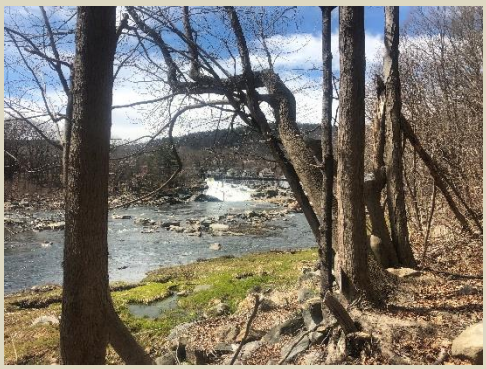
Mahican Mohawk Trail

Shelburne Falls Alignment

Trail Design and Feasibility Report

Submitted by:

Timber & Stone, LLC
Recreational Trail Design and Construction

4764 Center Road
East Montpelier, VT 05651

December 16, 2019

Mahican – Mohawk Trail

Shelburne Falls Alignment

Trail Design and Feasibility Report

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Introduction

Once fully constructed, the Mahican-Mohawk Trail will extend 100 miles as it explores the mountains, riversides, and forested acreage of Western Massachusetts. The trail will traverse points of interest including ecologically significant areas and historically important pathways. To date, 35 miles of the planned trail is open for exploration. A portion of the planned trail is located along the Deerfield River in Shelburne Falls, MA. This proposed alignment provides unique views of the river, signs of historical use, and a vital connection point allowing access to downtown Shelburne Falls. If able to be constructed, this trail segment will be a pivotal portion of the Mahican-Mohawk Trail.

During the 2019 Trail Season, Timber & Stone, LLC explored the acreage adjacent to the Deerfield River between the Franklin Land Trust parking lot on Route 2 and the Deerfield No. 3 Dam located in Shelburne Falls. The goal was to assess the feasibility of creating a trail alignment that provides safe and sustainable connection between the existing Mahican-Mohawk Trail and a vital area of downtown. The result of the assessment process was the identification of a potential trail alignment, a thorough inventory of needed trail structures, identification of hazards, and presentation to the Franklin Land Trust and Shelburne Falls Open Space Committee.

This working document outlines the result of our efforts. The trail has a dedicated set of specifications related to its location, existing condition, and suggested construction standards.

Option 1: Full Trail Connection

To fully connect the Mahican-Mohawk Trail to Shelburne Falls, the trail will extend for just under 1 mile and would be located directly adjacent to the Deerfield River. The trail leaves the forested preserve of the Franklin Land Trust and extends northward to its terminus at the parking area at Deerfield Avenue.



Positive Attributes of the Trail Alignment

The trail passes through some scenic and historic portions of the Deerfield River corridor. The following is a list of positive attributes of the trail's alignment:

1. **Connectivity** – This option will provide seamless connection from the Franklin Land Trust Preserve to downtown Shelburne Falls. This will lead to increased use, elongation of the existing Mahican-Mohawk Trail, and will provide a key recreation experience for visitors to the area.
2. **Vistas and Natural Aesthetic** – The trail passes through multiple forest types including mixed hardwood, coniferous, and wetland communities. At multiple locations vistas can be incorporated to fully appreciate the Deerfield River valley.
3. **Segments with Easy Construction** – A majority of this trail can be constructed with volunteer and steward labor. The construction required is minimal at points and could lead to a robust volunteer base that could easily maintain the trail.
4. **Use of Previously Disturbed Corridors** – The history of logging, quarrying, farming, and industry has left old woods roads that can be rehabilitated as trails. This leads to reduced disturbance and easy construction.
5. **Majority of Trail has Minimal Running Grade** – The trail was aligned to take advantage of sustainable grades and safe alignment. A majority of the trail has running grades that are 0-15% which will require little construction.



Negative Attributes of the Trail Alignment

Although not as numerous, there are some significant challenges within the proposed alignment. The following is a list of the negative attributes of the trail's alignment:

1. **Heavily Eroded Terrain by Sweetheart Restaurant** –Construction at the Sweetheart Restaurant has led to significant erosion of the adjacent gully and surrounding acreage. A large gully has formed which would require a bridge to cross over it. That, combined with hillside erosion below the trail alignment could lead to a significant alteration in the landscape. The land slide below the trail alignment forces the trail to be located above the unstable cross slope which leads directly into item #2 below.
2. **Steep Descent to Riverside Alignment** – Due to the unstable soils mentioned above, the trail will need to be located between the eroding hillside and the eroded gully. The inevitable descent down to the riverside will need to occur along steep terrain. Running grades will be between 10-25%. It is recommended to install stone steps along this portion of the trail. Import of the material will be difficult as will the process of installation.
3. **Unstable Soils along Portions of the Alignment –** In addition to the areas mentioned above, there are two portions of the alignment that will need significant construction in order to address soil instability. Each section is 200' long and is located below a storm culvert from the road above. There is substantial presence of Japanese Knotweed and other invasives that will need to be removed before the trail can be constructed. Without a heavily engineered structure, the soils cannot support a trail structure that will allow hikers to safely cross the terrain**.** A boardwalk supported by helical piles or alternate is an option that would work in the short term. Ultimately, the impact of upslope degradation and watershed erosion will affect the trail structure.

Option 2: Shelburne Village Access Trail

During the field study phase of this project, another option was explored that involved creating an "out and back" trail that still allows for interaction within the Deerfield River Valley. This trail would begin on South Maple Street and drop down to the Deerfield River and reconnect with a portion of the Mahican-Mohawk described above.



Trail Description

The option of this side trail was discussed after the completion of the Mahican-Mohawk Trail Design was complete. That said, the alignment was explored and the following information was gathered:

- The upper portion of the side trail would be 650' long and connect to the street's sidewalk.
- 35-40 timber box steps will need to be installed to safely navigate the steep slope. It is recommended to install hand rail on one side of the steps to aid in navigation.


- The trail shares alignment with an abandoned road. This could be cleared and a bench cut would help ensure an 18-24" wide tread.
- A 35' bridge would need to be installed to cross the washed out ravine. This bridge would be 36" wide and would have a 30' clear span.
- The trail would rejoin the Option 1 Proposed Alignment at Trail Log Point 3346 in the attached Trail Log.

Process Summary and Conclusions

Extending the Mahican-Mohawk Trail from its current terminus to Shelburne Falls downtown would be a tremendous recreation opportunity. Both residents and visitors to the area would benefit from the ability to walk from downtown and experience the vistas along the river's edge. If constructed, this would undoubtedly be one of the more traveled miles along the trail.

The challenges inherent with constructing the portions closest to the downtown will provide a significant hurdle to the process. The investment required for the construction of an elevated walkway along unstable soils would be substantial. These factors combined with some of the alignment being on privately owned lands result in a challenging situation to navigate.

Overall, our recommendation is to further investigate and potentially construct Option 2: The Shelburne Village Access Trail. This will allow trail users an option for accessing the riverside trail and limits the amount of technical construction required. The trail will be limited to Town owned property and the remaining portion could be built in the future should a viable option through the unstable areas be discovered.

Respectfully Submitted,

Joshua D. Ryan
Principal
Timber & Stone, LLC

Part VI – The Use of This Document

This document is exceptionally field focused. The field work was conducted with an eye towards providing the reader with an ability to walk the trail and visualize what structures are needed and what they will look like. To use this document efficiently, please consider the following guidelines:

1. Use a Rolatape:

- This measuring wheel serves as a vital link to the trail log that documents each linear foot of the trail system. The rolatape guides the user of this document around the trail system. Please visit: http://www.rolatape.com/ to learn more about this tool.

2. Trail Log Accuracy

- The Trail Log begins at set points along the trail system. Be sure to start the wheel at 00 while standing at the correct point described on the document.
- Each beginning and end point of the trail log is expected to change, depending on who is using the rolatape. Be prepared for the points to have a variance of 5-10 feet.
- The Trail Log cites reference points to help indicate where certain Design Directives are located. These reference points could change slightly over time due to the expected change of a forest's composition.

3. Analysis Sequence

a) **Identify a Site:** Arrive at a proposed work site using the rolatape wheel.

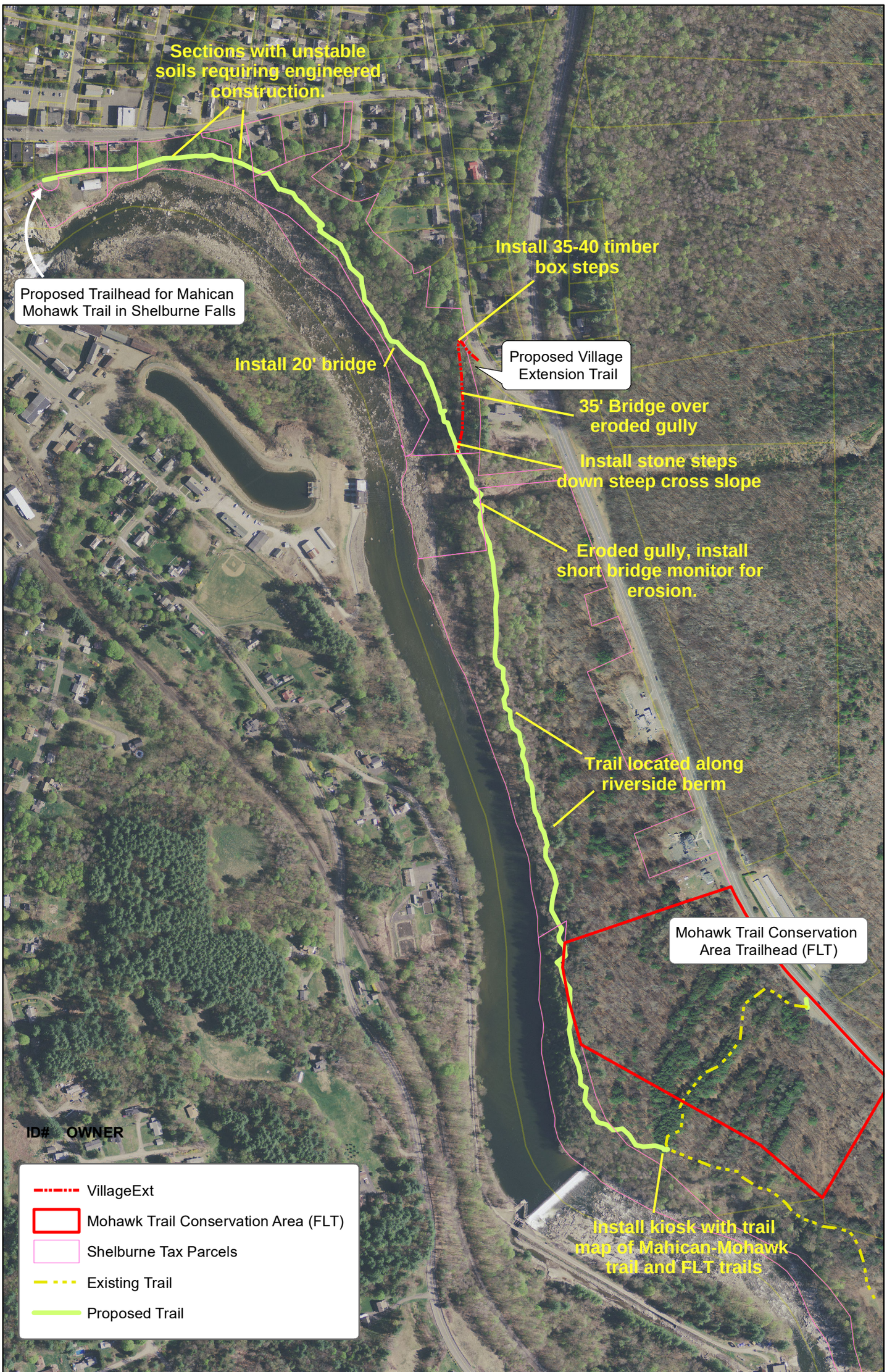
b) **Reference the Map:** The Trail Planning Maps gives a sense as to the trail's shape and location of key work zones.

c) **Check the Reference Point:** Look for the reference point to make sure you are at the right point

d) **Realize the Design Directive:** The directive will identify the proposed solution.

e) **Check the Sitework Photopage:** Cross reference the photo number with the correct photo page for more detailed information on the work site.

f) **Review the Construction Specification:** Most work sites have an associated Construction Specification Number. This number (ie: 1, 2) relates to the attached documents that outline how to install a structure.



N W E S

January 2019

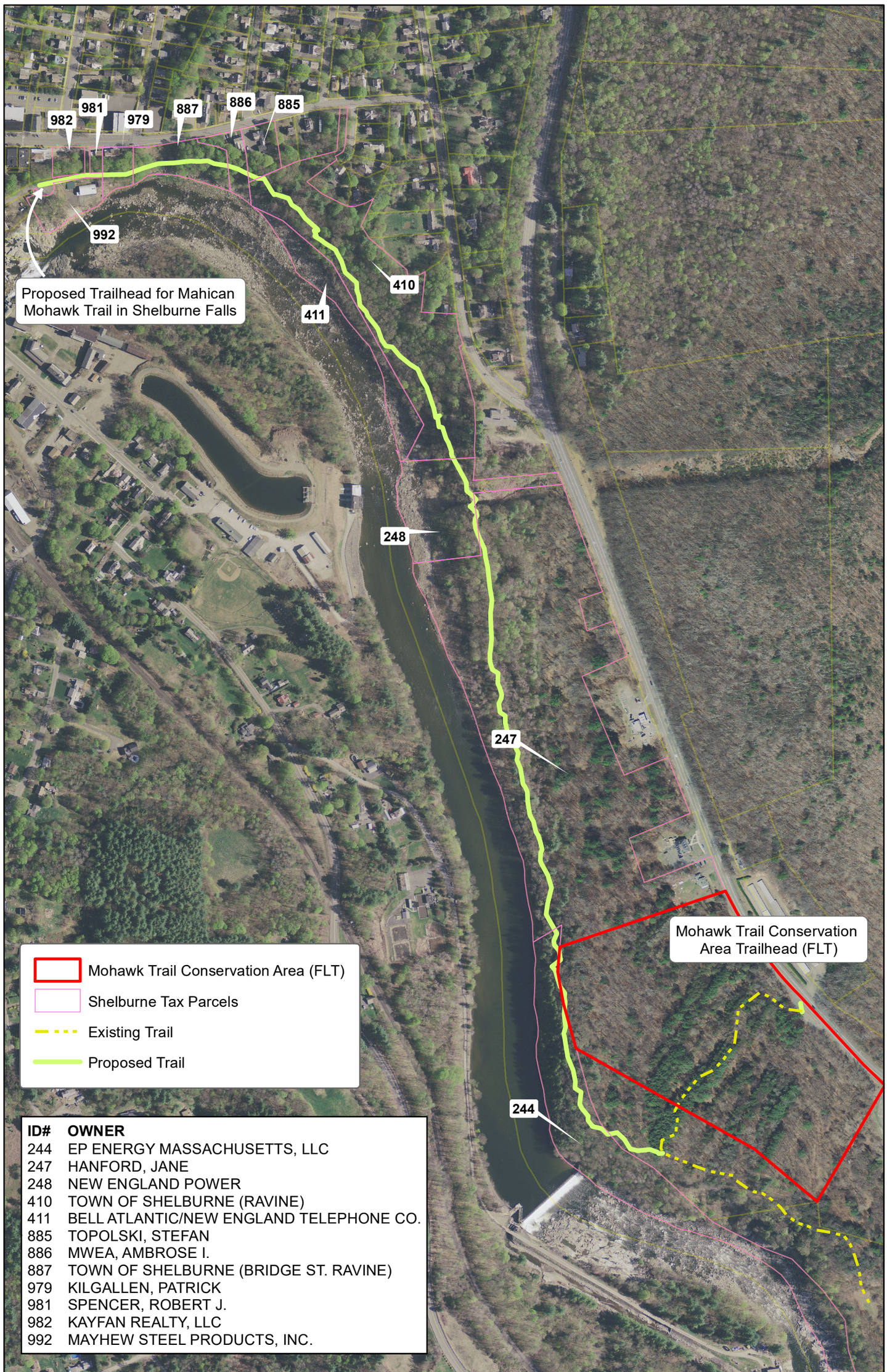
0 310 620 Feet

MassGIS: 2014 Orthoimagery;
Town tax parcels as provided by the state (Cross-reference with Registry of Deeds).
Boundaries approximate.

Proposed Mahican Mohawk Trail Extension
From Deerfield Road to Mohawk Trail Conservation Area (FLT)
Shelburne Falls, MA

Proposed trail is approximate. Actual trail location will be determined by trail assessment completed by Timber & Stone LLC.

FRANKLIN LAND TRUST



ID#	OWNER
244	EP ENERGY MASSACHUSETTS, LLC
247	HANFORD, JANE
248	NEW ENGLAND POWER
410	TOWN OF SHELBURNE (RAVINE)
411	BELL ATLANTIC/NEW ENGLAND TELEPHONE CO.
885	TOPOLSKI, STEFAN
886	MWEA, AMBROSE I.
887	TOWN OF SHELBURNE (BRIDGE ST. RAVINE)
979	KILGALLEN, PATRICK
981	SPENCER, ROBERT J.
982	KAYFAN REALTY, LLC
992	MAYHEW STEEL PRODUCTS, INC.

N W E S

January 2019

0 310 620 Feet

MassGIS: 2014 Orthoimagery;
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Boundaries approximate.

Proposed Mahican Mohawk Trail Extension
From Deerfield Road to Mohawk Trail Conservation Area (FLT)
Shelburne Falls, MA

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FRANKLIN LAND TRUST

Project: Mahican Mohawk Trail
Location: Shelburne Falls, MA

Mahican Mohawk Trail Log

Note: This trail log starts at the intersection of the trail alignment with the existing trail off route 2.

Begin	End	Length	Photo #	Reference Point	Design Directive	Spec #
0	0	0	1	Existing trail is to right of new alignment of Mahican Mohawk Trail	Install Kiosk to identify Mahican Mohawk trail and its proximity to the existing parking lot on Rte 2 as well as Shelburne Falls downtown	
0	180	180	1	30" DBH Pine on left	Clear corridor, bench alignment and install tread to 24-30", Running grades to remain 0 - 12%	1, 2, 3, 4
180	365	185	2	24" DBH White Pine on left	Align trail with right side of Pine tree, Clear corridor, bench alignment and install tread to 24-30", Running grades to remain 0 - 12%	1, 2, 3, 4
365	543	178	3	Dense brush with existing cross slope, (2) 12" pines on left	Clear corridor, remove root systems with low lying vegetation, bench alignment and install tread to 24-30", Running grades to remain 0 - 12%	1, 2, 3, 4
543	721	178	4	End of heavy brush section, 28" DBH Pine on right	Clear corridor, remove root systems with low lying vegetation, bench alignment and install tread to 24-30", Running grades to remain 0 - 12%	1, 2, 3, 4
721	758	37	5	Stone pile on left, likely remants from quarry site	Minimal trail corridor clearing, allow trail to establish itself, benching likely not needed	1, 2

Begin	End	Length	Photo #	Reference Point	Design Directive	Spec #
758	920	162	6	Property marker on left, dead birch across trail alignmnt	Minimal trail corridor clearing, allow trail to establish itself, benching likely not needed	1, 2
920	1133	213	7	Heavy corridor clearing, copiced oak on right	Clear corridor, remove root systems with low lying vegetation, bench alignment and install tread to 24-30", Running grades to remain 0 - 12%	1, 2, 3, 4
1133	1297	164	8	Remnants of stone wall on left, possible old quarry	Clear corridor, bench alignment and install tread to 24-30", Running grades to remain 0 - 12%	1, 2, 3, 4
1297	1423	126	9	Stump on left with barbed wire exposed	Align trail on right of stump, remove barbed wire, allow trail to establish itself, benching likely not needed	1, 2
1423	1793	370	10	Alignment joins abandoned logging road	Clear corridor of saplings, allow trail to establish itself, benching likely not needed	1, 2
1793	1923	130	11	Trail exits logging road to left and accesses elevated berm	Clear corridor, remove root systems with low lying vegetation, bench alignment and install tread to 24-30", Running grades to remain 0 - 12%	1, 2, 3, 4
1923	2160	237	12	Black Birch with beaver chew on left	Align trail to right of Birch tree, clear corridor of saplings, allow trail to establish itself, benching likely not needed	1, 2
2160	2536	376	13	Trail remains on berm, existing stones visible along alignment	Clear corridor, adjust stones as needed to provide a clear walking path, benching not needed	1, 2, 5
2536	3083	547	14	End of alignment along berm, trail joins with abandoned quarry road	Clear corridor of saplings, allow trail to establish itself, benching likely not needed	1, 2

Begin	End	Length	Photo #	Reference Point	Design Directive	Spec #
3083	3147	64	15	Eroded gully on left, erosion source is the development work at the old hotel on rte 2	Align trail above eroded gully and prepare to cross with small bridge, monitor this section for future erosion until the upper development has resolved the drainage issue	1, 2
3147	3192	45	16	Narrow crossing of eroded gully	Bench trail and install a short trail bridge to allow safe crossing over the gully, monitor for future erosion	1, 2, 3
3192	3346	154	17	Trail alignment enters power line corridor, heavy erosion to left	Mow trail alignment and clearly mark, monitor erosion of bank on left to ensure safety and sustainability of trail, align trail with abandoned road	N/A
3346	3432	86	18	Trail alignment leaves the abandoned road	Trail drops to left of abandoned road, clear corridor, bench alignment and install tread to 24-30", Running grades to remain 0 - 15%	1, 2, 3, 4
3432	3519	87	19	Oak tree on right with beaver chew	Monitor oak tree for safety, consider removing, clear corridor, bench alignment and install tread to 24", running grades to remain 0 - 20%, install stone steps at grades above 20%	1, 2, 3, 4, 6
3519	3970	451	20	End of steep crosslope, trail alignment joins abandoned road	Clear corridor of downed trees and saplings, allow trail to establish itself, benching likely not needed	1, 2
3970	4033	63	21	Trail crosses eroded gully with intermittent stream	Bench trail and install a 20' bridge to provide crossing of gully, railings may be needed if height of bridge is over 30" off the ground	1, 2, 3, 4, 7

Begin	End	Length	Photo #	Reference Point	Design Directive	Spec #
4033	4426	393	22	Trail rejoins abandoned road	Clear corridor of downed trees and saplings, allow trail to establish itself, benching likely not needed	1, 2
4426	4530	104	23	Trail crosses eroded gully with intermittent stream	Bench trail and install a short trail bridge to allow safe crossing over the gully, monitor for future erosion	1, 2, 3, 4, 7
4530	4764	234	24	Trail crosses old culvert and intermittent stream	Assess culvert crossing, fill in tread as needed, clear corridor and bench trail into cross slope	1, 2
4764	4899	135	25	End of abandoned road section, beginning of steep cross slope and unstable soils	Assess this section for soil strength and ability to support and the feasibility of it supporting an elevated structure.	N/A
4899	5079	180	26	Transition from steep cross slope back to trail tread	Clear corridor, bench alignment and install tread to 24-30", Running grades to remain 0 - 12%	1, 2, 3, 4
5079	5206	127	27	Large boulders in alignment, start of steep cross slope with unstable soils	Assess this section for soil strength and ability to support and the feasibility of it supporting an elevated structure.	N/A
5206	5338	132	28	End of elevated structure, 40" DBH Sugar Maple on Right	Align trail to left of Sugar Maple, adjust stones to support trail tread, clear corridor, bench alignment and install tread to 24-30", running grades to remain 0-12%	1, 2, 3, 4
5338	5460	122	29	Property boundary pin on left, abandoned industrial building straight ahead	Clear corridor, bench alignment and install tread to 24-30", running grades to remain 0 - 12%, remove trash from site and check on alignment with landowner	1, 2, 3, 4
5460	5460	0	30	Japanese knotweed and parking area in view, end of trail alignment	Treat Japanese Knotweed prior to construction, install trailhead kiosk, join trail with parking area,	N/A

Mahican Mohawk Trail
Shelburne Falls, MA

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Recreational Trail Design and Construction

Photo 1

Mahican Mohawk Trail
Shelburne Falls, MA

Clear corridor and bench trail

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Photo 2

Mahican Mohawk Trail
Shelburne Falls, MA

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Photo 3

Mahican Mohawk Trail
Shelburne Falls, MA

Clear corridor of trees with less than 6” DBH, bench trail into cross slope

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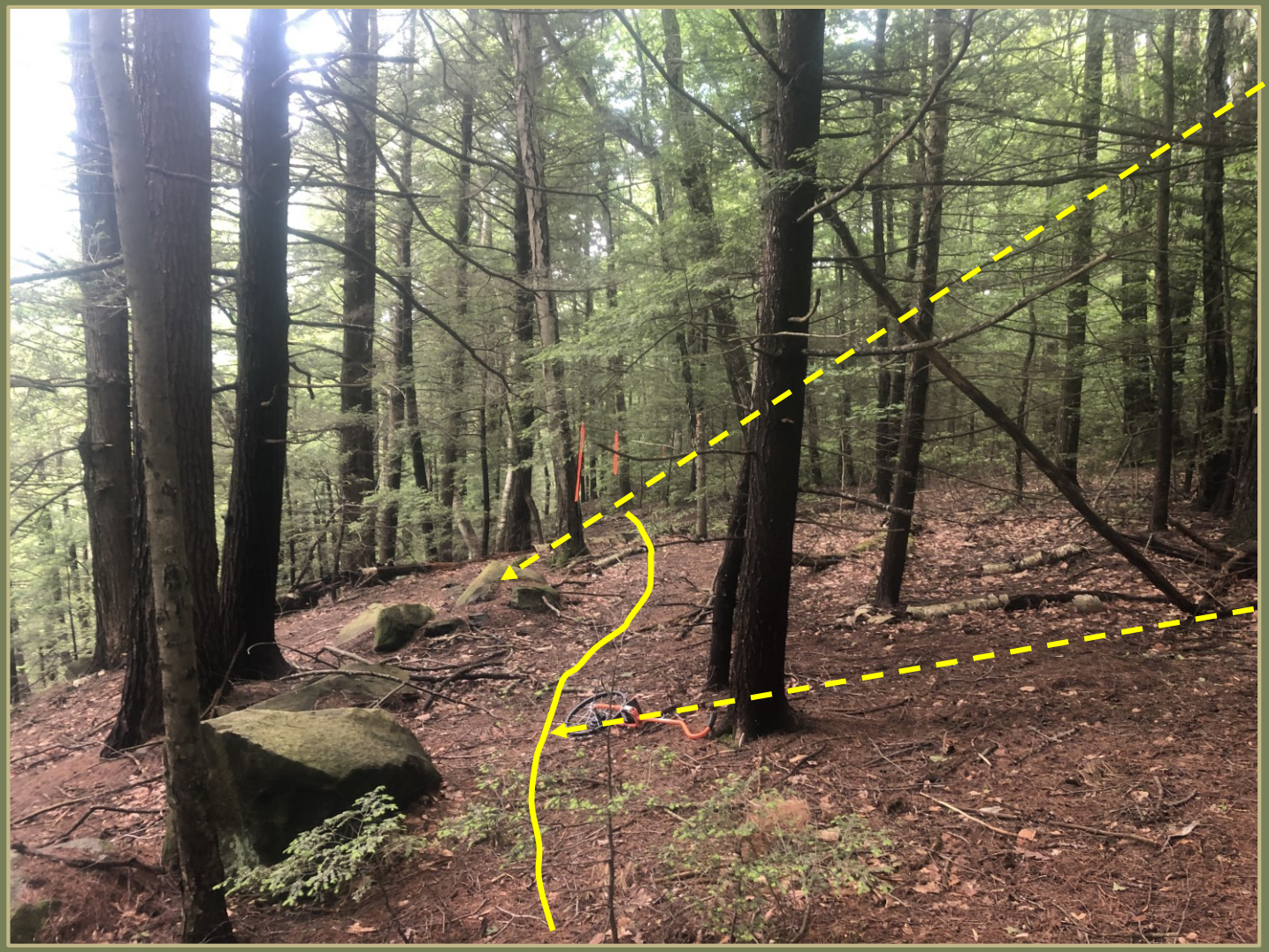
Photo 4

Mahican Mohawk Trail
Shelburne Falls, MA



Stone quarry remnants, possible site for interpretation

Minimal corridor clearing, trail could naturalize in and not be benched

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Photo 5

Mahican Mohawk Trail
Shelburne Falls, MA

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Photo 6

Mahican Mohawk Trail
Shelburne Falls, MA

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Photo 7

Mahican Mohawk Trail
Shelburne Falls, MA

Timber & Stone, LLC
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Photo 8

Mahican Mohawk Trail
Shelburne Falls, MA

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Photo 9

Mahican Mohawk Trail
Shelburne Falls, MA

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Photo 10

Mahican Mohawk Trail
Shelburne Falls, MA

Clear corridor to clearly show trail alignment on elevated berm

Bench trail into berm and brush in junction with abandoned logging road

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Photo 11

Mahican Mohawk Trail
Shelburne Falls, MA

Align trail on berm, bench trail as needed, ensure crowned trail tread for sheet flow drainage on either side

Monitor Black Birch for safety, leave as interpretive example

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Photo 12

Mahican Mohawk Trail
Shelburne Falls, MA

Clear corridor and align trail on berm, use stones as needed for cribbing or step stones

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Photo 13

Mahican Mohawk Trail
Shelburne Falls, MA

Align trail on abandoned quarry road, clear vegetation as needed, let trail establish itself

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Photo 14

Mahican Mohawk Trail
Shelburne Falls, MA

Align trail above eroded gully, bench trail into cross slope as needed

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Photo 15

Mahican Mohawk Trail
Shelburne Falls, MA

Install small bridge across narrow portion of gully. Monitor for continued erosion from upslope development

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Photo 16

Mahican Mohawk Trail
Shelburne Falls, MA

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Recreational Trail Design and Construction

Photo 17

Mahican Mohawk Trail
Shelburne Falls, MA

Trail exits abandoned road, clear corridor and bench trail

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Photo 18

Mahican Mohawk Trail
Shelburne Falls, MA

Monitor tree for stability and safety, consider removing

Bench trail into cross slope, install stone steps when running grade is above 20%

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Photo 19

Mahican Mohawk Trail
Shelburne Falls, MA

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Recreational Trail Design and Construction

Photo 20

Mahican Mohawk Trail
Shelburne Falls, MA

Install 20’ bridge with 3’ width to cross intermittent stream and established gully

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Recreational Trail Design and Construction

Photo 21

Mahican Mohawk Trail
Shelburne Falls, MA

Clear corridor and bench trail as needed along abandoned road

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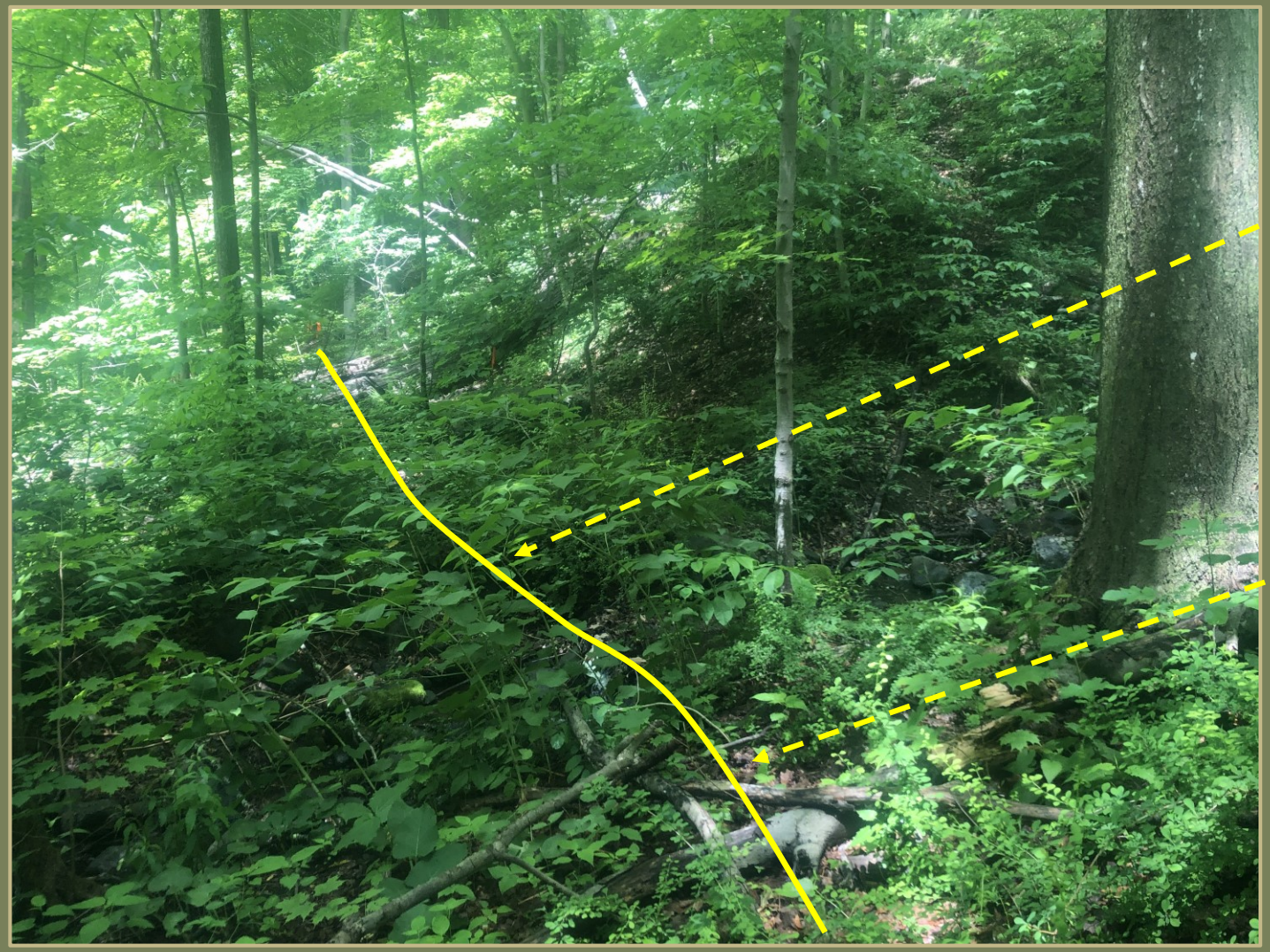
Recreational Trail Design and Construction

Photo 22

Mahican Mohawk Trail
Shelburne Falls, MA



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Recreational Trail Design and Construction

Photo 23

Mahican Mohawk Trail
Shelburne Falls, MA

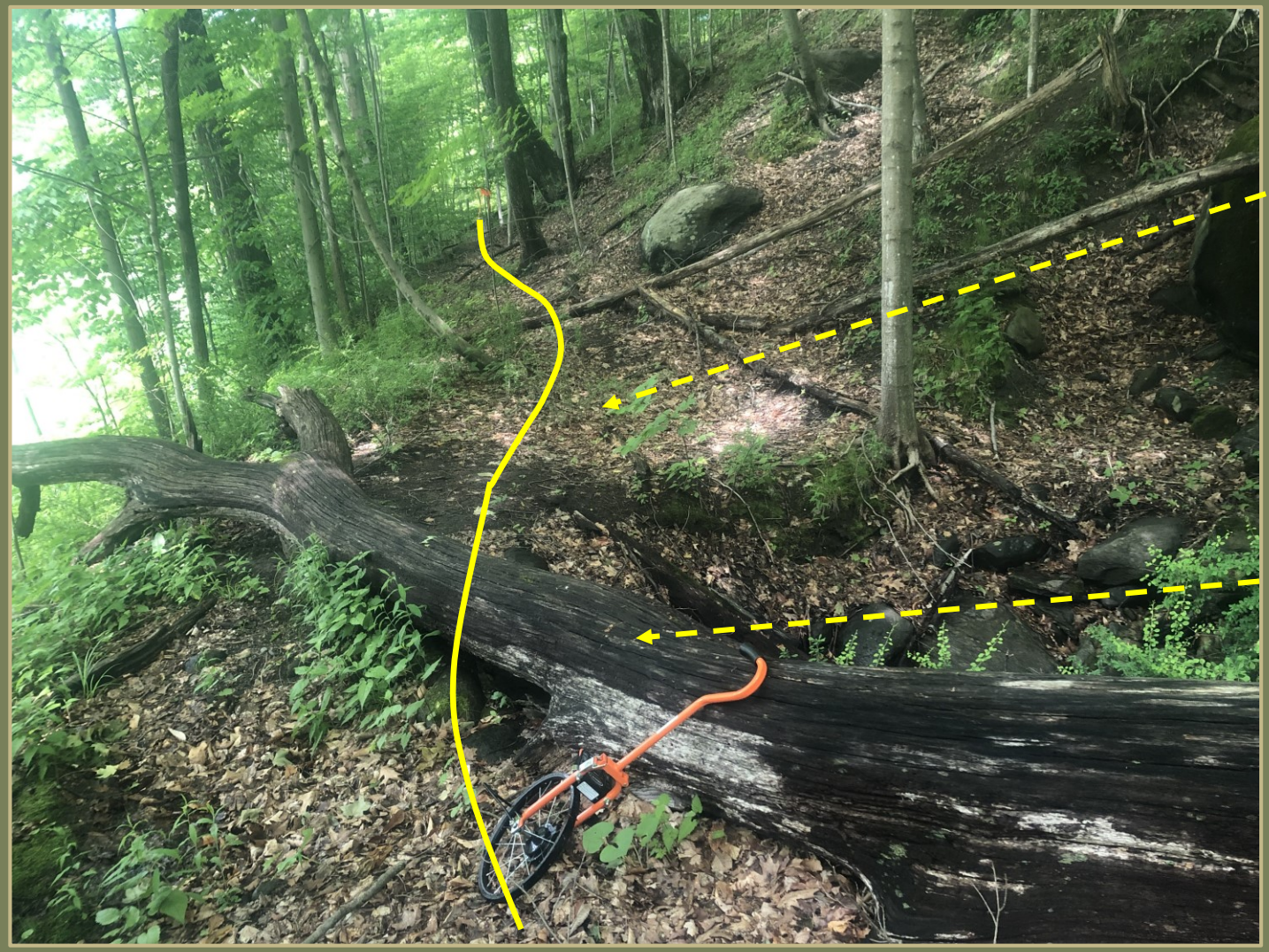

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Photo 24

Mahican Mohawk Trail
Shelburne Falls, MA

Start of steep cross slope and unstable soils

Consider elevated structure after assessment of soils by soil engineer

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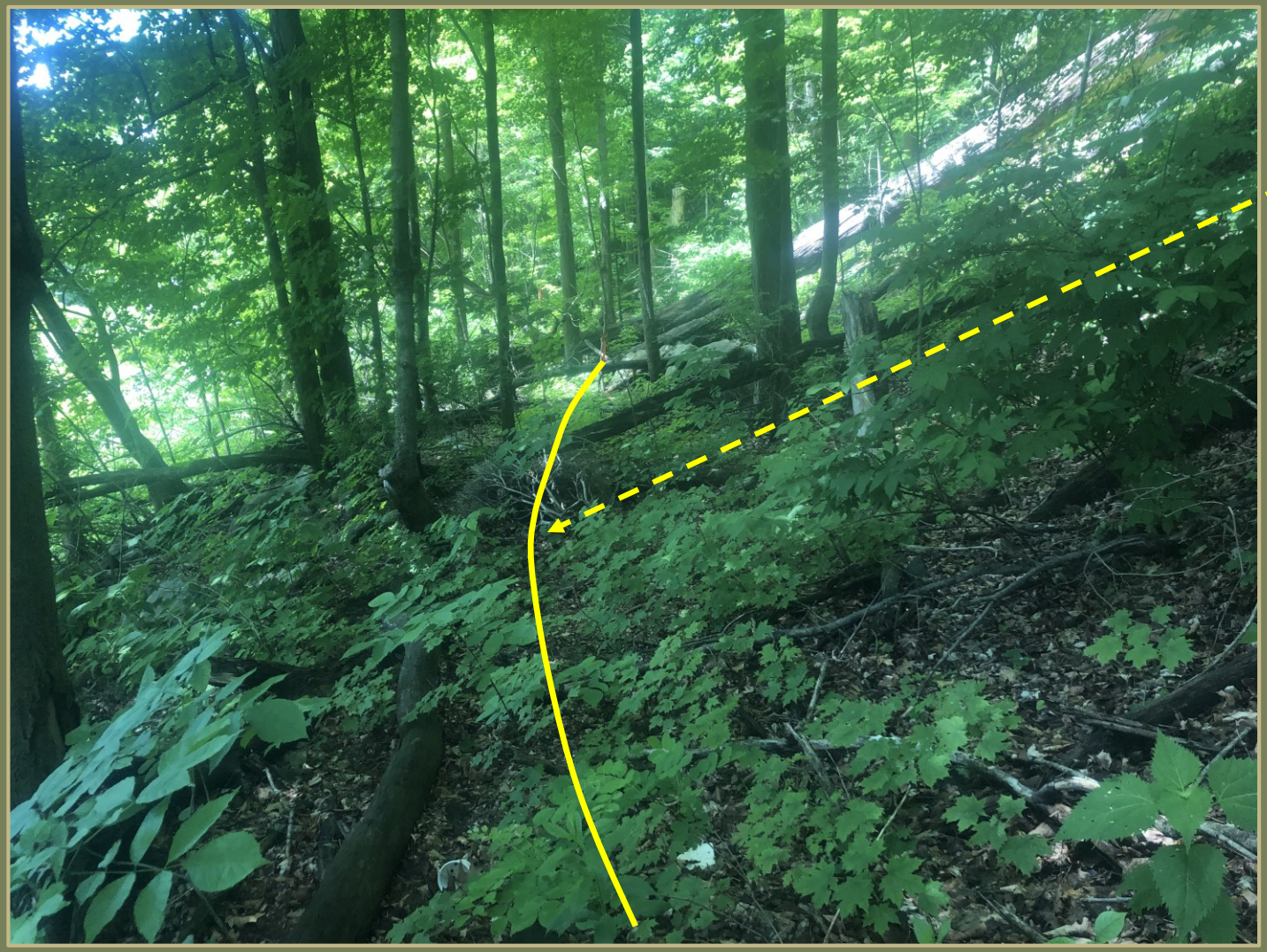
Photo 25

Mahican Mohawk Trail
Shelburne Falls, MA



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Recreational Trail Design and Construction

Photo 26

Mahican Mohawk Trail
Shelburne Falls, MA

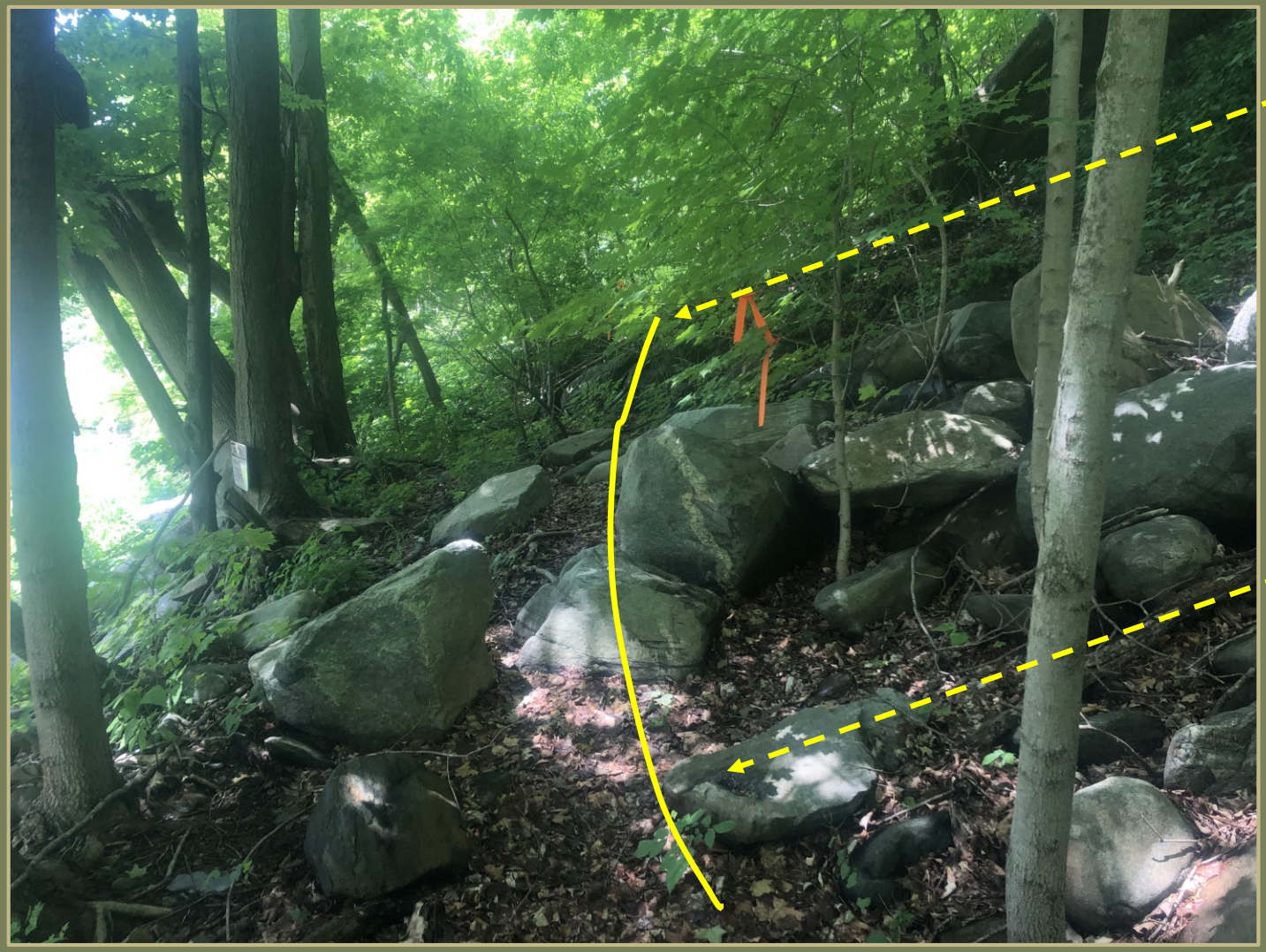

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Photo 27

Mahican Mohawk Trail
Shelburne Falls, MA

Clear corridor bench trail into hillside, adjust stones as needed to support trail tread

End of elevated structure, transition to benched trail

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Photo 28

Mahican Mohawk Trail
Shelburne Falls, MA

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Photo 29

Mahican Mohawk Trail
Shelburne Falls, MA

Address Japanese Knotweed prior to trail establishment, bench trail on abandoned road, connect with parking area by abandoned building

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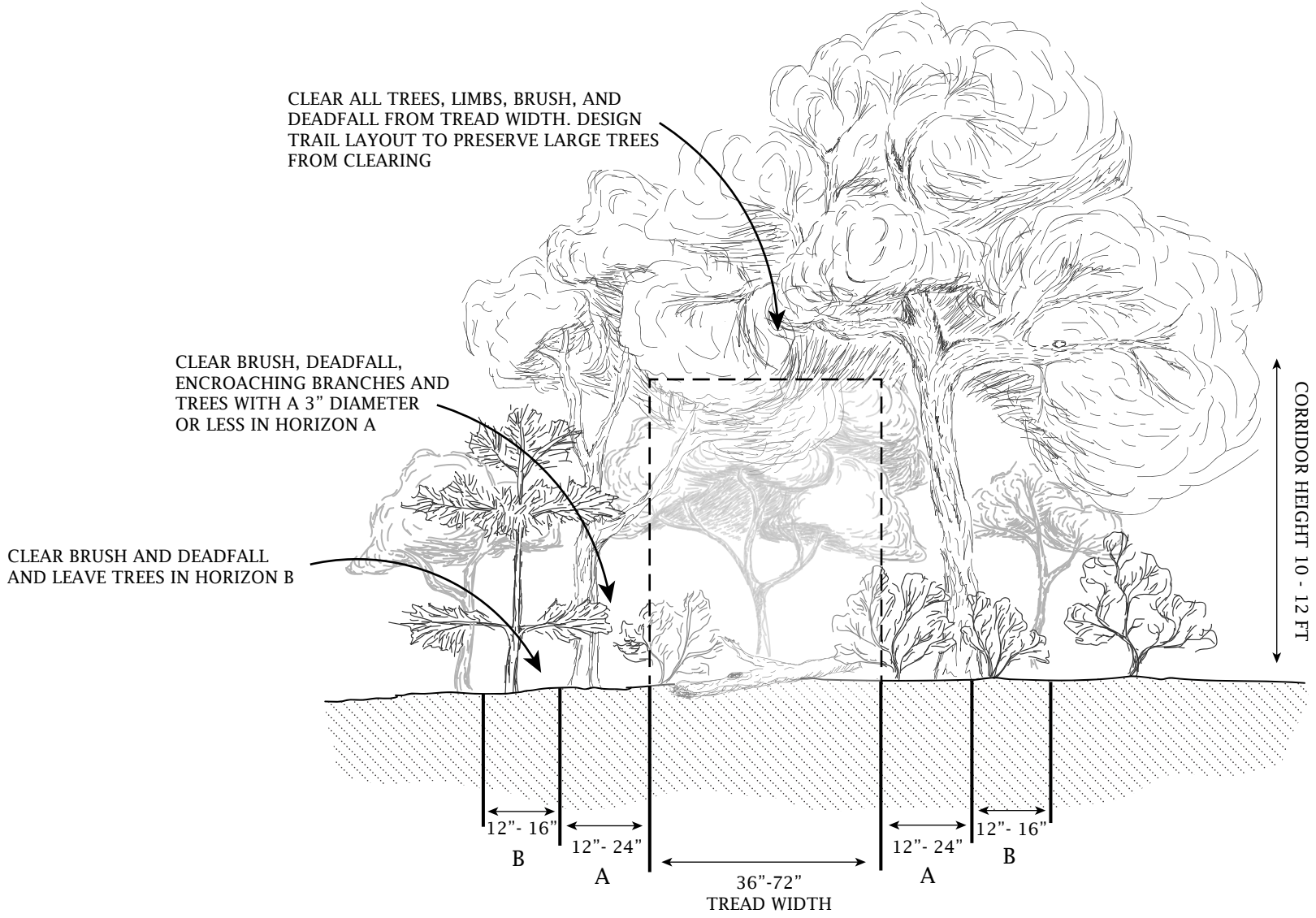
Photo 30



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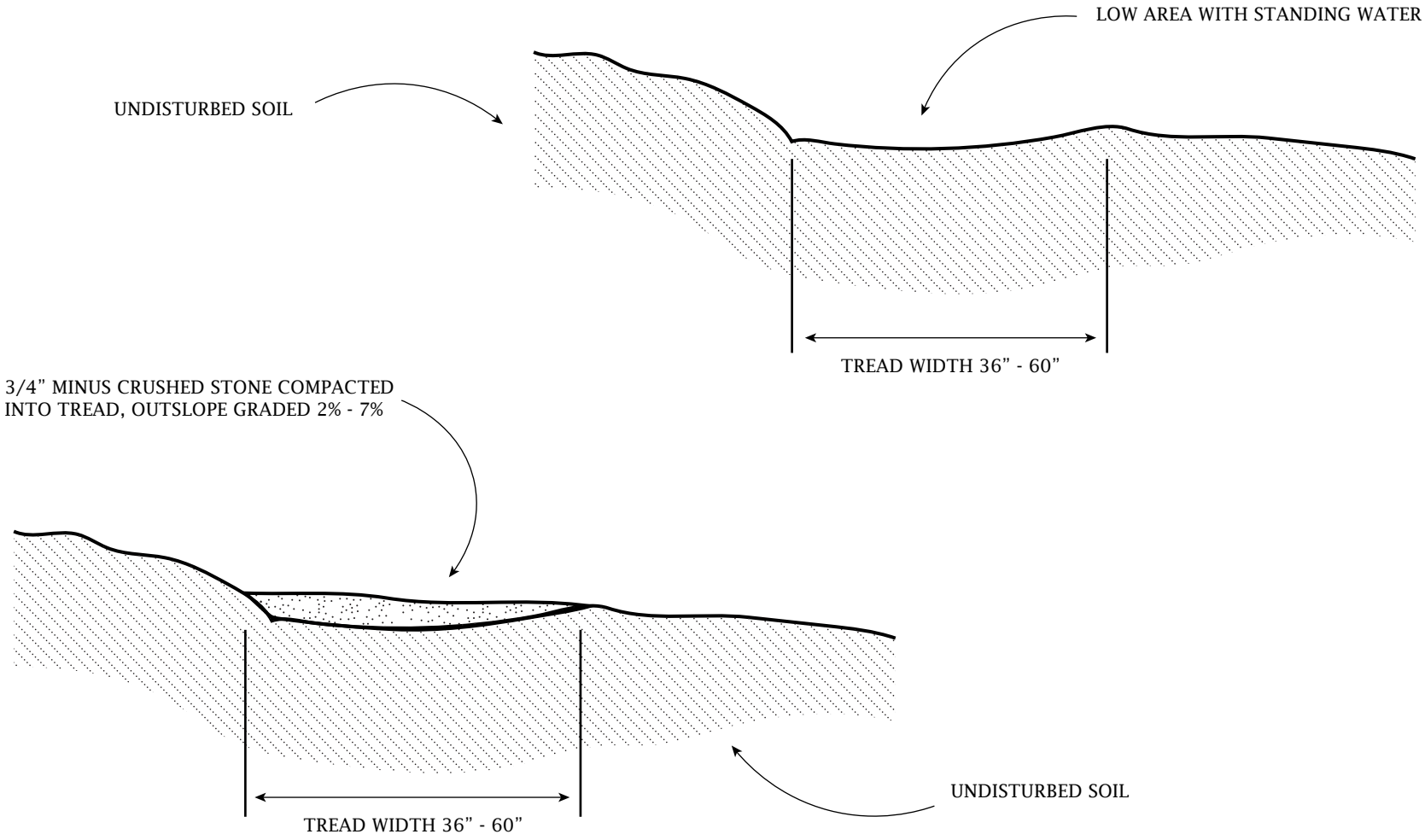
CORRIDOR CLEARING - ELEVATION VIEW

S1



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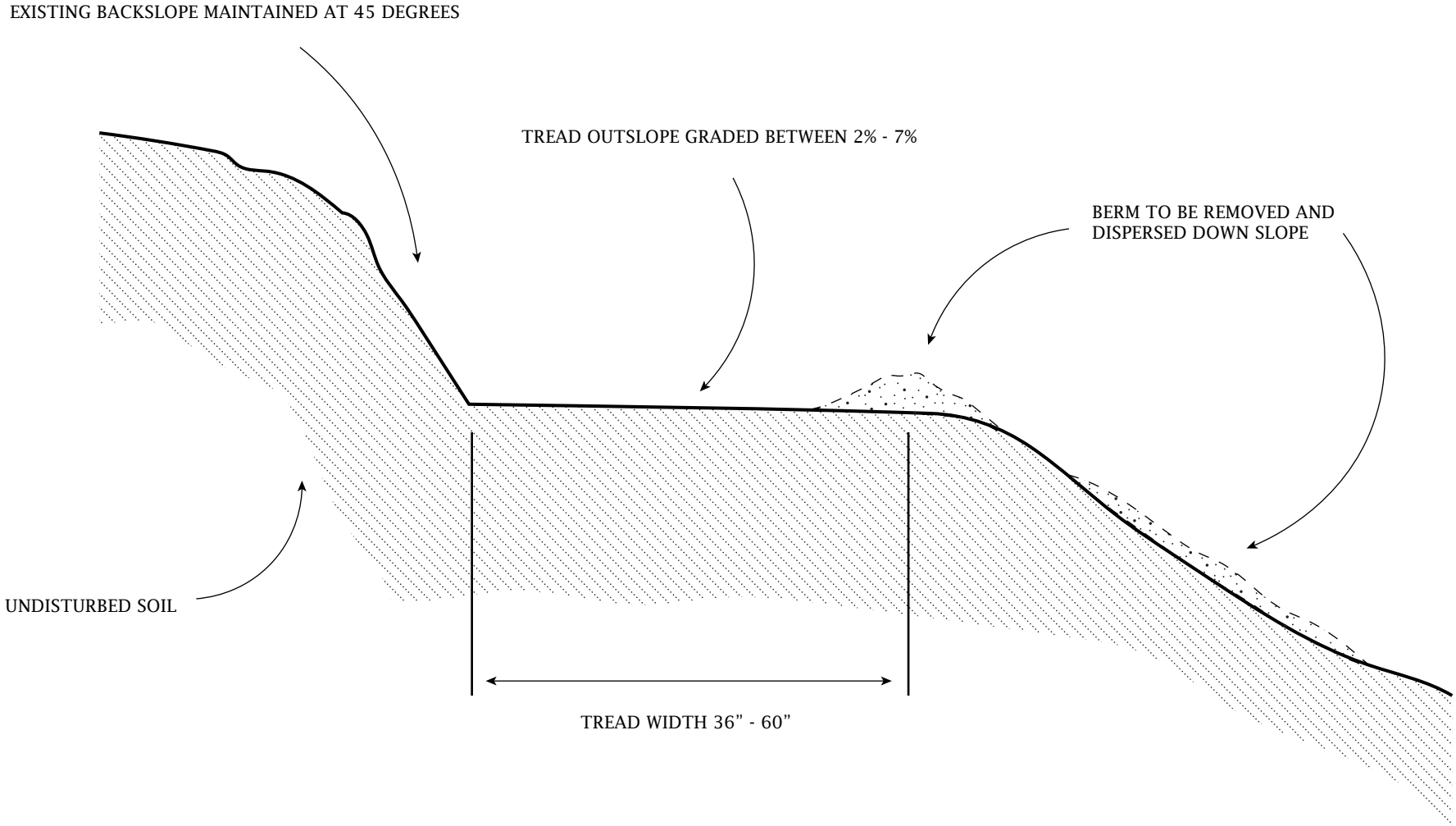
TREAD ELEVATION AND HARDENING - CROSS SECTION

S2



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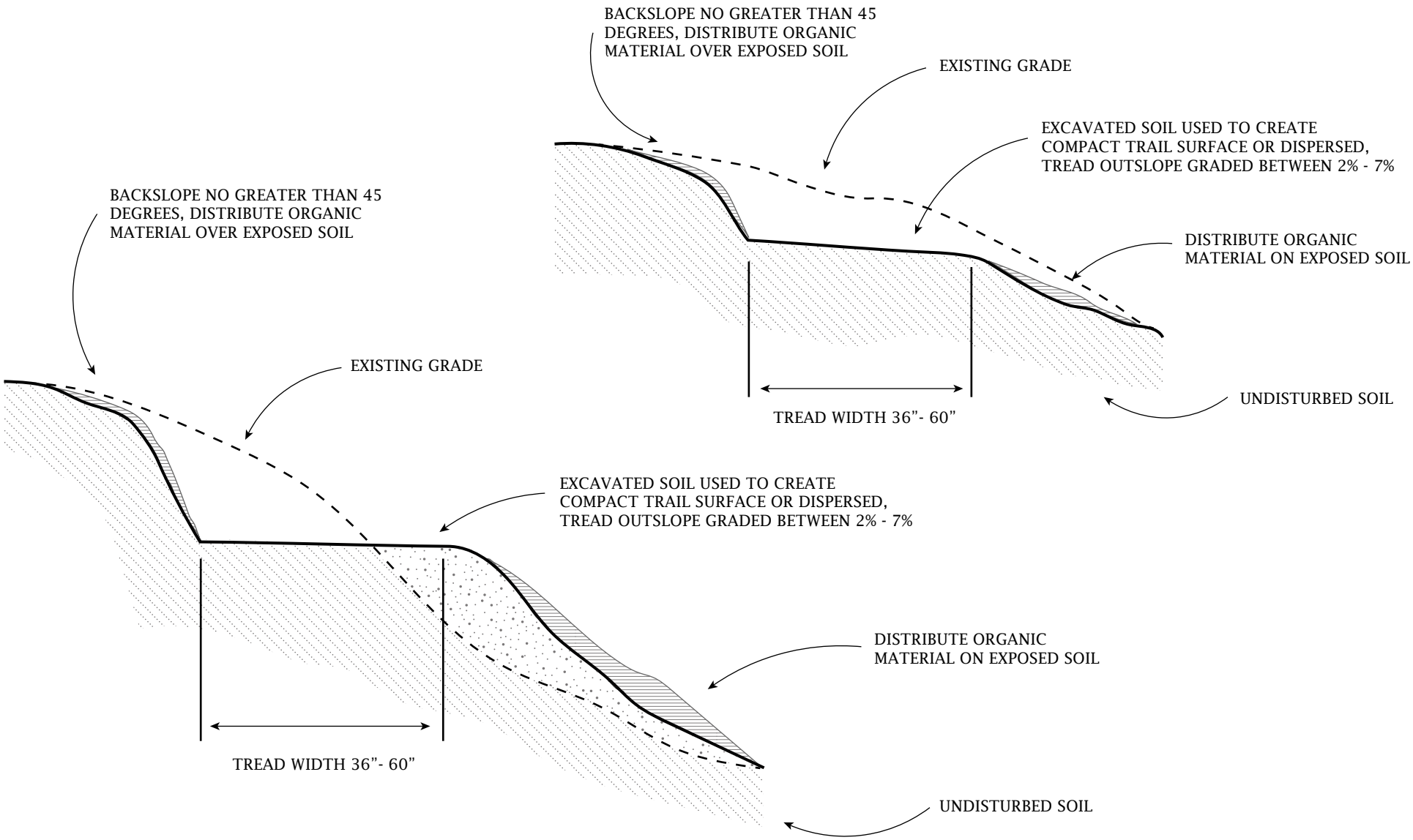
BERM REMOVAL - CROSS SECTION

S3



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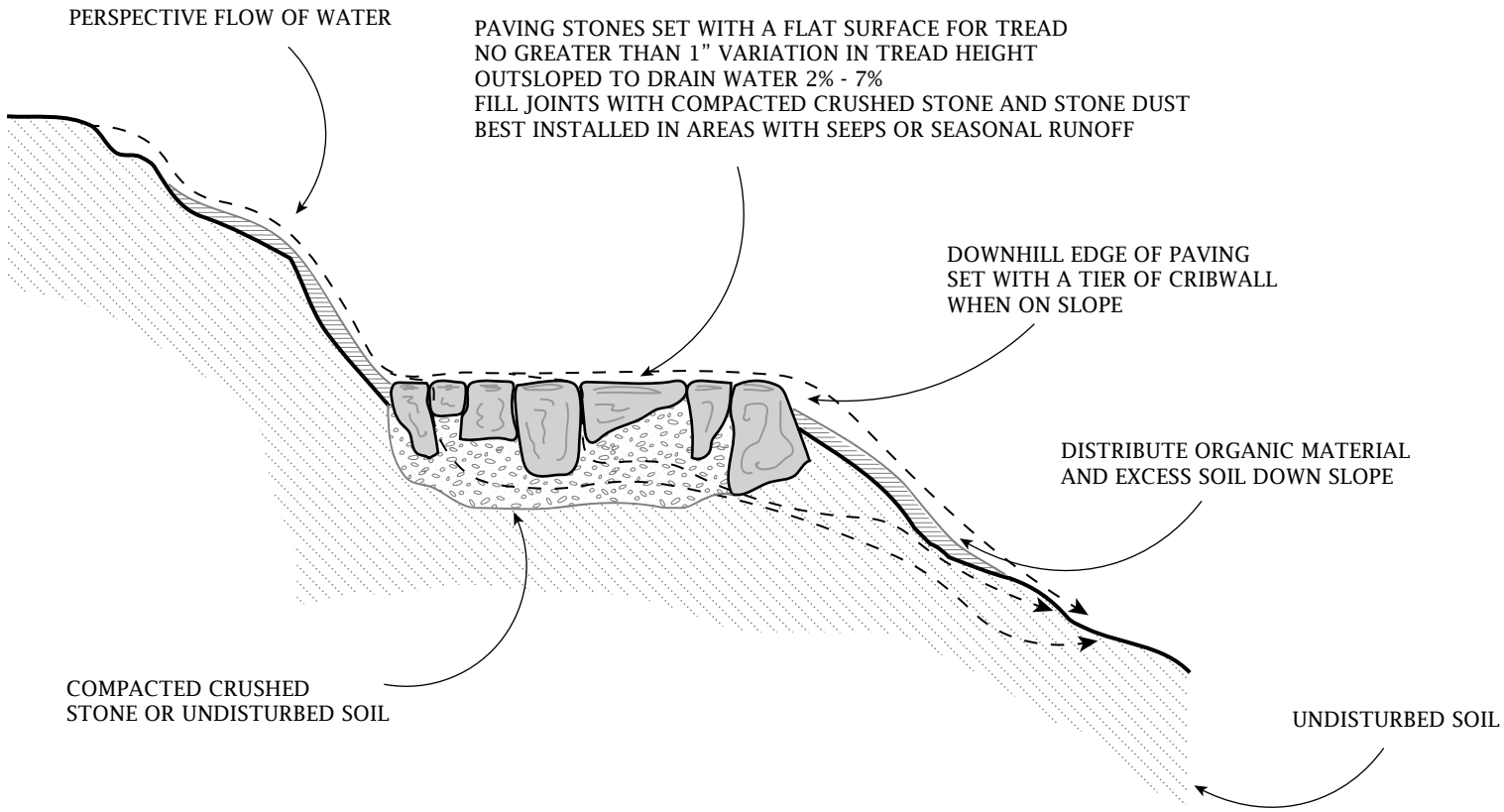
FULL BENCH AND PARTIAL BENCH - CROSS SECTION

S4



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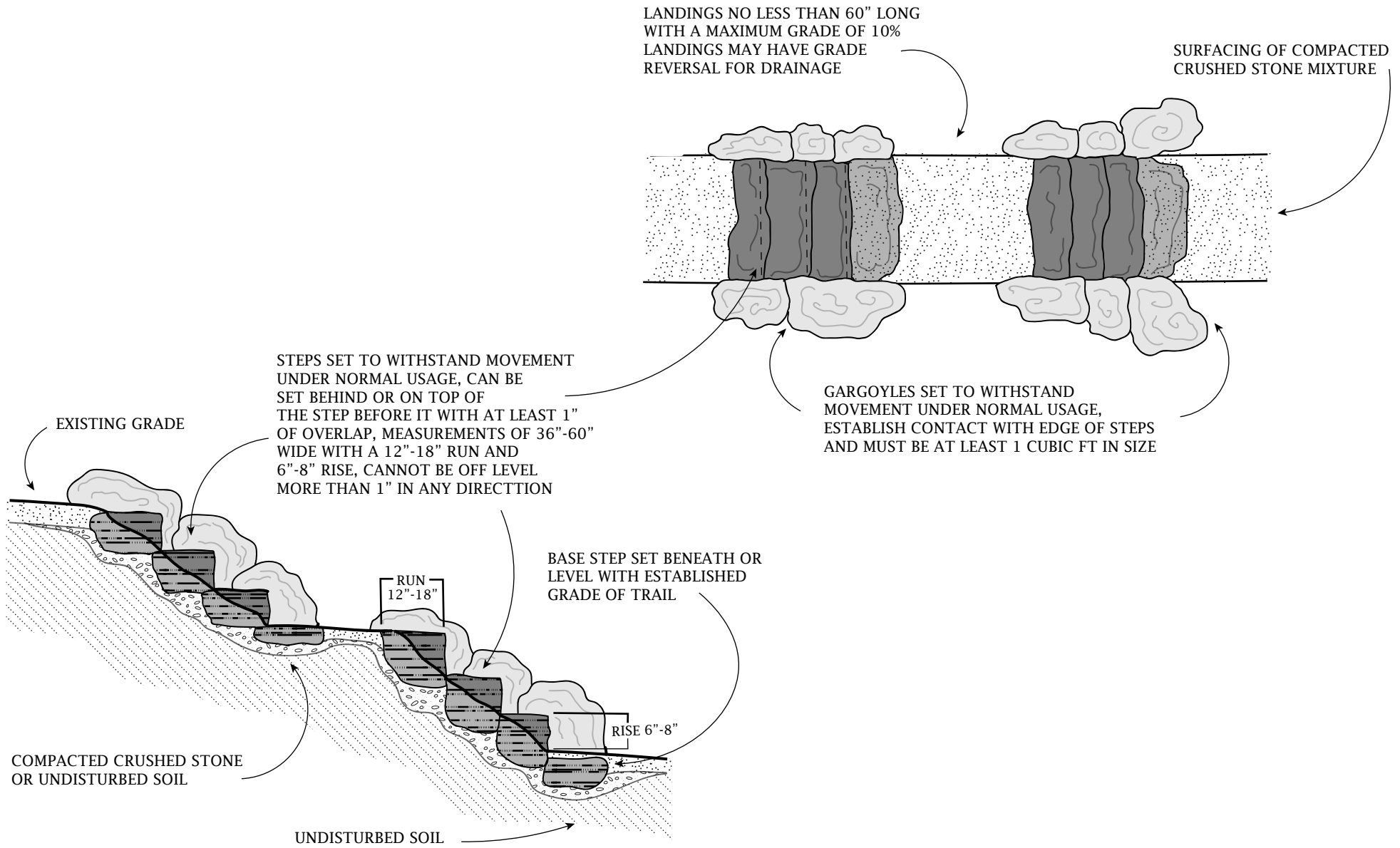
STONE PAVING - CROSS SECTION

S5



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STONE STEPS - CROSS SECTIONS AND OVERHEAD VIEW

S6

Mahican Mohawk Trail
Trail Construction Specification

Trail Spec 7: Bridges

Rationale: A timber bridge is used to cross either a gully or stream. The bridge should be constructed to match the use of the trail system and the character of the surrounding environment.

Construction Specification:

Material: Rot resistant lumber (ie cedar, hemlock, white oak, locust, or PT) should be used. Careful attention should be paid to the dimension of lumber and its relevance to the overall span of the bridge.

Dimension: The dimension of the bridge should match that of the trail system and the anticipated users. The bridges outlined in this report should be built to provide a 3' wide useable tread. This will allow all users to cross comfortably and for the structure to span the 12-20' spans sustainably.

Installation:

1. *Abutments:* The abutment is the stonework that supports the banks on either side of the gully or stream. Abutments should be constructed using correctly sized building stones that are either harvested on site or imported.
2. *Sills:* The sills are the members of the bridge that support the stringers. They are 6x6 rot resistant lumber that are 4' in length. The sills are laid parallel with the stream or gully, triangulated to ensure squareness.
3. *Stringers:* It is recommended to use (3) 2x12 pressure treated timbers as stringers equally spaced 16" on center maximum.
4. *Blocking and Headers:* A header is placed at either end of the bridge and is nailed securely to the ends of each stringer. Blocking is installed between each stringer at a spacing of 5' on center.
5. *Decking:* It is recommended to use 5/4 rough sawn cedar or black locust as the decking boards, The decking should extend 1 ½" beyond the edge of the stringers on either side. There should ½" spacing on the decking. This will allow for sufficient water drainage and a longer lasting bridge structure.
6. *Railing System:* If the bridges outlined in this report are above 30" off the ground, they will require full railings that are installed to 42" in height.

Examples:

Stowe, VT

Spruce Peak, VT

Timber & Stone, LLC
Recreational Trail Design and Construction

TIMBER & STONE, LLC

Firm Overview

Since 2004, Vermont based Timber & Stone, LLC has provided technical advice and construction expertise to land managers seeking to build or improve recreational trails. Conservation Minded Construction is the adage that guides our work.

Our goal—sustainably built, multi-use trails that provide users with a safe and enjoyable outdoor experience. We work with a variety of clients and project sponsors—from municipalities to private landowners—on projects throughout the Northeast.

Timber & Stone, LLC is dedicated to providing clients with professional, customized trail design and quality, conservation-minded construction. Whether working independently or alongside volunteers, Timber & Stone, LLC is committed to making the trail construction process, from initial consultation to the final ribbon cutting, a rewarding experience for the entire community.

WHAT WE BELIEVE

Trails provide people with opportunities to recreate, educate, and contemplate.

They are an essential component of our culture. Trails offer a safe and sustainable way to access wild areas. They are also a vital part of building vibrant community; offering a recreational outlet to the public. With thoughtful, informed consideration paid to design and construction, trails enhance the intrinsic value of natural areas to the human community.

WHAT WE DO

Trail Design. Construction. Education.

For the last fourteen years, Timber & Stone, LLC has assisted clients—from municipalities to private landowners—in transforming their trail aspirations into reality. Our goal is to build safe, appropriately designed trails and pathways in a sustainable and efficient manner; trails that balance recreational needs while preserving the character and sanctity of the natural landscape.

Simply put, we build trails that stand the test of time.

Founded and based in Central Vermont, Timber & Stone, LLC has completed projects throughout the Northeast. We are available to work as a contracted crew or alongside volunteers, students, and stewards. With a keen eye to safety, we empower groups of volunteers by building skills and camaraderie while effectively managing the worksite to attain a high quality product.

Timber & Stone, LLC
Recreational Trail Design and Construction

WHO WE ARE

In addition to our team of employees, Timber & Stone, LLC is comprised of 3 dedicated trail designer/builders.

Josh Ryan

Principal Trail Designer and Builder

Josh has been recreating on and caretaking trails since the day his parents first laced up his hiking boots.

For over twenty years, Josh has worked on trails with a wide array of students, volunteers, and fellow trailbuilders both as a Crew Leader and as an independent contractor. Previous to founding Timber & Stone, LLC, Josh worked for the Vermont Youth Conservation Corps, Maine Conservation Corps, Student Conservation Association, US Forest Service, and completed his graduate coursework in Environmental Education at Antioch University in Keene, NH.

Josh makes his home in East Montpelier, Vermont with his wife, two daughters, and one gigantic Newfoundland pup. In addition to constructing trails, Josh has also taught courses in Trail Design and Construction at local Universities and Graduate Schools. He is an active member of the Professional Trailbuilders Association and the local East Montpelier Trails Committee. Josh also serves as a Committee Member for the annual Vermont Conference on Recreation and was appointed by VT Governor Phil Scott to serve on the Vermont Outdoor Recreation Economic Collaborative task force.

Gordon Adams

Trail Designer and Builder

After a two-year hiatus, we were pleased to welcome Gordon back to the trailbuilding team in 2015. Gordon was instrumental to the completion of numerous, multi-faceted trail projects during the 2011/2012 trail season.

Since last working for Timber & Stone, LLC in 2012, Gordon traveled extensively through the United States, taking time to work on various farms through the WWOOFer (Willing Workers on Organic Farms) program and thru-hiking the Appalachian Trail with his brother and his trusty dog companion, Jack.

Gordon brings a strong set of skills in fine woodworking, carpentry, traditional trailwork, and ecological inquiry to his work with Timber & Stone, LLC. In the past, Gordon has worked for Stauffer Woodworking, Vincent L. Adams Cabinetmakers, and Maine Coast Heritage Trust and pursued studies at the Dutchess Academy of Environmental Studies in Staatsburg, New York and Sterling College in Craftsbury, Vermont. A native of upstate New York, Gordon currently makes his home in East Montpelier, Vermont.

Pete Hiser

Trail Designer and Builder

Pete Hiser joined the Timber & Stone, LLC crew in 2016.

Pete graduated from the University of New Hampshire in 2014 with a B.S. in Environmental Conservation and Sustainability. This academic background combined with his many years of work in the landscaping industry are the perfect fit for the projects we have on tap for this season. Pete brings a variety of transferable skills from his experience working in the landscaping industry including: equipment operation and maintenance, site planning and layout, and technical stonework. A born and bred Vermonter, Pete's professional and personal aspirations give him ample time to adventure in the natural surroundings. He is an avid fly fisherman and enjoys camping, hiking, and skiing whenever he can. Pete currently resides in Burlington, Vermont.

Timber & Stone, LLC
Recreational Trail Design and Construction

Project Portfolio: Multi-Use and Universally Accessible Trail Design and Construction

Rock Point Trail Improvements (2018)
Rock Point, Burlington, VT

Overview:
-Completed Phase I of trail improvements intended to improve safety and water access at this popular trail network, including: barrier system at overlook, installation of bridges, timber box steps, and stone staircases

Contact:
Craig Smith, Director of Operations and Program
Rock Point
csmith@diovermont.org or (802) 652-0908

Barnes Camp Accessible Boardwalk (2017)
The Long Trail, Stowe, VT

Overview:
-600 foot elevated wetland boardwalk on a helical pile foundation system
-Multiple viewing platforms installed along this scenic section of the Long Trail

Contact:
Tasha Wallis, Executive Director
Lamoille County Planning Commission
tasha@lcpcvt.org or (802) 888-4548

Bomoseen State Park Accessible Boardwalk (2016)
Bomoseen, *VT*

Overview:
-200 foot boardwalk supported by helical pile foundations and located within a sensitive wetland environment
-Decking and railing constructed of naturally rot resistant Black Locust and White Oak

Contact:
Frank Spaulding, Parks Project Coordinator
Vermont Department of Forest, Parks & Recreation
frank.spaulding@vermont.gov or (802) 522-0798

Mount A Accessible Trail (2014-2016)
Mount Agamenticus Conservation Area, York, ME

Overview:
-Design and construction of a one mile accessible trail that navigates granite ledges and rock outcroppings
-Installed multiple boardwalks, bridges, and a 30' circular observational platform

Contact:
Robin Kerr, Conservation Coordinator
Mount Agamenticus Conservation Region
robin@agamenticus.org or (207) 361-1102

Eshqua Bog Accessible Trail and Boardwalk (2014-2015)
Eshqua Bog Natural Area, Hartland, VT

Overview:
-Design and construction of a 460 foot accessible boardwalk supported by helical pile foundations
-Multiple viewing platforms allows for photography and appreciation of rare wetland flora

Contact:
Lynn McNamara, Director of Stewardship
The Nature Conservancy in Vermont
lmcnamara@TNC.org or (802) 229-4425

Shaftsbury State Park Accessible Trail (2015, 2017)
Shaftsbury, VT

Overview:
-Design and construction of 100' accessible boardwalk supported by helical pile foundations
-Upgrade of existing boardwalk to comply with accessible trail guidelines

Contact:
Lisa Thorton, Stewardship Forester
Vermont Department of Forests, Parks, & Recreation
lisa.thorton@vermont.gov or (802) 777-7480

Entrance Bridge (2015/2016)
Birds of Vermont Museum, Huntington, VT

Overview:
-Design and construction of 100' accessible boardwalk and bridge supported by helical pile foundations
-This custom built structure serves as the main entry point to the museum facilities

Contact:
Erin Talmage, Executive Director
Birds of Vermont Museum
museum@birdsofvermont.org or (802) 434-2167

Spruce Peak Pathways (2015/2016)
Spruce Peak Resort, Stowe, VT

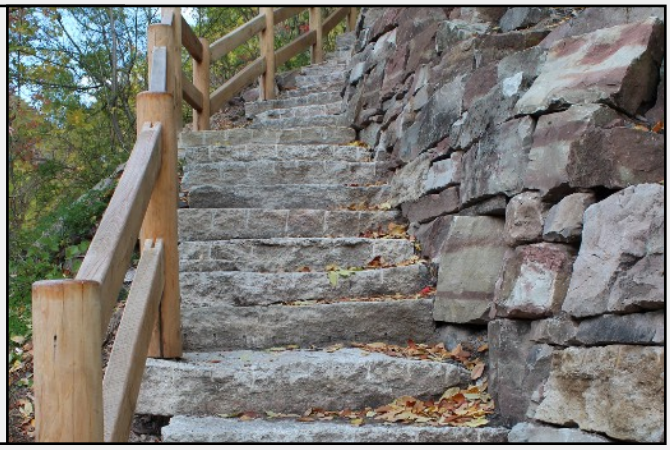
Overview:
-Design and construction of 1.5 miles of 3 foot wide, naturally surfaced trail system at base of Spruce Peak Resort
-Trail structures include; bridges, timber box steps, and 40 foot covered bridge at entrance.

Contact:
Jeff Nichols, Spruce Peak Realty, LLC
(802) 760-4628

Art Park Trails (2012)
Niagara Falls Gorge, Lewiston, NY

Overview:
-Installation of series of 388 stone steps, including retaining walls, to allow for river access.
-Design and installation of custom Black Locust and stainless steel barrier system.

Contact:
Stephen Schoenweisner, Licensing Manager
New York Power Authority
Stephen.Schoenweisner@nypa.gov or (914) 287-3457



Front Bay Park (2012)
Wolfeboro, NH

Overview:
-Design and construction of a one mile accessible trail system that borders Lake Winnipesaukee
-Design, construction, and installation of an accessible timber framed gazebo

Contact:
Rob Houseman, Former Wolfeboro Town Planner
robert.houseman@hanovernh.org
(603) 640-3212

Bear Mountain State Park (2006-2010)
Appalachian Trail, Bear Mountain, NY

Overview:
-Construction of stone staircases and retaining walls at this high use destination
-Trained volunteers on stone building and backcountry hiking trail construction skills

Contact:
Eddie Walsh, Principal
Tahawus Trails, LLC
tahawustrails@gmail.com or (845) 591-1937

Timber & Stone, LLC
Recreational Trail Design and Construction

Project Portfolio: Trail Assessment, Planning and Design

Overview: For over a decade, Timber & Stone, LLC has prepared comprehensive trail design plans and reports for dozens of organizations and municipalities for properties throughout the Northeast.

Each of the document titles below indicates the completion of extensive field work. Foot-by-foot analysis of a trail is required in order to generate thorough construction and/or maintenance specifications for each site.

Enders Falls Trail Design
Prepared for: Connecticut Department of Energy and Environmental Protection
Granby, CT (2018)

Raven Ridge Natural Area Accessible Boardwalk and Trail Design
Prepared for: The Nature Conservancy
Hinesburg, VT (2017)

Norwalk River Valley Trail Layout and Design
Prepared for: Friends of the Norwalk River Valley Trail (NRVT)
Ridgefield, CT Section (2018), Norwalk, CT Section (2017),
Redding, CT Section (2016) and Wilton, CT Section (2013)

Rock Point Trail Assessment and Design
Prepared for: The Rock Point Center
Burlington, VT (2017)

Pine Island Cemetery Trail Design
Prepared for: Norwalk Redevelopment Agency
Norwalk, CT (2017)

Ossipee Pine Barrens Accessible Trail Design
Prepared for: The Nature Conservancy
Ossippee, NH (2017)

Lubberland Creek Accessible Trail Design
Prepared for: The Nature Conservancy
Newmarket, NH (2017)

Marshall Conservation Area Trail Master Plan
Prepared for: Town of Conway, NH (2016)

Hawkins Brook Nature Trail Accessible Trail and Boardwalk Design
Prepared for: Town of Meredith, NH (2016)

> "The trail layout and design document Timber & Stone, LLC prepared was thorough; sufficiently so, that is has given funders the confidence to make substantial contributions and was used to successively support permit applications."
>
> -Pat Sesto, Chairperson
> Norwalk River Valley Trail

North Branch Cascades Trail Assessment and Design
Prepared for: The Vermont River Conservancy
Worcester/Elmore, VT (2016)

Mills Riverside Park Trail Assessment Plan
Prepared for: Jericho/Underhill Park District
Jericho, VT (2016)

Black Mountain Trail Assessment and Design
Prepared for: The Nature Conservancy
Dummerston, VT (2015)

Wiessner Woods Trail Management Report
Prepared for: Stowe Land Trust
Stowe, VT (2015)

Birds of Vermont Museum Accessible Trail
Prepared for: Birds of Vermont Museum
Huntington, VT (2014)

Shoreline Greenway Trail Maintenance Plan
Branford, CT (2014)

Eshqua Natural Area Accessible Trail Design
Prepared for: The Nature Conservancy
Hartland, VT (2013)

Burlington Multi-Use Trail Design
Prepared for: Burlington Parks and Recreation
Burlington, VT (2013)

Sustainability Academy Multi-Use Trail
Prepared for: Burlington Sustainability Academy
Burlington, VT (2012)

Front Bay Park Accessible Trail Design
Prepared for: Town of Wolfeboro
Wolfeboro, NH (2011)

Maple Street Park Multi-Use Trail Design
Prepared for: Essex Junction Recreation and Parks
Essex Junction, VT (2011)

Indian Brook Reservoir Trail Maintenance and Management Plan
Prepared for: Town of Essex
Essex, VT (2010)

"Timber & Stone, LLC has been helping us to make our trail networks more durable, accessible, and enjoyable for the past decade. Their work is high quality and well designed. It reflects a clear understanding of what makes for a positive and memorable recreational experience for the range of user groups and abilities that frequent our trails. "

-Kristen Sharpless,
Conservation Program Manager
Stowe Land Trust