Memorandum

To: Vermont Gas Systems
Monkton Pressure Regulation Station File

Date: November 6, 2017

Project #: 57563.11

From: Joshua Sky, Project Manager
Allison Lanclos, Ecologist

Re: Section 248 Natural Resources Assessment Memorandum

At the request of Vermont Gas Systems, Inc ("VGS") or ("Petitioner"), VHB completed a field assessment of natural resource features in support of a planned project to develop a natural gas pressure regulation station within a tract of land located to the north of the Hollow Road in Monkton, Vermont along the existing VELCO K-43 and VGS Addison Natural Gas ROW, known as the Monkton Pressure Regulation Station Project ("Project" or "Station"). The Study Area for the proposed Project is on a parcel owned by VGS located at street address of 282 Hollow Road in Monkton with an existing residence and various out-buildings, existing driveways to the west and east of the residence, an upland wooded area to the north, and wetland area located to the east. The cleared VELCO and VGS right-of-way runs north south through the parcel (see Natural Resource Map, Attachment 1). This technical memorandum presents the results of an assessment of the natural resources and conditions within the Study Area and nearby the Station, as well as potential impacts from the Project development to the 30 V.S.A. Section 248(b)(5) natural resources criteria listed below.

The natural resources assessment for the Project included database reviews and field surveys, and was designed to include an evaluation for the presence/absence of each resource type, and potential impacts to the following Act 250 Criteria, given due consideration by the Vermont Public Utility Commission ("PUC") under 30 V.S.A. Section 248 review for a Certificate of Public Good ("CPG"):

- Outstanding Resource Waters (10 V.S.A. § 1424a(d))
- Headwaters (§ 6086(a)(1)(A))
- Floodways (§ 6086(a)(1)(D))
- Streams (§ 6086(a)(1)(E))
- Shorelines (§ 6086(a)(1)(F))
- Wetlands (§ 6086(a)(1)(G))
- Rare or Irreplaceable Natural Areas ("RINA")(§ 6086(a)(8)), and
- Necessary Wildlife Habitat and Endangered Species (§ 6086 (a)(8)(A)).

A description of the site conditions in the Study Area, individual methodologies for each resource assessment, the findings, and an evaluation of the Project with respect to each criterion are presented below. VHB has relied upon selected Project information, the Project's 45-day filing letter submitted, the Project site plans and Vermont Agency of Natural Resources ("ANR") comments to assist in evaluating the potential Project impacts to natural resources.

40 IDX Drive, Building 100
Suite 200
South Burlington, Vermont 05403

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PROJECT DESCRIPTION

The Project, which is proposed to be constructed in 2018 after the necessary permits and approvals are secured, will consist of the installation and operation of a natural gas pressure regulation station for the purpose of providing natural gas service to residents of Monkton, Vermont. The Project components will include:

- Construction of new approximate 12-foot-wide approximately 400-foot-long crushed gravel surface access road within a 25-foot access right-of-way ("ROW") from the existing Hollow Road to the proposed Station location;
- Installation of electric and communication infrastructure to power and control the Station as well as gas distribution pipeline for future expansion. The infrastructure will include:
  - A small scale solar panel and battery system to provide primary power to the Station;
  - A cellular communication system for remote monitoring and operation of the Station; and
  - Potential installation of a backup communication cable and backup underground electric line installed along the proposed access road to the Station
- Installation of the pressure regulation station and related appurtenances to include:
  - An approximate 12-foot by 12-foot crushed gravel pad for the pressure regulation equipment enclosed by a 7-foot tall perimeter fence; and
  - Underground 2-inch steel gas pipe to connect to the existing 12-inch Addison Natural Gas Transmission Pipeline
- During construction, materials and equipment will be temporarily staged within the Project limits.

SITE DESCRIPTION

The Study Area occurs in the Champlain Valley biophysical region of Vermont, within Little Otter Creek Watershed. The Study Area is approximately 2.6-acres in size, and includes the entire Project area as well as 100-foot buffer. The Study Area also encompasses the proposed access road where the underground utility infrastructure is planned. The Study Area is predominantly forested land with an existing home homestead, out-buildings and driveways. The Study Area is within the Little Otter Creek watershed, and there are no Vermont Hydrography Dataset ("VHD") features within the Study Area. There are two Vermont Significant Wetland Inventory features located just outside of the Study Area; one to the south across the Hollow Road and one outside the western edge of Study Area. Topography includes elevations ranging between 400 feet above sea level ("asl") in the southwest portion of the Study Area to 460 feet asl in the northeast portion near the proposed Station location. The Natural Resources Conservation Service ("NRCS") soil map units within the Study Area are Berkshire and Marlow extremely stony loams and Muck and Peat. Representative photographs of the Study Area are included in Attachment 2.

The Addison Natural Gas Phase 1 Study Area overlaps and is adjacent to, the Project and was studied by VHB at various times between 2012 and 2016. The ANGP Study Area and associated natural resources that are nearby the Project are shown on the Natural Resource map in Attachment 1.

SECTION 248 NATURAL RESOURCES CRITERIA

<u>Outstanding Resource Waters (10 V.S.A § 1424A (D))</u>

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The Vermont Water Quality Standards ("VWQS", effective January 15, 2017) (ANR 2017a), under section 1-03D, state that the Secretary of ANR may, under 10 V.S.A. Section 1424(a), designate Outstanding Resource Waters ("ORW"). The following waterways have been classified as ORWs:

1. Batten Kill River, Towns of East Dorset and Arlington;
2. Pike's Falls/Ball Mountain, Town of Jamaica;
3. Poultney River, Towns of Poultney and Fair Haven; and
4. Great Falls, Ompompanoosuc River, Town of Thetford.

Prospective ORWs currently under review include portions of Big Falls Missisquoi River, Halifax Gorge, Huntington Gorge, Lily Pond, NB Winooski River, New Haven River, Nulhegan River, Rock River, White River, and Lake Willoughby. The Study Area was reviewed against this list to determine if it is located within the vicinity of any listed or prospective ORW. There are no waters which intersect the Project or in the Project vicinity that have been designated or prospective as an ORW, and therefore, the Project will not result in any impact under this criterion.

Headwaters (§ 6086(a)(1)(A))

VHB analyzed available information, including soils data, topographic maps, and state-mapped public water supply source protection areas, as well as field reviewed, to determine if the Study Area is located on any lands that meet the Headwaters criterion of V.S.A. § 6086(a)(1)(A) as incorporated in the Section 248(b) review. If located in a headwater, a project is required to meet any applicable health and environmental conservation department regulations regarding reduction of the quality of the ground or surface waters flowing through or upon lands that are not devoted to intensive development, which the Study Area is not. The sub-criteria for headwaters determination are as follows:

i. Headwaters or watersheds characterized by steep slopes and shallow soils; or
ii. Drainage areas of 20 square miles or less; or
iii. Above 1,500 feet elevation; or
iv. Watersheds of public water supplies designated by ANR; or
v. Areas supplying significant amounts of recharge waters to aquifers.

Based on VHB's assessment of the Study Area, which included both "desktop" and field review, the Study Area is not located in a headwaters area. The Study Area does meet headwaters subcriteria ii as the on-site drainage area at the point where Project runoff would discharge to state waters is less than 20 square miles. Based on VHB's assessment, the Study Area does not meet the additional headwaters criteria as it is not located on land characterized by steep slopes and shallow soils, is located below 1,500 feet in elevation and is not located within a watershed of public water supplies or an area that supplies significant amount of recharge waters to aquifers; therefore, it is VHB's opinion that the Project site should not be considered a headwaters location.

Additionally, the Project will not produce wastewater or other pollutants and stormwater runoff will be appropriately managed during construction and operation. In brief, the Project will adhere to the applicable requirements of the Vermont Department of Environmental Conservation ("DEC") stormwater discharge authorizations. As such, the Project will not adversely impact ground or surface water quality and the Project will meet applicable health and DEC regulations regarding the quality of groundwater and surface waters.

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Floodways (§ 6086(a)(1)(D))

The Act 250 Floodway criterion (10 V.S.A. § 6086(a)(1)(D)), as incorporated into Section 248 review, takes into consideration a project's effect on both floodways and floodway fringes. The term "floodway" is defined to mean "the channel of a watercourse which is expected to flood on an average of at least once every 100 years and the adjacent land areas which are required to carry and discharge the flood of the watercourse." (10 V.S.A. § 6001(6)). The term "floodway fringe" is defined as "an area which is outside of a floodway and is flooded with an average frequency of once or more in each 100 years." (Id. § 6001(7)). A project's impacts are considered with respect to both flood inundation and fluvial erosion hazards pursuant to ANR Flood Hazard Area and River Corridor Protection Procedure, (ANR 2014). The Flood Hazard Area and River Corridor Protection Procedure addresses both inundation risks as represented by Federal Emergency Management Agency ("FEMA")-mapped flood information and potential fluvial erosion risks associated with the geomorphic principles necessary to achieve stable fluvial processes.

The River Corridor consists of the meander belt or fluvial erosion hazard area, which is defined as the lateral width of a stream corridor that may be subject to fluvial erosion from stream channel lateral migration as well as a 50-foot riparian buffer outside of this meander belt (ANR 2014). The meander belt is typically determined by geomorphic assessments of channel bank-full width, meander centerline, confining lateral topography, channel type, and current channel adjustments; which is then translated into the channel-width to belt-width ratio, dependent on stream sensitivity type and adjacent landform.

VHB reviewed the best available FEMA Flood Insurance Maps for the Town of Monkton to determine if the Study Area is situated within designated special flood hazard areas, floodways or floodway fringe areas (synonymous with 100-year floodplains). VHB also reviewed available mapping from the State of Vermont River Corridor Mapping. Based on the review of FEMA data and the River Corridor Mapping, the Study Area is located adjacent to, but outside of, a FEMA designated Zone A (100-year flood area), and the Station is located outside of any lands that meet the floodways criterion. DEC Floodplain Manager David Rosa visited the site on October 11, 2017 to confirm the Station location. Based on the natural resources field delineations, there is a single intermittent stream (2017-SC-1) within the Study Area located adjacent to the Hollow Road. Stream 2017-SC-1 does not include a proposed River Corridor. Furthermore, the Project Site is located more than 50-feet from the stream and would avoid impacts to any riparian buffer for this feature. As such, the Project would not restrict or divert the flow of flood waters (floodway or floodway fringe), or endanger the health, safety, and welfare of the public, riparian, or downstream landowners during flooding or from potential erosion.

Streams (§ 6086(a)(1)(E))

This Act 250 criterion, as incorporated into Section 248 review, requires that projects will, when feasible, maintain natural stream channel condition, and will not endanger the health, safety, or welfare of the public or adjoining landowners (10 V.S.A. § 6086(a)(1)(E)). VHB Environmental Scientists conducted stream delineation and assessment work within the Study Area on September 24, 2015 to map any on-site stream channels.

When applicable, stream delineation flagging type is conducted pursuant to the ANR *Guidance for Agency Act 250 and Section 248 Comments regarding Riparian Buffers* ("ANR Riparian Buffer Guidance") (ANR 2005). Stream determinations and Ordinary High Water ("OHW") width follows guidance provided in the United States Army Corps of Engineers

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("USACE") *Regulatory Guidance Letter: Subject- Ordinary High Water Identification* (USACE 2005). Stream Top of Bank ("TB") and Top of Slope ("TOS") are flagged in the field per ANR 2005. Stream TB and TOS are flagged on larger channels and stream center-line is flagged for smaller channels, and labeling includes the stream ID and flag number. OHW limits are flagged when applicable. Stream flow regimes are preliminarily classified as ephemeral, intermittent, or perennial and are determined based on qualitative observations of instream hydrology indicators at the time of observation, as well as geomorphic characteristics, and are subject to professional judgment. Stream features are located in the field using a sub-meter capable Trimble GPS unit and post-processed using Trimble Pathfinder software. Riparian buffers adjacent to streams and rivers, consistent with the ANR Riparian Buffer Guidance, are designated for all natural perennial and intermittent stream channels when applicable.

No VHD-mapped streams are found within the Study Area and the waters and the Project is located within the Little Otter Creek Watershed.

During field surveys, VHB delineated one stream segment within the Study Area (see Natural Resource Map, Attachment 1). Further details characterizing the stream channels are provided in the Summary of Delineated Streams (Attachment 3). Stream 2017-SC-1 (Unnamed tributary) is a small, intermittent channel that runs in a westerly direction along the Hollow Road in the southwest portion of the Study Area. As the stream is intermittent, a 50-foot riparian buffer was applied to this stream and the adjacent riparian Class II wetland (2017-1). The Project's proposed access road would intersect the 50-foot stream buffer in the location where it is also a 50-foot Class II wetland buffer. These impacts are discussed under the wetlands criterion (§ 6086(a)(1)(G)) below. There are no direct impacts to the streams and adherence to the *Low Risk Site Handbook for Erosion Prevention and Sediment Control* will ensure there are no potential indirect impacts to streams from sediment runoff during construction. As such, the Project will not result in adverse impacts to stream conditions or health.

Shorelines (§ 6086(a)(1)(F))

Shorelines are defined under Act 250, as incorporated into Section 248, as the land adjacent to the waters of lakes, ponds, reservoirs, and rivers. Shorelines include the land between the mean high water mark and the low water mark of such waters (Argentine 2008). The Study Area was reviewed against these criteria to determine if it is located on any shoreline areas. If a project does occur within Shorelines, the following shoreline management criteria are required to be met:

(i) retain the shoreline and the waters in their natural condition;
(ii) allow continued access to the waters and the recreational opportunities provided by the waters;
(iii) retain or provide vegetation which will screen the development or subdivision from the waters: and,
(iv) stabilize the bank from erosion as necessary with vegetation cover.

The Study Area does not include land adjacent to the waters of lakes, ponds, reservoirs, and rivers. Therefore, the Project will not impinge on current shoreline condition, recreational use, existing riparian vegetation, or result in decreased bank stability, and will not have any undue adverse impacts on areas defined as shorelines.

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Wetlands (§ 6086(a)(1)(G))

The wetlands criterion under Act 250, as incorporated into Section 248, requires that the proposed project comply with the Vermont Wetland Rules ("VWR") (NRB 2017). The VWR regulates significant wetlands (Class I and Class II wetlands) and their buffers. Impacts to Class III wetlands are not considered under Act 250 Criterion 1(G), however are generally reviewed under Section 248(b)(5) through consideration of the potential for undue adverse impacts on the natural environment. Further, impacts to all wetlands are regulated by the federal USACE Section 404 permit program, as well as the related DEC Section 401 Water Quality Certification review process.

VHB Environmental Scientists conducted wetland delineation fieldwork within the Study Area in July 2017. Wetland delineations are made pursuant to applicable methodologies outlined in *the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region Routine Determination Method* (USACE 2011). Wetlands are identified in the field with pink flagging. Field notes are taken to record information such as proposed wetland classifications, general characteristics, potential functions and values of the wetland, any unique qualities observed during the site assessment, along with other considerations relevant to support site findings. Wetlands are classified in accordance with the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979). Wetland functions and values are evaluated based on the field notes and observations according to the 2010 VWR [(the VWR has since been updated (ANR 2017b)]. When applicable, wetland features are located in the field using a sub meter capable GPS unit.

VHB identified one wetland (2017-1) within the Study Area. No potential vernal pools were noted during the field assessments. Below is a summary of the wetland identified by VHB, as depicted in the map in Attachment 1:

- Wetland 2017-1 would be presumed state-significant and therefore Class II, because it is hydrologically connected to a wetland complex shown on the Vermont Wetland Inventory maps (VWSI). Wetland 2017-1 provides VWR functions, all at lower levels due to its small size, including water storage for flood water and storm runoff (5.1), surface and groundwater protection (5.2), wildlife habitat as it hydrologically connects to an open water body (5.4), and bank stabilization from persistent woody and non-woody vegetation adjacent to the stream providing erosion control through binding and stabilization (5.10). Evidence of wetland hydrology observable at the time of delineation included Water-Stained Leaves (B9), Saturation (A3), and Thin Muck Surface (C7). Secondary hydrology such as Drainage Patterns (B10), and Geomorphic Positioning (D2) were also observed. The dominant emergent wetland vegetation in wetland 2017-1 are *Impatiens capensis, onoclea sensibilis, Solanum dulcamara,* and *Geum canadense*. Shrub cover where present is characterized by *Cornus amomum*. The primary hydric soil indicator observed in wetland 2017-1 is Depleted Matrix (F3).

DEC Wetland Program ecologist Zapata Courage reviewed the site on October 11, 2017 and confirmed the wetland delineations within the Study Area. Also, as a result of the visit and request by DEC, the natural resource mapping includes an approximate wetland and associated 50-foot buffer in area to the south of the Hollow Road, across the street from the Project. There are no impacts proposed to the wetland or buffer associated with the proposed Station.

The summary spreadsheet in Attachment 3 details the wetland characteristics relative to the criteria for classifying significant wetlands under the VWRs, as well as VHB's presumed wetland classification under the current VWR, and a

summary of the VWR functional assessment. USACE Wetland Determination Data Forms have been completed in which data is collected along the wetland and upland boundary, and are included in Attachment 4.

The Project has been designed to avoid any activity within Class II wetland areas but does include minor impacts within a Class II wetland buffer. The buffer impacts are associated with the proposed access road and would occur within a buffer area that is currently cleared and used for occasional vehicle access. The exact quantity of buffer impacts will be determined once final construction plans are issued, but it is estimated at approximately 0.04-acres. As such, VGS anticipates submitting a request for authorization under the Vermont Wetland General Permit to allow the buffer impacts. The Project will not require a federal Clean Water Act Section 404 Vermont General Permit ("GP") as the Project avoids placing fill within a wetland. As such, in our opinion, the Project will not result in undue adverse impacts to wetlands, significant or otherwise.

Rare or Irreplaceable Natural Areas (RINA) (§ 6086(a)(8)), and Necessary Wildlife Habitat and Endangered Species (§ 6086(a)(8)(A))

From Act 250, as incorporated into Section 248 review, a project must be shown to have no undue adverse effect on Rare or Irreplaceable Natural Areas ("RINA") (§ 6086(a)(8)). Additionally, a project must not destroy or significantly imperil Necessary Wildlife Habitat ("NWH") or any Endangered Species (§ 6086(a)(8)(A)).

RINA
Significant natural communities are deemed RINA as part of the four-part test required by Act 250 Criterion 8. Determinations of "Significance" are made after utilizing a combination of community ranking, current condition (age, degree of disturbance), and landscape context (size, degree of fragmentation) to determine an "Element (or Community) Occurrence Ranking". Per the Vermont Fish and Wildlife Department ("FWD"), rare (S1 and S2) natural communities can be considered significant when quality-ranked A, B, or C. Uncommon (S3) and common (S4) types require a quality rank of A or B to be considered significant. Very common (S5) types require an A-rank (FWD 2014). Significant natural communities can be deemed RINA under Criterion 8, based on the combination of the natural community rarity and quality ranking. Additional considerations for RINA include the presence of rare, threatened, or endangered ("RTE") species in these communities, as well as overall natural community associations.

To identify potential occurrences of known significant natural communities, VHB researched the Vermont Natural Heritage Inventory ("NHI") database for the presence of known Element Occurrences ("EOs") of significant natural community types within and adjacent to the Study Area. A two-mile radius was used when querying the NHI database (access September 29, 2017) and information specific to each EO was identified. VHB field staff also reviewed the on-site natural community or vegetative assemblage types. Descriptions found in *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont* (Thompson and Sorenson 2005) were used to define the natural community parameters as well as characterize the natural communities within the Study Area. Field observations on July 7, 2017 and mapping data were used to identify on-site natural communities.

Through database review, no known significant natural community EO is mapped within the Study Area. The closest known significant natural community to the Project is Red Maple-Black Ash Seepage Swamp, which is ranked S4 in Vermont, and is located approximately 1 mile to the north. There is also a Northern White Cedar Swamp (S3), Calcerous Re Maple-Tamarack Swamp (S2), Red Maple-Sphagnum Acidic Basin Swamp (S3), Dry Oak Forest (S3), two

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Dry Oak-Hickory-Hophornbeam Forests (S3), and Pitch Pine-Oak-Heath Rocky Summit S1), located within two miles of the Project. During the field survey, VHB corroborated that there are no significant natural communities nor other area that could constitute a RINA within the Study Area.

Endangered Species
Endangered Species include those that are defined as "threatened" or "endangered" on the Vermont state endangered species list and the state threatened species list, and that are protected under the Vermont Endangered Species Rule. Those species protected under the federal Endangered Species Act are included as well. Rare, but otherwise not protected species are often included under this criterion as part of a Project's potential impacts to the natural environments.

To identify the potential occurrence of rare, threatened or endangered species, particularly those that are federal or Vermont-listed threatened or endangered, and to quantify available on-site habitat condition relative to each, VHB researched the NHI database for the presence of known EOs of rare, threatened, and endangered species within and adjacent to the Study Area, both terrestrial and aquatic. A three-mile radius was used when querying the NHI database (accessed in June 2017 and then again on September 30, 2017). The list of known EOs from within the vicinity of the Study Area is then referenced against the habitat characteristics for the species and compared to the available habitats within the Study Area. Additionally, VHB queried the U.S. Fish and Wildlife Service ("USFWS") Information, Planning, and Conservation ("IPaC") system project review database (see Attachment 7) to identify any federally listed RTE species within the Project region.

Based on the review of the NHI database, there are no NHI-mapped RTE species known within the Study Area. There are six mapped plant species and four mapped animal species within a one mile radius of the Project. The closest mapped EO is a plant called harsh sunflower (*Helinanthus sturmosus*) (S3, state threatened), located to the north, approximately 75-feet from the Study Area. A list of the other RTE plants within one mile of the Study Area is included in Attachment 5. Note that the harsh sunflower population was field mapped by VHB during the summer of 2016 in support of the ANGP. VHB conducted a plant survey during the field survey within the Study Area on July 25, 2017. During the plant survey, a general list of plants observed within the Study Area was kept, which is included in Attachment 6. From this survey, no threatened or endangered plant species were observed within the Study Area, nor were any other Vermont rare or protected plant species observed within the Study Area. Areas of suitable habitat located within the Study Area were surveyed for harsh sunflower during the field assessment, however no occurrences were found.

Another mapped EO close to the Project is a state-ranked *Ambystoma jeffersonianum* (Jefferson salamander, S2), located approximately 1,500-feet east of the Project on Monkton Road. The amphibious species requires aquatic ecosystems for living and reproducing. Although preferred habitats can be found within the Study Area, no streams or waters are projected to be impacted by the proposed Project activities.

Of the eight-remaining mapped EOs within a one mile radius of the Study Area, several have preferred habitat types that are found within the Study Area, however none of the species are state or federally listed and no element occurrences were observed during the Site visit and field survey. The table in Attachment 5 provides additional results of the EO database search, on-site habitat characterizations, and survey recommendations. There are no known federal-listed plant species in the vicinity of the Project (see USFWS IPaC Official Species List, Attachment 7).

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From the USFWS database review, the Study Area occurs in the known range for the federally threatened and Vermont-endangered northern long-eared bat ("NLEB") (*Myotis septentrionalis*) and the federally and Vermont-endangered Indiana bat (*Myotis sodalis*). However, no critical habitat within or adjacent to the Project has been designated for this species by USFWS (see Attachment 7). From the NHI EO database search described above, no NLEB or Indiana bat occurrences or hibernacula are documented within two miles of the Study Area. During the site visit on July 25, 2017, five potential roost trees ("PRTs") were documented within the Study Area. In general, tree clearing can have direct or indirect impacts to protected forest bats such as NLEB or Indiana bat. The Project would impact less than 0.4 acres of trees through clearing and cutting and would avoid all impacts to the PRTs. Based on the ANR Atlas Landcover Summary tool, there are approximately 1,450-acres of forestland within a one-mile radius of the Project. Therefore, the area of tree cutting will be significantly less than 1-percent of the existing forested area. As such, based on review of the *Regulatory Review Guidance for Protecting NLEB and Their Habitats* (FWD 2017), it is VHB's understanding that no limitations or seasonal restrictions on cutting would apply.

As such, it is VHB's opinion that the Project will not impact any known RTE species and there would be no adverse effects on known listed threatened or endangered species resulting from the Project.

Necessary Wildlife Habitat
The types of habitat that typically constitutes Necessary Wildlife Habitat ("NWH") include deer wintering habitat, black bear mast stands (concentrated American beech and oak species), black bear forested wetland habitat, black bear travel corridors, or in some cases, moose overwintering area.

VHB researched available deer wintering area, bear mast stand, and bear wetland habitat mapping provided by the ANR database to determine if the Study Area is situated within or adjacent to mapped NWH. From this, it was determined that the Study Area does not support NWH. The closest ANR-mapped deer wintering area is approximately 1,100-feet away, southwest of the Study Area. No NWH is known to occur within the vicinity of the Study Area, nor was any identified within the Study Area.

Based on VHB's review and evaluation of available database information and habitat information gathered during field surveys for the Study Area, VHB concludes that no RTE species, RINA or natural communities in general, or NWH would be impacted by construction of the Project.

Attachments:

1. Natural Resources Map
2. Representative Site Photographs
3. Summary of Delineated Wetlands & Streams
4. USACE Wetland Determination Data Forms
5. Potential Rare, Threatened, and Endangered Plant Species and Significant Natural Communities Summary in the Project Region and Onsite Habitats
6. Plant Species Checklist
7. USFWS IPaC Official Species List – Addison County, Vermont

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FWD. 2017. Regulatory Review Guidance for Protecting Northern Long-eared Bats and Their Habitats. February, 2017. Received from FWD.

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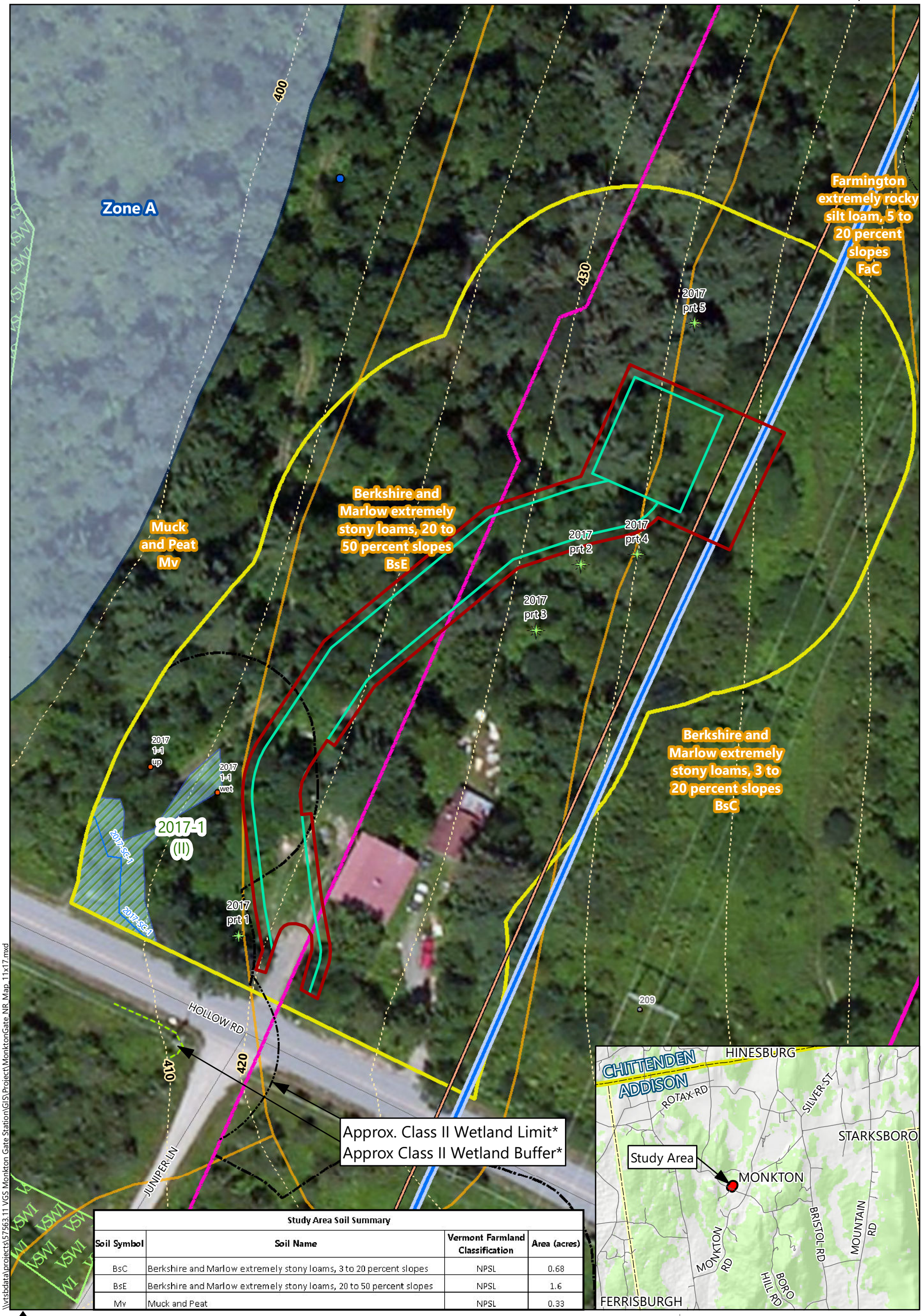
ATTACHMENT 1

November 07, 2017



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Study Area Soil Summary

Soil Symbol	Soil Name	Vermont Farmland Classification	Area (acres)
BsC	Berkshire and Marlow extremely stony loams, 3 to 20 percent slopes	NPSL	0.68
BsE	Berkshire and Marlow extremely stony loams, 20 to 50 percent slopes	NPSL	1.6
Mv	Muck and Peat	NPSL	0.33

0 25 50 100 Feet

- Limits of Disturbance (Tri-Mont)
- Permanent Easement (Tri-Mont)
- Poles (VELCO)
- ROW (VELCO)
- ANGP Study Area (VHB)
- Project Study Area (VHB)
- Pipeline Centerline As-Built (VGS)
- Stream (VHB)
- Jurisdictional Ditch (VHB)
- Wetland (VHB)
- Ripparian Buffer (VHB)
- 50-ft Wetland Buffer (VHB)
- Delineation Data Point (VHB)
- Potential Roost Tree (VHB)
- RTE Plant Area (VHB)
- NRCS Soils (VCGI)
- Private Wells (ANR, 2016)
- Stream (VHD, 2013)
- Waterbody (VHD, 2013)
- Zone A Flood Boundary (FEMA/VHB)
- VSWI Wetland (ANR, 2014)
- County Boundary (VCGI)
- Town Boundary (VCGI)
- Town Road (VTrans)
- 10 ft. Contour (VCGI)

Features Not Present in Map Extent:
Public Wells (ANR)
GW Protection Area (ANR)
SW Protection Area (ANR)
River Corridor (ANR)
Bear Crossing (VT FWD)
Bear Habitat (VT FWD)

*As observed during DEC site visit Octoober 12, 2017

Monkton Pressure Regulation Station Project | Monkton, Vermont

Natural Resources

Sources:
Tri-Mont Engineering (2017);
VCGI (Vermont Center for Geogrpahic Information - 2012-2014);
VELCO (Vermont Electric Power Company - 2014-2017);
VGS (Vermont Gas, 2014-2017);
VTrans (Vermont Agency of Transportation - 2017);
VHB (2017).

ATTACHMENT 2

Representative Natural Resources Site Assessment Photographs
Monkton Pressure Regulation Station Project
Vermont Gas Systems
Monkton, Vermont

Photograph 1. View of the existing Vermont Gas ROW adjacent to Study Area, from Hollow Road, facing north. Photograph taken by VHB on 9/8/2017.

Photograph 2. View of the existing Vermont Gas ROW running adjacent to Study Area, facing northeast. Photograph taken by VHB on 9/8/2017.

Photograph 3. View of existing structures and access path on the northing portion of the Study Area, facing north. Photograph taken by VHB on 9/8/2017.

Photograph 4. View of the exciting access path, facing northeast. Photograph taken by VHB on 7/25/2017.

Photograph 5. View of the proposed gate pressure station location. Photograph taken by VHB on 7/25/2017.

Photograph 6. View of Wetland 2017-1, looking northwest across the dense vegetation. Photograph taken by VHB on 7/25/2017.

Photograph 7. Wetland 2017-1, looking southwest across the dense vegetation. Photograph taken by VHB on 7/25/2017.

Photograph 8. View of Stream 2017-SC-1, looking north. Photograph taken by VHB on 7/25/2017.

Photograph 9. View of Stream 2017-SC-1, looking south. Photograph taken by VHB on 7/25/2017.

ATTACHMENT 3

Vermont Gas Systems \ Monkton Pressure Regulation Station Project
Monkton, Vermont
Summary of Delineated Wetlands and Streams
Prepared by VHB (A. Lanclos)
October 2, 2017

VHB Delineated Wetlands										
Wetland ID	Delineated Area (Square Feet)[1]	Cowardin Classification [2]	Vermont Wetland Rules Classification						Typical Vegetation	Comments
			Contiguous to a VSWI-mapped Wetland?	Riparian Wetland Contiguous to Stream Channel? (Flow Regime)[3]	VWR Section 4.6 Presumptions [4]	VWR Section 5 Functional Criteria Presence/ Significance		VHB Proposed VWR Classification [6]		
						Type[5]	VHB-Proposed Significant?			
2017-1	**1,873**	PSS/PFO	Yes	Yes	a,b,c	5.1(L), 5.2(L), 5.4(L), 5.10(L)	Yes	II	*Cornus amomum, Impatiens capensis, onoclea sensibilis, Solanum dulcamara, Geum canadense,*	Channel (2017-SC-1) draining from upland to wetland; feature drains to VSWI

[1]All wetlands field-delineated per the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northeast and North Central Region. U.S. Army Corps of Engineers. 2011; Delineated Wetlands that extend outside the Study Area are **Bold.**

[2]Classification follows Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitat of the United States. U.S. Fish and Wildlife Service. FWS/OBD-79/31. 103pp.

[3]Wetland contiguity to streams as defined in the Vermont ANR 12/9/05 *Guidance for Agency Act 250 and Section 248 Comments Regarding Riparian Buffers* and confirmed if a delineated perennial or intermittent stream channel inflows, through flows, and outflows from a delineated wetland (ephemeral channels not typically being subject to ANR Riparian Buffer Guidance). The vegetative assemblage or natural community type is used when determining riparian vegetation function. Flow regime determined based on qualitative observations of instream hydrology indicators and geomorphic characteristic and are subject to professional judgment (P=perennial, I=intermittent, E=ephemeral).

[4]Alpha-numeric codes correspond with Section 4.6 Presumptions , of the 2017 Vermont Wetland Rules.

[5]VWR Section 5: Functional Criteria for Evaluating a Wetland's Significance: 5.1=Water Storage for Flood Water and Storm Runoff, 5.2=Surface and Groundwater Protection, 5.3=Fish Habitat, 5.4=Wildlife Habitat, 5.5=Exemplary Wetland Natural Community, 5.6=Rare, Threatened or Endangered Species Habitat, 5.7=Education and Research in Natural Sciences, 5.8=Recreational Value and Economic Benefits, 5.9=Open Space and Aesthetics, 5.10=Erosion Control Through Binding and Stabilizing the Soil. (P)= Present, (H)=High, (L)=Low; Correspond to observed level of functionality

[6]VHB-Proposed VWR Classification is based on review and application of the VWR, particularly VHB's interpretation of Section 4.6 Presumptions and is subject to final determinations by the ANR-DEC.

VHB Delineated Streams												
Stream ID	Stream Name	Associated Wetlands	Average Ordinary High Water Width (OHW) Feet[1]	Dominant Substrate	Water Depth (Inches)	Bank Height (Inches)	Flow Regime (Ephemeral Intermittent or Perennial)[2]	ANR Mapped River Corridor (Yes or No)	VHB Mapped River Corridor (Yes or No)	Watershed Size (square miles) [3]	VWQS Classification (2014)[4]	Comments
2017-SC-1	N/A	2017-1	2	Gravel	1	1	Intermittent	No	No	< 0.5	B	Channel to wetland 2017-1 becomes defused in areas; minor flow some undercut banks

[1]U.S. Army Corps of Engineers (USACE). 2005. "Regulatory Guidance Letter. Subject: Ordinary High Water Mark Identification." No. 05-05.

[2]Stream flow regime determined based on qualitative observations of in stream hydrology indicators and geomorphic characteristic and are subject to professional judgment.

[3]Watershed size was determined from Vermont ANR Stream Alteration Regulatory Program mapping. Watershed Sizes Used as Guidance in Stream Alteration Regulations for the Town of Monkton.

[4]From the Vermont Water Quality Standards (Vt. Code R 12 004 052), Effective December 15, 2016 [Vermont Agency of Natural Resources (ANR) 2016].

[5]List of streams from the State of Vermont 2016 303(d) Assessment of the Condition of Vermont Waters. Priority Listing of Vermont Waters. http://dec.vermont.gov/watershed/map/assessment#Assessment (Vermont Department of Environmental Conservation (VT DEC) – Watershed Management

[6]If no ANR mapped river corridor is present, VHB proposed river corridor is applied pursuant to the DEC Flood Hazard Area and River Corridor Protection Procedure, Effective December 5, 2014, as applicable.

ATTACHMENT 4

vhb

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2017-1-1up

Project Site: **Monkton Pressure Regulation Station Project** City/County: **Monkton/Addison** Samp. Date: **7/25/2017**

Applicant/Owner: **Vermont Gas Systems** State: **Vermont** Sampling Point: **2017-1-1up**

Investigator(s): **MJ** Section, Township, Range:

Landform (hillslope, terrace, etc.): **hillslope** Local relief (concave, convex, none): **concave** Slope (%): **0-2%**

Subregion (LRR or MLRA): **LRR R** Lat: **44°14'20.163"N** Long: **73°9'2.186"W** Datum: **NAD 83**

Soil Map Unit: **Muck and Peat** NWI Class: **upland**

Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? **No** Normal Circumstances? **Yes**

Are Vegetation, Soil, or Hydrology naturally problematic? **No** (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	**YES**	Is This Sample Area Within a Wetland? **NO**
Hydric Soil Present?	**YES**	
Wetland Hydrology Present?	**NO**	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)	Water-Stained Leaves (B9)	
High Water Table (A2)	Aquatic Fauna (B13)	
Saturation (A3)	Marl Deposits (B13)	
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	
Sediment Deposits (B2)	Oxidized Rhizospheres on Living Roots (C3)	
Drift Deposits (B3)	Presence of Reduced Iron (C4)	
Algal Mat or Crust (B4)	Recent Iron Reduction in Tilled Soils (C6)	
Iron Deposits (B5)	Thin Muck Surface (C7)	
Inundation Visible on Aerial (B7)	Other (Explain in Remarks)	
Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

Surface Soil Cracks (B6)
Drainage Patterns (B10)
Moss Trim Lines (B16)
Dry-Season Water Table (C2)
Crayfish Burrows (C8)
Saturation Visible on Aerial (C9)
Stunted or Stressed Plants (D1)
Geomorphic Position (D2)
Shallow Aquitard (D3)
Microtopographic Relief (D4)
FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Depth (inches):

Water Table Present? Depth (inches):

Saturation Present? Depth (inches):

Wetland Hydrology Present? **NO**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators observed

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	**10 YR 3/1**	**100**					**SILT LOAM**	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

Histosol (A1)	Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	
Histic Epipedon (A2)	Thin Dark Surface (S9) (LRR R, MLRA 149B)	
Black Histic (A3)	Loamy Mucky Mineral (F1) (LRR K, L)	
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	
Stratified Layers (A5)	Depleted Matrix (F3)	
X Depleted Below Dark Surface (A11)	Redox Dark Surface (F6)	
Thick Dark Surface (A12)	Depleted Dark Surface (F7)	
Sandy Mucky Mineral (S1)	Redox Depressions (F8)	
Sandy Gleyed Matrix (S4)		
Sandy Redox (S5)		
Stripped Matrix (S6)		
Dark Surface (S7) (LRR R, MLRA 149B)		

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

2 cm Muck (A10) (LRR K, L, MLRA 149B)
Coast Prairie Redox (A16) (LRR K, L, R)
5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
Dark Surface (S9) (LRR K, L, M)
Polyvalue Below Surface (S8) (LRR K, L)
Thin Dark Surface (S9) (LRR K, L)
Iron-Manganese Masses (F12) (LRR K, L, R)
Piedmont Floodplain Soils (F19) (MLRA 149B)
Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
Red Parent Material (F21)
Very Shallow Dark Surface (TF12)
Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present? **YES**

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2017-1-1up**

	Absolute % Cover	Dom. Sp?	Indicator Status
Tree Stratum (Plot size: **30' RAD**)			
1. **Populus tremuloides**	**15**	**X**	**FACU**
2. **Juniperus virginiana**	**3**		**FACU**
3. **Carya cordiformis**	**3**		**FAC**
4. **Ulmus americana**	**3**		**FACW**
5. **Tilia americana**	**3**		**FACU**
6.			
7.			
	27	= Total Cover	
Sapling Stratum (Plot size: **15' RAD**)			
1. **Prunus serotina**	**15**	**X**	**FACU**
2. **Tilia americana**	**3**		**FACU**
3.			
4.			
5.			
6.			
7.			
	18	= Total Cover	
Shrub Stratum (Plot size: **15' RAD**)			
1. **Rhamnus cathartica**	**15**	**X**	**FAC**
2. **Rhus typhina L.**	**15**	**X**	**FACU**
3. **Cornus amomum**	**15**	**X**	**FACW**
4. **Prunus serotina**	**3**		**FACU**
5.			
6.			
7.			
	48	= Total Cover	
Herb Stratum (Plot size: **5' RAD**)			
1. **Onoclea sensibilis**	**63**	**X**	**FACW**
2. **Vitis L.**	**15**		
3. **Maianthemum racemosum**	**3**		**FACU**
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	81	= Total Cover	
Woody Vines (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test Worksheet:

Dominants OBL, FACW, FAC: **3** (A)

Dominants across all strata: **6** (B)

% Dominants OBL, FACW, FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply By:
OBL	x 1 =	
FACW **81**	x 2 =	**162**
FAC **18**	x 3 =	**54**
FACU **60**	x 4 =	**240**
UPL	x 5 =	
Sum: **159** (A)		**456** (B)

Prevalence Index = B/A = **2.87**

Hydrophytic Vegetation Indicators:

- ____ Dominance Test is > 50%
- **X** Prevalence Index is <= 3.0
- ____ Problematic Hydrophytic Vegetation[1] (explain)
- ____ Rapid Test for Hydrophytic Vegetation
- ____ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **YES**

Remarks: (If observed, list morphological adaptations below).

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

2017-1-1-wet

Project Site: **Monkton Pressure Regulation Station Project** City/County: **Monkton/Addison** Samp. Date: **7/25/2017**

Applicant/Owner: **Vermont Gas Systems** State: **Vermont** Sampling Point: **2017-1-1-wet**

Investigator(s): **MJ** Section, Township, Range:

Landform (hillslope, terrace, etc.): **down slope** Local relief (concave, convex, none): **convex** Slope (%): **0-2%**

Subregion (LRR or MLRA): **LRR R** Lat: **44°14'20.043"N** Long: **73°9'1.731"W** Datum: **NAD 83**

Soil Map Unit: **Muck and Peat** NWI Class: **PFO\PSS**

Are climatic/hydrologic conditions on the site typical for this time of year? **Yes** (If no, explain in Remarks.)

Are Vegetation, Soil, or Hydrology significantly disturbed? **No** Normal Circumstances? **Yes**

Are Vegetation, Soil, or Hydrology naturally problematic? **No** (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? **YES**

Hydric Soil Present? **YES**

Wetland Hydrology Present? **YES**

Is This Sample Area Within a Wetland? **YES**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

	Surface Water (A1)	X	Water-Stained Leaves (B9)
	High Water Table (A2)		Aquatic Fauna (B13)
X	Saturation (A3)		Marl Deposits (B13)
	Water Marks (B1)		Hydrogen Sulfide Odor (C1)
	Sediment Deposits (B2)		Oxidized Rhizospheres on Living Roots (C3)
	Drift Deposits (B3)		Presence of Reduced Iron (C4)
	Algal Mat or Crust (B4)		Recent Iron Reduction in Tilled Soils (C6)
	Iron Deposits (B5)	X	Thin Muck Surface (C7)
	Inundation Visible on Aerial (B7)		Other (Explain in Remarks)
	Sparsely Vegetated Concave Surface (B8)		

Secondary Indicators (minimum of two required)

	Surface Soil Cracks (B6)
X	Drainage Patterns (B10)
	Moss Trim Lines (B16)
	Dry-Season Water Table (C2)
	Crayfish Burrows (C8)
	Saturation Visible on Aerial (C9)
	Stunted or Stressed Plants (D1)
X	Geomorphic Position (D2)
	Shallow Aquitard (D3)
	Microtopographic Relief (D4)
	FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Depth (inches):

Water Table Present? Depth (inches):

Saturation Present? **X** Depth (inches): **surface**

Wetland Hydrology Present? **YES**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(in)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	**10 YR 2/1**	**100**					**MUCKY LOAM**	
3-6	**2.5 YR 6/2**	**100**					**COARSE SANDY LOAM**	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

	Histosol (A1)		Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
	Histic Epipedon (A2)		Thin Dark Surface (S9) (LRR R, MLRA 149B)
	Black Histic (A3)		Loamy Mucky Mineral (F1) (LRR K, L)
	Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)
	Stratified Layers (A5)	X	Depleted Matrix (F3)
	Depleted Below Dark Surface (A11)		Redox Dark Surface (F6)
	Thick Dark Surface (A12)		Depleted Dark Surface (F7)
	Sandy Mucky Mineral (S1)		Redox Depressions (F8)
	Sandy Gleyed Matrix (S4)		
	Sandy Redox (S5)		
	Stripped Matrix (S6)		
	Dark Surface (S7) (LRR R, MLRA 149B)		

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Indicators for Problematic Hydric Soils[3]:

	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	Coast Prairie Redox (A16) (LRR K, L, R)
	5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
	Dark Surface (S9) (LRR K, L, M)
	Polyvalue Below Surface (S8) (LRR K, L)
	Thin Dark Surface (S9) (LRR K, L)
	Iron-Manganese Masses (F12) (LRR K, L, R)
	Piedmont Floodplain Soils (F19) (MLRA 149B)
	Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	Red Parent Material (F21)
	Very Shallow Dark Surface (TF12)
	Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: **rock**

Depth (inches): **8"**

Hydric Soil Present? **YES**

Remarks:

(Adapted By: Douglas A. DeBerry, PhD, PWS, PWD)

VEGETATION - Use scientific names of plants.

Sampling Point: **2017-1-1-wet**

Tree Stratum (Plot size: **30' RAD**)	Absolute % Cover	Dom. Sp?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
		= Total Cover	
Sapling Stratum (Plot size: **15' RAD**)			
1. **Rhamnus cathartica**	**1**	**X**	**FAC**
2.			
3.			
4.			
5.			
6.			
7.			
	1	= Total Cover	
Shrub Stratum (Plot size: **15' RAD**)			
1. **Salix bebbiana**	**3**	**X**	**FACW**
2. **Cornus amomum**	**3**	**X**	**FACW**
3. **Viburnum recognitum**	**3**	**X**	**FAC**
4.			
5.			
6.			
7.			
	9	= Total Cover	
Herb Stratum (Plot size: **5' RAD**)			
1. **Impatiens capensis**	**63**	**X**	**FACW**
2. **Solanum dulcamara**	**15**		**FAC**
3. **Rubus hispidus**	**3**		**FACW**
4. **Equisetum arvense**	**1**		**FAC**
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	82	= Total Cover	
Woody Vines (Plot size: **15' RAD**)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Dominance Test Worksheet:

Dominants OBL, FACW, FAC: **5** (A)

Dominants across all strata: **5** (B)

% Dominants OBL, FACW, FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply By:
OBL		x 1 =
FACW	**72**	x 2 = **144**
FAC	**20**	x 3 = **60**
FACU		x 4 =
UPL		x 5 =
Sum:	**92** (A)	**204** (B)

Prevalence Index = B/A = **2.22**

Hydrophytic Vegetation Indicators:

- **X** Dominance Test is > 50%
- **X** Prevalence Index is <= 3.0
- ____ Problematic Hydrophytic Vegetation[1] (explain)
- ____ Rapid Test for Hydrophytic Vegetation
- ____ Morphological Adaptations

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and 3in (7.6cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20ft (6m) or more in height and less than 3in (7.6cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20ft (1 to 6m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size. Includes woody plants, except woody vines, less than approximately 3ft (1m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? **YES**

Remarks: (If observed, list morphological adaptations below).

ATTACHMENT 5

Vermont Potential Rare, Threatened, and Endangered Species and Natural Communities in the Project Region and Onsite Habitats Summary
Client: Vermont Gas Systems
Project: Monkton Pressure Regulation Station
Date: October 10, 2017
Prepared by: (VHB) A. Lanclos

	Species	Common Name	Type	State Rank	Global Rank	VT Status	Federal Status	Last Observed Date	Habitat Description[1]	Occurrence Description [2]	EO Mapped within Study Area (Yes/ No)	Potential for Habitat to Occur Onsite?	Survey Recommended? (yes/no)	Survey Recommended? Comments
Natural Heritage Element Occurrences, Uncommon Occurrences - 1 Mile Radius	*Ambystoma jeffersonianum*	Jefferson Salamander	animal	S2	G4	-	-	2007	vernal pools for breeding. Adults live in underground burrows or under debris on the moist forest floor	Huizenga Crossing	No	Yes	No	No suitable habitat within impacted areas; Not a listed species
	Ambystoma laterale	Blue-spotted Salamander	animal	S3	G5	-	-	2006	Lowland swamps and marshes and surrounding uplands with sandy or loamy soils	Monkton Road, Huizenga Farm	No	No	No	No suitable habitat within Study Area; Not a listed species
	Amerorchis rotundifolia	Small Round-leaved Orchis	plant	SH	G5	-	-	1881	semi-open fens, and large peatland complexes	West Monkton Swamp and Cedar swamp at the base of Florone Mt.	No	No	No	No suitable habitat within Study Area; Not a listed species
	Calypso bulbosa var. americana	Fairy Slipper	plant	S1	G5T5	T	-	1917	forests and woodlands, decaying vegetation covering the forest floor. It may also grow in sphagnum bogs, moss, or on top of rotting logs and tree stumps	Mt. Flourona Swamp. Deep cedar swamps in old growth, Monkton	No	Yes	Yes	No fairy slipper populations found on Site during survey
	Cirsium discolor	Field Thistle	plant	S2	G5	-	-	2012	Widespread throughout North America; in open forests, fields and meadows.	Edge of Pond Road	No	Yes	No	Not a listed species
	Euphyes dion	Dion Skipper	animal	S2	G4	-	-	2007	oepn to shrubby sedge dominated wetlands and occasionally in openings in red maple swamp	Hollow Road, Monkton	No	No	No	No suitable habitat within Study Area; Not a listed species
	Helianthus strumosus	Harsh Sunflower	plant	S2S3	G5	T	-	2016	Habitats include thinly wooded, upland savannas, borders of upland woodlands, prairies, limestone glades, areas along railroads, and abandoned fields.	Managed powerline corridor in Monkton	No	Yes	Yes	No harsh sunflower populations found on Site during survey
	Persicaria hydropiperoides	Mild Water-pepper	plant	S3	G5	-	-	1893	sunny to partially shaded seeps, edges of ponds, and ditches	in streams of Mount Florona Swamp	No	Yes	No	Not a listed species
	Poanes viator	Broad-winged Skipper	animal	S2S3	G5	-	-	2007	Freshwater and saltwater marshes.	Hollow Road between Monkton Road and Bennett Road, Monkton and west side of Cedar Lake	No	Yes	No	Not a listed species
	Proserpinaca palustris	Marsh Mermaid-weed	plant	S2S3	G5	-	-	2012	Fens, lakes, ponds, rivers, streams, shores of rivers or lakes, swamps, wetland margins (edges of wetlands)	Vergennes Road, Monkton	No	Yes	No	Not a listed species
	Symphyotrichum boreale	Boreal Aster	plant	SH	G5	-	-	1879	often calcareous soil of fens, wet meadows, thickets, valleys, bogs	Cedar Swamps of West Monkton	No	Yes	No	Not a listed species
Natural Heritage Element Occurrences, Significant Natural Communities - 2 Mile Radius	*Calcareous Red Maple-Tamarack Swamp*		Natural Community	S2	GNR	-	-	2001	found in regions with lower elevations and calcareous bedrock; groundwater seepage is evident at their margins, rare in VT but abundant in bordering states	10 acre swamp sits on the mid-lower slope of Mt. Fuller in Monkton	No	No	No	No suitable habitat within Study Area
	Dry Oak Forest		Natural Community	S3	GNR	-	-	2012	Occasionally found on acidic ridgetops in the Champlain Valley and Taconic Mountains	Mount Fuller	No	No	No	No suitable habitat within Study Area
	Dry Oak-Hickory-Hophornbeam Forest		Natural Community	S3	GNR	-	-	2012	Warmer parts of vermont as well as states to the south and west. Most occur in the Champlain Valley and Toconic Mountains.	Mount Fuller	No	No	No	No suitable habitat within Study Area
	Pitch Pine-Oak-Heath Rocky Summit		Natural Community	S1	GNR	-	-	2012	found on hilltops, and bedrock exposures, rare stateweide only kown in Vernon, Dummerston, Pownal, Wallingford, and Sailsbury.	Mount Fuller	No	No	No	No suitable habitat within Study Area
	NorthernWhite Cedar Swamp		Natural Community	S3	GNR	-	-	2002	In Vermont, they occur in the Northeast Highlands, Northern VT Piedmont and the northern Champlain Valley. Do not occur in the Green Mts.	Pond Brook Cedars off Bristol Road	No	No	No	No suitable habitat within Study Area
	Red Maple-Black Ash Seepage Swamp		Natural Community	S4	GNR	-	-	2005	Common at lower to moderate elevation in warmer regions of Vermont	Between Pond Road and Weisenbach Road	No	No	No	No suitable habitat within Study Area
	Red Maple-Sphagnum Acidic Basin Swamp		Natural Community	S4	GNR	-	-	2005	Basins are often configured along streams and rivers. Standing water generally occurs for half of the growing season or longer. The acidic soils are poor in nitrogen and phosphorus and often have a high iron content.	Between Pond Road and Weisenbach Road	No	No	No	No suitable habitat within Study Area

[1]Potential sources for habitat description listed below:

Brown, Paul Martin. 2007. *Wild Orchids of the Northeast: New England, New York, Pennsylvania, and New Jersey*. Uni
Conant, Roger and Collins, Joseph T. 1998. *Peterson Field Guides: Reptiles and Amphibians*. Houghton Mifflin Company, Boston.
EFloras.org. http://www.efloras.org/index.aspx
Gilman, Arthur V. 2015. New Flora of Vermont. New York Botanical Garden.
Haines, Arthur. 2011. *Flora Novae Angliae*. New England Wildflower Society/Yale University Press, New Haven, CT . 973 Pp.
Illinois Natural History Survey. http://www.inhs.uiuc.edu/animals_plants/mollusk/musselmanual/TofC.html
Langdon, Richard W., Ferguson, Mark T. and Cox, Kenneth M. 2006. *Fishes of Vermont*. Vermont Department of Fish and Wildlife.
Maine Department of Agriculture, Conservation and Forestry. Accessed: http://www.maine.gov/dacf/mnap/features/rare_plants/plantlist.htm
Newcomb, Lawrence. 1977. *Newcomb's Wildflower Guide*. Little, Brown, and Company, Boston
Northern Prairie Wildlife Research Center. http://www.npwrc.usgs.gov/resource/distr/insects/tigb/usa/49.htm
Seymour, Frank Conkling. 1982. *The Flora of New England*. 2d ed. Phytologia Memoirs 5. Plainfield, NJ: Harold N. Moldenke and Alma L. Moldenke. 611 p. [7604]
Thompson, Elizabeth H. and Sorenson, Eric R. 2005. *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont*. Vermont Department of Fish and Wildlife and The Nature Conservancy.
Vermont Natural Resources Atlas, Accessed September 2015 and February 2017. Element Occurrence Reports

ATTACHMENT 6

Client: Vermont Gas Systems
Project: Monkton Pressure Regulation Station
Species Checklist[1] - Partial Floristic Inventory
Date: October 3, 2017
Survey Dates: July 25, 2017
Field Investigators: M. Jackman

CODE	Scientific Name [1]	Common Name	Family	Forested Upland	Palustrine Scrub-Shrub Wetland	VT Rarity Rank[2]	Non-Native Invasive Species [3]
acru	Acer rubrum L.	red maple	Aceraceae	X	X		
acsa3	Acer saccharum Marshall	sugar maple	Aceraceae	X			
anqub2	Anemone quinquefolia L. var. bifolia Farw.	twoleaf anemone	Ranunculaceae	X			
arcti	Arctium L.	burdock	Asteraceae	X			
assy	Asclepias syriaca L.	common milkweed	Asclepiadaceae	X			
beth	Berberis thunbergii DC.	Japanese barberry	Berberidaceae	X			B
bidi	Bidens discoidea (Torr. & A. Gray) Britton	small beggarticks	Asteraceae		X		
cacr6	Carex crinita Lam.	fringed sedge	Cyperaceae		X		
caco15	Carya cordiformis (Wangenh.) K. Koch	bitternut hickory	Juglandaceae	X	X		
caov2	Carya ovata (Mill.) K. Koch	shagbark hickory	Juglandaceae	X			
cefo2	Cerastium fontanum Baumg.	common mouse-ear chickweed	Caryophyllaceae	X			
civu	Cirsium vulgare (Savi) Ten.	bull thistle	Asteraceae	X			
coam2	Cornus amomum Mill.	silky dogwood	Cornaceae		X		
dacty	Dactylis L.	orchardgrass	Poaceae	X			
daca6	Daucus carota L.	Queen Anne's lace	Apiaceae	X			
drin5	Dryopteris intermedia (Muhl. ex Willd.) A. Gray	intermediate woodfern	Dryopteridaceae	X	X		
eqar	Equisetum arvense L.	field horsetail	Equisetaceae	X	X		
frve	Fragaria vesca L.	woodland strawberry	Rosaceae	X			
fram2	Fraxinus americana L.	white ash	Oleaceae	X			
frpe	Fraxinus pennsylvanica Marshall	green ash	Oleaceae	X			
gamo	Galium mollugo L.	false baby's breath	Rubiaceae	X			
glca	Glyceria canadensis (Michx.) Trin.	rattlesnake mannagrass	Poaceae		X		
glme2	Glyceria melicaria (Michx.) F.T. Hubbard	melic mannagrass	Poaceae		X		
hiau	Hieracium aurantiacum L.	orange hawkweed	Asteraceae	X			
imca	Impatiens capensis Meerb.	jewelweed	Balsaminaceae		X		
juvi	Juniperus virginiana L.	eastern redcedar	Cupressaceae	X			
lomo2	Lonicera morrowii A. Gray	Morrow's honeysuckle	Caprifoliaceae	X			B
loco6	Lotus corniculatus L.	bird's-foot trefoil	Fabaceae	X			
maca4	Maianthemum canadense Desf.	Canada mayflower	Liliaceae	X			
mara7	Maianthemum racemosum (L.) Link	feathery false lily of the valley	Liliaceae	X			
malus	Malus Mill.	apple	Rosaceae	X			
mast	Matteuccia struthiopteris (L.) Todaro	ostrich fern	Dryopteridaceae	X	X		
onse	Onoclea sensibilis L.	sensitive fern	Dryopteridaceae	X	X		
osci	Osmunda cinnamomea L.	cinnamon fern	Osmundaceae	X	X		
oxali	Oxalis L.	woodsorrel	Oxalidaceae	X			
paqu2	Parthenocissus quinquefolia (L.) Planch.	Virginia creeper	Vitaceae	X			
phar3	Phalaris arundinacea L.	reed canarygrass	Poaceae	X	X		WL
pist	Pinus strobus L.	eastern white pine	Pinaceae	X			
plla	Plantago lanceolata L.	narrowleaf plantain	Plantaginaceae	X			
plma2	Plantago major L.	common plantain	Plantaginaceae	X			
pogr4	Populus grandidentata Michx.	bigtooth aspen	Salicaceae	X			
potr5	Populus tremuloides Michx.	quaking aspen	Salicaceae	X			
prse2	Prunus serotina Ehrh.	black cherry	Rosaceae	X			
prvi	Prunus virginiana L.	chokecherry	Rosaceae	X			
rhca3	Rhamnus cathartica L.	common buckthorn	Rhamnaceae		X		
rhty	Rhus typhina L.	staghorn sumac	Anacardiaceae	X			
rubl2	Rubus blanchardianus (L.H. Bailey) L.H. Bailey	Blanchard's dewberry	Rosaceae		X		
ruhi	Rubus hispidus L.	bristly dewberry	Rosaceae		X		
ruid	Rubus idaeus L.	American red raspberry	Rosaceae	X			
rucr	Rumex crispus L.	curly dock	Polygonaceae	X			
sabe2	Salix bebbiana Sarg.	Bebb willow	Salicaceae		X		
sodu	Solanum dulcamara L.	climbing nightshade	Solanaceae		X		
soca6	Solidago canadensis L.	Canada goldenrod	Asteraceae				
sogi	Solidago gigantea Aiton	giant goldenrod	Asteraceae		X		
soru2	Solidago rugosa Mill.	wrinkleleaf goldenrod	Asteraceae	X			
syla4	Symphyotrichum lateriflorum (L.) Á. Löve & D. Löve	calico aster	Asteraceae	X			
sypu	Symphyotrichum puniceum (L.) Á. Löve & D. Löve	purplestem aster	Asteraceae		X		
taof	Taraxacum officinale F.H. Wigg.	common dandelion	Asteraceae	X			
tiam	Tilia americana L.	American basswood	Tiliaceae	X			
tora2	Toxicodendron radicans (L.) Kuntze	eastern poison ivy	Anacardiaceae	X			
trpr2	Trifolium pratense L.	red clover	Fabaceae	X			
ulam	Ulmus americana L.	American elm	Ulmaceae	X	X		
vire7	Viburnum recognitum Fernald	southern arrowwood	Caprifoliaceae		X		
Vitis	Vitis L.	grape	Vitaceae	X			

X - Plant species was found in this community type.

[1] Nomenclature follows USDA-NRCS PLANTS database (2014) and/or Haines (2011) and/or Gilman (2015).

[2] The Vermont State Rank from the "Rare and Uncommon Native Vascular Plants of Vermont - Vermont Natural Heritage Inventory - Vermont Fish & Wildlife Department", version dated March 24, 2017

[3] Vermont Agency of Agriculture, Food & Markets (VTAAFM) Quarantine #3- Noxious Weeds (2012). A= Class A Noxious Weeds, B= Class B Noxious Weeds
Vermont Agency of Natural Resources (ANR) Vermont Wildlife Action Plan- Appendix K Exotic Invasive and Pest Species (2017). WL= Watch List Species

ATTACHMENT 7

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: October 03, 2017
Consultation Code: 05E1NE00-2018-SLI-0028
Event Code: 05E1NE00-2018-E-00063
Project Name: Monkton Pressure Regulation Station

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2018-SLI-0028

Event Code: 05E1NE00-2018-E-00063

Project Name: Monkton Pressure Regulation Station

Project Type: OIL OR GAS

Project Description: installation and operation of a natural gas pressure regulation station for the purpose of providing natural gas service to residents of Monkton, Vermont

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/44.027779499502N73.07733084689943W

Counties: Addison, VT

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

There are no critical habitats within your project area under this office's jurisdiction.