Exhibit A

Preliminary Geologic Investigations

Soil Borings or Test Pits

Bedrock Profiles in Karst Areas

Investigation Report

Geologic Profiles

Scope

The work shall consist of inventorying (logging), evaluating, and reporting soil characteristics, geologic profiles and bedrock profiles in the designated areas.

Individual Conservation Practice Standards may require a minimum number of test pits or borings. The number, type, and distribution of soil investigation borings or test pits shall be sufficient to characterize the subsurface conditions.

Marking

The extent of the areas to be investigated will be marked by stakes, flags, tree markings, or other suitable methods. The limits may also be shown on a plan view map of the site or determined by the footprint of proposed practices.

Equipment

Soil borings or test pits will typically be used for conducting subsurface investigations. A backhoe or excavator may be used to construct soil test pits. For shallow investigations, soil borings shall be created by means of a soil bucket auger, soil probe, split-spoon sampler or Shelby tube having at least a 2 inch diameter. A soil boring may not be created by means of a solid stem auger.

Soil Boring or Test Pits

Soil test pits shall be constructed to meet *U.S. Department of Labor, Occupational Safety and Health Administration* (OSHA) regulations and be of adequate size, depth and construction to enable a person to safely enter and exit the pit, if required. Excavation requirements are contained in (Standards-29 CFR 1926.651 and 1926.652).

Soil profile descriptions shall be written in accordance with the descriptive procedures, terminology, and interpretations found in:

- ASTM D 2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), OR
- NRCS National Engineering Handbook, Part 650, Engineering Field Handbook, Chapter 4 Elementary Soil Engineering, “Field Identification and Description of Soils.”

Soil color (Munsell) evaluations shall be performed under natural light conditions to give the most accurate color determinations. Changes in soil color due to exposure to the air should be noted. Frozen soil material shall be thawed prior to conducting evaluations for soil color, texture, structure and consistency.

Depth

Soil profile descriptions shall extend an adequate depth below the land surface to identify critical soil properties, bedrock, or subsurface water regimes where these properties will affect the project design and construction.

Elevation and Location

The site shall have vertical bench mark(s) established. Horizontal location shall be surveyed and/or tied to on-site reference point(s).

The existing undisturbed surface grade elevation and location shall be obtained for all test pits or soil borings and included in the investigation report.

Bedrock

The type of bedrock, if encountered, such as sandstone, limestone, dolomite, shale, or granite, shall be noted. The elevation of the top surface of bedrock will be recorded. Bedrock condition and ability to be excavated should be noted.

Soil Moisture

Subsurface saturation indicators, if encountered, such as seepage from sand and gravel lenses or soil texture changes, thickness of water producing lenses, estimated volume of flow, and elevation shall be noted.

Redoximorphic features

Redoximorphic features (mottles) and the soil matrix shall be characterized by the use of the Munsell soil color charts. If the site contains clean sand or gravel the site should be investigated during the wettest time of the year (i.e. spring or late fall) to maximize the potential of observing the seasonal high level of the free water table. This may be necessary due to limitations in redoximorphic feature formation within geologic materials with low amounts of organic matter and/or iron.

Soil profile descriptions (logging)

The soil profile descriptions must contain the following information (additional criteria can be included as described in ASTM D 2488) for each soil horizon or layer:

- Layer thickness as defined by changes in moisture, color, geologic material, or texture (depth in feet and tenths)
- USCS group symbol (i.e.-ML)
- USCS group name and modifiers (i.e.-Silt with Sand)
- Gradation, percent boulders (>12 inches) and percent cobbles (3 inch to 12 inches) (estimated by volume when present)
- Gradation, Percent gravel (3 inch to #4 sieve), percent sand (#4 to #200 sieve), and percent fines (Passing #200 sieve), (estimates by dry weight for all present)
- Plasticity of fines: non-plastic, slightly plastic, low, medium, high
- Munsell color(s) (eg. – Matrix - 70%, 10 YR 5/4; Redox. Depletions - 15%, 10 YR 6/1; Redox. Concentrations - 15%, 10 YR 5/8)
    - Percent of matrix and matrix Munsell color (in moist condition)
    - Percent of redoximorphic features defined by matrix color, redox concentration, redox depletions, gleyed matrix, depleted matrix, or reduced matrix color, and/or manganese concentrations with the associated Munsell color

- In-situ moisture content: dry, slightly moist, moist, very moist, wet
- Structure: stratified, laminated, fissured, slicken-sided, blocky, prismatic, lensed, homogeneous (massive)
- Local geologic / parent material (eg. – alluvium, slope alluvium, colluvium, glacial till, glacial lake sediment, outwash, residuum, loess, bedrock)
- Additional Comments as needed:
    - Seepage or water table depth
    - Depth of caving or sloughing of auger hole or pit sides
    - Lenses or mixed materials
    - Dilatancy (none, slow, rapid)
    - Consistency (very soft, soft, firm, hard, very hard) (wet fine-grained soils only)
    - Presence of roots or root holes,
    - Presence of mica, gypsum, etc.,
    - Surface coatings on coarse-grained particles,
    - Difficulty in boring, probing or excavating, etc. should be noted.

The depth to standing water in the soil boring or test pit at the end of excavation and prior to the hole being refilled shall be recorded. The time of day shall be noted for these two depth measurements. If no standing water is present, that should be noted. The test pit or soil boring should not be refilled until the end of the investigation to maximize the time allowed for any water to seep into the hole.

Test pits shall be filled to approximate the pre-excavated profile. The excavated materials should be replaced in layers and density similar to the surrounding undisturbed soils. Consult WI Administrative Code, Chapter NR 141 for the appropriate abandonment of boreholes.

Evaluation of Soil Investigation Data

A narrative summary of the soil profile descriptions (logs) shall be included with the investigation report. This summary shall contain a narrative discussing the conclusions that can be drawn from an analysis of the investigations. The summary shall note limiting features such as the depth to bedrock, perched water table elevations, and other subsurface water regimes found during the investigation. These limiting factors as well as the geologic material name and USCS group name and modifier will be used by the investigator and/or designer to construct a geologic profile.

Bedrock Profiles in Karst Areas

Bedrock profiles for the following conservation practices located within 1000 feet of a karst feature will require further investigation by subsurface sounding equipment:

- Embankments designed to maintain a permanent pool of water.
- Embankments ≥ 35 feet in total height.
- Waste storage facilities intended to store slurry or liquid manure.

The field data will be collected by the entity providing technical assistance for the project. This may be the NRCS Geologist, private consultant, or field staff trained in the use of the specialized equipment. The data collected will be submitted to the NRCS Geologist for evaluation when the project involves NRCS technical or financial assistance. Projects not receiving NRCS assistance will be evaluated by the private sector geologist or staff qualified in the interpretation of data obtained from the subsurface sounding equipment. The evaluation will include review of the bedrock profile for soil-filled joints, discontinuities, voids, or other indications that may warrant further investigation or design alternative limitations.

Investigation Report

The investigation report is included with the design documentation for the project and shall contain the following, as applicable to the site:

1. A legible site map, drawn to scale, no smaller than 8.5 inches by 11 inches, showing the:
    a) vertical and horizontal reference points (TBMs)
    b) soil investigation locations
    c) geologic profile locations
2. A soil profile description prepared for each boring or test pit. Each description shall contain the project name and practice, location, person's name that collected the data and the date the data was collected, equipment used, soil map unit and landscape position.
3. Geologic profile (see Figure 1 and 2, needed details will vary)
4. A narrative of the limiting design factors determined from the subsurface investigation.

Additional Investigation Report Content for Karst Areas

1. Bedrock profile imaging locations shown on the site map.
2. Bedrock profile imaging data.
3. Interpretations, design limitations, and recommendations by:
    a. The NRCS Geologist (for NRCS-assisted projects) or
    b. The private sector geologist or field staff qualified in the interpretation of data obtained by subsurface sounding equipment (for projects not receiving NRCS assistance).

Figure 1. Example of Geologic Profile

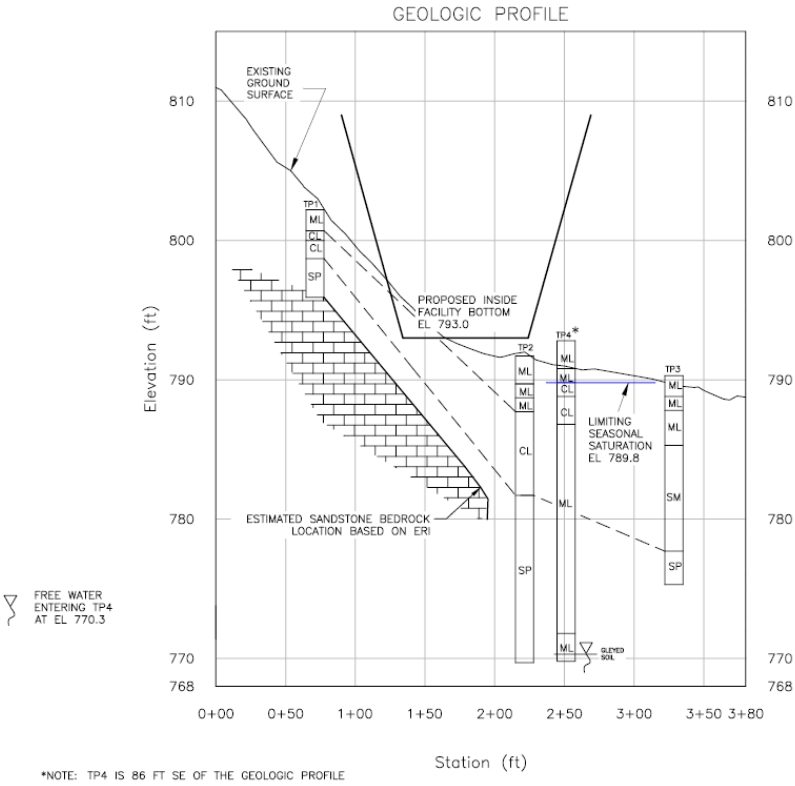
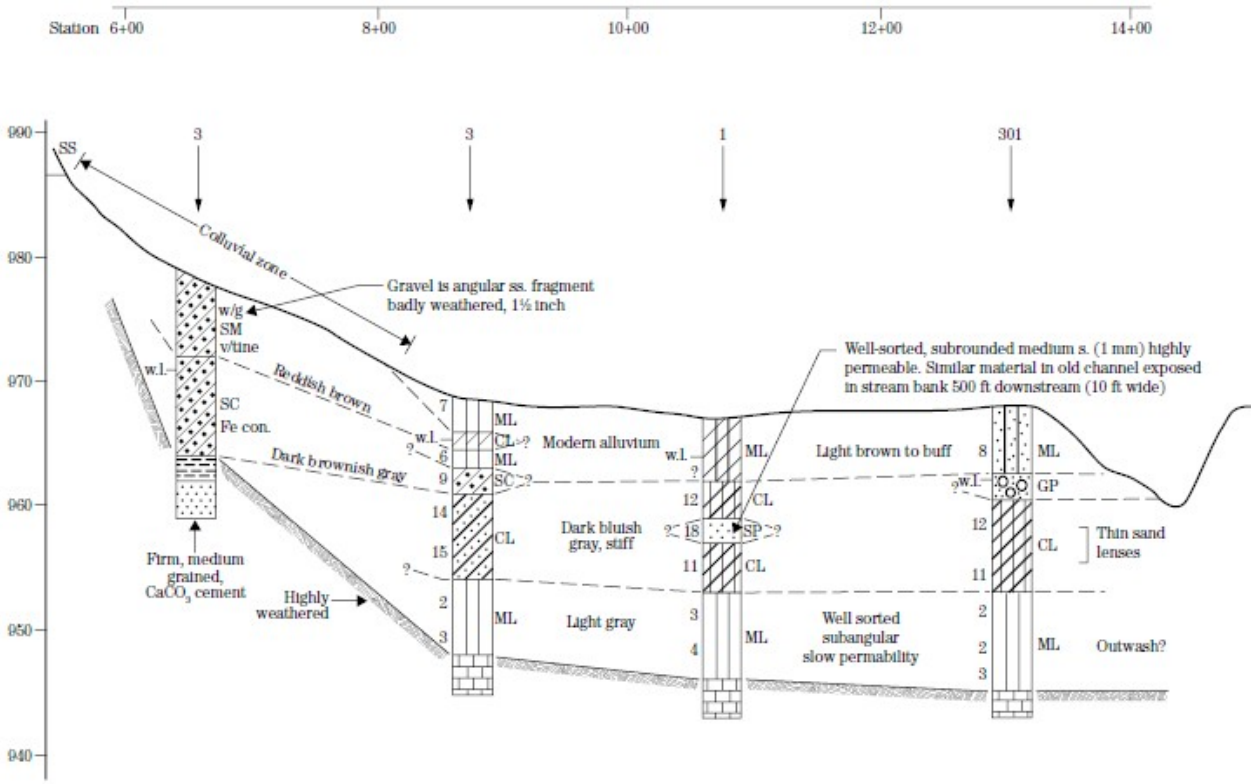


Figure 2. Example of Geologic Profile



USDA
NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

WI LOG OF TEST PIT NUMBER _____

Wisconsin Job Sheet - 816

OWNER:	SURFACE ELEVATION:	COUNTY:
PRACTICE:	PERCHED WATERTABLE ELEVATION:	LAT/LONG:
EQUIPMENT:	SEASONAL HIGH WATER TABLE ELEVATION:	LANDSCAPE POSITION:
LOGGED BY:	OBSERVED SUBSURFACE SATURATION ELEVATION:	SOIL MAP UNIT:
DATE:	TOP OF BEDROCK ELEVATION:	KARST FEATURES WITHIN 1000 FT:

DEPTH		USCS		GRADATION					PLASTICITY	MUNSELL COLOR AND %		MOISTURE	STRUCTURE	GEOLOGY	ADDITIONAL COMMENTS	SAMPLES		
FROM (FT.)	TO (FT.)	SYMBOL (e.g.-ML)	GROUP NAME (e.g.-Silt w/Sand)	% B >12"	% C 3"-12"	% G 3"-1/4"	% S 1/4"-#200	% FINE <#200	Non, Slightly, Low, Medium, High.	MATRIX (e.g.-90% 10YR 4/4)	REDOX. (e.g.-10% 10YR 5/2)	Dry, Slightly Moist, Moist, Very Moist, Wet.	Stratified, Laminated, Fissured, Slicken-sided, Blocky, Prismatic, Lensed, Massive.	Alluvium, Slope Alluvium, Colluvium, Glacial Till, Glacial Lake Sed., Outwash, Residuum, Loess, Bedrock.	Description of lenses - mixed materials encountered; Dilatancy: None, Slow, Rapid; Odor (mention if unusual); Consistency (If very soft or soft in wet condition); Location of Seepage and Other Items such as caving or sloughing of pit and how the water enters the pit.	FROM (FT)	TO (FT)	#

General Comments:

DISCLAIMER: ALL DATA ON THIS FORM HAS BEEN FIELD ESTIMATED (ASTM D2488). IF PRECISE SOIL PROPERIES ARE REQUIRED TO MEET PRACTICE STANDARDS, THE SOILS SHOULD BE TESTED AND CLASSIFIED IN ACCORDANCE WITH ASTM D2487.

1.

WI LOG OF TEST PIT NUMBER _____ (continued)

Wisconsin Job Sheet - 816

DEPTH		USCS		GRADATION					PLASTICITY	MUNSELL COLOR AND %		MOISTURE	STRUCTURE	GEOLOGY	ADDITIONAL COMMENTS	SAMPLES		
FROM (FT.)	TO (FT.)	SYMBOL (e.g.-ML)	GROUP NAME (e.g.-Silt w/Sand)	% B >12"	% C 3"-12"	% G 3"-1/4"	% S 1/4"-#200	% FINE <#200	Non, Slightly, Low, Medium, High.	MATRIX (e.g.-90% 10YR 4/4)	REDOX. (e.g.-10% 10YR 5/2)	Dry, Slightly Moist, Moist, Very Moist, Wet.	Stratified, Laminated, Fissured, Slicken-sided, Blocky, Prismatic, Lensed, Massive.	Alluvium, Slope Alluvium, Colluvium, Glacial Till, Glacial Lake Sed., Outwash, Residuum, Loess,	Description of lenses - mixed materials encountered; Dilatancy: None, Slow, Rapid; Odor (mention if unusual); Consistency (If very soft or soft in wet condition); Location of Seepage and Other Items such as caving or sloughing of pit and how the water enters the pit.	FROM (FT)	TO (FT)	#

General Comments:

DISCLAIMER: ALL DATA ON THIS FORM HAS BEEN FIELD ESTIMATED (ASTM D2488). IF PRECISE SOIL PROPERIES ARE REQUIRED TO MEET PRACTICE STANDARDS, THE SOILS SHOULD BE TESTED AND CLASSIFIED IN ACCORDANCE WITH ASTM D2487.

1.

Definitions of selected items on the MN/WI Log of Test Pits:

Table 7B–6 Criteria for describing structure

Description	Criteria
Stratified	Alternating layers of varying material or color with layers at least mm thick; note thickness
Laminated	Alternating layers of varying material or color with the layers less than 6 mm thick; note thickness
Fissured	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided	Fracture planes appear polished or glossy, sometimes striated
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness
Homogeneous	Same color and appearance throughout

Table 7B–11 Criteria for describing plasticity

Description	Criteria
Nonplastic	A 1/8-in (3-mm) thread cannot be rolled at any water content
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit

Table 3–5 Moisture chart

	Moisture
Dry	Absence of moisture, dusty, dry to the touch
Slightly moist	Apparent moisture but well below optimum moisture content
Moist	Damp, but no visible water; at or near optimum moisture content
Very moist	Above optimum moisture content
Wet	Visible free water; below water table

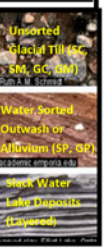
Table 7B–9 Criteria for describing dilatancy

Description	Criteria
None	No visible change in the specimen
Slow	Water appears slowly on the surface of the specimen during shaking and does not disappear or disappears slowly upon squeezing
Rapid	Water appears quickly on the surface of the specimen during shaking and disappears quickly upon squeezing

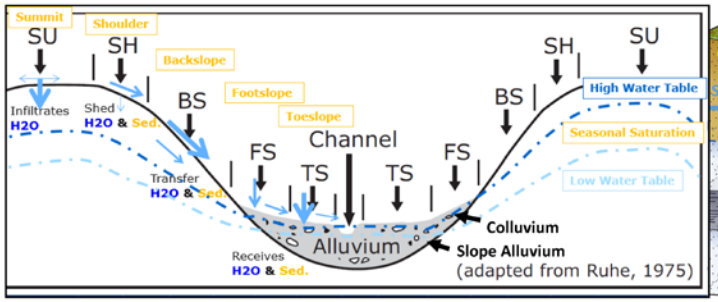
Table 7B–7 Criteria for describing consistency

Description	Criteria for Fine-grained Saturated Soils	Penetrometer tons/ft^2 or kg/cm^2	Std. Penetration Test (ASTM D 1586) blows/ft
Very soft	Thumb will penetrate soil more than 1 in	< 0.1	< 2
Soft	Thumb will penetrate soil about 1 in	0.10–0.25	2–4
Firm	Thumb will indent soil about 1/4 in	0.25–1.00	4–15
Hard	Thumb will not indent soil, but readily indented with thumbnail	1.00–2.00	15–30
Very hard	Thumbnail will not indent soil	> 2.00	> 30

Karst Features <1000 ft— look for *Sinkholes* (Intermittently wet or dry *Closed Depressions*), *Interconnected Fissures / Fractures* (seen in test pits or as sinkholes lined up on a fissure), *Disappearing Streams* (dry stream bed), *Blind Valleys* (stream ends in sinkhole), *Caves*, and *Springs*.

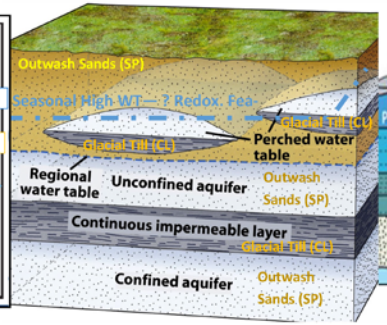


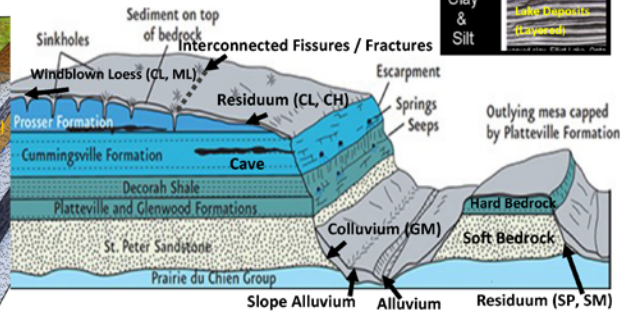
The Importance of Landscape Position to Water Movement



(adapted from Ruhe, 1975)

Glacial Water Table Features





1.

WI GEOLOGIC PROFILE AND PLAN VIEW SKETCH (INCLUDING HOLES _____)

US DEPARTMENT OF AGRICULTURE

NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

Wisconsin Job Sheet - 817

OWNER:	INCLUDE BEDROCK SURFACE ON SKETCH BELOW	COUNTY:
PROJECT:	INCLUDE KARST FEATURES WITHIN 1000 FT ON SKETCH BELOW	DATE:
EQUIPMENT:	INCLUDE SEASONAL HIGH WATER TABLE ON SKETCH BELOW	SOIL MAP UNIT:
INLUDE SUBSURFACE SATURATION ELEVATION ON SKETCH	INLUDE PERCHED WATER TABLE ON SKETCH BELOW	LANDSCAPE POSITION:
LOCATION (Address or PLSS):	ESTIMATE SURFACE ELEVATION PROFILE	LOGGED BY:

Geologic Profile and Plan View Map Sketch

General Comments:

DISCLAIMER: ALL SOIL CLASSIFICATIONS FIELD CHECKED. IF CONCLUSIVE SOIL CLASSIFICATION RESULTS ARE REQUIRED FOR ENGINEERING PURPOSES

1.

Example narrative summary of the soil profile descriptions (logs)

Test Hole #1 indicates perched water above the bedrock. Bedrock refusal at elevation 795.7 is a limiting factor. The ERI indicates that the bedrock continues to station 2+00 on the geologic profile at a constant depth below the ground surface. Tiling is recommended for perched water above the bedrock. The proposed facility is offset from test pit #1 which allows a facility bottom elevation of 793.0 because the bedrock is lower.

Test Holes #2 - #4 did not encounter bedrock. All had redoximorphic and reduction indicators with a limiting elevation of 789.8 for seasonal saturation. Due to clean sands (SP) encountered below the seasonal high water table, we are assuming that the water table fluctuates through the sands into the CL and ML materials. The redoximorphic features in the CL layer are not from perched water alone. This is partially due to the landscape position of being at the toe of slope. It would take monitoring wells to prove otherwise.

Sample #1 was taken in Lean Clay for testing its suitability for sub-liner material.

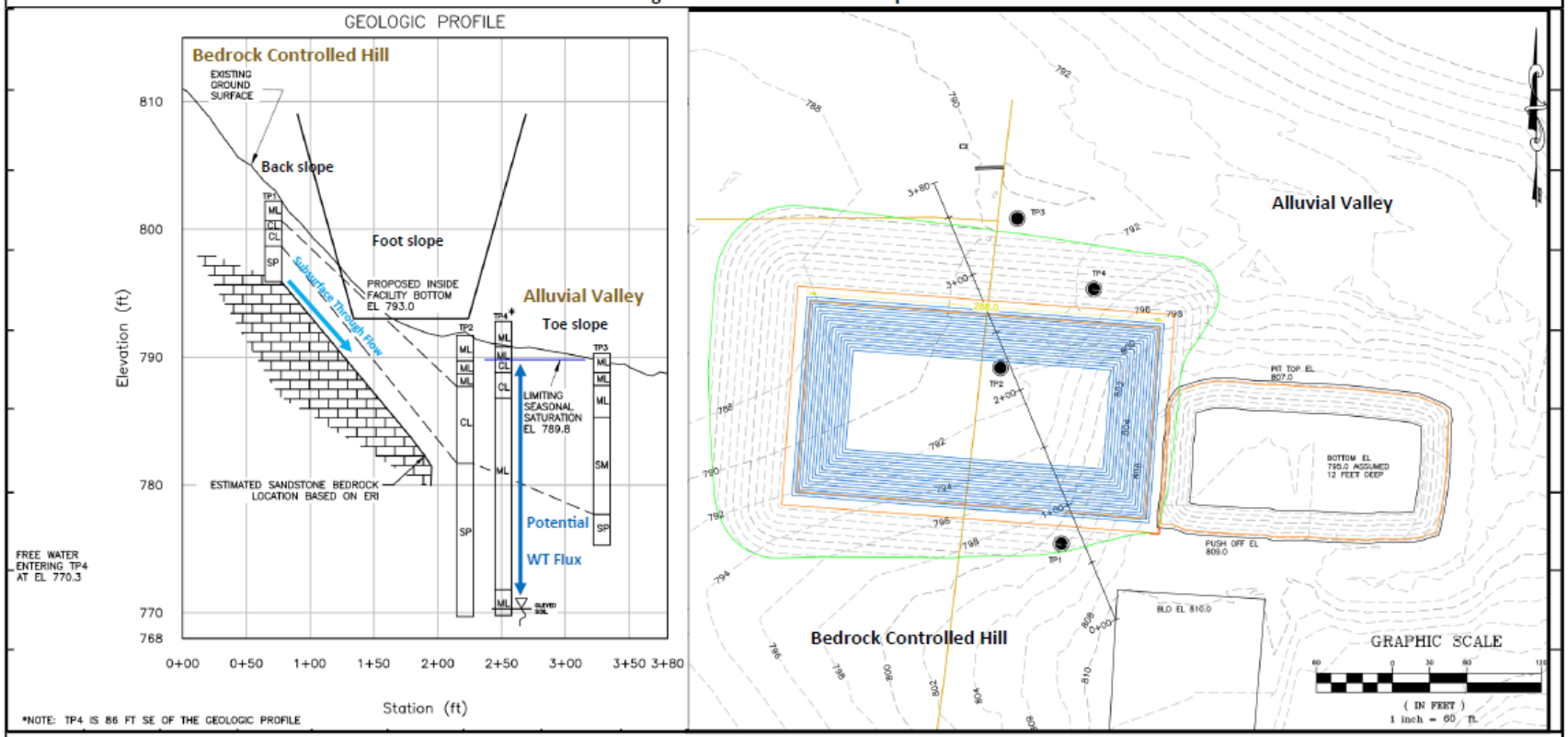
US DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

MN/WI GEOLOGIC PROFILE AND PLAN VIEW SKETCH (INCLUDING HOLES _____)

Wisconsin Job Sheet 817

OWNER: Example	INCLUDE BEDROCK SURFACE ON SKETCH BELOW	COUNTY:
PROJECT:	INCLUDE KARST FEATURES WITHIN 1000 FT ON SKETCH BELOW	DATE:
EQUIPMENT:	INCLUDE SEASONAL HIGH WATER TABLE ON SKETCH BELOW	SOIL MAP UNIT:
INLUDE SUBSURFACE SATURATION ELEVATION ON SKETCH	INLUDE PERCHED WATER TABLE ON SKETCH BELOW	LANDSCAPE POSITION:
LOCATION (Address or PLSS):	ESTIMATE SURFACE ELEVATION PROFILE	LOGGED BY:

Geologic Profile and Plan View Map Sketch



General Comments: The site is located on the backslope, footslope and toeslope of a sandstone bedrock controlled hill. Bedrock was found close to the surface on the southern edge of the proposed pit on the backslope of the hill with alluvial fill found to the north. When it rains on the site water will temporarily perch on the bedrock and some water will flow laterally over the bedrock towards the alluvial valley which potentially sees significant fluctuations in seasonal water table.

DISCLAIMER: ALL SOIL CLASSIFICATIONS FIELD CHECKED. IF CONCLUSIVE SOIL CLASSIFICATION RESULTS ARE REQUIRED FOR ENGINEERING PURPOSES

1.

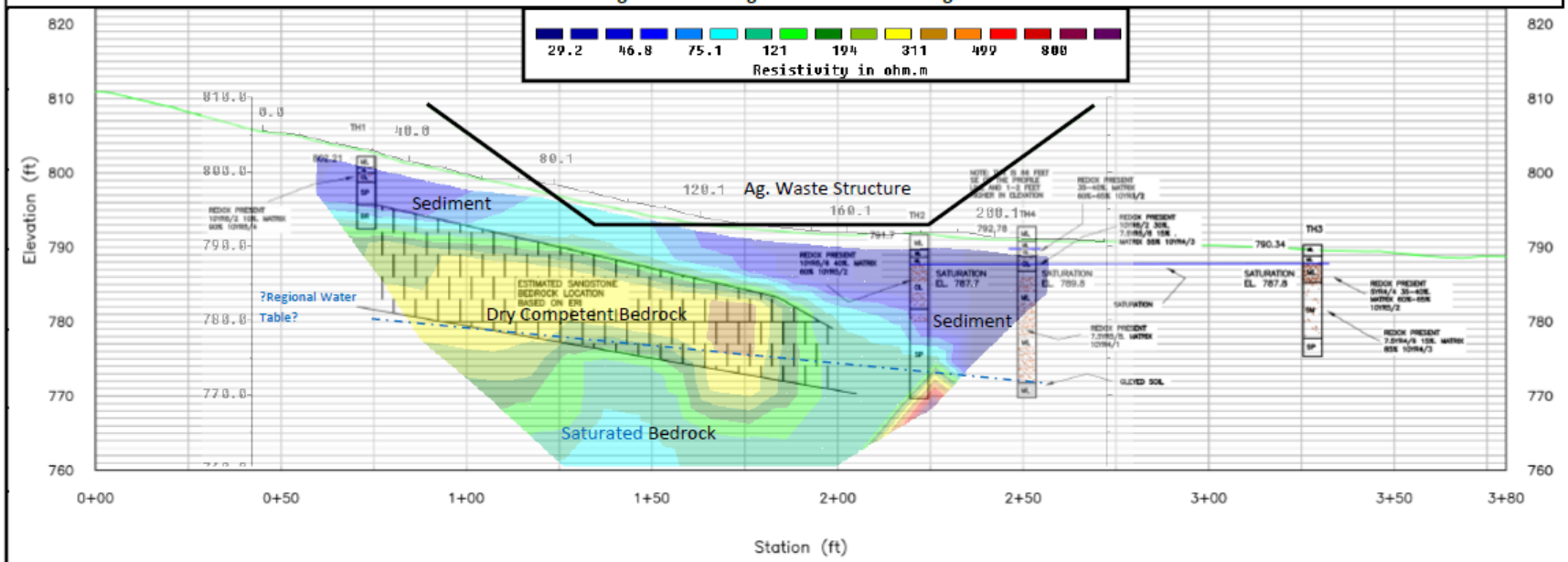
USDA
US DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

MN/WI GEOLOGIC PROFILE AND PLAN VIEW SKETCH (INCLUDING HOLES _____)

Wisconsin Job Sheet 817

OWNER: Example with ERI	INCLUDE BEDROCK SURFACE ON SKETCH BELOW	COUNTY:
PROJECT:	INCLUDE KARST FEATURES WITHIN 1000 FT ON SKETCH BELOW	DATE:
EQUIPMENT:	INCLUDE SEASONAL HIGH WATER TABLE ON SKETCH BELOW	SOIL MAP UNIT:
INLUDE SUBSURFACE SATURATION ELEVATION ON SKETCH	INLUDE PERCHED WATER TABLE ON SKETCH BELOW	LANDSCAPE POSITION:
LOCATION (Address or PLSS):	ESTIMATE SURFACE ELEVATION PROFILE	LOGGED BY:

Ag. Waste Geologic Profile with ERI Image



General Comments: The Electrical Resistivity Imaging (ERI) shows a similar trend as the test pits with bedrock close to the surface on the southern edge of the proposed pit on the backslope of the hill with alluvial fill found to the north. When it rains on the site water will temporarily perch on the bedrock and some water will flow through the bedrock while some water will flow laterally over the bedrock towards the alluvial valley which sees significant fluctuations in seasonal water table.

DISCLAIMER: ALL SOIL CLASSIFICATIONS FIELD CHECKED. IF CONCLUSIVE SOIL CLASSIFICATION RESULTS ARE REQUIRED FOR ENGINEERING PURPOSES

1.

USDA
NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

WI LOG OF TEST PIT NUMBER ___1__

Wisconsin Job Sheet - 816

OWNER: Soils Training	SURFACE ELEVATION: 802.2	COUNTY: Trempealeau
PRACTICE: 313 Waste Storage Facility	PERCHED WATERTABLE ELEVATION: 800.0	LAT/LONG: 44.225508333, -91.491847222
EQUIPMENT: CAT 330B Excavator	SEASONAL HIGH WATER TABLE ELEVATION: none	LANDSCAPE POSITION: Backslope/Footslope
LOGGED BY: Class	OBSERVED SUBSURFACE SATURATION ELEVATION: not observed	SOIL MAP UNIT: 622A Worthen Silt Loam
DATE: 5/31/2018	TOP OF BEDROCK ELEVATION: 795.7	KARST FEATURES WITHIN 1000 FT: None

DEPTH		USCS		GRADATION					PLASTICITY	MUNSELL COLOR AND %		MOISTURE	STRUCTURE	GEOLOGY	ADDITIONAL COMMENTS	SAMPLES		
FROM (FT.)	TO (FT.)	SYMBOL (e.g.-ML)	GROUP NAME (e.g.-Silt w/Sand)	% B >12"	% C 3"-12"	% G 3"-1/4"	% S 1/4"-#200	% FINE <#200	Non, Slightly, Low, Medium, High.	MATRIX (e.g.-90% 10YR 4/4)	REDOX. (e.g.-10% 10YR 5/2)	Dry, Slightly Moist, Moist, Very Moist, Wet.	Stratified, Laminated, Fissured, Slicken-sided, Blocky, Prismatic, Lensed, Massive.	Alluvium, Slope Alluvium, Colluvium, Glacial Till, Glacial Lake Sed., Outwash, Residuum, Loess, Bedrock.	Description of lenses - mixed materials encountered; Dilatancy: None, Slow, Rapid; Odor (mention if unusual); Consistency (If very soft or soft in wet condition); Location of Seepage and Other Items such as caving or sloughing of pit and how the water enters the pit.	FROM (FT)	TO (FT)	#
0	1.5	ML	Silt				5	95	Slight to Low	100% 10YR3/2		Slightly Moist	Platy Granular	Disturbed	Area has been filled. A lot of roots in topsoil.			
1.5	2.2	CL SC/SP W/GRAVEL	Clay mixed with Sandy Clay, Sand and Gravel			20	5-20	60-95	Low slightly	100% 10YR2/1		Slightly Moist	Blocky	Disturbed	Mixed, some gravel			
2.2	3.5	CL	Lean Clay				5	95	Medium	90% 10YR3/2	10% 10YR6/2	Slightly Moist	Blocky Subangular	Loess brought downslope	Undisturbed. Bottom contact has sandstone. Perching from bedrock			
3.5	6.5	SP	Sand				5	95	n/a	100% 10YR3/2		Moist	Homogenous	Residuum	Wonewoc geology, weathered sandstone			
6.5		BR	Bedrock												Sandstone			

General Comments: Rained hard day before investigation.

DISCLAIMER: ALL DATA ON THIS FORM HAS BEEN FIELD ESTIMATED (ASTM D2488). IF PRECISE SOIL PROPERIES ARE REQUIRED TO MEET PRACTICE STANDARDS, THE SOILS SHOULD BE TESTED AND CLASSIFIED IN ACCORDANCE WITH ASTM D2487.

1.

USDA
NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

WI LOG OF TEST PIT NUMBER __2___

Wisconsin Job Sheet - 816

OWNER: Soils Training	SURFACE ELEVATION: 791.7	COUNTY: Trempealeau
PRACTICE: 313 Waste Storage Facility	PERCHED WATERTABLE ELEVATION: none	LAT/LONG: 44.225894444, -91.492011111
EQUIPMENT: CAT 330B Excavator	SEASONAL HIGH WATER TABLE ELEVATION: 787.7	LANDSCAPE POSITION: Footslope
LOGGED BY: Class	OBSERVED SUBSURFACE SATURATION ELEVATION: not observed	SOIL MAP UNIT: 622A Worthen Silt Loam
DATE: 5/31/2018	TOP OF BEDROCK ELEVATION: not encountered	KARST FEATURES WITHIN 1000 FT: None

DEPTH		USCS		GRADATION					PLASTICITY	MUNSELL COLOR AND %		MOISTURE	STRUCTURE	GEOLOGY	ADDITIONAL COMMENTS	SAMPLES		
FROM (FT.)	TO (FT.)	SYMBOL (e.g.-ML)	GROUP NAME (e.g.-Silt w/Sand)	% B >12"	% C 3"-12"	% G 3"-1/4"	% S 1/4"-#200	% FINE <#200	Non, Slightly, Low, Medium, High.	MATRIX (e.g.-90% 10YR 4/4)	REDOX. (e.g.-10% 10YR 5/2)	Dry, Slightly Moist, Moist, Very Moist, Wet.	Stratified, Laminated, Fissured, Slicken-sided, Blocky, Prismatic, Lensed, Massive.	Alluvium, Slope Alluvium, Colluvium, Glacial Till, Glacial Lake Sed., Outwash, Residuum, Loess,	Description of lenses - mixed materials encountered; Dilatancy: None, Slow, Rapid; Odor (mention if unusual); Consistency (If very soft or soft in wet condition); Location of Seepage and Other Items such as caving or sloughing of pit and how the water enters the pit.	FROM (FT)	TO (FT)	#
0	2	ML	Silt				5	95	Slightly	90% 10YR5/2	10% 5YR4/4	Slightly Moist	Platy	Alluvium Post Settlement	Low chroma values in overburden			
2	3	ML	Silt				10	90	Slightly	100% 10YR2/1		Slightly Moist	Blocky	Alluvium	Soft consistency			
3	4	ML	Silt				10	90	Slightly	97% 10YR5/4	3% 7.5YR5/4	Moist	Blocky	Alluvium	Dilatancy slow			
4	10	CL	Lean Clay				10	90	Low	60% 10YR5/2 25% 10YR5/4	15% 7.5YR5/6	Moist	Massive	Alluvium	Ribbons, dilatancy slow			
10	22	SP	Sand				95	5	NP	100% 10YR5/4		Slightly Moist — Moist	Stratified	Weathered Bedrock	Mixed sand grains, bottom very moist, weathered bedrock based on ERI			
22		BR																

General Comments: Due to clean sands (SP) encountered below the seasonal high watertable, we are assuming that the watertable fluctuates through the sands into the CL and ML material. The redocimorphic features in the CL layer are not from perched water alone. This is partially due to the landscape position of being at the toe of slope. It would take moniotring wells to prove otherwise.

DISCLAIMER: ALL DATA ON THIS FORM HAS BEEN FIELD ESTIMATED (ASTM D2488). IF PRECISE SOIL PROPERIES ARE REQUIRED TO MEET PRACTICE STANDARDS, THE SOILS SHOULD BE TESTED AND CLASSIFIED IN ACCORDANCE WITH ASTM D2487.

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USDA
NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

WI LOG OF TEST PIT NUMBER __3___

Wisconsin Job Sheet - 816

OWNER: Soils Training	SURFACE ELEVATION: 790.3	COUNTY: Trempealeau
PRACTICE: 313 Waste Storage Facility	PERCHED WATERTABLE ELEVATION: none	LAT/LONG: 44.226202778, -91.4912000000
EQUIPMENT: CAT 330B Excavator	SEASONAL HIGH WATER TABLE ELEVATION: 787.8	LANDSCAPE POSITION: Toeslope
LOGGED BY: Class	OBSERVED SUBSURFACE SATURATION ELEVATION: not observed	SOIL MAP UNIT: 622A Worthen Silt Loam
DATE: 5/31/2018	TOP OF BEDROCK ELEVATION: not encountered	KARST FEATURES WITHIN 1000 FT: None

DEPTH		USCS		GRADATION					PLASTICITY	MUNSELL COLOR AND %		MOISTURE	STRUCTURE	GEOLOGY	ADDITIONAL COMMENTS	SAMPLES		
FROM (FT.)	TO (FT.)	SYMBOL (e.g.-ML)	GROUP NAME (e.g.-Silt w/Sand)	% B >12"	% C 3"-12"	% G 3"-1/4"	% S 1/4"-#200	% FINE <#200	Non, Slightly, Low, Medium, High.	MATRIX (e.g.-90% 10YR 4/4)	REDOX. (e.g.-10% 10YR 5/2)	Dry, Slightly Moist, Moist, Very Moist, Wet.	Stratified, Laminated, Fissured, Slicken-sided, Blocky, Prismatic, Lensed, Massive.	Alluvium, Slope Alluvium, Colluvium, Glacial Till, Glacial Lake Sed., Outwash, Residuum, Loess, Bedrock.	Description of lenses - mixed materials encountered; Dilatancy: None, Slow, Rapid; Odor (mention if unusual); Consistency (If very soft or soft in wet condition); Location of Seepage and Other Items such as caving or sloughing of pit and how the water enters the pit.	FROM (FT)	TO (FT)	#
0	1.5	ML	Silt				5	95	Slightly	100% 10YR3/1		Slightly Moist	Platy	Alluvium	Dilatancy slow			
1.5	2.5	ML	Silt				5	95	Low	100% 10YR5/3		Slightly Moist	Blocky	Alluvium	Dilatancy slow			
2.5	5	ML	Silt				5	95	Low	60% 10YR5/2	40% 10YR4/4	Moist	Blocky	Alluvium	Dilatancy slow, Soft consistency			
5	12.6	SM	Silty Sand				60	40	NP	85% 10YR4/3	15% 7.5YR4/6	Very Moist	Massive	Alluvium	Near saturation, more sandy with depth			
12.6	15	SP	Sand				95	5	NP	100% 10YR6/4		Very Moist	Massive	Alluvium	Pit caved in immediately, unable to color			
15		BR																

General Comments:

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USDA
NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

WI LOG OF TEST PIT NUMBER __4___

Wisconsin Job Sheet - 816

OWNER: Soils Training	SURFACE ELEVATION: 792.8	COUNTY: Trempealeau
PRACTICE: 313 Waste Storage Facility	PERCHED WATERTABLE ELEVATION: none	LAT/LONG: 44.22596447,-91.491727778
EQUIPMENT: CAT 330B Excavator	SEASONAL HIGH WATER TABLE ELEVATION: 789.8	LANDSCAPE POSITION: Toeslope
LOGGED BY: Class	OBSERVED SUBSURFACE SATURATION ELEVATION: 770.3	SOIL MAP UNIT: 622A Worthen Silt Loam
DATE: 5/31/2018	TOP OF BEDROCK ELEVATION: not encountered	KARST FEATURES WITHIN 1000 FT: None

DEPTH		USCS		GRADATION					PLASTICITY	MUNSELL COLOR AND %		MOISTURE	STRUCTURE	GEOLOGY	ADDITIONAL COMMENTS	SAMPLES		
FROM (FT.)	TO (FT.)	SYMBOL (e.g.-ML)	GROUP NAME (e.g.-Silt w/Sand)	% B >12"	% C 3"-12"	% G 3"-1/4"	% S 1/4"-#200	% FINE <#200	Non, Slightly, Low, Medium, High.	MATRIX (e.g.-90% 10YR 4/4)	REDOX. (e.g.-10% 10YR 5/2)	Dry, Slightly Moist, Moist, Very Moist, Wet.	Stratified, Laminated, Fissured, Slicken-sided, Blocky, Prismatic, Lensed, Massive.	Alluvium, Slope Alluvium, Colluvium, Glacial Till, Glacial Lake Sed., Outwash, Residuum, Loess, Bedrock.	Description of lenses - mixed materials encountered; Dilatancy: None, Slow, Rapid; Odor (mention if unusual); Consistency (If very soft or soft in wet condition); Location of Seepage and Other Items such as caving or sloughing of pit and how the water enters the pit.	FROM (FT)	TO (FT)	#
0	2	ML	Silt				10	90	Slightly	95% 10YR4/2	5% 10YR4/4	Slightly Moist	Platy	Post Settlement Alluvium	Disturbed topsoil.			
2	3	ML	Silt				5	95	Slightly	100% 10YR5/3		Slightly Moist	Blocky	Loess	Buried topsoil			
3	4	CL	Lean Clay				5	95	Medium	60% 10YR5/2 40% 10YR5/3		Moist	Massive	Alluvium	Soft consistency	3	4	1
4	6	CL	Lean Clay				5	95	Medium	55% 10YR4/3	30% 10YR6/2 15% 7.5YR5/6	Moist	Massive	Loess Alluvium	Increasing mottles with depth			
6	21	ML	Silt w/ sand				15	85	NP	75% 10YR4/1	30% 7.5YR5/8	Wet	Massive	Loess		6	8	2
21	23	ML	Silt				5	95	NP	GLI 2.5/10Y	GLI 4/10Y	Moist	Massive	Loess	water flowing in from upslope side @ 22.5' (770.3)			
23																		

General Comments: Water in stream 1160 feet to west surveyed at 764.1 elevation.

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