a detailed hydrologic and hydraulic report should be prepared detailing existing and proposed conditions and certifying that the design will not result in adverse impacts to the abutting properties including but not limited to flooding, erosion, and siltation. The report should include:
  - a. Watershed mapping.
  - b. Design flow calculations and summary table.
  - c. Comparison of hydraulic calculation results, including water surface elevations and velocities up and downstream.
  - d. Channel stability and outlet protection calculations.
2. It is not clear if the intermittent stream crossing will result in activities under the jurisdiction of ACOE. I recommend that the ACOE Connecticut General Permit be reviewed and considered in the design of the culvert crossing and recommend the culvert(s) be designed in accordance with GP 19: Stream, River & Brook Crossings for Self-Verification (SV), including but not limited to:
  - a. Culverts slope no steeper than natural channel.
  - b. The pipe culverts are set such that not less than 25% of the pipe diameter or 12”, whichever is less, is set below the channel bottom elevation.
  - c. The culvert is backfilled with natural channel substrate.

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- d. The inlet and outlet protection measures do not impede the passage of fish and other aquatic organisms.
  - e. The structure allows for continuous flow of the 50-year frequency storm. It is our understanding that the current interpretation of “continuous” is that the culvert is not under pressure flow.
3. I recommend that the ACOE required Openness Ratio (OR) of  $>0.25$  meters ( $>0.82$  feet) be considered in the design of the culvert(s). As stated in the ACOE Stream Crossing BMP’s, meeting the OR makes “the structure more likely to pass small, riverine wildlife such as turtles, mink, muskrat and otter that may tend to avoid structures that appear too constricted”.
4. The construction sequence should be expanded to include a staged approach to installation of the culverts and headwall to ensure that the water handling capacity of the stream is not restricted during construction, thereby increasing the potential for flooding, erosion, or sedimentation on abutting properties.

Should you have any questions, please don’t hesitate to contact me at (860) 367-7264.

Sincerely,



Brandon Handfield, PE  
Civil Engineer