

February 10, 2020

Bethann McCarthy, PE
Alteration of Terrain Bureau
29 Hazen Drive, PO Box 95
Concord, NH 03302

RE: Alteration of Terrain Permit Application #200724-108
Tax Map 35, Lots 4-1 and 4-2 – Warner

Dear Ms. McCarthy:

Please see the following responses to your letter dated September 14, 2000 outlining specific items that needed to be addressed before DES can make a final determination.

1. Respond to each of the Warner River Local Advisory Committee's questions and comments included in their August 28, 2020 letter, and provide a copy to the LAC.
 - See letter attached
 2. The Site-Specific Soil Map and report must identify the disturbed soils in accordance with the Soil Scientist Society of Northern New England's New Hampshire Supplement for Disturbed Soil Mapping Units in Publication No. 3.
 - The additional soil descriptors for each area have been added to the plans. The certified soil scientist has indicated to this engineer that he provides them in the report but leaves them off of the plan. (In the future he will put them on the plan)
 3. The plan that includes the wetlands delineations should reference the U.S. Army Corps of Engineers 1987 manual, if the wetlands were delineated using that technical guidance.
 - The reference has been added to the plan
 4. Google Earth aerial imagery shows a dark area of soil about 150 feet from Route 9, that appears could be wetlands. Please have your soil scientist/wetland scientist comment on this area which is just below the existing drive location.
 - This area ponds in heavy rain and drains slowly due to the flat topography. The area was investigated, and no hydric soil was found.
 5. The project is located in groundwater protection area (in an area of groundwater classified as GA2 and within a wellhead protection area. Both BMPs must provide additional protection for groundwater. Review the requirements of Env-Wq 1508.07(i).
 - The plan has been revised to meet this requirement by increasing the filter media .
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6. In order to align Alteration of Terrain administrative rule Env-Wq 1503.19(h) with statutory requirements of RSA 212-A:9, III, the NHDES adopted a rule amendment effective June 2, 2020. The department shall not issue an AOT permit unless the applicant demonstrates that all of the following criteria are met:

As required by RSA 212-A:9, III, the project has been designed in a manner that will not “jeopardize the continued existence of [state- or federally-listed threatened or endangered] species or result in the destruction or modification of habitat of such species which is determined by the executive director [of the New Hampshire fish and game department (NHF&G)] to be critical”, as demonstrated by the report of a study of the proposed project site that is performed by a wildlife biologist who has education and experience in performing property surveys for threatened or endangered species, using an accepted process such as that established in EPA’s ecological risk assessment methodologies (<https://www.epa.gov/ecobox>), that is:

- a. *Submitted to the department with the application and which demonstrates that:*
 - i. *No threatened or endangered species, designated critical habitat for threatened or endangered species, or travel corridors for threatened or endangered species is present on the site or potentially impacted by the project; or*
 - ii. *If any threatened or endangered species, designated critical habitat for threatened or endangered species, or travel corridors for threatened or endangered species is present on the site or potentially impacted by the project, the applicant has coordinated with NHF&G on potential impacts of the proposed project thereon, such that the proposed project, including any conservation measures recommended by NHF&G to the benefit of the affected species, cannot reasonably be expected to jeopardize the continued existence of such species or result in the destruction or modification of designated critical habitat; and*
- b. *Reviewed by the department in consultation with NHF&G.*

It is highly recommended that you contact NHFG to discuss the scope of the study required for this site and proposed project.

- A wildlife study has been performed by a qualified wildlife biologist and has been submitted as an attachment. This study has been filed with NH F&G.

7. The Natural Heritage Bureau (NHB) identified threatened and/or endangered (T&E) species with the datacheck tool. Follow up with the NHB and NH Fish & Game Dept. to address concerns associated with T&E species, and how the requirements of Env-Wq 1503.19(h) can be met. Summarize how their comments are being addressed, and provide copies of correspondence to NHDES. It may be helpful to provide a drawing of the layout overlain on aerial photography, with locations of catch basins and the pond outlet structure. Also include a detail of the surface pond outlet structure, if not already provided.

- A plan has been included as part of this response.

8. Stormwater Pond P-1 (surface sand filter):

- a. An infiltration rate of 1 in/hr was used in the hydrologic analysis. Filter media has a much higher infiltration rate. We recommend using a design rate of 10 in/hr. Using a reduced infiltration rate
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would miscalculate the timing of the peak inflow into the underground system.

- *The calculations were revised which resulted in lower peak flows in all storms. A copy of the summary page and the revised post development hydrocad printouts are attached with this response.*
 - b. A 12" culvert is modeled in the outlet structure at elevation 423.0, but the size of the outlet pipe doesn't appear to be shown on the plans.
 - *The pipe size has been added to sheets 7 and 11*
 - c. On the BMP worksheet, indicate the method of pre-treatment being provided.
 - *A forebay has been indicated on the BMP worksheet*
 - d. The BMP worksheet includes an incorrect entry for the elevation of the WQV. Since the regulations only require that this system contain 75% of the WQV, it appears that an elevation of 426.5 +/- should be entered.
 - *The elevation has been corrected.*
 - e. Attach a stage/discharge table to confirm the $Q_{75\%WQV}$.
 - *A revised stage storage discharge table has been provided.*
9. Stormwater Pond P-2 (subsurface gallery): It appears the intent is to provide treatment through a treatment filter geotextile. DES regulations do not permit this type of treatment. When soils have infiltration rates greater than 10%, filter media meeting the requirement of Env-Wq 1508.06(k) must be utilized, or the soil can be amended. If the soil is to be amended, infiltration testing is required to confirm the assumed infiltration rate, which must be less than 10 in/hr. The plans should include the requirement to test the soils in accordance with Env-Wq 1504.14. That regulation stipulates that 6 test locations would be required, with the required number of tests at each location (e.g. a Guelph permeameter requires a minimum of 3 observations at each location, or a total of 18 tests). If the soil is to be amended, add the note that the soil must be tested by a CPESC, certified soil scientist, professional geologist or professional engineer in accordance with Env-Wq 1504.14 to confirm the assumed rate.
- *The geotextile fabric has been removed and a note has been added to the plan on sheet 12 regarding the amended soil and the required testing.*
10. Check the entries in the hydrologic analysis summary table. Some of them are incorrect.
- *The summary table has been corrected and a copy is attached.*
11. When project activities are located within 50 feet of a water body or wetland, please show a double row of perimeter controls on the plans.
- *Double rows of erosion control are shown on sheet 16.*
12. One of the LAC's concerns was the introduction of chloride into the Warner River. Please consider whether you will agree to require winter maintenance by a certified Snow Pro Salt Applicator, and provide a salt minimization plan, to provide additional protection to this designated river. If so, this will be a permit condition, and the requirements should be reflected in the Inspection and Maintenance Manual.
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Additional information on salt reduction initiatives can be obtained at:

<https://www.des.nh.gov/organization/divisions/water/wmb/was/salt-reduction-initiative/documents/wmb-26.pdf>.

- *A note has been added to the maintenance plan in the AOT application*
13. Pursuant to *Env-Wq 1507.08, Long-Term Maintenance*, provide the following with the Inspection and Maintenance Manual:
- a. a deicing log;
 - b. a plan clearly showing the locations of all the stormwater practices described in the I&M manual (8.5" x 11" or 11" x 17" sheet is recommended);
 - c. actions to be taken if any invasive species grow in the stormwater management practices;
 - d. information as required in response to the above comment;
 - e. although not required by Env-Wq 1500, please also include a note indicating that inspection and maintenance records must be provided to DES upon request.
- *The information in a–e above has been added to the post development maintenance plan.*
14. On the grading plan, please show areas where erosion control blankets are required (slopes of 3:1 or steeper).
- *The plan has been revised with shading to indicate where slope blankets are being installed*
15. Env-Wq 1503.21(c) requires that that the permit holder and a qualified engineer certify that the project was completed in accordance with the approved plans, or that deviations were made which did not require an amended or new permit. (This is offered as informational only. No reply required.)
16. Add or revise the following details:
- a. include a sediment trap detail in accordance with Env-Wq 1506.10;
 - b. add a detail for a level spreader in accordance with Env-Wq 1508.08.
 - c. the mulch berm specification must be in accordance with Env-Wq 1506.05.
 - d. the check dam detail should include a profile view to show the relationship of the crest of a check dam to the toe of an upstream check dam.
- *Items a-d above have been addressed on plan sheets 15-17*
17. Please add the following notes to your plans (Env-Wq 1504.16):
- a. Stormwater ponds, infiltration basins and swales must be installed before rough grading the site.
 - b. Limit the length of exposure of unstabilized soil to 45 days or less. (see Note 16 on your plans.)
 - c. Roadways and parking areas must be stabilized within 72 hours of achieving finished grade.
 - d. Add temporary seeding specifications.
- *Items a-d listed above have been included on sheets 15-17. The construction sequence includes*
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installing fill to subgrade prior to construction of the drainage and utilities because the entire site is being filled approximately 5' which needs to be done before the drainage pond, inlets, and piping can be installed.

For Infiltration Basin:

- Do not traffic exposed soil surface with construction equipment. If feasible, perform excavations with equipment positioned outside the limits of the infiltration system.
 - After the infiltration system area is excavated to the final design elevation, the floor should be deeply tilled with a rotary tiller or disc harrow to restore infiltration rates, followed by a pass with a leveling drag.
 - Do not place infiltration systems into service until the contributing areas have been fully stabilized.
 - *The above notes have been added to the plans.*
18. Pursuant to Env-Wq 1503.15(b), changes to the revised plans are to be called out and a revision date must be added to each page that has been changed. Graphical revision call-outs should be included on the plans. If any changes to the plans or the hydrologic/hydraulic analysis were made other than those identified above, please indicate what additional changes were made in your response letter. Please only send copies of revised plan sheets.
- Attached are copies of the hydrocad printouts which were not revised except for as detailed above. There was a small change in the site design to eliminate the drive through lane on Lot 1. The hydraulic calculations were not changed to reflect a lower impervious paved area so that the lane could be added in the future without having to increase the size of the stormwater treatment and storage areas.
 - The lowest outlet on the buried detention basin outlet structure was changed from a 4" to a 2" orifice. When the summary table was revised I noticed that the pre development flow was not correct so the adjustment was made to comply with the channel protection requirements.

Should you have any additional comments or require any additional minor modifications please do not hesitate to contact this office.

Sincerely,



Benjamin C. Osgood, jr., PE

Sr. Engineer.
