



MEMORANDUM

To: John Dehn
Date: May 2, 2023
From: Aimee Rutledge, PWS, CPESC, CPSWQ
Subject: Sperry Road Property Wetlands/Water Resources Review
Project No.: 128991

This memorandum summarizes DuBois & King, Inc. (D&K) wetland and water resources site investigation for property located on Sperry Road, in the town of Cornwall, Vermont. The project study area (PSA) included a 9.67-acre parcel (Lot 2) located approximately 800 feet west of the intersection of US Route 30 and Sperry Road, with frontage on the south side of Sperry Road. A single family home is proposed on Lot 2. The PSA also included the eastern half of Lot 1. The scope of services also included a site investigation of the spring and eastern half of Lot 1 to determine the feasibility of a proposed fish pond. The PSA, totaling approximately 15 acres, is shown on the attached map, Figure 1.

The following summarizes the findings for the desktop review and site investigation.

1. Desktop Review

D&K performed a desktop review for natural resources within the study area. Readily available online mappers and databases, such as the Vermont Agency of Natural Resources' Natural Resource Atlas (NRA) and Google Earth, were consulted. The NRA shows a wetland advisory layer and hydric soils near the northwestern corner of Lot 2 and across Lot 1. In addition, a stream traverses the western portion of Lot 2. According to the NRA, the stream has a watershed measuring 0.5 – 2.0 square miles and therefore has a state regulated 50-foot river corridor.

Clayey glaciolacustrine deposits derived from Glacial Lake Lower and Upper Fort Ann sediments characterize the PSA. A steep-sided ravine cuts through the western portion of Lot 2. The eastern portion of Lot 2 slopes in an east to west direction toward the ravine while the western portion slopes in a west to east direction toward the ravine. Lot 1 gradually slopes in a north to south direction.

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey was reviewed for soil characteristics within the PSA. A Custom Soil Resource Report for the PSA was created and is attached. A majority of the site consists of moderately well drained soils with the exception of poorly drained soils associated with the stream and the hydric soil on Lot 1. Notable soil characteristics are provided in the table below.

Soil Name	Drainage Class	Depth to Water Table	Acres in PSA	% in PSA
Covington and Panton silty clays (Cw)	Poorly Drained	6-12 inches	2.9	19.1
Livingston clay, flooded slopes (Lk)	Very Poorly Drained	0-6 inches	0.6	4
Nellis loam, 15 to 25% slopes (NeD)	Well Drained	>80 inches	0	0.3
Vergennes clay, 2 to 6% slopes (VgB)	Moderately Well Drained	12-36 inches	4.1	27.3
Vergennes clay, 12 to 25% slopes (VgD)	Moderately Well Drained	12-36 inches	3.9	26.2
Vergennes clay, 25 to 50% slopes (VgE)	Moderately Well Drained	12-36 inches	3.5	23.1

2. Site Investigations

The site investigation included review of the PSA for wetland and water resources and review of the existing spring and proposed fish pond location. The site investigation was conducted on April 21, 2023. Photographs from the site investigations are provided at the end of the memorandum and referenced throughout.

a. Wetlands and Water Resources

As noted in the desktop review, a stream flows in a southerly direction through the ravine located on Lot 2. The stream flows from the north under Sperry Road via a concrete box culvert and varies in width from 3 to 6 feet (see photographs 2, 5, and 6). The banks of the stream are well defined and the stream bottom consists of a gravel/cobble substrate.

Wetlands are located along both sides of the stream for most of the length of the stream on Lot 2 (see Photographs 4 and 5). The approximate location of the wetland is shown on Figure 1. The wetland continues off the property to the south. The wetland areas adjacent to the stream consist predominantly of emergent vegetation, dominated by cattail (*Typha latifolia*), sensitive fern (*Onoclea sensibilis*), and marsh marigold (*Caltha palustris*). A wetland soil test pit (STP-3) indicated the silty soil was saturated at 0 inches with free water/groundwater in the test pit at 9 inches. In addition, redoximorphic features, indicating groundwater fluctuations, were present at 4 inches.

The wetland adjacent to the stream is presumed to be a Vermont Class II wetland in accordance with the Vermont Wetland Rules because it is adjacent to a stream and is larger than 0.5 acre. A 50-foot buffer zone extends from the border of Class II wetlands.

A stone lined "spring" is located on the northern portion of Lot 1 as shown on Figure 1. The spring had a few inches of standing water. There appears to be a PVC pipe that discharges water into the spring from the north (see photograph 13). However, the origin of the pipe is unknown. There was no flowing water in the stone lined pit at the time of the site investigation. Based on observations during the site investigation, this area does not appear to be an active groundwater spring. Water from the stone lined pit appears to overflow into the agricultural field frequently. The overflow area exhibits characteristics of an isolated wetland, including hydrology, hydrophytic vegetation, and hydric soils.

The sides of the ravine and the eastern portion of Lot 2 is characterized as a red cedar woodland, dominated by white pine (*Pinus strobus*), red cedar (*Juniperus virginiana*), red oak (*Quercus rubra*), and honeysuckle (*Lonicera* spp.). Two groundwater seeps are located east of the ravine as shown on Figure 1. Water from the seeps flows in a westerly direction and appears to infiltrate into the ground on the slope of the ravine. Since there is no surface hydrologic connection between the seeps and the wetland or stream in the ravine, the seeps would not be federally or state regulated.

b. Proposed Pond

Investigation of the stone lined pit as discussed in the above section indicates that it would not be an ideal source of spring water for the proposed pond.

Two hand auger soil test pits were completed within the proposed fish pond area as shown on the attached map. Test pits were approximately 24-26" deep. The soil test pits had very similar soil characteristics consisting of silty clay material redoximorphic features around 7 inches, indicating prolonged saturation of soil at 7 inches and deeper. However, the soil test pits did not have free water.

3. Conclusion

A desktop review and site investigation of the PSA was performed on April 21, 2023. A steep ravine consisting of a stream and adjacent presumptive Class II wetlands are located on the western portion of Lot 2. If an activity is proposed in a Class II wetland or its associated buffer zone, a state wetlands permit is required. Under the Vermont Wetland Rule, there are exceptions or Allowed Uses, such as silvicultural and agricultural activities, and selective repair and maintenance activities (i.e. mowing). A Vermont Department of Environmental Conservation Wetlands Ecologist would need to verify a wetland delineation in order for the wetland to be determined a Class II wetland.

In addition, the US Army Corps of Engineers would have jurisdiction over activities affecting the wetland and stream under Section 404 of the Clean Water Act.

Review of the proposed fish pond location and stone lined pit was conducted. Based on site observations, there does not appear to be a viable spring water source for a fish pond. However, the silt/clayey soils in the area of the proposed pond could serve as a restrictive layer, which would retain overland stormwater runoff in the pond. As noted in previous discussions, D&K recommends test pits a minimum of 5 feet deep to determine the groundwater elevation for a water source. If the water source for the pond is groundwater, it is likely water within the pond would be stagnant and better suited for recreation purposes and not fish propagation.

ANR

Attachments: Figure 1
NRCS Custom Soil Resource Report



Photograph 1. Top of western side of ravine. View looking east.

Photograph 2. South side of box culvert under Sperry Road and stream. View looking north.



Photograph 3. Wetland and stream on northern side of Sperry Road. View looking north.



Photograph 4. Wetland and well on east side of stream. View looking north with Sperry Road in the background.

Photograph 5. Wetland and stream south of the well. View looking south.



Photograph 6. Stream on central portion of Lot 2. View looking north.



Photograph 7. Wetland and ravine slope west of the stream. View looking west.

Photograph 8. Southern seep on Lot 2. View looking west.



Photograph 9. Northern seep on Lot 2. View looking west.



Photograph 10. Central portion of Lot 2. View looking south.

Photograph 11. Southeastern corner of Lot 2. View looking north.



Photograph 12. View of field and proposed fish pond location on Lot 1. View looking north.



Photograph 13. View of stone lined spring and white PVC pipe on Lot 1. View looking east.

Photograph 14. View of soils from STP-1 on Lot 1.

