

BOWERS MOUNTAIN WIND POWER PROJECT
OPERATIONS AND MAINTENANCE FACILITY SITE

SOIL NARRATIVE REPORT
off Route 6
Carroll Plantation, Maine

DATE: Soil profiles observed on October 7, 2010.

BASE MAP: Contour map 2-foot intervals, scaled 1"=60', provided by J.W. Sewall Co.

GROUND CONTROL: Test pits located with submeter GPS by Albert Frick Associates personnel.

THE SOIL MAPPING CONFORMS WITH A HIGH-INTENSITY CLASS A SURVEY.

Class A - Soil Survey

1. Mapping units of 1/8 acre or greater.
2. Scale of 1" = 100' or larger.
3. Up to 25% inclusions in mapping units of which no more than 15% may be dissimilar soils.
4. Ground control - base line and test pits located by land surveyor.
5. Base map with 2' contour lines.

This report was prepared for a proposed operations and maintenance facility building, and associated parking, which utilizes private drinking water and private on-site subsurface wastewater disposal. It is intended to verify and upgrade the Class L soil survey produced for the project site, by utilizing a backhoe for excavation of test pits.

The accompanying soil profile descriptions, soil map and this soil narrative report were done in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.

James Logan

C.S.S. #213, S.E. #237 ____/____/____
Date

MADE LAND

SETTING

Parent Material:	Variable
Landform:	Variable
Position in Landscape:	Variable
Slope Gradient Ranges:	(B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class:	None assigned
Typical Profile Description:	Surface layer:) Typically this map unit Subsurface layer:) consists of areas Subsoil layer:) excavated and reworked Substratum:) by man, then smoothed.
Hydrologic Group:	None assigned
Surface Run Off:	Variable
Permeability:	Variable
Depth to Bedrock:	Variable
Hazard to Flooding:	Typically none

INCLUSIONS (Within Mapping Unit)

Similar:	Filled Land, Telos
Dissimilar:	Small 'made' depressions that contain standing water or have other drainage implications. These may be caused by compaction by vehicular traffic, which is not synonymous with seasonal water tables, Monarda

USE AND MANAGEMENT

This map unit consists of areas reworked by man, so that the soils are no longer taxonomically classifiable. Limiting factor for development is soil drainage, though somewhat difficult to determine in these map units. Proper foundation drainage or other site alterations recommended for construction. Within the study area, this map unit generally is represented by an existing access woods road to the project site from Route 6.

MONARDA (Aeric Haplaquepts)

SETTING

Parent Material:	Loamy glacial till.
Landform:	Nearly level to sloping soils.
Position in Landscape:	Occupies lower positions in the landscape, base of long slopes, swales, and depressional areas.
Slope Gradient Ranges:	(A) 0-3% (B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class:	Poorly drained with a perched groundwater table 0 to 1.5 feet beneath the soil surface from October through May and during periods of heavy precipitation.	
Typical Profile Description:	Surface layer:	Black organic layer, 0-4"
	Subsurface layer:	Light brownish gray, gravelly silt loam, 4-9"
	Subsoil layer:	Gray, olive gray and olive, gravelly silt loam, 9-33"
	Substratum:	Gray, gravelly silt loam, 33"+
Hydrologic Group:	Group D	
Permeability:	Moderate to moderately slow in the solum, moderately slow to slow in the substratum.	
Depth to Bedrock:	Deep, greater than 60".	
Hazard to Flooding:	None	

INCLUSIONS (Within Mapping Unit)

Similar:	Brayton, Telos, Colonel, Scantic, Biddeford
Dissimilar:	Peacham, Elliottsville

USE AND MANAGEMENT

Development of wind power projects: The limiting factor for building site development is wetness due to the presence of a high perched water table 0 to 1.5 feet below the existing the soil surface for a significant portion of the year. This soil is unsuitable for on-site subsurface wastewater disposal. Monarda soil may be classified as wetlands, based on the combined consideration of hydric conditions, hydrology, and vegetation. Special erosion and sediment control recommended.

MONSON-ELLIOTSVILLE COMPLEX

SETTING

Parent Material:	Fine-textured glacial till derived from state and meta sandstone.
Landform:	Crests and sideslopes of glaciated uplands.
Position in Landscape:	Uppermost of intermediate positions in the landscape.
Slope Gradient Ranges:	(B) 0-8% (C) 8-20%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Somewhat excessively to well drained, with no evidence of a water table, except on the bedrock surface for short duration during spring and periods of excessive rainfall. The Monson and Elliottsville soils occur in a non-repeating pattern that cannot be separated out in mapping.

Typical Profile Description:
(for Monson)

Surface layer: Dark reddish brown organic material, 0-4"
Subsurface layer: Light gray channery silt loam, 4-5"
Subsoil layer: Dark reddish to yellowish brown silt loam, 6-11"
Substratum: Light olive brown channery silt loam, 11-19"
Slate bedrock @ 19"
Note: Monson soils are 10-20" to bedrock with no dense basal till.

(for Elliottsville)

Surface layer: Pinkish-gray silt loam, 0-2"
Subsurface layer: Dark reddish-brown and strong brown silt loam or loam, 2-11"
Subsoil layer: Light olive brown channery loam, 11-17"
Substratum: Olive channery loam, 17-26"

Hydrologic Group:	Group C/D depending on depth to bedrock
Surface Run-off:	Moderately rapid to rapid (on exposed bedrock)
Permeability:	Moderate to rapid (on exposed bedrock surfaces)
Depth to Bedrock:	10" (Monson) to moderately deep (40")
Hazard to Flooding:	None

INCLUSIONS

(Within mapping unit)

Similar:	Chesuncook, Thorndike, Howland (MWD)
Dissimilar:	Naskeag, Telos, Monarda, Howland (SWP)

Development for Wind Power Project: The limiting factor for development of wind power projects is depth to bedrock. These soils are generally suited to the proposed use with ample potential for solid anchoring points for wind turbines. While these map units generally exhibit somewhat excessively to well drained conditions, inclusions of small depressional areas that are shallow to bedrock and somewhat poorly drained may exist.

TELOS (Typic Haplorthods)

SETTING

Parent Material:	Loamy dense basal till.
Landform:	Lower side slopes in glaciated uplands.
Position in Landscape:	Nearly level to steeply sloping soils on upland till ridges.
Slope Gradient Ranges:	(B) 3-8% (C) 8-20%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class:	Somewhat poorly drained, with a seasonal water table generally 9-15" beneath the soil surface in spring and during wettest seasons.	
Typical Profile Description	Surface layer:	Pinkish gray silt loam, 0-4"
	Subsurface layer:	Dark reddish to yellowish brown silt loam, 4-15"
	Subsoil layer:	Light olive brown silt loam, 15-20"
	Substratum:	Olive gravelly silt loam, 20-65"
Hydrologic Group:	Group C	
Surface Run Off:	Slow	
Permeability:	Moderate in the solum, and slow or very slow in the substratum.	
Depth to Bedrock:	Very deep, greater than 65".	
Hazard to Flooding:	None	

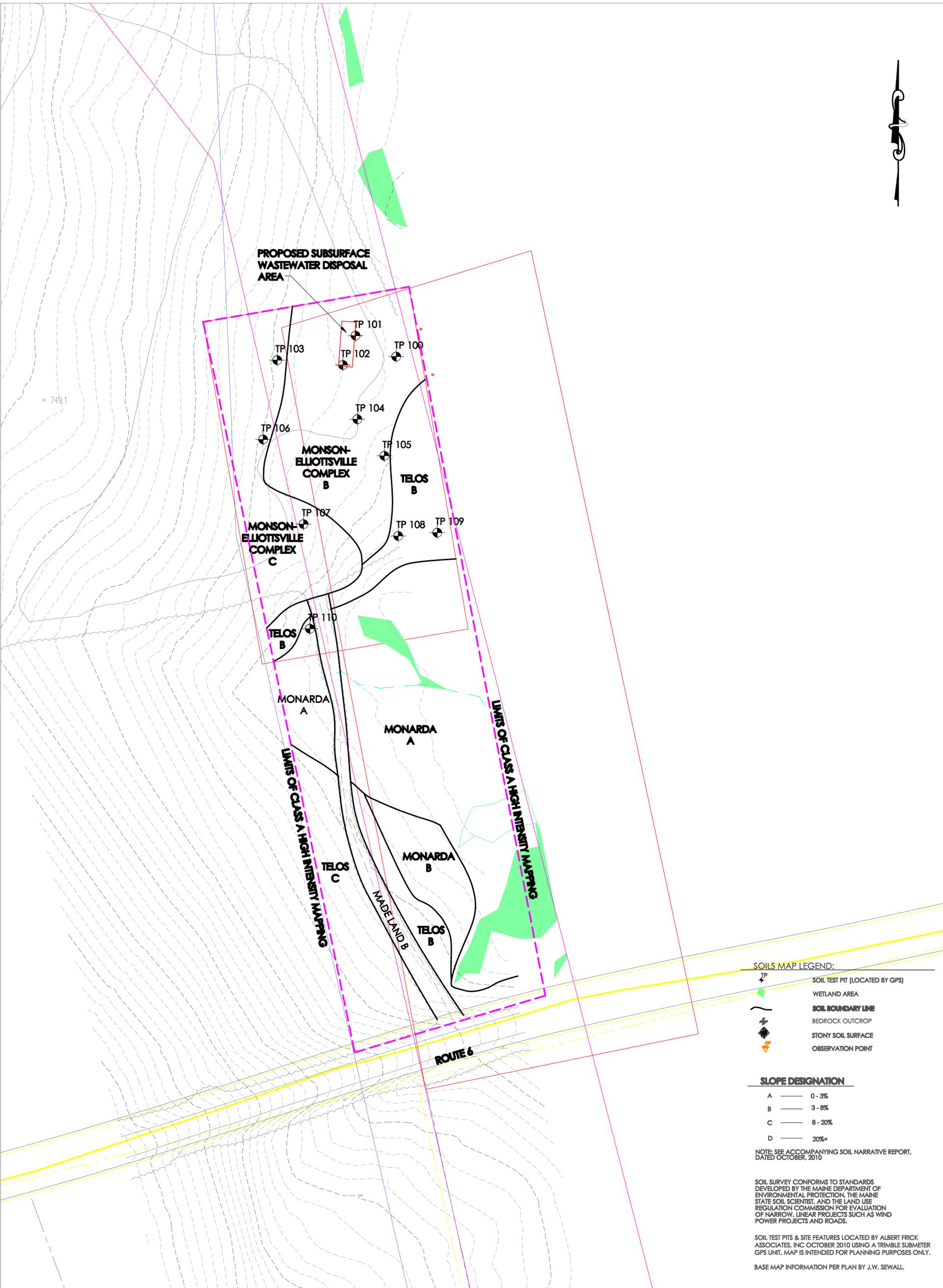
INCLUSIONS

(Within Mapping Unit)

Similar:	Chesuncook, Colonel, Howland (SWP)
Dissimilar:	Brayton, Monarda, Monson, Elliottsville (Variant-somewhat poorly drained)

USE AND MANAGEMENT

Development of wind power projects: The limiting factors for development of wind power projects is wetness. Proper road foundation drainage, or importation of coarse granular fill may be needed to overcome soil drainage limitations. Redirection of surface water run-off from long upslope watersheds, away from project area prior to construction, will assist in site preparation.



SOILS MAP LEGEND:

	SOIL TEST PIT (LOCATED BY GPS)
	WETLAND AREA
	SOIL BOUNDARY LINE
	BEDROCK OUTCROP
	STONY SOIL SURFACE
	OBSERVATION POINT

SLOPE DESIGNATION

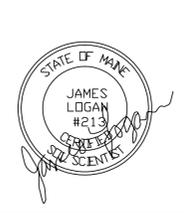
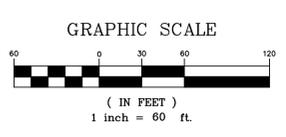
A	0 - 3%
B	3 - 8%
C	8 - 20%
D	20%+

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

SOIL SURVEY CONFORMS TO STANDARDS DEVELOPED BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE MAINE STATE SOIL SCIENTIST, AND THE LAND USE REGULATION COMMISSION FOR EVALUATION OF NARROW, LINEAR PROJECTS SUCH AS WIND POWER PROJECTS AND ROADS.

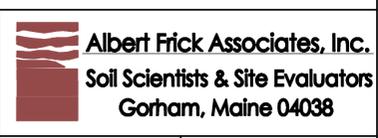
SOIL TEST PITS & SITE FEATURES LOCATED BY ALBERT FRICK ASSOCIATES, INC OCTOBER 2010 USING A TRIMBLE SUBMETER GPS UNIT. MAP IS INTENDED FOR PLANNING PURPOSES ONLY.

BASE MAP INFORMATION PER PLAN BY J.W. SEWALL.



DATE	REVISIONS:

**CLASS A HIGH-INTENSITY
SOILS SURVEY
CHAMPLAIN WIND ENERGY
ROUTE 6
CARROLL PLANTATION, MAINE
O & M SITE**



Drawn By: B.O.	Checked By: J.L.
Date: 10/22/10	Scale: 1" = 60'

Town, City, Plantation
CARROLL PLT & KOSSUTH TWP

Street, Road Subdivision
BOWERS WIND PROJECT

Owner's Name
CHAMPLAIN WIND ENERGY (STANTEC)

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
0			DARK YELLOWISH BROWN	
10	GRAVELLY SILT LOAM	FRIABLE	OLIVE BROWN	OXIDIZED RHIZOSPHERES
20		FIRM	OLIVE	COMMON DISTINCT
30				
40				
50				

Soil Classification: Profile _____ Condition _____ Slope _____ % Limiting Factor 10 " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: **TELOS** (ON MOUND) Drainage Class: _____ Hydrologic Group: _____

Observation Hole TP 2 Test Pit Boring
5+/- " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0			DARK YELLOWISH BROWN	
10	GRAVELLY SILT LOAM	FRIABLE	OLIVE BROWN	COMMON FAINT & SATURATED
20		FIRM	OLIVE	COMMON DISTINCT
30				
40				
50				

Soil Classification: Profile _____ Condition _____ Slope _____ % Limiting Factor 7 " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: **MONARDA** (IN PIT) Drainage Class: _____ Hydrologic Group: _____

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
0			DARK YELLOWISH BROWN	
10	GRAVELLY SILT LOAM	FRIABLE	OLIVE BROWN	COMMON FAINT
20		FIRM	OLIVE	COMMON DISTINCT
30				
40				
50				

Soil Classification: Profile _____ Condition _____ Slope _____ % Limiting Factor 11 " Ground Water Restrictive Layer Bedrock Pit Depth

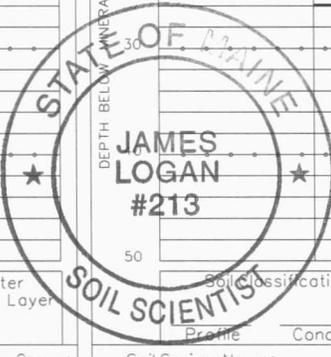
Soil Series Name: **TELOS** (IN PIT)-NO SATURATION Drainage Class: _____ Hydrologic Group: _____

Observation Hole TP 4 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0			LIGHT GRAY (ALBIC)	
10	GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	
20		SOMEWHAT FIRM	YELLOWISH BROWN	COMMON FAINT
30		FIRM	OLIVE BROWN	COMMON FAINT
40			OLIVE	COMMON DISTINCT
50				

Soil Classification: Profile _____ Condition _____ Slope _____ % Limiting Factor 19 " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: **CHESUNCOOK** (ON MOUND) Drainage Class: _____ Hydrologic Group: _____



FOR WASTEWATER DISPOSAL
 FOR SOILS MAPPING

James Logan (for AFA) 237/213 SE/CSS * 4/13/10 Date

Town, City, Plantation
CARROLL PLT & KOSSUTH TWP

Street, Road Subdivision
BOWERS WIND PROJECT

Owner's Name
CHAMPLAIN WIND ENERGY (STANTEC)

TEST PIT LOCATED OUTSIDE FINAL SURVEY AREA

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

Observation Hole **TP 5** Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		LIGHT GRAY (ALBIC)	
GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE EVIDENT
REFUSAL (BEDROCK)			

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **13"**

Soil Series Name: **ELLIOTTVILLE** Drainage Class: _____ Hydrologic Group: _____

Observation Hole **TP 6** Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		DARK BROWN	
GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE EVIDENT
		OLIVE BROWN	
BEDROCK			

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **25"**

Soil Series Name: **ELLIOTTVILLE** Drainage Class: _____ Hydrologic Group: _____

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

Observation Hole **TP 7** Test Pit Boring
2+/- " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		LIGHT GRAY (ALBIC)	
GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	
		YELLOWISH BROWN	
		OLIVE BROWN	
REFUSAL FREE WATER			

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **26"**

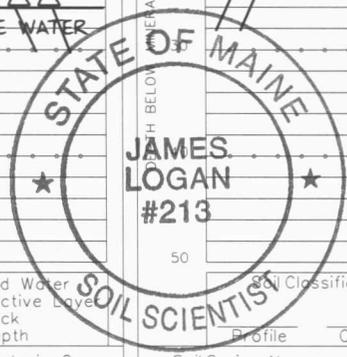
Soil Series Name: **ELLIOTTVILLE** Drainage Class: _____ Hydrologic Group: _____

Observation Hole **TP 8** Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		DARK YELLOWISH BROWN	
GRAVELLY SILT LOAM	FRIABLE	OLIVE BROWN	COMMON FAINT
		OLIVE	COMMON DISTINCT
REFUSAL			

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **9"**

Soil Series Name: **ELLIOTTVILLE** Drainage Class: _____ Hydrologic Group: _____



(VARIANT- WITH WATER TABLE)
James Logan (for AFA)
 Site Evaluator / Soil Scientist Signature

(VARIANT- SWP)
237/213 SE/CSS * **4/13/10** Date

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

Town, City, Plantation
CARROLL PLT & KOSSUTH TWP

Street, Road Subdivision
BOWERS WIND PROJECT

Owner's Name
CHAMPLAIN WIND ENERGY (STANTEC)

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

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

Texture	Consistency	Color	Mottling
		DARK YELLOWISH BROWN	
GRAVELLY FINE SANDY LOAM	FRIABLE		
		MIXED YELLOWISH BROWN	FEW FAINT
GRAVELLY LOAMY SAND & SAND	FIRM TO VERY FIRM	OLIVE GRAY	COMMON DISTINCT & FREE WATER

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **14"**

Soil Series Name: **COLONEL** Drainage Class: _____ Hydrologic Group: _____

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

Texture	Consistency	Color	Mottling
		DARK YELLOWISH BROWN	
GRAVELLY SILT LOAM	FRIABLE	OLIVE BROWN	
		OLIVE	FEW FAINT
	FIRM		COMMON FAINT & SATURATED

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **12"**

Soil Series Name: **TELOS** Drainage Class: _____ Hydrologic Group: _____

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

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

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

Texture	Consistency	Color	Mottling
		DARK YELLOWISH BROWN	
GRAVELLY SILT LOAM	FRIABLE		
		OLIVE BROWN	FEW FAINT
			SATURATED
	FIRM	OLIVE	COMMON DISTINCT

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **10"**

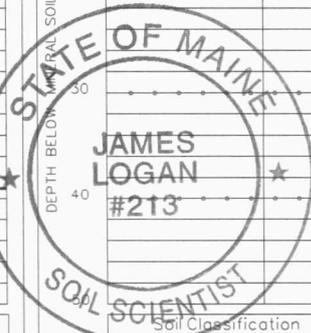
Soil Series Name: **TELOS** Drainage Class: _____ Hydrologic Group: _____

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

Texture	Consistency	Color	Mottling
		DARK YELLOWISH BROWN	
GRAVELLY SILT LOAM	FRIABLE		
		OLIVE BROWN	COMMON FAINT
		OLIVE	COMMON DISTINCT
	FIRM		

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **11"**

Soil Series Name: **TELOS** Drainage Class: _____ Hydrologic Group: _____



FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

James Logan (for AFA)
 Site Evaluator / Soil Scientist Signature

237/213
 SE/CSS #

4/14/10
 Date

(MONARDA INCLUSIONS IN WETTEST MICRO-DEPRESSIONS)

Town, City, Plantation
CARROLL PLT & KOSSUTH TWP

Street, Road Subdivision
BOWERS WIND PROJECT

Owner's Name
CHAMPLAIN WIND ENERGY (STANTEC)

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

Observation Hole TP 17 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		DARK YELLOWISH BROWN	
GRAVELLY SILT LOAM	FRIABLE		
		OLIVE BROWN	
		OLIVE	FEW FAINT
	FIRM	OLIVE GRAY	COMMON FAINT
LIMIT OF EXCAVATION			

Soil Classification: Profile _____ Condition _____ Slope _____ % Limiting Factor 16 " Ground Water Restrictive Layer Bedrock Pit Depth
 Soil Series Name: **CHESUNCOOK** Drainage Class: _____ Hydrologic Group: _____

Observation Hole TP 18 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		DARK YELLOWISH BROWN	
GRAVELLY SILT LOAM	FRIABLE		
		OLIVE BROWN	
		OLIVE	COMMON DISTINCT
GRAVELLY VERY FINE SANDY LOAM	FIRM		

Soil Classification: Profile _____ Condition _____ Slope _____ % Limiting Factor 20 " Ground Water Restrictive Layer Bedrock Pit Depth
 Soil Series Name: **CHESUNCOOK** Drainage Class: _____ Hydrologic Group: _____

TEST PIT LOCATED OUTSIDE FINAL SURVEY AREA

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

Observation Hole TP 19 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

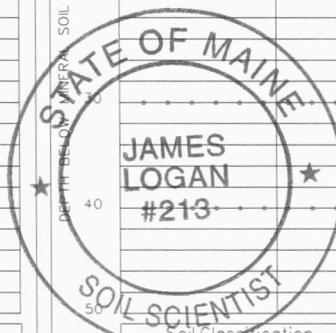
Texture	Consistency	Color	Mottling
		DARK YELLOWISH BROWN	
GRAVELLY SILT LOAM	FRIABLE		NONE EVIDENT
		OLIVE BROWN	
BEDROCK			

Soil Classification: Profile _____ Condition _____ Slope _____ % Limiting Factor 20 " Ground Water Restrictive Layer Bedrock Pit Depth
 Soil Series Name: **MONSON-ELLIOTTSVILLE** Drainage Class: _____ Hydrologic Group: _____

Observation Hole TP 20 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		DARK YELLOWISH BROWN	
GRAVELLY SILT LOAM	FRIABLE		NONE EVIDENT
REFUSAL (BEDROCK)			

Soil Classification: Profile _____ Condition _____ Slope _____ % Limiting Factor 12 " Ground Water Restrictive Layer Bedrock Pit Depth
 Soil Series Name: **MONSON** Drainage Class: _____ Hydrologic Group: _____



FOR WASTEWATER DISPOSAL
 FOR SOILS MAPPING

FOR WASTEWATER DISPOSAL
 FOR SOILS MAPPING

James Logan (for AFA)
 Site Evaluator / Soil Scientist Signature

237/213
 SE/CSS *

4/14/10
 Date

Town, City, Plantation
CARROLL PLT & KOSSUTH TWP

Street, Road Subdivision
BOWERS WIND PROJECT

Owner's Name
CHAMPLAIN WIND ENERGY (STANTEC)

TEST PIT LOCATED OUTSIDE FINAL SURVEY AREA

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

Observation Hole **TP 21** Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
ORGANIC	FRIABLE	BLACK	△△△
BEDROCK			
FREE WATER			

Soil Classification: _____ Slope: _____ %
 Limiting Factor: " _____
 Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: _____ Drainage Class: _____ Hydrologic Group: _____

RUNOFF-INCLUSION IN SHALLOW TO BEDROCK MAP UNIT

Observation Hole **TP 22** Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		BROWN	
GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	
		OLIVE BROWN	FEW FAINT
REFUSAL (BEDROCK)			
FREE WATER			

Soil Classification: _____ Slope: _____ %
 Limiting Factor: " 11"
 Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **ELLIOTTSVILLE** Drainage Class: _____ Hydrologic Group: _____

(VARIANT)

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

Observation Hole **TP 23** Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		DARK YELLOWISH BROWN	
GRAVELLY SILT LOAM	FRIABLE		
		OLIVE BROWN	COMMON FAINT
SATURATED			
REFUSAL (BEDROCK)			

Soil Classification: _____ Slope: _____ %
 Limiting Factor: " 16"
 Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **ELLIOTTSVILLE** Drainage Class: _____ Hydrologic Group: _____

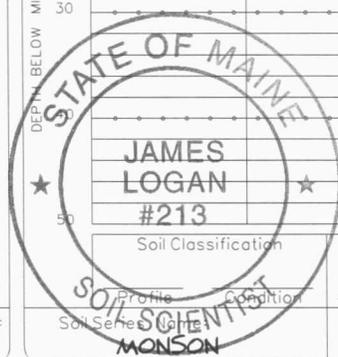
(VARIANT-WITH WATER TABLE)

Observation Hole **TP 24** Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		DARK YELLOWISH BROWN	
GRAVELLY SILT LOAM	FRIABLE		
		OLIVE BROWN	FEW FAINT
REFUSAL			

Soil Classification: _____ Slope: _____ %
 Limiting Factor: " 17"
 Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **MONSON** Drainage Class: _____ Hydrologic Group: _____



FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

James Logan (for AFA)
 Site Evaluator / Soil Scientist Signature

237/243
 SE/CSS *

4/14/10
 Date

Town, City, Plantation
CARROLL PLT & KOSSUTH TWP

Street, Road Subdivision
BOWERS WIND PROJECT

Owner's Name
CHAMPLAIN WIND ENERGY (STANTEC)

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

Observation Hole TP 25 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	
		BROWN	COMMON FAINT
BEDROCK			

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: 17 " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: MONSON Drainage Class: _____ Hydrologic Group: _____
(VARIANT - WITH WATER TABLE)

Observation Hole TP 26 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	
		BROWN	△△△
BEDROCK			
			FREE WATER

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: 14 " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: MONSON Drainage Class: _____ Hydrologic Group: _____

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

TEST PIT LOCATED OUTSIDE FINAL SURVEY AREA

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

Observation Hole TP 27 Test Pit Boring
3+/- " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
GRAVELLY SILT LOAM	FRIABLE	DARK GRAYISH BROWN	△△△ FREE WATER
	FIRM TO VERY FIRM	OLIVE GRAY	COMMON DISTINCT
REFUSAL			

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: 0 " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: MONARDA Drainage Class: _____ Hydrologic Group: _____

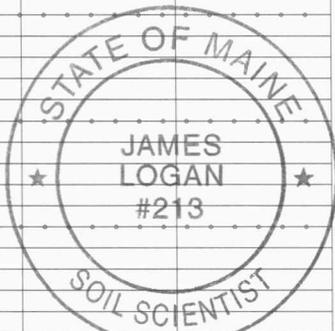
Observation Hole TP 28 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	
	FIRM	MIXED DARK YELLOWISH BROWN	FEW FAINT
		OLIVE	COMMON DISTINCT & SATURATED
REFUSAL			

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: 11 " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: ELLIOTTSTVILLE Drainage Class: _____ Hydrologic Group: _____
(VARIANT - SWP)

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →



James Logan (for A&A)
 Site Evaluator / Soil Scientist Signature

237/213 SE/CSS *

4/14/10 Date

Town, City, Plantation
CARROLL PLT & KOSSUTH TWP

Street, Road Subdivision
BOWERS WIND PROJECT

Owner's Name
CHAMPLAIN WIND ENERGY (STANTEC)

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

Observation Hole TP 29A Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		DARK YELLOWISH BROWN	
GRAVELLY SILT LOAM	FRIABLE		
		MIXED DARK GRAYISH BROWN	COMMON FAINT
	FIRM		△△△ FREE WATER

Soil Classification: Profile _____ Condition _____ Slope _____ % Limiting Factor 9 " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: TELOS Drainage Class: _____ Hydrologic Group: _____

Observation Hole TP 30A Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		BROWN	
GRAVELLY SILT LOAM & VERY FINE SANDY LOAM	FRIABLE	DARK YELLOWISH BROWN	
		MIXED YELLOWISH BROWN	FEW FAINT
	SOMEWHAT FIRM	OLIVE BROWN	COMMON FAINT
LIMIT OF EXCAVATION			

Soil Classification: Profile _____ Condition _____ Slope _____ % Limiting Factor 24 " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: HOWLAND/PLAISTED Drainage Class: _____ Hydrologic Group: _____

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

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

Observation Hole TP 29B Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		DARK BROWN	
GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE EVIDENT
BEDROCK			

Soil Classification: Profile _____ Condition _____ Slope _____ % Limiting Factor 17 " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: MONSON Drainage Class: _____ Hydrologic Group: _____

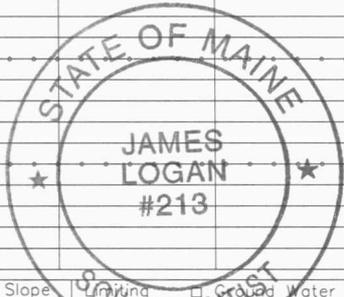
Observation Hole TP 30B Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		DARK BROWN	
GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	
		OLIVE BROWN	FEW FAINT
SOMEWHAT FIRM REFUSAL			

Soil Classification: Profile _____ Condition _____ Slope _____ % Limiting Factor 27 " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: ELLIOTTSTVILLE Drainage Class: _____ Hydrologic Group: _____

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →



James Logan (for AFA) 237/213
 Site Evaluator / Soil Scientist Signature SE/CSS *

4/14 & 5/19/10
 Date

Town, City, Plantation
CARROLL PLT & KOSSUTH TWP

Street, Road Subdivision
BOWERS WIND PROJECT

Owner's Name
CHAMPLAIN WIND ENERGY (STANTEC)

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

Observation Hole TP 31A Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0			DARK YELLOWISH BROWN	
10	GRAVELLY SILT LOAM	FRIABLE	OLIVE BROWN	FEW FAINT
20		FIRM	OLIVE	COMMON FAINT
30	LIMIT OF EXCAVATION			

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **13** " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: **TELOS** Drainage Class: _____ Hydrologic Group: _____

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

Observation Hole TP 31B Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0			DARK BROWN	
10	GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE EVIDENT
20	REFUSAL			

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **18** " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: **MONSON** Drainage Class: _____ Hydrologic Group: _____

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

Observation Hole TP 32A Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0			DARK BROWN	
10	GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	
20	GRAVELLY FINE SANDY LOAM	SOMEWHAT FIRM	OLIVE BROWN	COMMON FAINT
30	REFUSAL			

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **26** " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: **ELLIOTTSTVILLE** Drainage Class: _____ Hydrologic Group: _____

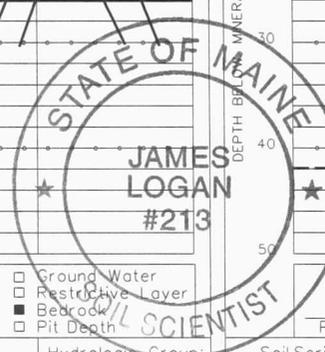
FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

Observation Hole TP 32B Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0			DARK YELLOWISH BROWN	
10	GRAVELLY SILT LOAM	FRIABLE	YELLOWISH BROWN	
20			OLIVE BROWN	FEW FAINT
30		SOMEWHAT FIRM TO FIRM	OLIVE GRAY	COMMON FAINT
40	LIMIT OF EXCAVATION			

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **23** " Ground Water Restrictive Layer Bedrock Pit Depth

Soil Series Name: **HOWLAND** Drainage Class: _____ Hydrologic Group: _____



James Logan (for AFA)
 Site Evaluator / Soil Scientist Signature

237/243
 SE/CSS #

5/19/10
 Date

Town, City, Plantation
CARROLL PLT & KOSSUTH TWP

Street, Road Subdivision
BOWERS WIND PROJECT

Owner's Name
CHAMPLAIN WIND ENERGY (STANTEC)

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

Observation Hole TP 33 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
ORGANIC		BROWN	
	FRIABLE		NONE EVIDENT
SILT LOAM		DARK REDDISH BROWN	
REFUSAL			

Soil Classification: Profile _____ Condition _____
 Slope: _____ %
 Limiting Factor: 12 "
 Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **MONSON (VARIANT)**
 Drainage Class: _____ Hydrologic Group: _____

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

Observation Hole TP 34 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
CHANNERY SILT LOAM		DARK YELLOWISH BROWN	
	FRIABLE		NONE EVIDENT
REFUSAL			

Soil Classification: Profile _____ Condition _____
 Slope: _____ %
 Limiting Factor: 5 "
 Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **ABRAM (VARIANT)**
 Drainage Class: _____ Hydrologic Group: _____

INCLUSION

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

Observation Hole TP 35 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		DARK BROWN	
GRAVELLY SILT LOAM	FRIABLE		
		DARK YELLOWISH BROWN	
SATURATED			
BEDROCK			

Soil Classification: Profile _____ Condition _____
 Slope: _____ %
 Limiting Factor: 23 "
 Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **ELLIOTTVILLE**
 Drainage Class: _____ Hydrologic Group: _____

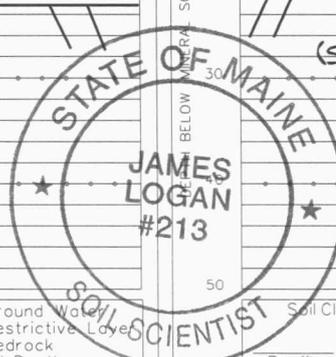
FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

Observation Hole TP 36 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		DARK BROWN	
GRAVELLY SILT LOAM	FRIABLE		
		DARK YELLOWISH BROWN	
COMMON FAINT COMMON DISTINCT			
BEDROCK			
(SATURATION ON BEDROCK SURFACE)			

Soil Classification: Profile _____ Condition _____
 Slope: _____ %
 Limiting Factor: 22 "
 Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **ELLIOTTVILLE (VARIANT)**
 Drainage Class: _____ Hydrologic Group: _____



James Logan (for AFA)
 Site Evaluator / Soil Scientist Signature

237/213
 SE/CSS *

5/19 & 5/20/10
 Date

Town, City, Plantation
CARROLL PLT & KOSSUTH TWP

Street, Road Subdivision
BOWERS WIND PROJECT

Owner's Name
CHAMPLAIN WIND ENERGY (STANTEC)

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

Observation Hole TP 45 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0				
10	GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	
20			OLIVE BROWN	FEW FAINT
30		SOMEWHAT FIRM TO FIRM	OLIVE	COMMON FAINT
40				
50				

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **16"**

Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **CHESUNCOOK** Drainage Class: _____ Hydrologic Group: _____
(MWD LANDFORM)

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	SILT LOAM	FRIABLE	LIGHT GRAY (ALBIC)	NONE EVIDENT
10-15	REFUSAL			
20				
30				
40				
50				

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **6"**

Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **ABRAM (VARIANT)** Drainage Class: _____ Hydrologic Group: _____
INCLUSION

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

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

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	GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	
20		FIRM	OLIVE BROWN	COMMON FAINT
30			OLIVE	COMMON DISTINCT
40				
50				

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **10"**

Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **TELOS** Drainage Class: _____ Hydrologic Group: _____

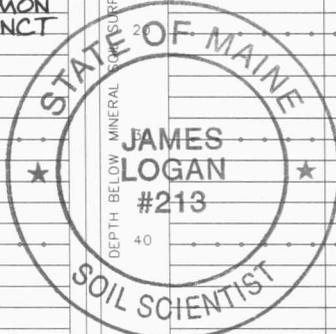
Observation Hole TP 48 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)	Texture	Consistency	Color	Mottling
0				
10	GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	
20		FIRM	OLIVE BROWN	COMMON FAINT
30			OLIVE	COMMON DISTINCT
40				
50				

Soil Classification: Profile _____ Condition _____ Slope: _____ % Limiting Factor: **13"**

Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **TELOS** Drainage Class: _____ Hydrologic Group: _____



FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

James Logan (for AEA)
 Site Evaluator / Soil Scientist Signature

237/213
 SE/CSS *

6/23/10
 Date

Town, City, Plantation
CARROLL PLT & KOSSUTH TWP

Street, Road Subdivision
BOWERS WIND PROJECT

Owner's Name
CHAMPLAIN WIND ENERGY (STANTEC)

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

Observation Hole **TP 49** Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
CHANNERY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE EVIDENT
		YELLOWISH BROWN	
REFUSAL			

Soil Classification: _____ Slope: _____ %
 Limiting Factor: **25"**
 Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **ELLIOTTSVILLE** Drainage Class: _____ Hydrologic Group: _____

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

Observation Hole **TP 50** Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
ORGANIC		BLACK 10YR2/1	
	FRIABLE		
STONY SILT		OLIVE GRAY	MANY PROMINENT
REFUSAL			

Soil Classification: _____ Slope: _____ %
 Limiting Factor: **0"**
 Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **ELLIOTTSVILLE (VARIANT)**
(MONARDA VARIANT) Drainage Class: _____ Hydrologic Group: _____

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

Observation Hole **TP 51** Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE EVIDENT
REFUSAL			

Soil Classification: _____ Slope: _____ %
 Limiting Factor: **5"**
 Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **MONSON (VARIANT)** Drainage Class: _____ Hydrologic Group: _____

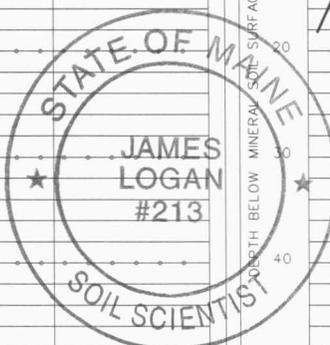
FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

Observation Hole **TP 52** Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE EVIDENT
	SOMEWHAT FIRM	OLIVE BROWN	
REFUSAL			

Soil Classification: _____ Slope: _____ %
 Limiting Factor: **14"**
 Ground Water
 Restrictive Layer
 Bedrock
 Pit Depth

Soil Series Name: **MONSON (VARIANT)** Drainage Class: _____ Hydrologic Group: _____



James Logan (for AFA)
 Site Evaluator / Soil Scientist Signature

237/213
 SE/CSS *

6/24 & 7/21/10
 Date

Town, City, Plantation
CARROLL PLT & KOSSUTH TWP

Street, Road Subdivision
BOWERS WIND PROJECT

Owner's Name
CHAMPLAIN WIND ENERGY (STANTEC)

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

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

Texture	Consistency	Color	Mottling
SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE EVIDENT
BEDROCK			

Soil Classification: _____ Slope: _____% Limiting Factor: 10"

Soil Series Name: MONSON Drainage Class: _____ Hydrologic Group: _____

Observation Hole TP 58 ■ Test Pit □ Boring
3+/- " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	
		OLIVE BROWN	FEW FAINT
BEDROCK			

Soil Classification: _____ Slope: _____% Limiting Factor: 10"

Soil Series Name: MONSON (VARIANT) Drainage Class: _____ Hydrologic Group: _____

NOTE: TP IN SMALL CREVASSE IN BEDROCK LANDFORM

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

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

Texture	Consistency	Color	Mottling
		DARK BROWN	
GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN	
	SOMEWHAT FIRM	OLIVE BROWN	COMMON FAINT
	FIRM	OLIVE	COMMON DISTINCT

Soil Classification: _____ Slope: _____% Limiting Factor: 12"

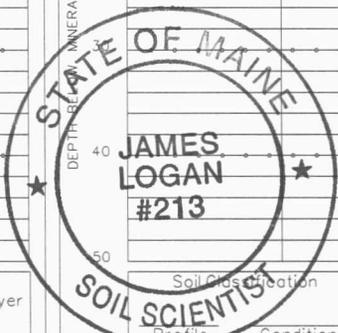
Soil Series Name: TELOS Drainage Class: _____ Hydrologic Group: _____

Observation Hole TP 60 ■ Test Pit □ Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
		DARK BROWN 10YR3/3	
GRAVELLY SILT LOAM	FRIABLE	DARK YELLOWISH BROWN 10YR4/6	
	FIRM	LIGHT OLIVE BROWN	COMMON FAINT

Soil Classification: _____ Slope: _____% Limiting Factor: 17"

Soil Series Name: CHESUNCOOK Drainage Class: _____ Hydrologic Group: _____



FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

James Logan
 Site Evaluator / Soil Scientist Signature

237/213 SE/CSS * 7/21 & 10/6/10 Date

Town, City, Plantation
CARROLL PLANTATION

Street, Road Subdivision
BOWERS WIND PROJECT O & M SITE

Owner's Name
CHAMPLAIN WIND ENERGY (STANTEC)

ALL TEST PITS EXCAVATED BY BACKHOE

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

Observation Hole TP 100 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
SILT LOAM	FRIABLE	DARK BROWN 10YR5/3	NONE EVIDENT
		DARK YELLOWISH BROWN 10YR4/6	
BEDROCK			

Soil Classification: Profile I Condition A Slope % Limiting Factor 16"

Soil Series Name: _____ Drainage Class: _____ Hydrologic Group: _____

Observation Hole TP 101 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
GRAVELLY SILT LOAM	FRIABLE	DARK BROWN 10YR3/3	
		DARK YELLOWISH BROWN 10YR4/4	
		DARK YELLOWISH BROWN 10YR3/4	COMMON FAINT
	FIRM	OLIVE BROWN	COMMON DISTINCT
(WEATHERED BEDROCK 45" - 56")			

Soil Classification: Profile I Condition A/C Slope % Limiting Factor 20"

Soil Series Name: HOWLAND (MWD) Drainage Class: _____ Hydrologic Group: _____

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

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

Observation Hole TP 102 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
CHANNERY SILT LOAM	FRIABLE	DARK BROWN 10YR3/3	
		DARK YELLOWISH BROWN 10YR4/6	
	SOMEWHAT FIRM	OLIVE BROWN	FEW FAINT
	FIRM		COMMON DISTINCT
WEATHERED BEDROCK			

Soil Classification: Profile I Condition A/C Slope % Limiting Factor 17"

Soil Series Name: _____ Drainage Class: _____ Hydrologic Group: _____

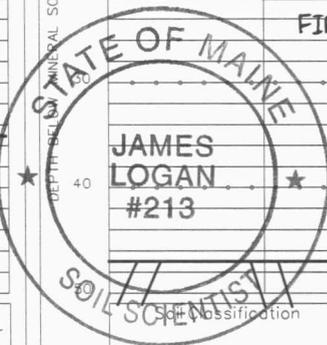
Observation Hole TP 103 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling
CHANNERY SILT LOAM	FRIABLE	DARK BROWN 10YR3/3	
		DARK YELLOWISH BROWN 10YR4/6	
		MIXED DARK YELLOWISH BROWN	FEW FAINT
	FIRM	OLIVE BROWN	COMMON DISTINCT
		OLIVE	
FRACTURED BEDROCK			

Soil Classification: Profile Condition Slope % Limiting Factor 16"

Soil Series Name: HOWLAND Drainage Class: _____ Hydrologic Group: _____

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →



James Logan (for AFA)
 Site Evaluator/Soil Scientist Signature

237/243
 SE/CSS *

10/7/10
 Date

Town, City, Plantation
CARROLL PLANTATION

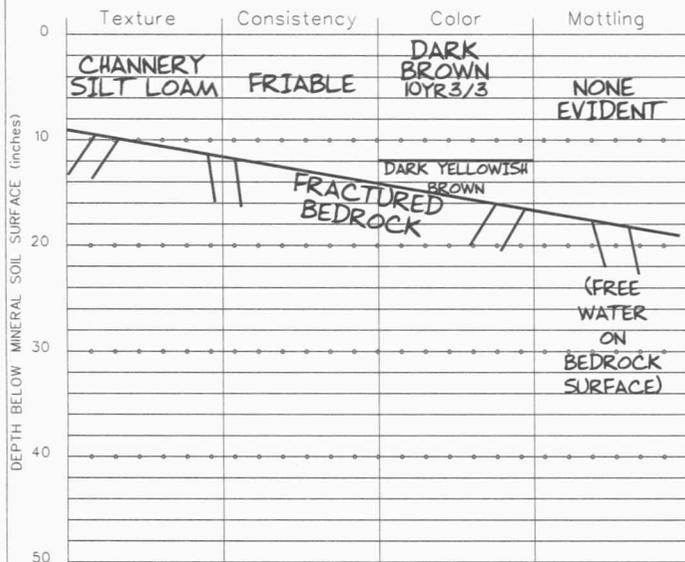
Street, Road Subdivision
BOWERS WIND PROJECT O & M SITE

Owner's Name
CHAMPLAIN WIND ENERGY (STANTEC)

ALL TEST PITS EXCAVATED BY BACKHOE

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

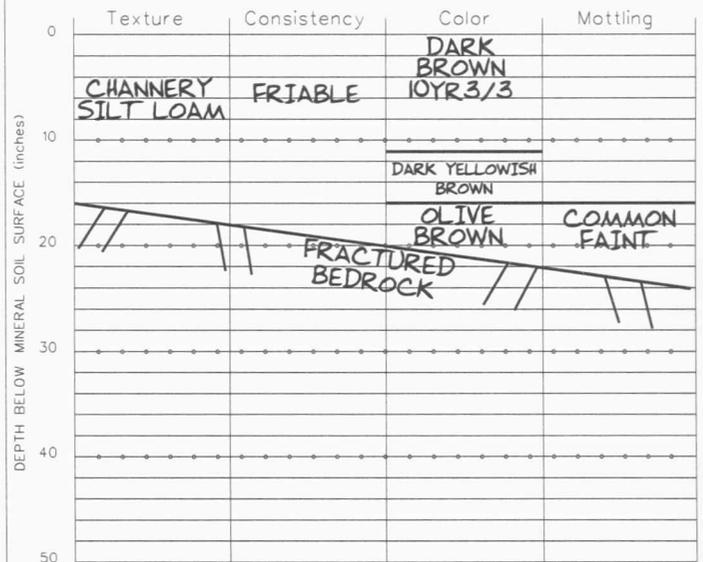
Observation Hole TP 104 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil



Soil Classification: Profile I Condition A Slope % Limiting Factor 9-19"

Soil Series Name: MONSON Drainage Class: Hydrologic Group:

Observation Hole TP 105 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil



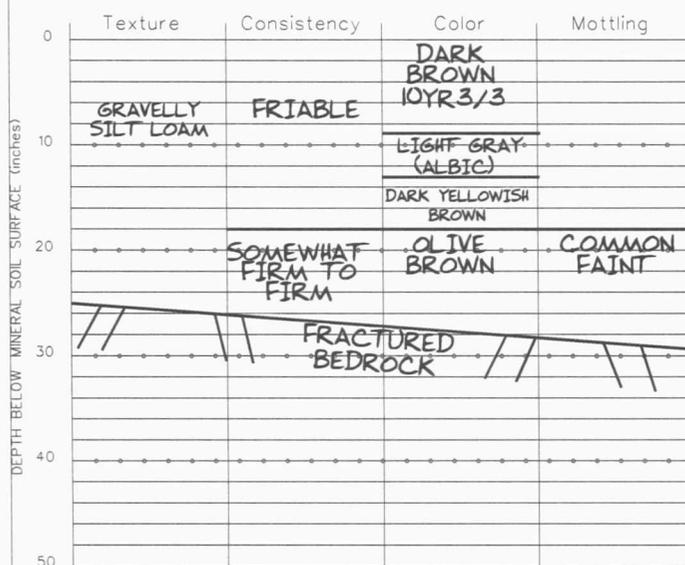
Soil Classification: Profile Condition Slope % Limiting Factor 16-24"

Soil Series Name: MONSON-ELLIOTTSVILLE Drainage Class: Hydrologic Group:

FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

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

Observation Hole TP 106 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil

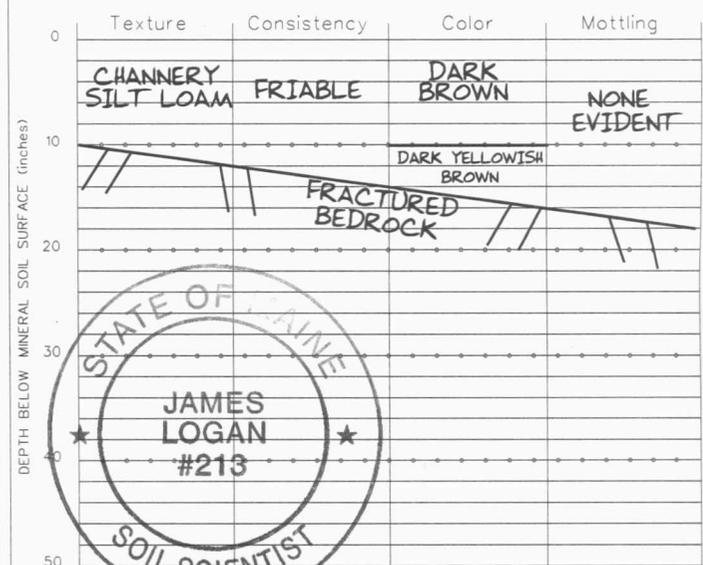


Soil Classification: Profile Condition Slope % Limiting Factor 25-29"

Soil Series Name: ELLIOTTSVILLE Drainage Class: Hydrologic Group:

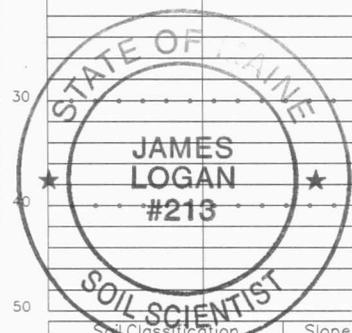
FOR WASTEWATER DISPOSAL →
 FOR SOILS MAPPING →

Observation Hole TP 107 Test Pit Boring
 " Depth of Organic Horizon Above Mineral Soil



Soil Classification: Profile Condition Slope % Limiting Factor 10-18"

Soil Series Name: MONSON Drainage Class: Hydrologic Group:



James Logan (for ASA)
 Site Evaluator / Soil Scientist Signature

237/243
 SE/CSS

10/7/10
 Date

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, Station 10 SHS
(207) 287-5672 FAX (207) 287-4172

PROPERTY LOCATION		>> Caution: Permit Required - Attach In Space Below <<	
City, Town, or Plantation	CARROLL PLANTATION	The Subsurface Wastewater Disposal System <i>shall not</i> be installed until a Permit is attached HERE by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.	
Street or Road	ROUTE 6		
Subdivision, Lot *			
OWNER/APPLICANT INFORMATION			
Name (last, first, MI)	CHAMPLAIN WIND ENERGY	Owner	
Mailing Address of	STANTEC c/o JOY PRESCOTT 30 PARK DRIVE TOPSHAM, ME 04086		
<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Applicant			
Daytime Tel. *	729-1199	Municipal Tax Map # _____ Lot # _____	
Owner or Applicant Statement		Caution: Inspections Required	
I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a permit.		I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application.	
_____ Signature of Owner/Applicant		_____ Local Plumbing Inspector Signature	
_____ Date		_____ (1st) Date Approved	
		_____ (2nd) Date Approved	

PERMIT INFORMATION

TYPE OF APPLICATION	THIS APPLICATION REQUIRES	DISPOSAL SYSTEM COMPONENTS
1. <input checked="" type="checkbox"/> First Time System 2. <input type="checkbox"/> Replacement System Type Replaced: _____ Year Installed: _____ 3. <input type="checkbox"/> Expanded System a. <input type="checkbox"/> Minor Expansion b. <input type="checkbox"/> Major Expansion 4. <input type="checkbox"/> Experimental System 5. <input type="checkbox"/> Seasonal Conversion	1. <input checked="" type="checkbox"/> No Rule Variance 2. <input type="checkbox"/> First Time System Variance a. <input type="checkbox"/> Local Plumbing Inspector Approval b. <input type="checkbox"/> State & Local Plumbing Inspector Approval 3. <input type="checkbox"/> Replacement System Variance a. <input type="checkbox"/> Local Plumbing Inspector Approval b. <input type="checkbox"/> State & Local Plumbing Inspector Approval 4. <input type="checkbox"/> Minimum Lot Size Variance 5. <input type="checkbox"/> Seasonal Conversion Approval	1. <input checked="" type="checkbox"/> Complete Non-Engineered System 2. <input type="checkbox"/> Primitive System (graywater & alt toilet) 3. <input type="checkbox"/> Alternative Toilet, specify: _____ 4. <input type="checkbox"/> Non-Engineered Treatment Tank (only) 5. <input type="checkbox"/> Holding Tank, _____ Gallons 6. <input type="checkbox"/> Non-Engineered Disposal Field (only) 7. <input type="checkbox"/> Separated Laundry System 8. <input type="checkbox"/> Complete Engineered System (2000gpd+) 9. <input type="checkbox"/> Engineered Treatment Tank (only) 10. <input type="checkbox"/> Engineered Disposal Field (only) 11. <input type="checkbox"/> Pre-treatment, specify: 12. <input type="checkbox"/> Miscellaneous components
SIZE OF PROPERTY	DISPOSAL SYSTEM TO SERVE	PROPOSED TYPE OF WATER SUPPLY
TBD <input type="checkbox"/> sq. ft. <input type="checkbox"/> acres	1. <input type="checkbox"/> Single Family Dwelling Unit, No. of Bedrooms: _____ 2. <input type="checkbox"/> Multiple Family Dwelling, No. of Units: _____ 3. <input checked="" type="checkbox"/> Other: <u>OPERATIONS BUILDING</u> SPECIFY _____ Current Use <input type="checkbox"/> Seasonal <input type="checkbox"/> Year Round <input checked="" type="checkbox"/> Undeveloped	1. <input checked="" type="checkbox"/> Drilled Well 2. <input type="checkbox"/> Dug Well 3. <input type="checkbox"/> Private 4. <input type="checkbox"/> Public 5. <input type="checkbox"/> Other:
SHORELAND ZONING		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK	DISPOSAL FIELD TYPE & SIZE	GARBAGE DISPOSAL UNIT	DESIGN FLOW
1. <input checked="" type="checkbox"/> Concrete a. <input checked="" type="checkbox"/> Regular b. <input type="checkbox"/> Low Profile 2. <input type="checkbox"/> Plastic 3. <input type="checkbox"/> Other: _____ CAPACITY <u>1000</u> gallons	1. <input checked="" type="checkbox"/> Stone Bed 2. <input type="checkbox"/> Stone Trench 3. <input type="checkbox"/> Proprietary Device a. <input type="checkbox"/> Cluster array c. <input type="checkbox"/> Linear b. <input type="checkbox"/> Regular d. <input type="checkbox"/> H-20 loaded 4. <input type="checkbox"/> Other: SIZE <u>1300</u> <input checked="" type="checkbox"/> sq. ft. <input type="checkbox"/> lin. ft.	1. <input checked="" type="checkbox"/> No 3. <input type="checkbox"/> Maybe 2. <input type="checkbox"/> Yes >> Specify one below: a. <input type="checkbox"/> Multi-compartment tank b. <input type="checkbox"/> _____ tanks in series c. <input type="checkbox"/> Increase in tank capacity d. <input type="checkbox"/> Filter on tank outlet	300 gallons per day BASED ON: 1. <input type="checkbox"/> Table 501.1 (dwelling unit(s)) 2. <input checked="" type="checkbox"/> Table 501.2 (other facilities) SHOW CALCULATIONS - for other facilities - OPERATIONS & MAINTENANCE BUILDING AND VISITOR'S CENTER 3. <input type="checkbox"/> Section 503.0 (meter readings) ATTACH WATER-METER DATA
SOIL DATA & DESIGN CLASS	DISPOSAL FIELD SIZING	EFFLUENT/EJECTOR PUMP	LATITUDE AND LONGITUDE
PROFILE <u>I</u> / CONDITION <u>AIII/C</u> / DESIGN <u>I</u> AT Observation Hole # <u>TP 102</u> Depth <u>17</u> " Elevation <u>-40</u> " OF MOST LIMITING SOIL FACTOR	1. <input type="checkbox"/> Small - 2.0 sq.ft./gpd 2. <input type="checkbox"/> Medium - 2.6 sq.ft./gpd 3. <input type="checkbox"/> Medium-Large - 3.3 sq.ft./gpd 4. <input checked="" type="checkbox"/> Large - 4.1 sq.ft./gpd 5. <input type="checkbox"/> Extra-Large - 5.0 sq.ft./gpd	1. <input type="checkbox"/> Not required 2. <input checked="" type="checkbox"/> May be required 3. <input type="checkbox"/> Required Specify only for engineered systems: DOSE: _____ Gallons	at center of disposal area Lat. <u>45</u> d <u>41</u> m <u>88</u> s Lon. <u>68</u> d <u>03</u> m <u>32</u> s if g.p.s., state margin of error

SITE EVALUATOR STATEMENT

I certify that on 10-7-10 (date) I completed a site evaluation on this property and state that the data reported is accurate and that the proposed system is in compliance with the Subsurface Wastewater Disposal Rules (10-144A CMR 241).

Albert Frick
Site Evaluator Signature

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SE *

10/22/2010
Date

ALBERT FRICK

(207) 839-5563

AFA@MAINERR.COM

Site Evaluator Name Printed

Telephone Number

E-mail Address

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

Note: Changes to or deviations from the design should be confirmed with the Site Evaluator

HHE-200 Rev. 4/05

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
 Division of Health Engineering, Station 10 SHS
 (207) 287-5672 FAX (207) 287-4172

Town, City, Plantation CARROLL PLANTATION	Street, Road Subdivision ROUTE 6	Owner's Name CHAMPLAIN WIND ENERGY
Scale 1" = <u>100</u> Ft. or as shown		SITE LOCATION PLAN (Attach Map from Maine Atlas for New System Variance)
SITE PLAN		
PROPOSED OPERATIONS & MAINTENANCE BUILDING/ VISITOR'S CENTER (20' MIN. FROM PROPOSED DISPOSAL AREA IF FULL FOUNDATION, 15' MIN. IF ON SLAB)		
NOTE: PROPERTY INFORMATION PER SURVEY PLAN BY J.W. SEWALL COMPANY DATED JANUARY 28, 2010		
ERP: NAIL IN FLAGGED 5" DIA. POPLAR		
4" DIA. FLAGGED POPLAR		

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)																																																			
Observation Hole <u>TP 101</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring _____ " Depth of Organic Horizon Above Mineral Soil	Observation Hole <u>TP 102</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring _____ " Depth of Organic Horizon Above Mineral Soil																																																		
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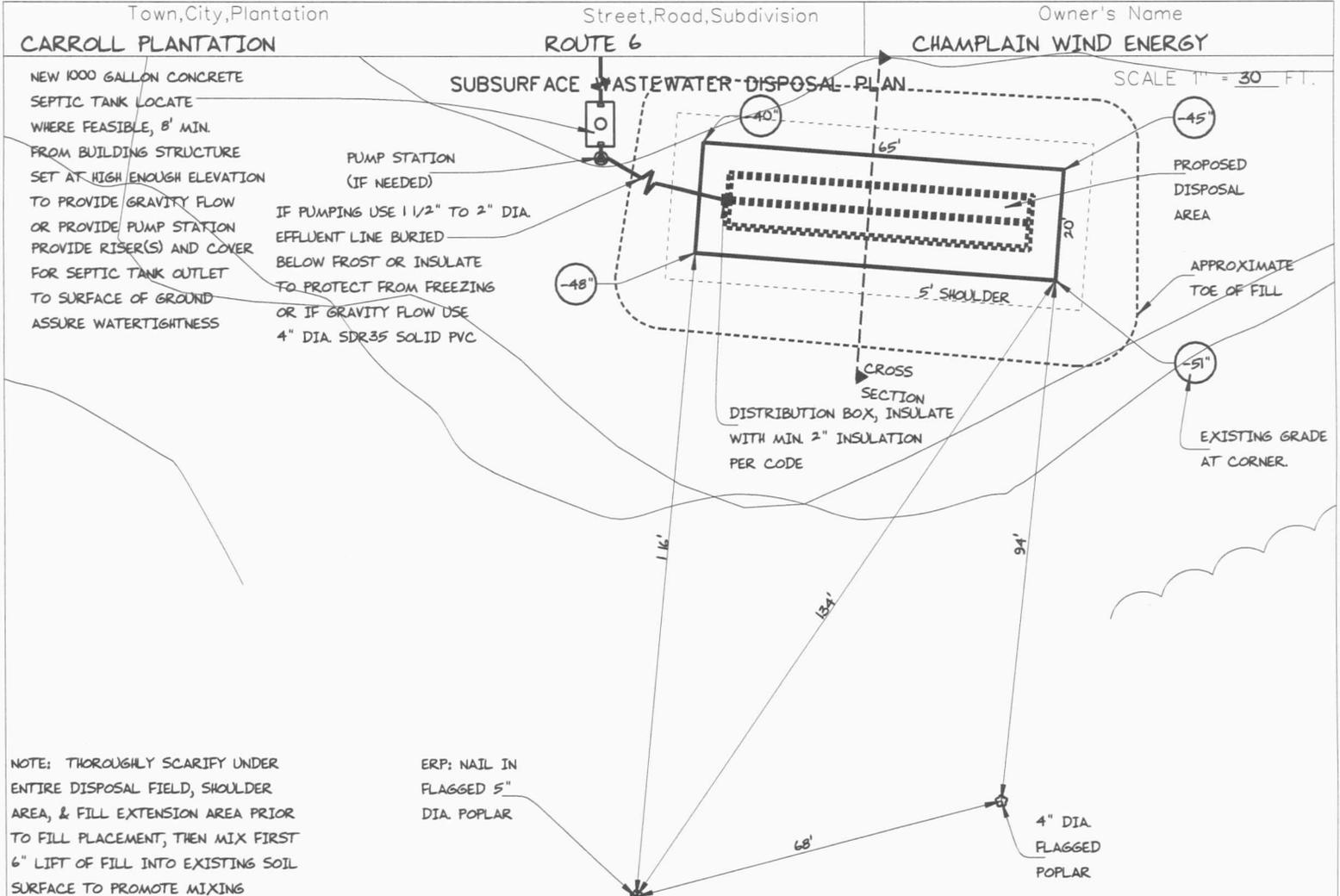
Albert Frick
 Site Evaluator Signature

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 SE *

10/22/2010
 Date

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, Station 10, SHS
(207) 287-5672 FAX (207) 287-4172



NEW 1000 GALLON CONCRETE SEPTIC TANK LOCATE WHERE FEASIBLE, 8' MIN. FROM BUILDING STRUCTURE SET AT HIGH ENOUGH ELEVATION TO PROVIDE GRAVITY FLOW OR PROVIDE PUMP STATION PROVIDE RISER(S) AND COVER FOR SEPTIC TANK OUTLET TO SURFACE OF GROUND ASSURE WATERTIGHTNESS

PUMP STATION (IF NEEDED) IF PUMPING USE 1 1/2" TO 2" DIA. EFFLUENT LINE BURIED BELOW FROST OR INSULATE TO PROTECT FROM FREEZING OR IF GRAVITY FLOW USE 4" DIA. SDR35 SOLID PVC

NOTE: THOROUGHLY SCARIFY UNDER ENTIRE DISPOSAL FIELD, SHOULDER AREA, & FILL EXTENSION AREA PRIOR TO FILL PLACEMENT, THEN MIX FIRST 6" LIFT OF FILL INTO EXISTING SOIL SURFACE TO PROMOTE MIXING

ERP: NAIL IN FLAGGED 5" DIA. POPLAR

4" DIA. FLAGGED POPLAR

FILL REQUIREMENTS

Depth of Fill (Upslope) : 19" - 24"
Depth of Fill (Downslope) : 27" - 30"
DEPTHS AT CROSS-SECTION (shown below)

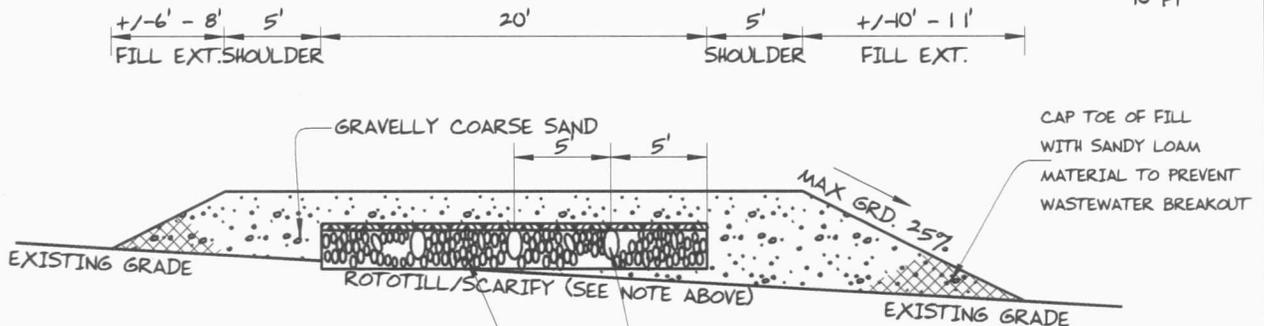
CONSTRUCTION ELEVATIONS

Finished Grade Elevation
Top of Distribution Pipe
Bottom of Disposal Area

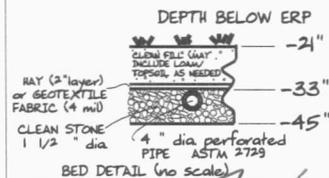
ELEVATION REFERENCE POINT

Location & Description NAIL 85" ABOVE BASE OF 5" DIA. FLAGGED POPLAR
Reference Elevation is: 0.0" or -----
SEE DETAIL BELOW

DISPOSAL AREA CROSS SECTION



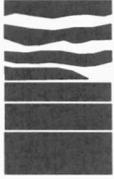
SCALE:
VERTICAL: 1" = 5 FT
HORIZONTAL: 1" = 10 FT



Albert Frick
Site Evaluator Signature

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SE *

10/22/2010
Date



Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators

95A County Road Gorham, Maine 04058
(207) 839-5563

ROLL PLANTATION	ROUTE 6	CHAMPLAIN WIND ENERGY
TOWN	LOCATION	APPLICANT'S NAME

1) The Plumbing and Subsurface Wastewater Disposal Rules adopted by the State of Maine, Department of Human Services pursuant to 22 M.R.S.A. § 42 (the "Rules") are incorporated herein by reference and made a part of this application and shall be consulted by the owner/applicant, the system installer and/or building contractor for further construction details and material specifications. The system Installer should contact Albert Frick Associates, Inc. 839-5563, if there are any questions concerning materials, procedures or designs.

The system installer and/or building contractor installing the system shall be solely responsible for compliance with the Rules and with all state and municipal laws and ordinances pertaining to the permitting, inspection and construction of subsurface wastewater disposal systems.

2) This application is intended to represent facts pertinent to the Rules only. It shall be the responsibility of the owner/applicant, system Installer and/or building contractor to determine compliance with and to obtain permits under all applicable local, state and/or federal laws and regulations (including, without limitation, Natural Resources Protection Act, wetland regulations, zoning ordinances, subdivision regulations, Site Location of Development Act and minimum lot size laws) before installing this system or considering the property on which the system is to be installed a "buildable" lot. It is recommended that a wetland scientist be consulted regarding wetland regulations. Prior to the commencement of construction/installation, the local plumbing inspector or Code Enforcement Officer shall inform the owner/applicant and Albert Frick Associates, Inc of any local ordinances which are more restrictive than the Rules in order that the design may be amended. All designs are subject to review by local, state and/or federal authorities. Albert Frick Associates, Inc.'s liability shall be limited to revisions required by regulatory agencies pursuant to laws or regulations in effect at the time of preparation of this application.

3) All information shown on this application relating to property lines, well locations, subsurface structures and underground facilities (such as utility lines, drains, septic systems, water lines, etc.) are based solely upon information provided by the owner/applicant and has been relied upon by Albert Frick Associates, Inc. in preparing this application. The owner/applicant shall review this application prior to the start of construction and confirm this information. Well locations on abutting properties but not readily visible above grade should be confirmed by the owner/applicant prior to system installation to assure minimum setbacks.

4) Installation of a garbage (grinder) disposal is not recommended. If one is installed, an additional 1000 gallon septic tank or a septic tank filter shall be connected in series to the proposed septic tank. Risers and covers should be installed over the septic tank outlet to allow for easy maintenance.

5) The system user shall avoid introducing kitchen grease or fats into this system. Chemicals such as septic tank cleaners and/or chlorine (such as from water treatment units) and controlled or hazardous substances shall not be disposed of in this system. Additives such as yeast or enzymes are discouraged, since they have not been proven to extend system life.

6) The septic tank should be pumped within two years of installation and subsequently as recommended by the pump service, but in no event should the septic tank be pumped less often than every three years. All septic tanks, pump stations and additional treatment tanks shall be installed to prevent ground water and surface water infiltration. Risers and covers should be properly installed to provide access while preventing surface water intrusion.

ATTACHMENT TO SUBSURFACE WASTEWATER DISPOSAL APPLICATION

BARROLL PLANTATION	ROUTE 6	CHAMPLAIN WIND ENERGY
TOWN	LOCATION	APPLICANT'S NAME

- 7) The actual water flow or number of bedrooms shall not exceed the design criteria indicated on this application without a re-evaluation of the system as proposed. If the system is supplied by public water or a private service with a water meter, the water consumption per period should be divided by the number of days to calculate the average daily water consumption [water usage (cu. ft.) x 7.48 cu. ft. (gallons per cu. ft.) ÷ (# of days in period) = gals per day].
- 8) The general minimum setbacks between a well and septic system serving a single family residence is 100-300 feet, unless the local municipality has a more stringent requirement. A well installed by an abutter within the minimum setback distances prior to the issuance of a permit for the proposed disposal system may void this design.
- 9) When a gravity system is proposed: BEFORE CONSTRUCTION/INSTALLATION BEGINS, the system installer or building contractor shall review the elevations of all points given in this application and the elevation of the existing and/or proposed building drain and septic tank inverts for compatibility to minimum slope requirement. In gravity systems, the invert of the septic tank(s) outlet(s) shall be at least 4 inches above the invert of the distribution box outlet at the disposal area.
- 10) When an effluent pump is required: Provisions shall be made to make certain that surface and ground water does not enter the septic tank or pump station, by sealing/grouting all seams and connections, and by placement of a riser and lid at or above grade. An alarm device warning of a pump failure shall be installed. Also, when pumping is required of a chamber system, install a "T" connection in the distribution box and place 3 inches of stone or a splash plate in the first chamber. Insulate gravity pipes, pump lines and the distribution box as necessary to prevent freezing.
- 11) On all systems, remove the vegetation, organic duff and old fill material from under the disposal area and any fill extension. On sites where the proposed system is to be installed in natural soil, scarify the bottom and sides of the excavated disposal area with a rake. Do not use wheeled equipment on the scarified soil surface. For systems installed in fill, scarify the native soil by roto-tilling or scarifying with teeth of backhoe to a depth of at least 8 inches over the entire disposal and fill extension area to prevent glazing and to promote fill bonding. Place fill in loose layers no deeper than 8 inches and compact before placing more fill (this ensures that voids and loose pockets are eliminated to minimize the chance of leakage or differential setting). Do not use wheeled equipment on the scarified soil area until after 12 inches of fill is in place. Keep equipment off proprietary devices. Divert the surface water away from the disposal area by ditching or shallow landscape swales.
- 12) Unless noted otherwise, fill shall be gravelly coarse sand which contains no more than 5% fines (silt and clay). Crushed stone shall be clean and free of any rock dust from the crushing process.
- 13) Do not install systems on loamy, silty, or clayey soils during wet periods since soil smearing/glazing may seal off the soil interface.
- 14) Seed all filled and disturbed surfaces with perennial grass seed, then mulch with hay or equivalent material to prevent erosion. Alternatively, bark or permanent landscape mulch may be used to cover system. Woody trees or shrubs are not permitted on the disposal area or fill extensions.
- 15) If an advanced wastewater treatment unit is part of the design, the system shall be operated and maintained per manufacturer's specifications.



Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators

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