



# Stormwater Scoping Study

## Castleton | Staso Road

**Prepared for:**

Town of Castleton, Vermont

Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study

**Prepared by:**

MSK Engineers

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**Report Date:**

June 2022



Fitzgerald Environmental  
Associates LLC.



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## **1.0 PROJECT OVERVIEW**

The Town of Castleton property on Staso Road is in the Champlain basin, a priority area for statewide implementation of additional stormwater treatments, and has an estimated 3.69 acres of impervious surface. It is listed as project #8502 on the Vermont Department of Environmental Conservation's (VTDEC) list of sites subject to the three-acre stormwater rule and should be assessed for compliance. Furthermore, adjacent hydrologically connected road segments should be reassessed for Municipal Roads General Permit (MRGP) compliance. The roadway is known to receive deposition from the sand pile, and site observations in October 2020 showed signs of roadside erosion and accompanying sedimentation and deposition on and across the road.

The Town, in cooperation with the Poultney Mettowee Natural Resources Conservation District and Fitzgerald Environmental Associates, has made good progress in addressing existing stormwater runoff to Pond Hill Brook and proactively planning for the VTDEC's three-acre stormwater rule by implementing stormwater treatment at the transfer facility on site (see **Figure 1: Existing Conditions**). However, the Town needs a comprehensive planning and scoping effort to evaluate alternatives that will better integrate its existing and proposed facilities, structures, and uses within the context of stormwater and water quality improvements. The outcome of this scoping project will be a road map the Town will use in siting structures and stormwater treatment features to meet the requirements of VTDEC's new three-acre rule, while also complying with MRGP requirements.

## 2.0 EXISTING CONDITIONS

### 2.1 Project Area

The Town of Castleton's 29-acre property along Staso Road has many current active uses which include the Town Highway Garage, the Town's Transfer Station, a salt and sand storage area, and a sand and gravel quarry (see **Figure 1: Existing Conditions**). Each of these uses contribute to stormwater runoff in a southerly direction toward Staso Road and eventually to Pond Hill Brook via two cross-culverts under Staso Road. The Town is concerned about its properties impacts on water quality in the brook. While the Town has some flexibility on the property for designing and siting stormwater drainage and treatment practices, as well as finding an appropriate location for the salt and sand shed, the parcel is subject to the VTDEC Stormwater Program's 3-acre rule.

The property is a mixture of forested and developed land. The site is a source of aggregate for Town projects, hence much of the local topography has been altered due to these extraction activities. Generally, the site slopes steeply down from north to south with a plateau at approximately the middle of the site. The plateau serves as a storage area for Town equipment and staging area for the mining operations. The southern portion of the site below the plateau is bounded by Staso Road and contains the Town garage and pole barn to the west, transfer station in the middle, and current salt shed to the east. An access drive connects the town garage to the upper plateau with a second drive connecting the upper plateau to the transfer station below. The sand and gravel extraction area located on the upper plateau is generally in-sloped with runoff accumulating at the toe of the extraction slope and eventually infiltrating to groundwater. Portions of the extraction area drain towards the transfer station and towards the Town Garage along the access roads. The southeast corner of the extraction area drains down a steep slope into the forested wetland. The town garage and transfer station drain to the swale along Staso Road to cross-culverts discharging directly to Pond Hill Brook. Runoff from the existing sand and salt storage area drains to a ditch that is connected to the swale along Staso Road via a culvert under the transfer station entrance. However, the swale and culvert inlet are currently filled with sediment, causing stormwater to overflow to the roadway. A continuous graded berm along the road edge causes runoff to continue along the road, bypassing the cross-culvert, continuing west to the transfer station exit.

The Town has recently installed two stormwater treatment features for the transfer station. The Town and Poultney Mettowee Conservation District installed a drywell/forebay and surface infiltration feature to treat runoff from a portion of the transfer station inlet in 2018. The Town also installed a stone lined ditch and a pre-treatment forebay to collect runoff from the upper portion of the transfer station. The forebay currently discharges to the roadside swale and will be connected to the proposed gravel wetland system north of the transfer station exit.

# FIGURE 1: Existing Conditions

## VICINITY MAP

APPROXIMATE SCALE: 1:2000  
CASTLETON, VERMONT 05735



## GENERAL NOTES

PARCEL ID: 090100013  
 PARCEL AREA: 28.9 ACRE (DEED)  
 PARCEL ADDRESS: 273 STASO ROAD  
 CASTLETON, VERMONT 05735  
 PROPERTY OWNER: TOWN OF CASTLETON  
 263 ROUTE 30 NORTH  
 BOMOSEEN, VERMONT 05732

- EXISTING CONDITIONS AND THE APPROXIMATE PROPERTY LINE LOCATION ARE BASED ON RECORD INFORMATION OBTAINED FROM THE TOWN OF CASTLETON LAND RECORDS, GIS TAX MAP, AND ELEVATION DATA ACQUIRED FROM THE STATE OF VERMONT. A BOUNDARY SURVEY WAS NOT INCLUDED IN THE DEVELOPMENT OF THIS PLAN.
- UNDERGROUND UTILITY LOCATIONS WHERE SHOWN ON THE PLAN ARE APPROXIMATE ONLY, AND BASED ON INFORMATION PROVIDED BY THE TOWN OF CASTLETON AND/OR THE PROPERTY OWNER.

## LEGEND

EXISTING	DESCRIPTION	PROPOSED
+	BENCHMARK	
●	IRON PIN	●
○	IRON PIPE	○
⊙	CAPPED IRON ROD	⊙
⊠	BOUNDARY MARKER/MONUMENT	⊠
---	STATE, COUNTY OR MUNICIPAL RIGHT-OF-WAY	---
---	EASEMENT	---
---	SETBACK	---
---	PROPERTY LINE	---
---	FENCE	---
---	UNDERGROUND ELECTRONIC PET BARRIER	---
---	GUARDRAIL	---
○	BOLLARD	○
□	POST	□
⊠	MAILBOX	⊠
⊠	SIGN	⊠
⊠	SIGN (2-POST)	⊠
□	CATCH BASIN	□
○	STORM DRAIN MANHOLE	○
○	STORM DRAIN	○
○	SANITARY SEWER CLEAN-OUT	○
○	SANITARY SEWER MANHOLE	○
○	SANITARY SEWER	○
○	SANITARY FORCE MAIN	○
○	GATE VALVE	○
○	CURB STOP/WATER SHUT-OFF	○
○	FIRE HYDRANT	○
○	FLUSH HYDRANT	○
○	SAMPLING STATION	○
○	WATER SUPPLY WELL	○
○	MONITORING WELL	○
○	WATER SUPPLY MAIN OR SERVICE	○
○	UTILITY MANHOLE	○
○	LIGHT POLE OR FIXTURE	○
○	UTILITY POLE	○
○	GUY POLE OR WIRE	○
○	OVERHEAD UTILITIES	○
○	UNDERGROUND ELECTRICAL SERVICE	○
○	UNDERGROUND GAS SERVICE	○
○	GAS SERVICE VALVE	○
○	DECIDUOUS TREE	○
○	CONIFEROUS TREE	○
○	FRUIT TREE	○
○	SHRUBS	○
○	BRUSH LINE	○
○	TREE LINE	○
○	ROCKS AND BOULDERS	○
○	STONE WALLS	○
○	EDGE OF WATERWAY (OHW)	○
○	FLAGGED/DELINEATED WETLANDS BOUNDARY	○
○	APPROXIMATED WETLANDS BOUNDARY	○
○	WETLANDS SETBACK/BUFFER LIMITS	○
○	RAILROAD TRACKS	○

NOTE: SOME SYMBOLS MAY NOT APPEAR ON EACH PLAN

ELLIS ORCHARD LAND/RESERVOIR  
 CASTLETON FIRE DISTRICT #1  
 345 ELLIS ORCHARD DRIVE  
 CASTLETON VT 05735

090100014  
 GEORGE MATTISON  
 835 STASO ROAD  
 CASTLETON VT 05735

252100018  
 GREEN MOUNTAIN  
 POWER CORP  
 192 STASO ROAD  
 CASTLETON VT 05735

252100017  
 KEITH FREDERICK  
 JOJANNE LEMAY  
 248 STASO ROAD  
 CASTLETON VT 05735

090100015  
 JOHN E MATTISON  
 JOHN MATTISON SR  
 STASO ROAD  
 CASTLETON VT 05735

NOTE: SEE FIGURE 3 FOR IMPERVIOUS AREAS

090100020  
 HADEKA STONE CORP  
 460 STASO ROAD  
 CASTLETON VT 05735

090100051  
 WILLIAM HADEKA  
 RAYMOND HADEKA ET ALL  
 SOUTH STREET  
 CASTLETON VT 05735

**MSK**

EXISTING CONDITIONS PLAN



SCALE 1:100



## 2.2 Land Uses

The existing mix of commercial and industrial land use on the 29-acre municipal parcel results in increased stormwater runoff and sediment loading to Pond Hill Brook. Stormwater conveyances are filled with sediment in numerous areas, increasing erosion and sediment loading. The Project Team has completed numerous site visits and has worked on the property for previous projects to identify the runoff patterns and contributing drainage areas to gain a better understanding of the best type and locations for stormwater mitigation projects. The proposed projects will provide storage for at least 50% of the water quality volume (runoff from the 1" storm) for the areas with existing impervious and will provide treatment for the full water quality volume for any areas of new impervious.

## 2.3 Natural Resources

**Figure 2: Natural Resources** was developed from Geographical Information System (GIS) data provided by the Vermont Agency of Natural Resources and Vermont Center for Geographic Information and includes available data on:

- Wetlands
- Flora/fauna including brook trout
- Surface water
- Forest land
- Floodplains
- Endangered species
- Public land
- Right of way
- Utilities

Resources identified in the immediate project area include wetlands, surfacewaters and primary agricultural soils.

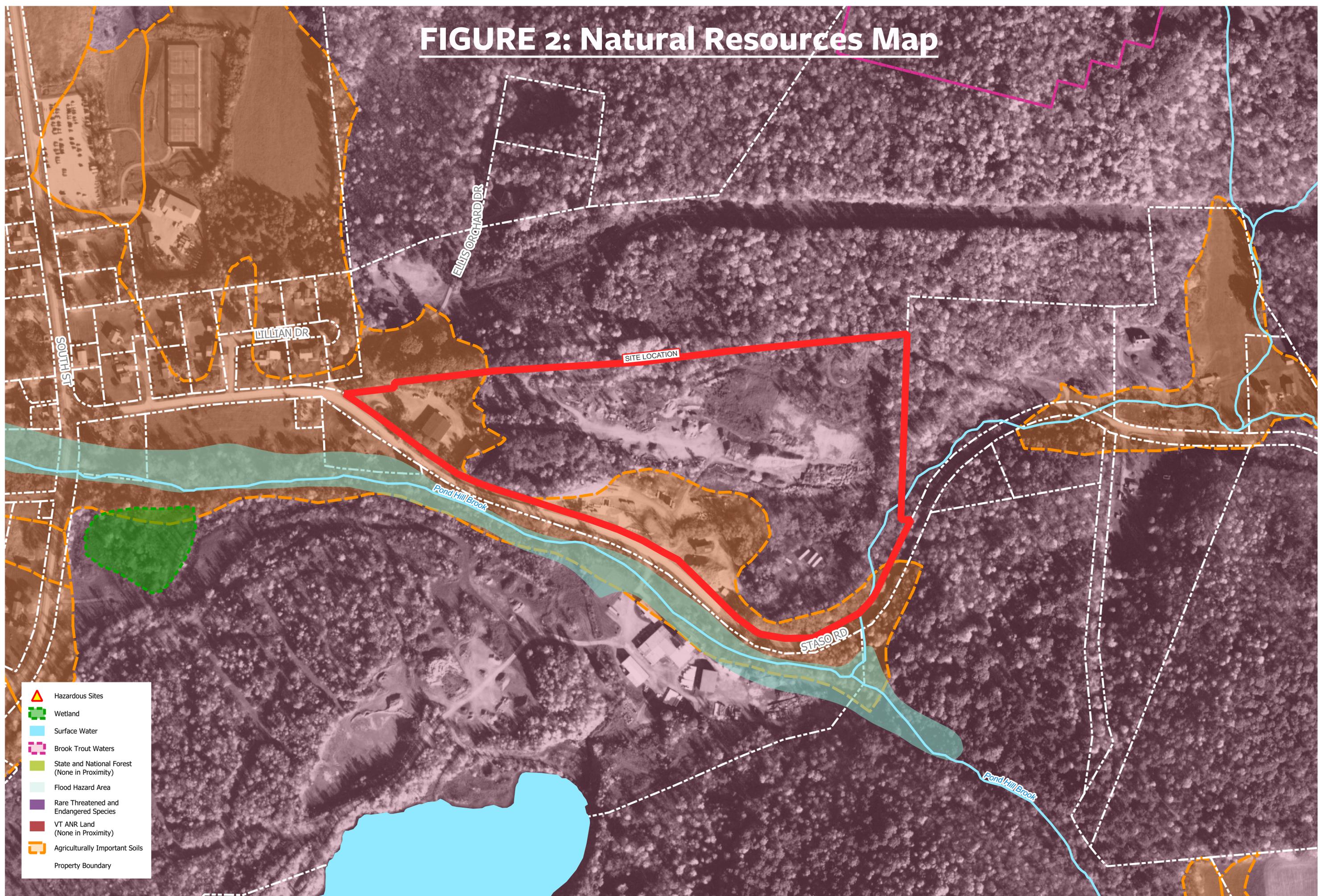
A summary of the project's effects are as follows:

**Wetlands:** Wetlands were identified on the property in 2019 by wetland consultant Arrowwood Environmental as part of a study for the proposed MHG Solar project on the Town's parcel. Three (3) small wetlands were identified, one of which is near the proposed sand and salt shed location. Through correspondence with VTDEC Wetlands staff, FEA determined that all wetlands on the property are considered Class III wetlands and are therefore not regulated by the VTDEC. This means the wetlands do not have a regulated 50-foot buffer zone. While Class III wetlands are regulated by the U.S. Army Corps, the proposed infrastructure and stormwater improvements are expected to minimally impact the wetlands, and an Army Corps permit will need to be acquired during the design process. Therefore, wetlands are not considered a constraint to the Town's selected alternative due to the limited disturbance.

**Surface waters:** The subject property is adjacent to Pond Hill Brook. The goal of this study is to develop alternatives that improve the stormwater flowing into the brook. As such, the project is expected to have a positive effect on water quality of Pond Hill brook.

**Primary agricultural soils:** While portions of the project are located in primary agricultural soils, these portions have been previously developed. The selected alternative does not negatively impact primary agricultural soils that have not been previously disturbed as this project currently has a Act 250 Land use permit. During the Act 250 permitting process the permittee will confirm previous disturbance with the Agency of Agriculture and mitigation is not anticipated.

# FIGURE 2: Natural Resources Map



- Hazardous Sites
- Wetland
- Surface Water
- Brook Trout Waters
- State and National Forest (None in Proximity)
- Flood Hazard Area
- Rare Threatened and Endangered Species
- VT ANR Land (None in Proximity)
- Agriculturally Important Soils
- Property Boundary

## 2.4 Archaeological Resources

As part of the scoping study process, a combined Archaeological Resource Assessment (ARA) and Historic Resource Review (HRR) was undertaken by the University of Vermont Consulting Archaeology Program (UVM CAP). The purpose of the review is to identify portions of the project's Area of Potential Effect (APE) that have the potential for containing pre-Contact era Native American and/or historic era archaeological sites and to identify and assess any standing historic resources on or eligible for listing on the National and/or State Register of Historic Places that have the potential to be directly or indirectly affected by project work.

As a result of the ARA, the proposed project area has a relatively low base sensitivity for pre-Contact Native American sites and given excessive slope and extensive ground disturbance from past and current quarrying activities, along with current use of the parcel, the review recommends that the APE is unlikely to contain pre-Contact Native American cultural resources. Based on the lack of any identifiable remains associated with the single historic property within the project area, a c. 1840 farmstead, and notable ground disturbance present in the area, it is also unlikely that any significant intact historic period archaeological resources remain within the APE. Therefore, the review recommends that the proposed project will have No Effect on significant archaeological resources and no further archaeological investigation is recommended for pre-Contact Native American or historic era resources within the Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study APE. The full review can be found in **Appendix 1**.

## 2.5 Standing Historic Structures

No significant standing historic buildings or structures were identified within the project area, so the review recommends that the proposed project will have no direct effect on standing historic resources. None of the buildings and structures located just beyond the western limits of the project area were identified as significant historic resources and none are recommended as eligible for inclusion on the State or National Register of Historic Places. For these portions of the APE, this review recommends that the Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study project will have No Effect on significant historic resources.

Some buildings within the Hadeka Stone Company complex along the south side of Staso Road, across from the central and eastern portions of the project area, may date as early as c. 1940 or 1960 and additional review would be needed to assess the entire complex for historic significance and State or National Register eligibility. However, this review recommends that as currently defined in this scoping phase, the proposed project would have No Adverse Effect on the complex, if it did qualify as a significant historic resource.

Review of final project plans developed for the Castleton TAP TA 19(3) Staso Road Stormwater project will be necessary prior to project work, and the VTrans Cultural Resource staff will have the opportunity to review and comment on all archaeological and standing historic resource recommendations prior to project work. The full review can be found in **Appendix 1**.

## 2.6 Right of way

The approximate locations of existing and proposed features as shown in **Figure 2: Natural Resources** are based on aerial photographs and GIS data and are for conceptual purposes only. No survey work was performed to determine the locations of said features, boundaries, or rights of way. With the exception of the associated roadway improvements, the project will not interfere with the town's right of way. All lands are owned by the Town of Castleton and no additional lands are required to be obtained to construct.

## 2.7 Utilities

The project site is served by municipal water and disposes of wastewater via an onsite inground system. The project is not expected to affect either system. Power and Telecommunications services are available via overhead wires and utility poles. Currently the existing shed receives power via a utility pole and overhead wire. These services will have to be modified to meet the needs of the proposed salt and sand facility. There are numerous culverts and swales throughout the property that direct stormwater off of the site. As part of the proposed improvements these stormwater conveyance systems will have to be modified to incorporate the proposed stormwater treatment devices.

### 3.0 PUBLIC INVOLVEMENT

#### 3.1 Public concerns meeting

On August 9th, 2021 MSK and FEA met with the select board of Castleton to discuss the project and to develop the following Purpose and Needs Statement:

**Project Purpose:**

To evaluate alternatives that will better integrate existing and proposed facilities, structures, and uses to improve water quality and achieve compliance with TDEC's new three-acre rule.

**Project Needs:**

- The Town of Castleton's existing salt and sand shed has been determined to be under-sized for the municipality's current use. The Town has also identified a desire by the public for communal access to salt and sand.
- Stormwater management practices at the existing salt and sand shed will need to be identified and improvements implemented to comply with State requirements should the location of the shed remain "as-is."
- Portions of the proposed site do not currently meet State of Vermont Stormwater Management Three-Acre Rule standards. Best management practices will need to be identified and implemented to bring the site into compliance with these standards prior to any development.
- Finally, adjoining sections of Staso Road do not meet MRGP compliance standards, and these sections will need to be evaluated and brought into compliance.

#### 3.2 Alternatives presentation

An alternatives presentation was held on December 13th 2021 to obtain input from the public. Alternative 2, which replaces the salt and sand shed at its current location, was selected (see **Figure 4: Alternative 2**) as it meets the projects needs while being the lowest cost build option.

During the presentation the wetlands within the property were discussed. After the meeting it was determined that the wetland to the north of the preferred location of the salt and sand shed has been classified by VTDEC as Class III, therefore it is not regulated by VTDEC and has no buffer zone. A proposed stormwater feature to the northwest of the salt and sand shed is situated in a low point associated with an existing ditch west of the Class III wetland.

### 3.3 Public information meeting

The purpose of the public information meeting will be to provide an overview of this report and address the following items:

- Project needs
- Presented alternatives
- Selected alternative
- Design considerations
- Opinion of probable cost and timeline

This will also be an opportunity for the public to ask questions and provide feedback.

### 3.4 Connection with local and regional plans

The Castleton Town Plan emphasizes that “*Careful planning is essential for community facilities and services in order to meet local health, safety, and welfare needs and community goals for future growth. If the facilities are at capacity, further development may strain them, causing financial burdens and environmental problems*” (Page 11, Town Plan). The Town Plan highlights the Castleton Highway Department as a valuable community facility and service as the Department is responsible for the maintenance and improvements of 72 miles of town roads, including sanding and salting during inclement weather.

The selected alternative will be located on the already-developed site for the Town Garage and will be designed to limit environmental impacts while providing more suitable conditions for the storage of salt and sand for the Highway Department.

The alternatives presented in this report also meet the broad goals for the future use of land as outlined in the Rutland Regional Plan (Page 27):

- *To maintain and improve the accessibility, livability and viability of existing built-up areas.*
- *To protect the natural environment and its economic, ecological, sociological, psychological and aesthetic benefits.*

Furthermore, the proposed alternatives will support the objectives of the Rutland Regional Plan to protect water quality through effective stormwater management practices (*Chapter 15: Water Quality*).

## 4.0 EVALUATION OF ALTERNATIVES

### 4.1 Permitting Requirements

#### Act 250 Land Use

The site is currently permitted under Act 250 Land Use Permit #1R0030, which was issued in January of 1972 to the Town of Castleton for the construction of the landfill. No subsequent permit amendments were located on the Act 250 electronic database.

Any modifications to the existing site, including construction of a structure to store salt and sand or the design and permitting of a new stormwater treatment system, will likely trigger the need for an amendment to the existing Act 250 permit.

#### Local Permitting

The project area is located in the Rural Residential 2 Acre RR2A Zoning District as identified in the Town of Castleton Zoning Ordinance dated June 28, 2021 and the accompanying municipal Zoning Map dated June 26, 2007. However, Municipal buildings are considered exempt for local zoning.

#### VTDEC 9050 Stormwater General Permit

The municipal property has greater than 3-acres of impervious surfaces, none of which is covered under a modern stormwater permit, and is therefore subject to coverage under the new 9050 Stormwater General Permit. The 9050 permit requires that existing non-permitted impervious surfaces meet the redevelopment treatment standard. This standard requires treatment of 50% of the Water Quality Volume (WQv), which is the runoff generated during a 1" rainstorm. All areas of new construction will also be covered under the 9050 permit, however any expansion of impervious surfaces will require full treatment of the WQv, and may require additional storage volume to meet the Channel Protection Volume (1-year storm) and the Overbank Flood Protection (10-year storm). Based on updated mapping of impervious surfaces within the property, we determined that 4.5 acres of impervious surfaces are subject to the redevelopment standard under a 9050 stormwater permit. Treatment of 50% of the WQv from this area would require approximately 0.2 acre-feet (8,200cf) of stormwater treatment.

The recently constructed infiltration feature near the transfer station entrance will count towards the 9050 permit requirements. This feature provides approximately 600cf of treatment volume, representing 7% of the permit requirement for the property. Additional stormwater treatment features totaling approximately 7,600 cf of treatment volume will be required on the property to meet the 9050 permit. **Table 1** below shows a preliminary layout of treatment features that will meet the required stormwater treatment volume.

#### Multi-Sector General Permit (MSGP)

The sand and gravel pit operated by the Town on the terrace above the transfer station requires coverage under a Multi-Sector General Permit. This permit will require the Town to implement measures to treat stormwater on-site and will require testing of any runoff that exits the site. Impervious surfaces associated with the sand and gravel operation will not be included in the 9050 stormwater general permit.

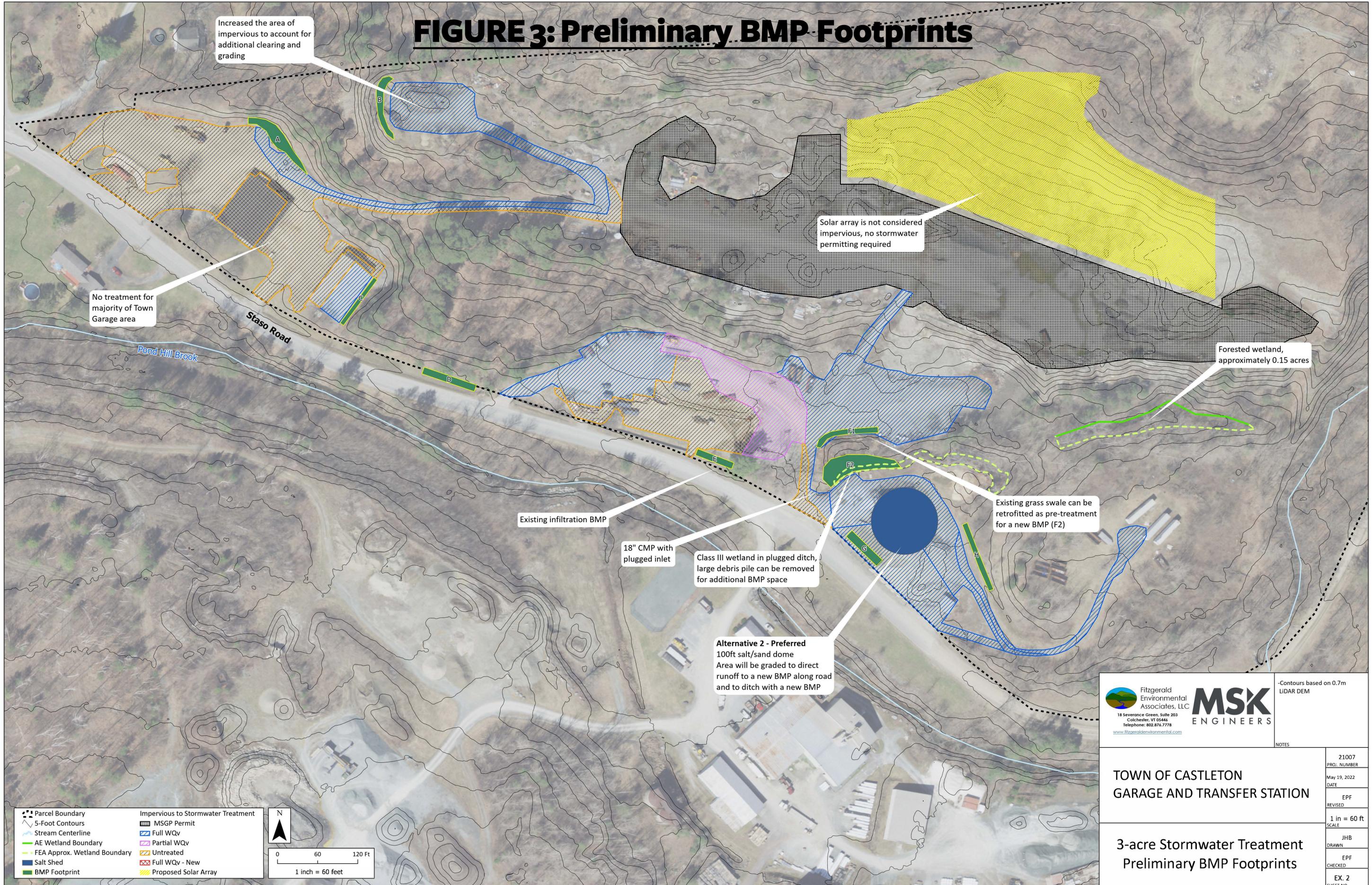
**TABLE 1: Proposed/Existing Stormwater Treatment Basins for Compliance**  
 (see Figure 3 for a map of the preliminary BMP footprints)

Castleton Town Property - Stormwater BMP Sizing  
 Total Impervious for 3-acre coverage is 4.5 acres

BMP	Description	Drainage Area (ac)	Impervious Acres	Pervious Acres	% Impervious	WQv (cf)	Potential Treatment (cf)
A	Proposed - potential infiltration feature along edge of parking area behind garage	1.2	0.24	0.96	0.20	1,002	1,002
B	Proposed - infiltration feature along edge of clearing for upper storage area	0.75	0.23	0.52	0.31	888	888
C	Proposed - infiltration for eastern portion of pole barn only	0.07	0.07	0	1.00	241	241
D	Proposed - gravel wetland along road above ditch Pre-treatment from existing forebay	1	0.36	0.64	0.36	1,358	1,360
E	Existing infiltration swale with pre-treatment catch basin	0.45	0.32	0.13	0.71	1,127	600
F1	Existing - Retrofit existing infiltration swale to serve as pre-treatment for F2	1	0.47	0.53	0.47	1,717	1,200
F2	Proposed wet pond in existing ditch, partial pre-treatment from F1	2	1.12	0.88	0.56	4,022	4,022
G	Proposed - InfiltraCon or sand filter for new sand/salt shed	0.31	0.31	0	1	1,069	1,069
H	Existing - Enhance infiltration swale and improve existing pre-treatment swale	0.5	0.12	0.38	0.24	483	483
						Potential Total Volume (cf)	10,865
						3-acre Requirement (cf)*	8,200

\* 3-acre permitting requires treatment of 50% of the WQv (1" rain storm) for existing non-permitted impervious surfaces.

# FIGURE 3: Preliminary BMP Footprints



Increased the area of impervious to account for additional clearing and grading

No treatment for majority of Town Garage area

Solar array is not considered impervious, no stormwater permitting required

Forested wetland, approximately 0.15 acres

Existing infiltration BMP

18" CMP with plugged inlet

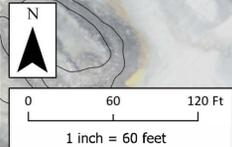
Class III wetland in plugged ditch, large debris pile can be removed for additional BMP space

Existing grass swale can be retrofitted as pre-treatment for a new BMP (F2)

**Alternative 2 - Preferred**  
100ft salt/sand dome  
Area will be graded to direct runoff to a new BMP along road and to ditch with a new BMP

- Parcel Boundary
- 5-Foot Contours
- Stream Centerline
- AE Wetland Boundary
- FEA Approx. Wetland Boundary
- Salt Shed
- BMP Footprint

- Impervious to Stormwater Treatment
- MSGP Permit
- Full WQv
- Partial WQv
- Untreated
- Full WQv - New
- Proposed Solar Array



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**MSK ENGINEERS**

-Contours based on 0.7m LIDAR DEM

NOTES

TOWN OF CASTLETON  
GARAGE AND TRANSFER STATION

3-acre Stormwater Treatment  
Preliminary BMP Footprints

21007	PROJ. NUMBER
May 19, 2022	DATE
EPF	REVISED
1 in = 60 ft	SCALE
JHB	DRAWN
EPF	CHECKED
EX. 2	SHEET NO.

## 4.2 Proposed Alternatives

### Alternative 1: No build

This option would be to not make any improvements on the site and leave the current salt shed in service. The town would remain constrained by the size of existing salt shed, requiring them to store salt offsite or to pay for additional trucking. This option would not bring the town into state compliance with the 3-acre rule, nor would it reduce salt and sediment pollution from the facility, and would therefore not meet the project's purpose and need.

### Alternative 2: New salt and sand shed located at the existing shed location

This option would involve replacing the existing salt shed with a large building that can store all the material the town would require in a season. A location for public salt and sand pick up would also be designated at this location. As part of this proposed option a utility pole providing overhead power would have to be relocated.

Limited site grading would be necessary to convey stormwater to treatment devices before discharging from the site. The proposed salt and sand shed is located entirely within the footprint of existing impervious surfaces, therefore no additional treatment volume beyond the existing would be required to meet the 9050 stormwater permit.

As part of this option the site would be brought into state stormwater compliance by directing the existing stormwater conveyance systems throughout the site to treatment locations before discharging off site.

### Alternative 3: Salt shed located behind pole barn

This option would involve demolishing the existing salt shed and constructing a large building that can store all the material the town would require in a season behind the existing pole barn. A separate location for public salt and sand pick up would also have to be designated as well. As part of this proposed option the electrical service would have to be run to the proposed location.

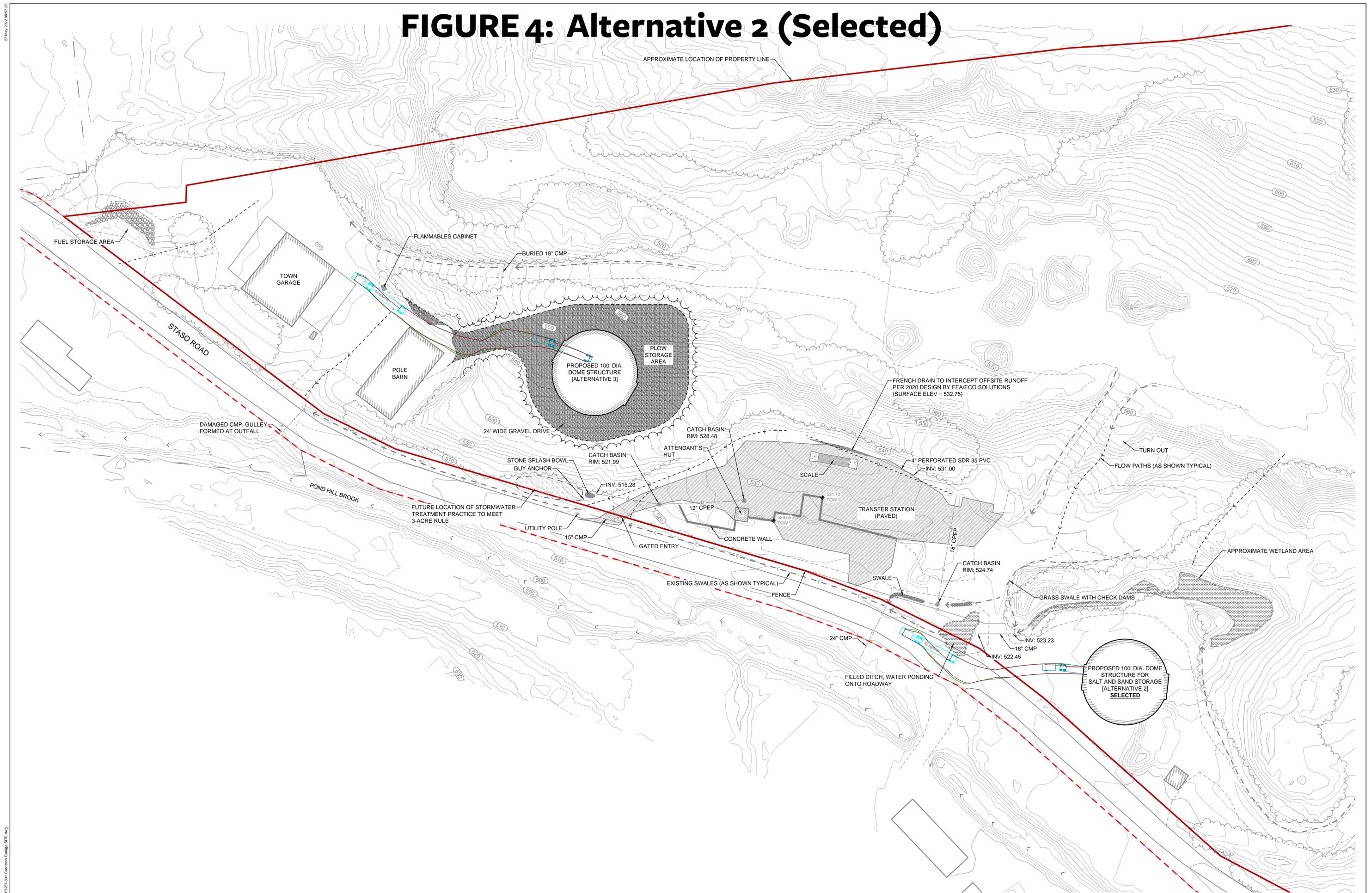
As the proposed site is currently a wooded site, site clearing and grading would be necessary to construct the building. Constructing the salt shed in this location will create approximately 0.75 acres of new impervious surfaces. At a minimum, this will require an additional 2,500cf of stormwater treatment in addition to the features described above. It is likely that this location will also require additional volume for extended detention storage to meet the CPv and Qp10 treatment standards.

As part of this option the site would be brought into state stormwater compliance by directing the existing stormwater conveyance systems throughout the site to treatment locations before discharging off site. (This option was originally considered preferable by the town due to its close location to the town garage and pole barn.)

# EVALUATION MATRIX

Category		Alternatives		
		Option 1	Option 2	Option 3
		No Build	Replace existing salt shed in the existing location on site, bring site into stormwater compliance	Replace existing salt shed in a new location on site, bring site into stormwater compliance
<b>Cost</b>	Site work	NA	Regrading of existing site	Develop New Site
	Structure	NA	Same	Same
	Detour	NA	o	o
	Traffic & Safety	NA	o	o
	Total	o	\$	\$\$
<b>Engineering</b>	Facility performance	Insufficient	Sufficient	Sufficient
	Hydraulic Performance	Insufficient	Sufficient	Sufficient
	Utilities	No Impact	Limited Impact	Limited Impact
<b>Impacts</b>	Ag. Lands	No Impact	No Impact	No Impact
	Archaeological	No Impact	No Impact	No Impact
	Historic	No Impact	No Impact	No Impact
	Hazardous Materials	No Change	No Change	No Change
	Floodplains	No Change	No Change	No Change
	Fish & Wildlife	No Change	Improvement	Improvement
	Rare, Threatened & Endangered Species	No Impact	No Impact	Tree Clearing Impacts - Northern Long-Eared Bat
	Public Lands – Sect. 4(f)	No Impact	No Impact	No Impact
	LWCP – Sect. 6(f)	No Impact	No Impact	No Impact
	Noise	No Change	No Change	Increase
	Wetlands	No Change	Improvement	Improvement
	<b>Local &amp; Regional Issues</b>	Concerns	Compliance with Stormwater Rules	No Concerns
Aesthetics		No Change	Improved	Minimal
Community Character		Unchanged	Unchanged	Unchanged
Economic Impacts		Unchanged	Unchanged	Unchanged
Conformance to Reg. Transportation Plan		No Change	No Change	No Change
Satisfies Purpose & Need		No	Yes	Yes
<b>Permits</b>	ACT 250	Not Required	Required	Required
	401 Water Quality	Not Required	Not Required	Not Required
	404 COE Permit	Not Required	Required	Not Required
	Stream Alteration	Not Required	Not Required	Not Required
	State Wetland Permit	Not Required	Not Required	Not Required
	Storm Water Discharge	Required	Required	Required
	Lakes & Ponds	Not Required	Not Required	Not Required
	T & E Species	Not Required	Not Required	Not Required
	SHPO	Not Required	Not Required	Not Required

# FIGURE 4: Alternative 2 (Selected)



## 5.0 SELECTED ALTERNATIVE CONSIDERATIONS

As noted in Section 3.2 above, Alternative 2 has been selected, this alternative is to construct a new Salt and Sand Shed located at the existing shed location. The following considerations should be evaluated during the next phase:

### 5.1 Design Considerations

1. Utility pole relocation: The utility pole serving the existing salt shed will have to be relocated, and the feasibility of an underground electrical service should be evaluated as part of this relocation.
2. Pollution control: Implement pollution control measures for demolition of existing salt shed and surrounding pavement. Existing salt stockpiles and associated spillage should be contained during the demolition of the existing facility, and temporary storage areas should be designated for any unused salt during the construction process.
3. Public access to stockpile: Currently the town maintains a small stockpile for public access at this location. This access point should be evaluated and incorporated into the proposed design.
4. Site grading: The existing site will have to be regraded to direct stormwater to a treatment device before discharging off site. As the site is relatively flat, berms and swales may be required to properly convey stormwater.

We are assuming that the sand and gravel extraction area in the upper portion of the property will be covered under a Multi Sector General Permit (MSGP), which would remove these areas from the 9050 Stormwater Permit coverage. The MSGP is a federally required permit for stormwater discharges from industrial facilities. Based on previous projects with sand and gravel extraction operations, we anticipate that this permit will be relatively easy to obtain and compliance will not require significant changes or effort.

Improvements to the road ditches/swales will be required to provide stable conveyance of overflow runoff from the proposed stormwater features. These improvements will also help the Town with Municipal Road General Permit (MRGP) compliance. The property abuts nine (9) MRGP segments, of which, 1 “partially meets” and 6 “do not meet” the MRGP standards. Ditch improvements and stabilization of the two cross-culverts will address all of the scoring criteria that were assessed as “partially meeting” or “does not meet”, which will bring the road segments into compliance with the MRGP.

## 5.2 Funding Considerations

There are currently 2 potential opportunities for funding this project. (Keep in mind that these opportunities within the state and federal government can vary across the fiscal and calendar years, hence further review should be conducted prior to the start of the design process.)

### 1) Vtrans Municipal Highway and Stormwater Mitigation Program

This program has a \$250K minimum and is federally funded. It is comprised of an 80% federal/state share with a 20% local match.\* Project eligibility includes any environmental mitigation activity including mitigation to address stormwater management.

As a reimbursement program, the municipality will pay for project costs and submit reimbursement request to VTrans. As part of this program the design and construction project must advance to completion or is at risk of the program withholding reimbursement. Additional requirements include:

- Buy America (steel & iron products)
- Davis Bacon federal wage rates
- Proprietary products not allowed without public interest finding
- Project must be designed and constructed in accordance with all federal/state/local permits and regulations

### 2) Vtrans Transportation Alternatives Program

This program has a \$375K CAP (300K construction & 75K design) with a 20% local match. Eligibility includes any environmental mitigation activity, including pollution prevention and pollution abatement activities and mitigation to:

- Address stormwater management, control, and water pollution prevention or abatement related to highway construction or due to highway runoff.
- Reduce vehicle-caused wildlife mortality or to restore and maintain connectivity among terrestrial or aquatic habitats.

Eligibility for salt sheds will be considered on a case-by-case basis based on proximity of the existing storage location to a major water body (generally within 50 ft). It is recommended that further coordination be conducted with VTrans prior to application submittal.

The TA program is a reimbursement program. Sponsors submit invoices for completed work and VTrans reimburses the sponsor for the federal share of the total up to the award amount. The project must be completed, or all federal funds will be required to be paid back. (Due to the funding cap for this program, the project scope may have to be reconfigured to remain under the cap; one option would be to separate the salt shed improvements from the site improvements into 2 separately scoped projects.)

*\* The sources for the 20% match for both programs can come from a variety of locations. In-kind matches are subject to approval and while possible should not be relied upon. American Rescue Plan Act funds may be available for the match, however this must be confirmed prior to submission of applications.*

## 6.0 COST ESTIMATES

Town of Castleton Salt Shed - Preliminary Cost Estimate Selected Alternative Salt/Sand Shed				
	UNITS	TOTAL	UNIT COST	TOTAL COST
<b>General Conditions</b>				
Mobilization (Not to Exceed 6% of Total Contract Price)	LS			\$ 47,503.04
Erosion and Sediment Control	LS	1	\$ 5,000.00	\$ 5,000.00
<b>Earthwork</b>				
Common Excavation	CY	2304	\$ 15.00	\$ 34,563.06
Crushed Gravel Drive	CY	2304	\$ 40.00	\$ 92,168.15
Geotextile Fabric For Roadbed Separator	SY	13825	\$ 4.00	\$ 55,300.89
<b>Concrete</b>				
Cast In Place Concrete Wall - Reinforced	LF	370	\$ 350.00	\$ 129,500.00
Cast In Place Concrete Slab - Reinforced	CY	315	\$ 350.00	\$ 110,185.19
<b>Lump Sum Items</b>				
Site Electrical and Lighting	LS	1	\$ 50,000.00	\$ 50,000.00
Site Restoration and Landscaping	LS	1	\$ 15,000.00	\$ 15,000.00
Salt Shed Structure and Installation	LS	1	\$ 300,000.00	\$ 300,000.00

**WORK AND MATERIAL TOTAL** \$791,717.28

**TOTAL WITH MOBILIZATION/DEMobilIZATION** \$839,220.31

**ENGINEERING DESIGN AND CONSTRUCTION**

**OVERSIGHT (Fee Curve for Similar Projects)** \$199,520.67

CONTINGENCY (20% of Construction) \$167,844.06

**CONTRACT TOTAL** **\$1,206,585.05**

*Note: MSK has no control over the cost or availability of labor, equipment, materials, or services furnished by others or industry pricing conditions at the time of bid, final award of contract or throughout the duration of construction. MSK's opinion of probable construction costs is based upon our experience, professional judgement, and familiarity with pricing within the construction industry, which changes regularly. MSK does not warrant or guarantee that bids or actual construction costs will not vary from the opinion provided herein.*

Town of Castleton Salt Shed - Preliminary Cost Estimate Selected Alternative Stormwater				
	UNITS	TOTAL	UNIT COST	TOTAL COST
<b>General Conditions</b>				
Mobilization (Not to Exceed 6% of Total Contract Price)	LS			\$ 4,296.00
Erosion and Sediment Control	LS	1	\$ 5,000.00	\$ 5,000.00
<b>Earthwork</b>				
Trench Excavation of Rock	CY	10	\$ 160.00	\$ 1,600.00
<b>Stormwater</b>				
Stormwater Treatment Practice Allowance	LS	1	\$ 50,000.00	\$ 50,000.00
<b>Lump Sum Items</b>				
Site Restoration and Landscaping	LS	1	\$ 15,000.00	\$ 15,000.00

**WORK AND MATERIAL TOTAL** \$71,600.00

**TOTAL WITH MOBILIZATION/DEMOBILIZATION** \$75,896.00

**ENGINEERING DESIGN AND CONSTRUCTION OVERSIGHT (Fee Curve for Similar Projects)** \$23,956.08

CONTINGENCY (20% of Construction) \$15,179.20

**CONTRACT TOTAL** **\$115,031.28**

*Note: MSK has no control over the cost or availability of labor, equipment, materials, or services furnished by others or industry pricing conditions at the time of bid, final award of contract or throughout the duration of construction. MSK's opinion of probable construction costs is based upon our experience, professional judgement, and familiarity with pricing within the construction industry, which changes regularly. MSK does not warrant or guarantee that bids or actual construction costs will not vary from the opinion provided herein.*

**7.0 SCHEDULE**

TASK	TIMING
<b>Receive Approval of Scoping</b>	<b>July 2022</b>
<b>Grant Application</b>	<b>Fall 2022</b>
<b>Procurement of Design Services</b>	<b>Summer 2023</b>
<b>Design</b>	<b>Winter 2023- Winter 2024</b>
<i>25% Plans and VTrans Review</i>	<i>Winter 2023</i>
<i>60% plans</i>	<i>Spring 2024</i>
<i>Utility relocation submission</i>	<i>Spring 2024</i>
<i>Permitting</i>	<i>Summer 2024</i>
<i>Right-of-Way</i>	<i>Fall 2024</i>
<i>Material / Product Selection</i>	<i>Fall 2024</i>
<i>85% plans and VTrans Review</i>	<i>Winter 2024</i>
<b>Contract Plans 100%</b>	<b>Spring 2025</b>
<b>Construction *</b>	<b>Summer 2025-2026</b>
<i>iNOI due for 9050 stormwater general permit</i>	
<i>Stormwater general permit application</i>	
<i>Full implementation of stormwater control measures</i>	
<b>Full Implementation of Stormwater Control Measures</b>	<b>Winter 2028</b>
<i>* Most likely will align with average Vtrans timelines if funding through MM program or TAP program</i>	

# APPENDIX I

## HISTORIC RESOURCE REVIEW AND ARCHAEOLOGICAL RESOURCE ASSESSMENT FOR THE CASTLETON TAP TA 19(3) STASO ROAD STORMWATER SCOPING STUDY, CASTLETON, RUTLAND COUNTY, VERMONT



*View southwest over the project area from the quarry edge.*

University of Vermont  
Consulting Archaeology Program  
111 Delehanty Hall  
180 Colchester Avenue  
Burlington, VT 05405

UVM Report No. 1396  
December 17, 2021

**HISTORIC RESOURCE REVIEW AND ARCHAEOLOGICAL RESOURCE  
ASSESSMENT FOR THE CASTLETON TAP TA 19(3) STASO ROAD STORMWATER  
SCOPING STUDY, CASTLETON, RUTLAND COUNTY, VERMONT**

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UVM Report No. XXXX  
December 17, 2021

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## PROJECT DESCRIPTION

This combined Historic Resource Review (HRR) and Archeological Resource Assessment (ARA) was prepared by the University of Vermont Consulting Archaeology Program (UVM CAP) for MSK Engineering & Design, consultants to the Town of Castleton, to help satisfy requirements under the Section 106 permitting process for the proposed Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study, Castleton, Rutland County, Vermont (Figure 1). The proposed project will address complex stormwater runoff issues at a town owned parcel immediately north of Staso Road that contains a sand and gravel pit, garages, transfer station, a small salt shed, an exposed sand pile, storage areas, and a solar installation that is currently under construction within the pit. The study will provide an alternatives analysis considering the best configuration of facilities and operations at the property, with emphasis on the salt/sand shed location with the goal of protecting Pond Hill Brook which flows along the south side of Staso Road (Figures 2 and 3).

The objective of the HRR is to identify and document any historic resources on or eligible for listing on the National and/or State Register of Historic Places that have the potential to be directly or indirectly affected by project work, and if present, to recommend a determination of effect on the resources by the proposed project. The proposed project was reviewed according to standards set forth in 36 CFR Part 800, the regulations established by the Advisory Council on Historic Preservation to implement Section 106 of the National Historic Preservation Act, and its amendments. The Area of Potential Effect (APE) for standing historic resources was identified as the project parcel and nearby properties along Staso Road and Ellis Orchard Drive that are in view of the project parcel (Figure 4).

The goals of the ARA are to identify any portions of the project's APE that may contain pre-Contact Native American and/or historic archaeological sites, to provide sufficient information to gauge their potential for archaeological significance, and to recommend if further archaeological work would be needed prior to project work. To assess the potential of the proposed project's APE for pre-Contact Native American sites, a review of the files maintained by the Vermont Division of Historic Preservation (VDHP) was undertaken to identify the location and nature of nearby previously reported sites in order to understand the archeological potential of the general area. Additionally, the criteria outlined in the VDHP's *Environmental Predictive Model for Locating PreContact Archaeological Sites* were used to establish the general sensitivity for Pre-Contact Native American sites within the proposed APE. The Area of Potential Effect for archaeological resources was identified as the project parcel (see Figure 4).

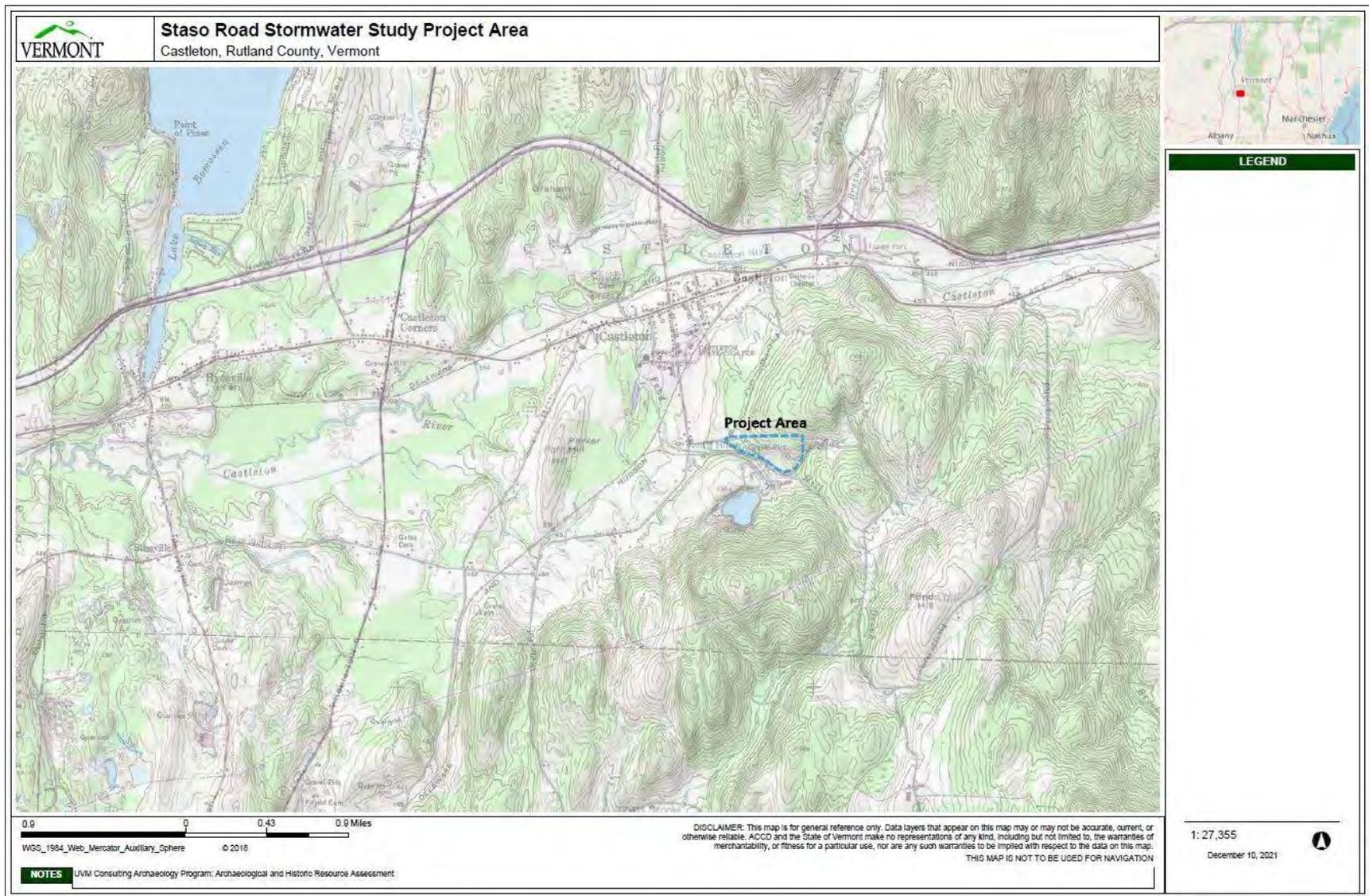


Figure 1. Map showing the location of the Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study project area, Castleton, Rutland County, Vermont.

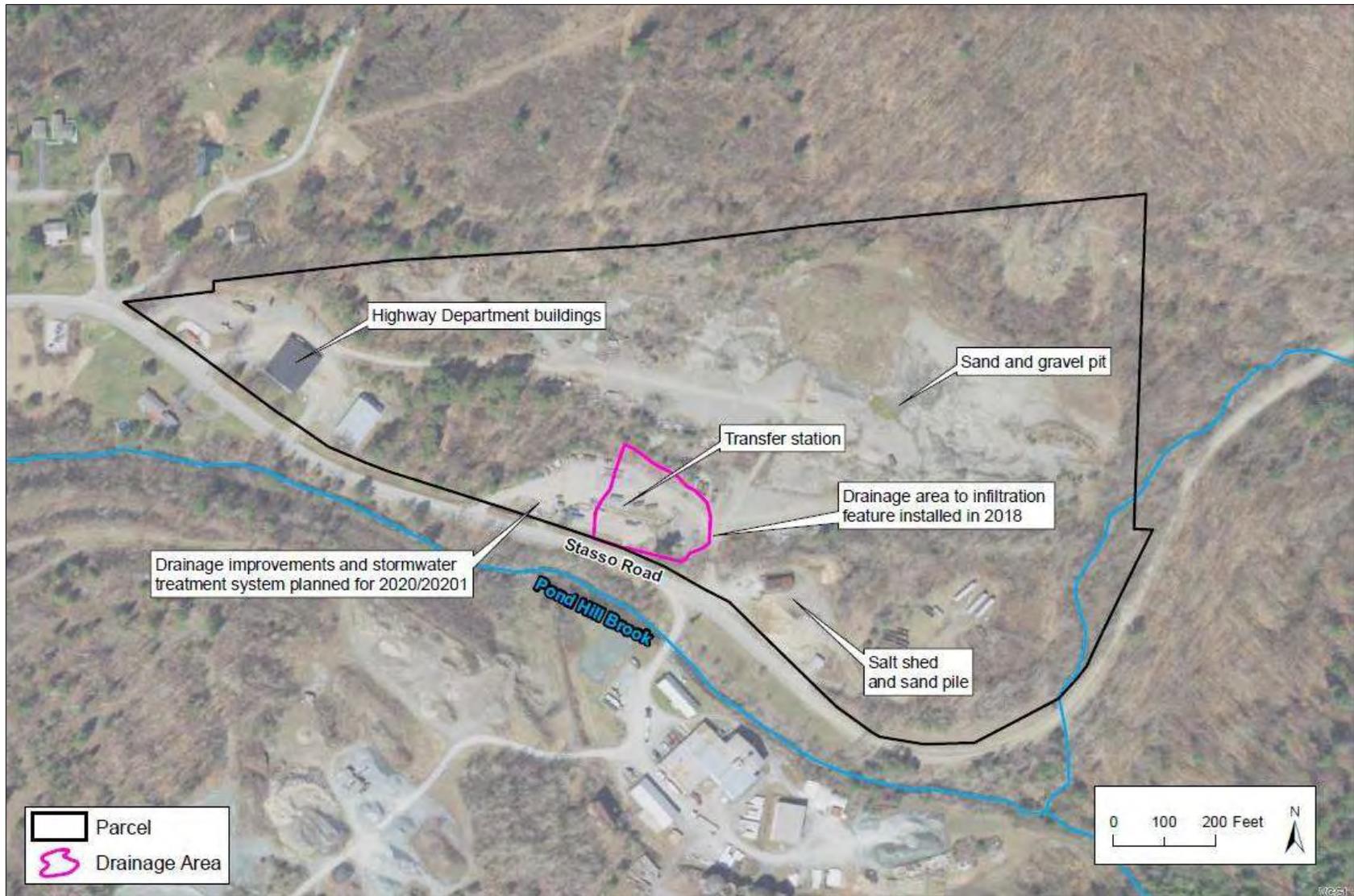


Figure 2. Preliminary map showing project elements of the Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study, Castleton, Rutland County, Vermont.

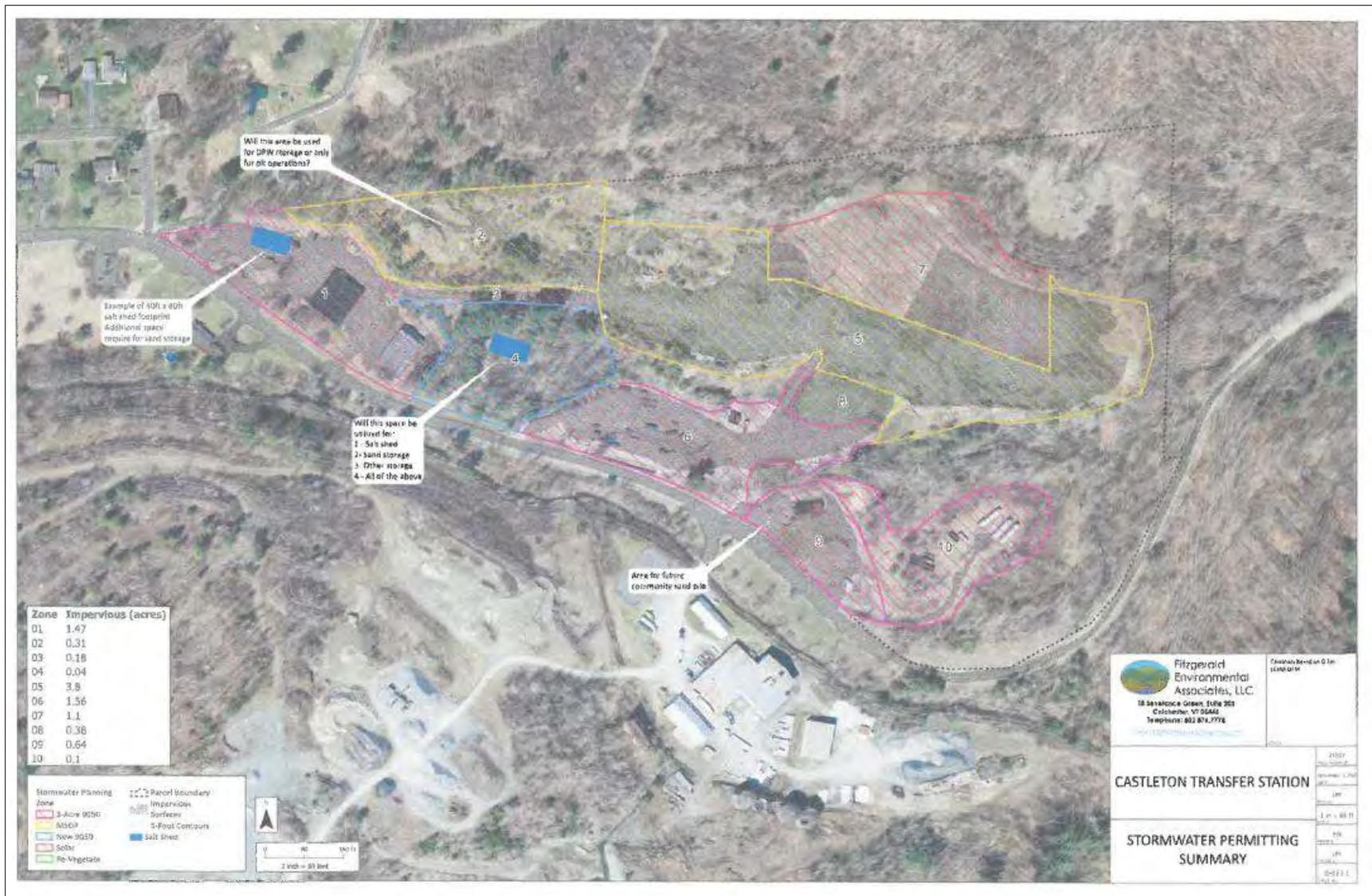


Figure 3. Preliminary map showing potential salt shed locations (blue rectangles) within the Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study project area, Castleton, Rutland County, Vermont.



Figure 4. Map showing the archaeological and standing structures Areas of Potential Effect (APE) for the Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study, Castleton, Rutland County, Vermont.

## ENVIRONMENTAL SETTING

The Town of Castleton lies within the Taconic Mountains physiographic region of Vermont. The Taconic Mountains formed in slates and phyllites and the foothills of the western side of the range are known as the “slate belt” and have been quarried extensively (USDA 1985:3). Child notes Castleton’s “surface is diversified by hill, mountain, plain, lake, river and rill,” and “most of the western, and part of the southern section is a plain of the most fertile soil, though in some places intersected by slate-rock and ridges of slate-gravel” (Child 1881:97). Most of Castleton, including the project area, lies within the Lake Champlain Drainage Basin. Pond Hill Brook, which is located immediately south of the project area, is a major tributary to the Castleton River, which also receives the waters of Lake Bomoseen. The Castleton River joins the Poultney River in Fairhaven, which then enters the southern end of Lake Champlain. The southern end of Lake Bomoseen is located approximately 2.6 miles north of the project area. The surficial geology of the project area is Kame Terrace (kt)/outwash gravel in the western half, and Till (t)/glacial deposit in the eastern half (nracs.usda.gov). Soils in the parcel are mostly Quonset-Warwick complex 25-45% slopes; where buildings are constructed, soils are listed as Warwick-Quonset Complex 3-8% slopes (USDA 1985). The Quonset and Warwick series are described as very deep and excessively drained soils that formed in glaciofluvial deposits on kames, stream terraces, deltas, eskers and valley trains (USDA 1985: 260, 273). The project area is at an elevation of 500 – 600 ft amsl. The vast majority of the project area has been quarried.

## HISTORIC BACKGROUND

The Town of Castleton was initially granted in 1761, surveyed in 1766, first settled in 1769 by Col. Noah Lee, and organized in 1777 (Thompson 1842, Part III:45). By about 1840, the village had a population of 550 and there were 75 dwelling houses, three churches, a town house, two buildings of the Castleton Medical College, and one of the Castleton Seminary (Thompson 1842, Part III:46). Businesses in the village at this time included: 4 lawyers, 4 physicians, 1 printing office, 1 book store, 4 mercantile stores, 1 druggist’s store, 3 public houses, 1 grocery, 1 watchmaker, 2 tailors, 3 manufacturers, 4 shoemakers, 1 hatter, 2 saddlers and harness makers, 2 carriage makers, 4 blacksmiths, 2 cabinet and chair makers, 4 joiners and builders, 1 oil mill, 1 grist mill, 1 furnace and 1 tannery (Thompson 1842, Part III:46). There was also a post office and ten school houses (Thompson 1842, Part III:47). The outlet of Bomoseen Lake had been developed by 1840 as well, and included a sash factory, one carding machine, a clothier’s works, three saw mills, one grist mill, a mercantile store and cluster of dwellings, called Mill Village (Thompson 1842, Part III:46). The railroad arrived in Castleton by 1854 (Scott 1854). By 1880, Castleton had a population of 2,605 and there were 150 dwellings in the village, four churches, a town hall, at least a dozen stores, and the Rutland County Grammar School (Child 1881:98).

Within the project area, one dwelling, labeled as “S.W. Boardman,” had been built by 1854, but probably as early as c. 1840, along the south side of a former town road at the northern end of the project area (Figure 5). Dea. Samuel W. Boardman (1789 – 1870) was born in Rutland, Vermont and after living for a time in Pittsford, moved to Castleton in 1837 (*Rutland Daily Herald* 1870, 1884; U.S. Census 1830, 1840). In the 1850 and 1860 censuses he is listed as a farmer in Castleton (U.S. Census 1850, 1860). In 1860, he sold the property and moved to

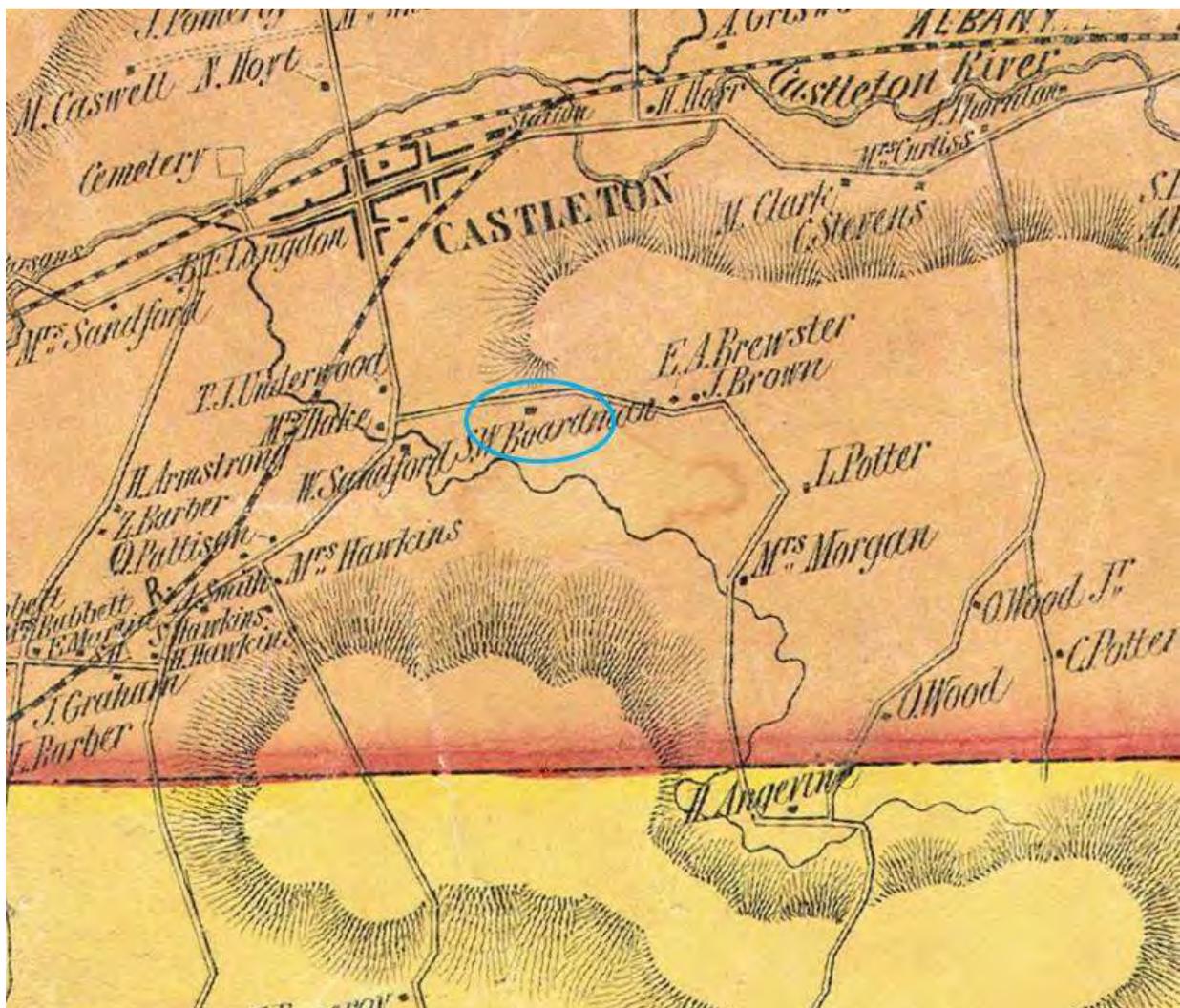


Figure 5. Detail from Scott's 1854 *Scott's Map of Rutland County, Vermont*, with the general project area added.

Middlebury (*Rutland Daily Herald* 1870). S.W. Boardman died in Pittsford in 1870 (*Rutland Daily Herald* 1870). Boardman's farm was subsequently sold to N.A. Sumner (1838 – 1921), who was a farmer as well as 'Register of Probate' (*Vermont Record* May 1886) (Figure 6). Sumner sold his property in Castleton, "known as the Boardman farm," in 1869 for \$6000 (*Rutland Weekly Herald* 1869). Lt. Nelson A. Sumner was born in Plymouth, Vermont, and served as an officer with the United States Colored Troops during the Civil War (*Vermont Vital Records* 1720 – 1908). He moved to Minnesota before c. 1880 and was a farmer / stock raiser throughout his life (U.S. Census 1880, 1900).

By 1895, the town road beyond (east of) the house had been discontinued and Staso Road had been constructed (Figure 7) (USGS 1895). A railroad spur is also mapped within the very southern portion of the project area in 1895; it is not present today and does not appear in 1942 (see Figure 7) (USGS 1895; VCGI 1942). The house, along with a barn / outbuilding, stood within the parcel until at least 1942; it was no longer extant by 1962 (Figures 8 and 9) (VCGI 1942, 1962). By 1994, the area where the buildings were located has been heavily modified by operations at the site, including the construction of an access road (Figure 10).

A structure appears in the southern portion of the project area, near the location of the current sand pile, in 1962; there may also be a smaller structure near this location in 1942 (see Figures 8 and 9). The parcel is mapped as "Gravel Pits" in 1964 (USGS 1964). By 1994, many of the buildings that are present within the parcel today were constructed.

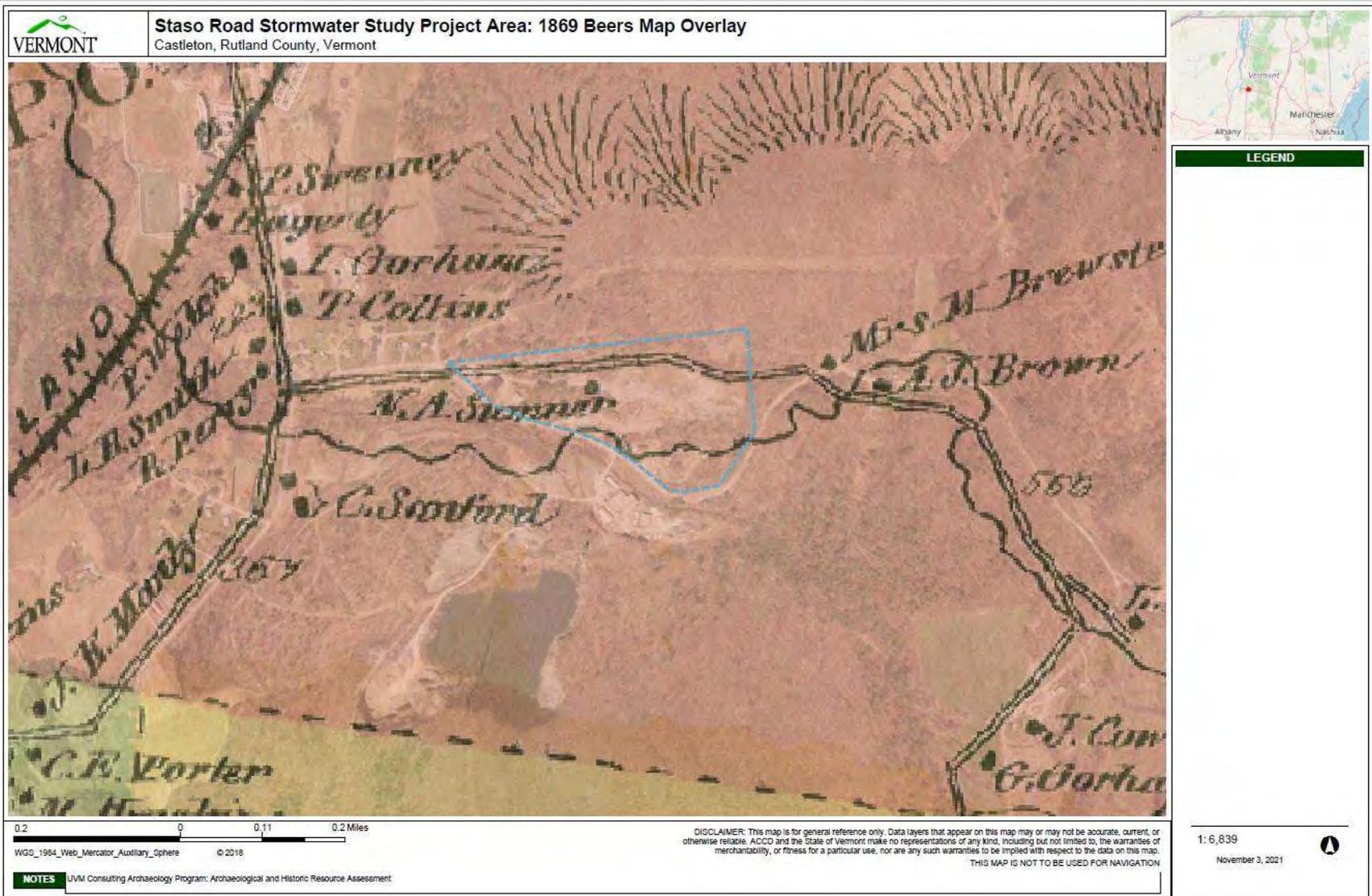


Figure 6. Detail from F.W. Beers' 1869 *Atlas of Rutland County, Vermont*, with the project area added.

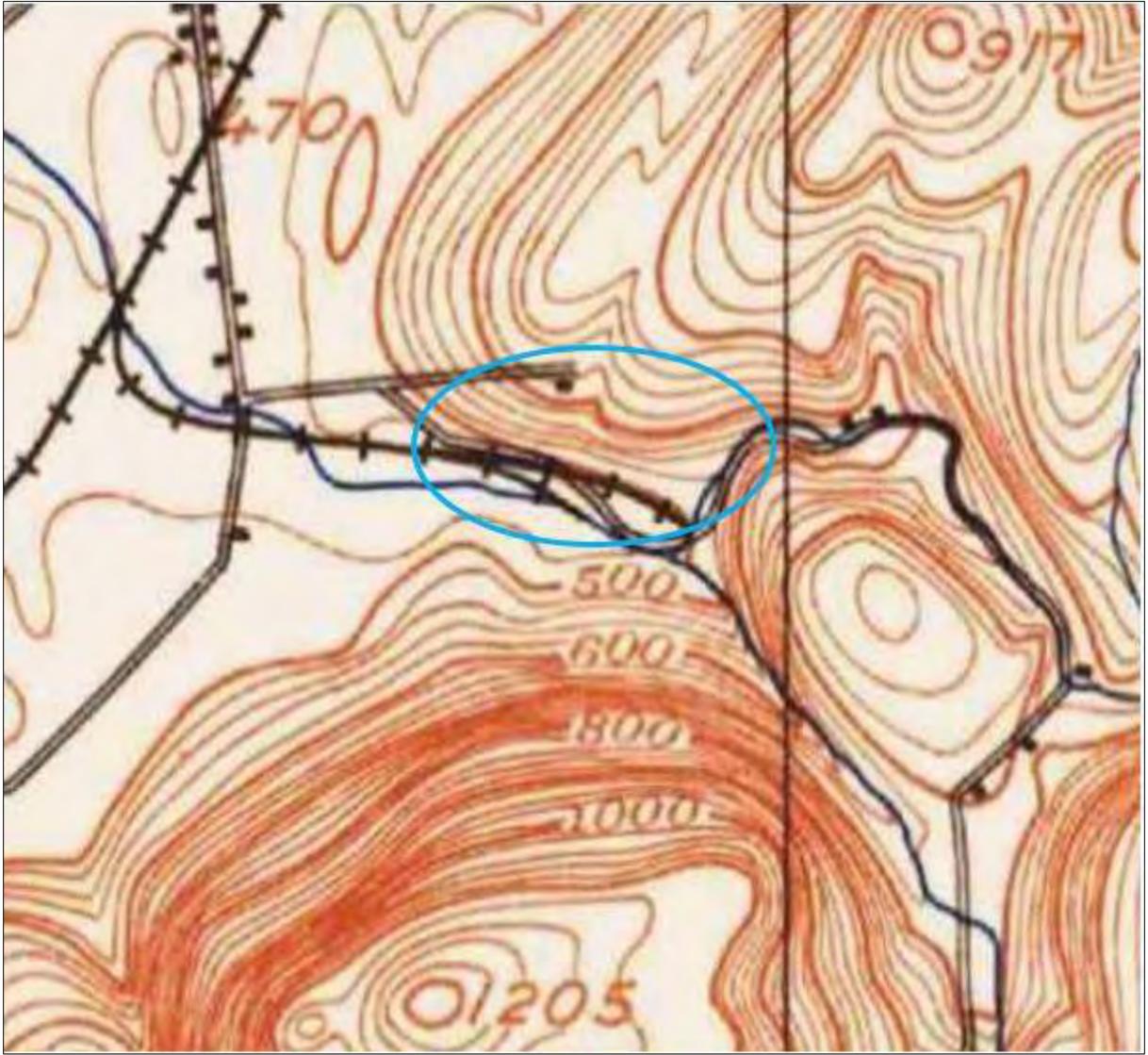


Figure 7. Detail from the 1895 USGS topographic map with the general project area indicated.



Figure 8. Detail from 1942 aerial image showing the location of the former house and barn / outbuilding, and a possible second structure, within the project area; also note area south of the house that appears extensively quarried by this time.



Figure 9. Detail from 1962 aerial image showing the location of the former house and barn / outbuilding and a second structure within the project area.



Figure 10. Google Earth image showing the location of the former house and barn / outbuilding in 1994.

## PRE-CONTACT NATIVE AMERICAN ARCHAEOLOGICAL RESOURCES

The Vermont Division for Historic Preservation's Vermont Archaeological Inventory (VAI) indicates that there are no previously reported pre-Contact Native American sites within the Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study project area (Figure 11). The closest site to the proposed project area is VT-RU-0217, which is located approximately 2.8 km (1.7 miles) northwest of the project area, where VT Route 30 crosses the Castleton River. VT-RU-0217 was identified based on the recovery of subsurface artifacts, including a chert graver tool, a quartzite biface tool and core fragment, and chert and quartzite flakes. Additional pre-Contact sites are known along the shores of Lake Bomoseen, further northwest of the project area.

An application of the Geographical Information System (GIS) based version of the Vermont Division for Historic Preservation's (VDHP) "Environmental Predictive Model for Locating Archaeological Sites" was utilized to predict archaeological sensitivity within the project area. With this model, archaeological sensitivity is depicted by the presence of one or more overlapping habitability factors, or environmental characteristics that may have attracted Native American occupation at some point in the past. The model indicates that the proposed project area may include up to three key sensitivity factors for pre-Contact Native American sites, specifically Drainage Proximity Presence, Stream-Stream Proximity Presence, and Kame Terrace or Glacial Outwash Soils Proximity (Figure 12).<sup>1</sup>

The VDHP's paper version of the predictive model is a checklist that scores an area's proximity to a select list of environmental features important to pre-Contact Native American communities. A score of 0 – 31 predicts the area is archaeologically non-sensitive, while a score of 32 or greater predicts the area is sensitive. The Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study project area scores a 12, indicating that it may not be sensitive (Appendix I).

Based on the modeling and desk review of aerial images and maps, one area, located at the southeast corner of the project area close to the confluence of Pond Hill Brook and an unnamed tributary, was identified as potentially sensitive for pre-Contact Native American sites (see Figure 12).

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<sup>1</sup> Level Terrain Presence was also indicated in a small area in the southern end of the project area, but on inspection was determined to be artificially created.



Figure 11. Map showing the location of known historic (blue) and pre-Contact Native American (red) archaeological sites near the Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study project area, Castleton, Rutland County, Vermont (VACCD ORC).

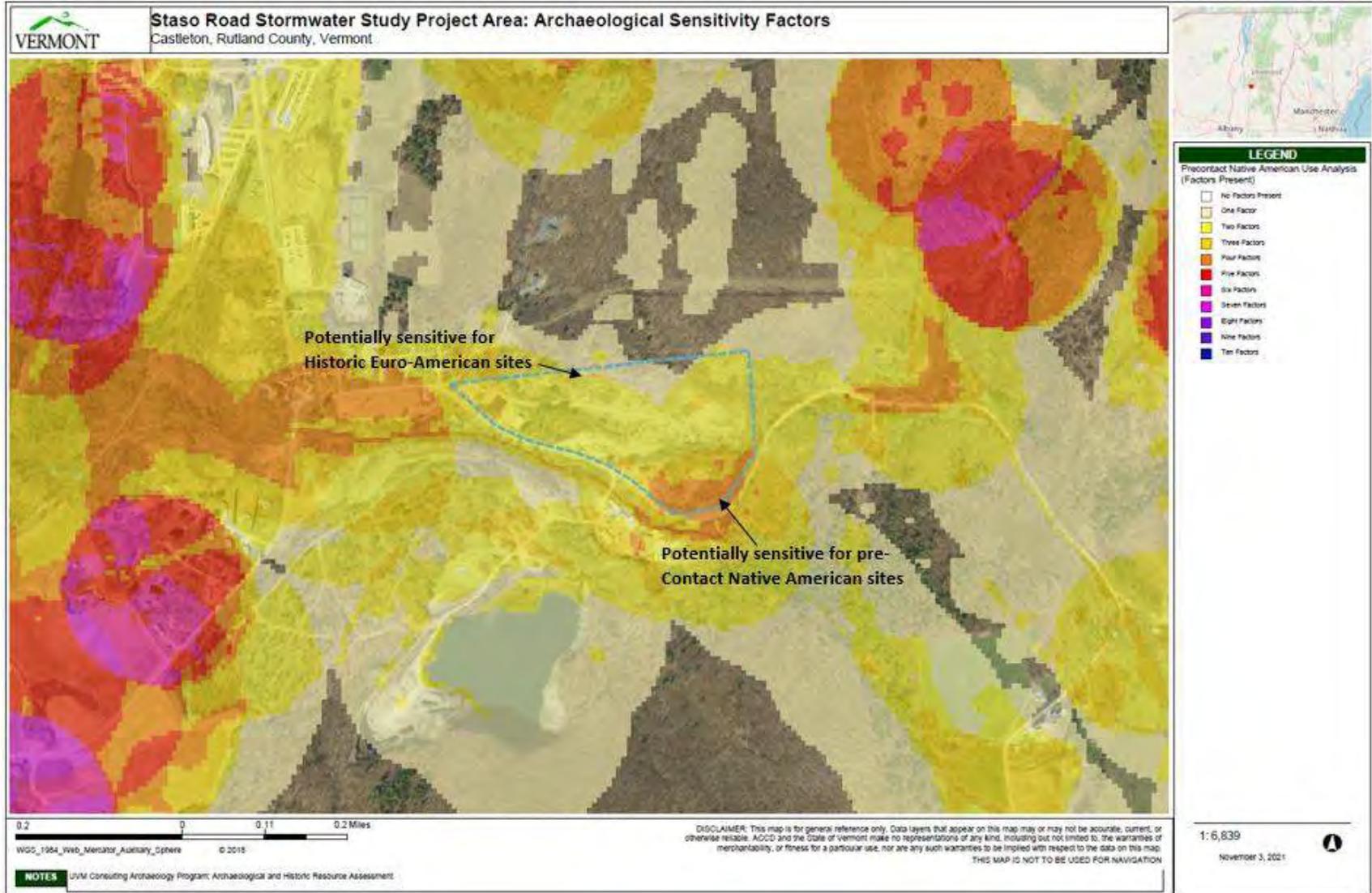


Figure 12. GIS based Archeological Sensitivity Map for the Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study project area, Castleton, Rutland County, Vermont, with areas identified as potentially sensitive (VACCD ORC).

## HISTORIC EUROAMERICAN ARCHAEOLOGICAL RESOURCES

A review of the VAI indicates that no historic era Euroamerican sites are designated within the project area (see Figure 11). The closest mapped historic sites in the VAI are VT-RU-0589, located approximately 1.4 km (0.9 miles) northwest of the project area, and VT-RU-0590, located approximately 1.4 km (0.8 miles) northwest of the project area, along or just south of VT Route 4A. VT-RU-0589 consists of a subsurface burn episode with late 19<sup>th</sup> and early 20<sup>th</sup> century artifacts and VT-RU-0590 consists of foundation remains with undated artifacts.

Historic maps and research indicate that a dwelling associated with a farmstead was constructed within the north portion of the project area c. 1840 (see Figures 5 – 8). A house, along with a barn / outbuilding, stood within the parcel until at least 1942; it was no longer extant by 1962 and by 1994, it appears that its location may have been heavily modified (see Figures 9 and 10). This area was identified as potentially sensitive for historic era Euroamerican sites (see Figure 12).

### FIELD INSPECTION

A field inspection of the project area was conducted by Catherine A. Quinn, Historic Preservation Specialist at the UVM CAP, on November 10, 2021. The portion of the project area adjacent to Staso Road was surveyed by foot. Due to the steep and rugged terrain of most of the parcel, the remainder of the survey was conducted by truck with Castleton's Town Manager, Mike Jones, and a facilities staff member, with stops for ground inspection where needed. Much of the parcel has been quarried and a portion of it remains an active gravel quarry.

#### *Archaeological Site Potential*

##### *Pre-Contact Native American*

The portion of the project area adjacent to Staso Road where the highway department buildings, transfer station, salt shed and sand pile are located, appears to have formerly been sloped and heavily modified by leveling, earth moving and fill to accommodate the structures (Figures 13 – 20). The eastern end of this area was also likely quarried in the early 20<sup>th</sup> century (see Figure 8).

The east end of the project area along Staso Road, within the large curve of the road, is used for storage (Figures 21 – 24). Although a portion of this area was identified as potentially sensitive, most of the area was formerly a landfill that has been filled in / reclaimed (personal communication with Town Manager and observation). Prior to its use as a landfill, a large part of it was likely quarried (see Figure 8). The very eastern edge of this area is adjacent to an unnamed tributary that flows into Pond Hill Brook just outside of the project area, on the south side of Staso Road. It appears that the landfill extended very close to the stream, or that reclamation activity disturbed most of the landform here, as the ground surface has been moved around and various debris is visible within and on top of it (Figures 25 – 28). Immediately adjacent to the stream, soil cores indicated very recent deposits. To the north along the stream, the landform is excessively steep.



Figure 13. View east along Staso Road at the west end of the project area; highway department structures at left.



Figure 14. View northeast in the west end of the project area; highway department structure at right.



Figure 15. View northeast along Staso Road at the west end of the project area; highway department structure at left.



Figure 16. View northeast from Staso Road between highway department structures at the west end of the project area.



Figure 17. View southeast along Staso Road at the central portion of the project area; transfer station structures at center.



Figure 18. View northwest along Staso Road at the central portion of the project area; transfer station structures at background.



Figure 19. View northeast into the central portion of the project area; transfer station entrance gate in foreground.



Figure 20. View southeast along Staso Road at the central portion of the project area; sand pile and salt shed structure (behind sand pile) at center.



Figure 21. View southwest within the eastern end of the project area nearest Staso Road, at the storage area / former landfill location.



Figure 22. View west within the eastern end of the project area nearest Staso Road, at the storage area / former landfill location.



Figure 23. View southwest within the eastern end of the project area nearest Staso Road, at the storage area / former landfill location.



Figure 24. View south from the Quarry edge over the eastern end of the project area, at the storage area / former landfill location.



Figure 25. View west within the easternmost end of the project area near the stream and Staso Road, at the former landfill location.



Figure 26. View of large concrete mass within the easternmost end of the project area near the stream and Staso Road, at the former landfill location.



Figure 27. View north at the easternmost end of the project area near the stream and Staso Road, at the former landfill location; note machinery part in the ground behind small tree at left.



Figure 28. View northwest of the stream in the easternmost end of the project area, adjacent to Staso Road (at background right).

The field inspection also confirmed that the two areas currently identified as possible new salt shed locations are not sensitive (see Figure 3). The location at the very western end of the project area, to the west of the highway department garages, is on a paved surface that appears to have been leveled (Figure 29). The location to the east of the highway department buildings is a steep slope, that also appears to have been disturbed by earth movement (Figures 30 and 31).

The vast majority of the remainder the project area has been significantly disturbed by past and current quarrying activity, and no additional areas sensitive for pre-Contact Native American sites were identified during the field inspection (Figures 32 – 36).

### *Historic Euroamerican*

No remains, such as a depression / cellar hole or foundation stones, associated with the c. 1840 farmstead once located in the north portion of the project area were identified during the field inspection. In addition to surveying the approximate location of the property, the entire former town road at the north edge of the town parcel was walked; no indication of any historic archaeological remains were identified. Much of the landform to the south of the former road has been disturbed by quarrying activities.

### *Standing Structures*

Town owned buildings or structures within the project area appear to date to the 1990s or later and are not considered historic (see Figures 13 – 18) (Google Earth). A structure that appears in the 1962 aerial may remain at the site, near the existing sand pile and salt shed, but it is not recommended as State or National Register eligible (see Figures 9 and 20).

Houses along Staso Road and Ellis Orchard Drive, adjacent to the west end of the project area, all date to after 1962, and most appear to be in place by 1994 (Figures 37 – 40; see Figures 9, 10 and 29). None of these buildings were identified as significant historic resources and none are recommended as eligible for inclusion of the State or National Register of Historic Places.

Some buildings within the Hadeka Stone Company complex along the south side of Staso Road may date to as early as c. 1940 or 1960, though most structures from c. 1940 appear to be no longer extant (Figure 41; see Figures 8 and 9). The complex was only viewed from Staso Road, but a photograph from Hadeka's website, shows most of the buildings to be simple industrial / utilitarian structures with little to no distinctive historic character defining features. Structures related to materials processing are also present within the complex. Additional research and on-site review would be needed to assess the complex for historic significance and State or National Register eligibility.



Figure 29. View northeast of a potential location for a salt shed at the western end of the project area, west of the highway department buildings.



Figure 30. View northwest of a potential location for a salt shed at the western end of the project area, east of the highway department buildings.



Figure 31. View southeast of a potential location for a salt shed at the western end of the project area, east of the highway department buildings.



Figure 32. View southwest over the project area from the quarry edge.



Figure 33. View southwest over the project area from the quarry edge.



Figure 34. View west over the project area from the quarry edge.



Figure 35. View southwest over the project area from the quarry edge.



Figure 36. View east into the quarry pit at the solar installation location.



Figure 37. View northwest of houses along the north side of Staso Road, at the west end of the western edge of the town parcel.



Figure 38. View southwest of buildings and substation along Staso Road at the west end of the western edge of the town parcel, from the highway department driveway.



Figure 39. View northeast of buildings on Ellis Orchard Drive at the west end of the western edge of the town parcel.



Figure 40. View southwest of house along the south side of Staso Road, across from the highway department at the west end of the western edge of the town parcel.



Figure 41. View southeast of the Hadeka Stone Company located on the south side of Staso Road, across from the town sand pile and salt shed.



Figure 42. View southeast of the Hadeka Stone Company located on the south side of Staso Road, across from the town sand pile and salt shed (photo from Hadeka website, by Pawel Kurnik, 2020).

## **CONCLUSIONS AND RECOMMENDATIONS**

The Town of Castleton, with assistance from MSK Engineering & Design, proposes the Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study, Castleton, Rutland County, Vermont to address complex stormwater runoff issues at a town owned parcel immediately north of Staso Road that contains a sand and gravel pit, garages, transfer station, a small salt shed, an exposed sand pile, storage areas, and a solar installation that is currently under construction within the pit. To assist with their Section 106 permit review process, a combined Archaeological Resource Assessment (ARA) and Historic Resource Review (HRR) was undertaken by the University of Vermont Consulting Archaeology Program (UVM CAP). The purpose of the review is to identify portions of a project's Area of Potential Effect (APE) that have the potential for containing pre-Contact era Native American and/or historic era archaeological sites and to identify and assess any standing historic resources on or eligible for listing on the National and/or State Register of Historic Places that have the potential to be directly or indirectly affected by project work.

### **Archaeological Resources**

As a result of the ARA, the proposed project area has a relatively low base sensitivity for pre-Contact Native American sites and given excessive slope and extensive ground disturbance from past and current quarrying activities, along with current use of the parcel, this review recommends that the APE is unlikely to contain pre-Contact Native American cultural resources. Based on the lack of any identifiable remains associated with the single historic property within the project area, a c. 1840 farmstead, and notable ground disturbance present in the area, it is also unlikely that any significant intact historic period archaeological resources remain within the APE. Therefore, this review recommends that the proposed project will have No Effect on significant archaeological resources and no further archaeological investigation is recommended for pre-Contact Native American or historic era resources within the Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study APE.

### **Standing Historic Structures**

No significant standing historic buildings or structures were identified within the project area, so this review recommends that the proposed project will have no direct effect on standing historic resources. None of the buildings and structures located just beyond the western limits of the project area were identified as significant historic resources and none are recommended as eligible for inclusion of the State or National Register of Historic Places. For these portions of the APE, this review recommends that the Castleton TAP TA 19(3) Staso Road Stormwater Scoping Study project will have No Effect on significant historic resources.

Some buildings within the Hadeka Stone Company complex along the south side of Staso Road, across from the central and eastern portions of the project area, may date to as early as c. 1940 or 1960 and additional review would be needed to assess the entire complex for historic significance and State or National Register eligibility. However, this review recommends that as currently defined in this scoping phase, the proposed project would have No Adverse Effect on the complex, if it did qualify as a significant historic resources.

Review of final project plans developed for the Castleton TAP TA 19(3) Staso Road Stormwater project will be necessary prior to project work and the Vermont Division for Historic Preservation (VDHP)/Vermont State Historic Preservation Office (SHPO) will have the opportunity to review and comment on all archaeological and standing historic resource recommendations prior to project work.

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**APPENDIX I: VDHP ENVIRONMENTAL PREDICTIVE MODEL FOR LOCATING  
PRE-CONTACT ARCHAEOLOGICAL SITES**

VERMONT DIVISION FOR HISTORIC PRESERVATION			
<b>Environmental Predictive Model for Locating Pre-contact Archaeological Sites</b>			
Project Name	Staso Road Stormwater	County	Rutland
DHP No.	Map No.	Staff Init.	Town Date
Town: Castleton			
<b>Additional Information</b>			
Environmental Variable	Proximity	Value	Assigned Score
<b>A. RIVERS and STREAMS (EXISTING or RELICT):</b>			
1) Distance to River or Permanent Stream (measured from top of bank)	0- 90 m	12	12
	90- 180 m	6	
2) Distance to Intermittent Stream	0- 90 m	8	
	90-180 m	4	
3) Confluence of River/River or River/Stream	0-90 m	12	
	90 -180 m	6	
4) Confluence of Intermittent Streams	0 - 90 m	8	8
	90 - 180 m	4	
5) Falls or Rapids	0 - 90 m	8	
	90 - 180 m	4	
6) Head of Draw	0 - 90 m	8	
	90 - 180 m	4	
7) Major Floodplain/Alluvial Terrace		32	
8) Knoll or swamp island		32	
9) Stable Riverine Island		32	
<b>B. LAKES and PONDS (EXISTING or RELICT):</b>			
10) Distance to Pond or Lake	0- 90 m	12	
	90 -180 m	6	
11) Confluence of River or Stream	0-90 m	12	
	90 -180 m	6	
12) Lake Cove/Peninsula/Head of Bay		12	
<b>C. WETLANDS:</b>			
13) Distance to Wetland (wetland > one acre in size)	0- 90 m	12	
	90 -180 m	6	
14) Knoll or swamp island		32	
<b>D. VALLEY EDGE and GLACIAL LAND FORMS:</b>			
15) High elevated landform such as Knoll Top/Ridge Crest/ Promontory		12	12
16) Valley edge features such as Kame/Outwash Terrace**		12	12

17) Marine/Lake Delta Complex**		12	
18) Champlain Sea or Glacial Lake Shore Line**		32	
<b>E. OTHER ENVIRONMENTAL FACTORS:</b>			
19) Caves /Rockshelters		32	
20) <input type="checkbox"/> Natural Travel Corridor <input type="checkbox"/> Sole or important access to another drainage <input type="checkbox"/> Drainage divide		12	
21) Existing or Relict Spring	0 – 90 m 90 – 180 m	8 4	
22) Potential or Apparent Prehistoric Quarry for stone procurement	0 – 180 m	32	
23) Special Environmental or Natural Area, such as Milton aquifer, mountain top, etc. (these may be historic or prehistoric sacred or traditional site locations and prehistoric site types as well)		32	
<b>F. OTHER HIGH SENSITIVITY FACTORS:</b>			
24) High Likelihood of Burials		32	
25) High Recorded Site Density		32	
26) High likelihood of containing significant site based on recorded or archival data or oral tradition		32	
<b>G. NEGATIVE FACTORS:</b>			
27) Excessive Slope (>15%) or Steep Erosional Slope (>20)		- 32	-32
28) Previously disturbed land as evaluated by a qualified archeological professional or engineer based on coring, earlier as-built plans, or obvious surface evidence (such as a gravel pit)		- 32	
<b>** refer to 1970 Surficial Geological Map of Vermont</b>			
			<b>Total Score: 12</b>
<b>Other Comments :</b>			
0- 31 = Archeologically Non- Sensitive 32+ = Archeologically Sensitive			