PATRIOT RENEWABLES
Saddleback Ridge Wind, LLC

Attachment 11-2
Soil Survey Report and Soils Maps for Transmission Line

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SADDLEBACK TRANSMISSION LINE PROJECT
Carthage, Dixfield and Canton
Maine

SOIL NARRATIVE REPORT

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PREPARED FOR:

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1.0 Introduction

The proposed project includes 8+/- miles of transmission line corridor, and proposed Substation site of 4+/- acres. *Albert Frick Associates* is pleased to provide the Soil Survey for the proposed transmission line project in Carthage, Dixfield and Canton, Maine. This level of soil survey is required by *Maine Department of Environmental Protection* and the *Maine Land Use Regulation Commission* for *linear* projects (e.g. wind projects, transmission lines or natural gas pipelines).

2.0 Purpose

The purpose of our soils investigation was to provide taxonomic classification for the various soils identified along the proposed corridor of the transmission line. The purpose of this specific soil survey is to identify and quantify limitations for development, with respect to soil drainage, physical properties and/or depths to bedrock class. Specifically, our investigation was intended to yield a Class L (linear) soils survey for the proposed project.

The focus of a Class L Soil Survey for linear power projects is specifically concentrated in areas of proposed access roads, and laydown areas, and along the corridor proposed for pole placement. (A High Intensity Class B Soil Survey was done on the proposed substation site). The *Maine Department of Environmental Protection* and the *Maine Land Use Regulation Commission,* and *David Rocque, State Soil Scientist,* are concerned with retaining hydraulic connections and maintaining the natural perched ground water and surface run-off pattern as much as is feasible. Specifically, transversing alignments along the side sloping mountainous terrain which is subject to long drainage sheds with high volumes of perched ground water flows and surface water runoff are a primary concern.

Currently, the *state of the art* of access road designs and the development of power transmission line corridors, required by environmental regulators, are to maintain a

continued hydraulic interconnection between the upslope and downslope sides of new road beds or utility lines, by allowing water to pass through in a *sheet* flow capacity and to minimize large channelized flow. A *rock sandwich* (aka *French mattress* per Penn State technical bulletin) is one such technique that can be utilized in road design.

Albert Frick Associates' soil scientists examined the proposed access road corridors, proposed transmission lines, and identified and survey-located areas of soils which are either poorly to somewhat poorly drained, exhibit oxyaquic conditions, intermittent drainages not included in wetland delineation streams, subterranean mountain streams and natural drainage swales that have potential to concentrate surface water runoff during periods of Spring snowmelt or heavy precipitation.

3.0 Methodology

Soils identification, mapping and soil surveys were done in accordance with the standards adopted by the *Maine Association of Professional Soil Scientists* (revised 2004/2009) for *Class L* soil surveys for the proposed access road transmission line, and *Class B* for the proposed power substation site. Soils are described using standard soil terminology developed by the *USDA Natural Resources Conservation Service*, which is also where soil interpretation records originate for each soil series described in Maine. Where important distinctions between hydric and non-hydric soils are made in the mapping, the *Maine Association of Professional Soil Scientists Key to Soil Drainage Classes* was also utilized, as well as a separate list of regional indicators for identification of hydric soils *(Field Indicators for Identifying Hydric Soils in New England, version 3, 2004*).

The proposed road alignment power transmission line and substation were examined in the field in September and October, 2010. *Albert Frick or James Logan,* Certified Soil Scientist, accompanied by a Field Technician with Global Positioning Systems (GPS) unit (Trimble GeoXT submeter accuracy), performed the field work.

Field work consisted of documenting soil morphology and characteristics with hand dug test pits, borings and probes to bedrock and/or refusal. Soil types were identified and depicted on the proposed project Site Plan 1" = 100'.

The nature of typical proposed transmission line projects is that they may be sited in remote mountainous areas to provide access routes with the least environmental impacts. It is usually not feasible to utilize mechanized equipment (i.e. backhoe excavation, drilling rig, etc.) due to inaccessibility and environmental concerns. Consequently, the soil mapping was done utilizing a tile spade shovel, hand soil auger, and tile probe to excavate test pits to a depth of 40 inches or until refusal due to encountering bedrock, large boulders, or basal lodgment till. Test pits were identified on-site with numbered flagging tape. Each test pit was located by submeter GPS by AFA personnel, for addition to the project base map.

Additional confirmatory soil borings/observations by soil auger assisted in placement of soil map unit boundaries onto the soil survey base map. Bedrock outcroppings observed were located by GPS survey to further identify shallow to bedrock soil map units.

Soil map units were designed to report the pertinent soil characteristics along with their soil limitations for the proposed use and management of a power transmission line project site. *Ad hoc* symbols were used in places on the map, to provide more detailed information about bedrock outcropping locations, groundwater seeps, surface water runoff, soil areas comprised of oxyaquic soils, intermittent and perennial streams or watercourses, and other natural features encountered on the project site.

A preliminary soils map was developed by obtaining the electronic layer of the *U.S. Natural Resource Conservation Service* medium intensity map, and importing the soil boundary information into the project CAD file (State Plan). This was utilized for a preliminary soil map and the entire project area was reviewed along the proposed access

road corridor, substation site, and transmission line corridor. Soil test pits excavations and descriptions were performed to upgrade, refine, and modify the map within the project borders, to meet the standards for Class L.

The developing soils work, along with the topographic survey and wetland delineation were used by the project Design and Permitting Teams to locate and revise the road alignment and transmission line placement, as well as to refine the design with regards to natural hydraulic cross-drainage concerns.

The soils data provide information useful for engineering by anticipating existing and proposed conditions with regards to *depth to bedrock*, that will affect blasting, benching techniques, and source of road building materials and/or cost; *soil drainage characteristics* that will affect road hydraulic cross-drainage, culverting frequency and sizing, storm water design, and erosion and sediment control; *soil textures/slopes* that will affect erosion potential.

4.0 Site Location/Setting

The proposed transmission line is located on *Science Hill, Colonel Holman Mountain and Brown Mountain in Carthage, Dixfield, and Canton, Maine*. The project area consists of moderately sloping to steeply sloping topography, and is currently comprised mainly of forested land, except for portions of the transmission line which travel along existing gravel access roadways.

5.0 General Site and Subsurface Conditions

The site includes primarily forested sideslopes and mountain top ridges. Soil landforms generally consist of *loam* and *sandy loam* soils derived from glacial till. The tops of the mountain and ridge lines are generally bedrock controlled, and consequently exhibit

shallow to bedrock soil conditions. The sideslopes tend to be comprised of deeper soils (i.e. +40" in depth), which are *loam* to *sandy loam* textured derived from basal till. These soils commonly exhibit a firm substratum which produces a perched ground water table.

6.0 Soil Map Unit Descriptions

The soil map unit descriptions included in Appendix C provide taxonomic details regarding the soil series encountered, and a summary of the composition of soils within a given map unit (both for the range of soil characteristics and the dominant soils within complex units). Soil map units with multiple names are generally listed in order of their prevalence within the map unit. Slope gradient ranges are also provided, and refer to slope phases indicated in the soil survey map and in the soil legend. The soil narrative report is provided to describe the soil composition and physical characteristics, and the general soil limitations for the proposed use and management. The soils map depicts the spatial location of the soil or soils within the project site.

7.0 Conclusions and Recommendations

Based on our observations of the project site, and our knowledge of the proposed use of the property, the soils within the development area are generally suitable for the proposed use, with the following notable exceptions:

> *Recommend providing road cross drainage of the natural perched and surface water flow in the specified areas of the soil map. Civil engineers should consider rock sandwich (aka French-mattress), frequent cross culverting and road turn-outs to maintain and maximize sheet flow.*

The nearly level, moderately sloping glacial till map units that are moderately well drained or well drained are generally suitable for the proposed use, although some modifications to drainage or slope may be needed to improve conditions. On the somewhat poorly drained soils, where seasonal high groundwater tables may be within 12" of the mineral soil surface for a significant portion of the year, other measures such as the addition of coarse granular fill, or the installation of upslope curtain drain to

intercept sheet flow drainage, may be needed to overcome limitations. Construction mats should be utilized in these areas to prevent damage from vehicular traffic

Areas identified as somewhat poorly drained, and which occur at or near the base of long, continuously sloping water sheds, are most susceptible to large quantities of sheet flow drainage. Extra provisions for slope stabilization and erosion control should be considered in these areas once project construction begins, especially during spring snowmelt and after prolonged rainfall events.

The poorly or very poorly drained hydric soils have further limitations due to instability, prolonged saturation, and frost heave susceptibility, and may have additional permitting implications if identified as wetland areas.

Those areas of the project where stony or rubbly soil surfaces were observed, and denoted on the project base map with an *ad hoc* symbol, may impede vehicular traffic or require additional time/cost of machinery to clear the soil surface for use as a road base, turbine site and/or laydown area.

APPENDICES

Appendix A – Limitations

Appendix B – Soil Survey Maps, appropriate for wind power:

Class L (Linear) 1” = 100’ for proposed access road and turbine sites

Class B 1” = 100’ for proposed Operations and Maintenance Building

Class D modified 1” = 200’ for proposed Transmission Line corridor

Appendix C – Soil Map Unit Descriptions

Appendix D – Soil Profile Descriptions

Appendix E – Glossary of Soil Terminology

APPENDIX A

Limitations

This soil narrative report and accompanying soil survey map have been prepared for the exclusive use of *Tetra Tech, Inc.*, for its specific application to the proposed *Saddleback Transmission Line Project.* Albert Frick Associates, Inc. conducted the work in accordance with generally accepted soil science practices outlined in the *Maine Association of Professional Soil Scientists Guidelines*, and the *Maine Board of Certification of Geologists and Soil Scientists Guidelines.* Further, presentation of mapping information meets the requirements of *Guidelines for Maine Certified Soil Scientists for Soil Identification and Mapping (2004)*, and in accordance with standards adopted by the Maine Department of Environmental Protection (MDEP) for project review. No other warranty, expressed or implied, is made.

It should be recognized that map unit design is influenced by the intended use of the soil survey information, and may not be adequate or sufficient to evaluate for uses other than that for which the specific soil survey was developed. Soils which are non-limiting for one use may be considered a limitation for different use than that identified.

The analysis contained herein is based on data obtained during subsurface exploration of the site, and the interpretation of published information by the *USDA Natural Resources Conservation Services*. Due to the glaciation of Maine, and the complexity of the landscape, variations in subsurface conditions may exist between exploration sites which may not become evident until significant project excavation begins. Should significant variations in subsurface conditions become evident after the submission of this report, it may be necessary to re-evaluate the nature of the variation, in light of the recommendations enclosed herein.

Due to the combination of remoteness, current inaccessibility of heavy excavation equipment (e.g. backhoe, excavator, drill auger) and permitting constraints, *Albert Frick Associates'* Soil Scientist utilized hand shovels, tile probes and soil augers. *Refusal* or depth limitation to hand operated equipment may be due to bedrock and/or large stone or boulders.

APPENDIX B

Maine Association of Professional Soil Scientists Standards

Class L (Linear) Soil Survey Map

Purpose - This soil survey standard is designed to provide the minimum soil information necessary to allow for the design and construction of long but narrow projects such as access roads, utility lines or trails with little or no adjacent development. In remote, difficult to access sites such as mountains or roadless areas, soil observations may be made entirely by use of a hand shovel, screw or Dutch auger. For areas which are more accessible, deeper soil observations should be made in order to properly classify the soils.

1. Class L soil survey map units shall be made on the basis of parent material, slope, soil texture, soil depth to dense till or bedrock (whichever is shallowest) and soil wetness (drainage class and/or oxyaquic conditions) at the Class A High Intensity Map Unit size. The preferred method of naming the soil map units is by assigning a soil series name or names for complexes. If soils are classified to the series level in remote areas not readily accessible to equipment and/or without road cuts, it shall be noted in the narrative that soils were classified by shallow observations only.

2. Scale is 1 inch equals 100 feet or larger (e.g. 1”=50’).

3. Ground Control - base line and test pits for which detailed data are recorded are located to sub-meter accuracy under the direction of a qualified professional.

4. Base map with two foot contour lines.

Class B - Soil Survey

1. Mapping units of 1 acre or greater.
2. Scale of 1" = 200' or larger.
3. Up to 35% inclusions in mapping units of which no more than 25% may be dissimilar soils.
4. Ground control - test pits located from known, surveyed, control points.
5. Base map with 5' contour lines.

APPENDIX C

Soil Map Unit Descriptions

BRAYTON
(Aeric Haplaquepts)

SETTING

Parent Material: Compact loamy glacial till.

Landform: Depressions and toe slopes of glaciated uplands.

Position in Landscape: Lowest positions on landform.

Slope Gradient Ranges: **(A)** 0-3% **(B)** 3-8% (**C)** 3-20% (**D)** 20%+

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Poorly drained, with a perched water table 0 to 1.0 feet beneath the soil surface from November through May or during periods of excessive precipitation.

Typical Profile Description:

Surface layer: Very dark grayish brown sandy loam, 0-5"
Subsurface layer: Grayish brown sandy loam, 5-15"
Subsoil layer: Olive gray fine sandy loam, 15-24"
Substratum: Olive sandy loam, 24-65"

Hydrologic Group: Group C

Surface Run Off: Moderate to moderately rapid.

Permeability: Moderate in solum, moderately slow or slow in dense substratum.

Depth to Bedrock: Deep, greater than 40 inches.

Hazard to Flooding: None

Erosion Factors: K: .24 - .32

INCLUSIONS
(Within Mapping Unit)

Similar: Colonel, Monarda, Westbury, Telos, Pillsbury, Brayton (Variant)

Dissimilar: Naskeag, Peacham, Waskish

USE AND MANAGEMENT

Proposed Use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Soil Limitations for Proposed Use: Soil limiting factor is high ground water table. Brayton is a hydric (wetland) soil. Areas within the Brayton soil series mapping unit may be jurisdictional wetland, if hydrology and wetland vegetation co-exist, and subjected to wetland impact regulations. Pole placement and associated development should attempt to avoid these areas which are designated wetlands, or properly addressed within the wetland impact requirements. Portions of these map units have a stony soil surface, which may be prohibitive to vehicular traffic.

BRAYTON-COLONEL COMPLEX
(Aeric Haplaquepts)

SETTING

Parent Material: Compact loamy glacial till.

Landform: Depressions and toe slopes of glaciated uplands.

Position in Landscape: Lowest positions on landform.

Slope Gradient Ranges: **(B)** 3-8% **(C)** 8-20% **(D)** 20%+

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Poorly drained (Colonel) to somewhat poorly drained (Brayton), with a perched water table 0 to 1.5 feet beneath the soil surface from November through May or during periods of excessive precipitation.

Typical Profile Description: (for Brayton)

Surface layer:	Very dark grayish brown sandy loam, 0-5"
Subsurface layer:	Grayish brown sandy loam, 5-15"
Subsoil layer:	Olive gray fine sandy loam, 15-24"
Substratum:	Olive sandy loam, 24-65"

Typical Profile Description: (for Colonel)

Surface layer:	Grayish brown fine sandy loam, 0-2"
Subsurface layer:	Dark reddish brown fine sandy loam, 2-12"
Subsoil layer:	Light olive brown gravelly fine sandy loam, 12-18"
Substratum:	Olive gravelly fine sandy loam, 18-65"

Note: These soils occur in a non-regular, non-repeating pattern, which could not be separated out in mapping. Predominant pit/mound micro-relief typically consists of somewhat poorly drained Colonel soils on mounds, and hydric Brayton soils within pits. Brayton forms the predominant characteristic of the map unit.

Hydrologic Group: Group C

Surface Run Off: Moderate to moderately rapid.

Permeability: Moderate in solum, moderately slow or slow in dense substratum.

Depth to Bedrock: Deep, greater than 40 inches.

Hazard to Flooding: None

INCLUSIONS
(Within Mapping Unit)

Similar: Westbury, Skerry, Dixfield

Dissimilar: Naskeag, Peacham, Burnham

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Soil limitations for proposed use: The limiting factor within this map unit is wetness, due shallow seasonal high groundwater table. Portions of this complex map unit (in microdepressions where Brayton soils exist) are hydric and have water tables within 7" of the mineral soil surface for a considerable portion of the year.

COLONEL
(Aquic Haplorthods)

SETTING

Parent Material: Compact loamy glacial till.

Landform: Glaciated uplands.

Position in Landscape: Intermediate positions on landform.

Slope Gradient Ranges: **(A)** 0-3% **(B)** 3-8% **(C)** 8-20% **(D)** 20%+

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Somewhat poorly drained, with a perched water table 1.0 to 1.5 feet beneath the soil surface from November through May or during periods of excessive precipitation.

Typical Profile Description:

Surface layer:	Grayish brown fine sandy loam, 0-2"
Subsurface layer:	Dark reddish brown fine sandy loam, 2-12"
Subsoil layer:	Light olive brown gravelly fine sandy loam, 12-18"
Substratum:	Olive gravelly fine sandy loam, 18-65"

Hydrologic Group: Group C

Surface Run Off: Moderate

Permeability: Moderate in solum and moderately slow or slow in the compact substratum.

Depth to Bedrock: Deep, greater than 40 inches.

Hazard to Flooding: None

Erosion Factor: K: .17 - .24

INCLUSIONS
(Within Mapping Unit)

Similar: Dixfield, Skerry, Westbury, Telos
Dissimilar: Naskeag, Brayton

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Soil limitations for proposed use: The limiting factor within this map unit is generally wetness, since Colonel soils exhibit a perched water table within 15" of the ground surface throughout much of the year. Proposed activities near the bottom of long sideslopes may be subject to considerable runoff. Maintaining cross drainage beneath proposed roads will help to assure stable road bases, and to avoid concentration of stormwater flows.

COLONEL-SKERRY COMPLEX

SETTING

Parent Material: Compact loamy glacial till.

Landform: Glaciated uplands.

Position in Landscape: Sideslopes and intermediate positions on landform.

Slope Gradient Ranges: **(B)** 3-8% **(C)** 8-20% **(D)** 20%+

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Somewhat poorly drained (Colonel) to moderately well drained (Skerry), with a perched water table 1.0 to 3.5 feet beneath the soil surface from November through May or during periods of excessive precipitation.

Typical Profile Description: (for Colonel)

Surface layer:	Grayish brown fine sandy loam, 0-2"
Subsurface layer:	Dark reddish brown fine sandy loam, 2-12"
Subsoil layer:	Light olive brown gravelly fine sandy loam, 12-18"
Substratum:	Olive gravelly fine sandy loam, 18-65"

Typical Profile Description: (for Skerry)

Surface layer:	Light gray fine sandy loam, 0-4"
Subsurface layer:	Dark reddish brown fine sandy loam, 4-20"
Subsoil layer:	Yellowish brown fine sandy loam, 20-25"
Substratum:	Mixed brown and light olive brown fine sandy loam and sand, 25-65"

Note: These soils occur in a non-repeating, non-regular pattern in which the predominant Colonel occupies the lowest portions of the pit/mound micro-relief, while Skerry soils are on small mounds. These map units generally do not exhibit oxyaquic conditions except at the base of long slopes and small concavities on the landscape.

Hydrologic Group: Group C

Surface Run Off: Moderate

Permeability: Moderate in solum and moderately slow or slow in the compact substratum.

Depth to Bedrock: Deep, greater than 40 inches.

Hazard to Flooding: None

INCLUSIONS
(Within Mapping Unit)

Similar: Dixfield, Colonel (Variant)

Dissimilar: Brayton, Naskeag

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Soil limitations for proposed use: The limiting factor for road construction is wetness, due to the presence of a groundwater table 1.0 to 3.5 feet below the soil surface for some portion of the year. Proper sub-grade drainage or other site modification is recommended for construction. Diversion of upslope drainage away from project areas will assist in the preparation of road basefills and continued stability of constructed road.

DIXFIELD
(Typic Haplorthods)

SETTING

Parent Material: Compact loamy glacial till.

Landform: Glaciated uplands and drumlins.

Position in Landscape: Upper and sidesloping portions of landform.

Slope Gradient Ranges: **(B)** 3-8% **(C)** 8-20%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Moderately well drained, with a perched water table 1.5 to 2.5 feet beneath the existing soil surface from November through April and during periods of excessive precipitation.

Typical Profile Description:

Surface layer:	Grayish brown and dark brown fine sandy loam, 0-6"
Subsurface layer:	Strong brown and dark yellowish brown fine sandy loam, 6-19"
Subsoil layer:	Light olive brown gravelly fine sandy loam, 19-24"
Substratum:	Light olive brown gravelly sandy loam, 24-65"

Hydrologic Group: Group C

Surface Runoff: Moderate in the solum, moderately slow or slow in the compact substratum.

Permeability: Moderate in the solum, moderately slow or slow in the compact substratum.

Depth to Bedrock: Very deep, greater than 60".

Hazard to Flooding: None

Erosion Factors: K: .17 - .24

INCLUSIONS
(Within Mapping Unit)

Similar: Hermon, Skerry, Becket, Marlow

Dissimilar: Colonel, Tunbridge (20-40" to bedrock), Lyman (10 – 20" to bedrock), Naskeag (generally 20-40" to bedrock)

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Soil limitations for proposed use: Dixfield soils are generally suited for development of wind power projects, in that these soils are moderately well drained with dense basal till substratum. Depths to seasonal high groundwater table can be overcome by redirection of surface water runoff, and/or importation of coarse granular fill, or by providing adequate cross-drainage techniques.

HERMON
(Typic Haplorthods)

SETTING

Parent Material: Loose loamy and sandy glacial till (or)
Sandy ablation glacial till without a restrictive subsurface.

Landform: Glaciated upland plains, hills and ridges.

Position in Landscape: Uppermost portions of landform.

Slope Gradient Ranges: **(B)** 3-8% **(C)** 8-20% **(D)** 20%+

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Somewhat excessively drained, with a water table greater than 6.0 feet beneath the existing soil surface.

Typical Profile Description:

Surface layer:	Pinkish gray sandy loam, 0-3"
Subsurface layer:	Dark reddish brown, 3-9"
Subsoil layer:	Strong brown & dark yellowish brown, 9-32"
Substratum:	Light olive brown gravelly coarse sand, 32-65"

Hydrologic Group: Group A

Surface Run Off: Slow to medium

Permeability: Moderately rapid or rapid in solum, rapid or very rapid in the loose substratum.

Depth to Bedrock: Very deep, greater than 60".

Hazard to Flooding: None

Erosion Factors: K: .10 - .17

INCLUSIONS
(Within Mapping Unit)

Similar: Skerry, Dixfield, Marlow, Waumbek, Becket, Hermon, Colton, Monadnock

Dissimilar: Stetson, Waumbek (moderately well drained), Colonel, Lyman (10-20" to bedrock), Tunbridge (20-40" to bedrock)

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Soil Limitations for Proposed Use: Hermon soils are generally suited to the construction of power transmission lines, in that they are generally not erodible, are stable unless excavated, and exhibit no seasonal high groundwater table within 6' of the soils surface.

LYMAN-TUNBRIDGE COMPLEX

SETTING

Parent Material: Loamy glacial till.

Landform: Glaciated uplands.

Position in Landscape: Upper positions on landform.

Slope Gradient Ranges: **(B)** 3-8% **(C)** 8-20%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Somewhat excessively to well drained, with no evidence of a water table, or only inches from the bedrock surface during spring and periods of heavy precipitation.

Typical Profile Description: (for Lyman)

(see also Tunbridge soil description)

Surface layer:	Black & reddish brown loam & fine sandy loam, 0-4"
Subsurface layer:	Very dusky red loam, 4-6"
Subsoil layer:	Dark red loam, 6-10"
Substratum layer:	Dark brown to brown loam, 10-20"
Note:	These two soils generally occur in a non-regular, non-repeating pattern that could not be separated out in mapping at the scale provided.

Hydrologic Group: Group C/D

Surface Run Off: Rapid

Permeability: Moderate or moderately rapid.

Depth to Bedrock: Shallow (Lyman, 10-20") to moderately deep (Tunbridge, 20-40").

Hazard to Flooding: None

Erosion Factors: K: .20 - .32

INCLUSIONS (Within Mapping Unit)

Similar: Dixfield, Skerry (deeper than 40" to bedrock). Monadnock
Dissimilar: Naskeag (in depressional areas), Colonel, Brayton

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Soil limitations for proposed use: Lyman and Tunbridge soils are generally well-suited for construction of power transmission lines, in that they generally exhibit no seasonal water table and the shallow to bedrock soil depths can provide for solid anchoring points into the bedrock surface. Drilling or blasting may be required to set poles.

LYMAN-TUNBRIDGE-MONADNOCK COMPLEX

SETTING

Parent Material: Loamy glacial till.

Landform: Glaciated uplands.

Position in Landscape: Upper positions on landform.

Slope Gradient Ranges: **(B)** 3-8% **(C)** 8-20%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Somewhat excessively to well drained, with no evidence of a water table, or only inches from the bedrock surface during spring and periods of heavy precipitation.

Typical Profile Description: (for Tunbridge)

(see also Monadnock soil description)

Surface layer: Black & reddish brown loam & fine sandy loam, 0-4"
Subsurface layer: Very dusky red loam, 4-6"
Subsoil layer: Dark red loam, 6-10"
Substratum layer: Dark brown to brown loam, 10-20"
Bedrock at 20"

Note: These soils occur in a non-regular, non-repeating pattern that could not be separated out in mapping at the scale provided.

Hydrologic Group: Group C/D

Surface Run Off: Rapid

Permeability: Moderate or moderately rapid.

Depth to Bedrock: Shallow (Lyman, 10-20") to moderately deep (Tunbridge, 20-40").

Hazard to Flooding: None

Erosion Factors:
Kf: .28-.37 (for Lyman)
Kf: .20-.24 (for Tunbridge)
Kf: .20-.28 (for Monadnock)

INCLUSIONS
(Within Mapping Unit)

Similar: Dixfield, Skerry (deeper than 40" to bedrock), Hermon

Dissimilar: Naskeag (in depressional areas), Colonel, Brayton

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Soil limitations for proposed use: **T**he limiting factor for building site development is shallow to bedrock depths. Blasting or ripping of the more fractured and weathered bedrock is required for deep excavation.

LYMAN-TUNBRIDGE-ROCK OUTCROP COMPLEX (Stony)

SETTING

Parent Material: Loamy glacial till.

Landform: Glaciated uplands.

Position in Landscape: Uppermost locations on landform; sideslopes, shoulders, and crests of ridges.

Slope Gradient Ranges: **(B)** 3-8% **(C)** 8-20% **(D)** 20%+

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Somewhat excessively drained (Lyman) to well drained (Tunbridge) with no apparent water table other than run off across the bedrock surface occasionally, during spring and periods of heavy precipitation.

Note: These soils occur in a non-repeating pattern with exposed bedrock outcrop, and cannot be separated in mapping.

Typical Profile Description:

Surface layer:	Black & reddish brown fine, sandy loam & loam, 0-4"
Subsurface layer:	Very dusky red loam, 4-6"
Subsoil layer:	Dark red loam, 6-10"
Substratum layer:	Dark brown to brown loam, 10-20"

Hydrologic Group: Group C/D

Surface Run Off: Slow to rapid depending on slope and bedrock exposure.

Permeability: Moderately rapid.

Depth to Bedrock: Shallow (Lyman 10-20") to moderately deep (Tunbridge 20-40").

Hazard to Flooding: None

INCLUSIONS
(Within Mapping Unit)

Similar: Abram, Dixfield, Hermon, Monadnock

Dissimilar: Naskeag, in micro-depressions Colonel - greater than 40" to bedrock.

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Soil limitations for proposed use: Soil limiting factor in this mapping unit is shallow to moderately deep depth to bedrock, (i.e. typically 10-40" to bedrock). Blasting or drilling may be necessary for deep excavation.

MARLOW (Paxton)
(Typic Haplorthods)

SETTING

Parent Material: Loamy soils underlain by compact, loamy glacial till.

Landform: Uppermost portions of drumlins and glaciated uplands.

Position in Landscape: Uppermost portions of landform.

Slope Gradient Ranges: **(B)** 3-8% **(C)** 8-20% **(D)** 20+%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Well drained, with a perched water table 2.0 to 3.5 feet below the soil surface through March and April, and during periods of excessive rainfall.

Typical Profile Description:

Surface layer:	Dark gray and gray fine sandy loam, 0-6"
Subsurface layer:	Yellowish red fine sandy loam, 6-13"
Subsoil layer:	Light olive brown fine sandy loam, 13-17"
Substratum:	Olive and olive gray fine sandy loam, 17-65"

Hydrologic Group: Group C

Surface Run Off: Moderate

Permeability: Moderate in solum, and moderately slow to slow in the compact substratum.

Depth to Bedrock: Very deep, greater than 60".

Hazard to Flooding: None

Erosion Factors: K: .20 - .32

INCLUSIONS
(Within Mapping Unit)

Similar: Becket, Berkshire, Hermon, Monadnock

Dissimilar: Dixfield, Skerry, Tunbridge, Lyman

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Soil Limitations for Proposed Use: Soil limitation for proposed use is a seasonal high water table, which is 2.0 – 3.5' beneath the soil surface for a portion of the year. Proper road ditching is required to overcome limitations

MONADNOCK
(Typic Haplorthods)

SETTING

Parent Material: Deep loamy mantle underlain by sandy glacial till

Landform: Upland hills, plains, or mountain sideslopes

Position in Landscape: Sideslopes in glaciated uplands

Slope Gradient Ranges: **(B)** 3-8% **(C)** 8-20% **(D)** 20%+

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Well drained

Typical Profile

Surface layer:	Brown, fine sandy loam, 0-3"
Subsurface layer:	Light brownish gray sandy loam, 3-5"
Subsoil layer:	Reddish to yellowish brown fine sandy loam, 5-23"
Substratum:	Olive gravelly loamy sand, 23-65"

Hydrologic Group: **B**

Permeability: Moderate in solum and moderately rapid in substratum

Depth to Bedrock: Very deep, generally greater than 60"

Hazard to Flooding: None

INCLUSIONS
(Within Mapping Unit)

Similar: Marlow, Hermon

Dissimilar: Colonel, Dixfield, Skerry

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Soil Limitations for Proposed Use: Drainage and/or depths to bedrock are generally not limitations within these map units..

NASKEAG
(Aeric Haplaquods)

SETTING

Parent Material: Loamy and sandy glacial till.

Landform: Depressions of glaciated bedrock ridges.

Position in Landscape: Lowest positions in depressions or concavities in landform.

Slope Gradient Ranges: **(A)** 0-3% **(B)** 3-8% **(C)** 8-20%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Somewhat poorly to poorly drained, with a perched water table 0-1.5 feet beneath the soil surface.

Typical Profile Description:

Surface layer:	Very dusky red muck, 0-5"
Subsurface layer:	Light brownish gray and brown sandy loam or loamy sand, 5-16"
Subsoil layer:	Dusky red loamy sand, 10-26"
Substratum:	Light yellowish brown gravelly sandy loam to loamy sand, 26-38"

Hydrologic Group: Group C

Surface Run Off: Moderate or moderately rapid (across bedrock surface)

Permeability: Rapid

Depth to Bedrock: Moderately deep, 20-40" to bedrock surface.

Hazard to Flooding: None, but may be ponded for short duration in spring and during periods of excessive rainfall.

Erosion Factors: .10

INCLUSIONS
(Within Mapping Unit)

Similar: Lyman, Tunbridge, Colonel, Brayton

Dissimilar: Rock Outcrop, Naskeag (Variant-V.P.D.), Peacham, Wonsqueak

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Limitations for proposed use: The limiting factors for wind power site development are depth to bedrock (generally less than 40") and wetness, due to a water table perched above the bedrock surface. Proper drainage or other site modification is recommended for construction. Naskeag (poorly drained) may be classified as wetlands, based on the combined consideration of hydric conditions, hydrology, and vegetation. The shallow to bedrock soils depth can provide for solid

anchoring points into bedrock surface. Additional considerations for engineering may be indicated for cross-drainage and special consideration for heavy equipment traffic during periods of heavy precipitation and/or soils wetness in the Transmission Line corridor.

NASKEAG-LYMAN COMPLEX

SETTING

Parent Material: Loamy glacial till.

Landform: Glaciated uplands.

Position in Landscape: Uppermost locations on landform; sideslopes, shoulders, and crests of ridges.

Slope Gradient Ranges: **(B)** 3-8% **(C)** 8-20% **(D)** 20%+

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Somewhat poorly drained (Naskeag) to well or excessively drained (Lyman) with no apparent water table other than run off across the bedrock surface occasionally, during spring and periods of heavy precipitation. Naskeag soils have a seasonal high ground water table 7-15" beneath the soil surface in spring and during periods of excessive precipitation. These soils occur in a non-repeating pattern with exposed bedrock outcrop, and cannot be separated in mapping.

Typical Profile Description:
(for Lyman- see also Naskeag soil description)

Surface layer:	Black & reddish brown loam & fine sandy loam, 0-4"
Subsurface layer:	Very dusky red loam, 4-6"
Subsoil layer:	Dark red loam, 6-10"
Substratum layer:	Dark brown to brown loam, 10-20"

Hydrologic Group: Group C/D

Surface Run Off: Slow to rapid depending on slope and bedrock exposure.

Permeability: Moderately rapid.

Depth to Bedrock: Shallow (Lyman 10-20") to moderately deep (Tunbridge 20-40").

Hazard to Flooding: None

Erosion Factors: k=.10

INCLUSIONS
(Within Mapping Unit)

Similar: Dixfield, Skerry (deeper than 40" to bedrock)

Dissimilar: Colonel (greater than 40" to bedrock), Brayton

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Soil limitations for proposed use: The limiting factor for development of power transmission lines is shallow depths to bedrock, and wetness due to seasonal high groundwater table near the soil surface. Bedrock blasting may be required for deep excavation.

PEACHAM
(Histic Humaquepts)

SETTING

Parent Material: Organic depositions underlain by compact loamy glacial till.

Landform: Depressions and drainage ways on glaciated uplands.

Position in Landscape: Lowest positions and depressions on landform.

Slope Gradient Ranges: **(A)** 0-3% **(B)** 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Very poorly drained, with a perched water table within 0.5 feet of the soil surface from November through May.

Typical Profile Description:

Surface layer:	Black organic material, 0-7"
Subsurface layer:	Olive gray loam, 7-10"
Substratum:	Dark greenish gray loam, 10-65"

Hydrologic Group: Group D

Surface Run Off: Moderately rapid to rapid.

Permeability: Moderate or moderately slow in upper layers, and slow or very slow in the dense substratum.

Depth to Bedrock: Deep, greater than 40".

Hazard to Flooding: None, although may be ponded during spring time and periods of excessive precipitation.

INCLUSIONS
(Within Mapping Unit)

Similar: Brayton, Wonsqueak

Dissimilar: Naskeag, Borohemists

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Limitations for proposed use: Soil limitation for the proposed use is wetness, due to the presence of a seasonal high groundwater table at or near the soil surface for a significant portion of the year. Special engineering methods should be considered for construction within Peacham map units. While a surface horizon of organic material typically exists, these soils are generally considered to be stable. In the presence of wet hydrology and hydrophitic vegetation, Peacham map units probably contain wetlands, so permitting implications also exist.

SKERRY
(Aquic Haplorthods)

SETTING

Parent Material: Loamy glacial till underlain by sandy textured denser till.

Landform: Drumlins and glaciated uplands.

Position in Landscape: Usually occupies upper components of landform.

Slope Gradient Ranges: **(B)** 3-8% **(C)** 8-20% **(D)** 20%+

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Moderately well-drained, with a perched water table 1.5 to 3.5 feet below the soil surface from November through May.

Typical Profile Description:

Surface layer:	Light gray fine sandy loam, 0-4"
Subsurface layer:	Dark reddish brown fine sandy loam, 4-20"
Subsoil layer:	Yellowish brown fine sandy loam, 20-25"
Substratum:	Mixed brown and light olive brown fine sandy loam and sand, 25-65"

Hydrologic Group: Group C

Surface Run Off: Moderate

Permeability: Moderate in solum and slow or moderately slow in the compact substratum.

Depth to Bedrock: Deep, greater than 40".

Hazard to Flooding: None

INCLUSIONS
(Within Mapping Unit)

Similar: Dixfield, Hermon, Monadnock, Marlow

Dissimilar: Tunbridge, Lyman (less than 40" to bedrock), Colonel, Westbury, Naskeag (20-40" to bedrock)

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Soil limitations for proposed use: The limiting factor for site development is wetness due to the presence of a water table 1.5 to 3.5 feet beneath the soil surface for some period during the year. Skerry soils are generally suited for development of transmission line projects, in that these soils are moderately well drained with basal till substratum. Depths to seasonal high groundwater table can be overcome by redirection of surface water runoff, and/or importation of coarse granular fill.

SUNAPEE
(Aquic Haplorthods)

SETTING

Parent Material: Friable loamy glacial till.

Landform: Glaciated uplands.

Position in Landscape: Upper footslopes and sideslopes along glaciated drainage ways.

Slope Gradient Ranges: **(B)** 3-8% **(C)** 8-20%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Moderately well drained, with an apparent water table 1.5 to 3.0 feet beneath the existing soil surface from November through April and during spring and periods of heavy precipitation.

Typical Profile Description:

Surface layer:	Black and brownish-gray gravelly fine sandy loam, 0-3"
Subsurface layer:	Dusky red & reddish-brown gravelly fine sandy loam, 3-7"
Subsoil layer:	Strong brown & yellowish-brown gravelly fine sandy loam, 7-24"
Substratum:	Grayish-brown and pale olive gravelly sandy loam, 24-60"

Hydrologic Group: Group B

Surface Run Off: Medium to rapid

Permeability: Moderate in solum and moderate or moderately rapid in the substratum.

Depth to Bedrock: Deep, greater than 40".

Hazard to Flooding: None

INCLUSIONS
(Within Mapping Unit)

Similar: Monadnock, Skerry. Hermon, Dixfield

Dissimilar : Tunbridge

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Limitations for proposed use: Sunapee soils are moderately well drained, with seasonal high groundwater table of approximately 1.5 to 3.5 feet beneath the soil surface. They are generally suitable for the proposed use, and depths to seasonal high groundwater can be overcome by re-direction of surface water run-off and/or importation of coarse granular fill.

URBAN LAND

This map unit consists of gently sloping land that has been previously developed. Man-made surfaces may be covered with asphalt and/or buildings and parking areas.

INCLUSIONS
(Within Mapping Unit)

Similar: Filled Land, Made Land

WONSQUEAK
(Terric Borosaprists)

SETTING

Parent Material: Organic materials over loamy mineral soils depressions.

Landform: Outwash plains, deltas, and terraces.

Position in Landscape: Occupies pockets and low-lying depressions in landform.

Slope Gradient Ranges: **(A)** 0-3%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Very poorly drained with an apparent water table at or within 0.5 feet of the soil surface for more than six months of the year. These soils occur in a repeating pattern on the landscape and were not separated out in mapping.

Typical Profile Description:

Surface layer: Very dark gray muck, 0-8"
Subsurface layer: Black muck, 8-32"
Substratum: Gray silt loam, 32"+

Hydrologic Group: Group D

Surface Run Off: Slow, or the soil is intermittently ponded.

Permeability: Rapid or very rapid in mineral horizons.

Depth to Bedrock: Very deep, greater than 60".

Hazard to Flooding: Rare, through flooding may occur during spring and periods of excessive rainfall.

INCLUSIONS
(Within Mapping Unit)

Similar: Naumburg Variant - very poorly drained, B slopes in A-slope map unit, Searsport, Brayton

Dissimilar: Organic soils (>60"deep)

USE AND MANAGEMENT

Proposed use: Power transmission line construction for a proposed electric generating facility utilizing wind turbines.

Soil limitations for proposed use: The limiting factors for the proposed use are wetness and instability, due to the presence of seasonal high groundwater table at or near the surface for a significant portion of the year, and the thick mucky surface horizons. Construction mats may be required for vehicular traffic. Wonsqueak soils are generally classified as wetlands, on the combined

basis of wet hydrology, hydrophitic vegetation and hydric soil conditions, so additional permitting implications may also exist.

APPENDIX D

Soil Profile Descriptions

Town, City, Plantation	Street, Road Subdivision	Owner's Name
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 1 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
		DARK BROWN	
		GRAY (ALBIC)	
SANDY LOAM	FRIABLE	STRONG BROWN 7.5YR 4/4	
	FIRM		

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR WASTEWATER DISPOSAL →

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
DIXFIELD	MODERATELY WELL	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 2 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
		DARK BROWN (10YR 3/3)	
SANDY LOAM	FRIABLE	DARK YELLOW BROWN (10YR 4/4)	
		LIGHT BROWN	
	FIRM		

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
MARLOW	WELL DARINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 3 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
VERY FINE SANDY LOAM		VERY DARK BROWN (2.5Y 3/1)	OXIDIZED RHIZOSPHERES
	FRIABLE	GRAYISH BROWN (2.5Y 5/2)	COMMON, DISTINCT
SANDY LOAM			
	FIRM		

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR WASTEWATER DISPOSAL →

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 4 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
FINE SANDY LOAM		DARK BROWN (7YR 3/2)	
	FRIABLE	DARK BROWN (7.5YR 3/4)	
SANDY LOAM		LIGHT OLIVE BROWN (2.5Y 5/4)	FEW, FAINT
	FIRM		COMMON DISTINCT
	LIMIT OF EXCAVATION		

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
DIXFIELD	MODERATELY WELL	C

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Town, City, Plantation	Street, Road Subdivision	Owner's Name
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 5 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0			DARK GRAYISH BROWN (5Y 2.5/2)	
10	LOAMY SAND	FRIABLE	VERY DARK GRAYISH BROWN (2.5Y 3/2)	COMMON, DISTINCT
20		FIRM		
		LIMIT OF EXCAVATION		
30				
40				
50				

FOR WASTEWATER DISPOSAL →

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON (VARIANT)	POORLY DRAINED	C

Observation Hole TB 6 ☐ Test Pit ■ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0			DARK BROWN	
10	SANDY LOAM	FRIABLE	DARK YELLOW BROWN	
20		REFUSAL IN LARGE BOULDER OR BEDROCK		
30				
40				
50				

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
LYMAN	SOMEWHAT EXCESSIVELY	C/D

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 7 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0			GRAY (2.5Y 5/1)	
10	SANDY LOAM	FRIABLE	GRAYISH BROWN (2.5Y 5/2) WITH LIGHT OLIVE BROWN MOTTLES (2.5Y 5/4)	COMMON, DISTINCT
20		FIRM		
30				
40				
50				

FOR WASTEWATER DISPOSAL →

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON (VARIANT)	POORLY DRAINED	C

Observation Hole TB 8 ☐ Test Pit ■ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0			DARK BROWN	
10	SANDY LOAM	FRIABLE	DARK YELLOW BROWN	
20	LOAMY SAND			
30				
40				
50				

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
HERMON	SOMEWHAT EXCESSIVELY	A

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Town, City, Plantation	Street, Road Subdivision	Owner's Name
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 9 ■ Test Pit ☐ Boring
8 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
SANDY LOAM	FRIABLE	GRAY (5Y 6/1)	△△△ FREE WATER
	FIRM		
LIMIT OF EXCAVATION			

Soil Classification	Slope	Limiting Factor	Drainage
Profile: — Condition: —	___ %	___ "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR WASTEWATER DISPOSAL →

FOR SOILS MAPPING → Soil Series Name:	Drainage Class:	Hydrologic Group:
PEACHAM	VERY POORLY DRAINED	D

Observation Hole TP 10 ■ Test Pit ☐ Boring
___ " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
		BLACK (25Y 25/1)	
FINE SANDY LOAM	FRIABLE	DARK GRAYISH BROWN (25 4/2)	
	FIRM	W/LIGHT OLIVE BROWN MOTTLES	
LIMIT OF EXCAVATION			

Soil Classification	Slope	Limiting Factor	Drainage
Profile: — Condition: —	___ %	___ "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR WASTEWATER DISPOSAL →

FOR SOILS MAPPING → Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 11 ■ Test Pit ☐ Boring
2 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
		BLACK (25Y 25/1)	
SANDY LOAM	FRIABLE	LIGHT GRAYISH BROWN (25Y 6/1) WITH DARK OLIVE GRAY (25Y 3/3) MOTTLES	
	FIRM		
LIMIT OF EXCAVATION			

Soil Classification	Slope	Limiting Factor	Drainage
Profile: — Condition: —	___ %	___ "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR WASTEWATER DISPOSAL →

FOR SOILS MAPPING → Soil Series Name:	Drainage Class:	Hydrologic Group:
PEACHAM	VERY POORLY DRAINED	D

Observation Hole TP 12 ■ Test Pit ☐ Boring
___ " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
			△△△ FREE WATER
MUCKY PEAT	LOOSE	BLACK	
SANDY LOAM	FIRM	OLIVE GRAY	
LIMIT OF EXCAVATION			

Soil Classification	Slope	Limiting Factor	Drainage
Profile: — Condition: —	___ %	___ "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR WASTEWATER DISPOSAL →

FOR SOILS MAPPING → Soil Series Name:	Drainage Class:	Hydrologic Group:
WONSQUEAK	VERY POORLY DRAINED	D

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Town, City, Plantation	Street, Road Subdivision	Owner's Name
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 13 ■ Test Pit ☐ Boring
" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–10	LOAMY SAND	FRIABLE	YELLOW BROWN (10YR 5/2)	
10–30		FIRM	LIGHT YELLOW BROWN (2.5Y 6/3)	FEW, FAINT
30		LIMIT OF EXCAVATION		
30–50				

FOR WASTEWATER DISPOSAL →

Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
SKERRY	MODERATELY WELL	C

Observation Hole TP 14 ■ Test Pit ☐ Boring
" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–10	GRAVELLY FINE SANDY LOAM	FRIABLE	DARK BROWN (10YR 3/3)	
10–30			DARK YELLOW BROWN (10YR 4/6)	
30		REFUSAL IN LARGE ROCK OR BEDROCK		
30–50				

FOR WASTEWATER DISPOSAL →

Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
TUNBRIDGE	WELL DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 15 ■ Test Pit ☐ Boring
" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–10	GRAVELLY VERY FINE SANDY LOAM	FRIABLE	VERY DARK BROWN (2.5Y 3/1)	OXIDIZED RHIZOSPHERES
10–20			OLIVE BROWN (2.5Y 4/4)	COMMON, FAINT
20–30	GRAVELLY FINE SANDY LOAM	FIRM	DARK OLIVE BROWN (2.5Y 3/3)	MANY, PROMINANT
30		LIMIT OF EXCAVATION		
30–50				

FOR WASTEWATER DISPOSAL →

Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

Observation Hole TP 16 ■ Test Pit ☐ Boring
" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–10	GRAVELLY FINE SANDY LOAM	FRIABLE	DARK BROWN (10YR 3/3)	
			LIGHT GRAY	
10–20			DARK YELLOW BROWN (10YR 4/6)	FEW, FAINT
20–30	GRAVELLY SANDY LOAM	SOMEWHAT FIRM TO FIRM	OLIVE BROWN (2.5Y 4/4)	COMMON, FAINT
30		LIMIT OF EXCAVATION		
30–50				

FOR WASTEWATER DISPOSAL →

Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
COLONEL	SOMEWHAT POORLY	C

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Town, City, Plantation	Street, Road Subdivision	Owner's Name
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 17 ■ Test Pit ☐ Boring

3 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
GRAVELLY VERY FINE SANDY LOAM	FRIABLE	VERY DARK BROWN (10YR 2/2)	
		OLIVE BROWN (2.5Y 4/3)	OXIDIZED RHIZOSPHERES
		OLIVE GRAY (2.5Y 4/2)	COMMON, FAINT
	SOMEWHAT FIRM TO FIRM		
LIMIT OF EXCAVATION			

FOR WASTEWATER DISPOSAL →	Soil Classification: Profile / Condition	Slope: ___ %	Limiting Factor: "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →	Soil Series Name:	Drainage Class:	Hydrologic Group:
	BRAYTON	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 18 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
GRAVELLY FINE SANDY LOAM	FRIABLE	DARK BROWN (10YR 3/3)	
		DARK YELLOW BROWN (10YR 4/6)	
		YELLOW BROWN (10YR 5/4)	
BEDROCK			

FOR WASTEWATER DISPOSAL →	Soil Classification: Profile / Condition	Slope: ___ %	Limiting Factor: "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →	Soil Series Name:	Drainage Class:	Hydrologic Group:
	TUNBRIDGE	WELL DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 19 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
MUCK AND FINE SANDY LOAM	FRIABLE	BLACK (10YR 2/1)	
			COMMON, FAINT
GRAVELLY LOAMY SAND AND SAND		VERY DARK BROWN (7.5 YR 2.5/2)	COMMON, DISTINCT (OXIDIZED RHIZOSPHERES)
	FIRM	OLIVE GRAY (5Y 4/2)	
LIMIT OF EXCAVATION			

FOR WASTEWATER DISPOSAL →	Soil Classification: Profile / Condition	Slope: ___ %	Limiting Factor: "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →	Soil Series Name:	Drainage Class:	Hydrologic Group:
	BRAYTON	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 20 ■ Test Pit ☐ Boring

4 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
GRAVELLY FINE SANDY LOAM	FRIABLE	VERY DARK GRAYISH BROWN (2.5Y 3/2)	
		DARK GRAYISH BROWN (5Y 4/2)	COMMON, DISTINCT (5Y 6/2 MOTTLES)
	FIRM		
LIMIT OF EXCAVATION			

FOR WASTEWATER DISPOSAL →	Soil Classification: Profile / Condition	Slope: ___ %	Limiting Factor: "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →	Soil Series Name:	Drainage Class:	Hydrologic Group:
	BRAYTON	POORLY DRAINED	C

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Town, City, Plantation	Street, Road Subdivision	Owner's Name
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 21 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0	MUCKY PEAT	FRIABLE	BLACK (10YR 2/1)	
				SATURATED
10			OLIVE GRAY (5Y 4/2)	COMMON, DISTINCT
	FINE SANDY LOAM	FIRM		
20				
		LIMIT OF EXCAVATION		
30				
40				
50				

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	%		

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
PEACHAM	VERY POORLY DRAINED	D

Observation Hole TP 22 ■ Test Pit ☐ Boring

3 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0			VERY DARK GRAYISH BROWN (2.5Y 3/2)	
		FRIABLE	DARK GRAYISH BROWN (2.5Y 4/2)	COMMON, DISTINCT
10	GRAVELLY FINE SANDY LOAM			
				MANY, PROMINANT
20		FIRM		
		LIMIT OF EXCAVATION		
30				
40				
50				

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	%		

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 23 ■ Test Pit ☐ Boring

4 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0			VERY DARK GRAYISH BROWN (2.5Y 3/1)	
	GRAVELLY FINE SANDY LOAM	FRIABLE		COMMON, FAINT
10			VERY DARK GRAY (2.5Y 3/2)	
				MANY, FAINT
			GRAY (2.5Y 5/1)	
20		FIRM		
30		LIMIT OF EXCAVATION		
40				
50				

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	%		

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON/PEACHAM	POORLY/ VERY POORLY DRAINED	C/D

Observation Hole TP 24 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0			BLACK (10YR 2/1)	
	MUCKY PEAT	FRIABLE		
10				
			OLIVE BROWN (2.5Y 5/4) W/REDOX AND COMMON, FAINT MOTTLES	COMMON, FAINT
20	FINE SANDY LOAM W/SAND LENSES	FIRM		
30				
40				
50				

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	%		

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
PEACHAM	VERY POORLY DRAINED	D

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Town, City, Plantation	Street, Road Subdivision	Owner's Name
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 25 ■ Test Pit ☐ Boring

4 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–10	GRAVELLY FINE SANDY LOAM	FRIABLE	BLACK (10YR 2/1)	
10–20	SANDY LOAM AND LOAMY SAND	FIRM	DARK GRAY (2.5Y 4/1)	COMMON, DISTINCT.
20–40			OLIVE GRAY (5Y 4/2)	
40–50	LIMIT OF EXCAVATION			

FOR WASTEWATER DISPOSAL →

Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	___ "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

Observation Hole TP 26 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–10	ORGANIC	FRIABLE	BLACK	
			DARK BROWN (10YR 3/3)	
10–20	SANDY LOAM		LIGHT GRAYISH BROWN (2.5Y 6/2) W/DARK YELLOW BROWN (10YR 4/6) MOTTLES	COMMON, DISTINCT
20–50	REFUSAL IN LARGE ROCK OR BEDROCK			

Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	___ "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
NASKEAG	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 27 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–10	SANDY LOAM	FRIABLE	BROWN (7.5YR 4/2)	
			DARK BROWN (7.5YR 3/2)	MOTTLES (7.5YR 3/4)
10–50	REFUSAL IN LARGE ROCK OR BEDROCK			

FOR WASTEWATER DISPOSAL →

Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	___ "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
NASKEAG	POORLY DRAINED	C

Observation Hole TP 28 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–10	SANDY LOAM	FRIABLE	BLACK (2.5Y 2.5/1)	
10–30			OLIVE GRAY (5Y 4/2)	
30–40		FIRM		
40–50	LIMIT OF EXCAVATION			

Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	___ "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

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Town, City, Plantation	Street, Road Subdivision	Owner's Name
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TB 29 ☐ Test Pit ■ Boring

_____" Depth of Organic Horizon Above Mineral Soil

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	SANDY LOAM	FRIABLE	DARK BROWN	
10			DARK YELLOW BROWN	
20				
30	REFUSAL IN LARGE ROCK OR BEDROCK			
40				
50				

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	____ %	____"	

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
TUNBRIDGE	WELL DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 30 ■ Test Pit ☐ Boring

_____" Depth of Organic Horizon Above Mineral Soil

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	SANDY LOAM	FRIABLE	VERY DARK GRAYISH BROWN (2.5Y 3/2)	
10			OLIVE GRAY (5Y 5/2)	OLIVE MOTTLES (5Y 5/4)
20	REFUSAL IN LARGE ROCK OR BEDROCK			
30				
40				
50				

Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	____ %	____"	

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 31 ■ Test Pit ☐ Boring

_____" Depth of Organic Horizon Above Mineral Soil

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	SANDY LOAM	FRIABLE	DARK BROWN	
10			DARK YELLOW BROWN (10YR 4/6)	
20				FEW, FAINT
30	LIMIT OF EXCAVATION			
40				
50				

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	____ %	____"	

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
DIXFIELD	MODERATELY WELL	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 32 ■ Test Pit ☐ Boring

_____" Depth of Organic Horizon Above Mineral Soil

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	ORGANIC	LOOSE	BLACK	OXIDIZED RHIZOSPHERES
10	SANDY LOAM	FRIABLE	BLACK (2.5Y 2.5/1)	
20				
30	REFUSAL IN LARGE ROCK OR BEDROCK			
40				
50				

Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	____ %	____"	

Soil Series Name:	Drainage Class:	Hydrologic Group:
NASKEAG	POORLY DRAINED	D

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Town, City, Plantation	Street, Road Subdivision	Owner's Name
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 33 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
SANDY LOAM	FRIABLE	BLACK (2.5Y 2.5/1)	OXIDIZED RHIZOSPHERES
		DARK GRAYISH BROWN (2.5Y 4/2)	
COBBLY SANDY LOAM	FIRM		

FOR WASTEWATER DISPOSAL →

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
PEACHAM	VERY POORLY DRAINED	D

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 34 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
SANDY LOAM	FRIABLE	BLACK (2.5Y 3/1)	
		OLIVE GRAY (5Y 4/2) WITH DARK GRAYISH BROWN (10YR 4/6) MOTTLES	
	FIRM		

FOR WASTEWATER DISPOSAL →

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 35 ■ Test Pit ☐ Boring

3 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
SANDY LOAM	FRIABLE	BLACK (2.5Y 2.5/1)	OXIDIZED RHIZOSPHERES
		DARK GRAY (2.5Y 4/2)	
REFUSAL IN LARGE ROCK OR BEDROCK			

FOR WASTEWATER DISPOSAL →

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TB 36 ☐ Test Pit ■ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
SANDY LOAM	FRIABLE	DARK BROWN	
LOAMY SAND		DARK YELLOW BROWN	
		OLIVE BROWN	
COBBLY LOAMY SAND	FIRM		

FOR WASTEWATER DISPOSAL →

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
MONADNOCK	MODERATELY WELL	B

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Town, City, Plantation	Street, Road Subdivision	Owner's Name
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 37 ■ Test Pit ☐ Boring

2 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0	SANDY LOAM	FRIABLE	VERY DARK BROWN (10YR 3/1)	
10			VERY DARK GRAY (10YR 3/1)	
20		FIRM		
		LIMIT OF EXCAVATION		
30				
40				
50				

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	___ %	___ "	

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

Observation Hole TP 38 ■ Test Pit ☐ Boring

___ " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0	SANDY LOAM	FRIABLE	DARK BROWN	
10			YELLOW BROWN	
20			LIGHT YELLOW BROWN	FEW, FAINT
	COBBLY LOAMY SAND TO SANDY LOAM		OLIVE	COMMON, DISTINCT
30		FIRM		
40		LIMIT OF EXCAVATION		
50				

Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	___ %	___ "	

Soil Series Name:	Drainage Class:	Hydrologic Group:
SUNAPEE	MODERATELY WELL	B

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 39 ■ Test Pit ☐ Boring

___ " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0	SANDY LOAM	FRIABLE	DARK GRAYAIH BROWN (2.5Y 4/2)	OXIDIZED RHIZOSPHERES
10			OLIVE BROWN (2.5Y 4/3)	MOTTLES (2.5Y 5/4)
20		FIRM		
		LIMIT OF EXCAVATION		
30				
40				
50				

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	___ %	___ "	

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON (DISTURBED)	POORLY DRAINED	C

Observation Hole TP 39A ■ Test Pit ☐ Boring

___ " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0	FINE SANDY LOAM	FRIABLE	VERY DARK GRAYISH BROWN (10YR 3/2)	
10			REDOX OLIVE BROWN (10YR 4/3) AND GRAYISH BROWN (2.5Y 5/2)	
20		REFUSAL IN LARGE ROCK OR BEDROCK		
30				
40				
50				

Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	___ %	___ "	

Soil Series Name:	Drainage Class:	Hydrologic Group:
NASKEAG (VARIANT) (DISTURBED)	POORLY DRAINED	C

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Town, City, Plantation	Street, Road Subdivision	Owner's Name
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 40 ■ Test Pit ☐ Boring

_____" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0–10	GRAVELLY FINE SANDY LOAM	FRIABLE	DARK BROWN (10YR 3/3)	
10–20	REFUSAL IN LARGE ROCK OR BEDROCK			

FOR WASTEWATER DISPOSAL →	Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
		____ %	____"	

FOR SOILS MAPPING →	Soil Series Name:	Drainage Class:	Hydrologic Group:
	LYMAN	SOMEWHAT EXCESSIVELY	C/D

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 41 ■ Test Pit ☐ Boring

_____" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0–10	FINE SANDY LOAM	FRIABLE	BLACK (10YR 2/1)	
10–20	REFUSAL IN LARGE ROCK OR BEDROCK		DARK GRAYISH BROWN. (5Y 4/2)	COMMON, DISTINCT.

	Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
		____ %	____"	

	Soil Series Name:	Drainage Class:	Hydrologic Group:
	NASKEAG (PD) VARIANT	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 42 ■ Test Pit ☐ Boring

_____" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0–10	GRAVELLY FINE SANDY LOAM	FRIABLE	VERY DARK GRAYISH BROWN (10YR 2/2)	
10–20	REFUSAL IN LARGE ROCK OR BEDROCK		OLIVE BROWN (MATRIX) (2.5Y 4/3) WITH GRAYISH BROWN MOTTLES (2.5Y 5/2)	COMMON, FAINT

FOR WASTEWATER DISPOSAL →	Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
		____ %	____"	

FOR SOILS MAPPING →	Soil Series Name:	Drainage Class:	Hydrologic Group:
	NASKEAG (PD)	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 43 ■ Test Pit ☐ Boring

_____" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0–10	GRAVELLY FINE SANDY LOAM	FRIABLE	LIGHT GRAY (ALBIC)	
10–20	REFUSAL IN LARGE ROCK OR BEDROCK		DARK YELLOW BROWN (10YR 4/6)	NONE EVIDENT

	Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
		____ %	____"	

	Soil Series Name:	Drainage Class:	Hydrologic Group:
	TUNBRIDGE	WELL DRAINED	C

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Town, City, Plantation	Street, Road Subdivision	Owner's Name
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 44 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–10	GRAVELLY FINE SANDY LOAM	FRIABLE	DARK BROWN (10YR 3/3); YELLOW BROWN (10YR 5/6)	NONE EVIDENT
10–20				
20–50	REFUSAL IN LARGE ROCK OR BEDROCK			

FOR WASTEWATER DISPOSAL → Soil Classification: Profile ____ Condition ____; Slope ____ %; Limiting Factor ____ "; ☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING → Soil Series Name: LYMAN (VARIANT); Drainage Class: SOMEWHAT EXCESSIVELY; Hydrologic Group: C/D

Observation Hole TP 45 ■ Test Pit ☐ Boring

2 " Depth of Organic Horizon Above Mineral Soil

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–10	FINE SANDY LOAM	FRIABLE	VERY DARK BROWN (10YR 2/2); DARK OLIVE GRAY (2.5Y 3/2)	COMMON, DISTINCT
10–20	SANDY LOAM AND LOAMY SAND	SOMEWHAT FRIABLE TO FIRM	OLIVE GRAY (5Y 4/2)	MANY, PROMINANT
20–40				
40–50	LIMIT OF EXCAVATION			

FOR WASTEWATER DISPOSAL → Soil Classification: Profile ____ Condition ____; Slope ____ %; Limiting Factor ____ "; ☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING → Soil Series Name: BRAYTON; Drainage Class: POORLY DRAINED; Hydrologic Group: C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 46 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–10	FINE SANDY LOAM	FRIABLE	ORGANIC (2.5YR 5/2); VERY DARK GRAYISH BROWN (10YR 3/2)	COMMON, DISTINCT
10–20				
20–30	SANDY LOAM AND LOAMY SAND	FIRM	DARK GRAYISH BROWN (2.5Y 4/2)	MANY, PROMINANT
30–40				
40–50	LIMIT OF EXCAVATION			

FOR WASTEWATER DISPOSAL → Soil Classification: Profile ____ Condition ____; Slope ____ %; Limiting Factor ____ "; ☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING → Soil Series Name: BRAYTON; Drainage Class: POORLY DRAINED; Hydrologic Group: C

Observation Hole TP 47 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–10	FINE SANDY LOAM	FRIABLE	LIGHT GRAY (ALBIC); DARK YELLOW BROWN	
10–20		FIRM	OLIVE BROWN	FEW, FAINT
20–50	BEDROCK			

FOR WASTEWATER DISPOSAL → Soil Classification: Profile ____ Condition ____; Slope ____ %; Limiting Factor ____ "; ☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING → Soil Series Name: NASKEAG (VARIANT); Drainage Class: POORLY DRAINED; Hydrologic Group: C

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DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TB 48 ☐ Test Pit ■ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0–10	FINE SANDY LOAM	FRIABLE	DARK BROWN / YELLOW BROWN	
10–20			LIGHT BROWN	
20–50	REFUSAL IN BASIL TILL			

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor	
	___ %	___ "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
DIXFIELD	MODERATELY WELL	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 49 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0–10	SANDY LOAM	FRIABLE	DARK BROWN	
10–50	BEDROCK			

Soil Classification (Profile / Condition)	Slope	Limiting Factor	
	___ %	___ "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
LYMAN (VARIANT)	SOMEWHAT EXCESSIVELY	C/D

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TB 50 ☐ Test Pit ■ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0–10	SANDY LOAM	FRIABLE	DARK YELLOW BROWN	
10–50	BEDROCK			

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor	
	___ %	___ "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
LYMAN	SOMEWHAT EXCESSIVELY	C/D

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TB 51 ☐ Test Pit ■ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

	Texture	Consistency	Color	Mottling
0–10	SANDY LOAM	FRIABLE	DARK BROWN / DARK YELLOW BROWN	
10–50	REFUSAL IN LARGE ROCK OR BEDROCK			

Soil Classification (Profile / Condition)	Slope	Limiting Factor	
	___ %	___ "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
LYMAN	SOMEWHAT EXCESSIVELY	C/D

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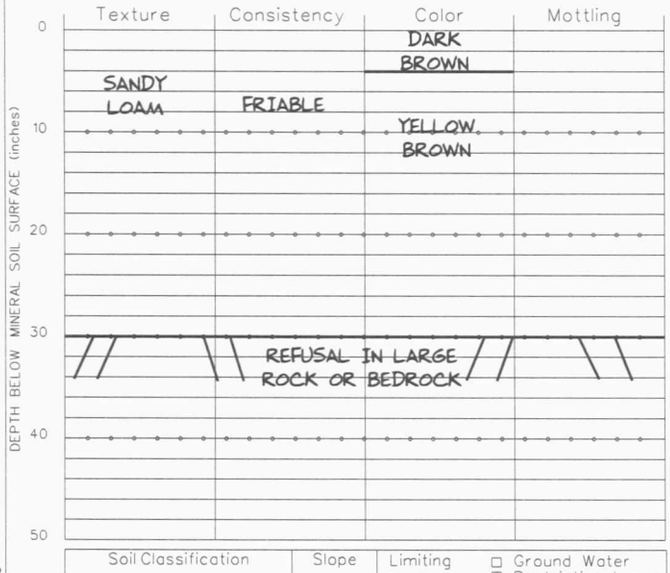
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TB 52 ☐ Test Pit ■ Boring

" Depth of Organic Horizon Above Mineral Soil

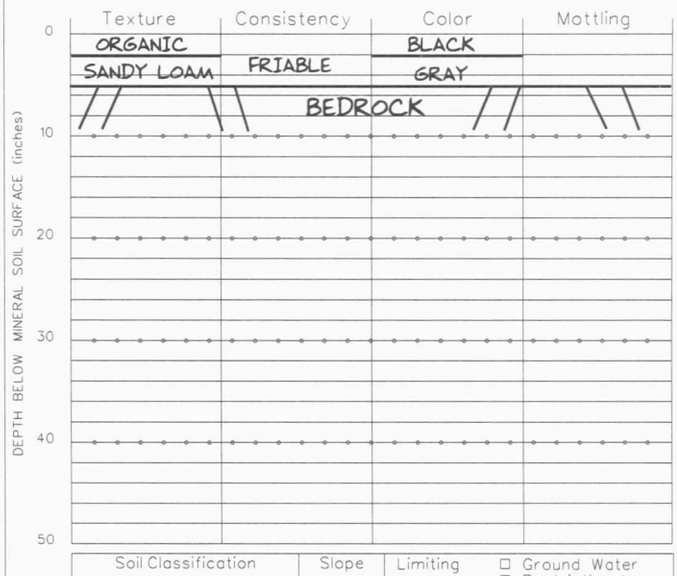


FOR WASTEWATER DISPOSAL → Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING → Soil Series Name:	Drainage Class:	Hydrologic Group:
TUNBRIDGE	WELL DRAINED	C

Observation Hole TP 53 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil



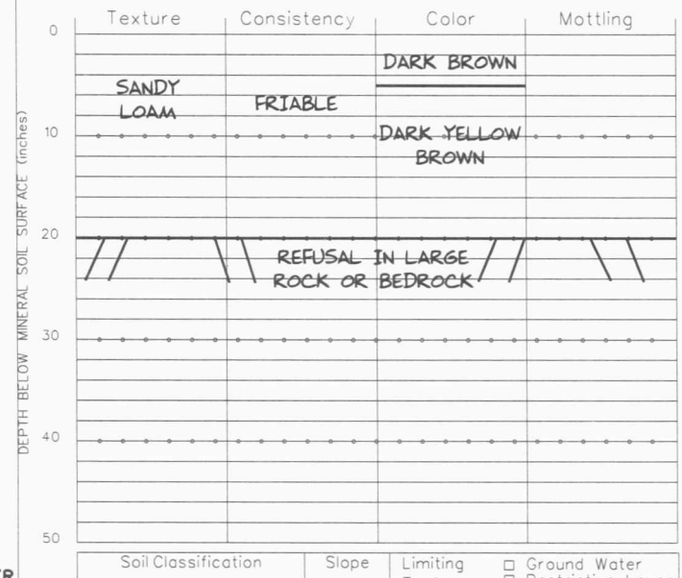
Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
LYMAN (VARIANT)	SOMEWHAT EXCESIVELY	C/D

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TB 54 ☐ Test Pit ■ Boring

" Depth of Organic Horizon Above Mineral Soil

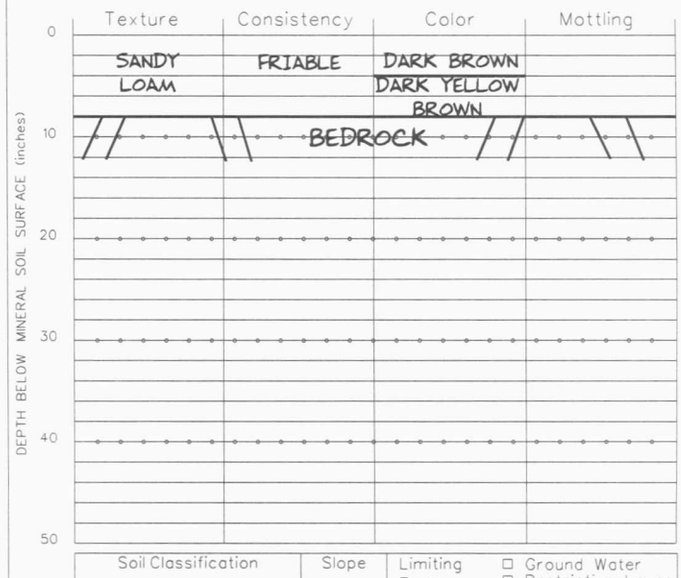


FOR WASTEWATER DISPOSAL → Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING → Soil Series Name:	Drainage Class:	Hydrologic Group:
LYMAN/TUNBRIDGE	SOMEWHAT EXCESSIVELY/ WELL DRAINED	C/D

Observation Hole TB 55 ☐ Test Pit ■ Boring

" Depth of Organic Horizon Above Mineral Soil



Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
LYMAN	SOMEWHAT EXCESSIVELY	C/D

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SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TB 56 ☐ Test Pit ■ Boring
" Depth of Organic Horizon Above Mineral Soil

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–10	SANDY LOAM	FRIABLE	DARK BROWN	
10–20			DARK YELLOW BROWN	
20–30			LIGHT YELLOW BROWN	
30		REFUSAL IN LARGE ROCK OR BEDROCK		

FOR WASTEWATER DISPOSAL

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING

Soil Series Name:	Drainage Class:	Hydrologic Group:
TUNBRIDGE	WELL DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 57 ■ Test Pit ☐ Boring
2 " Depth of Organic Horizon Above Mineral Soil

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–10	SANDY LOAM	FRIABLE	VERY DARK GRAY	COMMON, DISTINCT
10–20		FIRM	OLIVE GRAY	
20–30				

FOR WASTEWATER DISPOSAL

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 58 ■ Test Pit ☐ Boring
1 " Depth of Organic Horizon Above Mineral Soil

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0–10	SANDY LOAM	FRIABLE	DARK BROWN (10YR 3/3)	
10–20		FIRM	DARK YELLOW BROWN (10YR 4/4)	COMMON, DISTINCT (LIGHT OLIVE BROWN 2.5Y 5/4 MOTTLES)
20		LIMIT OF EXCAVATION	LIGHT YELLOW BROWN (10YR 6/4)	
30–40				

FOR WASTEWATER DISPOSAL

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING

Soil Series Name:	Drainage Class:	Hydrologic Group:
COLONEL (SWP)	SOMEWHAT POORLY	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 59 ■ Test Pit ☐ Boring
1 " Depth of Organic Horizon Above Mineral Soil

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0			DARK OLIVE BROWN (2.5Y 3/3)	
0–10	GRAVELLY FINE SANDY LOAM	FRIABLE	OLVE BROWN (2.5Y 4/3)	OXIDIZED RHIZOSPHERES COMMON, DISTINCT (OLIVE GRAY 5Y 5/2 MOTTLES 20%)
10–20			OLIVE GRAY MATRIX (5Y 4/2) W/GRAY (5Y 5/1) MOTTLES 15%	
20–30	GRAVELLY SANDY LOAM	FIRM		
30–40				

FOR WASTEWATER DISPOSAL

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING

Soil Series Name:	Drainage Class:	Hydrologic Group:
BORROW (BRAYTON-LIKE)	POORLY DRAINED	C

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SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 60 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–10	FINE SANDY LOAM	FRIABLE	VERY DARK GRAY (7.5YR 3/1); VERY DARK GRAYISH BROWN (2.5Y 3/2)	OXIDIZED RHIZOSPHERES
10–20	SANDY LOAM AND LOAMY SAND	FIRM	DARK GRAYISH BROWN (2.5Y 4/2) WITH GRAYISH BROWN (2.5Y 5/2)	COMMON, DISTINCT MOTTLES 15%
40	LIMIT OF EXCAVATION			

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	___ %		

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

Observation Hole TP 61 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–10	FINE SANDY LOAM	FRIABLE	VERY DARK GRAYISH BROWN (2.5Y 3/2); OLIVE GRAY (5Y 4/2)	OXIDIZED RHIZOSPHERES
10–20	SOMEWHAT FIRM TO FIRM		MOTTLES AT 10% OLIVE (5Y 5/3)	
40	LIMIT OF EXCAVATION			

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	___ %		

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON-LIKE (DISTURBED)	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 62 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–10	GRAVELLY FINE SANDY LOAM	FRIABLE	DARK BROWN (10YR 3/3); DARK YELLOW BROWN (10YR 4/6)	
10–20			YELLOW BROWN (10YR 5/6)	
20–30	GRAVELLY LOAMY SAND AND SAND	SOMEWHAT FIRM TO FIRM	LIGHT OLIVE BROWN (2.5 5/6)	FEW, FAINT
40	LIMIT OF EXCAVATION			

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	___ %		

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
SKERRY	MODERATELY WELL	C

Observation Hole TP 63 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–10	MUCKY PEAT	FRIABLE	BLACK	SATURATED
10–20	SILT LOAM (NO STONES)			COMMON, DISTINCT AND FREE WATER
20–30		SOMEWHAT FRIABLE TO FIRM		

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	___ %		

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
PEACHAM (VARIANT)	VERY POORLY DRAINED	D

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SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 64 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0	FINE SANDY LOAM		BLACK (2.5Y 2.5/1)	
10	LOAMY FINE SAND AND SAND	FRIABLE	GRAYISH BROWN (2.5Y 5/5) WITH OLIVE GRAY (5Y 5/2) MOTTLES	COMMON, DISTINCT
20		SOMEWHAT FIRM		
30				
40		LIMIT OF EXCAVATION		
50				

FOR WASTEWATER DISPOSAL →

Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON (VARIANT)	POORLY DRAINED	C

Observation Hole TP 65 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0	FINE SANDY LOAM		DARK BROWN (10YR 3/3)	
10		FRIABLE	DARK YELLOW BROWN (10Y 4/6)	
20	LOAMY SAND	SOMEWHAT FIRM TO FIRM	YELLOW BROWN (10YR 5/6) LIGHT OLIVE BROWN	FEW, FAINT
30				
40				
50				

Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
SKERRY/BECKET	MODERATELT WELL/ WELL DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 66 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0	FINE SANDY LOAM		VERY DARK GRAYISH BROWN (2.5Y 3/2)	
10		FRIABLE		OXIDIZED RHIZOSPHERES
20		FIRM	LIGHT OLIVE BROWN (2.5Y 5/4) WITH OLIVE GRAY (5Y 5/2) MOTTLES AT 10%	COMMON, DISTINCT
30				
40		LIMIT OF EXCAVATION		
50				

Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

Observation Hole TP 67 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0	FINE SANDY LOAM		BLACK (2.5Y 2.5/1)	
10		FRIABLE	DARK GRAYSIH BROWN (2.5Y 4/2)	MOTTLES (10YR 3/3)
20		FIRM	OLIVE	
30		LIMIT OF EXCAVATION		
40				
50				

Soil Classification	Slope	Limiting Factor	
Profile / Condition	___ %	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

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DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 68 ■ Test Pit ☐ Boring

_____" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0	SANDY LOAM	FRIABLE	BLACK (2.5Y 2.5/1)	
10			OLIVE (5Y 4/2)	MOTTLES OLIVE (5Y 4/3)
20		FIRM		
30				
40				
50				

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	____ %	_____"	

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 69 ■ Test Pit ☐ Boring

_____" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0	SANDY LOAM	FRIABLE	DARK BROWN (10YR 3/3)	
10			DARK YELLOW BROWN (10YR 4/6	
20				
30		REFUSAL IN LARGE ROCK OR BEDROCK		
40				
50				

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	____ %	_____"	

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
TUNBRIDGE	WELL DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 70 ■ Test Pit ☐ Boring

_____" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0	SANDY LOAM	FRIABLE	DARK BROWN	
10			DARK YELLOW BROWN	
20				
30			YELLOW BROWN	
40		REFUSAL IN LARGE ROCK OR BEDROCK		
50				

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	____ %	_____"	

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
TUNBRIDGE	WELL DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 71 ■ Test Pit ☐ Boring

2 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0	SANDY LOAM	FRIABLE	BLACK (2.5Y 2.5/1)	
10			VERY DARK GRAYISH BROWN (2.5Y 3/2)	
20			OLIVE BROWN (2.5Y 5/3)	
30		FIRM		
40				
50				

FOR WASTEWATER DISPOSAL →

Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
	____ %	_____"	

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

Albert Frick

Site Evaluator / Soil Scientist Signature

163/66

SE/CSS #

9/13/10

Date

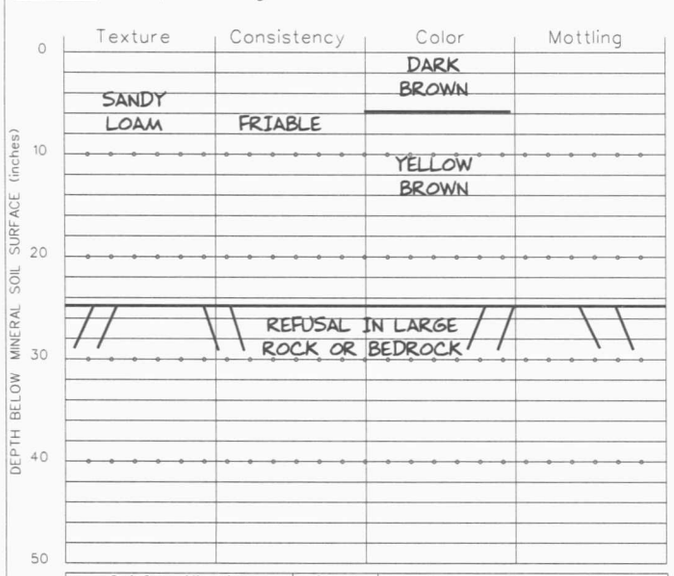
ALBERT FRICK ASSOCIATES – 95A COUNTY ROAD GORHAM, MAINE 04038 – (207) 839-5563

Town, City, Plantation	Street, Road Subdivision	Owner's Name
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 72 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil



FOR WASTEWATER DISPOSAL →

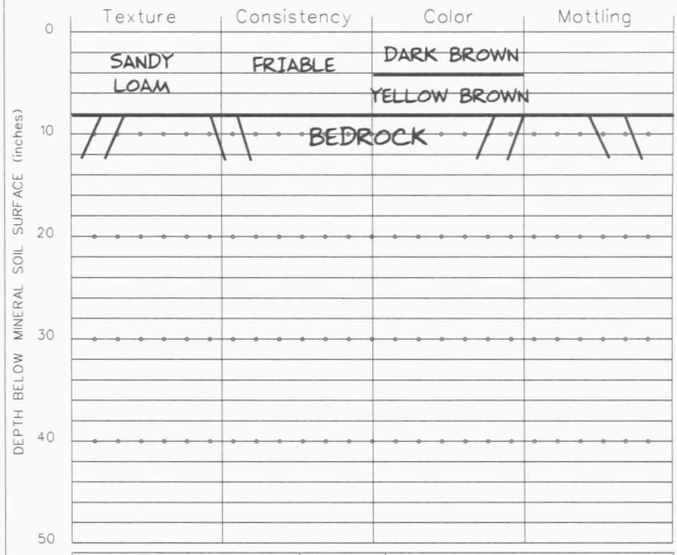
Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
TUNBRIDGE	WELL DRAINED	C

Observation Hole TP 73 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil



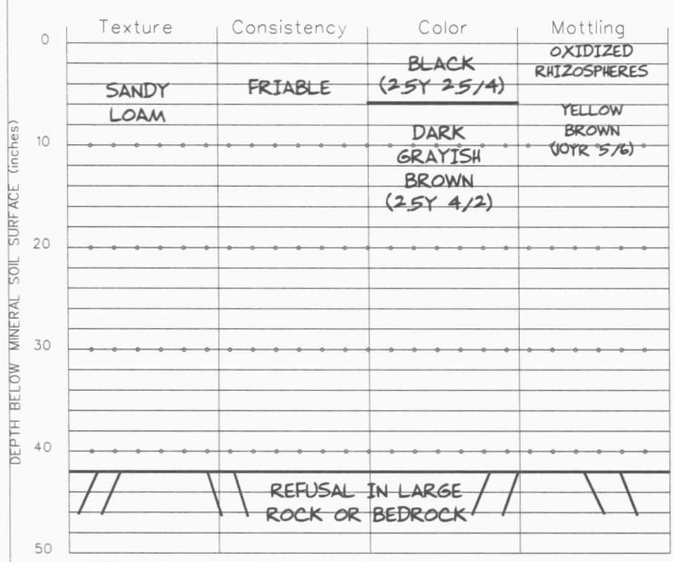
Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
LYMAN	SOMEWHAT EXCESSIVELY	C/D

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 74 ■ Test Pit ☐ Boring

1 " Depth of Organic Horizon Above Mineral Soil



FOR WASTEWATER DISPOSAL →

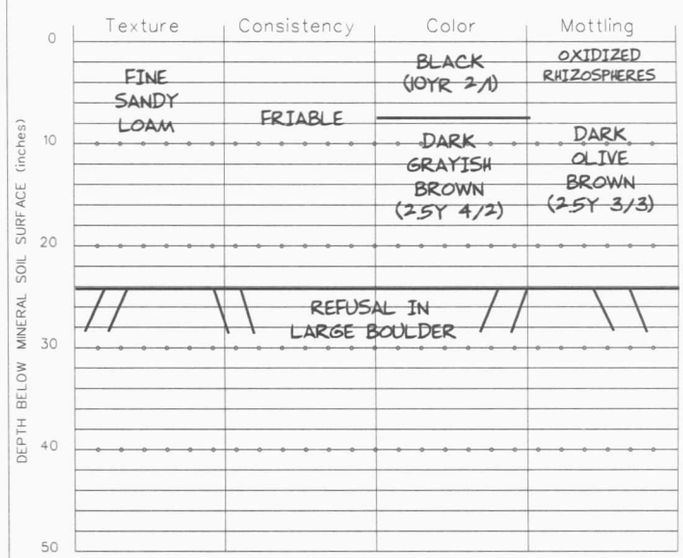
Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

FOR SOILS MAPPING →

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

Observation Hole TP 75 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil



Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Soil Series Name:	Drainage Class:	Hydrologic Group:
BRAYTON	POORLY DRAINED	C

Albert Frick

Site Evaluator / Soil Scientist Signature

163/66

SE/CSS #

9/13/10

Date

ALBERT FRICK ASSOCIATES – 95A COUNTY ROAD GORHAM, MAINE 04038 – (207) 839-5563

Town, City, Plantation	Street, Road Subdivision	Owner's Name
DIXFIELD / CARTHAGE	SADDLEBACK RIDGE	PATRIOT RENEWABLES

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TB 76 ☐ Test Pit ■ Boring

3 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
SANDY LOAM	FRIABLE	GRAY (ALBIC)	
		DARK YELLOW BROWN	FEW, FAINT
REFUSAL IN BASIL TILL			

FOR WASTEWATER DISPOSAL	Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
		___ %	___ "	

FOR SOILS MAPPING	Soil Series Name:	Drainage Class:	Hydrologic Group:
	COLONEL	SOMEWHAT POORLY	C

Observation Hole TB 77 ☐ Test Pit ■ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
SANDY LOAM	FRIABLE	DARK GRAYISH BROWN	
		OLIVE	
REFUSAL IN BASIL TILL			

FOR WASTEWATER DISPOSAL	Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
		___ %	___ "	

FOR SOILS MAPPING	Soil Series Name:	Drainage Class:	Hydrologic Group:
	BRAYTON	POORLY DRAINED	C

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TB 78 ☐ Test Pit ■ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling
SANDY LOAM	FRIABLE	BLACK (2.5Y 2.5/1)	
		VERY DARK GRAYISH BROWN (2.5Y 3/2)	MOTTLES LIGHT OLIVE BROWN (2.5Y 5/3)
LARGE STONE	REFUSAL IN LARGE STONE		

FOR WASTEWATER DISPOSAL	Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
		___ %	___ "	

FOR SOILS MAPPING	Soil Series Name:	Drainage Class:	Hydrologic Group:
	BRAYTON	POORLY DRAINED	C

Observation Hole ☐ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Texture	Consistency	Color	Mottling

FOR WASTEWATER DISPOSAL	Soil Classification (Profile / Condition)	Slope	Limiting Factor	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
		___ %	___ "	

FOR SOILS MAPPING	Soil Series Name:	Drainage Class:	Hydrologic Group:

Albert Frick — Site Evaluator / Soil Scientist Signature

163/66 — SE/CSS #

9/13/10 — Date

ALBERT FRICK ASSOCIATES – 95A COUNTY ROAD GORHAM, MAINE 04038 – (207) 839-5563

APPENDIX E

Glossary Of Soil Terminology

Depth Classes

These refer to the depth of the particle control section used to describe the central concept of each taxonomic unit. These are as follows:

Very shallow	less than 10" to bedrock
Shallow	10" to 20" to bedrock
Moderately deep	20" to 40" to bedrock
Deep	40" to 60" deep
Very deep	greater than 60"

Drainage Class

Drainage class is a reference to the frequency and duration of periods of soil saturation and/or action by seasonal groundwater tables, as evidenced by soil morphologic features identified within each respective soil profile.

Seven classes of soil drainage are recognized:

Excessively drained	water is removed from the soil very rapidly. These are commonly very coarse-textured, rocky or shallow. All are free of soil mottling related to wetness.
Somewhat excessively drained	water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy-textured and very pervious/porous. Some are shallow. Some occur on steep slopes where much of the water they receive is lost as runoff. These too are free of observed mottling due to wetness.
Well drained	Water is removed from the soil readily, but not rapidly. It may be available for plant growth at the deepest rooting depths, and not so wet as to inhibit the growth of plant roots for significant periods during most growing seasons. Well drained soils are often medium textured, or contain restrictive

	subhorizons generally below 24". They are mainly free of mottling related to wetness.
Moderately well drained	water is removed from the spoils somewhat slowly during wet periods and spring seasons. Moderately well drained soils are saturated in the upper soil profile for short duration during the growing season. Often, they contain a slowly pervious (or restrictive) layer beneath the solum, and may receive additional runoff from upslope areas.
Somewhat poorly drained	water is removed so slowly that the soil is wet for significant periods during the growing season. Somewhat poorly drained soils commonly have an impervious substratum that contributes to a perched water table, additional water through sideslope seeps, long continuous sheet flows below large watershed areas with few or no outlets, or a combination of these together.
Poorly drained	water is removed from these soils so slowly that the soil is saturated during the growing season or remains wet for long durations. Water is present during the growing season which may be prohibitive to plant root growth, due to anaerobic/saturated conditions. These soils are classified as hydric, and may also have implications as wetlands.
Very poorly drained	water is removed from these soils so slowly that free water can be observed at or very near the mineral soil surface for long durations during the growing season. These commonly occur on nearly level slopes or in depressional areas, and can be frequently ponded. Often they include thick organic surface horizons.

Hydrologic Soil Groups

A hydrologic soil group is a class of numerous soil series that all have the same runoff potential under similar climate and vegetative conditions. Soil properties that can influence runoff are those that affect minimum infiltration rates for a bare soil after prolonged wetting and with no frozen ground surface. Most important are depth to seasonal high groundwater table, permeability rates after prolonged wetting, and depth to slowly permeable (restrictive) layer.

Permeability

Permeability is the soil property which enables water to move downward through the soil profile. It is measured as the number of inches per hour of water that can be added to a particular soil as it moves downward through the unsaturated soil. Terminology and ranges are as flows:

Very slow	less than 0.06 in./hr
Slow	0.06 to 0.20 in./hr
Moderately slow	0.20 to 0.60 in./hr
Moderate	0.6 to 2.0 in./hr
Moderately rapid	2.0 to 6.0 in./hr
Rapid	6.0 to 20 in./hr

Soil Erodibility (K Factor)

The measure of soil erodability, or K factor, is the susceptibility of a soil particle to detachment and transport by rainfall. K factors for soil in Maine vary from 0.02 to 0.69. The higher the value, the more susceptible the named soil is to sheet or rill erosion by water.

Soil properties which influence erosion are those that can affect infiltration rates, movement of water through the soil profile and the water storage capacity of a soil. Other soil properties can affect the dispersion and mobility of soil particles by rainfall ad/or runoff. Some of the most important of these properties include soil layer, and the size and stability of the soil structural aggregates in the exposed faces of subsoils. Background levels of soil moisture and the presence of frozen soil horizons also can influence erosion.

Soil Texture

Soil texture refers to the USDA classification for the relative proportions by weight of the several soil particle size classes that are finer than 2 millimeters in diameter, which form

the fine earth fraction. (Materials larger than 2 mm. in diameter are considered rock fragments).

Soil texture can influence on plant growth, or the soil mechanics of a particular site when used as construction and/or backfill material for foundations, etc. It influences such physical properties as load bearing strength, permeability, shrink/swell potential (frost action or due to wetness), compressibility and compaction. Rock fragment size and content can also affect applications for use as construction materials.

Soil Texture Modifiers

Named soil texture classes can be further modified by the addition of appropriate adjectives when rock fragment content approaches 15% by volume (i.e. gravelly sandy loam). "Mucky" or "peaty" are modifying terms used when organic matter content reaches 40% (i.e. mucky silt/loam).

Surface Runoff

Surface runoff is water that flows away from the soil over the surface of the site without infiltrating into the ground surface. It may originate from precipitation, or as drainage water from adjacent, upslope areas. The rate and amount of runoff are affected by internal physical characteristics of the soil as well as slope gradient ranges and landform shape (i.e. concave vs. convex slopes). Runoff can be significantly different on a given soil under natural vegetation, cultivation by man, or other kinds of management. Runoff from a particular site can also be affected by other factors such as rainfall amounts, snow pack accumulation or other climatic fluctuations. Surface runoff is usually significantly greater on frozen ground surfaces.

Six categories for runoff rates are provided:

Ponded	little or none of the precipitation and run-on (from surrounding, higher elevations) escapes the site as runoff. Free water stands on or above the existing soil surface for significant periods of time. Ponding normally appears on level to nearly level (i.e. <3%) slopes, in depressions or within concavities in a pit/mound micro-relief topography. Water depth may vary considerably throughout the year, or from year to year. Often this is consistent with very poorly drained soils.
Very slow	surface water flows away slowly, and free water may be present at the soil surface for portions of the year, or may infiltrate slowly into the soil surface when not ponded. These soils may be consistent with very poorly drained, or poorly drained soils that are coarser textured and somewhat porous.

Slow	surface water flows away from the soil quickly enough, either due to slope or the porosity of the soils, so that free water can be observed at the soil surface for moderate periods immediately following spring snowmelt or prolonged storm rainfall events. Most of the water passes through the soil, is used by plants, or evaporates.
Medium	surface water flows away quickly enough due to slope or soil porosity that water is observed at or near the soil surface for short durations, usually during spring snowmelt or immediately following significant storm rainfall events.
Rapid	surface water flows away quickly enough that any period of saturation is brief, and free water does not stand on the soil surface. Only a small portion of the water enters the soil as infiltration, either due to steep slopes and/or fine textures with slow rates of absorption.
Very rapid	surface water flows away so quickly that duration of any event is brief, and water never stands on the soil surface. Only a very small portion of the available moisture enters the soil as infiltration.

ADDITIONAL SOIL TERMS

Flooding (Hazard to flooding)

Flooding is the temporary covering of the soil surface by flowing water from any source, including but not limited to: streams or rivers overflowing their banks, runoff from adjacent or upslope areas, inflow from high tide action, or a combination of sources. Water due to snowmelt is excluded from this definition, as is standing or ponded water that forms a permanent or semi-permanent cover above the soil surface.

Flooding hazard is further expressed by frequency classes, duration, and the time of year that the flooding occurs. The velocity and depth of the floodwater are also important factors.

Oxyaquic	Soil drainage conditions that imply soil saturation for prolonged periods, which are rich in dissolved oxygen and therefore do not exhibit the anaerobic conditions necessary to create hydric soil morphology.

Ponding — Ponding is standing water in a closed depression. The water is removed only by evaporation, transpiration by plants, or percolation through the ground.

Soil complex — A map unit that consist of two or more kinds of soils (i.e. soil series/taxonomic unit) that occur on a non-regular, non-repeating pattern that cannot be separated out at the scale provided. The order of the soils named is generally in order of predominance within the map unit.

Soil map unit — A collection of soils or soil areas that are delineated during soils mapping. It generally is an aggregate of several soil entities with a predominant named soil type. Kinds of soil map units may include complexes, consociations, or associations.

Soil slope gradient range — The slope identified for any given map unit, based on the immediate topography within a specific portion of the mapping site. Designations generally are as follows:

A	0-3%	nearly level to level
B	3-8%	gently sloping
C	8-20%	moderately sloping
D	20%+	steeply sloping

Stoniness — This is a phase of surface characteristic that may be identified in soils mapping, ranging from stony or bouldery (0.01 to 0.1% of soil surface covered with stones) to rubbly or rubble land, in which up to 75% of the soil surface is covered with stones. Extremely stony sites or sites with rubble land may have additional limitations for use of mechanized equipment.

Stony — The areas have enough stones at or near the surface to be a continuing nuisance during operations that mix the surface layer, but they do not make most such operations impractical. Conventional, wheeled vehicles can move with reasonable freedom over the area. Stones may damage both the equipment that mixes the soil and the vehicles that move on the surface. Usually these areas have Class 1 stoniness. If necessary in a highly detailed survey, these areas may be designated as “slightly stony” and “moderately stony”.

Very Stony — The areas have so many stones at or near the surface that operations which mix the surface layer either require heavy

equipment or use of implements that can operate between the larger stones. Tillage with conventionally powered farm equipment is impractical. Wheeled tractors and vehicles with high clearance can operate on carefully chosen routes over and around the stones. Usually, these areas have Class 2 stoniness.

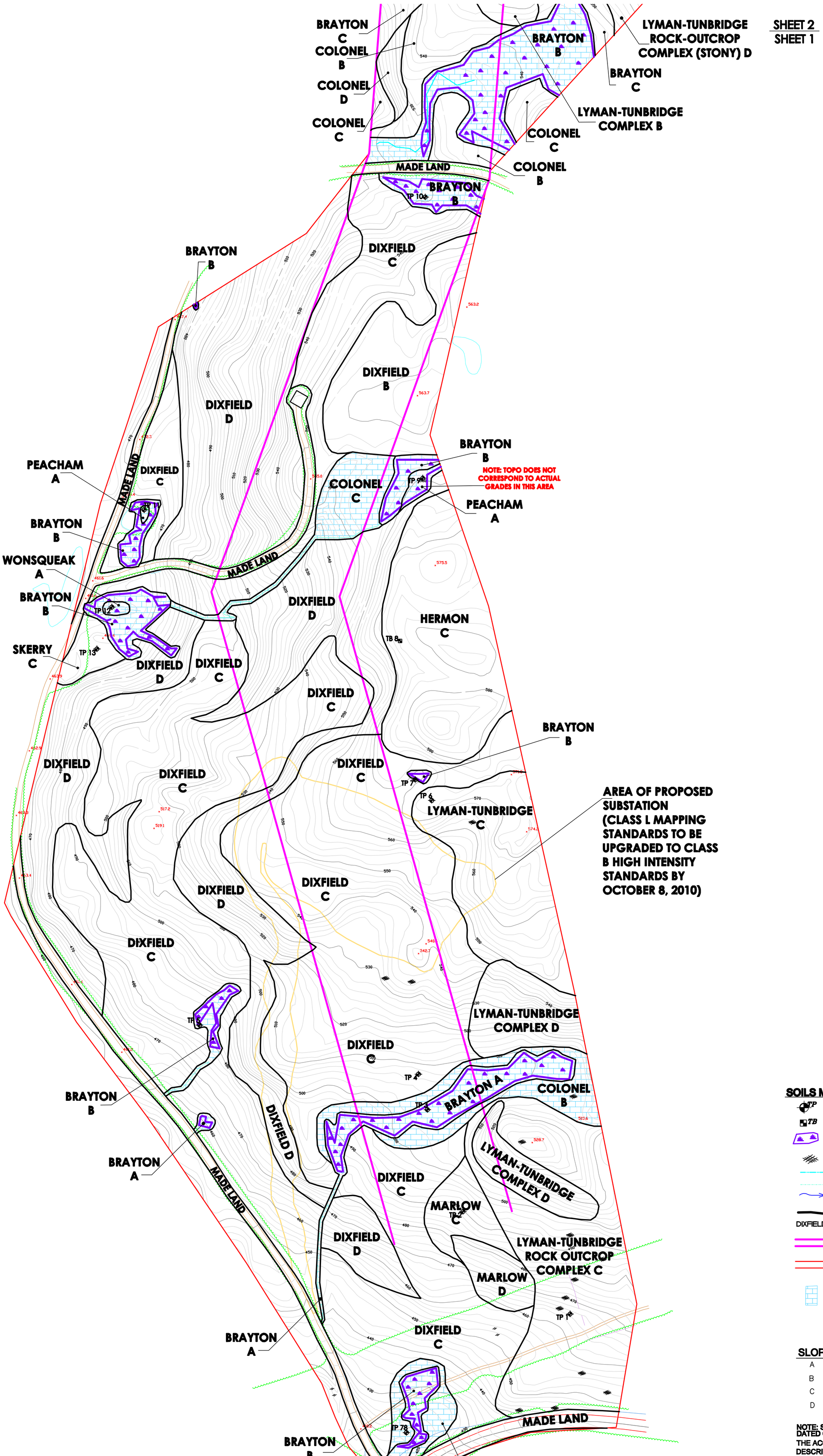
Extremely Stony

The areas have so many stones at or near the surface that wheeled power equipment, other than some special types, can operate only along selected routes. Tracked vehicles may be used in most places, although some routes have to be cleared. Usually, these areas have Class 3 stoniness.

Rubbly

The areas have so many stones at or near the surface that tracked vehicles cannot be used in most places. Usually, these areas have class 4 or 5 stoniness. If necessary in a highly detailed survey, they may be designated as “rubbly” and “very rubbly’.

If the soil has stones, boulders, and smaller fragments, the name includes the kind of rock fragment that are most limiting in the use or management of the soil. This is not necessarily the kind that is most abundant or the kind that is used to modify texture class of horizons in the profile description.



SOILS MAP LEGEND:

- TP — SOIL TEST PIT
- TB — SOIL TEST BORING
- WETLAND AREA (JURISDICTIONAL)
- BEDROCK OUTCROP
- STREAM
- DRAINAGE
- RUNOFF SWALE
- CLASS L SOIL BOUNDARY LINE
- DIXFIELD — CLASS L SOIL NAME
- EXTENTS OF 250' STUDY CORRIDOR
- EXTENTS OF STUDY AREA OTHERWISE
- SOIL AREA IN TRANSMISSION LINE CORRIDOR WHICH EXHIBIT EITHER SOMEWHAT POORLY TO VERY POORLY DRAINED CONDITIONS, OXYAQUIC CONDITIONS, OR WATER COURSES WHERE SPECIAL CONSIDERATION FOR SOIL DISTURBANCE SHOULD BE EXERCISED IF PROPOSED CONSTRUCTION IS DONE DURING UNFROZEN GROUND CONDITIONS, OR DURING WET SOIL CONDITIONS

SLOPE DESIGNATION

A	0 – 3%
B	3 – 8%
C	8 – 20%
D	20%+

NOTE: SEE ACCOMPANYING SOIL NARRATIVE REPORT, DATED OCTOBER, 2010

THE ACCOMPANYING SOILS SURVEY MAP (CLASS "L"), SOIL PROFILE DESCRIPTIONS AND SOIL NARRATIVE REPORT WERE DONE IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS, FEBRUARY 1995, AS AMENDED AND PREPARED BY ALBERT FRICK ASSOCIATES, SOIL SCIENTIST, SEALING THE PLANS AND REPORT. THIS MAP IS INTENDED TO VERIFY AND UPGRADE THE NATURAL RESOURCES CONSERVATION SERVICE (FORMERLY SCS) PUBLISHED MEDIUM INTENSITY SOIL SURVEY

GRAPHIC SCALE

100 0 50 100 200

(IN FEET)

1 inch = 100 ft.

STATE OF MAINE — JAMES LOGAN #213 — CERTIFIED SOIL SCIENTIST

STATE OF MAINE — ALBERT FRICK 66 — CERTIFIED SOIL SCIENTIST

DATE:	REVISIONS:

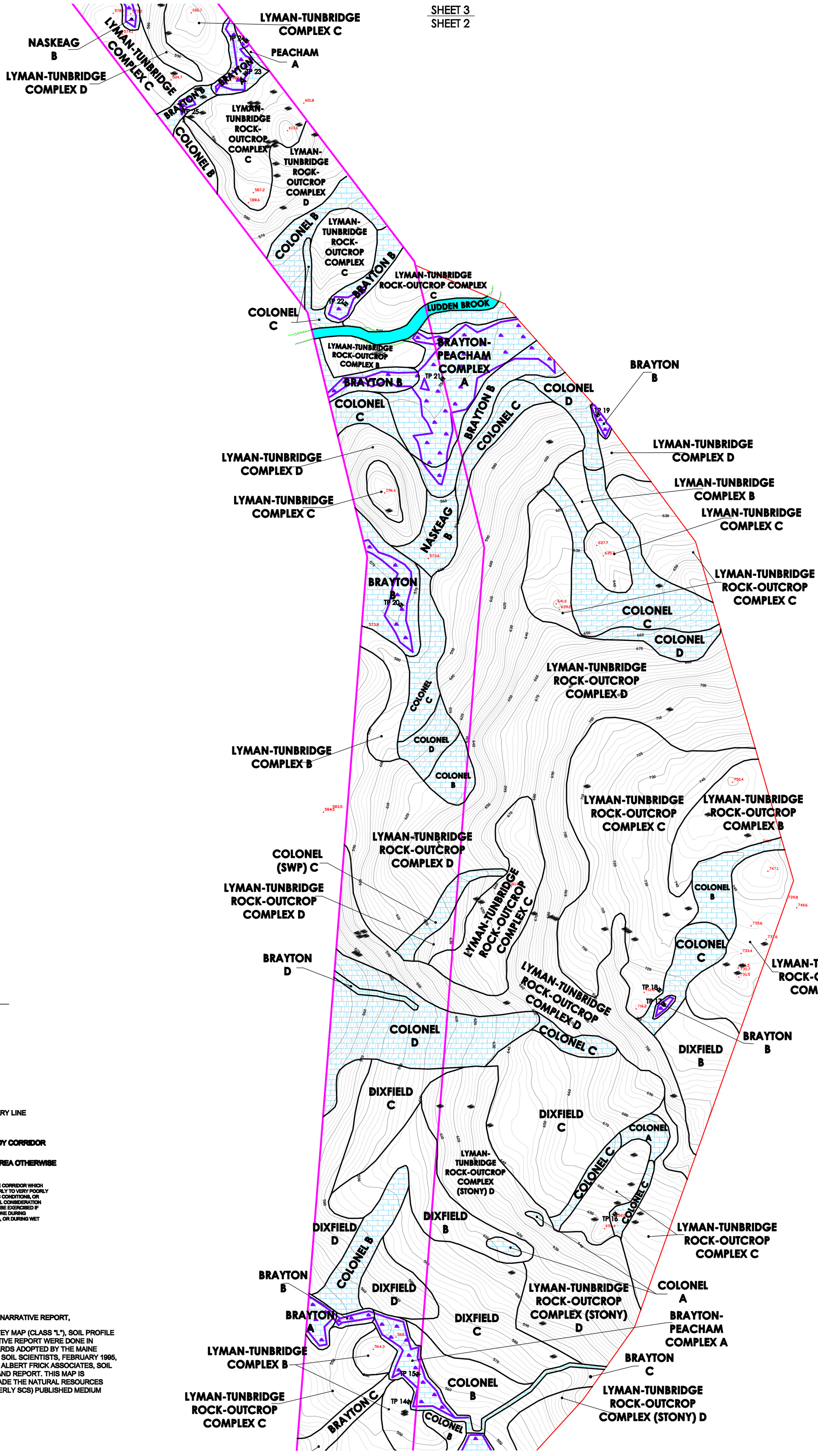
CLASS L SOILS MAP

PATRIOT RENEWABLES
SADDLEBACK RIDGE
T-LINE
DIXFIELD, MAINE
SHEET 1 OF 13

Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators
Gorham, Maine 04038

Drawn By: B.O./B.J.	Checked By: A.F./J.L.
Date: 8/17/10	Scale: 1" = 100'

SHEET 3
SHEET 2



SHEET 2
SHEET 1

SOILS MAP LEGEND:

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STATE OF MAINE — ALBERT FRICK 66 — CERTIFIED SOIL SCIENTIST

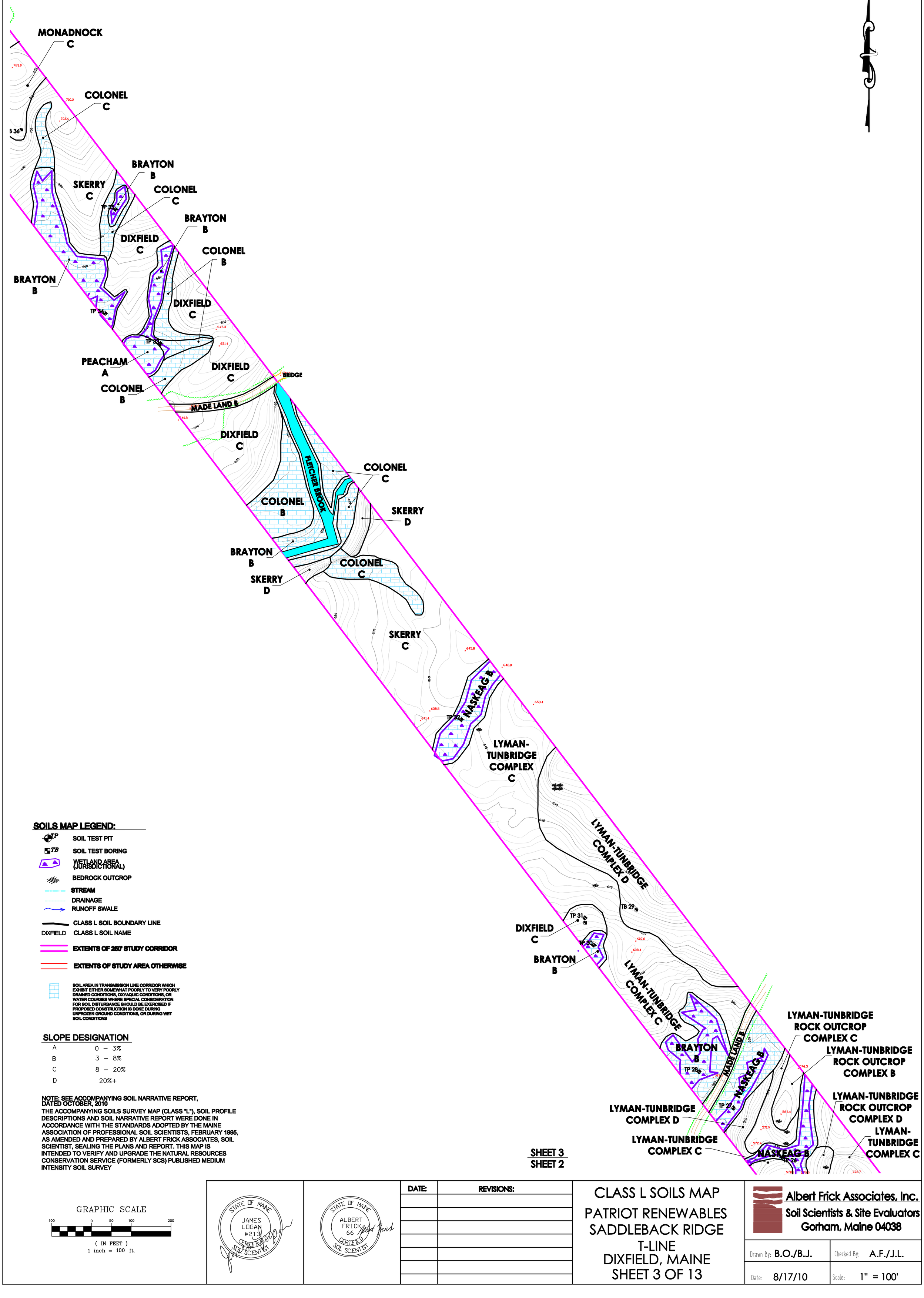
DATE:	REVISIONS:

CLASS L SOILS MAP
PATRIOT RENEWABLES
SADDLEBACK RIDGE T-LINE
DIXFIELD, MAINE
SHEET 2 OF 13

Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators
Gorham, Maine 04038

Drawn By: B.O./B.J. | Checked By: A.F./J.L.
Date: 8/17/10 | Scale: 1" = 100'

SHEET 4
SHEET 3



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SHEET 3
SHEET 2

GRAPHIC SCALE

100 0 50 100 200

(IN FEET)
1 inch = 100 ft.

STATE OF MAINE — JAMES LOGAN #213 — CERTIFIED SOIL SCIENTIST

STATE OF MAINE — ALBERT FRICK 66 — CERTIFIED SOIL SCIENTIST

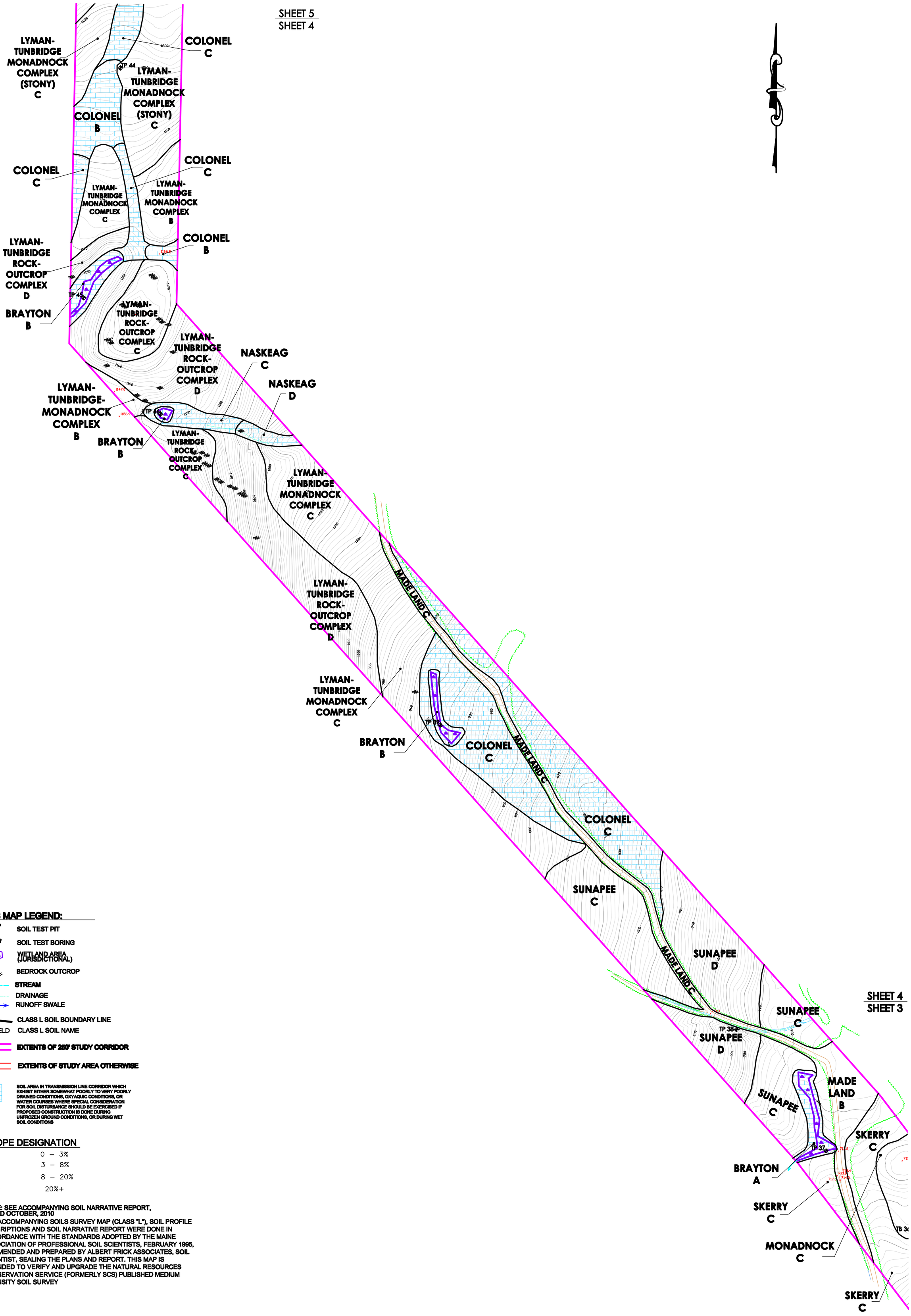
DATE:	REVISIONS:

CLASS L SOILS MAP
PATRIOT RENEWABLES
SADDLEBACK RIDGE
T-LINE
DIXFIELD, MAINE
SHEET 3 OF 13

Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators
Gorham, Maine 04038

Drawn By: B.O./B.J. | Checked By: A.F./J.L.
Date: 8/17/10 | Scale: 1" = 100'

SHEET 5
SHEET 4



SHEET 4
SHEET 3

SOILS MAP LEGEND:

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D	20%+

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GRAPHIC SCALE

100 0 50 100 200

(IN FEET)
1 inch = 100 ft.

STATE OF MAINE — JAMES LOGAN #213 — CERTIFIED SOIL SCIENTIST

STATE OF MAINE — ALBERT FRICK 66 — CERTIFIED SOIL SCIENTIST

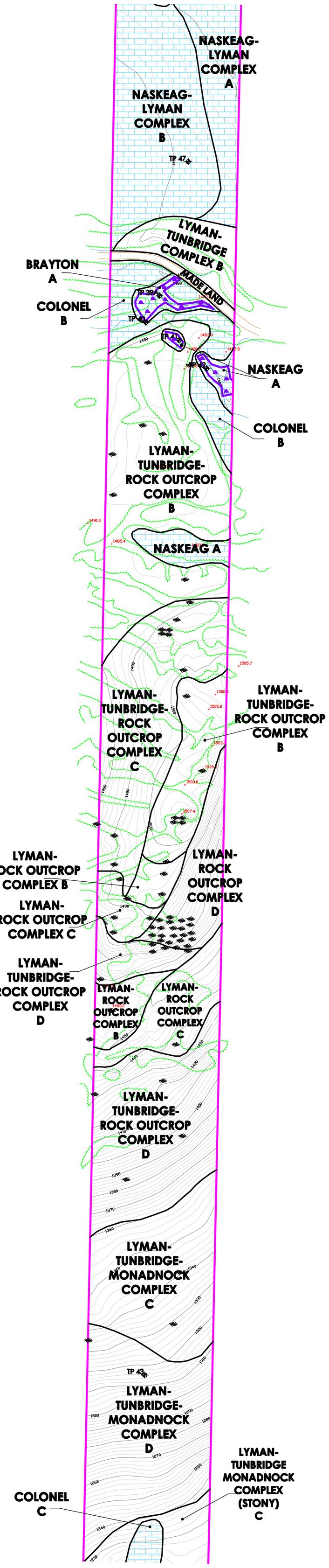
DATE:	REVISIONS:

CLASS L SOILS MAP
PATRIOT RENEWABLES
SADDLEBACK RIDGE
T-LINE
DIXFIELD, MAINE
SHEET 4 OF 13

Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators
Gorham, Maine 04038

Drawn By: B.O./B.J. | Checked By: A.F./J.L.
Date: 8/17/10 | Scale: 1" = 100'

SHEET 6
SHEET 5



SHEET 5
SHEET 4

SOILS MAP LEGEND:

- TP — SOIL TEST PIT
- TB — SOIL TEST BORING
- WETLAND AREA (JURISDICTIONAL)
- BEDROCK OUTCROP
- STREAM
- DRAINAGE
- RUNOFF SWALE
- CLASS L SOIL BOUNDARY LINE
- DIXFIELD — CLASS L SOIL NAME
- EXTENTS OF 250' STUDY CORRIDOR
- EXTENTS OF STUDY AREA OTHERWISE
- SOIL AREA IN TRANSMISSION LINE CORRIDOR WHICH EXHIBIT EITHER SOMEWHAT POORLY TO VERY POORLY DRAINED CONDITIONS, OXYAQUIC CONDITIONS, OR WATER COURSES WHERE SPECIAL CONSIDERATION FOR SOIL DISTURBANCE SHOULD BE EXERCISED IF PROPOSED CONSTRUCTION IS DONE DURING UNFROZEN GROUND CONDITIONS, OR DURING WET SOIL CONDITIONS

SLOPE DESIGNATION

A	0 – 3%
B	3 – 8%
C	8 – 20%
D	20%+

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CLASS L SOILS MAP
PATRIOT RENEWABLES
SADDLEBACK RIDGE T-LINE
DIXFIELD, MAINE
SHEET 5 OF 13

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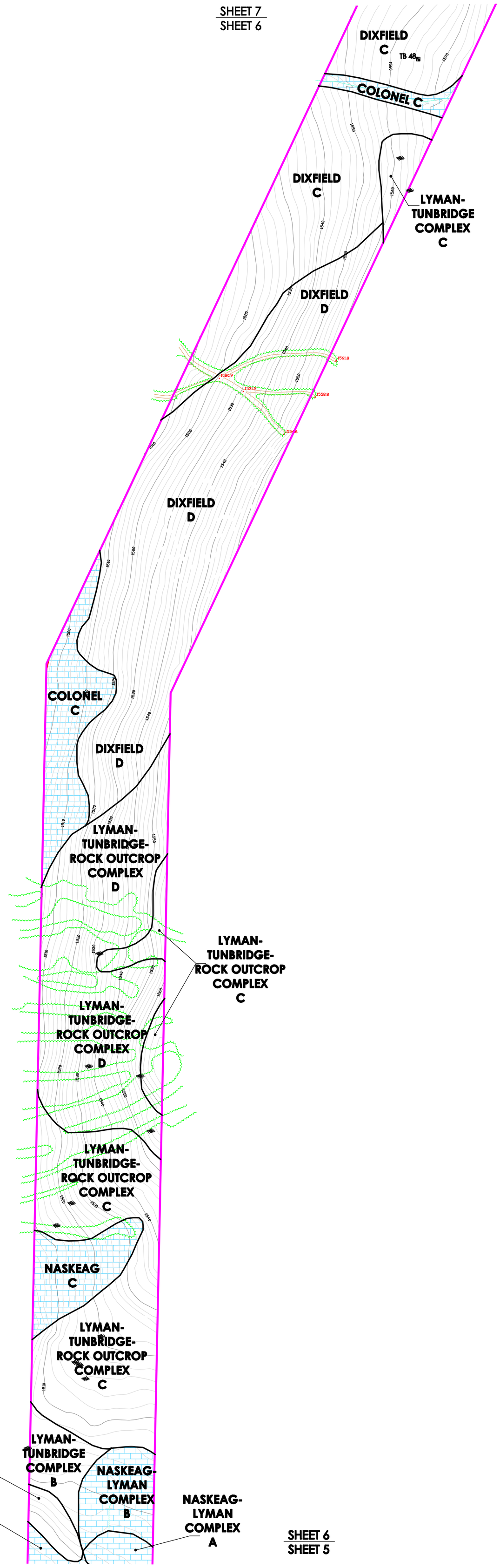
SHEET 7
SHEET 6



SHEET 6
SHEET 5

SOILS MAP LEGEND:

- TP — SOIL TEST PIT
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STATE OF MAINE — JAMES LOGAN #213 — CERTIFIED SOIL SCIENTIST

STATE OF MAINE — ALBERT FRICK 66 — CERTIFIED SOIL SCIENTIST

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CLASS L SOILS MAP
PATRIOT RENEWABLES
SADDLEBACK RIDGE T-LINE
DIXFIELD, MAINE
SHEET 6 OF 13

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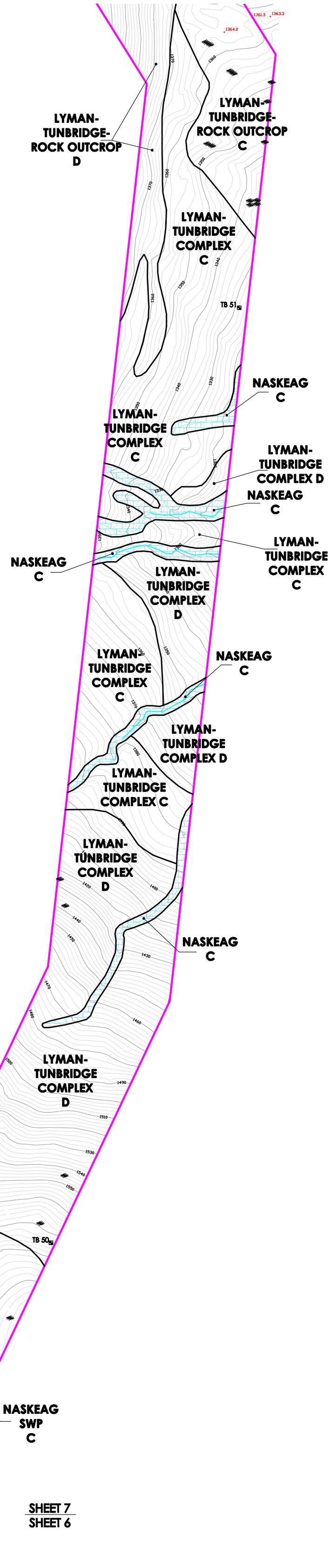
SHEET 8
SHEET 7



SHEET 7
SHEET 6

SOILS MAP LEGEND:

- TP — SOIL TEST PIT
- TB — SOIL TEST BORING
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STATE OF MAINE — JAMES LOGAN #213 — CERTIFIED SOIL SCIENTIST

STATE OF MAINE — ALBERT FRICK 66 — CERTIFIED SOIL SCIENTIST

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CLASS L SOILS MAP
PATRIOT RENEWABLES
SADDLEBACK RIDGE T-LINE
DIXFIELD, MAINE
SHEET 7 OF 13

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SHEET 9
SHEET 8

SHEET 8
SHEET 7

SOILS MAP LEGEND:

- TP — SOIL TEST PIT
- TB — SOIL TEST BORING
- WETLAND AREA (JURISDICTIONAL)
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STATE OF MAINE — JAMES LOGAN #213 — CERTIFIED SOIL SCIENTIST

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DATE:	REVISIONS:

CLASS L SOILS MAP
PATRIOT RENEWABLES
SADDLEBACK RIDGE
T-LINE
DIXFIELD, MAINE
SHEET 8 OF 13

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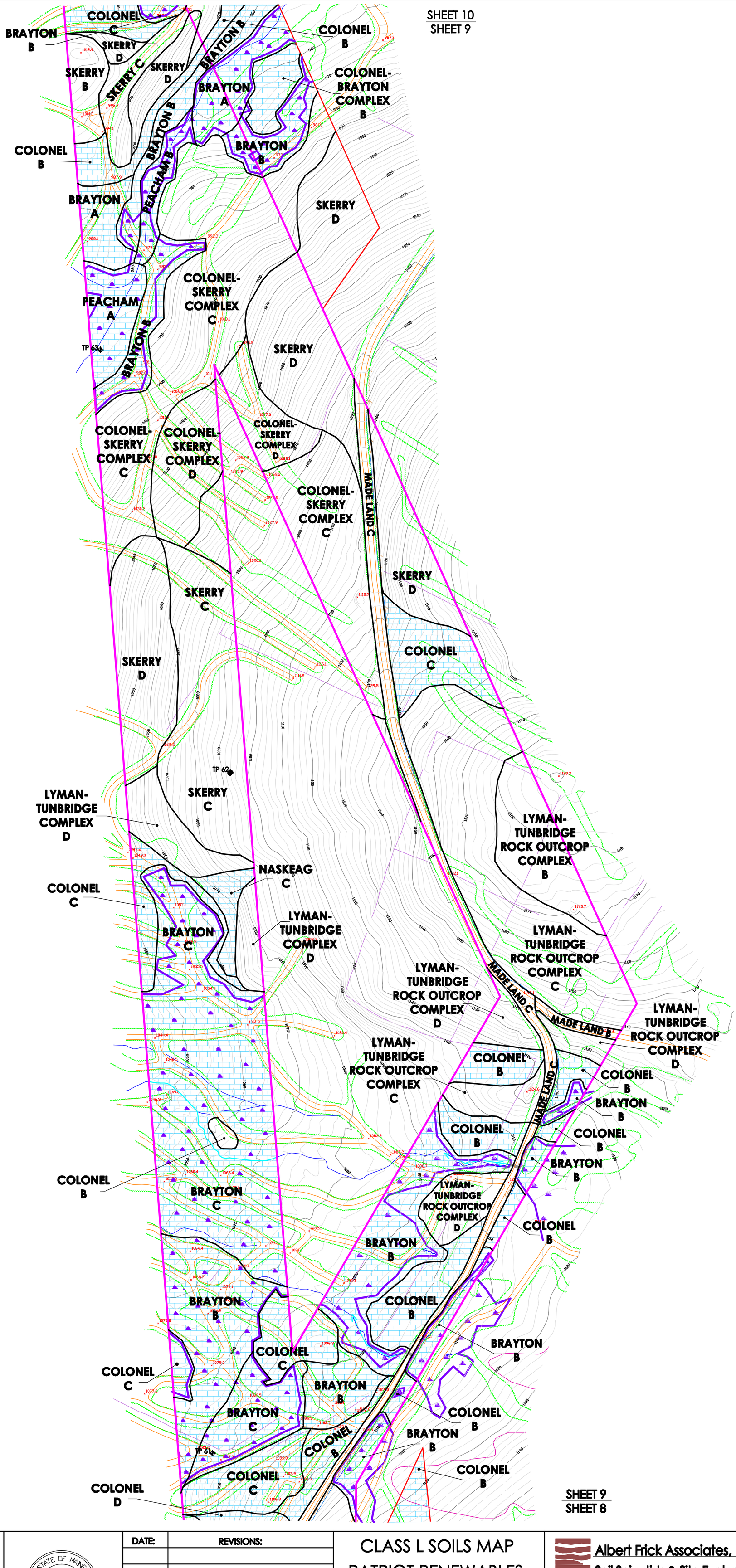
Drawn By: B.O./B.J. | Checked By: A.F./J.L.
Date: 8/17/10 | Scale: 1" = 100'

SHEET 10
SHEET 9



SOILS MAP LEGEND:

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SHEET 9
SHEET 8

GRAPHIC SCALE

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(IN FEET)
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CLASS L SOILS MAP
PATRIOT RENEWABLES
SADDLEBACK RIDGE
T-LINE
DIXFIELD, MAINE
SHEET 9 OF 13

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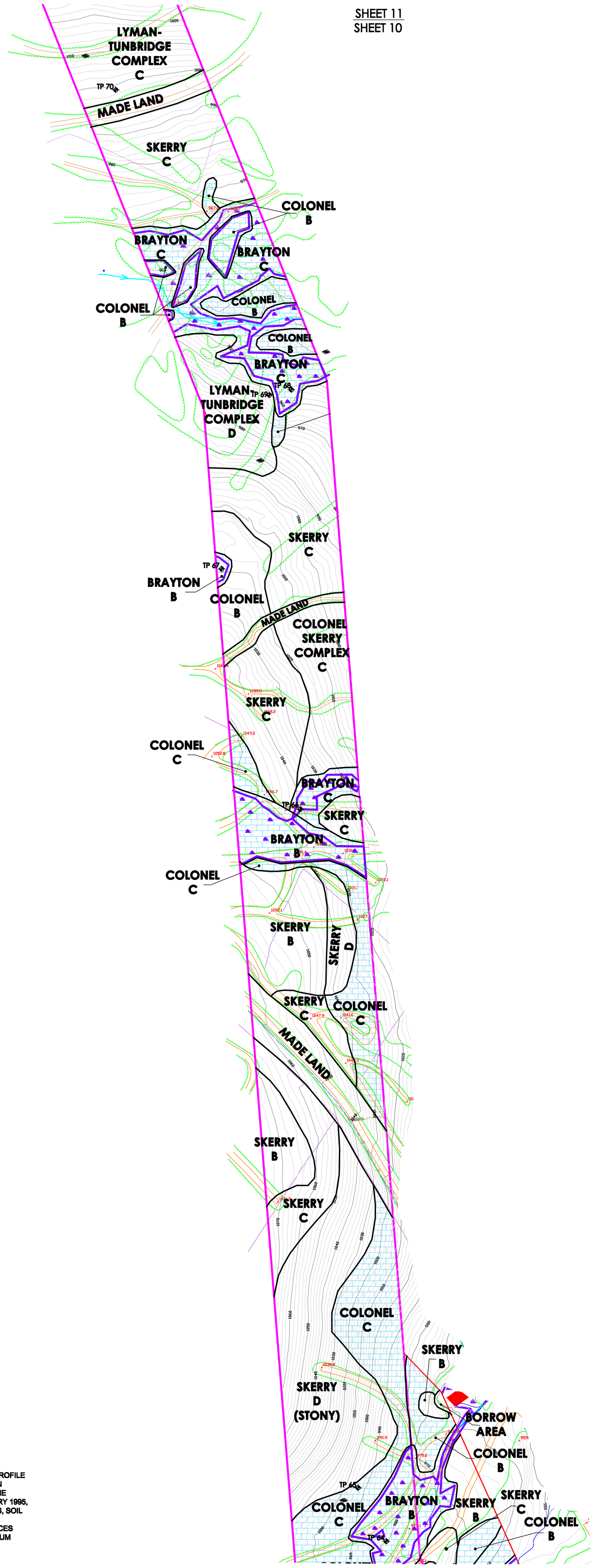
Drawn By: B.O./B.J. | Checked By: A.F./J.L.

Date: 8/17/10 | Scale: 1" = 100'

SHEET 11
SHEET 10



SHEET 10
SHEET 9

SOILS MAP LEGEND:

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CLASS L SOILS MAP
PATRIOT RENEWABLES
SADDLEBACK RIDGE
T-LINE
DIXFIELD, MAINE
SHEET 10 OF 13

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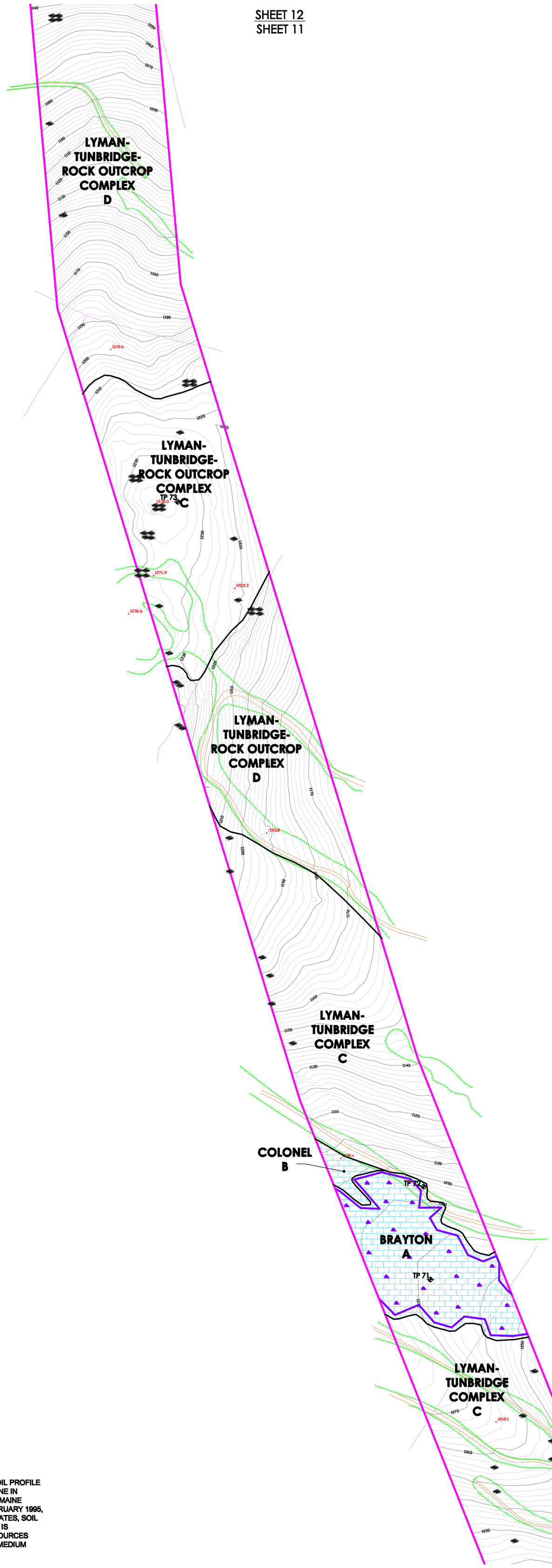
SHEET 12
SHEET 11



SHEET 11
SHEET 10

SOILS MAP LEGEND:

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SADDLEBACK RIDGE
T-LINE
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SHEET 11 OF 13

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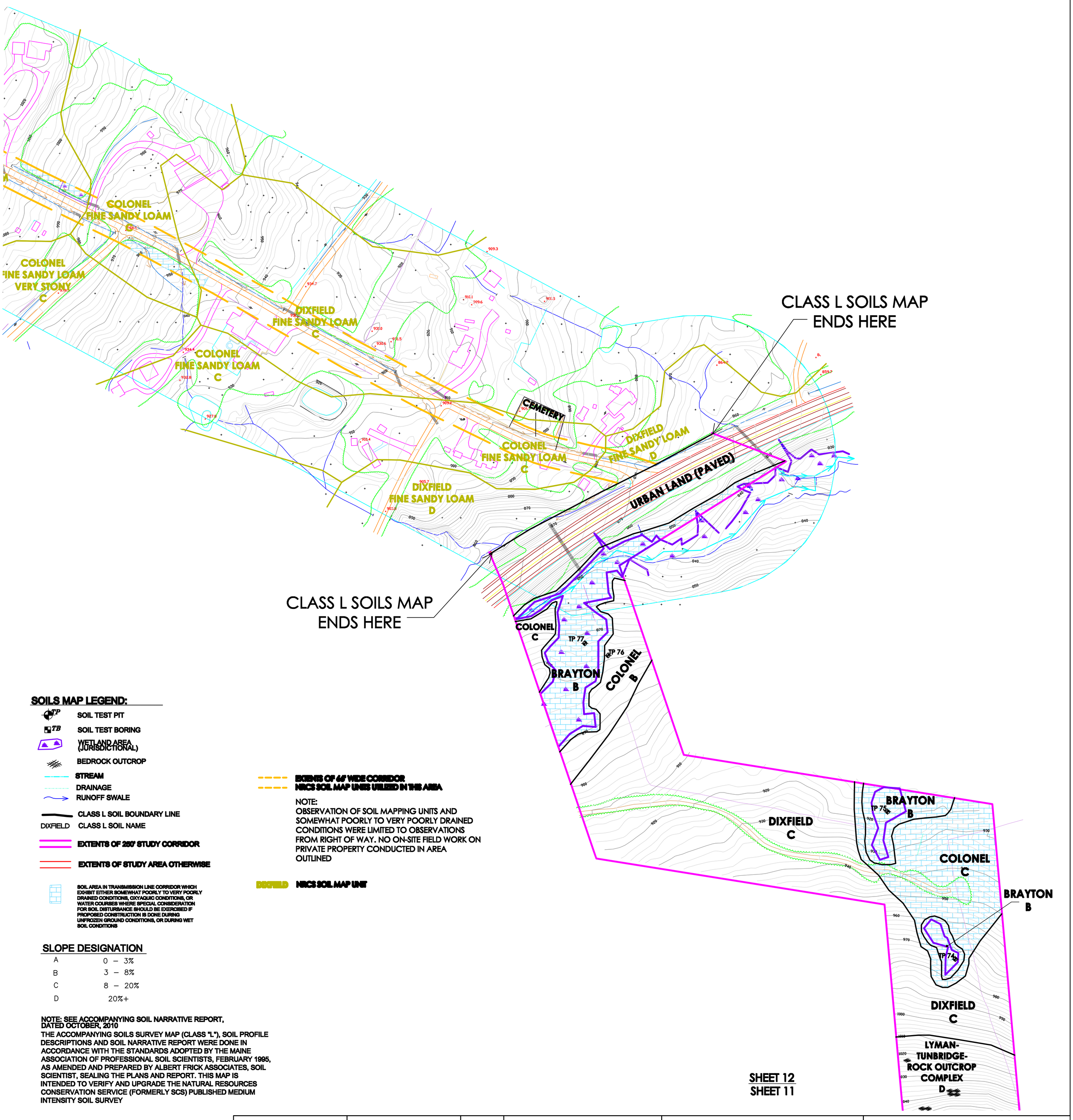
SHEET 13
SHEET 12



SHEET 12
SHEET 11

SOILS MAP LEGEND:

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- EXTENTS OF 44' WIDE CORRIDOR
- NRCS SOIL MAP UNITS UTILIZED IN THIS AREA

NOTE:
OBSERVATION OF SOIL MAPPING UNITS AND SOMEWHAT POORLY TO VERY POORLY DRAINED CONDITIONS WERE LIMITED TO OBSERVATIONS FROM RIGHT OF WAY. NO ON-SITE FIELD WORK ON PRIVATE PROPERTY CONDUCTED IN AREA OUTLINED

DIXFIELD — NRCS SOIL MAP UNIT

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CLASS L SOILS MAP
PATRIOT RENEWABLES
SADDLEBACK RIDGE
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SHEET 12 OF 13

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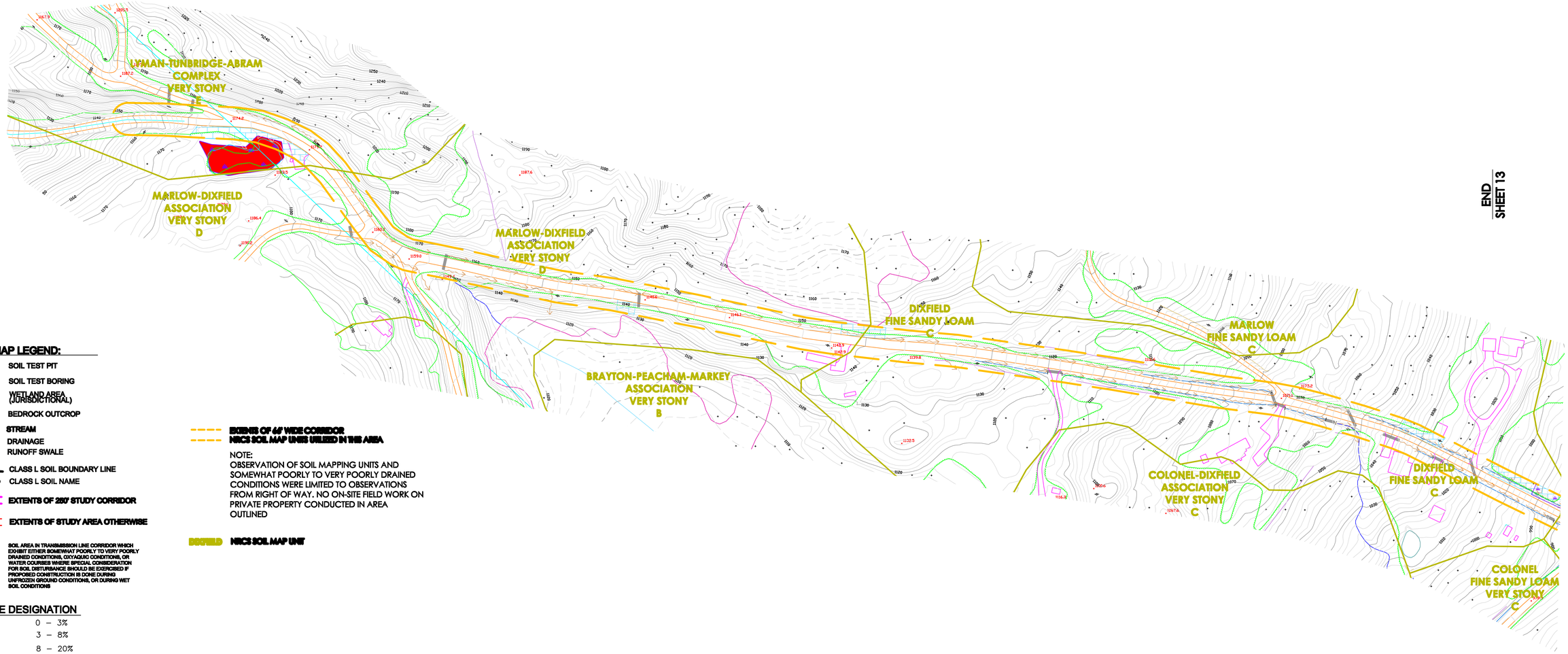

END
SHEET 13

SOILS MAP LEGEND:

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- EXTENTS OF 65' WIDE CORRIDOR
- NRCS SOIL MAP UNITS UTILIZED IN THIS AREA

NOTE:
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DIXFIELD — NRCS SOIL MAP UNIT

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DATE:	REVISIONS:

SOILS MAP
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SADDLEBACK RIDGE
T-LINE
DIXFIELD, MAINE
SHEET 13 OF 13

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