



Civil Engineers • Land Use Planners

January 17, 2020

Sarah McShane  
Zoning Director and Administrator  
Town of Stowe, Akeley Memorial Building  
67 Main Street, Stowe, VT 05672

**Subject: Proposed 9-Lot Subdivision (Tax ID 12004-010)  
Stowe Hollow Road, LLC  
Stowe Hollow Road, Stowe, VT**

**Project #18045**

Dear Sarah,

In conjunction with the referenced Final Subdivision Application, please find attached submittal with the following documents:

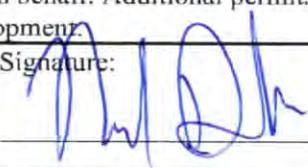
- Permit Application, signed 12-12-19
- Cover Letter from Mumley Engineering, Inc., dated 01-17-20
- Village PUD Density Analysis, dated July 11<sup>th</sup>, 2019
- Letter from Fran Sladyk, Professional Forester, dated 9-11-19
- Email from Ari Rockland (Dept of Agriculture), dated 9-19-19
- Email from Noel Dodge (Dept of Fish & Wildlife), dated 9-6-19
- Email from Yvonne Basque (Dept of Historic Preservation), dated 9-27-19
- Email to Shannon Morrison (Wetlands Division), dated 11-13-19
- Email from Harry Shepard (Stowe Public Works, re: Road Access), dated 07-25-19
- Landscaping Maintenance Plan, dated 01-17-20
- Final Declaration of Covenants (HOA Agreement), dated 01-17-20
- Geological Analysis, with Appendices, by Paul Bierman, Professor of Geology, UVM, dated 01-05-20
- Cross Sections sketch plan, by Mumley Engineering, Inc., dated 01-17-20
- Visual Renderings, by ELD Architecture, dated 01-17-20
- Site Plans by Mumley Engineering, Inc., C-1 thru C-10, dated 01-17-20
- Erosion Control and Construction Phasing Plans, by Mumley Engineering, Inc., dated 01-17-20

Thank you for your time and consideration.

If you have any questions, please don't hesitate to contact me at [tyler@mumleyinc.com](mailto:tyler@mumleyinc.com) or 802-881-6314.

Sincerely,  
Tyler Mumley, P.E.

**Mumley Engineering, Inc.**

	Development Application Town of Stowe Zoning Department PO Box 730 Stowe VT 05672 Voice (802) 253-6141	Project # (To be assigned)	
	This form serves as an application for all requested zoning and subdivision reviews.		Date Received:
<b>Owner Information</b>			
Property Owner	<b>Stowe Hollow Road LLC (Nick Donahue)</b>		
Mailing Street Address City, State and Zip	<b>474 Stowe Hollow Road, Stowe, VT 05672</b>		
Phone Number	Day: <b>(802) 522-5959</b> Other phone or email: <b>nicholasmdonahue@gmail.com</b>		
Applicant/Contact Information (Relationship to Owner) <input checked="" type="checkbox"/> Owner (If so, skip to site information) <input type="checkbox"/> Lessee <input type="checkbox"/> Contractor <input type="checkbox"/> Architect/Designer <input type="checkbox"/> Agent for Owner <input type="checkbox"/> Under purchase contract All information and correspondence is sent to applicant/contact.			
Contact Name			
Company (if any)			
Mailing Street Address City, State and Zip			
Phone Number	Other/Email:		
<b>Site Information</b>			
Physical Address	<b>Stowe Hollow Road</b>		
Business (if any)	<b>n/a</b>		
Tax Map ID	<b>12004-010</b> (Span: 621-195-13848)		
Please briefly describe the project or request below:			
<b>Subdivision of existing vacant ~14-acre parcel in Village PUD District along Stowe Hollow Road into nine (9) single-family residential lots with a proposed private roadway from Stowe Hollow Road, including on-site water supplies, wastewater disposal systems, and stormwater management system.</b>			
For All Approvals: The below signed hereby agrees that the proposed work shall be done in accordance with the application, plan, specifications, and other associated documentation and that the work shall conform to all applicable town ordinances and regulations. Signing as an "Agent for Owner" indicates that the person signing has the permission of the owner to act on the owner's behalf. Additional permits may be needed from the State of Vermont and/or the Town of Stowe for development.			
Indicate if: <input checked="" type="checkbox"/> Property Owner OR <input type="checkbox"/> Agent for Owner	Signature: 	Date: <b>12/19/19</b>	
Additional application information is required on reverse side: ➔			
Note: Local Zoning approval does not cover any required state approvals. Wastewater System and Potable Water Supply permits may be required for construction or modifications that change the wastewater flow. Other State permits may be required for certain uses. The applicant is advised to contact a DEC Permit Specialist to discuss the State permit requirements at 802-505-5367.			



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Sarah McShane  
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**Subject: Proposed 9-Lot Subdivision (Tax ID 12004-010)  
Stowe Hollow Road, LLC  
Stowe Hollow Road, Stowe, VT**

**Project #18045**

Dear Sarah,

Please find attached an application, supporting documents, and associated plans for a proposed subdivision along Stowe Hollow Road for review by the Stowe Development Review Board ("DRB"). It is the applicant's desire to present the project to the DRB at their meeting on February 18<sup>th</sup>, 2020.

The landowner and applicant, Stowe Hollow Road LLC, represented by Nick Donahue, proposes to subdivide the existing undeveloped  $\pm 14$ -acre property into nine (9) new single-family residential lots. The property is part of the Stowe Village PUD (Residential) Zoning District. The abutting properties are zoned Rural Residential (RR-2). The property does not include any overlay districts. The site slopes from Stowe Hollow Road down to the lands owned by the Town of Stowe used for the Parks & Recreation Facility. There is a portion of the property that extends to the west; this area is mainly covered by Class II wetland as mapped by the State of Vermont.

The proposed nine (9) single-family residential lots will range in size from 0.86 acres to 3.71 acres, each. The proposed residential dwellings will be serviced by a new access and proposed roadway from Stowe Hollow Road, with a fifty-foot (50') right-of-way through the property. The road will be a sixteen-foot (16') wide gravel drive, with two-foot (2') wide shoulders, and roadside swales. A thirty-five-foot (35') radius "Y" hammerhead turn-around is proposed at the end of the road for emergency vehicles. Each new lot is proposed to have an on-site drilled well for potable water supply and on-site wastewater disposal systems. Electrical service is expected to come from the existing poles along Stowe Hollow Road with underground utilities running to the proposed lots.

This parcel lies within the Stowe Village PUD (Residential) zoning district. This district has its own section in the Zoning Regulations and has a specific set of rules, including density allowances. The total Village PUD district includes up to 300 units total to be developed (200 residential, 96 business, and 4 industrial). This parcel is in the "Residential" area of the Village PUD and therefore only allowed for residential development. Based on information collected by Ampersand Properties (the previous owner of the parcel) and provided by the Town of Stowe Zoning Department, the attached density analysis has been compiled of past and current allowances. As shown, this proposed project with nine residential units, will result in a total of 105 residential units within the district (95 remaining to be used).

Please see the following comments and input regarding the Town of Stowe Subdivision planning standards:

## 5.1 General Planning Standards

### 1. Character of land

- a. The land to be subdivided is of such a character that it can be used for the intended purposes without undue adverse impact on public health or safety, or the environment or, neighboring properties or the rural and historic character of the community as outlined in the regulations. The proposed subdivision conforms to the Zoning and Subdivision Regulations and with the Town Plan.
- b. The Stowe Village PUD zoning district has a wide range of purposes, including "To allow more uncongested development in the outlying or undeveloped areas of the Village"; the proposed use of single-family residential lots greater than 10,000 square feet is a permitted use in the district.
- c. The property is sloped from east to west, from Stowe Hollow Road down to the Town-owned lands. Significant care will be taken during construction to ensure both temporary and permanent erosion issues are avoided. The proposed roadway will be constructed in accordance with Vermont Department of Transportation (VTrans) Construction Standards to ensure adequate compaction is attained for stability and longevity of the new roadway and associated stormwater control features. A comprehensive Construction Phasing Plan with extensive erosion control measures is proposed to ensure safe construction operations.

### 2. Natural and Scenic Features

- a. The proposed subdivision has been designed to prevent undue adverse impact on natural and scenic features.
- b. There are three existing streams that run from existing drainage culverts under Stowe Hollow Road; two of these will pass through a portion of new culvert under the proposed roadway but will otherwise be left in their natural states.
- c. A 100' greenbelt is required around the property for building setbacks; these areas along the north, east, and west portions of the property will be mainly left untouched to keep a significant number of existing trees on the site.
  - i. Public vantage points of the property are limited; additional landscaping is proposed to help 'fill in' the site from local views in proximity.
- d. A Class II wetland exists to the west and includes the 'thumb' of land of this parcel; the subdivision has been designed to avoid any impacts to the wetland or its 50-foot buffer.
  - i. Please see the attached email correspondence with Shannon Morrison, District Wetlands Ecologist for the Vermont DEC Watershed Management Division
  - ii. The area of the wetland and the area of its 50' wide buffer have been designated as Open Space for the subdivision and shall thus be further protected for any future development.
- e. It has been deemed by the State that prime agricultural soils do not exist on the property
  - i. Please see attached email from Ari Rockland-Miller, Senior Agricultural Development Coordinator for the Vermont Agency of Agriculture, Food & Markets.
- f. The site has been visited and evaluated by Fran Sladyk, State of Vermont Professional Forester, Butternut Mountain Farm. His letter of recommendations is attached.
  - i. Fran recommends that the stand of white pines which make up the majority of the main portion of the development should be cleared due to their density and current condition (many are dead, dying, or diseased). Furthermore, he notes that the property is more suitable for hardwoods and clearing of the pines would promote the future growth of maple, aspen, and birch.
- g. The property is not significantly visible from existing roadways, adjacent properties, or offsite vantage points. However, given its proximity to the historic Stowe Village, the applicant is aware of the DRB's desire to ensure that any potential impacts on scenic vistas, including views onto the subject property, are minimized. Due to the existing topography of the land, the proposed site design, and the professional forester's recommendations, most of the main portion of the property

is to be cleared of the existing pine trees. Therefore, significant landscaping is proposed to screen the proposed buildings and to help return the property to its original hardwood forested hillside landscape.

- i. The proposed landscaping plan establishes preserved areas where development is restricted or prohibited, and specific land management techniques are employed to protect or enhance the natural features of the property
- ii. Full-size and scaled electronically rendered visuals of the proposed site are provided and clearly show that the proposed landscaping measures will provide significant screening of the site from any possible Stowe Village vantage points.

### 3. Protection of Significant Wildlife Habitat and Natural Communities

- a. The subject parcel does not include any significant wildlife habitat or natural communities
  - i. Please see attached email correspondence with Noel Dodge, Wildlife Biologist for the Vermont Fish & Wildlife Department regarding deer wintering areas and merlin birds.
  - ii. Please see attached email correspondence with Yvonne Benney Basque, Historic Resources Specialist, Archaeologist, for the Vermont Division for Historic Preservation
  - iii. The area of the wetland and its 50-foot wide buffer have been designated as Open Space.

### 4. Historic Sites and Community Character

- a. The proposed subdivision has been designed to minimize undue adverse impact on historic sites and the rural character of the Town. The parcel could be characterized between “village” and “rural” areas, therefore both sections of the rules may apply. The subdivision includes a common roadway with lots ranging from 0.86 acres to over 3 acres.
- b. Subdivisions in or adjacent to existing village areas are to be designed to reflect traditional village settlement patterns. Given the existing conditions of the property, such a layout for this site is difficult to achieve. The proposed lots and dwellings are connected via a single street access and include a mix of land uses and pedestrian access throughout the property.
- c. Subdivisions in rural areas are to result in minimum undue adverse impact on the rural landscape. Given its location, the property is not significantly visible from existing roadways, adjacent properties, and offsite vantage points. The lots and building areas have been designed to mitigate the visual impact, including the following aspects:
  - i. Minimizing the placement of building zones in visually prominent areas that cannot be adequately screened (primarily the upper portion of the property along Stowe Hollow Road).
  - ii. Restricting development along public roads; a no-cut zone is proposed along Stowe Hollow Road.
  - iii. Building zones are designed to avoid layout alignments and provide elevational differences, to eliminate direct sight lines. Adequate separation distance and vegetated buffers are provided.
  - iv. Vegetated buffers are provided to help screening within the development and between adjacent properties and public roadways.

5. Reserved strips: Reserved strips are not proposed.

### 6. Screening

- a. The preservation of existing trees and existing vegetation is proposed along the north, east, and south properties lines to help provide visual screening of development and to otherwise soften and/or lessen the impact of development on natural features and scenic vistas. Significant landscaping is proposed throughout the project, including the following:

- i. Naturalized Areas: areas to be returned to natural forested areas including planting of 3' to 4' tall native deciduous and evergreen saplings at 1 per 64 square feet in the lower areas of the project and 1" to 1.5" DBH trees at 20' on-center in the upper developed areas of the project.
  - ii. Re-vegetation Areas: these areas to receive a wooded wildflower seed mix and will be minimally maintained – allowing revegetation with tall grasses, flowers, shrubs and trees
  - iii. Street trees: installation of 2.5" DBH (minimum) mix of shade tree species at 35'-40' on-center along both sides of the new roadway
  - iv. Lot landscaping: each lot owner to install a minimum of 3 trees (2.5" DBH minimum), mix of deciduous and evergreen, on west-facing side of the dwellings, and minimum of 50% of west-side of dwelling to be landscaped with flowers, shrubs, and/or ornamental trees.
- b. The property size is ~14 acres. The project includes a total of approximately 7.2 acres to be cleared for development (51%). Of these 7.2 acres, approximately 5.3 acres (74%) will be landscaped as described above. The remaining 1.9 acres (of the total cleared area) includes the roadway and roadside areas as well as the maintained lot dwelling areas.
- c. The result of the proposed landscaping plan is significant screening of the proposed buildings and return of the property to its original hardwood forested hillside landscape.
  - i. Full-size and scaled electronically rendered visuals of the proposed site are provided and clearly show that the proposed landscaping measures will provide significant screening of the site from any possible Stowe Village vantage points.

#### 7. Pedestrian Access

- a. The site abuts the Town of Stowe properties (Stowe Arena and Stowe Elementary School) and it is likely that landowners will walk to the Village. A pedestrian easement is proposed from the cul-de-sac area of the road, down between lots 5 and 6, to the Open Space area which abuts the Town of Stowe Memorial Park area.

#### 8. Traffic

- a. Traffic generated by the proposed subdivision will not create unreasonable traffic congestion or cause unsafe conditions regarding use of existing roadways (Stowe Hollow Road). Based on the proposed nine single-family residential lots, the estimated traffic generated from the site will be nine trips in the peak hour (evening) and eight-six daily trips (ITE 9<sup>th</sup> Edition, Use #210).
- b. The Vermont Department of Transportation (VTrans) recorded 3200 average daily trips (ADT) along Stowe Hollow Road at this location in 2018. The proposed project represents a less than 3% increase in daily traffic.

#### 9. Municipal Facilities

- a. The proposed subdivision will not create an undue burden on municipal facilities or create an unreasonable demand for municipal services. The site is proposed to include on-site wastewater disposal systems and potable water supplies.

#### 10. Lot Configuration

- a. The proposed configuration of lots is appropriate given the proposed roadway orientation and existing topography, natural features, and property lines of the site.

#### 11. Building Zone

- a. The proposed subdivision provides adequate building sites for each proposed lot and specific building zones are depicted on the plans, located and sized to ensure compliance with all of the provisions of the Town regulations.

## 12. Fire Protection Facilities

- a. The proposed roadway and driveways have been designed in general compliance with the Stowe Fire Department Construction Standards. All lots will allow for reasonable access by emergency vehicles to the building zones.

## 13. Disclosure of Subsequent Development Plans

- a. There is no future development beyond what is currently proposed for the parcel.

## 14. Private Enforcement Mechanisms

- a. Please find attached a draft homeowners association declaration to ensure the continual maintenance of shared driveways and other shared facilities.

## 5.3 Open Space and Planned Unit Development

1. The proposed subdivision includes the area of wetlands and associated buffers to be used as open space. This designation will help with the conservation and improvement of natural features and green areas, retention of wildlife areas and nature observation areas; protection of natural drainage ways and floodwater retention areas.

## 5.4 Road Standards and Coordination with Public Highways

1. The proposed private roadway has been designed to ensure the safe and efficient movement of vehicles; it has been logically related to topography so as to produce usable lots and reasonable road grades and be in harmony with existing public highways.
2. A 50-foot right-of-way is proposed for the private shared roadway and shall be maintained by the homeowner's association.

## 5.5 Utilities and Stormwater Management

1. On-site potable water supply and wastewater disposal systems are proposed for each lot. Some water supplies and wastewater disposal systems will be located on adjacent lots and will utilize easements for construction and maintenance.
2. Underground electrical and utility supply is proposed from Stowe Hollow Road.
3. There is no proposed street lighting.
4. The proposed development is subject to State of Vermont Stormwater Management permitting and will include design and engineering in accordance with the State Operational Stormwater regulations.
5. All construction activities on the site will adhere to current State of Vermont erosion prevention and sediment control standards and to the requirements of Section 3.12 of the Stowe Zoning Regulations.
  - a. An Erosion Control Planset, including construction phasing, is provided to the DRB for review and approval.
6. Monuments shall be placed on all subdivided parcels in conformance with the Rules of the Board of Land Surveyors.

Thank you for your time and consideration. If you have any questions, please don't hesitate to contact me at [tyler@mumleyinc.com](mailto:tyler@mumleyinc.com) or 802-881-6314.

Sincerely,

Tyler Mumley, P.E.



**Mumley Engineering, Inc.**



Civil Engineers • Land Use Planners

Stowe Village PUD Zoning District – Density Bank Analysis

July 11<sup>th</sup>, 2019

For: Stowe Hollow Road LLC, Proposed 9-Lot Subdivision

Number of Units

Type	Maximum Allowed	Number Previously Issued *	Number Issued Here	Total Issued To-Date	Number Remaining
Business	96	21.5	0	21.5	74.5
Industrial	4	4	0	4	0
Residential	200	96	9	105	95
<b>Total</b>	<b>300</b>	<b>121.5</b>	<b>9</b>	<b>130.5</b>	<b>169.5</b>

Floor Space

Type	Maximum Allowed	Number Previously Issued *	Number Issued Here	Total Issued To Date	Number Remaining
Business	227,800	12,898	0	12,898	214,902
Industrial	8,712	6,400	0	6,400	2,312
Residential	n/a	n/a	n/a	n/a	n/a
<b>Total</b>	<b>236,512</b>	<b>19,298</b>	<b>0</b>	<b>19,298</b>	<b>217,214</b>

Building Coverage

Total Project Area (SF)	Maximum Allowed (%)	Maximum Allowed (SF)	Previous Issued * (SF)	Amount Issued here (SF)	Total Issued To Date (SF)	Amount Remaining (SF)
39,493,232	15%	5,923,985	148,082	18,900	129,182	5,794,803

\* Previous amounts are based on the Unit Density Bank analysis completed by Ampersand Properties Limited for Centre Village, October 2012 for Phase IV (seven lots) at Thomas Lane.

September 11, 2019  
Butternut Mtn. Farm  
37 Industrial Park Drive  
Morrisville, Vt. 05661  
802-888-3491  
Fax 802-888-5909  
[frans@butternutmountainfarm.com](mailto:frans@butternutmountainfarm.com)

Tyler Mumley  
454 Mountain Road, Suite 4  
Stowe, Vermont 05672

Dear Tyler

At your request, I spent time on the Donahue property that is located on the west side of Stowe Hollow. This land is also near the town's ice rink. The property is 13.97 acres in size. Most of it is situated on slopes that range from 15 to 25%. The property includes 1.7 acres of a much larger wetland.

Mr. Donahue is planning a 9-unit subdivision. He was interested in getting a forester's perspective of this property. Area 1 is 9.67 acres of softwoods. The dominant species is white pine. The other species present is Norway spruce. It is hard to tell, but it looks like this area was planted with softwoods in the 1950's. The spruces are growing in rows. The pines also look to be growing in somewhat of a system of rows. Tree mortality and terrain make some of the rows difficult to identify. The density of pines in this area is high. This type of stocking is consistent with a planted stand. Most of the pines are 70 feet or higher and range from 10 to 24 inches in diameter. Softwoods growing in dense conditions will self-prune. This means that the dense softwood overstory causes lower branches to die due to a lack of sunlight. This area has seen no previous logging activity. The lack of logging has allowed many pines to grow tall, but they have a minimal crown due to the dense spacing. I also would estimate that 10 to 20 percent of the pines have died due to disease. White pine blister rust is a two-host disease that impacts both white pine and the Ribes or goose berry bush. Pines will typically die within 5 years of infection. Pines infected with blister rust will often have abnormal pitch flows that run from the top of the tree. They also can have a blackened or oddly shaped lower trunk. This disease is spread small spores that travel by winds. This disease is likely the main culprit for this mortality. Another health concern is white pine weevil damage. The white pine weevil is an insect that kills the terminal leader or top of a pine tree. This stem damage causes lower branches of the tree to vie to become the new tree top. This results in a multi-topped white pine that often has a crooked or miss-shaped stem. The crotch of a multi-stemmed tree is a weak point. Eventually, one of the stems

in a multi-topped tree break. This causes staining in the remainder of the tree and is an entry for rot and decay. Many of area 1's pines additionally have poor foliage conditions. This pale or yellow foliage is likely the result of several needle cast fungi. Unfortunately, pines in Vermont have suffered defoliation from several different needle cast fungi over the last 8 or so years. It is not uncommon for pines to lose needles on an annual basis. The needle cast fungus has turned the pine's most recent needles yellow during the month of June. The repeated annual loss of foliage caused by these fungi is causing concern. Many affected pines have depleted crown conditions. This slows the growth on the pines. A canker and red rot have also been known to form in pines that are growing slowly. The lack of management has slowed tree growth and has hindered crown growth. Currently, all the weevil damaged pines are susceptible to wind damage. It is also likely that many of the pines have or are developing rot within their stem because of needle cast defoliation. The slope of the area will require some major excavation to construct driveways and building lots. This will also cause some major disruption to tree roots on any large tree left standing. Extensive root damage eventually results in mortality. Most of the pine roots extend in a circle that is 30 to 50 feet from the stem. I really think area 1 should be cleared of all large softwoods. If one were to only cut mature softwoods, weevil damaged pines, and pines with poor foliage, you would be left with pines with small, stunted crowns. Softwoods with small crowns often do not respond positively to a thinning because the lack of foliage. A majority of the remaining trees may have root damage. The combination of poor crowns, root damage, and sudden exposure will make pines left after a partial cut susceptible to wind damage. I have concerns for the safety of buildings and home owners if large softwood trees are left in area 1. Tyler does think that area 1 will see major excavation, but the entire area will not be leveled. He believes that a large portion of the clearing will have slopes that will discourage lawn mowing. Area 1 contains very little spruce and no pine in the understory. Most of the young trees within the understory are beech or white ash. The cleared regions of the area that are not mowed will likely regenerate in hardwoods. The amount of sun caused by the clearing will promote the regeneration of red maple, aspen, and white birch. All these trees are native and are some of the first to grow after land is cleared.

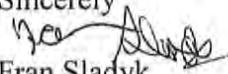
Area 2 is basically a 100-foot buffer along Stowe Hollow Road. This area does not contain planted softwoods. It was likely once a pastured sugarbush. It still contains a few large maples with great spreading crowns. This crown pattern is typically seen on hardwoods growing in wide open spaces. This farmland was abandoned in the 1950's, which allowed the area to revert back into a mixture of hemlock, ash, and sugar maple. This area has also seen no logging activity. Many of the large "veteran" maples have dieback in their crowns. The other disease issue is ring shake on some of the larger hemlocks. Ring shake is a condition that effects hemlock and results in a deterioration of the inner stem. Hemlocks with ring shake will often have sap sucker holes or seams in their lower stem. They are more susceptible to wind damage when compared to other stems. The tree size ranges from 8 to 24 inches in diameter. I would recommend doing an individual tree selection cut in this area in conjunction with the clearing. This cut would remove mature hemlocks, diseased hemlocks, and hardwoods that have poor crowns. The purpose of the cut is to remove trees with health concerns. This will reduce

the risk of damage to homeowners and dwellings. The thinning also will improve the growth on a portion of the trees that have diameters that are 8 to 16 inches in diameter. Area 2 also contains a few bush honeysuckle plants. Bush honeysuckle is an invasive plant that comes from the Orient and has been taking hold in this region of Vermont. Bush honeysuckle is one of the first plants to leaf out in the spring. This makes it easily identified during late April. Bush honeysuckle plants have a habit of spreading out by creating a dense, impenetrable ceiling within the understory. This plant can out shade native regeneration and offers competition for nutrients. For this reason, this bush quickly discourages the regeneration of native trees, ferns, and flowers. Bush honeysuckle also has a growing root system, which allows it to grow quickly. The plant easily sprouts from a severed stump. Invasive plants like old pasture settings or some type of disturbance. These settings have full sun and have been partially disturbed by animal hooves or logging equipment. The proposed lot clearing and individual tree selection cut will make for ideal locations for invasive species development. This plant produces a small berry or fruit that is enjoyed by many birds and animals. Wildlife could quickly spread this bush to other sections of the Donahue parcel and choke out the native regeneration. The fear with invasive plants like bush honeysuckle is a natural disturbance like a storm could blow over substantial numbers of trees in the overstory and there would be no replacement trees in regions that have a high density of invasive plants. The invasive has the capability of creating a kind of ecological wasteland. The owner should conduct invasive controls prior to any logging or land clearing activity. There are several approved tactics for controlling bush honeysuckle. They can be uprooted, if found at a young age. Bushes or plants that are a foot in height are easily uprooted. Many landowners will walk their land in the spring and look for the first green foliage of a honeysuckle. They will uproot the tree and leave it hanging in another plant. Young plants will die if they their roots are not in contact with soil. However, honeysuckle plants can re-establish itself if a small section of root is left in the ground. Cutting honeysuckle is frustrating because they quickly sprout from severed stumps. The Nature Conservancy recommends cutting bush honeysuckle and applying Round Up to the stump. The herbicide prevents the stump from sprouting. For more information on this control effort, the landowner is advised to contact the Nature Conservancy or a certified pesticide applicator. One non-chemical control for honeysuckle is burning. Landowners have had good luck taking a commercial torch (like what roofers or pavers use) to the base of the invasive stem. This should be done when the ground is either wet or covered with snow to avoid unnecessary fires. Basically, the torch is held to the lower stem of the tree until the bark starts to bubble and blacken. This kills the bush and it will not re-sprout. The sooner invasive controls occur within the area, the easier it will be to control them. Conducting invasive controls on the Donahue property will allow it to continue to regenerate into a mixture of pine and young hardwoods.

The property also contains 1.7 acres of wetlands. The owner should adhere to the State of Vermont's Acceptable Management Practices for Logging operations. These are some guidelines for logging that prevent erosion and the discharge of silt into waterways. No logging equipment should travel within this area. The State also wants a buffer strip along the perimeter of this wetland that is 50 feet wide. The only trees to be removed from the buffer will be a handful of mature pines or pines with health concerns.

If you have any questions about this visit, please don't hesitate to give me a call at 888-3491. I try to be in the office every am between 6:30 and 7:30. If I am not there, I will return your call as soon as possible.

Sincerely



Fran Sladyk





1:2,500



Town of Stowe

State Mapped Wetland  
1.7 Acres

Area 1  
9.67 Acres

Area 2  
2.6 Acres

Stowe Hollow Road

217,500

485,500

VCCI

**RE: Project #18045 - Multi-Family Residential Development**

Rockland-Miller, Ari

Thu 9/19/2019 3:34 PM

**To:** Anthony Stead <anthony@shrugg.com>**Cc:** Tyler Mumley <tyler@mumleyinc.com>

Anthony,

Thanks again for the update with site plan for this project. As noted below in the Agency's correspondence, "The Agency accepts the assertion that the SwA, prime(b) soils on the site do not meet the definition of primary ag soil (PAS) due to the overlap with mapped jurisdictional wetlands. As to the BuC statewide soils (Boothbay silt loam), 8-15% slopes, any of these soils that are over 15% slope do not meet the PAS definition."

In order to compile a review letter, now that you have arrived at a proposed site plan, it would be helpful if you could provide a soils matrix showing the proposed impacts by soil map unit, so the Agency can reference this in its letter. Please feel free to include the soils that do not meet the PAS definition in the pre-existing impacts column if that would be helpful. Please let me know if there are questions.

Best,  
Ari

Ari Rockland-Miller  
Senior Agricultural Development Coordinator  
Vermont Agency of Agriculture, Food & Markets  
116 State Street  
Montpelier, VT 05620  
[ari.rockland-miller@vermont.gov](mailto:ari.rockland-miller@vermont.gov) / (802) 828-5399  
[www.agriculture.vermont.gov](http://www.agriculture.vermont.gov)



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**From:** Anthony Stead <anthony@shrugg.com>  
**Sent:** Monday, September 16, 2019 8:31 AM  
**To:** Rockland-Miller, Ari <Ari.Rockland-Miller@vermont.gov>  
**Cc:** Tyler Mumley <tyler@mumleyinc.com>  
**Subject:** RE: Project #18045 - Multi-Family Residential Development

Hello Ari,

Attached is a proposed site plan last revised 9/11/19 per you request. If you need additional information regarding the referenced project please let us know and we will provide it for you.  
Thank You,

Anthony Stead



**Ruggiano Engineering, INC.**  
5 Lake Street, St. Albans, VT 05478  
P: 802.524.9300  
[www.ruggianoengineering.com](http://www.ruggianoengineering.com)

**RE: Project #18045 - Donahue, Stowe**

Dodge, Noel &lt;Noel.Dodge@vermont.gov&gt;

Fri 9/6/2019 4:14 PM

**To:** Tyler Mumley <tyler@mumleyinc.com>

Hi Tyler,

Thanks for the reminder and the nice walk last week.

As we discussed on the walk, this parcel, while not currently mapped Deer Wintering Area (DWA) is roughly adjacent to mapped DWA. During the site visit I observed signs of wintering deer use. Unfortunately, the mapped DWA just south of the site has been heavily developed with residential housing, essentially eliminating most of the viable winter cover there. I believe the density of residential development and the local impact and elimination of suitable DWA in the immediate area has forced local Deer into using substandard softwood cover during winter months.

This site in particular appears to have been plantation or pioneer Eastern white pine following farm abandonment, and was never subsequently managed. The result is a crowded overstory of pine, many of which are reaching the age where they will no longer survive and most have thinning crowns. As we noted the regeneration on the forest floor is nearly totally hardwood tree species which when mature would not provide functional shelter as coniferous species do.

Furthermore this stand of Pine is small in size and not well connected to any other nearby softwood stands which Deer might utilize to survive winter months. In summary, prevention of impacts to this site (no tree clearing) would not, in my opinion, provide much if any benefit to wintering deer and would therefore not be decisive to the survival of the local deer herd.

Let me know if you have any further questions.

Thanks for reaching out early in the process.

-Noel



Noel Dodge | Wildlife Biologist | Regulatory Review Biologist

Vermont Fish and Wildlife Department | [www.vtfishandwildlife.com](http://www.vtfishandwildlife.com)5 Pery Street, Suite 40 | Barre, VT 05641 | [noel.dodge@vermont.gov](mailto:noel.dodge@vermont.gov) | 802-689-0000 [Cell]

Written communication to and from state officials regarding state business are considered public records and may be subject to public scrutiny.

**From:** Tyler Mumley <tyler@mumleyinc.com>**Sent:** Thursday, September 05, 2019 1:03 PM**To:** Dodge, Noel <Noel.Dodge@vermont.gov>**Subject:** RE: Project #18045 - Donahue

Hi Noel,

It good to see you again last week and walk the site – I appreciate your time.

If you get a chance in the next week, could you send me an email on your findings?

I'd like to get it submitted to the Town by next Wednesday.

Thank You!

Tyler

802-881-6314

**From:** Tyler Mumley**Sent:** Wednesday, August 28, 2019 4:40 PM**To:** Dodge, Noel <[Noel.Dodge@vermont.gov](mailto:Noel.Dodge@vermont.gov)>**Subject:** RE: Project #18045 - Donahue

Yep, all good. See you there.

Park here and we'll walk up the hill to the site.

**RE: Multi-Family Residential Development, Stowe Hollow Road**

Basque, Yvonne <Yvonne.Basque@vermont.gov>

Fri 9/27/2019 1:55 PM

To: Anthony Stead <anthony@shrugg.com>

Cc: Tyler Mumley <tyler@mumleyinc.com>; Peebles, Elizabeth <Elizabeth.Peebles@vermont.gov>

Good Afternoon,

We have reviewed the site plans and have no concerns with the project as currently proposed. When do you expect to file for Act 250? Our preference is to wait until filing to write a clearance letter in case there are any changes. In the meanwhile, feel free to use this correspondence in support of the project.

We appreciate your coming to us early with your project plans and appreciate your help in protecting historic sites in Vermont.

Best,  
Yvonne

**PLEASE NOTE NEW PHONE NUMBER BELOW**

**Yvonne Benney Basque** | Historic Resources Specialist - Archaeologist

[Vermont Division for Historic Preservation](#)

1 National Life Drive, Davis Bldg, 6th Floor | Montpelier, VT 05620-0501

(802) 505-1020

[Yvonne.basque@vermont.gov](mailto:Yvonne.basque@vermont.gov)

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**From:** Anthony Stead <anthony@shrugg.com>

**Sent:** Monday, September 16, 2019 9:07 AM

**To:** Basque, Yvonne <Yvonne.Basque@vermont.gov>

**Cc:** Tyler Mumley <tyler@mumleyinc.com>; Peebles, Elizabeth <Elizabeth.Peebles@vermont.gov>

**Subject:** RE: Multi-Family Residential Development, Stowe Hollow Road

Hello Yvonne,

Following up on your request from March 1<sup>st</sup>, attached is our proposed site plan for development on Stowe Hollow Road, last revised 9/11/19. We hope this will help in your determination on impact to archaeologically sensitive areas and writing a clearance letter. If you would like, we can schedule a site visit in the next couple of weeks, now that the season allows. Should you need any additional information, we will be happy to provide it for you on request.

Please contact us with any questions or concerns. Thank You,

Anthony Stead



**Ruggiano Engineering, INC.**

**5 Lake Street, St. Albans, VT 05478**

**P: 802.524.9300**

**[www.ruggianoengineering.com](http://www.ruggianoengineering.com)**

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**From:** Basque, Yvonne <[Yvonne.Basque@vermont.gov](mailto:Yvonne.Basque@vermont.gov)>

**Sent:** Friday, March 1, 2019 3:28 PM

**To:** Tyler Mumley <[tyler@mumleyinc.com](mailto:tyler@mumleyinc.com)>  
**Cc:** Peebles, Elizabeth <[Elizabeth.Peebles@vermont.gov](mailto:Elizabeth.Peebles@vermont.gov)>  
**Subject:** Multi-Family Residential Development, Stowe Hollow Road

Good Afternoon,

Thank you for submitting information regarding the new Multi-Family Residential Development on Stowe Hollow Road in Stowe.

I was able to perform a preliminary review of the entire parcel to determine archaeological sensitivity. In general, the parcel is not archaeologically sensitive due to steep slopes. However, the tongue on the western side of the parcel may have some sensitivity and there is a known Precontact archaeological site on an adjacent lot. Winter conditions prevent me from clearing the project with a site visit along, but I would very much like to schedule a site visit as soon as the snow melts.

Unfortunately, we can't write a clearance letter for your project without completed site plans. Site plans and elevations are required in order to assess impacts to historic architectural resources. But we are happy to work with you in the design phase to ensure minimal impacts to those resources. Please feel free to contact Elizabeth Peebles, cc'd in this email, to discuss any issues with architectural resources.

Thank you,  
Yvonne

**Yvonne Benney Basque** | Historic Resources Specialist - Archaeologist  
[Vermont Division for Historic Preservation](#)  
1 National Life Drive, Davis Bldg, 6th Floor | Montpelier, VT 05620-0501  
802-828-1381  
[Yvonne.basque@vermont.gov](mailto:Yvonne.basque@vermont.gov)

# RE: Stowe Project



Tyler Mumley  
To Morrison, Shannon  
Cc Jeff Parsons



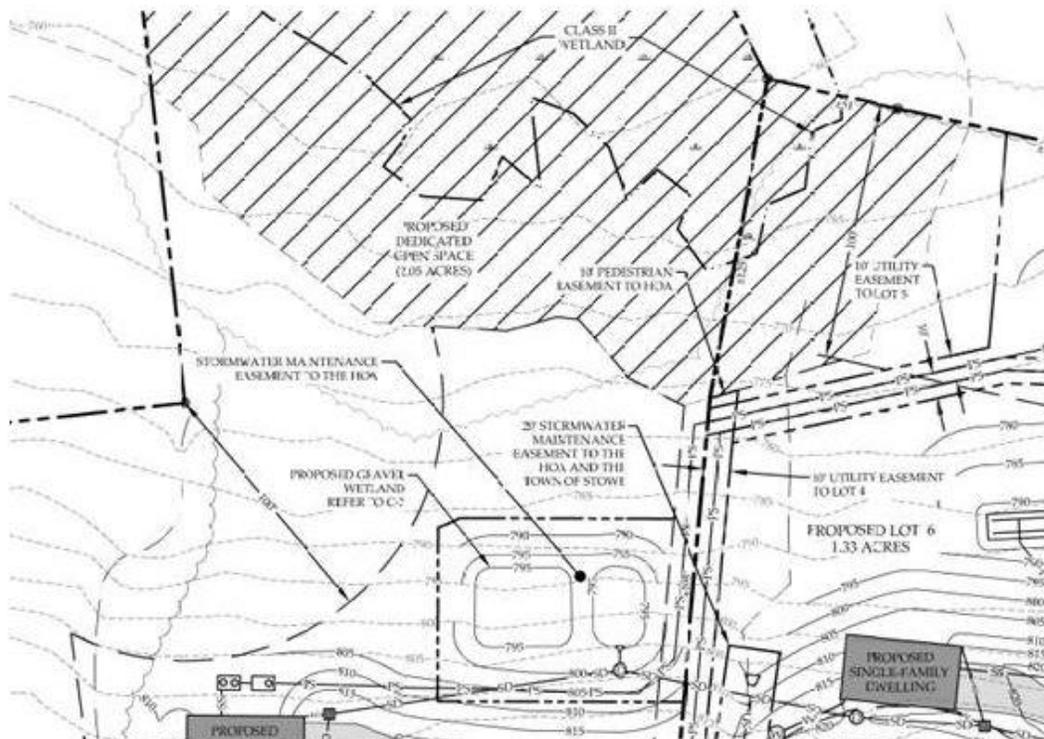
11/13/2019

- 18045 - C-1 Sbdv Layout 10-21-19.pdf 2 MB
- 18045 - C-2 Site Plan 10-21-19.pdf 4 MB

Hi Shannon,  
Please find attached the current plans which include the limits of the wetland, as delineated by Jeff and confirmed by you at our site walk on October 2<sup>nd</sup>.

As discussed, there are no proposed impacts to the wetland or the 50' buffer.

Let me know if you have any questions or concerns.



Thank You,  
Tyler

802-881-6314

## Tyler Mumley

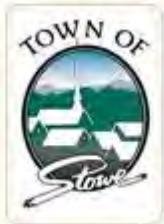
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**From:** Harry Shepard <hshepard@stowevt.gov>  
**Sent:** Thursday, July 25, 2019 9:18 AM  
**To:** Sarah McShane  
**Cc:** Tyler Mumley  
**Subject:** RE: Donahue

Sarah,

Confirming, Public Works has confirmed the proposed Driveway Entrance indicated on the most recent plan can be developed in compliance with the applicable VTrans B-71 Standards and if the Subdivision is approved and a Driveway Entrance Application is made, it is approvable by this office.

H



**Harry J. Shepard III, PE**  
Public Works Director/Town Engineer  
PO Box 730  
Stowe, VT 05672  
Office: 802-253-8770  
Mobil: 802-730-3773  
HShepard@stowevt.gov

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**From:** Sarah McShane <smcshane@stowevt.gov>  
**Sent:** Thursday, July 25, 2019 8:35 AM  
**To:** Harry Shepard <hshepard@stowevt.gov>  
**Subject:** RE: Donahue

Hi Harry,

I hope to prepare and send the DRB meeting warning for 8/20 to the Stowe Reporter today. If you think the proposed curb cut location on Stowe Hollow will meet the relevant standards, I will include this application on the 8/20 warning. If not, please let me know. Thanks!

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**From:** Tyler Mumley <[tyler@mumleyinc.com](mailto:tyler@mumleyinc.com)>  
**Sent:** Monday, July 22, 2019 4:47 PM  
**To:** Harry Shepard <[hshepard@stowevt.gov](mailto:hshepard@stowevt.gov)>  
**Cc:** Sarah McShane <[smcshane@stowevt.gov](mailto:smcshane@stowevt.gov)>  
**Subject:** RE: Donahue

Hi Harry,  
Hope you had a good weekend.  
Just wanted to check in and see if you'd be able to provide approval for the curb cut to Sarah?  
Thank You!  
Tyler

802-881-6314

DECLARATION OF COVENANTS, CONDITIONS, AND RESTRICTIONS OF THE  
RIDGE AT STOWE HOLLOW  
STOWE, VERMONT

Stowe Hollow Road LLC (the "Grantor") is the owner of a tract of land, together with any improvements situated thereon, consisting of all and the same land and premises conveyed to Stowe Hollow Road LLC by Warranty Deed of Ampersand Properties, LLC dated November 8, 2018 and recorded in Book 1031, Page 307 of the Stowe Land Records. Said tract of land is shown on a survey map entitled "The Ridge at Stowe Hollow 9 Lot Subdivision, Stowe, Vermont," prepared by Button Professional Land Surveyors PC, dated \_\_\_\_\_, and to be recorded in Stowe Land Records (said tract of land being referred to herein as the "Property"). The Property contains nine subdivided lots designated as Lots 1, 2, 3, 4, 5, 6, 7, 8 and 9 together with a 50-foot wide subdivision right of way for purposes of providing vehicular access and utility line service in the subdivision (individually a "Lot" and collectively the "Lots").

The Property is hereby declared to be subject to the covenants, conditions, and restrictions, together with the benefit of the rights of way and easements, set forth hereinafter, all of which shall run with the land and be binding upon and inure to the benefit of Stowe Hollow Road LLC and the owners of the Lots, and their respective heirs, assigns and successors in title. Wherever the term "Grantor" is used herein, it shall mean and refer to Stowe Hollow Road LLC, and its heirs, assigns, successors in title, and any specifically designated successors in interest with respect to the rights, interests, and authorities reserved to or vested in the Grantor.

1. Approval of Architectural, Construction, and Site Plans. All plans for the construction, alteration, or exterior remodeling of or addition to any building, structure, or other assemblage to be erected or placed upon any Lot, including all architectural, site, exterior lighting and landscaping plans, must be submitted to and approved in writing by Grantor prior to the commencement of construction on the Property. No changes or deviations in such plans as approved shall be allowed without the prior written consent of Grantor. The Grantor shall complete and act upon the review process within 30 days of its receipt of all plans submitted for approval and such approval shall not be unreasonably withheld. Refer to Exhibit XXX for Design Standards.

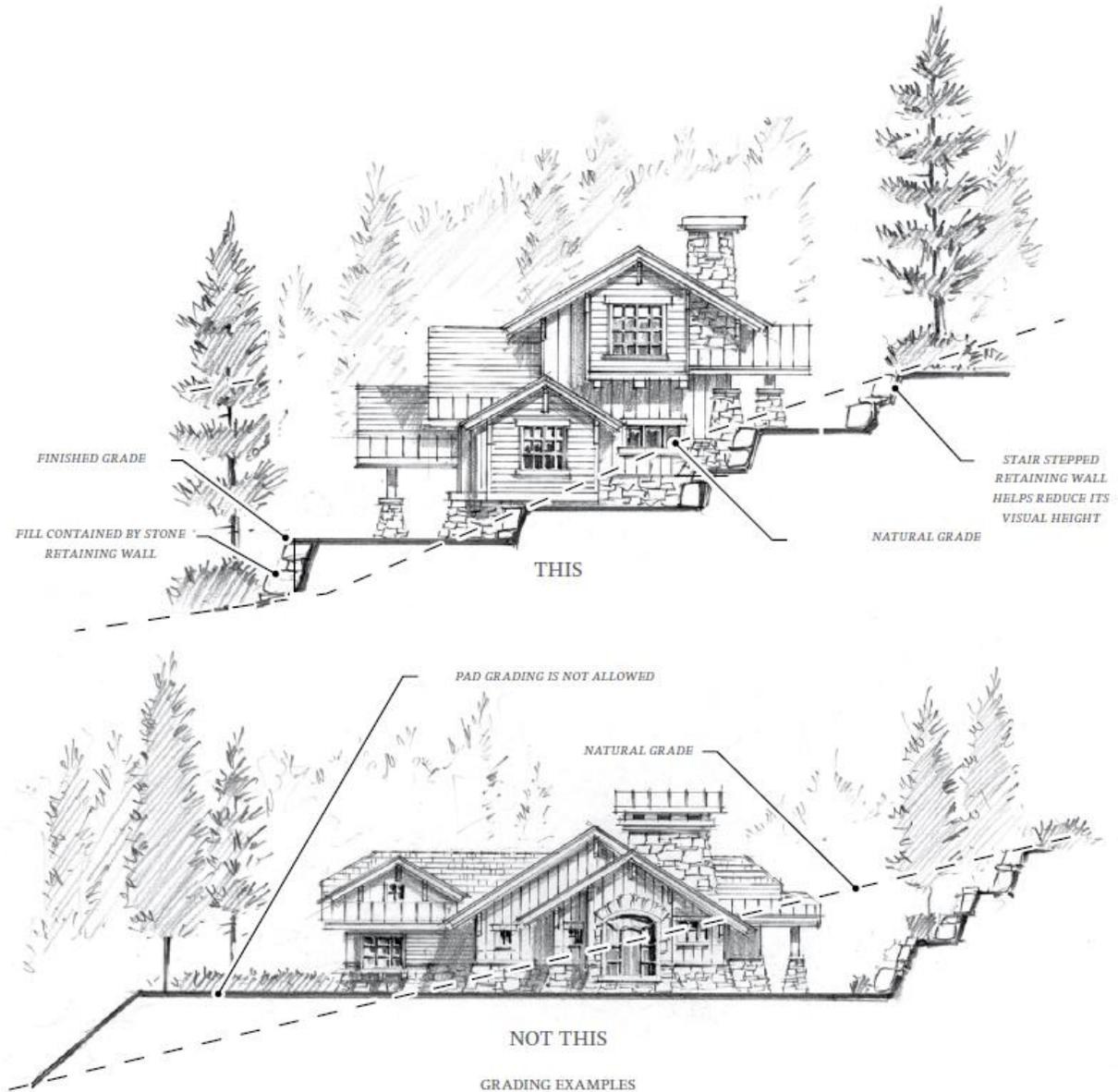
2. Structures Permitted. One single family two story residential type dwelling having two or more bedrooms with a minimum of 1,500 square feet of living space and a maximum of 4,000 square feet of living space, exclusive of a garage and unheated spaces; up to one garage of not more than a three-car capacity, up to one barn or workshop; and up to one small storage shed for gardening equipment. The placement of any structure on a lot shall be subject to review by the Grantor in order to ensure compatibility with other existing or proposed house locations on adjacent lots and promote the natural surroundings of the community.

3. Construction. The exterior construction of any structure built upon a Lot shall be completed in twelve (12) months from the date of commencement. The general landscaping and final site refinement shall be completed within eighteen (18) months from the commencement of said construction. Particular attention must be paid, and all reasonable precautions must be taken, to prevent soil erosion during construction. When permanent erosion control measures cannot be initiated within a 72-hour period, exposed surfaces will be protected with a temporary mulch of hay, as required, and water directed away from disturbed areas.

4. Purpose & Design Review Principles. The general purpose of these guidelines is to ensure that a high-quality residential neighborhood is developed and maintained. Stowe Hollow LLC is intended to inspire Owners and Architects to create exceptionally designed homes. It will provide Owners an opportunity for expanded individual preferences, provided the resultant product is one of design excellence.

#### A. Site Integration

Each home in Stowe Hollow LLC must be integrated into its particular setting. This includes proper location within the setbacks, well thought-out floor plans and exterior massing complementing existing grades, adequate integration of drainage responding to the existing natural and proposed future surface water flows and lastly, thoughtful and ecologically-responsible exterior materials. The house massing should step with the topography.



## B. Scale

Homes must be appropriately scaled relative to the size of the property as well as vertical massing appropriately scaled relative to the site context including maximum building height of twenty-eight (28') feet. In general, the scale for each home shall be as small as possible while remaining consistent with the Owner's needs.



## C. Materials/Color

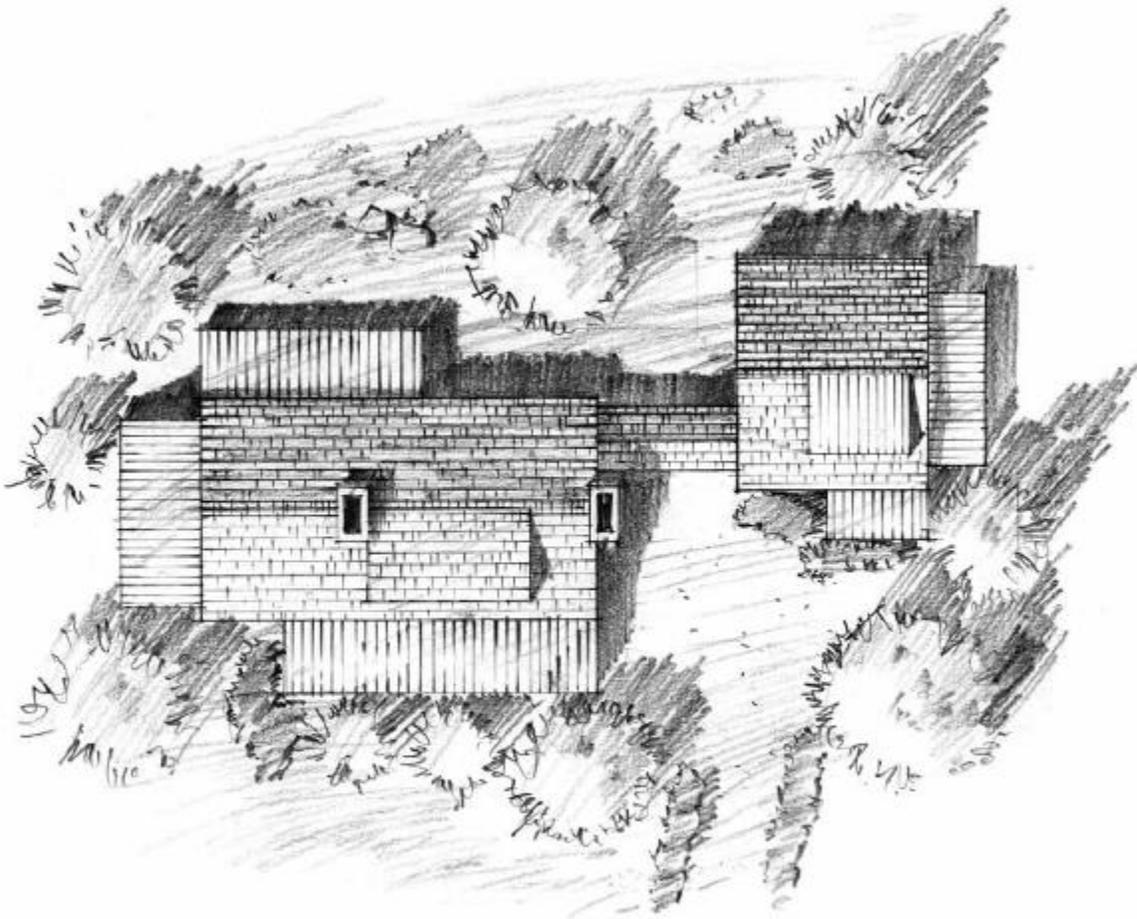
Exterior materials should generally be natural materials that blend and are compatible with the native landscape. Buildings shall be designed to be harmonious with their natural surroundings through the careful selection of materials and colors. The use of natural stone, wood tones, and "earthtone" colors is encouraged. Colors shall be compatible, and their

placement must enhance the other elements of design integrity such as balance, appropriateness and visual strength. The goal is to create a diversity of color that adds character to the entire community by complementing the natural setting of the specific site.

#### D. Roofs

The comprehensive roof design shall be broken up to minimize visual impact of the overall volume of the home. Single volume structures are strongly discouraged. Careful thought must be given to the proposed roof design to encourage optimal site integration and reduce the vertical scale of the home. Large volumes contained within steep roofs can create overly-heavy massing of homes.

Consider the use of low-pitched slopes to minimize the visual impact of the roof structure, and deep overhangs to divert snow and water away from the building.



ROOF DESIGN BROKEN UP TO MINIMIZE IMPACT

#### E. Windows and Skylights

Use windows and skylights that have scale and detailing appropriate to the architecture. Where glazing may create undesired reflections on adjacent parcels or into the night sky,

direction will be provided to reduce the glass area, mitigate the presentation of the glass to those offsite. In certain circumstances the addition of deep overhangs, may be required to reduce the incidence of off-site reflectivity. Do not use window products made of all vinyl or which have simulated divisions sandwiched only between the glazing layers. Window and skylight shapes should complement the architectural shapes in which they are located.

5. Driveways. Driveways shall be constructed in accordance with the construction details of the Plan and shall have a maximum slope of 15%. All shoulders of driveways constructed shall be seeded and mulched and all other reasonable precautions taken to prevent soil erosion. When permanent erosion control measures cannot be initiated within a 72-hour period, exposed surfaces will be protected with a temporary mulch of hay, as required, and water directed away from disturbed areas.

6. Subdivision. No further subdivision to create additional buildings lots shall be permitted.

7. Mobile Homes. No unregistered vehicles, house trailers of any kind or mobile homes shall be kept, placed or maintained on any Lot.

8. Residential Use. Each Lot shall be used for residential purposes only and not for any mercantile, commercial, or industrial purposes. This restriction does not exclude the establishment of a home occupation in conformance with the Town of Stowe Zoning Regulations governing home occupations. This restriction shall not be construed as preventing rental by an owner of his/her residence for vacation, seasonal or residential use.

9. Energy Conservation. All buildings shall be constructed in compliance with all pertinent energy conservation measures as are set forth in the State of Vermont Land Use Permit approving the Property. No electric heat other than off peak storage systems shall be utilized in any building without the prior written consent of the Stowe Electric Department. All windows and doors in heated structures with glass shall be double glazed. Houses shall be oriented to make maximum practical use of any potential solar gain. All fireplaces and stoves shall have appropriate doors or dampers to prohibit excess amounts of heat from dissipating from the residences through chimneys.

10. Water Conservation. All residential dwellings shall be equipped with water-conserving plumbing fixtures, including, but not limited to low-flow toilets, low-flow showerheads, and aerator-type or flow-restricted faucets.

11. Viewshed Areas. All reasonable efforts shall be made to protect, preserve and/or and enhance views from each residence in the Ridge at Stowe Hollow. If it is determined that a tree is blocking what would otherwise be a view from a residence. The lot owner may request the HOA trim, top or remove the tree.

12. The Grounds. All grounds clearly visible from the central access road and public roadway shall be maintained in keeping with the general quality of the entire development. All open areas cleared or thinned on the parcel shall be kept and maintained by mowing, brush hogging, or other cutting operations to prevent the growth of underbrush, tree saplings, or other vegetation that would otherwise cause a scruffy and unkempt appearance of the Lot. This condition shall in no way limit plantings for screening or ornamental purposes.

Each Lot shall be landscaped as follows: a minimum of 3 trees of a mix of evergreen and deciduous trees that are native to Vermont. Each tree shall have a minimum diameter at breast height of 2.5" at the time of planting. Trees shall be planted on the

west-facing side of the main building. A minimum of 50% of west-facing side of the main building shall be landscaped with decorative landscaping including a mix of shrubs, flowers, and/or small ornamental trees.

Any property within the subdivision identified on the afore-references survey map as “wetlands” for which the State of Vermont requires protection, will include a 50 foot wide buffer zone extending from the boundary of said wetlands area. The perimeter of the wetlands buffer area that exists within the property limits shall be delineated and protected with the use of boulders, fencing, signs, or other clearly marked item, or mix thereof, every thirty feet, or as directed by the State of Vermont Wetlands Department.

13. Utilities. All service lines for utilities shall be installed from the nearest transformer underground to the desired building. There shall be no above-ground lines of any type. The Grantor reserves an easement and right of way across, under, and upon those portions of Lots and land within the Property that are necessary or advisable for purposes of performing or causing to be performed proper installation, repair, maintenance, and replacement of all utility service lines (including electrical, telephone, cable television, and the like), pipes, conduits, transformers, and other related equipment and paraphernalia. All such utility systems installation, maintenance, repair, and replacement work shall be performed in a good and careful manner, causing the least disruption possible, followed by all necessary actions to restore any disturbed earth surface to its natural and undisturbed condition, including filling, grading, The Grantor hereby gives, grants, and conveys to the owners of all Lots within the Property the perpetual non-exclusive right and authority in common with others to connect to and utilize said primary electric power and service lines and related transformers. Following installation and energizing of the primary service lines, the Grantor shall have no further responsibility or liability for operation, maintenance, repair, or replacement thereof, the costs of which shall be shared proportionately by the owners of Lots and other property served thereby. Secondary electric power and telephone service lines to serve each Lot shall be installed by each Lot owner at his sole cost. The right of way reserved herein by the Grantor shall apply to future installation of any additional utility service lines, such as cable television, but the Grantor shall not bear any liability, responsibility, or cost for the installation, repair, maintenance, or replacement of any such future utility lines. Meters to be placed at locations of less visual impact from street and/or enclosed.

14. Animals. All common domestic animals shall be allowed, provided, however, that no commercial exploitation of animals shall be permitted.

15. Zoning. The Lots in the development are subject to the Town of Stowe Zoning Ordinances and Bylaws. The owner of any Lot covenants and agrees that they will comply with the terms and conditions of such zoning ordinances and bylaws. Furthermore, the Lots are subject to the Conditional Use Approval by the Town of Stowe Development Review Board, Project #\_\_\_\_\_, approved on \_\_\_\_\_, 2020.

16. Roadway Use and Maintenance. Each owner of a Lot within the Property shall be granted in the deed of conveyance for each Lot a perpetual, non-exclusive vehicular access right of way for use in common with others over, upon, and across the interior roadway right of way from Stowe Hollow Road, as shall be referenced in the deed of conveyance and shown on The Ridge at Stowe Hollow survey plan. The Grantor, for itself and its designated successors and assigns, reserves rights of use, conveyance, dedication, and other interests pertaining to the vehicular access right of way, as shall be set forth more particularly in the deed of conveyance to each

Lot. The owner of any Lot, from the date of owner's purchase, shall pay an equal 1/9th share of the cost of maintaining, repairing, and replacing the roadways, drainage slopes, culverts, and other access improvements within said interior road's right of way, which costs shall include but not be limited to graveling, grading, and other maintenance, repair, or replacement work as may be necessary or advisable from time to time. Individual drives and rights of way to adjoining properties are the responsibility of those specific owners.

The owner of any Lot, from the date of owner's purchase, shall pay an equal 1/9th share of the cost of maintaining, repairing, and replacing any portions of the stormwater management system.

Each Lot owner shall pay a proportionate share of the costs of snowplowing, roadside trimming, and other maintenance of the interior roadway. Each Lot owner, on or before December 1st of each year, shall, in conjunction with the owners of the other Lots, elect an administrator for the following calendar year, said appointment to be made by a majority of the Lot owners. The duties of the administrator are as follows:

- A. Arrange for the repair, maintenance, plowing, and application of sand or chemicals to minimize adverse snow and dust conditions.
- B. Collect escrow payments and assessments and make all payments for the maintenance and upkeep of the roadway.
- C. Call meetings of the Lot owners when appropriate to discuss maintenance, upkeep, and improvements.
- D. A majority of the Lot owners may call a meeting of owners upon 15 days' notice to discuss and determine any issue relating to the roadway or the duties of the administrator.
- E. No improvements to the roadway shall be made without a two-thirds (2/3) affirmative vote of all Lot owners. Each Lot shall be entitled to one vote for all purposes hereunder.
- F. Any maintenance charges or assessments not paid when due shall be a lien upon the Lot upon recording of a notice by the administrator of the unpaid charges and assessments.

17. Grantor's Reserved Right to Grant Easements. The Grantor reserves the right to grant an easement across the interior roadway on the Property for purposes of vehicular and other access to any parcel or parcels of real estate abutting the Property whether or not owned by Grantor.

18. Prohibition Against Granting Rights-of-Way. No right-of-way or easement may be allowed, permitted, or granted by an owner over or across any Lot for providing access to adjoining or nearby lands or for any other purpose unless approved in writing by Grantor and with the consent of local and state permitting authorities as necessary.

19. Access and Utilities Easements. There is hereby dedicated and established in favor of each Lot, as an appurtenance thereto and each Lot is hereby made subject to, the following easements:

An easement for ingress, egress, and utilities along and under the fifty-foot (50') right of way as shown on the afore-referenced The Ridge at Stowe Hollow survey plan.

20. Potable Water Supplies and Wastewater Disposal Systems & Easements. Lots 1-9 will be serviced by individual on-site drilled wells.

Lots 1-9 will be serviced by individual wastewater disposal systems, which may be located on other lots in the subdivision, which shall be subject to and/or benefitted by the appropriate septic and leach field easements, as depicted on the afore-referenced subdivision plan and which easements shall be conveyed in each individual deed.

21. Noise Polluting Devices. The operation of noise producing devices such as motorcycles, trail bikes, all-terrain vehicles, or go-carts is not permitted on any Lot, except when leaving a Lot and returning. This prohibition regarding the operation of noise producing devices is limited in its application to the individual Lots and does not pertain to the interior roadway. The operation by Lot owners of chain saws, tractors, or other noise producing devices in connection with the maintenance of a Lot shall be permitted only during daylight hours.

22. Lighting. The design intent shall be to provide lighting systems that keep the impact of lights within the limits of each property. The use of reflective surfaces and outdoor lighting fixtures higher than fifteen (15) feet shall be minimized to limit the visibility of any structure situated on a Lot from off-site. Exterior lighting fixtures shall be downcast or have shields and photometric qualities which limit off-site glare, visibility, and night sky pollution.

23. Enforcement of Covenants. The easements, restrictions, covenants, and conditions set forth herein may be enforced by any owner of any Lot referred to herein, who may maintain an action against the owner of any other Lot as set forth herein. The owner may commence enforcement of the covenants by instituting legal proceedings in a court of competent jurisdiction, and seek either monetary damages or injunctive relief as shall be deemed necessary by the said court. In the event that any court shall invalidate or declare any one or more of these covenants as null and void, such invalidation or declaration shall in no way affect the significance and authority of the remaining covenants and restrictions and they shall remain in full force and effect.

24. Duration of Covenants. The easements, restrictions, covenants, and conditions as set forth herein shall be binding upon the owners of the Property, their heirs, successors, and assigns, for a period of 25 years from the date of the sale of the first Lot in the development. At the expiration of the 25-year period as set forth above, and every ten years thereafter, the easements, restrictions, covenants, and conditions shall automatically renew unless modified or terminated by an affirmative vote of at least two-thirds (2/3) of the Lot owners, and with the consent of local and state permitting authorities as necessary.

25. Amendments, Modifications, and Waivers. The Grantor reserves the right to amend, modify, or waive any or all of the easements, restrictions, covenants, and conditions set forth in this Declaration which it determines in its sole discretion to be appropriate and consistent with the rural residential nature of the Property. Grantor also reserves the right, at any time, to assign any and all rights reserved to Grantor in the Declaration to any person or persons of its choosing and/or to a homeowner's association established for the purpose of governing The Ridge at Stowe Hollow subdivision. In addition, after the initial 25-year period set forth in Paragraph 24, any or all of said easements, restrictions, covenants, and conditions may be amended or modified by written consent or affirmative vote of two-thirds (2/3) of the record owners of all the lands and Lots within the Property, and with the consent of local and state permitting authorities as necessary. Any such amendments, modifications, or waivers may apply to all or any one or more of the lands and Lots and shall be deemed to be part of the general plan for development and protection of the Property and shall be binding upon the owners and their heirs, successors, and assigns.

Written notice of any alterations, amendments, or deletions shall be forwarded to the owners of the Lots by registered or certified mail, at their last known address.

26. Compliance with Permits. The subdivision is subject to and governed by both state and local land use regulations. Lot owners are required to take exact care to comply with all provisions of the State of Vermont Land Use Permit #\_\_\_\_\_, and any amendments thereto; State of Vermont Potable Water and Wastewater Disposal System Permit #\_\_\_\_\_, and any amendments thereto; and State of Vermont Stormwater Management/Discharge Permit #\_\_\_\_\_, and any amendments thereto which shall include but not be limited to maintenance of culverts that run beside streams.

F E M A L

### **Pre-Construction Activities**

1. Prior to any logging or construction activities, the entire property should be walked and cleared of invasive species including bush honeysuckle and/or barberry by uprooting or cutting. Cut stems should be chipped or burned. Larger mature plants that are cut should have their remaining root stems treated by herbicide or focused burning.
2. A surveyor shall flag the limits of all management areas, setbacks, and buffers prior to construction activities that may include logging, clearing, grading, and earthwork. Limits shall be marked by construction tape or fencing.
3. The 50'-0" wetland buffer shall be clearly marked to limit any construction activities from occurring within the buffer or wetland.
4. The no-cut zone should be taped with construction flagging to clearly define the edge of the zone. No construction activities shall occur within the no-cut zone including tree removal, driving of equipment, or material storage. The no-cut zone is intended to remain as a natural forest woodland and the existing vegetation will not be managed. Natural vegetation death may occur.
5. A forester shall mark all trees that are to be removed within the areas of selective thinning that are dead, dying, diseased, or otherwise unhealthy or potential hazards including mature softwoods according to the Butternut Mountain Farm forester's letter and dated September 11, 2019. Healthy mature hardwoods and young understory hardwood and softwood trees and shrubs shall be left in place.
6. Silt fence shall be installed along the downhill edges of proposed clearing, in accordance with the Erosion and Sediment Control Plans.

### **Construction Activities**

1. During clearing and grubbing activities, all construction and forest management activities will occur in the identified zones and follow the required practices. The forest management and clearing zones will be as follows:
  - a. Zone A – "No-Cut": a fifty-foot wide zone from the edge of the Stowe Hollow Road right of way where no clearing, thinning, or removal of any existing vegetation will occur.
  - b. Zone B – "Selective Thinning": areas to be selectively thinned of mature softwoods and/or dead/dying/diseased trees (hardwoods or softwoods) as identified and marked by forester.
  - c. Zone C – "Clear & Grub": areas to be cleared of existing trees and vegetation and grubbed. These areas will undergo cut and fill earthwork and grading construction operations. Silt fence shall be used along all downhill edges of clearing & grubbing areas. Significant portions of these areas to receive new landscaping (see landscaping construction notes below).
  - d. Zone D – "Tree Cutting": areas where existing mature pines are to be cut and removed. These areas will be completed as the final stages of construction for the project. These areas are in the lower-lying and less steep portions of the projects and will receive minor/limited earthwork and grading operations. Final plans for these areas to return to natural forested and meadow areas with limited on-going maintenance.
  - e. Zone E – "Wetlands": no construction activities, clearing, grading, or filling shall occur within the wetland or 50' wetland buffer area.

2. During landscaping installation construction, the proposed landscape and forest restoration areas will include:
  - a. Area Type 1 “No-Cut”: no supplemental landscaping proposed.
  - b. Area Type 2 – Selective Thinning: no supplemental landscaping proposed unless otherwise recommended by forester during thinning operations.
  - c. Area Type 3A – Forest Restoration (upper areas around and along proposed building areas, driveways, and the roadway): Supplement existing vegetation to remain or cleared areas with additional mix of larger bare root/container stock (1”-1.5” diameter) of native New England hardwood and softwood tree and shrubs species at 20’ spacing. Planting should achieve a naturalized spacing and not grids or rows, following modern restoration techniques.
  - d. Area Type 3B – Forest Restoration (lower areas with minimal construction/grading impacts): Supplement existing vegetation to remain or cleared areas with additional young nursery/bare root planting stock (3’-4’ ht.), at approximately 1 per 64 square feet each, consisting of native New England hardwood and softwood tree and shrubs species. Planting should achieve a naturalized spacing and not grids or rows following modern restoration techniques.
  - e. Area Type 4 – Revegetated Meadows: Large open areas and steep slopes to be maintained as open for views will receive a native restoration seed mix. Meadows will be a mix of grasses and woody brush. Some mature specimen trees may be planted throughout area.
  - f. Area Type 5 – Public Street Trees: Following road construction, street trees will be planted in the public R.O.W. Trees will be native New England shade trees and the size and species identified on the plans.
  - g. Area Type 6 – Individual private lots will require a minimum of three (3) deciduous or evergreen trees and 50% shrub/flower coverage on the west-facing (view side) of each house. The intent of the landscaping is to provide some screening of the development massing while framing views to the west from the development.

### **Post Construction Maintenance**

Following construction, all areas are to be monitored for invasive species and managed per recommended methods.

1. **No-Cut Area**: No additional cutting within the no-cut area is permitted except to remove blow downs or hazard trees.
2. **Selective Thinning Areas**: These areas will remain natural forestland or restored forests. Over time, removal of blow downs or dead/diseased trees may be required.
3. **Forest restoration areas**: For five (5) years following construction, the HOA will provide annual inspection and maintenance of forest restoration areas to ensure successful establishment and growth of planted tree and shrub species. Annual maintenance will include:
  - a. Removal of any invasive species per recommended methods.
  - b. Any required watering or fertilizing of trees/shrubs to aid establishment.
  - c. Replacement of dead trees or shrubs with originally specified size and species planted.
  - d. Cutting/trimming of any brush/vegetation directly outcompeting planted trees or shrubs.
4. **Re-vegetated Meadow Areas**: Following construction, the HOA will provide annual mowing/brush hogging of meadow areas to cut down brush, grass, and woody species growth.

5. **Public Street Tree Landscaping:** The HOA is responsible for the maintenance of all public street tree planting. The maintenance will include:
  - a. Required watering, fertilizing, pruning, and mulching of trees to aid establishment.
  - b. Replacement of dead trees or shrubs with originally specified size and species.
6. **Private Lot Landscaping:** Tree and shrub planting and maintenance on individual lots is the responsibility of private landowner. Minimum tree size and quantity will be required of each lot owner upon construction of that lot. Owners are responsible to plant and maintain trees and shrubs and replace them in-kind with originally specified species and size if plants do not survive.

#### **Additional Notes on Bush Honeysuckle Plants:**

Areas of the subject parcel along Stowe Hollow Road contain a few bush honeysuckle plants. Bush honeysuckle is an invasive plant that comes from the Orient and has been taking hold in this region of Vermont. Bush honeysuckle is one of the first plants to leaf out in the spring. This makes it easily identified during late April. Bush honeysuckle plants have a habit of spreading out by creating a dense, impenetrable ceiling within the understory. This plant can out-shade native regeneration and offers competition for nutrients. For this reason, this bush quickly discourages the regeneration of native trees, ferns, and flowers. Bush honeysuckle also has a growing root system, which allows it to grow quickly. The plant easily sprouts from a severed stump. Invasive plants like old pasture settings or some type of disturbance. These settings have full sun and have been partially disturbed by animal hooves or logging equipment. The proposed lot clearing and individual tree selection cut will make for ideal locations for invasive species development. This plant produces a small berry or fruit that is enjoyed by many birds and animals. Wildlife could quickly spread this bush to other sections of the Donahue parcel and choke out the native regeneration. The fear with invasive plants like bush honeysuckle is a natural disturbance like a storm could blow over substantial numbers of trees in the overstory and there would be no replacement trees in regions that have a high density of invasive plants. The invasive has the capability of creating a kind of ecological wasteland.

The landowner shall conduct invasive controls prior to any logging or land clearing activity. There are several approved tactics for controlling bush honeysuckle. They can be uprooted, if found at a young age. Bushes or plants that are a foot in height are easily uprooted. Young plants will die if their roots are not in contact with soil. However, honeysuckle plants can re-establish even if a small section of root is left in the ground. Cutting honeysuckle is frustrating because they quickly sprout from severed stumps. The Nature Conservancy recommends cutting bush honeysuckle and applying "Round-Up" to the stump. The herbicide prevents the stump from sprouting. For more information on this control effort, the landowner is advised to contact the Nature Conservancy or a certified pesticide applicator. One non-chemical control for honeysuckle is burning. Landowners have had success taking a commercial torch to the base of the invasive stem. This should be done when the ground is either wet or covered with snow to avoid unnecessary fires. Basically, the torch is held to the lower stem of the tree until the bark starts to bubble and blacken. This kills the bush and it will not re-sprout. The sooner invasive controls occur within the area, the easier it will be to control them. Conducting invasive controls on the property will allow it to continue to regenerate into a mixture of pine and young hardwoods.

# **Report on the Geology, Landscape History, Erosion and Slope Stability implications: Proposed Stowe Hollow Road Development**

Paul Bierman, Professor of Geology, University of Vermont

January 5, 2020; version 3.

## **Summary**

Review of available air photos, ground level photos, field observations, publicly available LIDaR images, and maps shows no evidence that the Stowe Hollow Road site has in the past experienced large-scale slope instability, such as landslides. This current slope stability likely reflects the geology of the site which is underlain by compacted glacial till as evidenced by material in the root-wads of trees that have blown over, boulders that litter the slope and crop out in stream channels, and several water well logs available from the State of Vermont. Several drainage channels run downslope across the site and are incised more than a meter in depth and in places are several meters wide. These channels carry run off from Stowe Hollow Road and present erosion, inundation, and deposition hazards.

Clearance of the site, road building, and cutting and filling of building platforms will increase the chance of geologic hazards and must be done with care and best practices for steep slopes so as not to exacerbate such hazards. The removal of trees will reduce effective root cohesion; this is of only moderate concern here because the till underlying the site is cohesive and likely over-compacted from the weight of the now-vanished ice sheet. Any slope failures from the loss of root cohesion are likely to be shallow because rooting depths are shallow (<1 m). Access road building and the creation of this impermeable road surface will increase run off and that run off could cause erosion when concentrated into existing channels which are already unstable because they carry runoff from Stowe Hollow Road. Fill, emplaced during construction and which lacks the cohesion of native till, must be properly engineered so that if it saturates during heavy rain and/or spring snowmelt, it does not fail on the steep grades inherent in the project.

The presence of several homes along Stowe Hollow Road that are built using similar cut and fill approaches and which have remained stable for decades suggests that if proper construction and maintenance protocols are followed, development could occur without a high risk of adverse impact. However, these existing homes have only short driveways, not a long access road. Thus, proper engineering of the access road is critical to the sustainability of the project and to minimizing long term geologic hazards.

## **Background observations**

Prior to doing a field visit, I reviewed the preliminary site plans and examined the site on Google Earth, reviewing images from 10 different years between 1996 and 2019 (Appendix 1, Google Images). I also examined a 1962 aerial photograph and compared it to one taken in 2019. The purpose of this work was to determine if any large landslides had affected the property in the last 57 years and to determine a minimum age for the tree cover (Appendix 2, Comparison

1962/2019). I also examined photographs of Stowe housed in the UVM Landscape Change Program archive ([umv.edu/landscape](http://umv.edu/landscape)). There are numerous images taken at different times from the late 1800s through the 1960s which show the area around the proposed development site (Appendix 3, Historic Images).

In none of the images that I found, were any large landslides present including those images from the late 1800s when much of the landscape in Stowe and around the site was deforested and used as pasture. The aerial images show continuous forest on the site from at least 1962 onward; the 1962 image shows a younger and less continuous forest and shows drainages flowing across the site. The 1962 images also show older, larger pines that given the branching pattern seen in the field visit (along with stone walls) indicate the site was once deforested and likely used as pasture (Appendix 4, Site Photographs). These older pines have much thicker trunks and have substantial branches down almost to ground level in contrast to the skinny, tall likely plantation pines with minimal lower branches that cover much of the site.

## **Field Observations**

On January 1, 2020, I walked the property. At the time, the ground was covered with several inches of snow. The property was fully forested. Most of the large trees were what appear to be planted white pines, many of which appear to be at or near the end of their lives. Numerous of these trees have blown over. They are shallowly rooted (30 to 80 cm) and the root wads contain numerous angular pieces of rock as well as sandy soil (Appendix 4). Some of the angular rocks are faceted and these rock faces display glacial striations, scratches that occurred during glacier transport. The angular rock pieces along with boulders (> 1 meter wide) that crop out along much of the slope suggest that the slope is underlain by glacial till – an unsorted mixture of sediment carried by glaciers and compacted by overlying ice.

The field observations of shallow glacial till over bedrock are supported by water-well logs in the State of Vermont water-well data base – all 4 well logs from near the site show limited sediment cover of shallow hardpan, clay and silt, and “dirt” over rock. All of these wells are near the subject property but their exact locations are uncertain because they are self-reported by the drillers and not GPS located.

Well #599 (12 feet of sediment over rock):

<https://anrweb.vt.gov/DEC/WellDrillerReports/UpdateWellReportPublic.aspx?WR=56906&option=view>

Well #664 (10 feet of sediment over rock):

<https://anrweb.vt.gov/DEC/WellDrillerReports/UpdateWellReportPublic.aspx?WR=56971&option=view>

Well #547 (15 feet of sediment over rock)

<https://anrweb.vt.gov/DEC/WellDrillerReports/UpdateWellReportPublic.aspx?WR=56854&option=view>

Well #665 (2 feet of sediment over rock):

<https://anrweb.vt.gov/DEC/WellDrillerReports/UpdateWellReportPublic.aspx?WR=56972&option=view>

Most trees on the site have grown straight indicating soil is not moving downslope during the time over which these trees have grown – likely 60 to 80 years given their size. A few trees have deformed trunks indicating soil mobility – most of these deformed trees are near the small streams that drain across and cut into the slope.

Most of the property is sloping. Slopes at the top of the property adjacent to the Stowe Hollow Road are steeper than those at the base. Stowe Hollow road at the top of the property is built into the side of the slope and drained by a ditch on the upslope side of the road. Runoff (both from the road surface and from upslope) is funneled through several culverts into channels which are oriented perpendicular to the slope and cut across the subject property.

Each of these three channels has incised (eroded) into the slope. This incision has caused some of the trees along the channel banks to collapse. Incision exceeds a meter in depth in the upper reaches of the channels and one of the channels have widened to several meters from erosion. With the snow cover, it is difficult to determine where the sediment eroded by the channels has been deposited. The shallowing of the channels toward the bottom of the slope and the shape of the landscape both suggest that most transported sediment is deposited in fan shape landforms at the bottom of the slope.

There are four existing homes above the subject property which have been built using cut and fill techniques. They have steep slopes behind the platforms on which they sit and are surrounded by boulders, some of which have been used to create retaining walls (Appendix 4). There were no obvious indications of slope instability at this properties during the January 1, 2020 field visit.

### **Implications for slope stability and erosion**

The air photograph record clearly shows the subject property has been forested since at least 1962. The historical photograph record stretching back into the late 1800s shows the area around the subject property was cleared of trees and the presence of stone walls on the south side of the property is consistent with such land clearance for pasture. The photograph record while suggestive of slope stability when deforested for pasture land is not conclusive in this regard; therefore, it is possible that deforestation of the subject property for development could destabilize the slope. However, it is relevant to consider that the air photograph, ground photograph, and LIDaR data examined so far show no evidence for large-scale slope instability. There are no clear landscape scarps nor are there large lobate deposits indicative of large land slides. This suggests to that any slope instability catalyzed by removing the tree cover is likely to be shallow and at most limited in extent.

Relative slope stability of the subject property is supported by the underlying geologic materials and by the rooting habits of the trees on the property. The slope is underlain by glacial till (otherwise known as hardpan). This is dense material of mixed grains sizes that was likely deposited under the ice that covered this part of Vermont until about 14,000 years ago. Till, because it is well compacted by the ice above it and because it contains a range of grain sizes has high cohesive strength, greatly reducing the chances of large, deep-seated landslides.

However, once the till is excavated and remolded during construction, this cohesive strength is greatly reduced and the material can become less stable. The numerous trees which have been tipped up by wind on the subject property support this geologic interpretation. They are all very shallowly rooted (< 1 m depth) consistent with the inability of the tree roots to penetrate the dense, cohesive till below. Such shallow rooting likely reflects the depth of the stirred, non-cohesive upper soil layer that is both permeable to water and stirred by roots and burrowing animals. Such shallow rooting depth also suggests that if the slope were cleared and did fail, maximum landslide depths are likely to be in the range of 1 meter limiting the volume of material moving downslope.

Although fieldwork and background observations do not indicate a high likelihood of large, deep landslides affecting the subject property, there are potential erosion and flooding hazards, specifically the streams that drain the slope above Stowe Hollow Road and into which run off from Stowe Hollow Road is directed by a series of ditches and diversions. Even with the snow cover, field work identified three such streams, all of which were carrying small amounts of flow on January 1 when the temperatures were below freezing and there was little antecedent rainfall. All three of these channels are incised into the slope. The channels run on the glacial till and are studded with boulders that the flowing water is unable to move or erode. During extreme flow events, these channels could overflow, incised their banks and beds, and cause deposition of sediment at the foot of the slope.

### **Considerations for construction**

In order to minimize slope stability, erosion, and flooding hazards, design and construction needed to be done careful and utilize best practices to ensure that slope stability is not compromised and that run off is handled in such a way as to not cause stream incision, flooding and downslope deposition.

1. Proper emplacement, compaction, and buttressing of fill material is key to maintaining slope stability. The remolded till that has been cut from excavations and used as fill will be less stable than the native material. A design engineer experienced in this type of cut and fill as well as measurements of material properties as appropriate may be necessary to ensure the immediate and long-term stability of the fill.

2. Retention and/or replacement of tree cover on the property is key to minimizing hazards. Trees will reduce the chance of land sliding and erosion because their roots increase the effective cohesion of the soil. Furthermore, trees transpire soil moisture, reducing groundwater levels and thus increasing slope stability.

3. Design and maintenance of the access road and its drainage system is key to reducing run off and erosion hazards. The road, even if gravel, will be impermeable and will generate substantial run off particularly during large rainfall events (which are becoming more common as climate changes). Of key importance is a road and drainage design that will not become compromised over time by siltation, plugging of culverts, and increased rainfall intensity and duration resulting from climate change.

4. Storm water infiltration on the slope will increase the risk of slope instability by saturating soils on steep slopes; by moving infiltration and storm water basins to the toe of the slope, the risk of saturation-induced land sliding is greatly reduced.

5. Proper channel design for conveying drainage from the site and water from above the site and from Stowe Hollow Road will be important. Such design will minimize flooding, incision and therefore downslope deposition hazards near the streams that cut across the property. Pre-development runoff, much of which appears to be from Stowe Hollow Road, has incised existing channels, eroding their banks and causing trees to collapse into the channels. Additional run off from the new access road and homes will add water to the channels; this water is likely to increase incision and may cause channel widening and sediment deposition at the base of the slope. Channel modifications, including the addition of roughness elements such as woody debris dams, changes in channel slope, and increased caliber bed material could potentially ameliorate such concerns as could redirection of run off generated from Stowe Hollow Road.

## **Appendices**

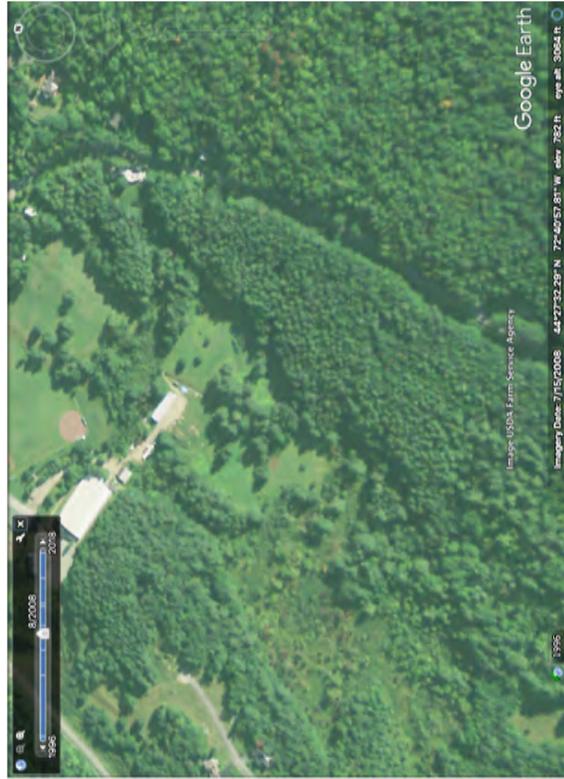
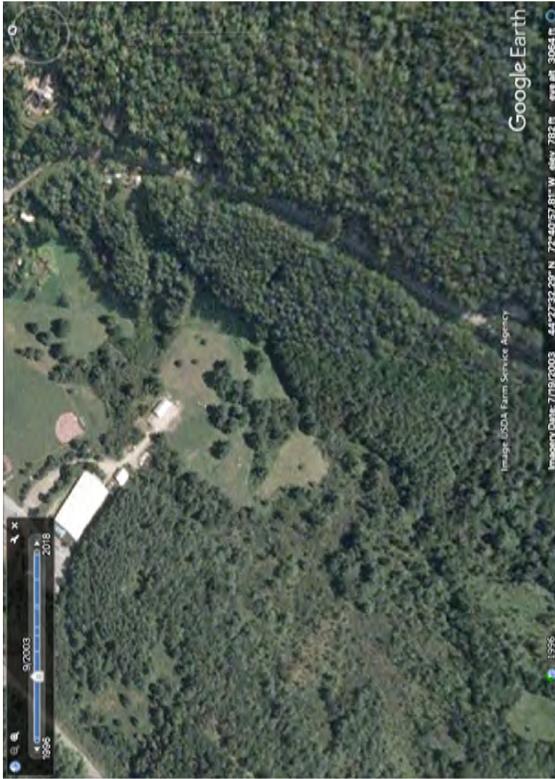
Appendix 1 – Google Earth aerial images from 1996 to 2019

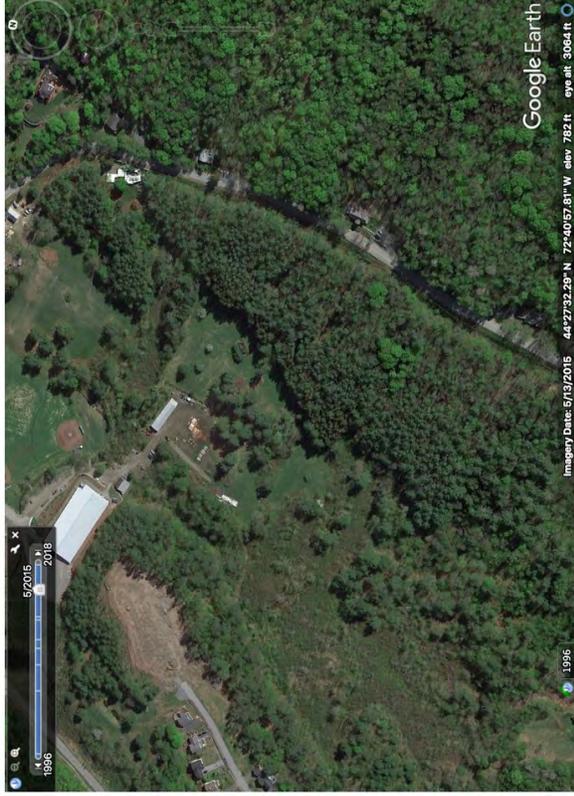
Appendix 2 – Comparison of 1962 and 2019 aerial photographs

Appendix 3 – Historic images from the UVM Landscape Change Program

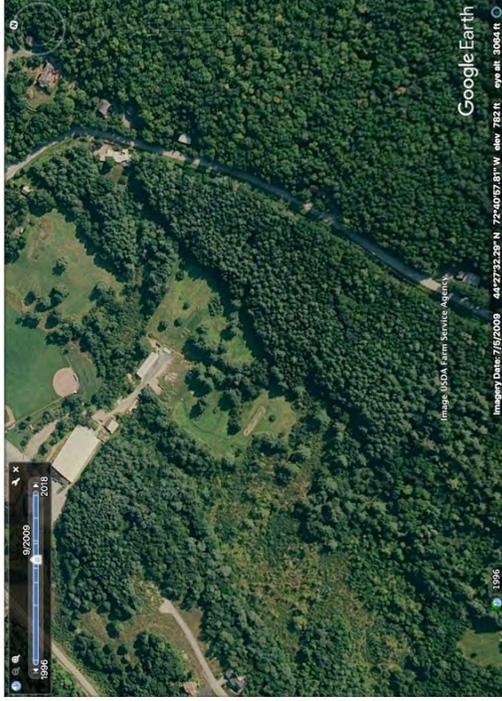
Appendix 4 – Site Photographs, January 1, 2020

# Appendix 1 – Google Earth aerial images from 1996 to 2019



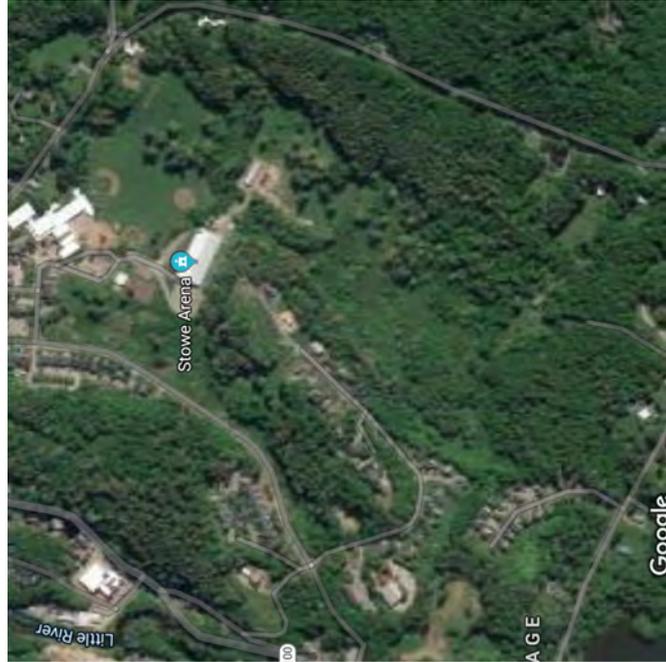


# 2019 aerial image and LIDaR



## Appendix 2 – Comparison of 1962 and 2019 aerial photographs

2019



1962



### Appendix 3 – Historic Images from Landscape Change Program



**LS00230, view taken from north of subject property looking southwest, subject property to the left, 1914**



**LS05209, view toward Stowe Village, 1870s, from north of the subject property**



**LS05339, view looking west, from north of subject property, 1870s, Stowe Village to left**



**LS05549, photo taken looking west and south from north of subject property, note cleared fields, 1870s**



**LS06932, view toward Stowe village taken north of the subject property, 1940**



**LS06936, Sledding hill, 1922, subject property is to right of view**



**LS07440\_000, view looking at subject property, upper right, slope is partially deforested, 1892**



**LS11267, view to west from near property, 1870s, note cleared fields**



**LS16598, George Lathrop, March 1939, view looking north, subject property to right side of image**



**LS16602, George Lathrop, March 1939, looking over subject property which is at bottom of image.**



**LS19969, George Lathrop, March 1939, looking north, subject property to right of image**

## Appendix 4 – Site Photographs, January 1, 2020



**Cut and fill on Stowe Hollow Road with no visible slope instability. Large boulders are likely till stones uncovered during excavation**



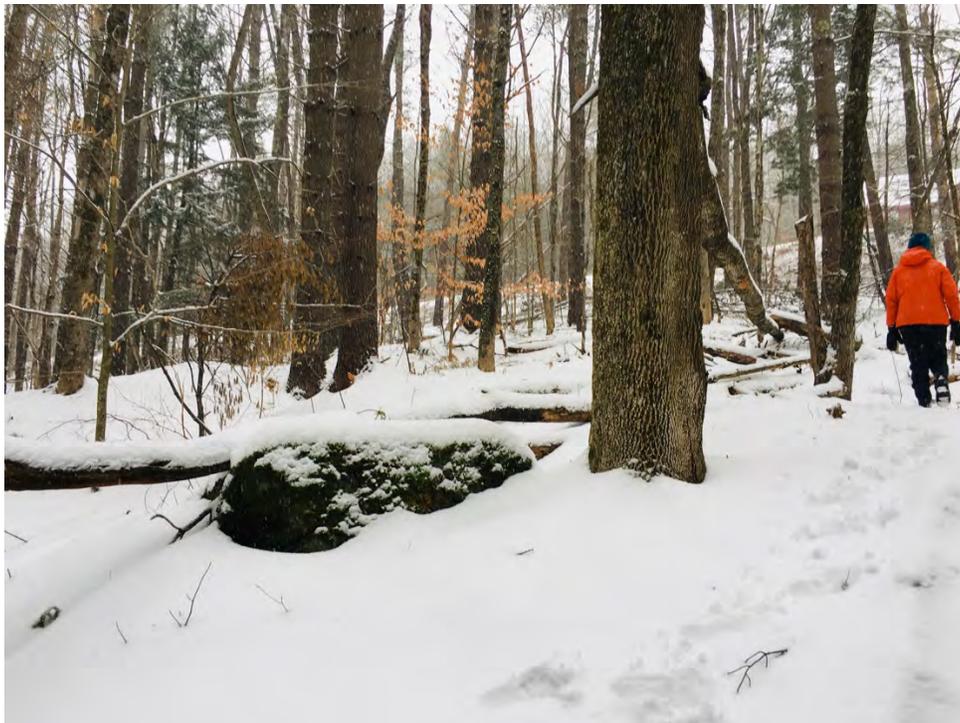
**Stone wall on property indicating area had been previously cleared of trees**



**Incised drainage low on subject property hillslope. Note fallen and tilted trees along drainage path.**



**Incised drainage at mid-slope position on subject property with tipped up trees (note shallow rooting depth).**



**One of many large boulders on mid-slope consistent with glacial till underlying the subject property.**



**Shallow root wad showing faceted and striated clasts indicative of glacial till underlying the subject property**



**Stowe Hollow Road with drainage ditch on uphill shoulder. Note stream from upper hillslope descending from the left side of the image. Subject property to the right and in the distance.**



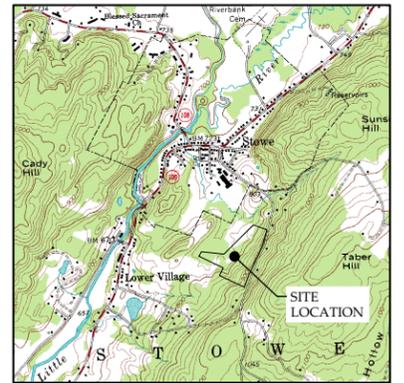
**Incision of stream channel on subject property resulting from drainage from upslope and diverted from Stowe Hollow Road.**



**Drainage ditch and diversion structure that directs run off from Stowe Hollow Road into stream incising subject property.**

SOIL SYMBOL	SOIL NAME	HSC CLASS	AGRICULTURAL VALUE	ACREAGE	IMPACTED ACREAGE
BuC	BOOTHBAY	C/D	STATEWIDE (7)	±1.29	±0.64
BkD	BERKSHIRE	B	NPSL (6)	±10.55	±6.54
BeD	BERKSHIRE	B	NPSL (8)	±0.58	0
SwA	SWANVILLE	C/D	PRIME (b) (9)	±1.54	±0.08
TOTAL ACRES				±13.96	±7.26

NOTE: CALCULATED AREAS BASED ON PARCEL & SOIL LINES. SEE PLAN REFERENCES.



**SITE LOCATION MAP**  
NOT TO SCALE

- LIST OF DRAWINGS**
- ER-1 PRE-DEVELOPMENT / DRAINAGE MAP
  - ER-2 EPSC CONSTRUCTION PLAN - PHASE 1
  - ER-3 EPSC CONSTRUCTION PLAN - PHASE 2
  - ER-4 EPSC CONSTRUCTION PLAN - PHASE 3
  - ER-5 EPSC CONSTRUCTION PLAN - PHASE 4
  - ER-6 EPSC DETAILS

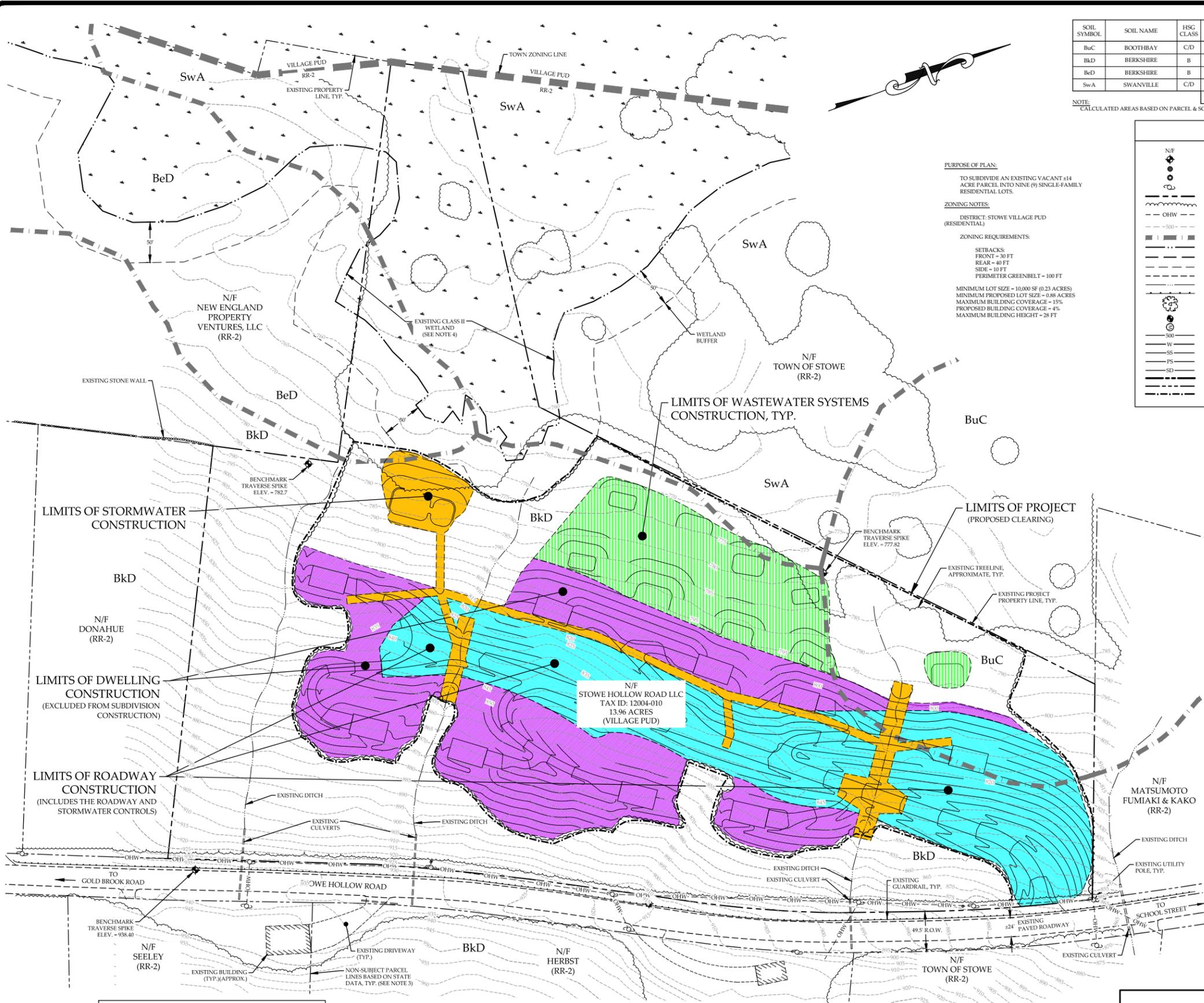
**LEGEND**

- N/F NOW OR FORMERLY OWNED BY
- ELEVATION BENCHMARK
- IRON PIPE / REBAR FOUND
- REBAR TO BE SET
- EXISTING UTILITY POLE & GUY WIRE
- EXISTING PROPERTY LINE
- EXISTING TREE LINE
- EXISTING OVERHEAD WIRES
- EXISTING CONTOUR
- EXISTING SOILS
- EXISTING WETLANDS VCCI
- EXISTING WETLAND BUFFER
- EXISTING EDGE OF GRAVEL
- EXISTING EDGE OF PAVEMENT
- EXISTING STREAM / DITCH
- EXISTING GAUDDRAIL
- EXISTING TREES
- TEST PIT LOCATION
- PROPOSED DRILLED WELL
- PROPOSED CONTOUR
- PROPOSED WATER LINE
- PROPOSED GRAVITY SEWER LINE
- PROPOSED PRESSURE SEWER LINE
- PROPOSED STORM DRAIN PIPE
- PROPOSED PROPERTY LINE
- PROPOSED RIGHT OF WAY / EASEMENT
- LIMITS OF PROJECT

**PURPOSE OF PLAN:**  
TO SUBDIVIDE AN EXISTING VACANT ±14 ACRE PARCEL INTO NINE (9) SINGLE-FAMILY RESIDENTIAL LOTS.

**ZONING NOTES:**  
DISTRICT: STOWE VILLAGE PUD (RESIDENTIAL)

**ZONING REQUIREMENTS:**  
SETBACKS:  
FRONT - 30 FT  
REAR - 40 FT  
SIDE - 10 FT  
PERIMETER GREENBELT - 100 FT  
MINIMUM LOT SIZE - 10,000 SF (0.23 ACRES)  
MINIMUM PROPOSED LOT SIZE - 0.88 ACRES  
MAXIMUM BUILDING COVERAGE - 15%  
PROPOSED BUILDING COVERAGE - 4%  
MAXIMUM BUILDING HEIGHT - 28 FT



- PLAN REFERENCES:**
- A BOUNDARY SURVEY OF SUBJECT PARCEL PROVIDED BY BUTTON LAND SURVEYORS ON JUNE 11, 2019.
  - LOCATIONS OF UTILITY POLES, ROADS, DRIVES, CULVERTS, STREAMS, TEST PITS, PARTIAL TOPOGRAPHIC INFORMATION PROVIDED BY BUTTON LAND SURVEYORS ON JUNE 11, 2019.
  - OTHER TOPOGRAPHIC DATA & PARCEL LINES USED FOR ABUTTING PROPERTIES TAKEN FROM THE VERMONT CENTER FOR GEOGRAPHIC INFORMATION, ON SEPTEMBER 11, 2018.
  - WETLAND LIMITS WITHIN PROPERTY AREA CONDUCTED BY ARROWWOOD ENVIRONMENTAL ON 9/23/19. CONFIRMED BY SHANNON MORRISON, STATE OF VERMONT, ON 10/2/19. LOCATION RECORDED VIA GPS BY MUMLEY ENGINEERING, INC. ON 10/20/19.

- NOTES:**
- THIS DRAWING IS NOT A BOUNDARY SURVEY PLAT. BOUNDARY LINE INFORMATION SHOWN IS BASED ON PLAN REFERENCE #1. THE PROPERTY LINES, EASEMENTS AND OTHER REAL PROPERTY DESCRIPTIONS PROVIDED ON THIS DRAWING ARE FOR ILLUSTRATION PURPOSES ONLY. THEY DO NOT DEFINE LEGAL RIGHTS OR MEET LEGAL REQUIREMENTS FOR A LAND SURVEY AS DESCRIBED IN V.S.A. TITLE 27 SECTION 140 AND SHALL NOT BE USED IN LIEU OF A SURVEY AS THE BASIS OF ANY LAND TRANSFER OR ESTABLISHMENT OF ANY PROPERTY RIGHT.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING, AND DETERMINING THE LOCATION, SIZE, AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES OR UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION. APPROPRIATE REMEDIAL ACTION SHALL BE TAKEN BEFORE PROCEEDING WITH THE WORK.
  - THIS TOPOGRAPHIC SURVEY WAS CONDUCTED WITHOUT THE BENEFIT OF "DIG SAFE" MARKINGS. UTILITY LOCATIONS SHOWN ARE APPROXIMATE AND ARE NOT WARRANTED TO BE EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT "DIG SAFE" BEFORE COMMENCING ANY WORK AND SHALL PRESERVE ALL EXISTING UTILITIES NOT SPECIFIED TO BE REMOVED OR ABANDONED AS PART OF THE PROJECT.

- NOTES:**
- LIMITS OF DISTURBANCE TO BE DEMARCATED WITH 3" HIGH GRADE STAKES SPACED APPROX. 10' APART AND CONNECTED BY ORANGE FLAGGING RIBBON.
  - ALL EROSION PREVENTION AND SEDIMENT CONTROL DEVICES (I.E. SILT FENCING) WILL BE INSTALLED PRIOR TO DISTURBANCES ASSOCIATED WITH THE PHASE.
  - ALL SITE DEMARCATIONS WILL TAKE PLACE PRIOR TO INITIAL SITE DISTURBANCE.
  - ALL DISTURBANCES TO BE LIMITED TO A MAXIMUM OF 2 ACRES AT ONE TIME. NEW DISTURBANCES WILL NOT BE INITIATED UNTIL PREVIOUS TASKS ARE STABILIZED.
  - ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY OR PERMANENT STABILIZATION WITHIN 14 DAYS OF THE INITIAL DISTURBANCE. AFTER THIS TIME ANY DISTURBANCE IN THE AREA MUST BE STABILIZED AT THE END OF EACH WORK DAY. THE FOLLOWING EXCEPTIONS APPLY:
    - STABILIZATION IS NOT REQUIRED IF WORK IS TO CONTINUE IN THE AREA WITHIN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST FOR THE NEXT 24 HOURS.
    - STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION WITH A DEPTH OF 2 FEET OR GREATER.
    - TO ENSURE COVER OF DISTURBED SOIL IN ADVANCE OF A MELT EVENT DURING WINTER CONSTRUCTION, AREAS OF DISTURBED SOIL MUST BE STABILIZED AT THE END OF EACH WORK DAY, WITH THE FOLLOWING EXCEPTIONS:
      - IF NO PRECIPITATION WITHIN 24 HOURS IS FORECAST AND WORK WILL RESUME IN THE SAME DISTURBED AREA WITHIN 24 HOURS, DAILY STABILIZATION IS NOT NECESSARY.
      - DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF SUCH AS HOUSE FOUNDATIONS OR OPEN UTILITY TRENCHES.
  - COMPLETE STABILIZATION OF EACH TASK IS NECESSARY BEFORE BEGINNING NEXT TASK.
  - STABILIZATION OF OPERATIONAL STORMWATER TREATMENT PRACTICES (E.G. PONDS, GRASS LINED SWALES) WILL BE COMPLETE BEFORE RUNOFF IS DIRECTED TO THEM.
  - DURING WINTER CONSTRUCTION, REMOVE SNOW OR ICE TO LESS THAN 1" THICKNESS PRIOR TO STABILIZATION.
  - DURING WINTER CONSTRUCTION AND IN AREAS WITHIN 100' OF RECEIVING WATER, REINFORCE SILT FENCING OR REPLACE WITH PERIMETER DIKES, SWALES OR OTHER PRACTICES RESISTANT TO THE FORCES OF SNOW LOADS.

REVISION: 01-23-20 - VARIOUS CHANGES TO PHASES & AREAS

**EPSC PLAN ONLY**  
NOT FOR CONSTRUCTION  
DATE: 1/23/20

**PRE-DEVELOPMENT / DRAINAGE MAP**  
SCALE: 1" = 60'  
Graphic Scale  
0 60 120 240 feet

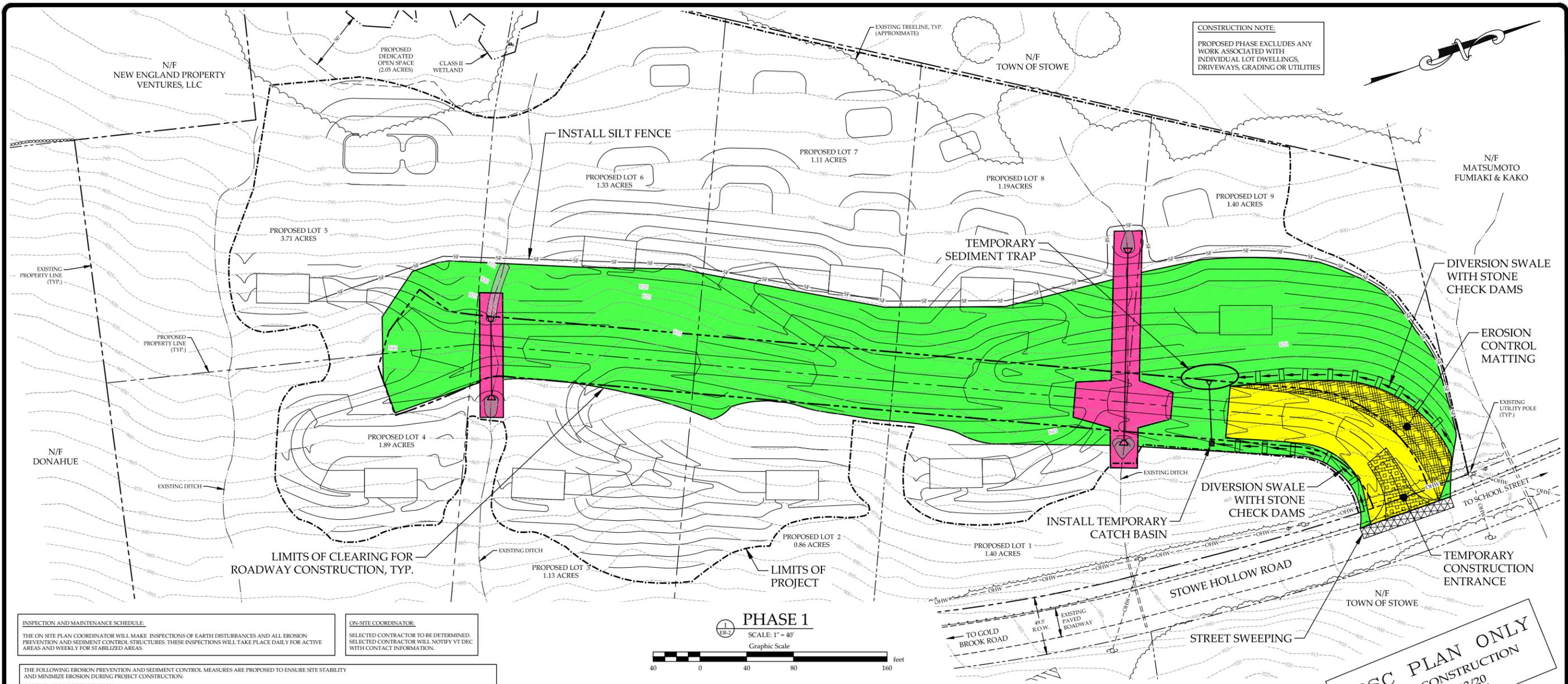
**OWNER OF RECORD:**  
STOWE HOLLOW ROAD LLC  
474 STOWE HOLLOW ROAD  
STOWE, VT 05672

**PRE-DEVELOPMENT / DRAINAGE MAP**  
RIDGE AT STOWE HOLLOW  
STOWE HOLLOW ROAD LLC  
STOWE HOLLOW ROAD, STOWE, VERMONT

**MUMLEY ENGINEERING, INC.**  
454 MOUNTAIN ROAD, SUITE 4  
STOWE, VERMONT 05672  
WWW.MUMLEYENGINEERING.COM  
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PROJECT NO. 18045  
DRAWN BY WEH  
CHECKED BY TRM  
SCALE: 1" = 60'  
DATE: 01/17/20

SHEET NO.  
**ER-1**  
1 OF 6 SHEETS



**INSPECTION AND MAINTENANCE SCHEDULE:**  
THE ON SITE PLAN COORDINATOR WILL MAKE INSPECTIONS OF EARTH DISTURBANCES AND ALL EROSION PREVENTION AND SEDIMENT CONTROL STRUCTURES. THESE INSPECTIONS WILL TAKE PLACE DAILY FOR ACTIVE AREAS AND WEEKLY FOR STABILIZED AREAS.

**ON-SITE COORDINATOR:**  
SELECTED CONTRACTOR TO BE DETERMINED. SELECTED CONTRACTOR WILL NOTIFY VT DEC WITH CONTACT INFORMATION.

THE FOLLOWING EROSION PREVENTION AND SEDIMENT CONTROL MEASURES ARE PROPOSED TO ENSURE SITE STABILITY AND MINIMIZE EROSION DURING PROJECT CONSTRUCTION:

**CATCH BASIN INLET PROTECTION:**  
THE SITE IS GRADED TO DIRECT MOST FLOW TO CATCHMENT BASINS FOR CONVEYANCE TO THE PERMANENT STORMWATER DETENTION POND. CATCHMENT BASINS WILL BE INSTALLED AS THE ROAD IS BUILT. STORMWATER RUNOFF FROM THE CONSTRUCTION SITE WILL BE DRAINED TO THESE CATCHMENT BASINS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE NETWORK. EXCAVATED DROP TYPE STORM DRAIN INLET PROTECTION HAS BEEN SPECIFIED AT ALL CATCHMENT BASINS. THESE SHOULD BE INSTALLED AS THE CATCHMENT BASINS ARE INSTALLED, LEAVING ELEVATION AROUND THE INLET BELOW FINISHED GRADE TO CREATE THE EXCAVATED AREA WHICH WILL SLOW FLOW AND ALLOW SEDIMENTS TO SETTLE. SIZE IS BASED ON A MINIMUM OF 900 CU.FT PER DRAINAGE AREA ACRE. EXCAVATED AREA WILL BE CLEANED WHEN 50% OF STORAGE VOLUME IS FILLED.

**STONE SUB-BASE:**  
FOLLOWING THE COMPLETION OF ROUGH GRADING OF THE ROAD A CRUSHED STONE SUB-BASE WILL BE INSTALLED. THE STONE SUB BASE WILL ALSO PROVIDE A TEMPORARY STABILIZED SURFACE FOR EQUIPMENT OPERATION, MATERIALS STORAGE, AND CONTRACTOR PARKING DURING THE EARLY STAGES OF SITE WORK.

**STONE CHECK DAMS:**  
STONE CHECK DAMS WILL BE INSTALLED WITHIN SWALES TO PROVIDE SEDIMENT ENTRAPMENT AND REDUCTION IN FLOW VELOCITIES.

**SILT FENCE:**  
IN ORDER TO PROVIDE BARRIERS TO SEDIMENT MOVEMENT AND FROM CRITICAL SOIL DISTURBANCE AREAS, SILT FENCING WILL BE INSTALLED PARALLEL TO PROPOSED SITE CONTOURS AND WILL BE TOED-IN TO NATIVE SOILS. SILT FENCE WILL REMAIN UNTIL ADEQUATE VEGETATION ENSURES NO FURTHER EROSION OF DISTURBED SLOPES. SILT FENCING WILL BE USED SURROUNDING TEMPORARY SOIL STOCKPILES AND SURROUNDING INDIVIDUAL HOMESTES DURING CONSTRUCTION. USE AT LEAST 100 FEET OF FENCING FOR EVERY 1/4 ACRE OF DISTURBED AREA UPGRADIENT. INSTALL SILT FENCE AHEAD OF GROUND FREEZING DURING WINTER CONSTRUCTION.

**STREET SWEEPING:**  
SWEEPING OF AREAS SURROUNDING THE ACCESS ROAD WILL BE SWEEPED ON A DAILY BASIS OR AS NECESSARY AS DETERMINED BY THE OSCF

**STABILIZED CONSTRUCTION ENTRANCE/EXIT:**  
ALL ACCESS POINTS FROM THE PUBLIC STREET INTO THE CONSTRUCTION SITE SHALL INCLUDE A CONSTRUCTION EXIT COMPOSED OF COARSE STONE TO THE DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS DETAIL SHEET. THE ROUGH TEXTURE OF THE STONE HELPS TO REMOVE CLUMPS OF SOIL ADHERING TO THE CONSTRUCTION VEHICLE TIRES THROUGH THE ACTION OF VIBRATION AND JARRING OVER THE ROUGH SURFACE AND THE FRICTION OF THE STONE MATRIX AGAINST SOILS ATTACHED TO VEHICLE TIRES.

**RIPRAP SLOPE PROTECTION:**  
RIPRAPPING HAS BEEN SPECIFIED IN AREAS OF HIGH EROSION RISK, ASSESSED BY SLOPE, CONCENTRATION OF FLOW, AND SOIL EROSION RISK FACTORS. SLOPES MUST BE GRADED TO ACCOUNT FOR DEPTH OF RIPRAP AND COMPACTED IF FILLED. FILTER FABRIC WILL BE PLACED ON THE PREPARED SLOPE WITH OVERLAPS OF 2 FEET ANCHORED EVERY 3 FEET. PLACE ROCK AS TO NOT RIP FILTER FABRIC, SORT STONE SIZE, OR CREATE VOIDS. INSTALL AT RIPRAP AS SOON AFTER SLOPE PREPARATION AS POSSIBLE DUE TO HIGH EROSION RISK OF SPECIFIED AREAS.

**SEED AND MULCH:**  
SEED A CREEPING/RED FESCUE AND KENTUCKY BLUEGRASS MIXTURE AT 2:1. THE MIXTURE IS EXPECTED TO BE USEFUL IN A WIDE RANGE OF DRAINAGE CHARACTERISTICS AND SOIL CONDITIONS. ADDITIONALLY, A MULCHING RATE OF 100 LBS/1,000 FT<sup>2</sup> (ABOUT 2-3 BALES) HAS BEEN SPECIFIED FOR TEMPORARY SOIL STABILIZATION.

IN AREAS WHERE THIS TECHNIQUE HAS BEEN SPECIFIED, IMPLEMENTATION MUST OCCUR IN THE NORMAL CONSTRUCTION SEASON AFTER APRIL 15, AND MUST BE COMPLETED PRIOR TO SEPTEMBER 15. IF VEGETATION COVERAGE IS NOT SIGNIFICANT BEFORE OCTOBER 15, A WINTER APPLICATION OF MULCH MUST BE APPLIED. THIS APPLICATION RATE IS DOUBLE THE REGULAR CONSTRUCTION APPLICATION RATE WITH 80-90% COVER. MULCH SHOULD BE TACKED IN OR STABILIZED WITH NETTING FOR THE WINTER.

**DRAINAGE SWALE:**  
A GRASS LINED CHANNEL HAS BEEN DESIGNED TO CONVEY STORMWATER RUNOFF FROM AN UPPER SLOPE AROUND AN AREA OF SENSITIVE SOIL TYPE. THIS DRAINAGE FEATURE WILL ALSO BENEFIT THE PERFORMANCE OF THE WASTEWATER DISPOSAL MOUND, IN CONJUNCTION WITH THE SPECIFIED UNDERDRAIN. THIS DIVERSION IS INTENDED TO PROTECT SOIL SURFACES THAT ARE VULNERABLE TO SOIL EROSION AND WILL ULTIMATELY BE VEGETATED. ENSURE THE OUTFALL IS CONSTRUCTED AS SPECIFIED TO REDUCE POTENTIAL EROSION.

**TEMPORARY SEDIMENT TRAP:**  
SEVERAL TEMPORARY SEDIMENTATION TRAPS WILL BE CONSTRUCTED ON SITE TO DETAIN RUNOFF WATERS, TRAP SEDIMENT AND PREVENT DAMAGE BY EXCESSIVE SEDIMENTATION AND DEBRIS. ALL TEMPORARY SEDIMENTATION TRAPS WILL BE CONSTRUCTED TO PROVIDE A MINIMUM OF 3,000 CUBIC FEET OF STORAGE CAPACITY PER UPSLOPE ACRE OF DRAINAGE AREA.

**NOTES:**

LIMITS OF DISTURBANCE TO BE DEMARCATED WITH 3" HIGH GRADE STAKES SPACED APPROX. 10' APART AND CONNECTED BY ORANGE FLAGGING RIBBON.

ALL EROSION PREVENTION AND SEDIMENT CONTROL DEVICES (I.E. SILT FENCING) WILL BE INSTALLED PRIOR TO ALL DISTURBANCES ASSOCIATED WITH THE PHASE.

ALL SITE DEMARCATIONS WILL TAKE PLACE PRIOR TO INITIAL SITE DISTURBANCE.

ALL DISTURBANCES TO BE LIMITED TO A MAXIMUM OF 2 ACRES AT ONE TIME. NEW DISTURBANCES WILL NOT BE INITIATED UNTIL PREVIOUS TASKS ARE STABILIZED.

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY OR PERMANENT STABILIZATION WITHIN 14 DAYS OF THE INITIAL DISTURBANCE. AFTER THIS TIME ANY DISTURBANCE IN THE AREA MUST BE STABILIZED AT THE END OF EACH WORK DAY. THE FOLLOWING EXCEPTIONS APPLY:

A) STABILIZATION IS NOT REQUIRED IF WORK IS TO CONTINUE IN THE AREA WITHIN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST FOR THE NEXT 24 HOURS.

B) STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION WITH A DEPTH OF 2 FEET OR GREATER.

C) TO ENSURE COVER OF DISTURBED SOIL IN ADVANCE OF A MELT EVENT DURING WINTER CONSTRUCTION, AREAS OF DISTURBED SOIL MUST BE STABILIZED AT THE END OF EACH WORK DAY, WITH THE FOLLOWING EXCEPTIONS:

- IF NO PRECIPITATION WITHIN 24 HOURS IS FORECAST AND WORK WILL RESUME IN THE SAME DISTURBED AREA WITHIN 24 HOURS/DAILY STABILIZATION IS NOT NECESSARY.
- DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF SUCH AS HOUSE FOUNDATIONS OR OPEN UTILITY TRENCHES.

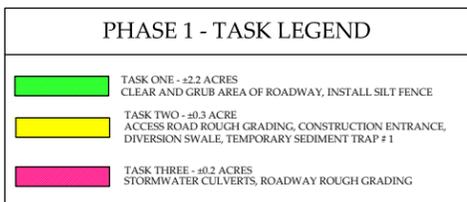
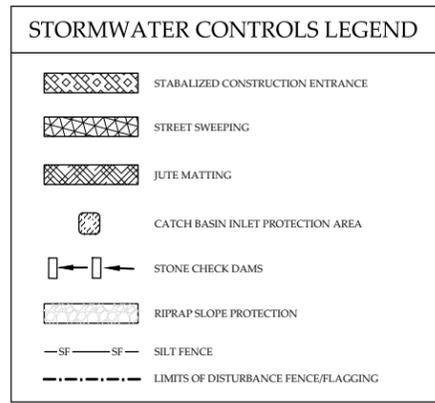
COMPLETE STABILIZATION OF EACH TASK IS NECESSARY BEFORE BEGINNING NEXT TASK. SEE ER-3 STABILIZATION PLAN.

STABILIZATION OF OPERATIONAL STORMWATER TREATMENT PRACTICES (E.G. PONDS, GRASS LINED SWALES) WILL BE COMPLETE BEFORE RUNOFF IS DIRECTED TO THEM.

DURING WINTER CONSTRUCTION, REMOVE SNOW OR ICE TO LESS THAN 1" THICKNESS PRIOR TO STABILIZATION.

ORDER OF OPERATIONS ARE DESCRIBED IN THE EROSION PREVENTION AND SEDIMENTATION PLAN NARRATIVE, SECTION III.

DURING WINTER CONSTRUCTION AND IN AREAS WITHIN 100' OF RECEIVING WATER, REINFORCE SILT FENCING OR REPLACE WITH PERMETER DIKES, SWALES OR OTHER PRACTICES RESISTANT TO THE FORCES OF SNOW LOADS.



**EPSC PLAN ONLY**  
**NOT FOR CONSTRUCTION**  
DATE: 1/23/20

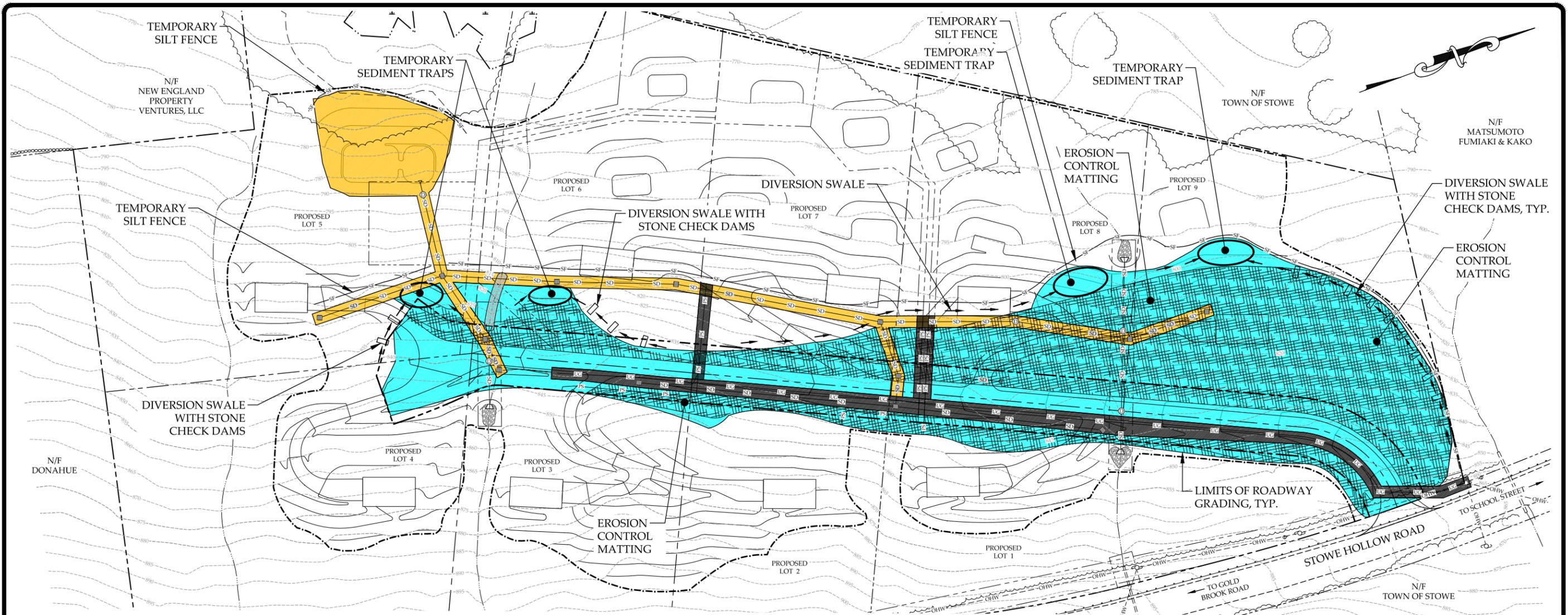
REVISION: 01-23-20 - VARIOUS CHANGES TO PHASES & AREAS

**EPSC CONSTRUCTION PLAN - PHASE 1**  
RIDGE AT STOWE HOLLOW  
STOWE HOLLOW ROAD LLC  
STOWE HOLLOW ROAD, STOWE, VERMONT

**MUMLEY ENGINEERING, INC.**  
454 MOUNTAIN ROAD, SUITE 4  
STOWE, VERMONT 05672  
WWW.MUMLEYENGINEERING.COM  
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PROJECT NO. 18045  
DRAWN BY: WEH  
CHECKED BY: TRM  
SCALE: 1" = 40'  
DATE: 01/17/20

SHEET NO.  
**ER-2**  
2 OF 6 SHEETS



**INSPECTION AND MAINTENANCE SCHEDULE:**  
 THE ON SITE PLAN COORDINATOR WILL MAKE INSPECTIONS OF EARTH DISTURBANCES AND ALL EROSION PREVENTION AND SEDIMENT CONTROL STRUCTURES. THESE INSPECTIONS WILL TAKE PLACE DAILY FOR ACTIVE AREAS AND WEEKLY FOR STABILIZED AREAS.

**ON-SITE COORDINATOR:**  
 SELECTED CONTRACTOR TO BE DETERMINED. SELECTED CONTRACTOR WILL NOTIFY VT DEC WITH CONTACT INFORMATION.

THE FOLLOWING EROSION PREVENTION AND SEDIMENT CONTROL MEASURES ARE PROPOSED TO ENSURE SITE STABILITY AND MINIMIZE EROSION DURING PROJECT CONSTRUCTION:

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**STONE SUB-BASE:**  
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**STONE CHECK DAMS:**  
 STONE CHECK DAMS WILL BE INSTALLED WITHIN SWALES TO PROVIDE SEDIMENT ENTRAPMENT AND REDUCTION IN FLOW VELOCITIES.

**SILT FENCE:**  
 IN ORDER TO PROVIDE BARRIERS TO SEDIMENT MOVEMENT AND FROM CRITICAL SOIL DISTURBANCE AREAS, SILT FENCING WILL BE INSTALLED PARALLEL TO PROPOSED SITE CONTOURS AND WILL BE TOED-IN TO NATIVE SOILS. SILT FENCE WILL REMAIN UNTIL ADEQUATE VEGETATION ENSURES NO FURTHER EROSION OF DISTURBED SLOPES. SILT FENCING WILL BE USED SURROUNDING TEMPORARY SOIL STOCKPILES AND SURROUNDING INDIVIDUAL HOMESITES DURING CONSTRUCTION. USE AT LEAST 100 FEET OF FENCING FOR EVERY 1/4 ACRE OF DISTURBED AREA UPGRADIENT. INSTALL SILT FENCE AHEAD OF GROUND FREEZING DURING WINTER CONSTRUCTION.

**STREET SWEEPING:**  
 SWEEPING OF AREAS SURROUNDING THE ACCESS ROAD WILL BE SWEEPED ON A DAILY BASIS OR AS NECESSARY AS DETERMINED BY THE OSPC.

**STABILIZED CONSTRUCTION ENTRANCE/EXIT:**  
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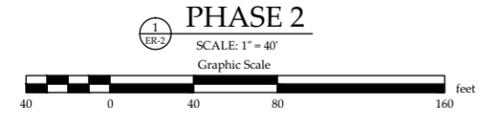
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**SEED AND MULCH:**  
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**TEMPORARY SEDIMENT TRAP:**  
 SEVERAL TEMPORARY SEDIMENTATION TRAPS WILL BE CONSTRUCTED ON SITE TO DETAIN RUNOFF WATERS, TRAP SEDIMENT AND PREVENT DAMAGE BY EXCESSIVE SEDIMENTATION AND DEBRIS. ALL TEMPORARY SEDIMENTATION TRAPS WILL BE CONSTRUCTED TO PROVIDE A MINIMUM OF 3,600 CUBIC FEET OF STORAGE CAPACITY PER UPSLOPE ACRE OF DRAINAGE AREA.



PHASE 2 - TASK LEGEND	
	TASK ONE - ±2.3 ACRES ROUGH GRADING OF PROPOSED ROADWAY, INSTALLATION OF SILT FENCE, DIVERSION SWALES AND SEDIMENT TRAPS
	TASK TWO - ±0.4 ACRE CONSTRUCTION OF STORMWATER STRUCTURES, CULVERTS, AND PONDS
	TASK THREE - ±0.2 ACRE INSTALLATION OF UTILITIES

**EPSC PLAN ONLY**  
 NOT FOR CONSTRUCTION  
 DATE: 1/23/20

**NOTES:**

LIMITS OF DISTURBANCE TO BE DEMARCATED WITH 3' HIGH GRADE STAKES SPACED APPROX. 10' APART AND CONNECTED BY ORANGE FLAGGING RIBBON.

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- DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF SUCH AS HOUSE FOUNDATIONS OR OPEN UTILITY TRENCHES.

COMPLETE STABILIZATION OF EACH TASK IS NECESSARY BEFORE BEGINNING NEXT TASK. SEE ER-3 STABILIZATION PLAN.

STABILIZATION OF OPERATIONAL STORMWATER TREATMENT PRACTICES (E.G. PONDS, GRASS LINED SWALES) WILL BE COMPLETE BEFORE RUNOFF IS DIRECTED TO THEM.

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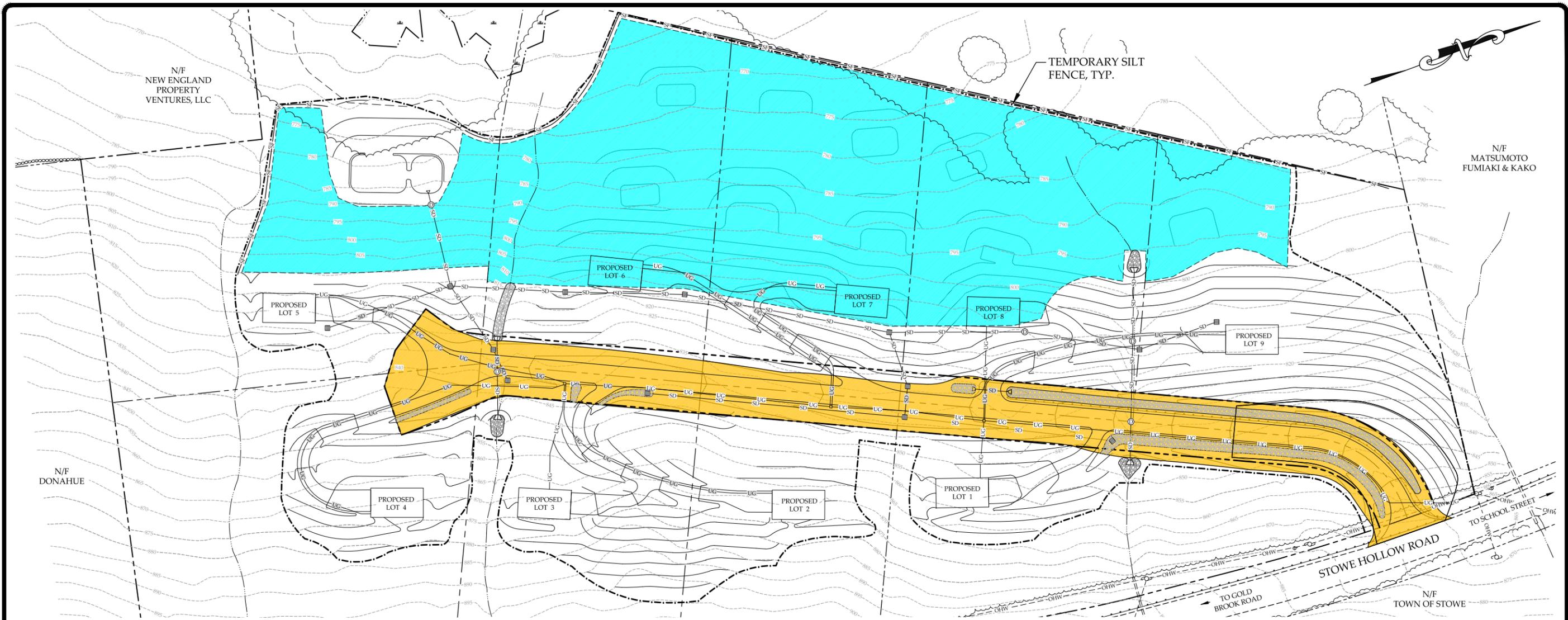
REVISION: 01-23-20 - VARIOUS CHANGES TO PHASES & AREAS

**EPSC CONSTRUCTION PLAN - PHASE 2**  
 RIDGE AT STOWE HOLLOW  
 STOWE HOLLOW ROAD LLC  
 STOWE HOLLOW ROAD, STOWE, VERMONT

**MUMLEY ENGINEERING, INC.**  
 454 MOUNTAIN ROAD, SUITE 4  
 STOWE, VERMONT 05672  
 WWW.MUMLEYENGINEERING.COM  
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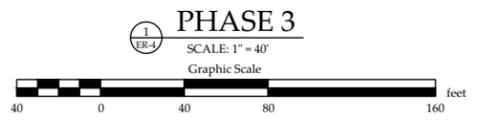
PROJECT NO. ....18045  
 DRAWN BY. ....WEH  
 CHECKED BY. ....TRM  
 SCALE. ....1" = 40'  
 DATE. ....01/17/20

SHEET NO.  
**ER-3**  
 3 OF 6 SHEETS



**INSPECTION AND MAINTENANCE SCHEDULE:**  
 THE ON SITE PLAN COORDINATOR WILL MAKE INSPECTIONS OF EARTH DISTURBANCES AND ALL EROSION PREVENTION AND SEDIMENT CONTROL STRUCTURES. THESE INSPECTIONS WILL TAKE PLACE DAILY FOR ACTIVE AREAS AND WEEKLY FOR STABILIZED AREAS.

**ON-SITE COORDINATOR:**  
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**SILT FENCE:**  
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 RIPRAPPING HAS BEEN SPECIFIED IN AREAS OF HIGH EROSION RISK, ASSESSED BY SLOPE, CONCENTRATION OF FLOW, AND SOIL EROSION RISK FACTORS. SLOPES MUST BE GRADED TO ACCOUNT FOR DEPTH OF RIPRAP AND COMPACTED IF FILLED. FILTER FABRIC WILL BE PLACED ON THE PREPARED SLOPE WITH OVERLAPS OF 2 FEET ANCHORED EVERY 3 FEET. PLACE ROCK AS TO NOT RIP FILTER FABRIC, SORT STONE SIZE, OR CREATE VOIDS. INSTALL AT RIPRAP AS SOON AFTER SLOPE PREPARATION AS POSSIBLE DUE TO HIGH EROSION RISK OF SPECIFIED AREAS.

**SEED AND MULCH:**  
 SEED A CREEPING RED FESCUE AND KENTUCKY BLUEGRASS MIXTURE AT 2:1. THE MIXTURE IS EXPECTED TO BE USEFUL IN A WIDE RANGE OF DRAINAGE CHARACTERISTICS AND SOIL CONDITIONS. ADDITIONALLY, A MULCHING RATE OF 100 LBS/1,000 FT<sup>2</sup> (ABOUT 2-3 BAGS) HAS BEEN SPECIFIED FOR TEMPORARY SOIL STABILIZATION.

IN AREAS WHERE THIS TECHNIQUE HAS BEEN SPECIFIED, IMPLEMENTATION MUST OCCUR IN THE NORMAL CONSTRUCTION SEASON AFTER APRIL 15, AND MUST BE COMPLETED PRIOR TO SEPTEMBER 15. IF VEGETATION COVERAGE IS NOT SIGNIFICANT BEFORE OCTOBER 15, A WINTER APPLICATION OF MULCH MUST BE APPLIED. THIS APPLICATION RATE IS DOUBLE THE REGULAR CONSTRUCTION APPLICATION RATE WITH 80-90% COVER. MULCH SHOULD BE TACKED IN OR STABILIZED WITH NETTING FOR THE WINTER.

**DRAINAGE SWALE:**  
 A GRASS LINED CHANNEL HAS BEEN DESIGNED TO CONVEY STORMWATER RUNOFF FROM AN UPPER SLOPE AROUND AN AREA OF SENSITIVE SOIL TYPE. THIS DRAINAGE FEATURE WILL ALSO BENEFIT THE PERFORMANCE OF THE WASTE-WATER DISPOSAL MOUND, IN CONJUNCTION WITH THE SPECIFIED UNDERDRAIN. THIS DIVERSION IS INTENDED TO PROTECT SOIL SURFACES THAT ARE VULNERABLE TO SOIL EROSION AND WILL ULTIMATELY BE VEGETATED. ENSURE THE OUTFALL IS CONSTRUCTED AS FEATURED TO REDUCE POTENTIAL EROSION.

**TEMPORARY SEDIMENT TRAP:**  
 SEVERAL TEMPORARY SEDIMENTATION TRAPS WILL BE CONSTRUCTED ON SITE TO DETAIN RUNOFF WATERS, TRAP SEDIMENT AND PREVENT DAMAGE BY EXCESSIVE SEDIMENTATION AND DEBRIS. ALL TEMPORARY SEDIMENTATION TRAPS WILL BE CONSTRUCTED TO PROVIDE A MINIMUM OF 3,600 CUBIC FEET OF STORAGE CAPACITY PER UPSLOPE ACRE OF DRAINAGE AREA.

**NOTES:**

LIMITS OF DISTURBANCE TO BE DEMARCATED WITH 3' HIGH GRADE STAKES SPACED APPROX. 10' APART AND CONNECTED BY ORANGE FLAGGING RIBBON.

ALL EROSION PREVENTION AND SEDIMENT CONTROL DEVICES (I.E. SILT FENCING) WILL BE INSTALLED PRIOR TO ALL DISTURBANCES ASSOCIATED WITH THE PHASE.

ALL SITE DEMARCATATIONS WILL TAKE PLACE PRIOR TO INITIAL SITE DISTURBANCE.

ALL DISTURBANCES TO BE LIMITED TO A MAXIMUM OF 2 ACRES AT ONE TIME. NEW DISTURBANCES WILL NOT BE INITIATED UNTIL PREVIOUS TASKS ARE STABILIZED.

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY OR PERMANENT STABILIZATION WITHIN 14 DAYS OF THE INITIAL DISTURBANCE. AFTER THIS TIME ANY DISTURBANCE IN THE AREA MUST BE STABILIZED AT THE END OF EACH WORK DAY. THE FOLLOWING EXCEPTIONS APPLY:

A) STABILIZATION IS NOT REQUIRED IF WORK IS TO CONTINUE IN THE AREA WITHIN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST FOR THE NEXT 24 HOURS.

B) STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION WITH A DEPTH OF 2 FEET OR GREATER.

C) TO ENSURE COVER OF DISTURBED SOIL IN ADVANCE OF A MELT EVENT DURING WINTER CONSTRUCTION, AREAS OF DISTURBED SOIL MUST BE STABILIZED AT THE END OF EACH WORK DAY, WITH THE FOLLOWING EXCEPTIONS:

1. IF NO PRECIPITATION WITHIN 24 HOURS IS FORECAST AND WORK WILL RESUME IN THE SAME DISTURBED AREA WITHIN 24 HOURS, DAILY STABILIZATION IS NOT NECESSARY.
2. DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF SUCH AS HOUSE FOUNDATIONS OR OPEN UTILITY TRENCHES.

COMPLETE STABILIZATION OF EACH TASK IS NECESSARY BEFORE BEGINNING NEXT TASK. SEE ER-3 STABILIZATION PLAN.

STABILIZATION OF OPERATIONAL STORMWATER TREATMENT PRACTICES (E.G. PONDS, GRASS LINED SWALES) WILL BE COMPLETE BEFORE RUNOFF IS DIRECTED TO THEM.

DURING WINTER CONSTRUCTION, REMOVE SNOW OR ICE TO LESS THAN 1" THICKNESS PRIOR TO STABILIZATION.

ORDER OF OPERATIONS ARE DESCRIBED IN THE EROSION PREVENTION AND SEDIMENTATION PLAN NARRATIVE, SECTION III.

DURING WINTER CONSTRUCTION AND IN AREAS WITHIN 100' OF RECEIVING WATER, REINFORCE SILT FENCING OR REPLACE WITH PERIMETER DIKES, SWALES OR OTHER PRACTICES RESISTANT TO THE FORCES OF SNOW LOADS.

**CONSTRUCTION NOTE:**  
 PROPOSED PHASE EXCLUDES ANY WORK ASSOCIATED WITH INDIVIDUAL LOT DWELLINGS, DRIVEWAYS, GRADING OR UTILITIES

**PHASE 3 - TASK LEGEND**

	TASK ONE - ±2.6 ACRES CLEAR AND GRUB, INSTALL SILT FENCE AND NEW LANDSCAPING
	TASK TWO - ±1.1 ACRE CONSTRUCTION OF ROADWAY AND ROADSIDE SWALES, SEED & MULCH

**EPSC PLAN ONLY**  
 NOT FOR CONSTRUCTION  
 DATE: 1/23/20

REVISION: 01-23-20 - VARIOUS CHANGES TO PHASES & AREAS

**EPSC CONSTRUCTION PLAN - PHASE 3**  
 RIDGE AT STOWE HOLLOW  
 STOWE HOLLOW ROAD LLC  
 STOWE HOLLOW ROAD, STOWE, VERMONT

**MUMLEY ENGINEERING, INC.**  
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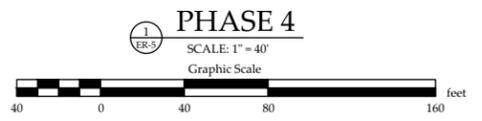
PROJECT NO. ....18045  
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 SCALE. ....1" = 40'  
 DATE. ....01/17/20

SHEET NO.  
**ER-4**  
 4 OF 6 SHEETS



**INSPECTION AND MAINTENANCE SCHEDULE:**  
 THE ON SITE PLAN COORDINATOR WILL MAKE INSPECTIONS OF EARTH DISTURBANCES AND ALL EROSION PREVENTION AND SEDIMENT CONTROL STRUCTURES. THESE INSPECTIONS WILL TAKE PLACE DAILY FOR ACTIVE AREAS AND WEEKLY FOR STABILIZED AREAS.

**ON-SITE COORDINATOR:**  
 SELECTED CONTRACTOR TO BE DETERMINED. SELECTED CONTRACTOR WILL NOTIFY VTD DEC WITH CONTACT INFORMATION.



THE FOLLOWING EROSION PREVENTION AND SEDIMENT CONTROL MEASURES ARE PROPOSED TO ENSURE SITE STABILITY AND MINIMIZE EROSION DURING PROJECT CONSTRUCTION:

**CATCH BASIN INLET PROTECTION:**  
 THE SITE IS GRADED TO DIRECT MOST FLOW TO CATCHMENT BASINS FOR CONVEYANCE TO THE PERMANENT STORMWATER DETENTION POND. CATCHMENT BASINS WILL BE INSTALLED AS THE ROAD IS BUILT. STORMWATER RUNOFF FROM THE CONSTRUCTION SITE WILL BE DRAINED TO THESE CATCHMENT BASINS. TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE NETWORK, EXCAVATED DROOP TYPE STORM DRAIN INLET PROTECTION HAS BEEN SPECIFIED AT ALL CATCHMENT BASINS. THESE SHOULD BE INSTALLED AS THE CATCHMENT BASINS ARE INSTALLED, LEAVING ELEVATION AROUND THE INLET BELOW FINISHED GRADE TO CREATE THE EXCAVATED AREA WHICH WILL SLOW FLOW AND ALLOW SEDIMENTS TO SETTLE. SIZE IS BASED ON A MINIMUM OF 900 CU FT PER DRAINAGE AREA ACRE. EXCAVATED AREA WILL BE CLEANED WHEN 50% OF STORAGE VOLUME IS FILLED.

**STONE SUB-BASE:**  
 FOLLOWING THE COMPLETION OF ROUGH GRADING OF THE ROAD A CRUSHED STONE SUB-BASE WILL BE INSTALLED. THE STONE SUB-BASE WILL ALSO PROVIDE A TEMPORARY STABILIZED SURFACE FOR EQUIPMENT OPERATION, MATERIALS STORAGE, AND CONTRACTOR PARKING DURING THE EARLY STAGES OF SITE WORK.

**STONE CHECK DAMS:**  
 STONE CHECK DAMS WILL BE INSTALLED WITHIN SWALES TO PROVIDE SEDIMENT ENTRAPMENT AND REDUCTION IN FLOW VELOCITIES.

**SILT FENCE:**  
 IN ORDER TO PROVIDE BARRIERS TO SEDIMENT MOVEMENT AND FROM CRITICAL SOIL DISTURBANCE AREAS, SILT FENCING WILL BE INSTALLED PARALLEL TO PROPOSED SITE CONTROLS AND WILL BE TIED-IN TO NATIVE SOILS. SILT FENCE WILL REMAIN UNTIL ADEQUATE VEGETATION ENSURES NO FURTHER EROSION OF DISTURBED SLOPES. SILT FENCING WILL BE USED SURROUNDING TEMPORARY SOIL STOCKPILES AND SURROUNDING INDIVIDUAL HOMESITES DURING CONSTRUCTION. USE AT LEAST 100 FEET OF FENCING FOR EVERY 1/4 ACRE OF DISTURBED AREA UPGRADIENT. INSTALL SILT FENCE AHEAD OF GROUND FREEZING DURING WINTER CONSTRUCTION.

**STREET SWEEPING:**  
 SWEEPING OF AREAS SURROUNDING THE ACCESS ROAD WILL BE SWEEPED ON A DAILY BASIS OR AS NECESSARY AS DETERMINED BY THE OSPC.

**STABILIZED CONSTRUCTION ENTRANCE/EXIT:**  
 ALL ACCESS POINTS FROM THE PUBLIC STREET INTO THE CONSTRUCTION SITE SHALL INCLUDE A CONSTRUCTION EXIT COMPOSED OF COARSE STONE TO THE DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS DETAIL SHEET. THE ROUGH TEXTURE OF THE STONE HELPS TO REMOVE CLUMPS OF SOIL ADHERING TO THE CONSTRUCTION VEHICLE TIRES THROUGH THE ACTION OF VIBRATION AND JARRING OVER THE ROUGH SURFACE AND THE FRICTION OF THE STONE MATRIX AGAINST SOILS ATTACHED TO VEHICLE TIRES.

**RIPRAP SLOPE PROTECTION:**  
 RIPRAPPING HAS BEEN SPECIFIED IN AREAS OF HIGH EROSION RISK, ASSESSED BY SLOPE, CONCENTRATION OF FLOW, AND SOIL EROSION RISK FACTORS. SLOPES MUST BE GRADED TO ACCOUNT FOR DEPTH OF RIPRAP AND COMPACTED IF FILLED. FILTER FABRIC WILL BE PLACED ON THE PREPARED SLOPE WITH OVERLAPS OF 2 FEET ANCHORED EVERY 3 FEET. PLACE ROCK AS TO NOT RIP FILTER FABRIC, SORT STONE SIZE, OR CREATE VOIDS. INSTALL AT RIPRAP AS SOON AFTER SLOPE PREPARATION AS POSSIBLE DUE TO HIGH EROSION RISK OF SPECIFIED AREAS.

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**TEMPORARY SEDIMENT TRAP:**  
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**NOTES:**

LIMITS OF DISTURBANCE TO BE DEMARCATED WITH 3" HIGH GRADE STAKES SPACED APPROX. 10' APART AND CONNECTED BY ORANGE FLAGGING RIBBON.

ALL EROSION PREVENTION AND SEDIMENT CONTROL DEVICES (I.E. SILT FENCING) WILL BE INSTALLED PRIOR TO ALL DISTURBANCES ASSOCIATED WITH THE PHASE.

ALL SITE DEMARCATATIONS WILL TAKE PLACE PRIOR TO INITIAL SITE DISTURBANCE.

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COMPLETE STABILIZATION OF EACH TASK IS NECESSARY BEFORE BEGINNING NEXT TASK. SEE ER-3 STABILIZATION PLAN.

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**CONSTRUCTION NOTE:**  
 PROPOSED PHASE EXCLUDES ANY WORK ASSOCIATED WITH INDIVIDUAL LOT DWELLINGS, DRIVEWAYS, GRADING OR UTILITIES

**PHASE 4 - TASK LEGEND**

- TASK ONE - ±3.2 ACRES CONSTRUCTION OF INDIVIDUAL LOTS
- TASK TWO - ±1.2 ACRE CONSTRUCTION OF INDIVIDUAL WASTEWATER SYSTEMS

**EPSC PLAN ONLY**  
 NOT FOR CONSTRUCTION  
 DATE: 1/23/20

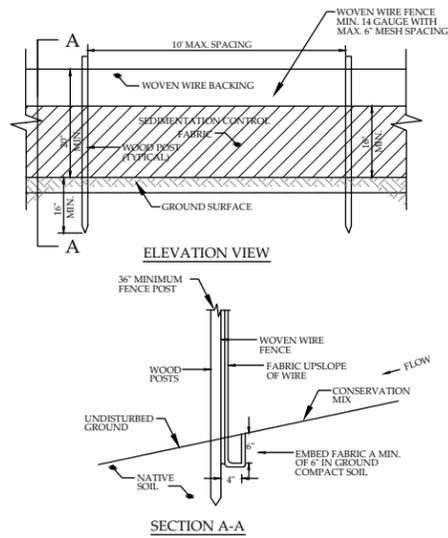
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**EPSC CONSTRUCTION PLAN - PHASE 4**  
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 STOWE HOLLOW ROAD LLC  
 STOWE HOLLOW ROAD, STOWE, VERMONT

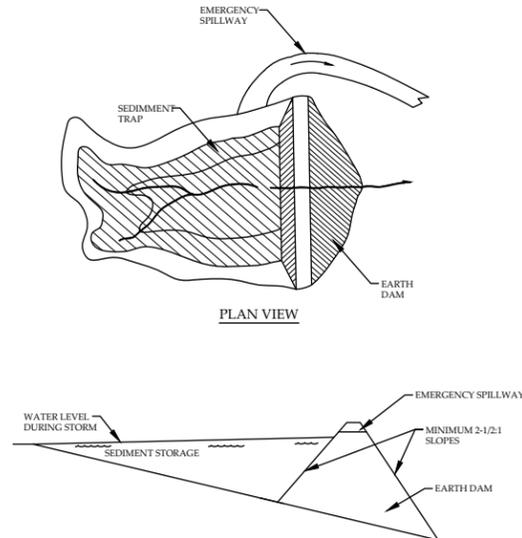
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SHEET NO.  
**ER-5**  
 5 OF 6 SHEETS

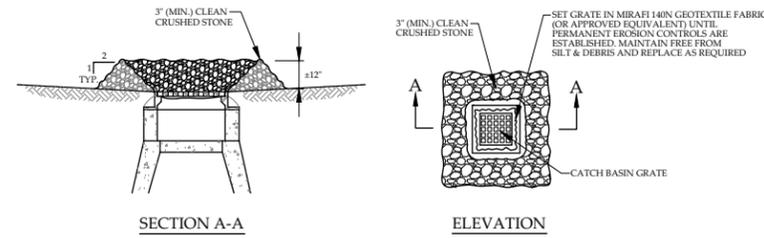


SECTION A-A



SECTION

2 TYPICAL SEDIMENT TRAP  
NOT TO SCALE

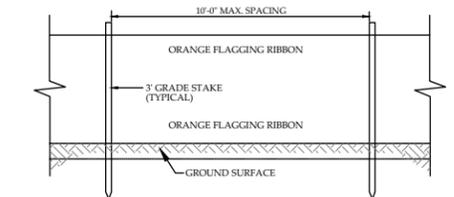


SECTION A-A

ELEVATION

NOTE: INLET PROTECTION SHALL REMAIN IN PLACE UNTIL PAVEMENT IS INSTALLED OR VEGETATION IS ESTABLISHED TO THE SATISFACTION OF THE ENGINEER.

3 CATCH BASIN INLET PROTECTION, STONE BLOCK TYPE  
NOT TO SCALE



4 LIMITS OF DISTURBANCE DEMARCATION  
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:

SILT FENCING WILL BE APPLIED TO THE SITE SO THAT THERE WILL BE 100 FEET OF FENCING FOR EVERY 1/4 ACRE OF DISTURBED UPGRADIENT AREA.

THE GEOTEXTILE FABRIC SHALL MEET THE DESIGN CRITERIA FOR SILT FENCES, OF THE VERMONT STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL, PREPARED BY THE STATE OF VERMONT DEPT. OF ENVIRONMENTAL CONSERVATION, DATED 2006.

WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. WIRE FENCE REINFORCEMENT REQUIRED WITHIN 100 FT UPSLOPE OF RECEIVING WATERS.

FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.

WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTR X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.

PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.

THE FABRIC SHALL NOT EXTEND MORE THAN 30" ABOVE THE ORIGINAL GROUND SURFACE AND WILL EXTEND TO A MINIMUM OF 12" INTO THE TRENCH. FILTER FABRIC SHALL NOT BE STAPLED INTO EXISTING TREES.

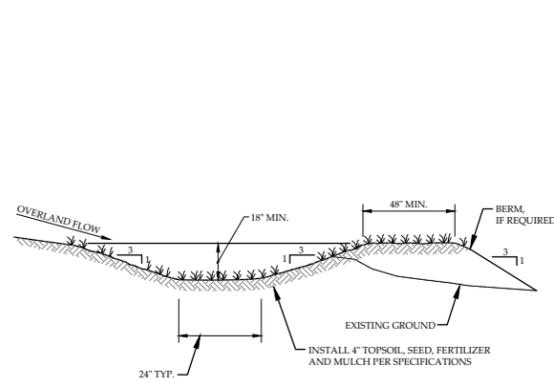
THE TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.

FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL, AND AT LEAST DAILY DURING PROLONGED RAINFALL, ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY. THE FABRIC SHALL BE REPLACED PROMPTLY.

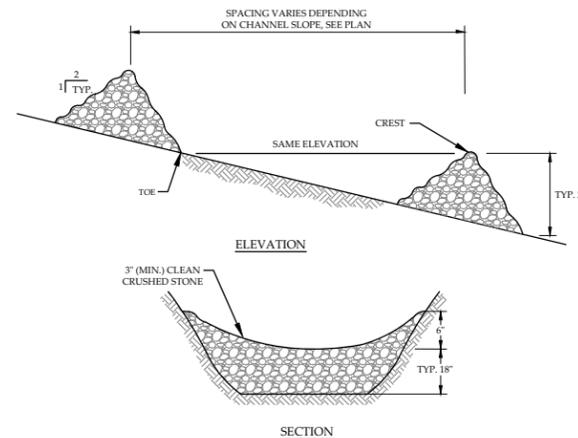
SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-THIRD THE HEIGHT OF THE BARRIER.

ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED, SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEED.



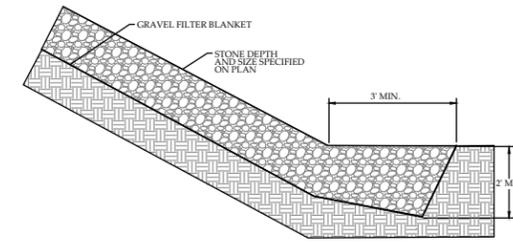
NOTE: BERM AS REQUIRED TO MAINTAIN 12" DEPTH AND 0.01 FT./FT. MINIMUM SLOPE IN SWALE

5 DIVERSION SWALE/TEMPORARY SWALE  
NOT TO SCALE

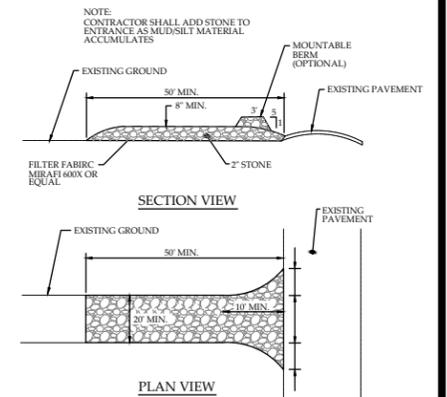


SECTION

6 STONE CHECK DAM  
NOT TO SCALE



7 RIPRAP SLOPE PROTECTION  
NOT TO SCALE

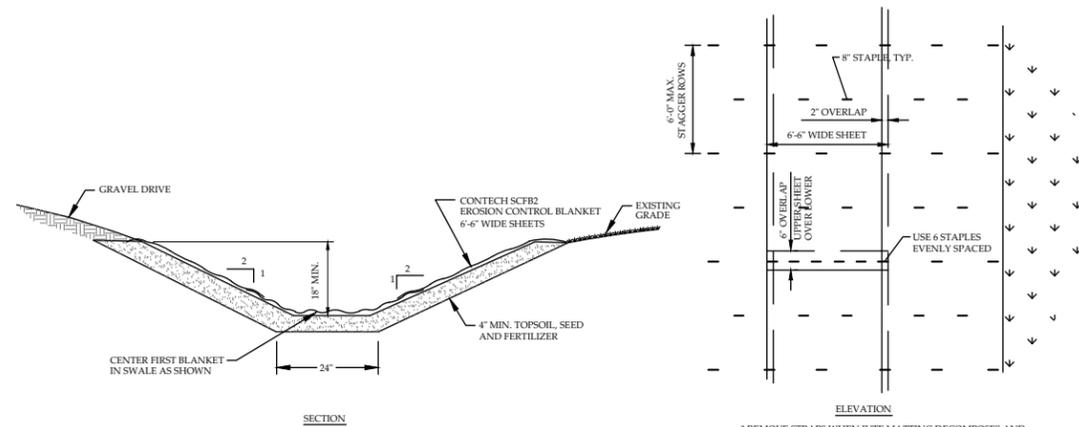


SECTION VIEW

PLAN VIEW

8 STABILIZED CONSTRUCTION ENTRANCE  
NOT TO SCALE

1 SILT FENCE DETAIL  
NOT TO SCALE



SECTION

ELEVATION

\* REMOVE STRAPS WHEN JUTE MATTING DECOMPOSES AND GRASS IS ESTABLISHED

9 TYPICAL JUTE MATTING LINED SWALE  
NOT TO SCALE

APPROVED MULCH MATERIALS AND APPLICATION RATES			
MULCHES	RATES		NOTES
	PER ACRE	PER 1000 S.F.	
STRAW OR HAY	1 1/2 TONS	70-90 LBS	FREE FROM WEEDS AND COARSE MATTER MUST BE ANCHORED. SPREAD WITH MULCH BLOWER OR BY HAND.
WOOD FIBER	1000-2000 LBS	25-50 LBS	FIBERS 4mm OR LONGER DO NOT USE ALONE IN WINTER OR DURING HOT, DRY WEATHER. APPLY AS SLURRY
CORN STALKS	4-6 TONS	185-275 LBS	CUT OR SHREDDED IN 4-6 INCH LENGTHS. AIR-DRIED. DO NOT USE IN FINE TURF AREAS. APPLY WITH MULCH BLOWER, OR BY HAND.
WOOD CHIPS	4-6 TONS	185-275 LBS	FREE OF COARSE MATTER, AIR DRIED. TREAT WITH 12 LBS. NITROGEN PER TON. DO NOT USE IN FINE TURF AREAS. APPLY WITH MULCH BLOWER, CHIP HANDLER OR BY HAND.
BARK CHIPS SHREDDED BARK	50-70 CU. YDS.	1-2 CU. YDS	FREE OR COARSE MATTER. AIR DRIED. DO NOT USE IN FINE TURF AREAS. APPLY WITH MULCH BLOWER, CHIP HANDLER OR BY HAND.
OTHER MATERIALS	WITH ENGINEERS APPROVAL		

NOTES:

- AREAS WHICH HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED SHALL BE MULCHED IMMEDIATELY FOLLOWING SEEDING. MULCH ANCHORING WILL BE USED ON SLOPES GREATER THAN 3 PERCENT AND CONCENTRATED FLOW AREAS SUCH AS DIVERSION AND WATERWAY CHANNELS.
- AREAS WHICH CANNOT BE SEEDED WITHIN THE SEEDING DATES SHOULD BE MULCHED TO PROVIDE TEMPORARY PROTECTION TO THE SOIL SURFACE. AN ORGANIC MULCH OTHER THAN WOOD FIBER ALONE SHALL BE USED AND THE AREA THEN SEEDED AS SOON AS SEEDING DATES PERMIT.
- DOUBLE MULCH RATE FOR WINTER CONSTRUCTION ACTIVITIES.

10 MULCHING GUIDELINES  
NOT TO SCALE

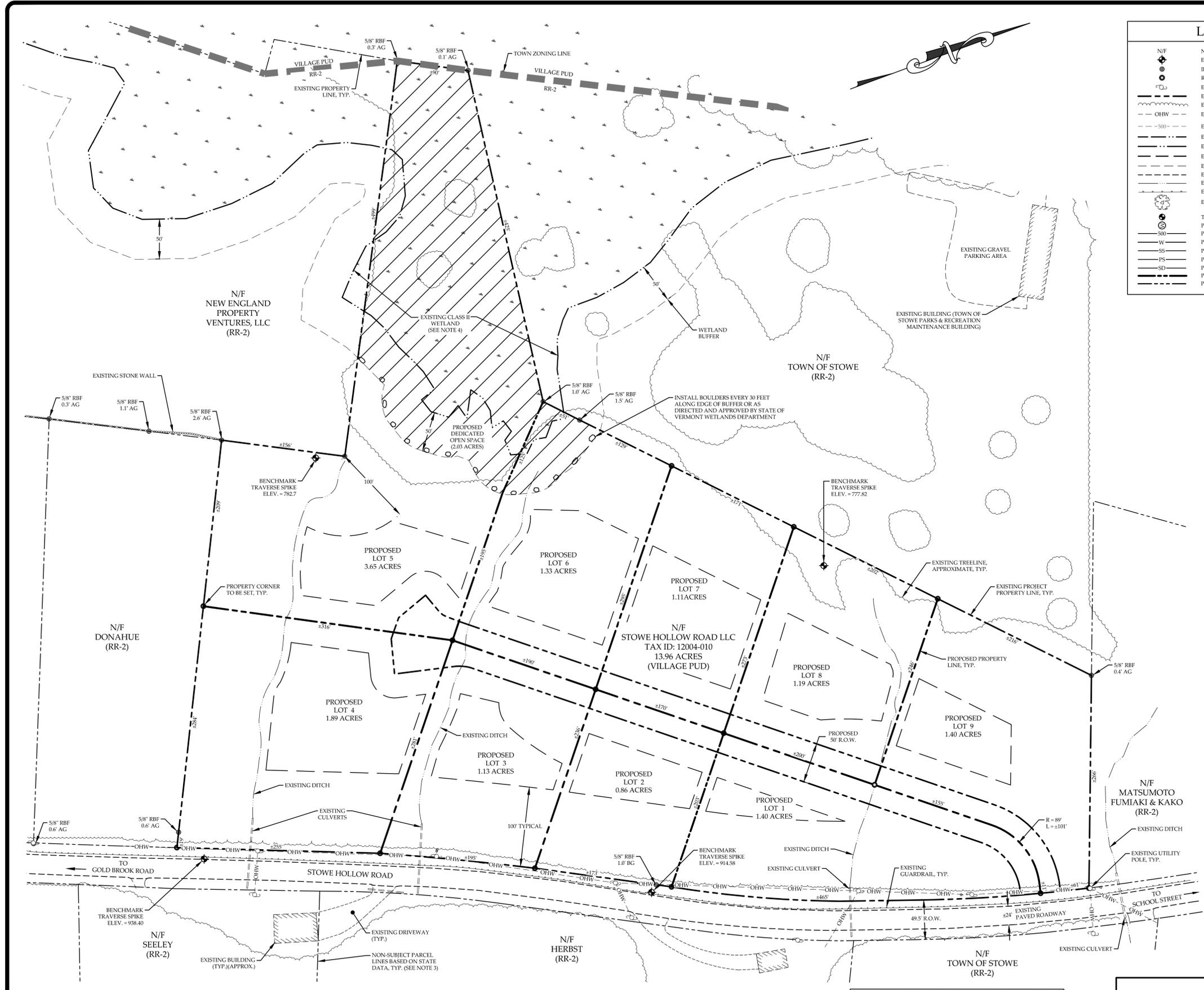
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EPSC DETAILS  
RIDGE AT STOWE HOLLOW  
STOWE HOLLOW ROAD LLC  
STOWE HOLLOW ROAD, STOWE, VERMONT

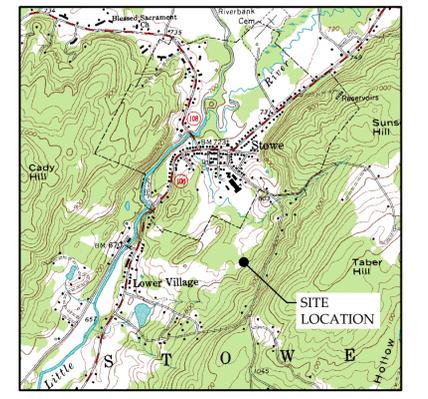
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SHEET NO.  
**ER-6**  
6 OF 6 SHEETS



LEGEND	
(Symbol)	NOW OR FORMERLY OWNED BY
(Symbol)	ELEVATION BENCHMARK
(Symbol)	IRON PIPE / REBAR FOUND
(Symbol)	REBAR TO BE SET
(Symbol)	EXISTING UTILITY POLE & GUY WIRE
(Symbol)	EXISTING PROPERTY LINE
(Symbol)	EXISTING TREE LINE
(Symbol)	EXISTING OVERHEAD WIRES
(Symbol)	EXISTING CONTOUR
(Symbol)	EXISTING SOILS
(Symbol)	EXISTING WETLANDS VCGI
(Symbol)	EXISTING WETLAND BUFFER
(Symbol)	EXISTING EDGE OF GRAVEL
(Symbol)	EXISTING EDGE OF PAVEMENT
(Symbol)	EXISTING STREAM / DITCH
(Symbol)	EXISTING GAUDDRAIL
(Symbol)	EXISTING TREES
(Symbol)	TEST PIT LOCATION
(Symbol)	PROPOSED DRILLED WELL
(Symbol)	PROPOSED CONTOUR
(Symbol)	PROPOSED WATER LINE
(Symbol)	PROPOSED GRAVITY SEWER LINE
(Symbol)	PROPOSED PRESSURE SEWER LINE
(Symbol)	PROPOSED STORM DRAIN PIPE
(Symbol)	PROPOSED PROPERTY LINE
(Symbol)	PROPOSED RIGHT OF WAY / EASEMENT



**SITE LOCATION MAP**  
NORTH  
NOT TO SCALE

- LIST OF DRAWINGS**
- C-1 PROPOSED SUBDIVISION LAYOUT
  - C-2 PROPOSED SITE PLAN
  - C-3 PARTIAL SITE PLAN
  - C-4 PARTIAL SITE PLAN
  - C-5 ROADWAY PLAN & PROFILE
  - C-6 LANDSCAPING PLAN
  - C-7 WASTEWATER SYSTEMS
  - C-8 STORMWATER SYSTEMS
  - C-9 DETAILS
  - C-10 DETAILS

**PURPOSE OF PLAN:**  
TO SUBDIVIDE AN EXISTING VACANT ±14 ACRE PARCEL INTO NINE (9) SINGLE-FAMILY RESIDENTIAL LOTS.

**ZONING NOTES:**  
DISTRICT: STOWE VILLAGE PUD (RESIDENTIAL)  
ZONING REQUIREMENTS:  
SETBACKS:  
FRONT = 30 FT  
REAR = 40 FT  
SIDE = 10 FT  
PERIMETER GREENBELT = 100 FT  
MINIMUM LOT SIZE = 10,000 SF (0.23 ACRES)  
MINIMUM PROPOSED LOT SIZE = 0.88 ACRES  
MAXIMUM BUILDING COVERAGE = 15%  
PROPOSED BUILDING COVERAGE = 4%  
MAXIMUM BUILDING HEIGHT = 28 FT  
PROPOSED IMPERVIOUS AREA = 0.98 ACRES

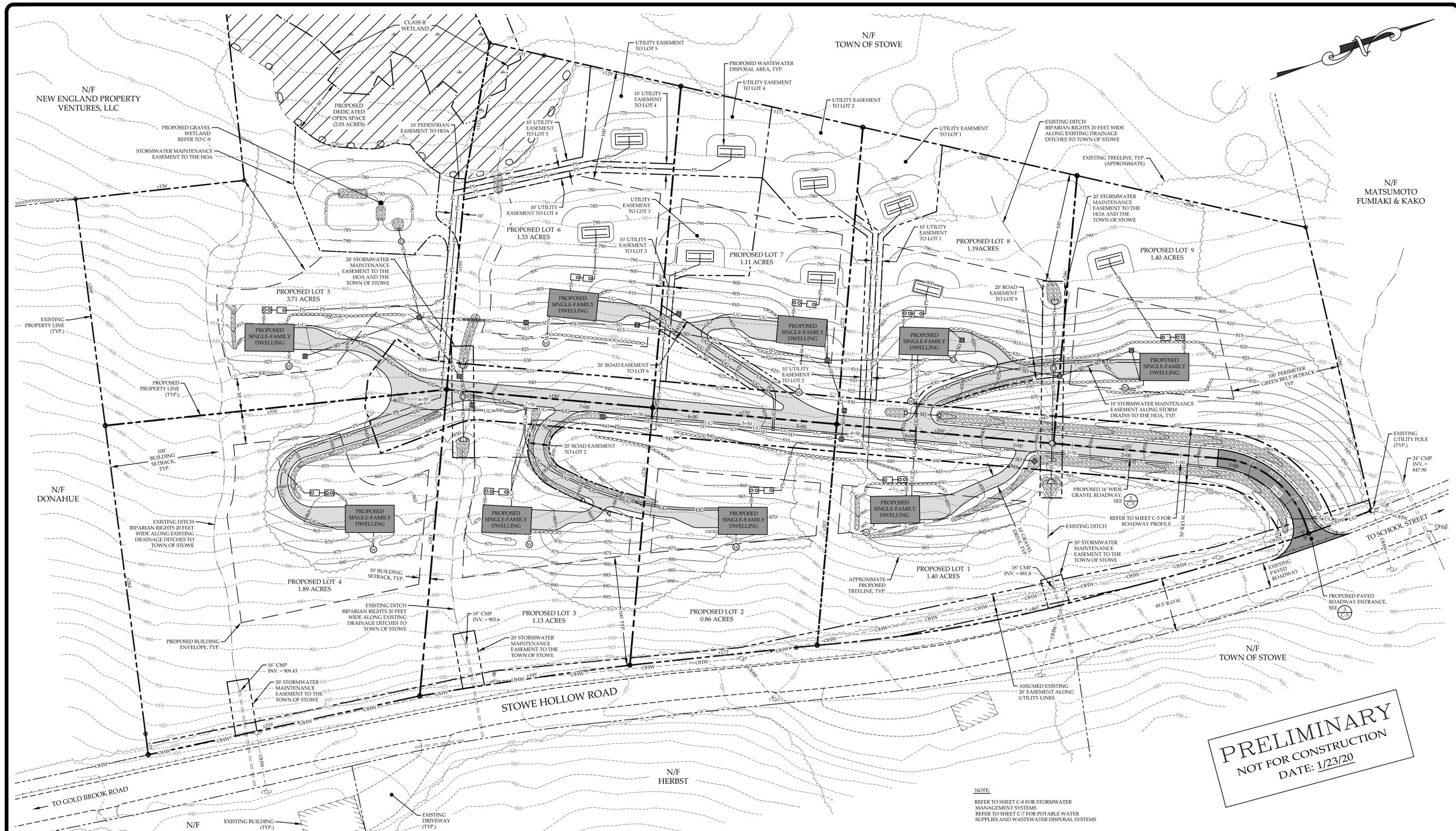
**TRAFFIC ANALYSIS:**  
ITE 9TH EDITION FOR SINGLE-FAMILY DETACHED HOUSING (USE #210):  
WEEKDAY: 9 DWELLING UNITS \* 5.52 TRIPS PER UNIT = 49.68 TRIPS DAILY  
WEEKDAY PEAK HOUR (PM): 9 DWELLING UNITS \* 1.00 TRIPS PER UNIT = 9 TRIPS PEAK HOUR

- PLAN REFERENCES:**
- 1) A BOUNDARY SURVEY OF SUBJECT PARCEL PROVIDED BY BUTTON LAND SURVEYORS ON JUNE 11, 2019.
  - 2) LOCATIONS OF UTILITY POLES, ROADS, DRIVES, CULVERTS, STREAMS, TEST PITS, PARTIAL TOPOGRAPHIC INFORMATION PROVIDED BY BUTTON LAND SURVEYORS ON JUNE 11, 2019.
  - 3) OTHER TOPOGRAPHIC DATA & PARCEL LINES USED FOR ABUTTING PROPERTIES TAKEN FROM THE VERMONT CENTER FOR GEOGRAPHIC INFORMATION, ON SEPTEMBER 11, 2018.
  - 4) WETLAND LIMITS WITHIN PROPERTY AREA CONDUCTED BY ARROWWOOD ENVIRONMENTAL ON 9/23/19. CONFIRMED BY SHANNON MORRISON, STATE OF VERMONT, ON 10/2/19. LOCATION RECORDED VIA GPS BY MUMLEY ENGINEERING, INC. ON 10/20/19.
- NOTES:**
- 1) THIS DRAWING IS NOT A BOUNDARY SURVEY PLAT. BOUNDARY LINE INFORMATION SHOWN IS BASED ON PLAN REFERENCE #1. THE PROPERTY LINES, EASEMENTS AND OTHER REAL PROPERTY DESCRIPTIONS PROVIDED ON THIS DRAWING ARE FOR ILLUSTRATION PURPOSES ONLY. THEY DO NOT DEFINE LEGAL RIGHTS OR MEET LEGAL REQUIREMENTS FOR A LAND SURVEY AS DESCRIBED IN V.S.A. TITLE 27, SECTION 1403 AND SHALL NOT BE USED IN LIEU OF A SURVEY AS THE BASIS OF ANY LAND TRANSFER OR ESTABLISHMENT OF ANY PROPERTY RIGHT.
  - 2) THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING AND DETERMINING THE LOCATION, SIZE, AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES OR UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION. APPROPRIATE REMEDIAL ACTION SHALL BE TAKEN BEFORE PROCEEDING WITH THE WORK.
  - 3) THIS TOPOGRAPHIC SURVEY WAS CONDUCTED WITHOUT THE BENEFIT OF "DIG SAFE" MARKINGS. UTILITY LOCATIONS SHOWN ARE APPROXIMATE AND ARE NOT WARRANTED TO BE EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT "DIG SAFE" BEFORE COMMENCING ANY WORK AND SHALL PRESERVE ALL EXISTING UTILITIES NOT SPECIFIED TO BE REMOVED OR ABANDONED AS PART OF THE PROJECT.
- OWNER OF RECORD:**  
STOWE HOLLOW ROAD LLC  
474 STOWE HOLLOW ROAD  
STOWE, VT 05672

**PROPOSED SUBDIVISION LAYOUT**  
SCALE: 1" = 60'  
Graphic Scale  
feet  
0 60 120 240

**PRELIMINARY**  
NOT FOR CONSTRUCTION  
DATE: 1/23/20

<b>PROPOSED SUBDIVISION LAYOUT</b>		PROJECT NO. ....18045		SHEET NO.	
STOWE HOLLOW ROAD LLC		DRAWN BY.....WEH		<b>C-1</b>	
STOWE HOLLOW ROAD		CHECKED BY.....TRM			
STOWE, VERMONT		SCALE.....1" = 60'			
		DATE.....1/17/20			
<b>MUMLEY ENGINEERING, INC.</b> 454 MOUNTAIN ROAD, SUITE 4 STOWE, VERMONT 05672 WWW.MUMLEYENGINEERING.COM COPYRIGHT © 2020 MUMLEY ENGINEERING, INC.		1 OF 10 SHEETS			

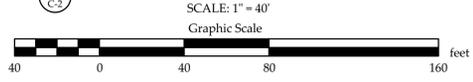


**PRELIMINARY**  
 NOT FOR CONSTRUCTION  
 DATE: 1/23/20

NOTE:  
 REFER TO SHEET C-8 FOR STORMWATER  
 MANAGEMENT SYSTEMS  
 REFER TO SHEET C-7 FOR POTABLE WATER  
 SUPPLIES AND WASTEWATER DISPOSAL SYSTEMS

REVISION: 1-23-20 - RELOCATED PEDESTRIAN EASEMENT ONTO LOT 5

**PROPOSED SITE PLAN**



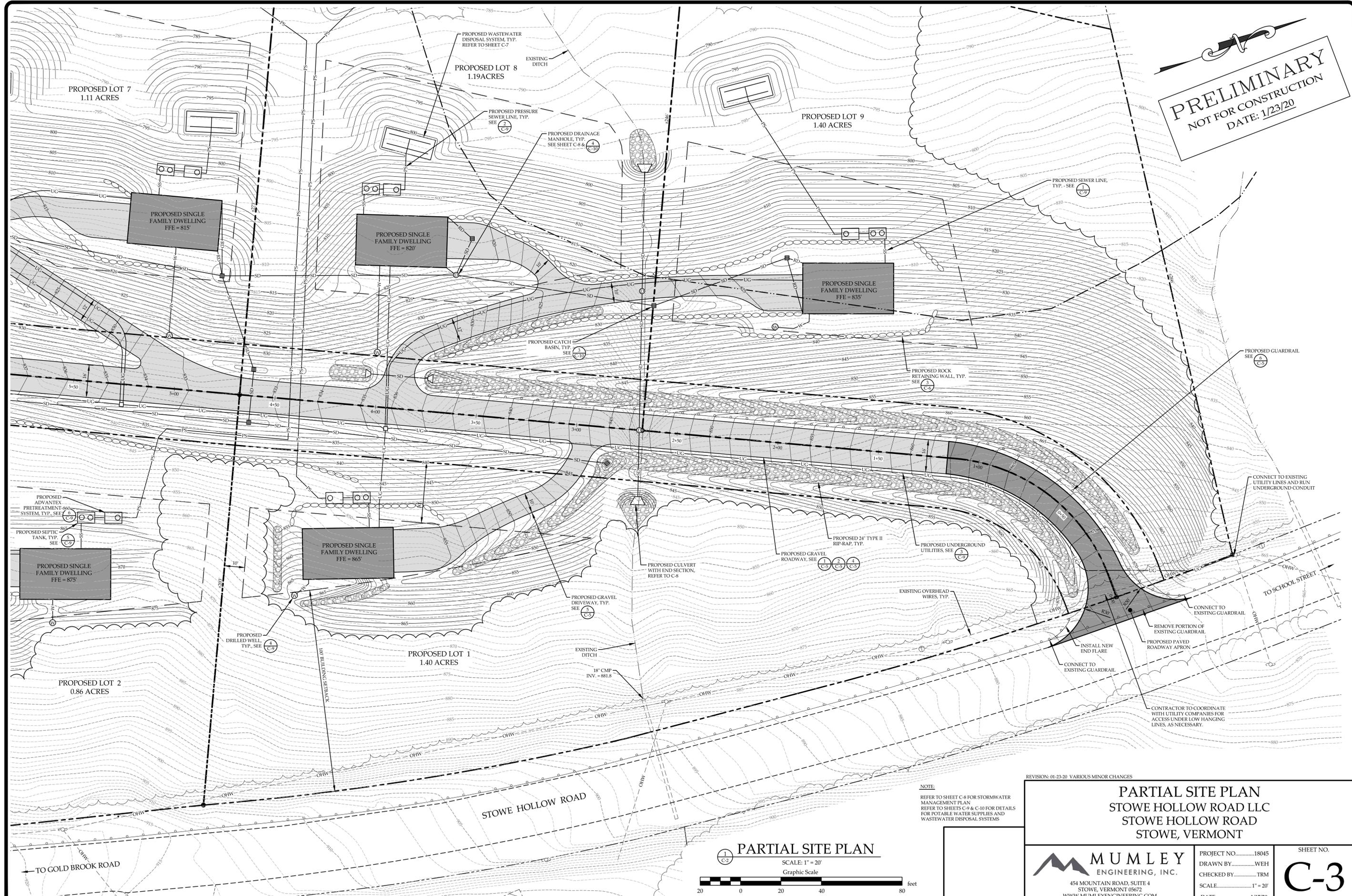
**PROPOSED SITE PLAN**  
 STOWE HOLLOW ROAD LLC  
 STOWE HOLLOW ROAD  
 STOWE, VERMONT

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 ENGINEERING, INC.  
 454 MOUNTAIN ROAD, SUITE 4  
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PROJECT NO. ....18045  
 DRAWN BY. ....WEH  
 CHECKED BY. ....TRM  
 SCALE. ....1" = 40'  
 DATE. ....1/17/20

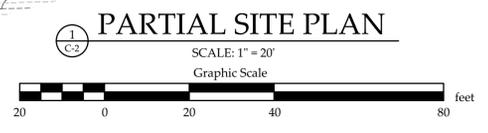
SHEET NO.  
**C-2**  
 2 OF 10 SHEETS

**PRELIMINARY**  
 NOT FOR CONSTRUCTION  
 DATE: 1/23/20



**NOTE:**  
 REFER TO SHEET C-8 FOR STORMWATER  
 MANAGEMENT PLAN  
 REFER TO SHEETS C-9 & C-10 FOR DETAILS  
 FOR POTABLE WATER SUPPLIES AND  
 WASTEWATER DISPOSAL SYSTEMS

REVISION: 01-23-20 VARIOUS MINOR CHANGES

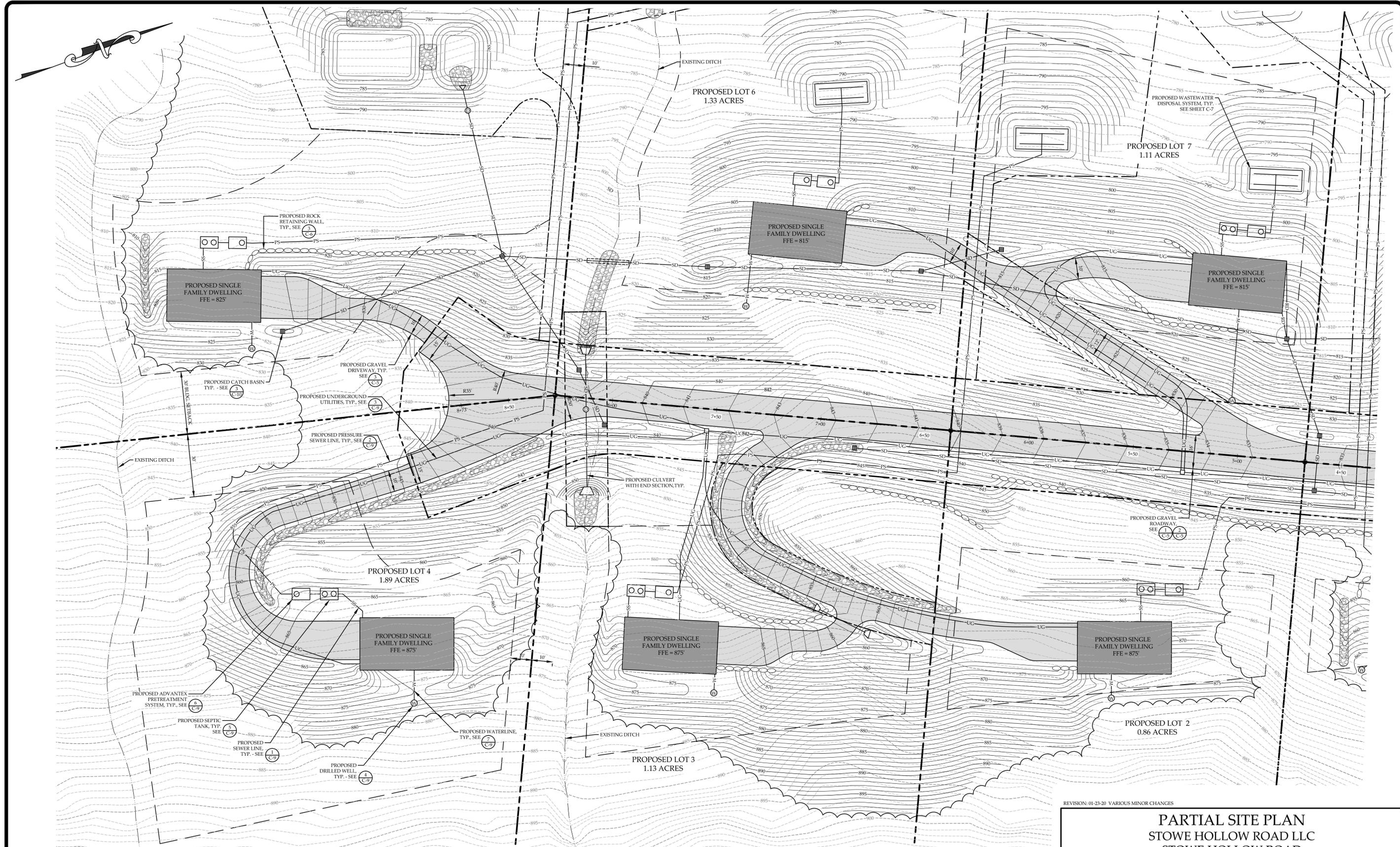


**PARTIAL SITE PLAN**  
 STOWE HOLLOW ROAD LLC  
 STOWE HOLLOW ROAD  
 STOWE, VERMONT

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PROJECT NO. ....18045  
 DRAWN BY.....WEH  
 CHECKED BY.....TRM  
 SCALE.....1" = 20'  
 DATE.....1/17/20

SHEET NO.  
**C-3**  
 3 OF 10 SHEETS



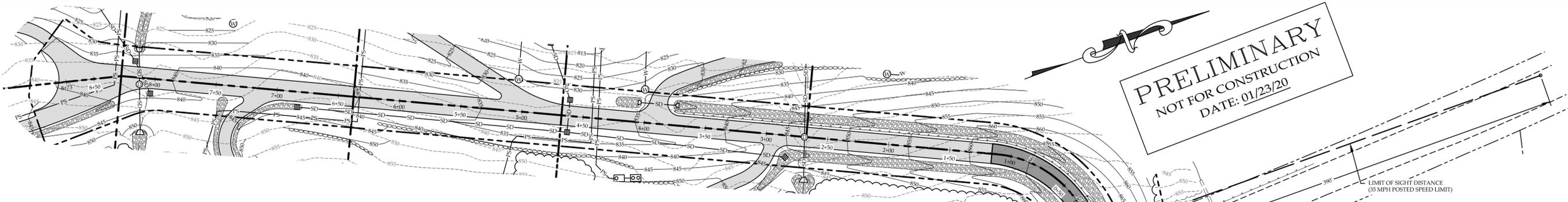
**PRELIMINARY**  
 NOT FOR CONSTRUCTION  
 DATE: 1/23/20

**PARTIAL SITE PLAN**  
 SCALE: 1" = 20'  
 Graphic Scale  
 0 20 40 80 feet

**NOTE**  
 REFER TO SHEET C-8 FOR STORMWATER  
 MANAGEMENT PLAN  
 REFER TO SHEETS C-9 & C-10 FOR DETAILS  
 FOR POTABLE WATER SUPPLIES AND  
 WASTEWATER DISPOSAL SYSTEMS

REVISION: 01-23-20 VARIOUS MINOR CHANGES

<b>PARTIAL SITE PLAN</b> STOWE HOLLOW ROAD LLC STOWE HOLLOW ROAD STOWE, VERMONT	
 <b>MUMLEY</b> ENGINEERING, INC. 454 MOUNTAIN ROAD, SUITE 4 STOWE, VERMONT 05672 WWW.MUMLEYENGINEERING.COM COPYRIGHT © 2020 - MUMLEY ENGINEERING, INC.	PROJECT NO. ....18045 DRAWN BY.....WEH CHECKED BY.....TRM SCALE.....1" = 20' DATE.....1/17/20
SHEET NO. <b>C-4</b> 4 OF 10 SHEETS	

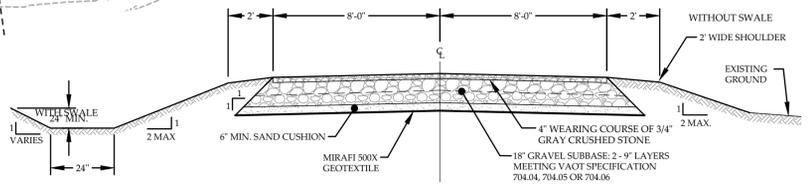
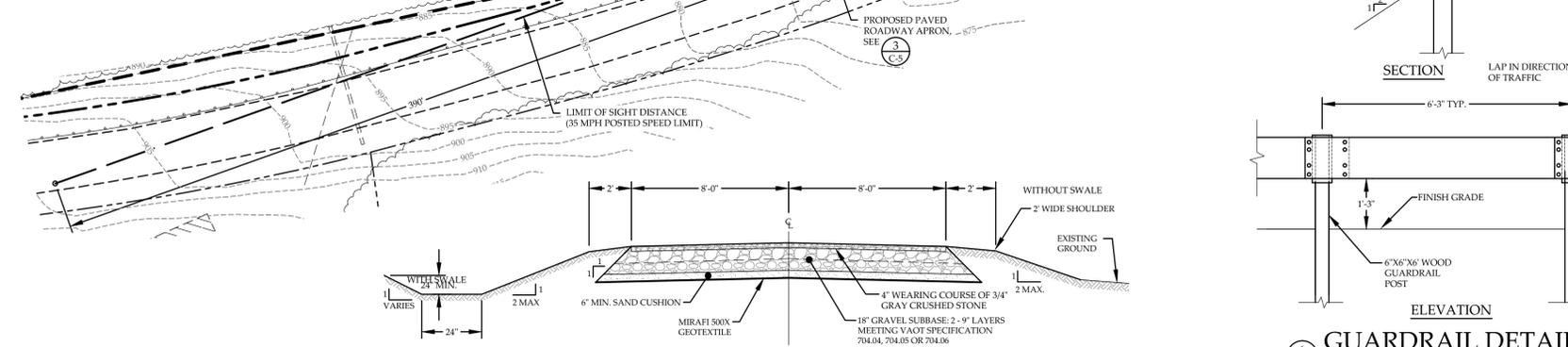
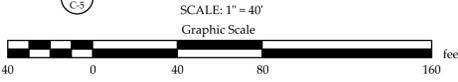


**PRELIMINARY**  
 NOT FOR CONSTRUCTION  
 DATE: 01/23/20

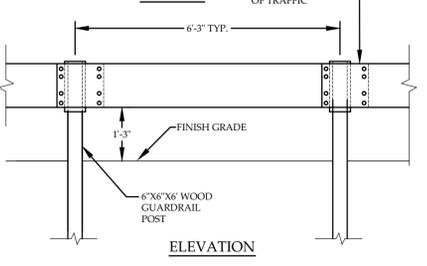
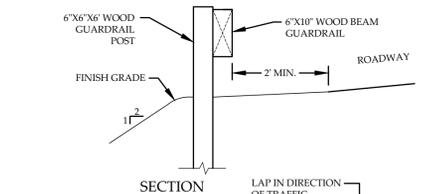
**STOWE R.O.W. NOTES:**

- PRIOR TO THE START OF THE WORK, OWNER/CONTRACTOR SHALL SUBMIT A CERTIFICATE OF INSURANCE ACCEPTABLE TO AND NAMING THE TOWN OF STOWE AS AN ADDITIONAL INSURED. MINIMUM COVERAGE SHALL INCLUDE \$1,000,000 COMBINED SINGLE LIMIT FOR EACH OCCURRENCE FOR COMMERCIAL GENERAL LIABILITY AND COMMERCIAL AUTOMOBILE LIABILITY AND VERMONT STATUTORY MINIMUMS FOR WORKERS COMPENSATION.
- EXCEPT IN THE CASE OF AN EMERGENCY AND/OR WITH SPECIFIC WRITTEN EXCEPTION OF PWD, ALL WORK WITHIN THE TOWN ROW SHALL BE PERFORMED DURING NORMAL DAYLIGHT HOURS, MONDAY-FRIDAY, APRIL 15-NOVEMBER 15, EXCEPT LEGAL HOLIDAYS.
- THE OWNER/CONTRACTOR SHALL HAVE A SUPERVISORY REPRESENTATIVE ACCEPTABLE TO PUBLIC WORKS DEPARTMENT (PWD) PRESENT ON THE PROJECT SITE AT ALL TIMES WORK IS BEING DONE WITHIN THE TOWN R.O.W. UNDER THE TOWN ROW PERMIT.
- THE OWNER/CONTRACTOR SHALL COMPLY WITH ALL ORDINANCES, STATUTES, LAW AND REGULATIONS CONTROLLING THE OCCUPANCY OF THE PUBLIC HIGHWAY R.O.W. IN THE EVENT OF CONFLICT, THE MOST RESTRICTIVE SHALL APPLY.
- THE OWNER/CONTRACTOR SHALL NOT DO ANY WORK OR PLACE ANY MATERIALS, EQUIPMENT OR OBSTRUCTIONS WITHIN THE R.O.W., EXCEPT AS SPECIFICALLY AUTHORIZED BY THE TOWN R.O.W. PERMIT.
- THE OWNER/CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND PROTECTION OF TRAFFIC FOR VEHICULAR AND PEDESTRIAN TRAFFIC IN THE R.O.W. AND TO ABUTTING PROPERTIES DURING THE WORK UNDER THE TOWN R.O.W. PERMIT. ALL MAINTENANCE & PROTECTION OF TRAFFIC PROVISIONS SHALL COMPLY WITH THE CURRENT EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. INSTALL AND MAINTAIN SUFFICIENT TEMPORARY ADVANCED WARNING SIGNS, BARRIERS, FENCES, LIGHTS ECT. AND IMPLEMENT ANY OTHER TEMPORARY TRAFFIC CONTROL MEASURES REQUIRED. SEE SPECIAL CONDITIONS BELOW FOR ANY ADDITIONAL SPECIFIC REQUIREMENTS. PWD AND/OR THE STOWE POLICE DEPARTMENT RESERVE THE RIGHT TO REQUIRE THE IMPLEMENTATION OF ADDITIONAL MEASURES IF DEEMED NECESSARY FOR THE SAFETY OF THE TRAVELING PUBLIC DURING THE WORK UNDER THE TOWN R.O.W. PERMIT.
- ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH CURRENT OSHA AND VOSH HEALTH AND SAFETY STANDARDS FOR CONSTRUCTION. JOBSITE SAFETY IS SOLELY THE RESPONSIBILITY OF THE OWNER/CONTRACTOR. REVIEW OF THE WORK AND/OR LACK OF COMMENT BY THE TOWN SHALL NOT BE INTERPRETED AS APPROVAL OF THE PROVISIONS FOR JOBSITE SAFETY AND/OR COMPLIANCE WITH THE REQUISITE OSHA AND VOSH REQUIREMENTS.
- THE OWNER AND/OR CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REPAIRS AND/OR REPLACEMENT OF ANY EXISTING SURFACE TREATMENTS AND/OR UTILITIES DAMAGED BY THE WORK UNDER THE TOWN R.O.W. PERMIT TO THE SATISFACTION OF DPW AND/OR THE AFFECTED UTILITY COMPANY, INCLUDING A WARRANTY PERIOD OF 12 MONTHS AFTER COMPLETION AND ACCEPTANCE OF THE WORK. DURING WHICH PERIOD THE TOWN CAN REQUIRE ADDITIONAL REMEDIAL REPAIRS OR REPLACEMENTS. IF THE OWNER AND/OR CONTRACTOR IS NOT RESPONSIVE TO THE TOWN'S REQUIREMENTS FOR ANY REPAIRS AND/OR REPLACEMENTS DEEMED REQUIRED, THE TOWN MAY COMPLETE THE WORK AND INVOICE THE OWNER FOR ALL COST INCURRED.
- THE OWNER SHALL BE RESPONSIBLE FOR ALL DAMAGES TO PERSONS OR PROPERTY RESULTING FROM ANY WORK DONE UNDER THIS PERMIT, EVEN IF THE WORK IS PERFORMED BY A CONTRACTOR. THE OWNER AND/OR CONTRACTOR AGREE TO INDEMNIFY AND HOLD THE TOWN HARMLESS FROM ANY CLAIMS FOR DAMAGES ASSOCIATED WITH THE WORK UNDER THE TOWN R.O.W. PERMIT.

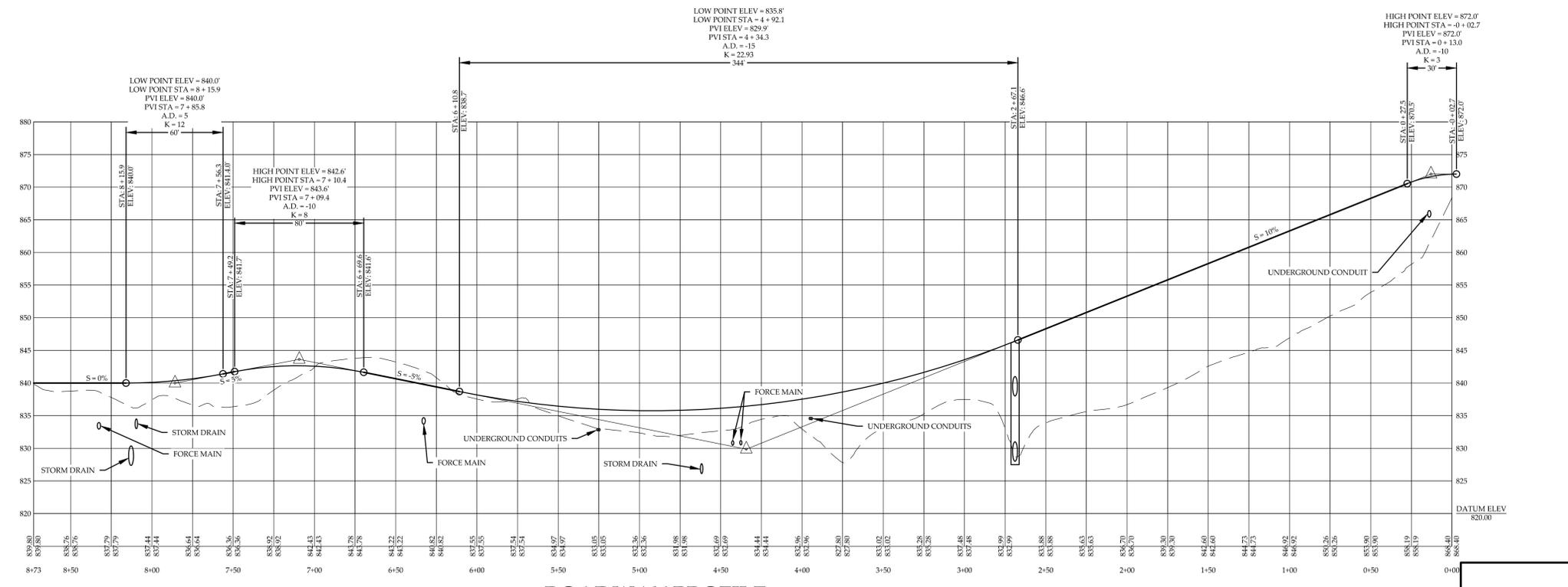
**ROADWAY PLAN**



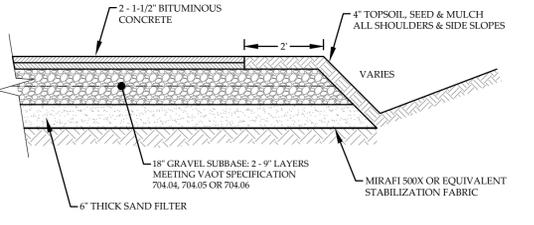
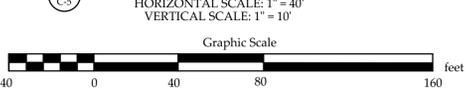
**2** TYPICAL GRAVEL ROAD SECTION  
 NOT TO SCALE



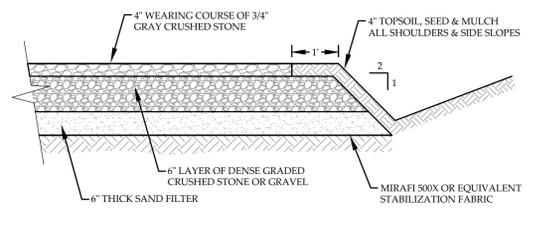
**6** GUARDRAIL DETAILS  
 NOT TO SCALE



**ROADWAY PROFILE**



**3** TYPICAL PAVED ROADWAY SECTION  
 NOT TO SCALE



**5** TYPICAL GRAVEL DRIVEWAY SECTION  
 NOT TO SCALE

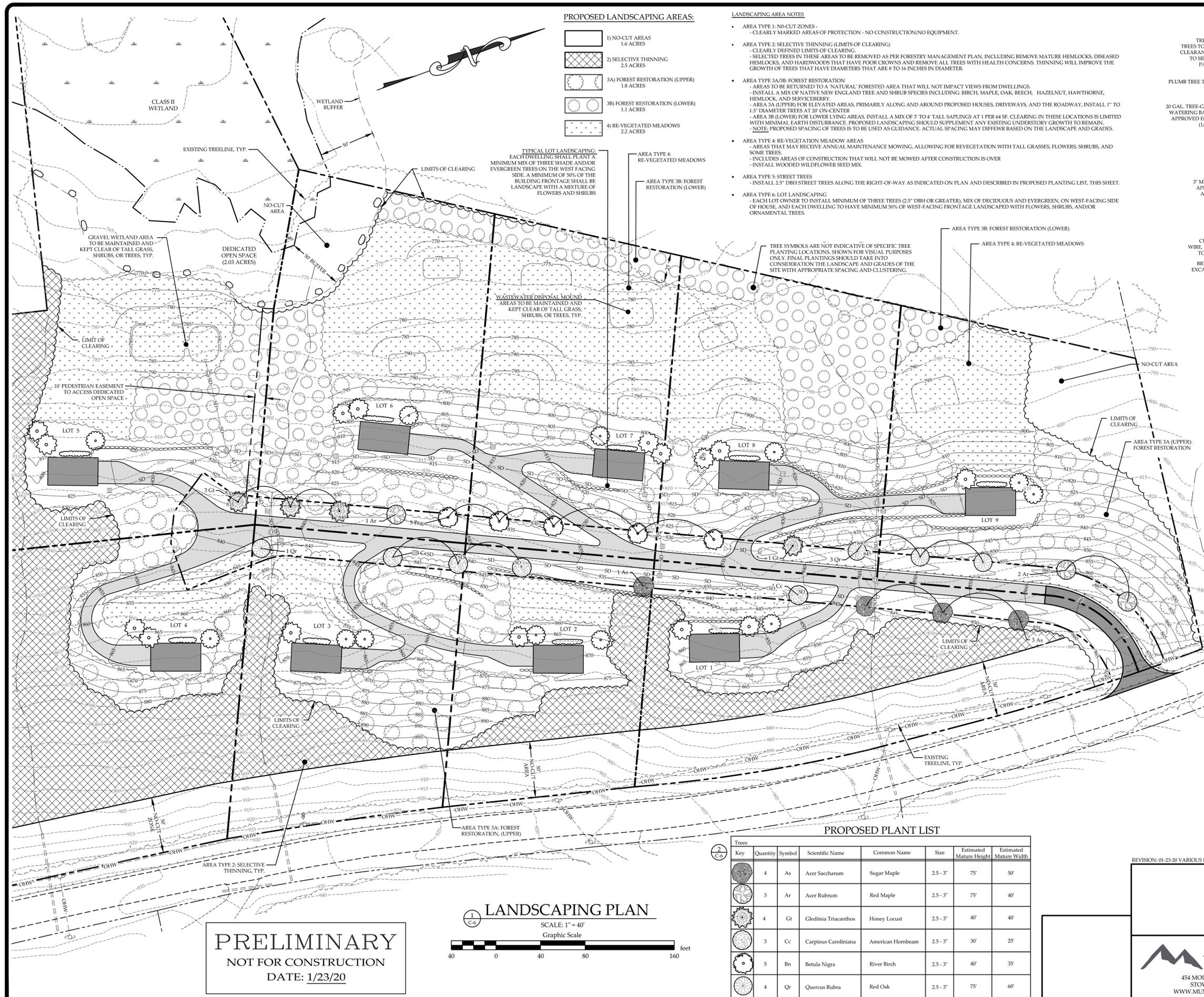
REVISION: 01-23-20 VARIOUS MINOR CHANGES

**ROADWAY PLAN & PROFILE**  
 STOWE HOLLOW ROAD LLC  
 STOWE HOLLOW ROAD  
 STOWE, VERMONT

**MUMLEY ENGINEERING, INC.**  
 454 MOUNTAIN ROAD, SUITE 4  
 STOWE, VERMONT 05672  
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PROJECT NO. ....18045  
 DRAWN BY.....WEH  
 CHECKED BY.....TRM  
 SCALE.....AS NOTED  
 DATE.....01/17/20

SHEET NO.  
**C-5**  
 5 OF 10 SHEETS



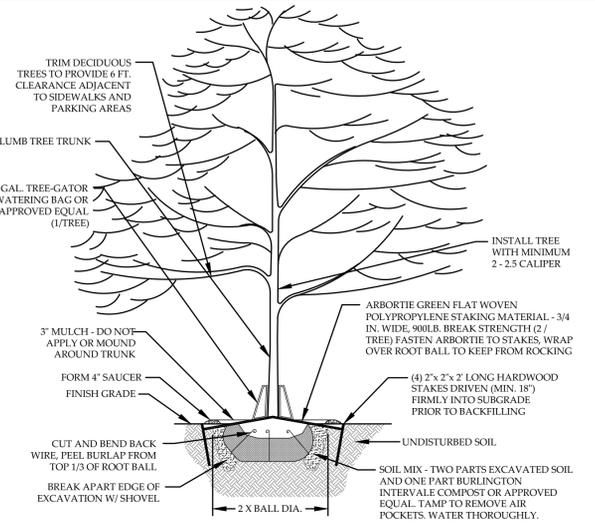
**PROPOSED LANDSCAPING AREAS:**

- 1) NO-CUT AREAS  
1.6 ACRES
- 2) SELECTIVE THINNING  
2.5 ACRES
- 3A) FOREST RESTORATION (UPPER)  
1.8 ACRES
- 3B) FOREST RESTORATION (LOWER)  
1.1 ACRES
- 4) RE-VEGETATED MEADOWS  
2.2 ACRES

**TYPICAL LOT LANDSCAPING:**  
EACH DWELLING SHALL PLANT A MINIMUM MIX OF THREE SHADE AND/OR EVERGREEN TREES ON THE WEST-FACING SIDE. A MINIMUM OF 50% OF THE BUILDING FRONTAGE SHALL BE LANDSCAPED WITH A MIXTURE OF FLOWERS AND SHRUBS.

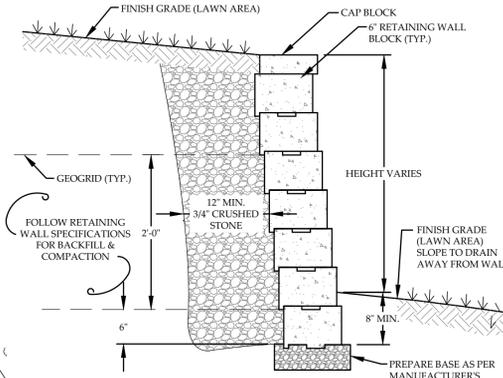
**LANDSCAPING AREA NOTES:**

- AREA TYPE 1: NO-CUT ZONES - CLEARLY MARKED AREAS OF PROTECTION - NO CONSTRUCTION/NO EQUIPMENT.
- AREA TYPE 2: SELECTIVE THINNING (LIMITS OF CLEARING) - CLEARLY DEFINED LIMITS OF CLEARING - SELECTED TREES IN THESE AREAS TO BE REMOVED AS PER FORESTRY MANAGEMENT PLAN, INCLUDING REMOVE MATURE HEMLOCKS, DISEASED HEMLOCKS, AND HARDWOODS THAT HAVE POOR CROWNS AND REMOVE ALL TREES WITH HEALTH CONCERNS. THINNING WILL IMPROVE THE GROWTH OF TREES THAT HAVE DIAMETERS THAT ARE 8 TO 16 INCHES IN DIAMETER.
- AREA TYPE 3A/B: FOREST RESTORATION - AREAS TO BE RETURNED TO A NATURAL FORESTED AREA THAT WILL NOT IMPACT VIEWS FROM DWELLINGS. - INSTALL A MIX OF NATIVE NEW ENGLAND TREE AND SHRUB SPECIES INCLUDING: BIRCH, MAPLE, OAK, BEECH, HAZELNUT, HAWTHORNE, HEMLOCK, AND SERVICEBERRY. - AREA 3A (UPPER) FOR ELEVATED AREAS, PRIMARILY ALONG AND AROUND PROPOSED HOUSES, DRIVEWAYS, AND THE ROADWAY, INSTALL 1" TO 1.5" DIAMETER TREES AT 20' ON-CENTER. - AREA 3B (LOWER) FOR LOWER LYING AREAS, INSTALL A MIX OF 3" TO 4" TALL SAPLINGS AT 1 PER 64 SF. CLEARING IN THESE LOCATIONS IS LIMITED WITH MINIMAL EARTH DISTURBANCE. PROPOSED LANDSCAPING SHOULD SUPPLEMENT ANY EXISTING UNDERSTORY GROWTH TO REMAIN. - NOTE: PROPOSED SPACING OF TREES IS TO BE USED AS GUIDANCE. ACTUAL SPACING MAY DIFFER BASED ON THE LANDSCAPE AND GRADES.
- AREA TYPE 4: RE-VEGETATED MEADOW AREAS - AREAS THAT MAY RECEIVE ANNUAL MAINTENANCE MOWING, ALLOWING FOR REVEGETATION WITH TALL GRASSES, FLOWERS, SHRUBS, AND SOME TREES. - INCLUDES AREAS OF CONSTRUCTION THAT WILL NOT BE MOWED AFTER CONSTRUCTION IS OVER. - INSTALL WOODED WILDFLOWER SEED MIX.
- AREA TYPE 5: STREET TREES - INSTALL 2.5" DBH STREET TREES ALONG THE RIGHT-OF-WAY AS INDICATED ON PLAN AND DESCRIBED IN PROPOSED PLANTING LIST, THIS SHEET.
- AREA TYPE 6: LOT LANDSCAPING - EACH LOT OWNER TO INSTALL MINIMUM OF THREE TREES (2.5" DBH OR GREATER), MIX OF DECIDUOUS AND EVERGREEN, ON WEST-FACING SIDE OF HOUSE, AND EACH DWELLING TO HAVE MINIMUM 50% OF WEST-FACING FRONTAGE LANDSCAPED WITH FLOWERS, SHRUBS, AND/OR ORNAMENTAL TREES.



- NOTES:**
- 1) PLANT TREE SO THAT TOP OF ROOT FLARE IS EVEN WITH THE FINISH GRADE.
  - 2) STAKING IS REQUIRED ONLY IN SITUATIONS WHERE TREES WILL BE SUBJECTED TO WINDY CONDITIONS AS DETERMINED BY THE PROJECT LANDSCAPE ARCHITECT.
  - 3) TREES SHALL BE GUARANTEED FOR A PERIOD OF TWO YEARS AFTER PLANTING.
  - 4) EXAMINE ENTIRE TREE AND REMOVE ALL NURSERY TAGS, ROPE, STRING AND SURVEYOR TAPE PRIOR TO PLANTING TO PREVENT GIRDLING.

**2 C-6 TREE PLANTING DETAIL**  
NOT TO SCALE



- NOTES:**
- 1) ACTUAL SITE CONDITIONS MAY VARY THE QUANTITY OF GEOGRID REQUIRED.
  - 2) COMPACTION SHALL BE TO 95% STANDARD PROCTOR DENSITY.
  - 3) COMPACTION TESTS SHALL BE PERFORMED.
  - 4) GEOGRID SHALL EXTEND TO THE FRONT OF THE WALL UNITS.
  - 5) FOR SPECIFIC INSTALLATION DETAILS SEE MANUFACTURER'S SPECIFICATIONS FOR SUCH LARGE WALL.
  - 6) MINIMUM EMBEDMENT DEPTH OF BASE SHALL BE 8" FOR WALLS UNDER 4' HIGH.
  - 7) CONTRACTOR SHALL FOLLOW ALL APPLICABLE STATE & LOCAL BUILDING CODES.

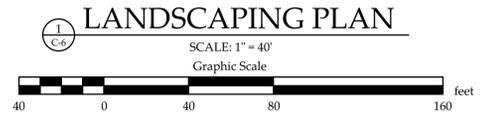
**3 C-6 TYPICAL RETAINING WALL SECTION**  
NOT TO SCALE

LANDSCAPE AREAS TABLE		
ITEM	AREA (ACRES)	AREA (% OF TOTAL)
ENTIRE PARCEL	13.96	100%
TOTAL AREA OF DISTURBANCE	7.1	51%
AREA TYPE 1 - "NO CUT" AREAS	1.6	11%
AREA TYPE 2 - SELECTED THINNING	2.5	18%
AREA TYPE 3A - FOREST RESTORATION (UPPER)	1.8	13%
AREA TYPE 3B - FOREST RESTORATION (LOWER)	1.1	8%
AREA TYPE 4 - REVEGETATED MEADOWS	2.2	16%
AREA TYPE 5 - STREET TREES	0.7	5%
AREA TYPE 6 - LOT LANDSCAPING	0.5	4%
IMPERVIOUS AREAS	0.96	7%
REMAINING AREAS (MAINTAINED LOT AREAS)	0.9	6%
TOTAL PROPOSED CLEARING	7.1	51%
TOTAL PROPOSED LANDSCAPING AREAS	6.3	45%

**PROPOSED PLANT LIST**

Key	Quantity	Symbol	Scientific Name	Common Name	Size	Estimated Mature Height	Estimated Mature Width
As	4	As	Acer Saccharum	Sugar Maple	2.5 - 3"	75'	50'
Ar	3	Ar	Acer Rubrum	Red Maple	2.5 - 3"	75'	40'
Gt	4	Gt	Gleditsia Triacanthos	Honey Locust	2.5 - 3"	40'	40'
Cc	3	Cc	Carpinus Caroliniana	American Hornbeam	2.5 - 3"	30'	25'
Bn	5	Bn	Betula Nigra	River Birch	2.5 - 3"	40'	35'
Qr	4	Qr	Quercus Rubra	Red Oak	2.5 - 3"	75'	60'

**PRELIMINARY**  
NOT FOR CONSTRUCTION  
DATE: 1/23/20



REVISION: 01-23-20 VARIOUS MINOR CHANGES

**LANDSCAPING PLAN**  
STOWE HOLLOW ROAD LLC  
STOWE HOLLOW ROAD  
STOWE, VERMONT

**MUMLEY ENGINEERING, INC.**  
454 MOUNTAIN ROAD, SUITE 4  
STOWE, VERMONT 05672  
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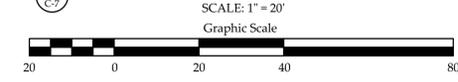
PROJECT NO.....18045  
DRAWN BY.....WEH  
CHECKED BY.....TRM  
SCALE.....1" = 40'  
DATE.....1/17/19

SHEET NO.  
**C-6**  
6 OF 10 SHEETS

**PRELIMINARY**  
 NOT FOR CONSTRUCTION  
 DATE: 1/23/20



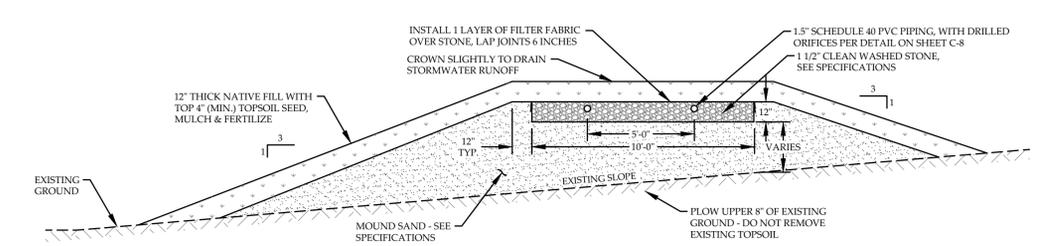
**WASTEWATER SYSTEMS**



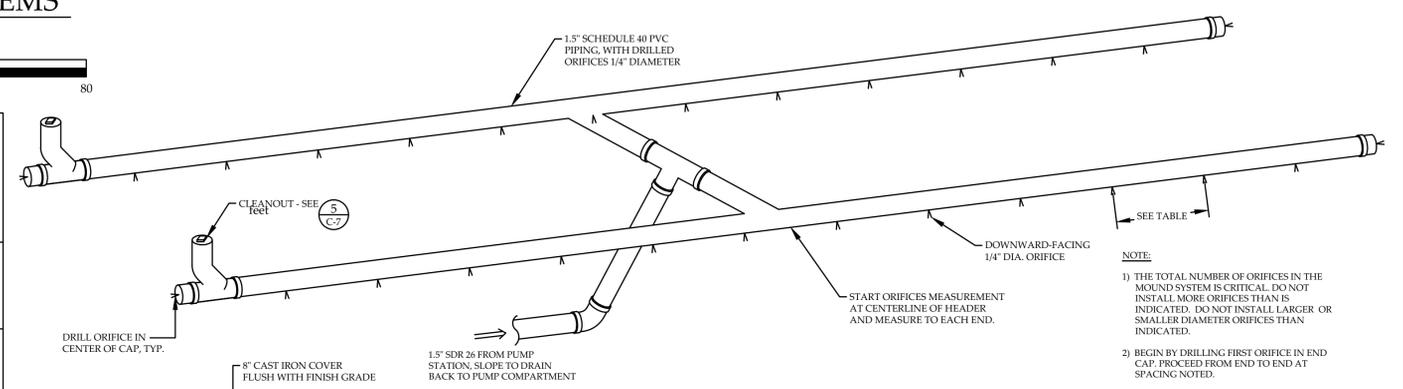
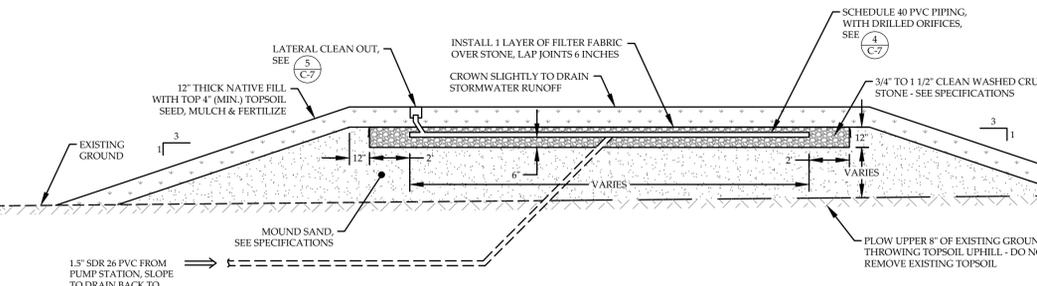
**ALLOWABLE MOUND SAND SIEVE ANALYSES**  
 MOUND SAND SHALL MEET ONE OF THE FOLLOWING SIEVE ANALYSES. INTERPOLATION OF ANALYSES IS NOT PERMITTED. REFER TO E.P.R. SECTION 1-517 (C). SUBMIT RESULTS OF SIEVE ANALYSIS TO ENGINEER PRIOR TO CONSTRUCTION. ONCE DELIVERED ON-SITE AND PLACED IN THE PREPARED MOUND SITE AREA, THE DESIGNER SHALL COLLECT A SAMPLE OF THE FILL MATERIAL FOR TESTING AND CONFIRMATION WITH THE SIEVE REQUIREMENTS.

SIEVE NUMBER	OPENING (MM)	PERCENT PASSING, BY WEIGHT
3/8	9.500	85 - 100
40	0.420	25 - 75
60	0.250	0 - 30
100	0.149	0 - 10
200	0.074	0 - 5
4	4.750	95 - 100
8	2.380	80 - 100
16	1.190	50 - 85
30	0.590	25 - 60
50	0.297	10 - 30
100	0.149	2 - 10

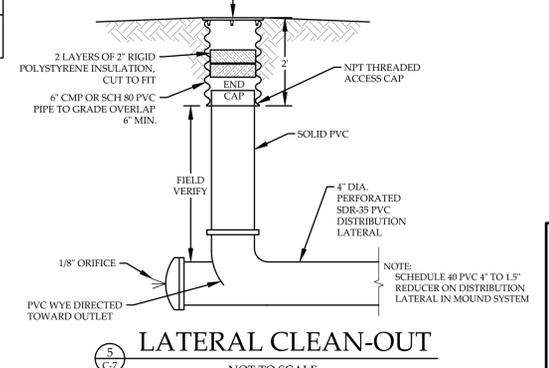
**TYPICAL MOUND SECTION**  
 2  
 C-7



**TYPICAL MOUND SECTION**  
 3  
 C-7  
 NOT TO SCALE



**INDIVIDUAL MOUND SYSTEM DISTRIBUTION LATERALS**  
 4  
 C-7  
 NOT TO SCALE



**LATERAL CLEAN-OUT**  
 5  
 C-7  
 NOT TO SCALE

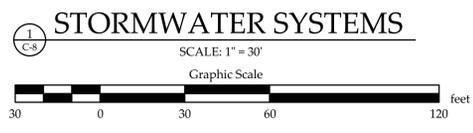
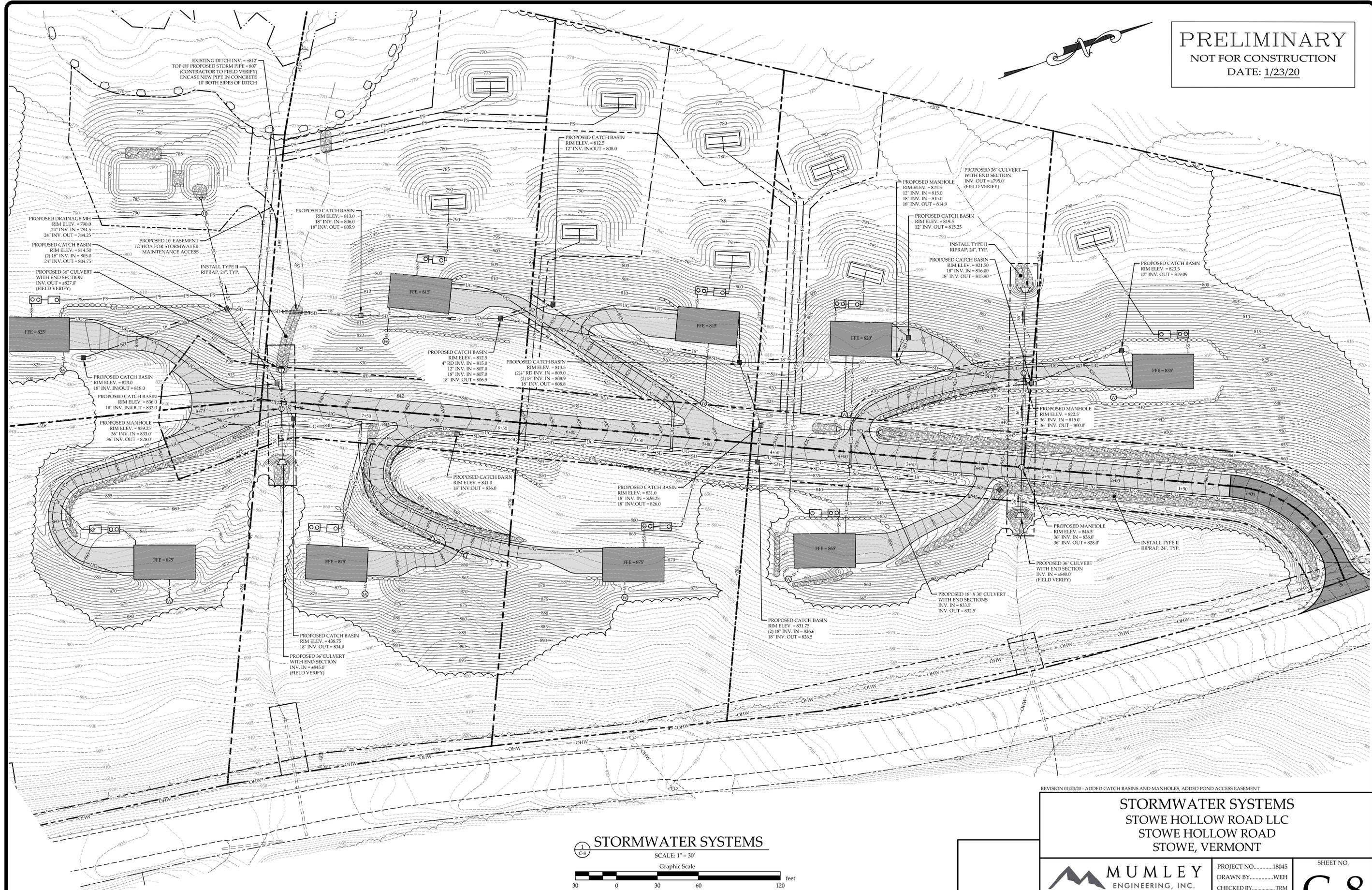
**WASTEWATER SYSTEMS**  
 STOWE HOLLOW ROAD LLC  
 STOWE HOLLOW ROAD  
 STOWE, VERMONT

**MUMLEY ENGINEERING, INC.**  
 454 MOUNTAIN ROAD, SUITE 4  
 STOWE, VERMONT 05672  
 WWW.MUMLEYENGINEERING.COM  
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PROJECT NO. ....18045  
 DRAWN BY.....WEH  
 CHECKED BY.....TRM  
 SCALE.....1" = 20'  
 DATE.....1/17/20

SHEET NO.  
**C-7**  
 7 OF 10 SHEETS

**PRELIMINARY**  
 NOT FOR CONSTRUCTION  
 DATE: 1/23/20



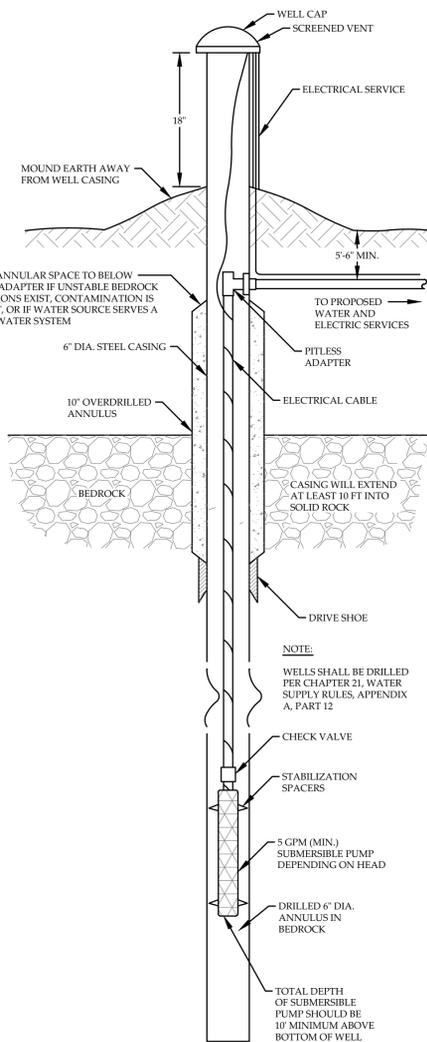
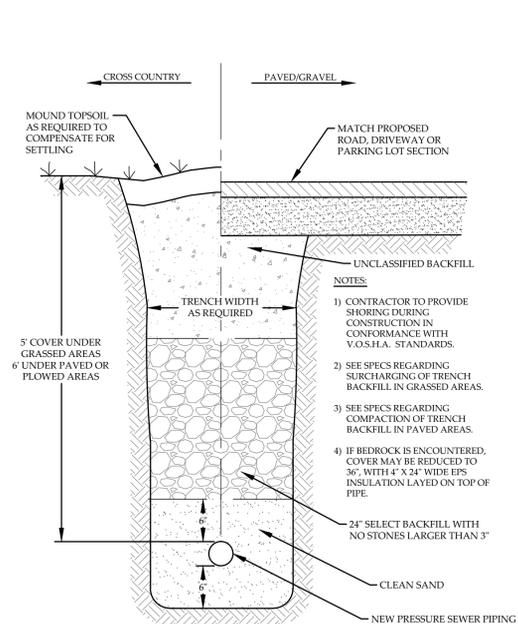
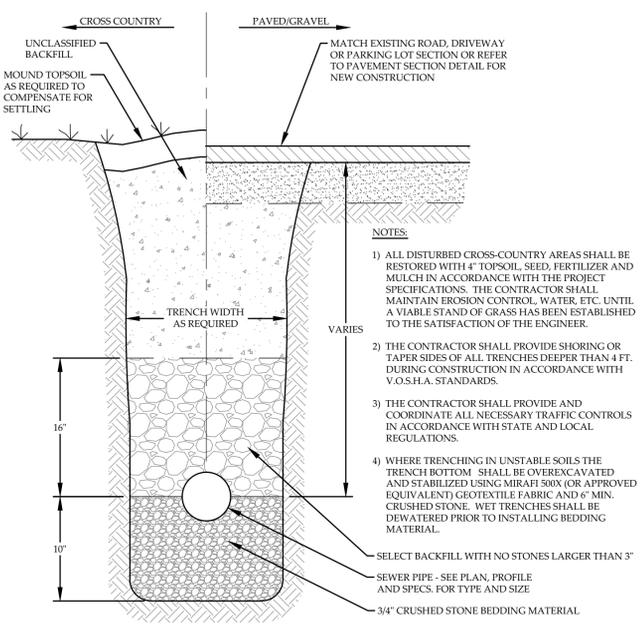
REVISION 01/23/20 - ADDED CATCH BASINS AND MANHOLES, ADDED POND ACCESS EASEMENT

**STORMWATER SYSTEMS**  
 STOWE HOLLOW ROAD LLC  
 STOWE HOLLOW ROAD  
 STOWE, VERMONT

**MUMLEY**  
 ENGINEERING, INC.  
 454 MOUNTAIN ROAD, SUITE 4  
 STOWE, VERMONT 05672  
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PROJECT NO. ....18045  
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 DATE .....1/17/20

SHEET NO.  
**C-8**  
 8 OF 10 SHEETS



**CLEARING AND GRUBBING.**  
CLEARING, GRUBBING SHALL CONSIST OF CUTTING AND DISPOSING OF ALL TREES, DOWNY TIMBER, BRUSH, BUSHES, AND DEBRIS FROM ALL AREAS AS SHOWN ON THE PLANS. EXCEPT FOR TREES, SHRUBS AND VEGETATION THAT ARE TO REMAIN STANDING, ALL TREES, SHRUBS, DOWNY TIMBER, BRUSH AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF PRIOR TO GRADING OPERATIONS BEGINNING IN THE RESPECTIVE AREAS. IF IT IS DEEMED IMPRACTICAL TO FELL THE TREE AS A WHOLE, IT SHALL BE REMOVED IN SECTIONS ACCORDING TO STANDARD PRACTICES OF PROFESSIONAL TREE REMOVAL.

**GRUBBING.** GRUBBING SHALL CONSIST OF REMOVING AND DISPOSING OF ALL STUMPS, ROOTS, GRASS, TURF, DEBRIS, OR OTHER OBJECTIONABLE MATERIAL WITHIN THE CONSTRUCTION LIMITS, AND WITHIN FILL LIMITS WHERE THE EMBANKMENTS ARE TO BE MADE TO A DEPTH LESS THAN 5 FEET BELOW SUBGRADE. GRUBBING AREAS SHALL ALSO INCLUDE ANY OTHER AREAS SHOWN IN THE CONTRACT DOCUMENTS. THE GRUBBING SHALL PROGRESS IN SUCH A MANNER TO PREVENT EROSION AS DESCRIBED IN THESE PLANS. ANY VOIDS LEFT THROUGH GRUBBING OPERATIONS SHALL BE BACKFILLED WITH APPROVED EXCAVATED MATERIAL OR BORROW AND COMPACTED TO CONFORM TO THE SURROUNDING AREA.

**EXCAVATION AND EMBANKMENTS**  
THIS WORK SHALL CONSIST OF EXCAVATING AND GRADING ROADWAYS, WATERWAYS, CHANNELS, AND STEPS IN HILLSIDE EMBANKMENTS AND EXCAVATING UNSUITABLE MATERIAL FROM THE CONSTRUCTION AREA AND BENEATH EMBANKMENT AREAS, SURFACES, AND PAVEMENTS. THIS WORK SHALL CONSIST OF EXCAVATING SELECTED MATERIAL FOUND IN THE CONSTRUCTION AREA FOR SPECIFIC USE IN THE CONSTRUCTION; TRIMMING AND SHAPING OF SLOPES; AND DISPOSING OF ALL UNSUITABLE OR SURPLUS EXCAVATED MATERIAL. THE WORK SHALL ALSO CONSIST OF PLACING MATERIAL IN EMBANKMENTS AND THE GRADING OF ALL MATERIAL PLACED UP TO SUBGRADE TO THE TOLERANCE SPECIFIED IN THE PLANS.

**GENERAL CONSTRUCTION REQUIREMENTS.** PRIOR TO BEGINNING EXCAVATION, GRADING, AND EMBANKMENT OPERATIONS IN ANY AREA, ALL NECESSARY CLEARING AND GRUBBING THAT AREA SHALL HAVE BEEN COMPLETED IN ACCORDANCE WITH CLEARING & GRUBBING DEFINED ABOVE. ALL SLOPES IN LAYER AND EMBANKMENT SECTIONS, DITCHES, AND WATERWAYS, WHETHER OLD OR NEWLY CONSTRUCTED, SHALL BE SATISFACTORILY CLEANED AND CLEARED OF OBSTRUCTIONS AND LEFT IN A NEAT AND TRIM CONDITION. THE CONSTRUCTION AREA SHALL ALWAYS BE MAINTAINED TO ENSURE PROPER DRAINAGE.

ALL SUITABLE MATERIAL REMOVED BY EXCAVATING SHALL BE USED IN THE FORMATION OF EMBANKMENTS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. ANY EXCAVATION THAT CANNOT BE OPERATED IN EMBANKMENTS SHALL BE DISPOSED OF AS DIRECTED BY THE ENGINEER. NO MATERIAL SHALL BE WASTED WITHOUT PERMISSION OF THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF ALL CONSTRUCTED EMBANKMENTS AND SHALL REPLACE, AT NO COST TO THE OWNER, ANY PORTIONS THAT HAVE BECOME DISPLACED AND THAT ARE NOT ATTRIBUTABLE TO THE UNAVOIDABLE MOVEMENT OF THE NATURAL GROUND UPON WHICH THE EMBANKMENT IS MADE OR TO AN ACT OF GOD.

UNLESS DIRECTED BY THE ENGINEER, BORROW MATERIAL SHALL NOT BE PLACED UNTIL ALL SUITABLE MATERIAL HAS BEEN EXCAVATED AND PLACED IN THE EMBANKMENTS, EXCEPT WHEN SAND BORROW OR GRANULAR BORROW IS SHOWN ON THE PLANS OR WHEN GRANULAR BORROW IS REQUIRED BY THE ENGINEER FOR USE UNDER EMBANKMENTS OR USED WITH MATERIAL FROM EXCAVATION IN MAKING EMBANKMENTS. SHOULD A SURPLUS OF EXCAVATED MATERIAL RESULT FROM THE CONTRACTOR PLACING MORE BORROW THAN REQUIRED, THE AMOUNT OF THIS SURPLUS WILL BE MEASURED BY THE ENGINEER AND 115% OF THE TOTAL SURPLUS WILL BE DEDUCTED FROM THE TOTAL QUANTITY REMOVED FROM THE BORROW SOURCE.

**EXCAVATION.** ANY LOOSE MATERIAL, RESULTING FROM BREAKAGE AND SLIDES SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. EXCAVATED MATERIAL SHALL BE SORTED SO THAT THE BEST MATERIAL IS PLACED IN EMBANKMENTS BENEATH THE TRAVELED WAY. THE CONTRACTOR SHALL NOT EXCAVATE OR REMOVE ANY MATERIAL OUTSIDE THE LIMITS OF THE EXCAVATION SLOPE AND GRADE LINES SHOWN ON THE PLANS UNLESS AUTHORIZED IN WRITING BY THE ENGINEER. GRADING SHALL BE TO FULL CROSS-SECTION WIDTH AT SUBGRADE BEFORE PLACING OF ANY TYPE OF SUBBASE OR PAVEMENT, EXCEPT FOR PARTIAL EXCAVATION OF BORROW PITS. WHERE NECESSARY FOR THE MAINTENANCE OF TRAFFIC, AND SHALL BE DONE WITHIN THE ALLOWABLE TOLERANCES AS INDICATED ON THE PLANS.

THE CONTRACTOR SHALL STRIP LEDGE AND THEN NOTIFY THE ENGINEER THAT THE AREA IS READY FOR CROSS-SECTIONING PRIOR TO MAKING ANY ROCK EXCAVATION. THE CONTRACTOR MAY USE OTHER MEANS OF LOCATING THE ROCK LINE WITH THE APPROVAL OF THE ENGINEER. THE DEPTH OF THE ROCK LEFT WITHIN ANY ONE EXCAVATION AREA WILL BE APPROVED BY THE ENGINEER.

**DISPOSAL OF SURPLUS EXCAVATION AND WASTE MATERIAL.** ALL SURPLUS EXCAVATION AND WASTE MATERIAL SHALL BE DEPOSITED AS SHOWN ON THE PLANS OR AS AUTHORIZED IN WRITING BY THE ENGINEER. EXCAVATED MATERIAL SHALL NOT BE WASTED UNLESS AUTHORIZED BY THE ENGINEER. COMPACTION REQUIREMENTS FOR SURPLUS OR WASTE MATERIAL USED TO FLATTEN SLOPES OUTSIDE THE EMBANKMENT LIMITS SHOWN ON THE PLANS MAY BE WAIVED; HOWEVER, PLACEMENT PROCEDURES SHALL ENSURE A STABLE FILL SLOPE. WHEN SUFFICIENT ON-SITE DISPOSAL AREAS ARE NOT SHOWN ON THE PLANS, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE DISPOSAL AREAS.

**EMBANKMENTS.**  
**PREPARATION OF EMBANKMENT AREA.** WHEN EMBANKMENTS ARE TO BE MADE ON A HILLSIDE, THE SLOPE OF THE ORIGINAL GROUND UPON WHICH THE EMBANKMENTS ARE TO BE CONSTRUCTED SHALL BE STEPPED AND PROPERLY DRAINED AS THE FILL IS CONSTRUCTED IN ACCORDANCE WITH THE PLANS OR AS DIRECTED BY THE ENGINEER.

**USE OF MATERIALS.** THE EXCAVATED ROCK, LEDGE, BOULDERS, AND STONE, EXCEPT WHERE REQUIRED IN THE CONSTRUCTION OF OTHER ITEMS OR OTHERWISE DIRECTED, SHALL BE USED IN THE CONSTRUCTION OF EMBANKMENTS TO THE EXTENT OF THE PROJECT REQUIREMENTS AND, GENERALLY, SHALL BE PLACED TO FORM THE BASE OF AN EMBANKMENT. WHEN SHOWN ON THE PLANS, CERTAIN PORTIONS OF ROCK EXCAVATION MAY BE RESERVED FOR SPECIAL USE SUCH AS ROCK FILL, FOR EMBANKMENT CONSTRUCTION AT LOCATIONS BELOW HIGH WATER, OR AT LOCATIONS SUSCEPTIBLE TO EROSION. FROZEN MATERIAL SHALL NOT BE USED IN THE CONSTRUCTION OF EMBANKMENTS. THE EMBANKMENTS OR SUCCESSIVE LAYERS OF THE EMBANKMENTS SHALL NOT BE PLACED UPON FROZEN MATERIAL. PLACEMENT OF MATERIAL OTHER THAN ROCK SHALL STOP WHEN THE SUSTAINED AMBIENT AIR TEMPERATURE, BELOW 32°F, PROHIBITS ATTAINMENT OF THE REQUIRED COMPACTION. IF THE MATERIAL IS OTHERWISE ACCEPTABLE, IT SHALL BE STOCKPILED AND RESERVED FOR FUTURE USE WHEN ITS CONDITION IS ACCEPTABLE TO THE ENGINEER FOR USE IN EMBANKMENTS.

**PROCEDURE FOR PLACING AND SPREADING.** MATERIAL FROM EXCAVATION ON THE PROJECT SHALL BE USED TO THE EXTENT AVAILABLE AND WHEN NOT AVAILABLE SHALL BE OBTAINED FROM SOURCES OF

GRANULAR BORROW OR ROCK BORROW WHEN AUTHORIZED IN WRITING BY THE ENGINEER. WHEN TRUCKS ARE USED TO PLACE EARTH FROM EXCAVATION OR BORROW, THE MATERIAL SHALL BE DEPOSITED ON THE LAYER OF EMBANKMENT BEING CONSTRUCTED, BLADED OR DOZED INTO PLACE, AND SHAPED AND COMPACTED. DUMPING DIRECTLY ONTO PREVIOUSLY CONSTRUCTED LAYERS WILL NOT BE PERMITTED. EMBANKMENTS OF EITHER EARTH OR ROCK MATERIAL SHALL BE PLACED IN HORIZONTAL LAYERS OF UNIFORM THICKNESS AND ACROSS THE FULL SECTION WIDTH. WHEN IT IS IMPRACTICAL TO CONSTRUCT A FULL WIDTH LAYER ACROSS AN EMBANKMENT, PARTIAL WIDTH LAYERS MAY BE AUTHORIZED, PROVIDED THE FULL WIDTH PROCEDURE IS RESUMED AS SOON AS PRACTICAL. LOGS, STUMPS, WASTE MATERIAL, AND OVERSIZED COBBLESTONES OR BOULDERS SHALL NOT BE PLACED WITHIN THE STRUCTURAL EMBANKMENT AREA. THEY MAY BE PLACED OUTSIDE THE STRUCTURAL EMBANKMENT AREA AT LOCATIONS DIRECTED BY THE ENGINEER OR, WHEN AUTHORIZED, DISPOSED OF AS SURPLUS MATERIAL.

INITIAL LAYERS SHALL BEGIN AT THE DEEPEST PART OF THE FILL. EXCEPT FOR THE FIRST LAYER OF FILL OVER SWAMPY GROUND AND CLEARED AREAS, THE LOOSE LAYER THICKNESS SHALL BE LIMITED TO CONDITIONS NECESSARY TO OBTAIN A FULL WIDTH LAYER. AUTHORIZED LAYERS IN EXCESS OF 8 INCHES BUT NOT MORE THAN 24 INCHES. THE CONTRACTOR SHALL MAKE ALL NECESSARY EXCAVATIONS UP TO 24 INCHES DEEP SO THAT THE ENGINEER CAN DETERMINE MOISTURE, DENSITY, AND STABILITY, SOLELY AT THE CONTRACTOR'S EXPENSE. EFFECTIVE SPREADING EQUIPMENT SHALL BE USED ON EACH LAYER TO OBTAIN UNIFORM THICKNESS. COBBLESTONES OR BOULDERS HAVING THEIR LEAST DIMENSION GREATER THAN THE LOOSE LAYER THICKNESS BEING PLACED SHALL BE REMOVED PRIOR TO COMPACTION.

EACH LAYER SHALL BE COMPACTED AS SPECIFIED, AND, IF NECESSARY, STABILIZED PRIOR TO A SUCCESSIVE LAYER BEING PLACED. EACH LAYER SHALL BE KEPT CROWNED TO SHED WATER. AS THE COMPACTION OF EACH LAYER PROGRESSES, CONTINUOUS LEVELING AND MANIPULATING WILL BE REQUIRED TO ENSURE UNIFORM DENSITY, A UNIFORM AND SATISFACTORY MOISTURE CONTENT, AND ACCEPTABLE STABILITY. THE LAST LIFT CONSTRUCTED EACH DAY SHALL BE GRADED, CROWNED, AND ROLLED TO ENSURE ADEQUATE DRAINAGE.

WHEN A4, A5, A6, OR A7 COHESIVE SOILS, AS IDENTIFIED IN TABLE 703.01A OF THE 2018 VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, HAVE EXCESS MOISTURE AND CANNOT EFFECTIVELY BE AIR DRIED OR DRIED BY MANIPULATION, THE CONTRACTOR MAY LAYER OR MIX THE MATERIAL WITH DRY AL2 OR A3 GRANULAR SOILS TO OBTAIN ACCEPTABLE COMPACTION AND STABILITY. THE CONTRACTOR IS RESPONSIBLE FOR MAKING PRUDENT USE OF AVAILABLE GRANULAR EXCAVATION FROM THE PROJECT PRIOR TO BRINGING AUTHORIZED USE OF GRANULAR BORROW. THE COMBINED LOOSE THICKNESS OF MIXED OR LAYERED MATERIALS PRIOR TO COMPACTION SHALL NOT EXCEED 16 INCHES. DURING THE CONSTRUCTION OF THE EMBANKMENTS, IF BULGING, CRACKING, OR UNSTABLE MOVEMENT OCCURS, THE PLACING OF THE FILL MATERIAL SHALL BE STOPPED, RETARDED, OR CORRECTED TO ALLOW THE MATERIAL TO STABILIZE AS DIRECTED BY THE ENGINEER. RUTTING, ROLLING, SHOVING, OR OTHER DISPLACEMENT IN EXCESS OF 6 INCHES UNDER THE ACTION OF CONSTRUCTION EQUIPMENT MAY BE CONSIDERED EVIDENCE OF STABILITY PROBLEMS. WHEN SOFT OR WET CLAY OR SILT EXCAVATION IS BEING USED BETWEEN LAYERS OF REASONABLY CLEAN STABLE ROCK FILL, THE ROCK EMBANKMENT LAYERS SHALL NOT EXCEED 24 INCHES IN LOOSE MEASUREMENT. THE CLAY OR SILT LAYERS SHALL NOT EXCEED 6 INCHES IN LOOSE MEASUREMENT.

IF EMBANKMENTS ARE TO BE CONSTRUCTED BY USING ROCK EXCAVATION, ALL REASONABLE PRECAUTION MUST BE TAKEN TO ENSURE A SOLID EMBANKMENT. THE FILL SHALL BE MADE IN UNIFORM LAYERS CONSISTENT WITH THE SIZE OF THE ROCK BEING USED, BUT NOT TO EXCEED 24 INCHES IN THICKNESS. INDIVIDUAL PIECES OF ROCK OR BOULDERS WITH THEIR LEAST DIMENSION EXCEEDING THE THICKNESS OF THE LAYER BEING PLACED SHALL BE REMOVED. ROCK OF ANY SIZE OR LAYERED OUTSIDE THE STRUCTURAL EMBANKMENT AREA IN SUCH A MANNER THAT ALL VOIDS ARE FILLED. ROCK SHALL NOT BE DUMPED OVER THE END OF A FILL. ROCK SHALL BE DEPOSITED ON THE FILL AND DISTRIBUTED BY BLADING OR DOZING TO ENSURE PROPER PLACEMENT IN THE EMBANKMENT. SO THAT VOIDS, POCKETS, AND BRIDGING ARE REDUCED TO A MINIMUM.

**COMPACTION.** EACH LAYER BETWEEN THE DESIGN EMBANKMENT LIMITS SHOWN ON THE PLANS SHALL BE UNIFORMLY COMPACTED USING COMPACTION EQUIPMENT TO NOT LESS THAN 90% OF THE MATERIAL'S MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T99, METHOD C. FIELD DENSITY DETERMINATION WILL BE MADE IN ACCORDANCE WITH AASHTO T99, SAND CONE METHOD. LOCATIONS WITHIN THE EMBANKMENT LIMITS WHERE WASTE MATERIALS HAVE BEEN PLACED SHALL BE COMPACTED TO THE EXTENT THAT STABILITY IS ENSURED.

ALL FILL MATERIAL SHALL BE COMPACTED AT A MOISTURE CONTENT DETERMINED BY THE ENGINEER TO BE SUITABLE FOR OBTAINING THE REQUIRED DENSITY. THE MOISTURE CONTENT IN EACH LAYER UNDER CONSTRUCTION SHALL NOT EXCEED 2% ABOVE THE OPTIMUM MOISTURE CONTENT, AND IT SHALL BE LESS THAN THAT QUANTITY THAT WILL CAUSE THE EMBANKMENT TO BECOME UNSTABLE DURING COMPACTION. THE ENGINEER WILL CONSIDER SPONGINESS, SHOVING, OR OTHER DISPLACEMENT UNDER HEAVY EQUIPMENT SUFFICIENT EVIDENCE OF A LACK OF STABILITY UNDER THIS REQUIREMENT. AND THE CONTRACTOR SHALL STOP AND FURTHER PLACEMENT OF MATERIAL IN THE AREA AFFECTED TO ALLOW THE MATERIAL TO STABILIZE.

WHEN THE MOISTURE CONTENT OF THE MATERIAL IN THE LAYER UNDER CONSTRUCTION IS LESS THAN THE AMOUNT NECESSARY TO OBTAIN THE REQUIRED COMPACTION BY MECHANICAL COMPACTION METHODS, WATER SHALL BE ADDED BY PRESSURE DISTRIBUTORS OR OTHER APPROVED EQUIPMENT. WATER MAY ALSO BE ADDED BY EXCAVATION OR BORROW PITS. THE WATER SHALL BE UNIFORMLY AND THOROUGHLY INCORPORATED INTO THE SOIL BY DISCING, HARROWING, BLADING, OR OTHER APPROVED METHODS. THIS MANIPULATION MAY BE OMITTED FOR SAND AND GRAVEL.

WHEN THE MOISTURE CONTENT OF THE MATERIAL IS IN EXCESS OF 2% ABOVE THE OPTIMUM MOISTURE CONTENT, DRY MATERIAL SHALL BE THOROUGHLY INCORPORATED INTO THE MATERIAL OF THE LAYER. THE MATERIAL SHALL BE AERATED BY DISCING, HARROWING, BLADING, ROTARY MIXING, OR OTHER APPROVED METHOD; OR COMPACTION OF THE LAYER OF WET MATERIAL SHALL BE DEFERRED UNTIL THE LAYER HAS DRIED TO THE REQUIRED MOISTURE CONTENT BY EVAPORATION.

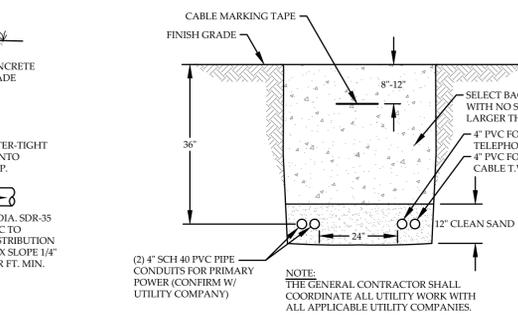
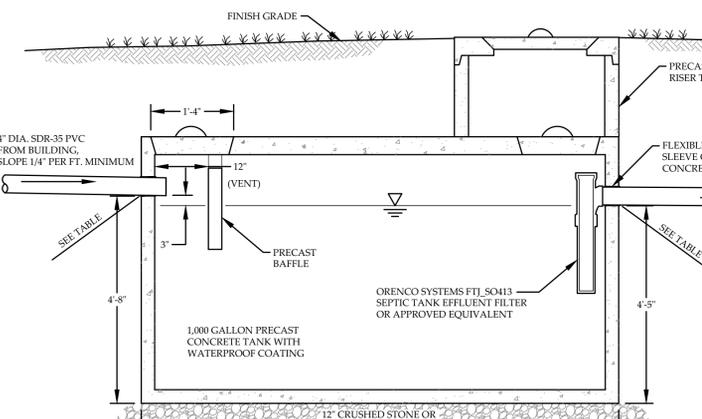
THE DENSITY REQUIREMENTS DO NOT APPLY TO THOSE PORTIONS OF EMBANKMENTS CONSTRUCTED OF MATERIAL SO COARSE THAT IT CANNOT BE PROPERLY TESTED WITH A CONVENTIONAL DENSITY TESTING APPARATUS. INSTEAD, THE MATERIAL SHALL BE COMPACTED TO THE SATISFACTION OF THE ENGINEER.

IN AREAS INACCESSIBLE TO POWER ROLLING, THE EMBANKMENT MATERIAL SHALL BE PLACED IN UNIFORM HORIZONTAL LAYERS OF NOT MORE THAN 6 INCHES IN DEPTH AND COMPACTED BY MEANS OF APPROVED MECHANICAL TAMPERS TO THE DENSITY REQUIREMENTS SPECIFIED ABOVE. THE USE OF HAND TAMPS WILL NOT BE PERMITTED.

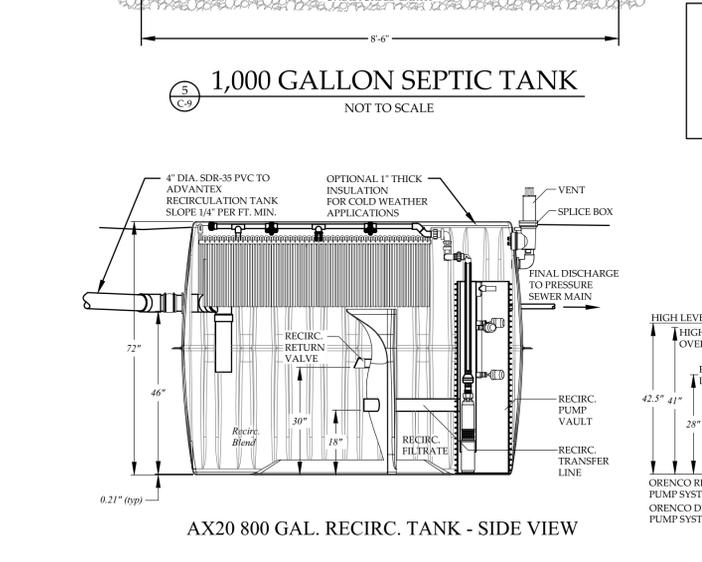
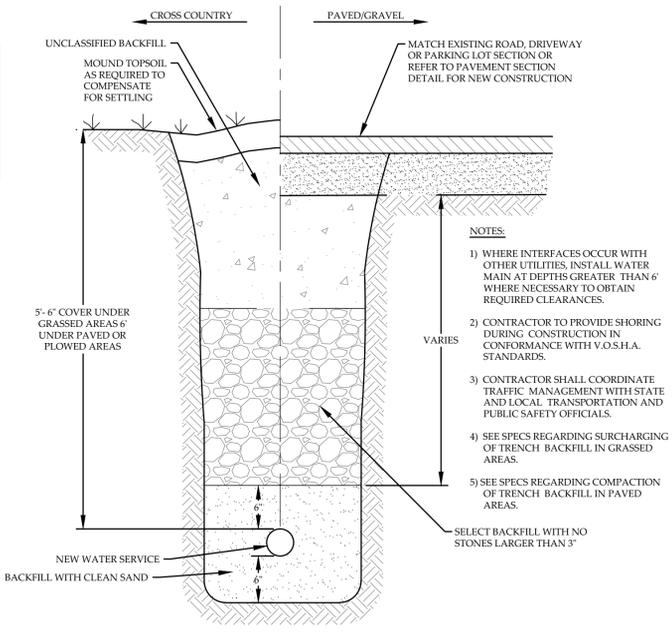
**SUBGRADE.**  
THE SUBGRADE SHALL BE CONSTRUCTED TO THE LINES, GRADES, AND CROSS-SECTIONS SHOWN ON THE PLANS. AFTER ALL DRAINAGE STRUCTURES HAVE BEEN INSTALLED AND THE SUBGRADE HAS BEEN SHAPED CORRECTLY, THE SUBGRADE SHALL BE BROUGHT TO A FIRM, UNYIELDING SURFACE COMPACTED TO ATTAIN AT LEAST 95% OF THE MAXIMUM DRY DENSITY. THIS DENSITY WILL BE DETERMINED BY AASHTO T99, METHOD C. A POWER GRADER OR OTHER APPROVED EQUIPMENT SHALL BE USED DURING THE PLACEMENT AND COMPACTION TO OBTAIN THE SPECIFIED CROSS-SECTION. AREAS OF SOFT, YIELDING, OR OTHERWISE UNSUITABLE MATERIAL THAT WILL NOT COMPACT READILY SHALL BE REMOVED, REPLACED WITH A SUITABLE MATERIAL, AND PROPERLY COMPACTED AS DIRECTED BY THE ENGINEER. ALL LOOSE ROCK OR BOULDERS ENCOUNTERED AT SUBGRADE IN THE EARTH EXCAVATION SHALL BE REMOVED OR BROKEN OFF TO A DEPTH NOT LESS THAN 12 INCHES BELOW THE SUBGRADE.

IN EXCAVATION AREAS, THE GROUND SHALL NOT BE EXCAVATED OR DISTURBED BELOW THE SUBGRADE EXCEPT AS SHOWN IN THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE ENGINEER. ALL DITCHES AND DRAINS SHALL BE CONSTRUCTED SO THEY WILL EFFECTIVELY DRAIN THE CONSTRUCTION AREA BEFORE THE PLACEMENT OF ANY SUBBASE OR SURFACE COURSE MATERIAL. IN HANDLING MATERIALS, TOOLS, AND EQUIPMENT, THE CONTRACTOR SHALL PROTECT THE SUBGRADE FROM DAMAGE. VEHICLES SHOULD NOT TRAVEL IN A SINGLE TRACK AND FORM RUTS. IF RUTS ARE FORMED, THE SUBGRADE SHALL BE RESHAPED AND COMPACTED. ANY POCKETS OF CLAY, SAND, OR SOFT MATERIAL THAT MAY HAVE BEEN LEFT IN THE SUBGRADE SHALL BE REMOVED AND REPLACED WITH APPROVED MATERIAL AND PROPERLY COMPACTED AT THE CONTRACTOR'S EXPENSE.

THE SUBGRADE SHALL BE KEPT IN A CONDITION THAT IT WILL DRAIN. SUBBASE, BASE, OR SURFACE MATERIAL SHALL NOT BE DEPOSITED ON THE SUBGRADE UNTIL THE SUBGRADE HAS BEEN CHECKED AND APPROVED BY THE ENGINEER. AFTER THE SUBGRADE HAS BEEN APPROVED, THE CONTRACTOR SHALL NOT PERFORM HAULING OR MOVE EQUIPMENT THAT WILL DISTORT THE CROSS-SECTION OF THE SUBGRADE. A TOLERANCE OF 1/2 INCH ABOVE OR BELOW THE FINISHED SUBGRADE WILL BE ALLOWED PROVIDED THAT THIS TOLERANCE IS NOT MAINTAINED FOR A DISTANCE LONGER THAN 5 FEET AND THAT THE REQUIRED CROSS-SECTION IS MAINTAINED. GRADING SHALL BE DONE WITH A POWER GRADER OR OTHER APPROVED EQUIPMENT TO CONFORM TO THE REQUIREMENTS AS SPECIFIED ABOVE.



**PRELIMINARY**  
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DATE: 1/23/20

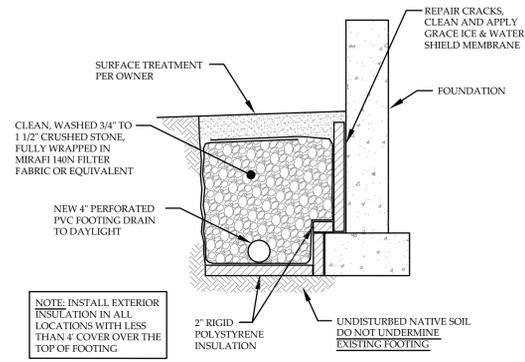


REVISION: 01-23-20 - CHANGED PUMP STATION DETAIL TO ADVANTEX RECIRCULATION TANK

**DETAILS**  
STOWE HOLLOW ROAD LLC  
STOWE HOLLOW ROAD  
STOWE, VERMONT

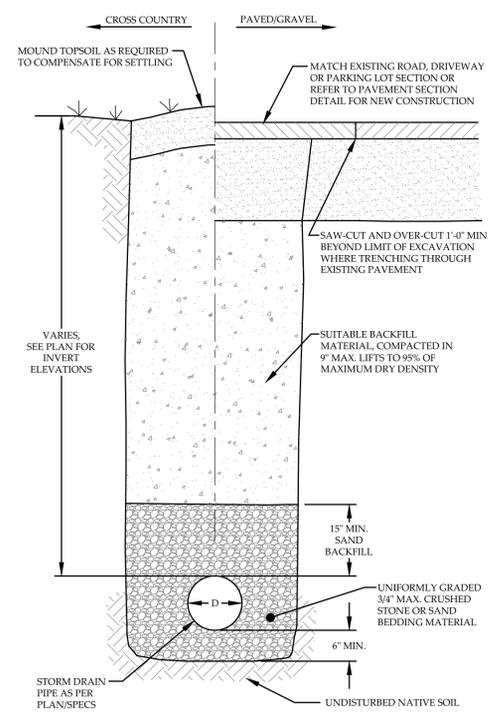
**MUMLEY ENGINEERING, INC.**  
454 MOUNTAIN ROAD, SUITE 4  
STOWE, VERMONT 05672  
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PROJECT NO. ....18045  
DRAWN BY.....WEH  
CHECKED BY.....TRM  
SCALE.....AS NOTED  
DATE.....1/17/20  
SHEET NO. **C-9**  
9 OF 10 SHEETS

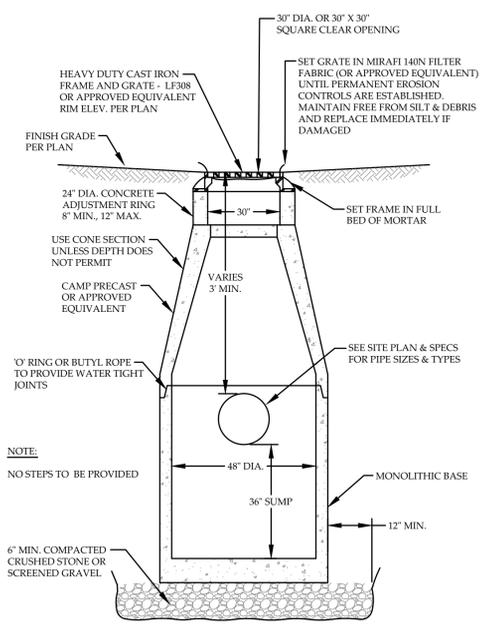


1 C-10  
**TYPICAL FOOTING DRAIN**  
NOT TO SCALE

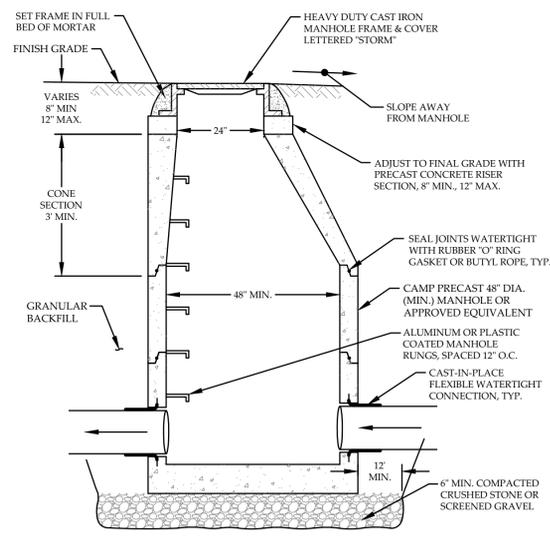
- NOTES:
- 1) ALL DISTURBED CROSS-COUNTRY AREAS SHALL BE RESTORED WITH 4" TOPSOIL, SEED, FERTILIZER AND MULCH IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. THE CONTRACTOR SHALL MAINTAIN EROSION CONTROL, WATER, ETC. UNTIL A VIABLE STAND OF GRASS HAS BEEN ESTABLISHED TO THE SATISFACTION OF THE ENGINEER.
  - 2) THE CONTRACTOR SHALL PROVIDE SHORING OR TAPER SIDES OF ALL TRENCHES DEEPER THAN 4 FT. DURING CONSTRUCTION IN ACCORDANCE WITH V.O.S.H.A. STANDARDS.
  - 3) THE CONTRACTOR SHALL PROVIDE AND COORDINATE ALL NECESSARY TRAFFIC CONTROLS IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
  - 4) WHERE TRENCHING IN UNSTABLE SOILS THE TRENCH BOTTOM SHALL BE OVEREXCAVATED AND STABILIZED USING MIRAFI 500X (OR APPROVED EQUIVALENT) GEOTEXTILE FABRIC AND 6" MIN. CRUSHED STONE. WET TRENCHES SHALL BE DEWATERED PRIOR TO INSTALLING BEDDING MATERIAL.



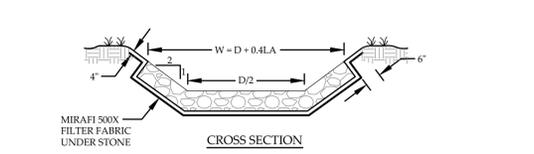
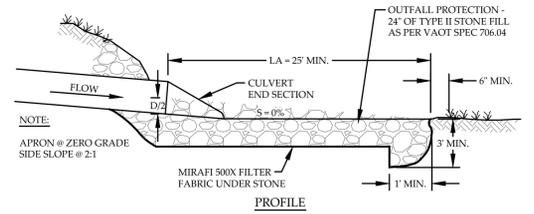
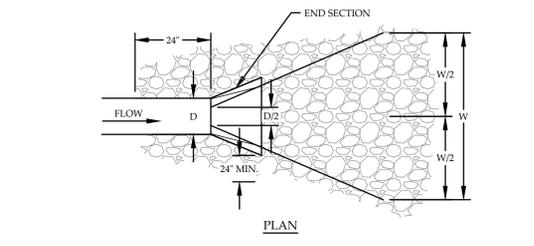
2 C-10  
**TYPICAL STORM DRAIN TRENCH**  
NOT TO SCALE



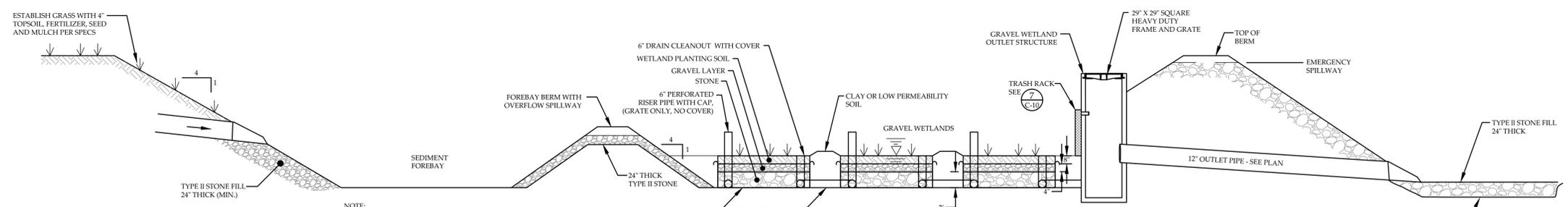
3 C-10  
**TYPICAL CATCH BASIN**  
NOT TO SCALE



4 C-10  
**TYPICAL STORM DRAIN MANHOLE**  
NOT TO SCALE

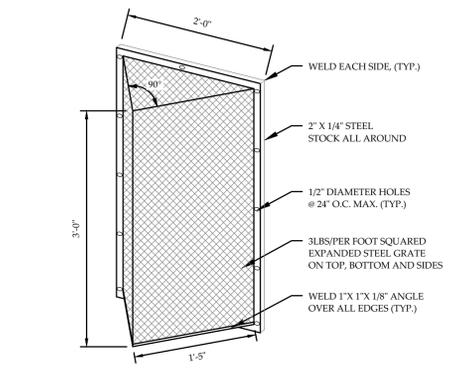


5 C-10  
**CULVERT OUTLET DETAIL**  
NOT TO SCALE

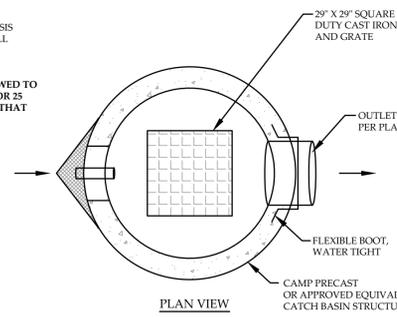


6 C-10  
**GRAVEL WETLAND SECTION**  
NOT TO SCALE

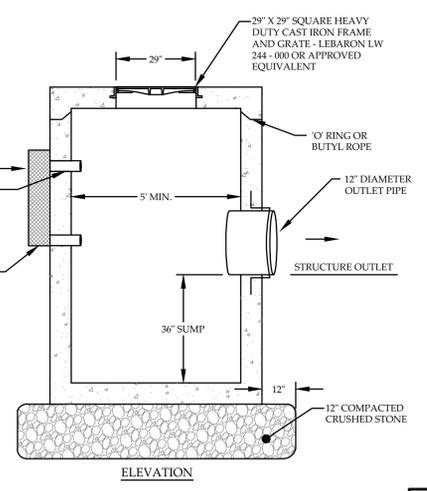
- NOTES:
- THE GRAVEL WETLANDS SHOULD BE REGULARLY INSPECTED FOR BUILD-UP OF SEDIMENT. SEDIMENT SHOULD BE REMOVED WHEN GREATER THAN A 6" DEPTH OF SEDIMENT HAS ACCUMULATED.
- VEGETATION SHALL BE MAINTAINED IN ALL AREAS THAT DO NOT RECEIVE RIP RAP, PAVEMENT OR CONCRETE.
- PROPER SEDIMENT CONTROL SHALL BE PLACED AND MAINTAINED DURING CONSTRUCTION ACTIVITIES TO MINIMIZE THE AMOUNT OF SEDIMENT REACHING THE GRAVEL WETLANDS.
- ALL EROSION AND SEDIMENT CONTROLS SHOULD BE INSPECTED ON A REGULAR BASIS AND AFTER ANY SIGNIFICANT STORM EVENT AND REPAIRED AS NECESSARY. INSTALL ADDITIONAL EROSION CONTROL, SUCH AS STONE CHECK DAMS, RIP RAP, ETC. AS REQUIRED.
- NO WOODY VEGETATION > 2 INCHES IN DIAMETER SHALL BE PLANTED OR ALLOWED TO GROW ON OR WITHIN 15 FEET OF THE DAM OR THE TOE OF THE EMBANKMENT, OR 25 FEET OF THE PRINCIPLE SPILLWAY, EXCLUDING AREAS WITHIN STREAM BUFFER THAT FALL OUT OF THE MAINTENANCE AREA, WHICH ARE NOT TO BE DISTURBED.



7 C-10  
**WETLAND TRASH RACK**  
NOT TO SCALE



8 C-10  
**WETLAND STRUCTURE**  
NOT TO SCALE



**PRELIMINARY**  
NOT FOR CONSTRUCTION  
DATE: 1/23/20

REVISION: 01-23-20 - REMOVED DRY DETENTION BASIN DETAILS

<b>DETAILS</b>		PROJECT NO. ....18045	
STOWE HOLLOW ROAD LLC		DRAWN BY.....WEH	
STOWE HOLLOW ROAD		CHECKED BY.....TRM	
STOWE, VERMONT		SCALE.....AS NOTED	
MUMLEY ENGINEERING, INC.		DATE.....1/17/20	
454 MOUNTAIN ROAD, SUITE 4		SHEET NO.	
STOWE, VERMONT 05672		<b>C-10</b>	
WWW.MUMLEYENGINEERING.COM		10 OF 10 SHEETS	
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