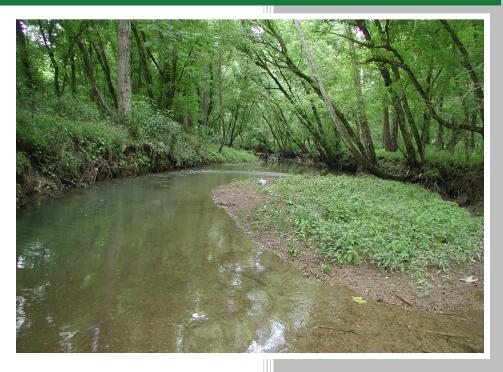
# Soil Investigation of Lower East Fork Poplar Creek



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August 2015

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#### **Environmental Sciences Division**

## SOIL INVESTIGATION OF LOWER EAST FORK POPLAR CREEK

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### **ACRONYMS**

BGS below ground surface

DOE US Department of Energy

EFPC East Fork Poplar Creek

LEFPC lower East Fork Poplar Creek

USDA US Department of Agriculture

Y-12 Y-12 National Security Complex

#### 1. INTRODUCTION

Mercury is regarded by the US Department of Energy (DOE) Oak Ridge Office of Environmental Management as a priority contaminant on the Oak Ridge Reservation because of the environmental risks associated with substantial losses from buildings, soils, and surface waters at the Y-12 National Security Complex (Y-12). As a result of historical releases of mercury from Y-12 primarily in the 1950s and early 1960s, the lower East Fork Poplar Creek (LEFPC) stream channel and bank soil margins are contaminated with mercury (Brooks and Southworth 2011; Tennessee Valley Authority 1985b, a).

A Mercury Remediation Technology Development project is underway to evaluate the nature of downstream mercury contamination and to develop targeted site-specific remedial technologies that can mitigate mercury release and biological uptake. It is known that mercury concentration varies longitudinally and with depth in LEFPC bank soils; however, soil types and soil physical properties are not well known, especially relative to the zones of mercury contamination. Moreover, there are no soil maps for the downstream reaches of LEFPC in Roane County (i.e. from the Chestnut Hill Road downstream) and this work represents the first ever soil mapping along this section of LEFPC.

**Purpose and Scope**: The aim of this report is to present the results of a field investigation of bank soil characteristics within the 18 km reach of LEFPC, through detailed physical descriptions and mapping. As more information becomes available on mercury concentrations in bank soils, the soil physical properties will be important in the development and application of technologies such as bank stabilization techniques, chemical treatment, or use of sorbents. Bank soils have different properties that may enhance or limit mercury release to the stream and future remedial options may be targeted to those areas with the highest mercury release.

**Approach/Method**: The bank soil investigation—conducted from May 11 to June 5, 2015—involved walking the entire 18 km LEFPC reach and mapping soil horizons encountered on the creek bank faces. Before soil characterization was performed, the bank surface was cleared of vegetation and other debris to expose the soil profile. Sixty-nine soil profile descriptions were completed along the entire reach of the creek. An additional 21 soil samples were collected for bulk density determination.

#### 2. LEFPC STUDY AREA

LEFPC is located in the EFPC watershed within the city of Oak Ridge in Anderson and Roane Counties in the Appalachian Valley and Ridge Physiographic Province of eastern Tennessee. Within Y-12 EFPC is bounded to the north by Pine Ridge and Chestnut Ridge to the south, while in East Fork valley LEFPC is bounded to the north by Black Oak Ridge and East Fork Ridge to the south. The EFPC watershed drains an area of approximately 76.5 km² extending from the headwaters to the mouth at Poplar Creek. The elevations within the watershed range from 230 to 290 m above mean sea level. EFPC originates within the Bear Creek Valley underlying Y-12 and flows in a northeasterly direction until crossing a water gap in Pine Ridge and exiting the Y-12 perimeter. LEFPC refers to the locations downstream of the Y-12 Complex. After the water gap, LEFPC turns toward the northwest, paralleling Tennessee State Route 62 through commercial developments within the city of Oak Ridge. At the intersection of Tennessee State Routes 62 and 95 in Oak Ridge, the creek drains southwesterly toward Poplar Creek. The width of the 100-year flood plain bordering this creek ranges from several meters in the upper areas to approximately 500 m in the downstream reaches. The lower reaches of the flood plain (beyond the intersection of Tennessee State Routes 62 and 95) are mostly undeveloped woodlands and pasture with some residential developments.

#### 3. GEOLOGY AND USDA SOIL SERIES

According to *Geology of Eastern Tennessee*, published by the US Geological Survey (Hardeman, Miller, and Swingle 1966; Hatcher 1987), LEFPC is situated in the Appalachian Valley and Ridge Physiographic Province of eastern Tennessee, characterized by ridges and valleys that strike toward the northeast and southwest. The valleys are typically derived from limestone and shale, whereas the ridges are typically developed from sandstone and cherty dolomite. Because of many strike-parallel local and regional thrust faults in the valley and ridge, southeast trending beds are common features. The sedimentary deposits that underlie the LEFPC are Cambrian- to Ordovician-age sediments of the Rome and Chickamauga Formations. The Rome Formation is characterized as a maroon to gray, micaceous shale interbedded with sandstone and siltstone (Carmichael 1989), whereas the Chickamauga is a gray to blue-gray, shalely to silty limestone with occasional occurrence of sinkholes.

The thickness of the alluvial deposits underlying the site and overlying the bedrock ranges from zero at the floodplain boundary with exposed bedrock to approximately 3 m at the center of the floodplain. The 0.3-1.5 m thick alluvial soils of the floodplain comprise mainly silt and clay with a lesser amount of sands. These soils are classified as moderately well drained Hamblen silt loam and somewhat poorly drained Chenneby silt loam, with 0-3% slopes (USDA 2015).

#### 4. GROUNDWATER LEVEL

Based on the observation well data reported by Carmichael (1989) in the eastern portion of LEFPC, depths to water table ranged from approximately 0.31 to 1.22 m below ground surface (BGS) in late winter to early spring and 0.61 to 2.13 m BGS in summer and fall. The seasonal high water table generally occurred during the late fall and early spring because of increased precipitation and a large decrease in evapotranspiration.

The field mapping of bank soils was conducted during May and June 2015. Based on precipitation data recorded by the National Oceanic and Atmospheric Administration for Oak Ridge, Tennessee, cumulative precipitation (46 years) was 8.64 mm above normal (average) for the period of January 1, 2014, through December 31, 2014, and was 3.56 mm below normal for the months of January 1, 2015, through April 30, 2015. The normal annual precipitation for Oak Ridge from January through December is approximately 1,400 mm (NOAA 2015). Depth to surface water observed within LEFPC in May 2015 ranged from approximately 0.76 to 2.44 m BGS over the evaluated portion of the creek. Thus, it is likely that the LEFPC surface water levels observed during this soil investigation represent normal seasonal high groundwater table fluctuations for summer to early fall.

#### 5. SOIL EVALUATION

The LEFPC bank soils were mapped from May 11 through June 5, 2015, and consisted of visual inspection of creek bank surfaces, removal of vegetation and debris from surfaces with trowels and machetes to expose soil horizons, and description of profiles at 69 LEFPC bank locations. See Appendix A for approximate soil boring locations.

The soils encountered at these locations were classified in accordance with the USDA textural classification method. The soil profile evaluations are summarized in the Soil Profile Notes in Appendix B.

The soils were delineated based on drainage limitations, estimated permeability, and soil taxonomy. Soil conditions include soil permeability, depth to limiting zones encompassing zones of seasonal or perennial

saturation, or a stratum that effectively limits the movement of water. Limiting zones may consist of dense or clayey strata that restrict the movement of water vertically through the soil profile, potentially resulting in seasonal saturation at shallow depths, sometimes referred to as a perched water table. The depth and degree of seasonal saturation may vary depending on the amount of precipitation from season to season and year to year. Redoximorphic features—soil colors due to the process of reduction, translocation, and oxidation of iron and manganese oxides (Vepraska 1999)—that form in response to repeated and prolonged saturation in the soil are generally used to estimate limiting zones, irrespective of where the groundwater table may be observed at any given time.

#### 5.1 GENERAL DESCRIPTION OF LEFPC BANK SOILS

The evaluated LEFPC bank soils generally are characterized by fine silty to clayey alluvial materials of variable thickness underlain by gleyed, silty clay to clayey horizons. The Chickamauga bedrock is generally are encountered below this horizon.

Redoximorphic features indicative of a seasonal high water table or slow soil permeability (perched water table) were observed at depths ranging from 1.0 to 2.0 ft BGS in these soils. Free water was observed in LEFPC at depths ranging from 30 to 96 in. BGS, which is in good agreement with groundwater levels reported by Carmichael (1989).

Based on soil characteristics described in the soil profile notes in Appendix B, soil taxonomy, and drainage limitations, two interpretive soil map units were delineated within the LEFPC site as follows: Fluvaquentic Dystrudepts and Fluvaquentic Eutrudepts.

#### 5.2 SOIL MAP UNITS

#### 5.2.1 Fluvaquentic Dystrudepts (Chenneby Series)

#### 5.2.1.1 Description

The Chenneby soil unit occupies floodplains and depressions on gentle to slight slopes. These are deep (from 30 to 70 in.), somewhat poorly drained, moderately permeable soils formed in silty, 3- to 6-ft thick alluvial material weathered from sedimentary rock (limestone, sandstone, and shale). These soils are occasionally or frequently flooded for a brief period. The surface horizons of this unit are typically 6 in. thick and composed of a brown to dark brown mineral horizon of loam to silty clay loam. These horizons transition to a subsurface horizon (B horizon), a zone of color or structure development greater than 30 in. thick. The B horizon is underlain by a gray to olive yellow loamy parent material. Redoximorphic features indicative of a seasonal high groundwater table generally are encountered in these soils from 12 to 30 in. BGS.

#### **5.2.1.2** Findings

The somewhat poorly drained Chenneby soil map unit within the LEFPC generally was composed of a loamy to silt loam surface horizon, to depths ranging from 6 to 18 in. BGS. These soils transition to a silt loam to clay loam subsurface horizon to depths ranging from 20 to 48 in. BGS. Underlying this horizon is the parent or geologic material consisting of gleyed silty clay loam to clay to depths of 36 to greater than 84 in. BGS.

Redoximorphic features indicative of seasonally saturated conditions were observed at depths ranging from 8 to 18 in. BGS, and free water levels observed in those parts of the creek occupied by this soil unit ranged from depths of 32 to 86 in. BGS. Based on observed soil textures, measured bulk density, and

USDA saturated hydraulic conductivity classes ( $K_{\text{sat}}$ ), the permeability of these soils is moderate to moderately slow (0.20–2.00 in./h) within the surficial alluvial material but slow to very slow (<0.06 in./h) in the underlying clayey sediments. It should be noted that some areas under this mapping unit may qualify as wetlands.

#### 5.2.2 Fluvaquentic Eutrudepts (Hamblen Series)

#### 5.2.2.1 Description

The Hamblen are soils of floodplains and depressions, occupying gentle to slight slopes. These are very deep, moderately well drained, moderately permeable soils formed in alluvial material derived from limestone, sandstone, and shale. These soils are occasionally flooded for a brief period. The surface horizons of this unit typically are composed of a yellowish brown to dark grayish brown mineral horizon of loam to silt loam material. These horizons transition to a subsurface horizon (B horizon), a zone of color or structure development 12–45 in. thick. The B horizon is underlain by a silt loam parent material. The Hamblen soils are associated with a seasonal high groundwater table of 18–36 in. BGS.

#### **5.2.2.2** Findings

The moderately well drained Hamblen soil map unit within the LEFPC generally is composed of a loamy to silt loam surface horizon, to depths ranging from 5 to 12 in. BGS. These soils transition to a silt loam to silty clay loam subsurface horizon to depths ranging from 28 to 58 in. BGS. This horizon is underlain by parent material consisting of silty clay loam to clay to depths of approximately 38 to greater than 96 in. BGS.

Redoximorphic features indicative of seasonally saturated conditions were observed at depths ranging from 20 to 28 in. BGS, and free water levels observed in this soil unit ranged from depths of 38 to 96 in. BGS. Based on observed soil textures, measured bulk density, and USDA saturated hydraulic conductivity classes ( $K_{\text{sat}}$ ), the permeability of these soils is moderate to moderately slow (0.20–2.00 in./h) in the surficial alluvial material to very slow (<0.06 in./h) in the underlying clayey sediments.

#### 6. SOILS BULK DENSITY

Bulk density measurements (USDA-NRCS 2014) were conducted in each soil map unit at select locations within LEFPC. Results are summarized in the Bulk Density Summary Table in Appendix C. Overall, the measured bulk density ranged from 0.75 to 1.49 g/cm<sup>3</sup> in the Chenneby soil series and from 0.91 to 1.39 g/cm<sup>3</sup> in the Hamblen soil series, indicating some hydraulically restrictive layers within the underlying parent materials of both soil series.

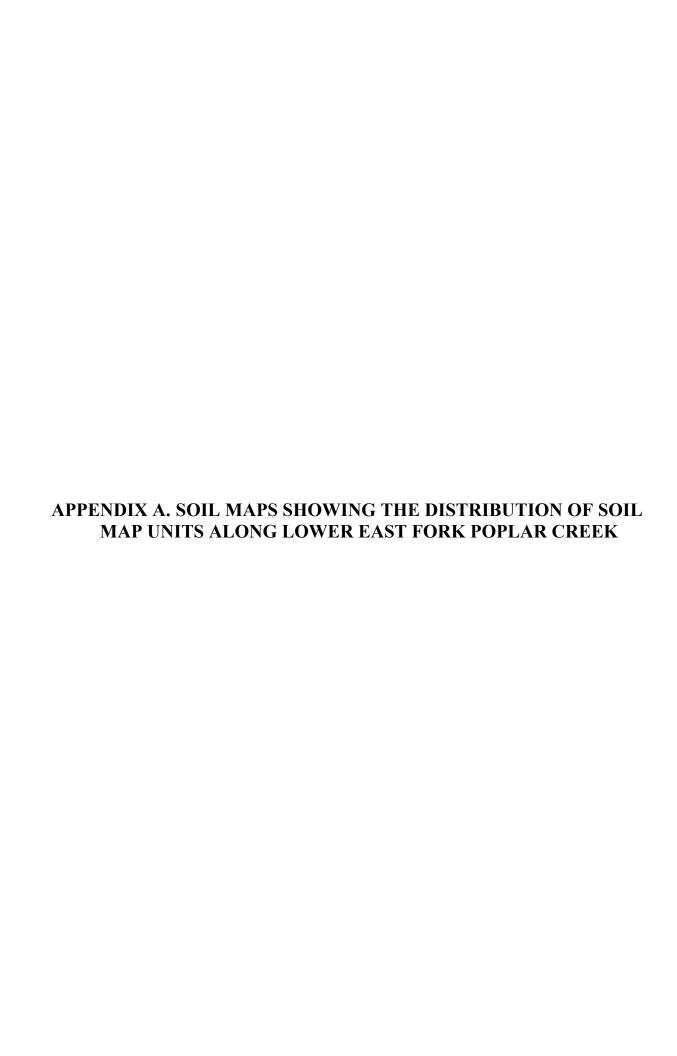
#### 7. CONCLUSIONS

Soils in the evaluated LEFPC were mapped as somewhat poorly to moderately well-drained with moderate to slowly permeable subsoil/substratum. These soils occupy lower landscape positions such as floodplains and depressions where slopes are slight to nearly level (from 0 to 3%). The Chenneby soils are associated with limiting zones ranging from approximately 8 to 18 in. BGS and slow permeability in the geologic parent materials. The Hamblen soils have limiting zones ranging from approximately 20 to 28 in. BGS and moderate to slow permeability in the clayey parent materials. It should be noted that both series include minor components (<10%) of Ennis series (Fluventic Dystrudepts), urban soils, and rock outcrops. Some areas within these soil map units may be classified as wetlands, given the presence of appropriate wetland vegetation and hydrology.

This investigation has provided an improved knowledge of soil types and physical properties in LEFPC that could be useful to the development and application of remedial technologies such as bank stabilization techniques, chemical treatment, or use of sorbents to mitigate mercury contamination in bank soils. For example, soil layers with high(er) Hg content and high(er) permeability ( $K_{\text{sat}}$ ) can more easily conduct water and release Hg to EFPC, and these soils would represent higher priority zones for targeted action. Combining results of the present study of soil properties with those of previous and ongoing studies of Hg content and release rate will help to prioritize remedial action zones.

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- Vepraska, M. J. 1999. *Redoximorphic Features for Identifying Aquic Conditions*. North Carolina Agricultural Research Service Technical Bulletin No. 301, North Carolina State University, Raleigh.



# APPENDIX A. SOIL MAPS SHOWING THE DISTRIBUTION OF SOIL MAP UNITS ALONG LOWER EAST FORK POPLAR CREEK

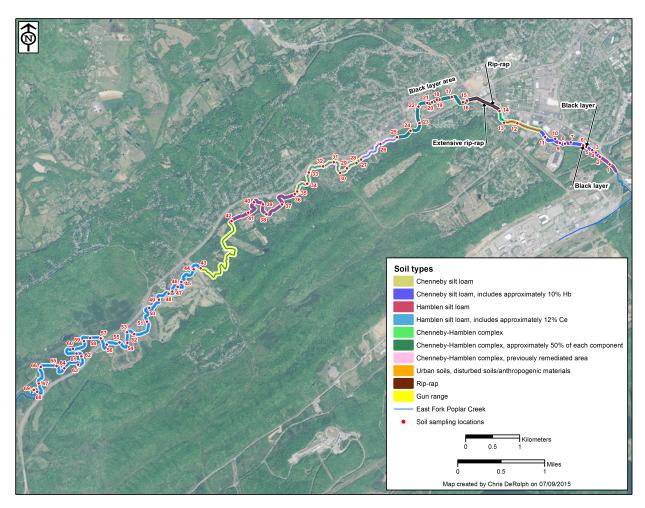


Fig. A.1. Map of soil types along lower East Fork Poplar Creek.

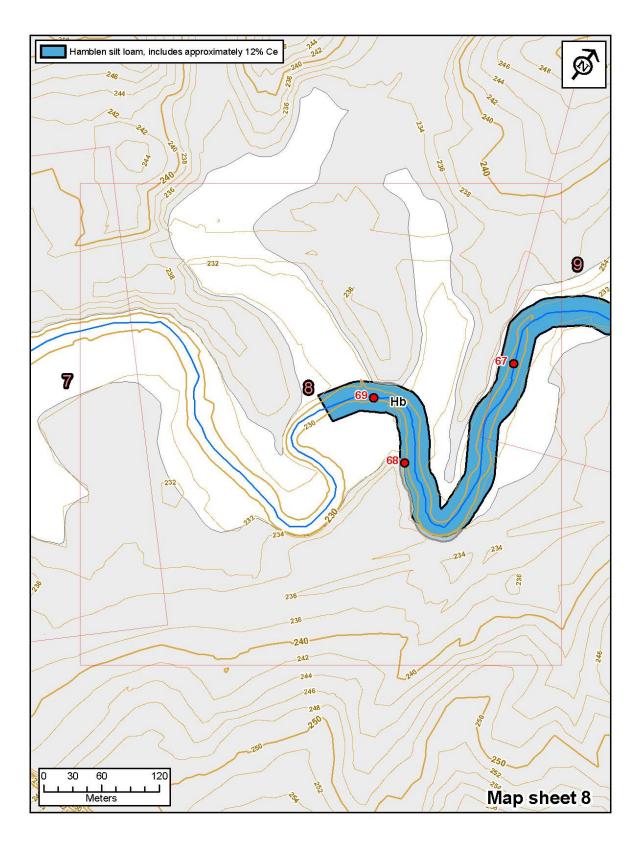


Fig. A.2. Map of soil types at bank locations 67–69 along lower East Fork Poplar Creek.

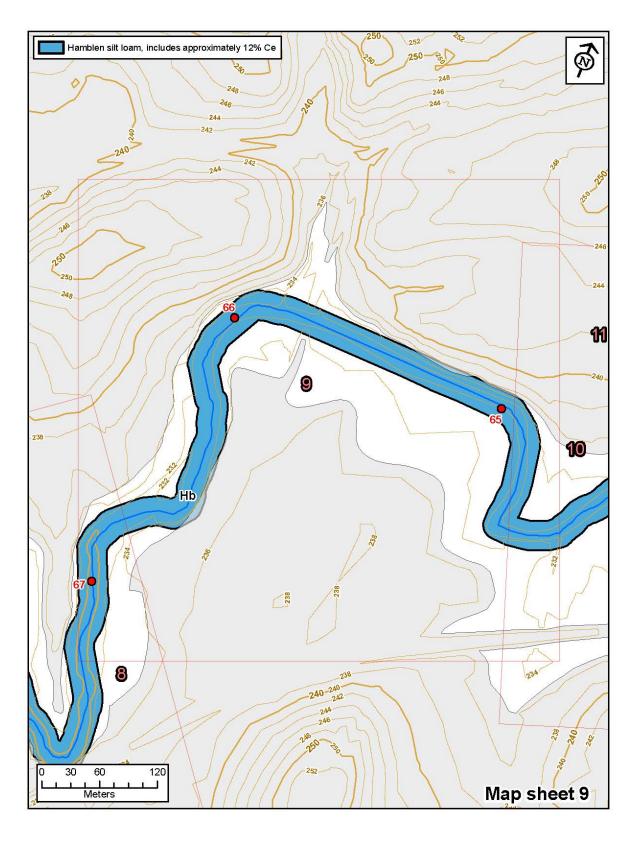


Fig. A.3. Map of soil types at bank locations 65–67 along lower East Fork Poplar Creek.

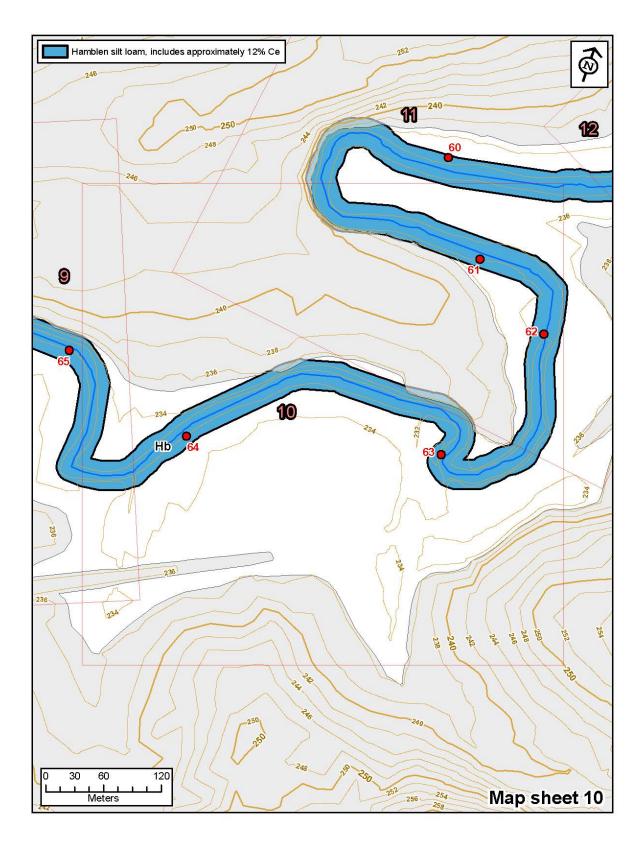


Fig. A.4. Map of soil types at bank locations 60–65 along lower East Fork Poplar Creek.

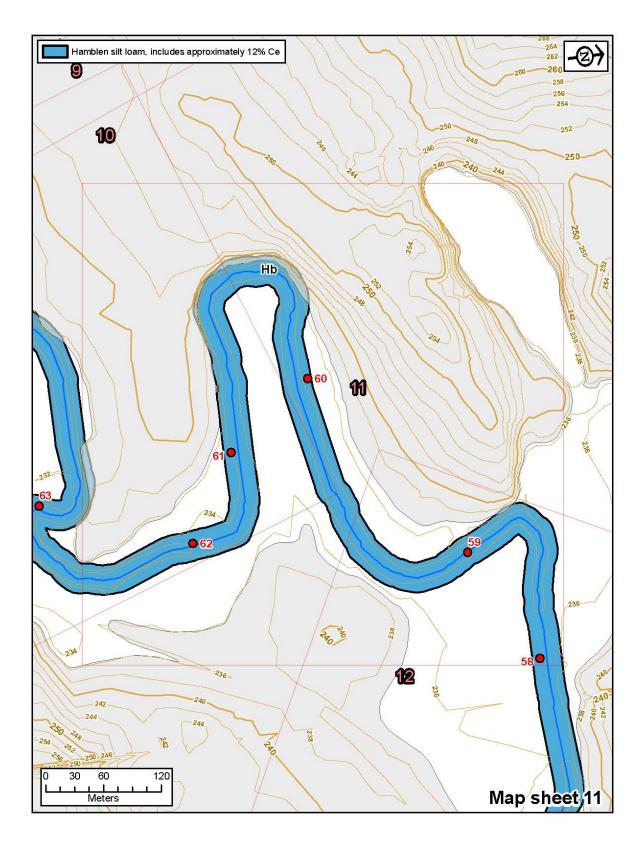


Fig. A.5. Map of soil types at bank locations 58–63 along lower East Fork Poplar Creek.

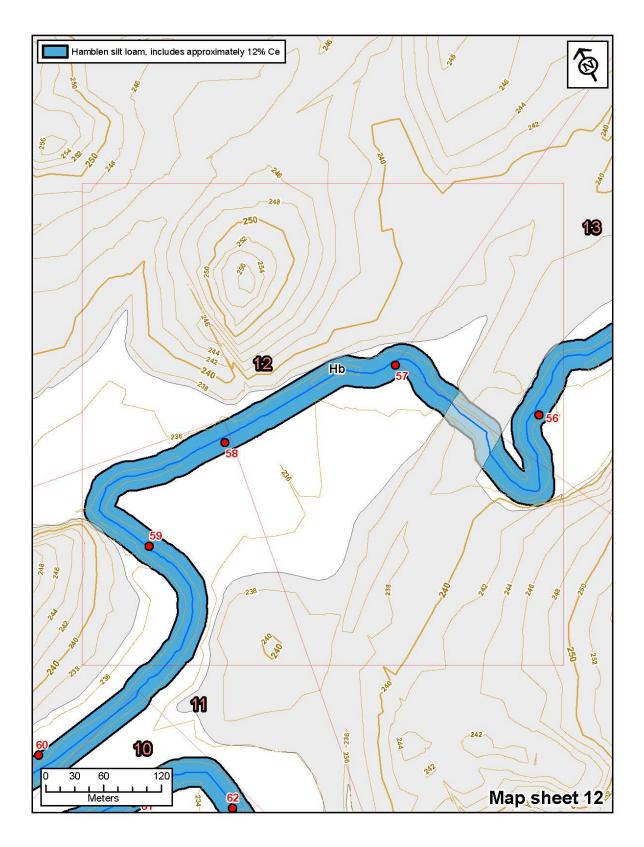


Fig. A.6. Map of soil types at bank locations 56-62 along lower East Fork Poplar Creek.

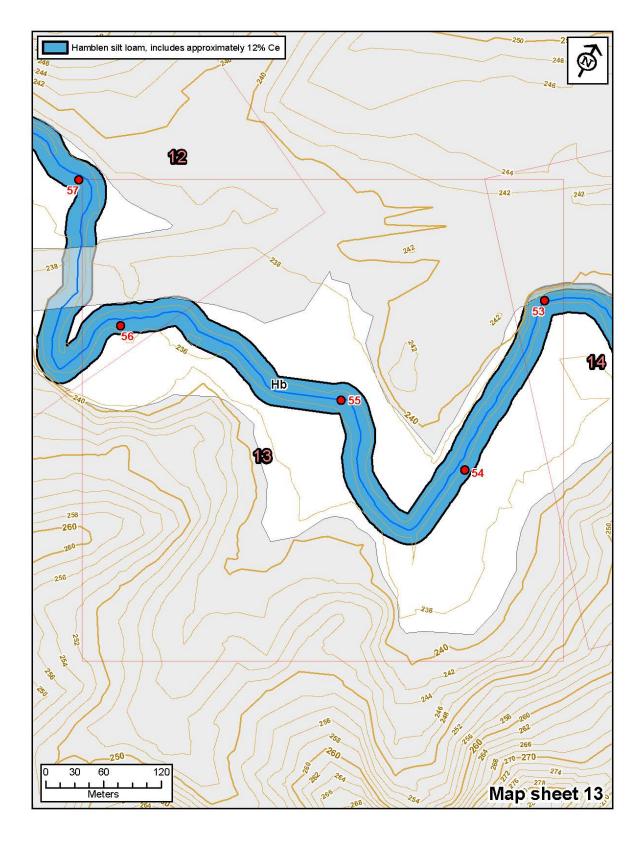


Fig. A.7. Map of soil types at bank locations 53–57 along lower East Fork Poplar Creek.

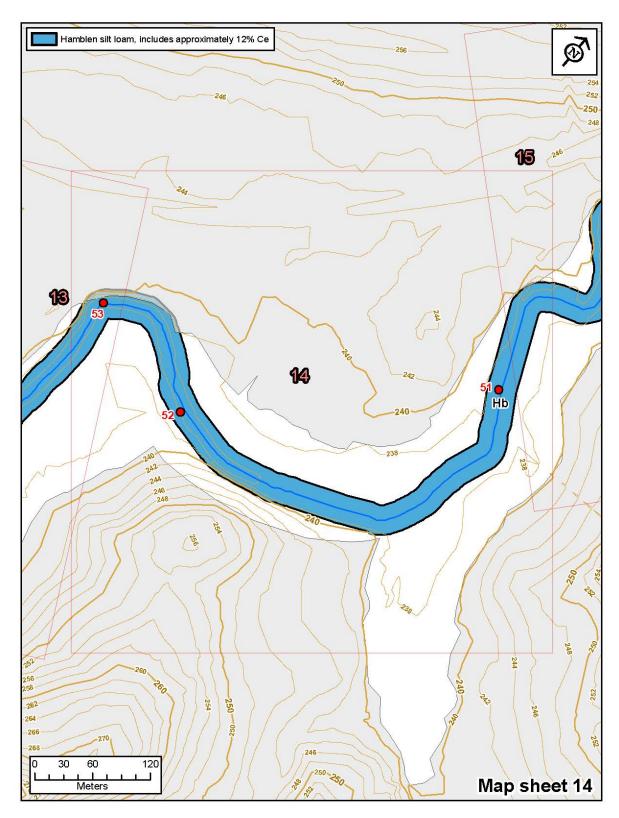


Fig. A.8. Map of soil types at bank locations 51–53 along lower East Fork Poplar Creek.

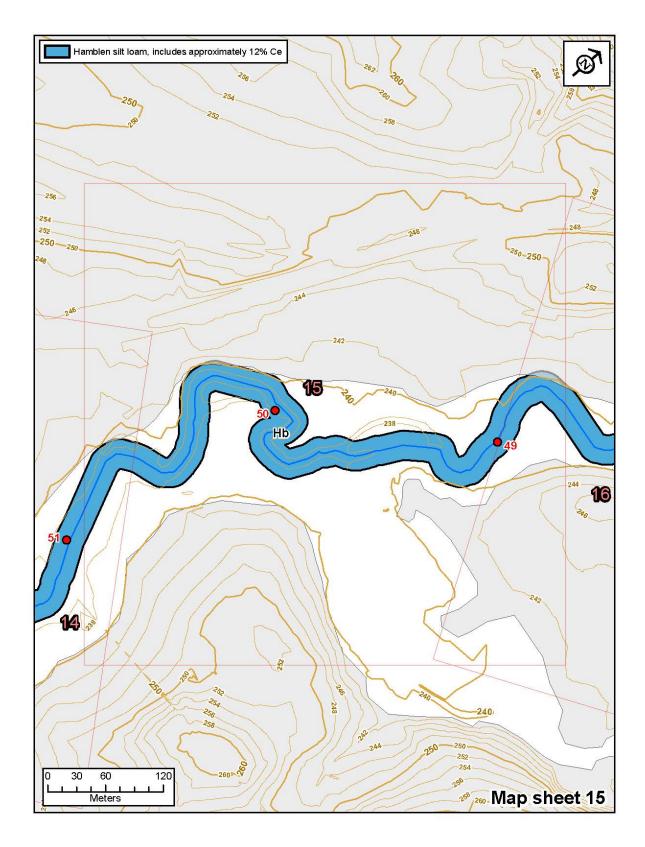


Fig. A.9. Map of soil types at bank locations 49–51 along lower East Fork Poplar Creek.

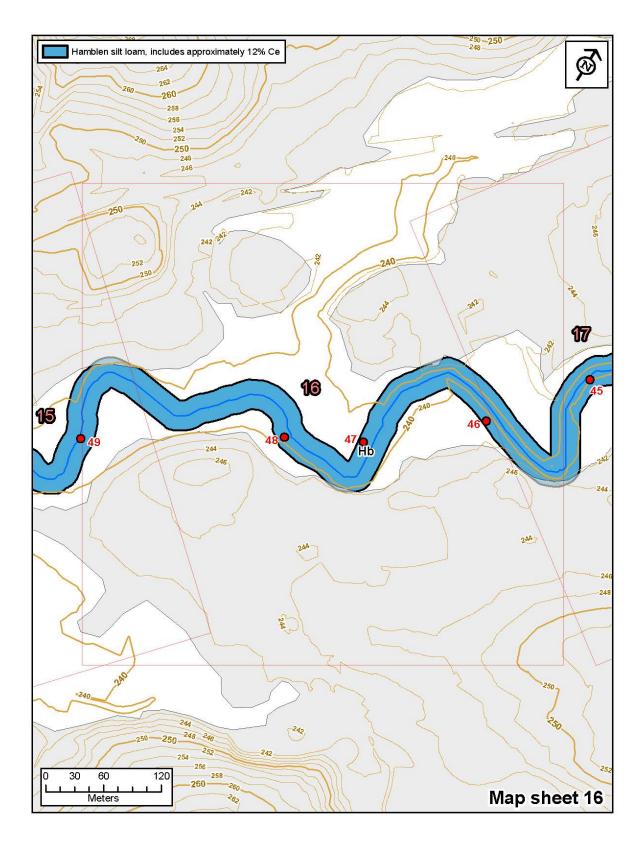


Fig. A.10. Map of soil types at bank locations 45-49 along lower East Fork Poplar Creek.

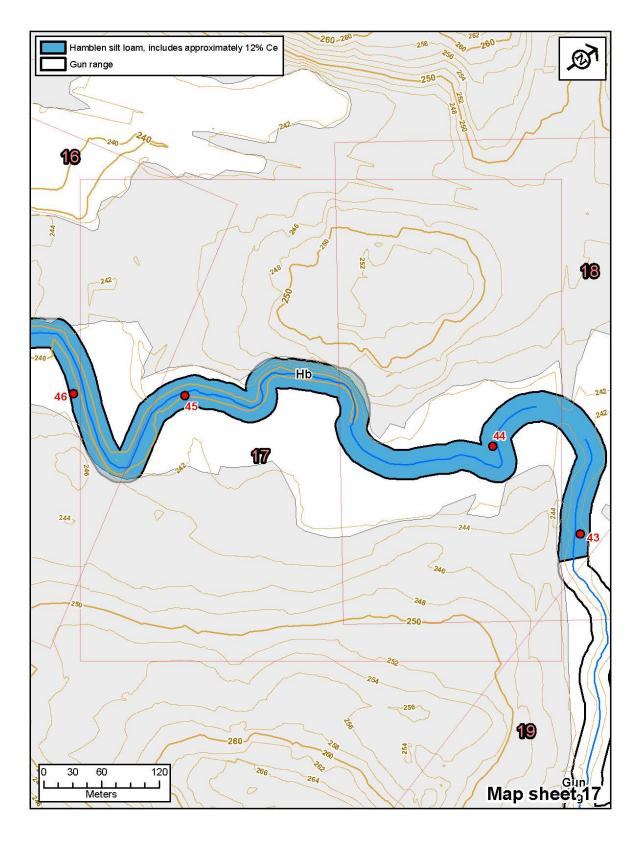


Fig. A.11. Map of soil types at bank locations 43-46 along lower East Fork Poplar Creek.

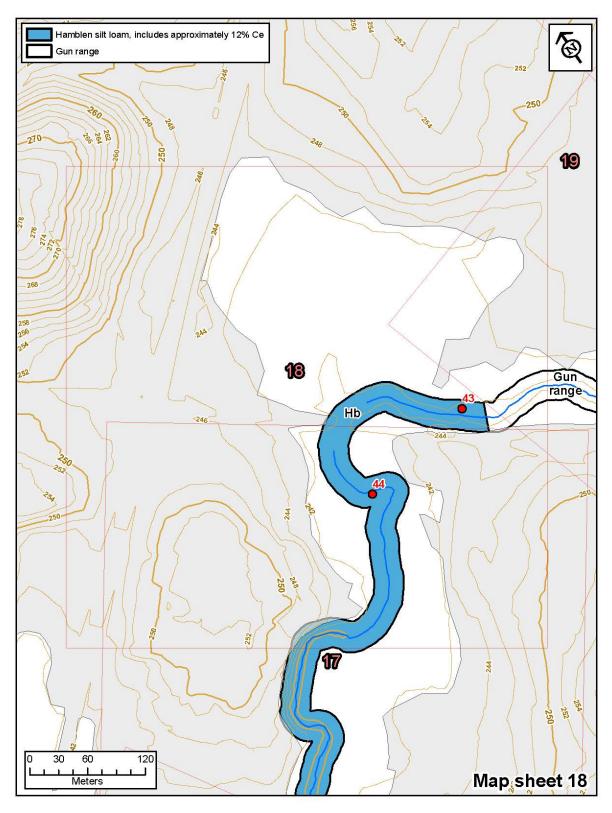


Fig. A.12. Map of soil types at bank locations 43-44 along lower East Fork Poplar Creek.

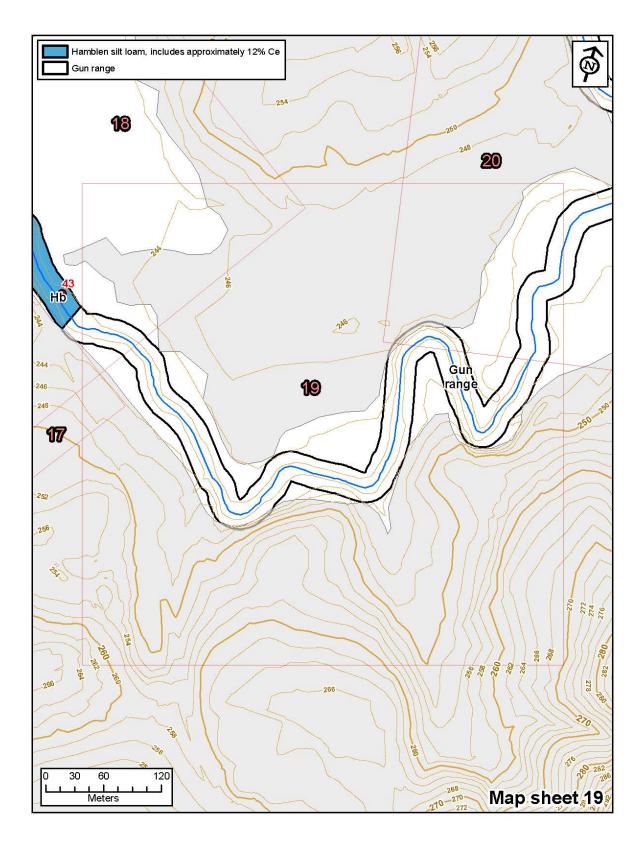


Fig. A.13. Map of soil types at bank location 43 and the gun range along lower East Fork Poplar Creek.

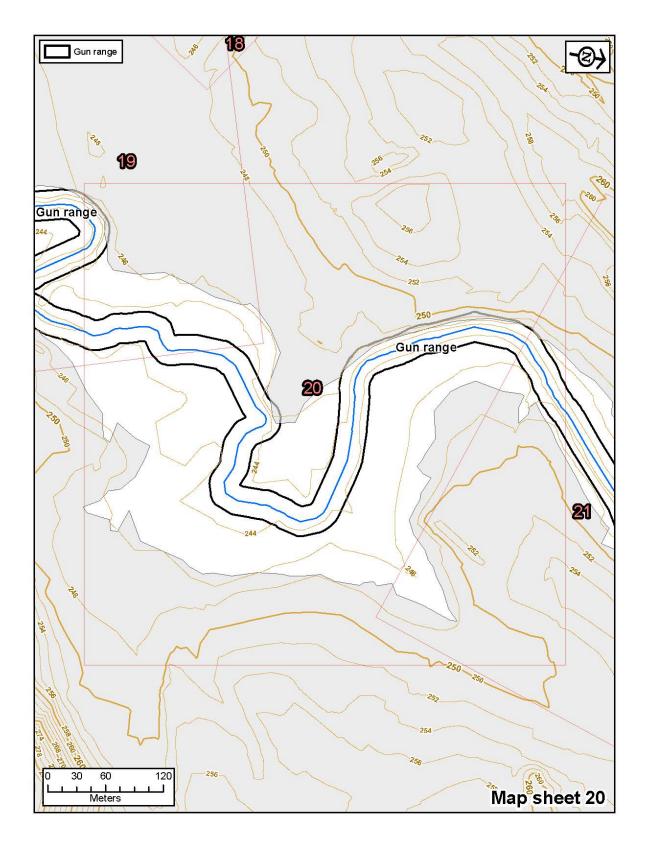


Fig. A.14. Map of soil types at the gun range along lower East Fork Poplar Creek.

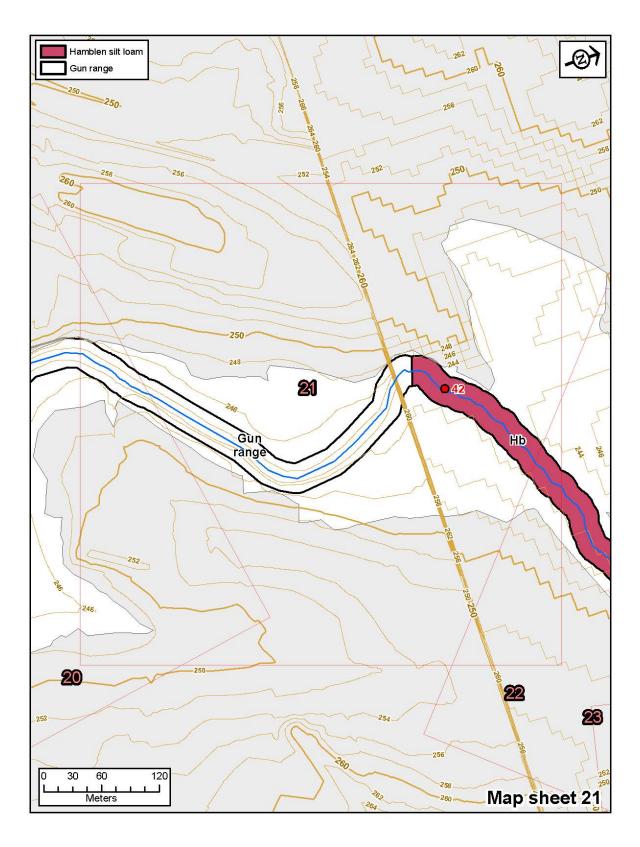


Fig. A.15. Map of soil types at bank location 42 and the gun range along lower East Fork Poplar Creek.

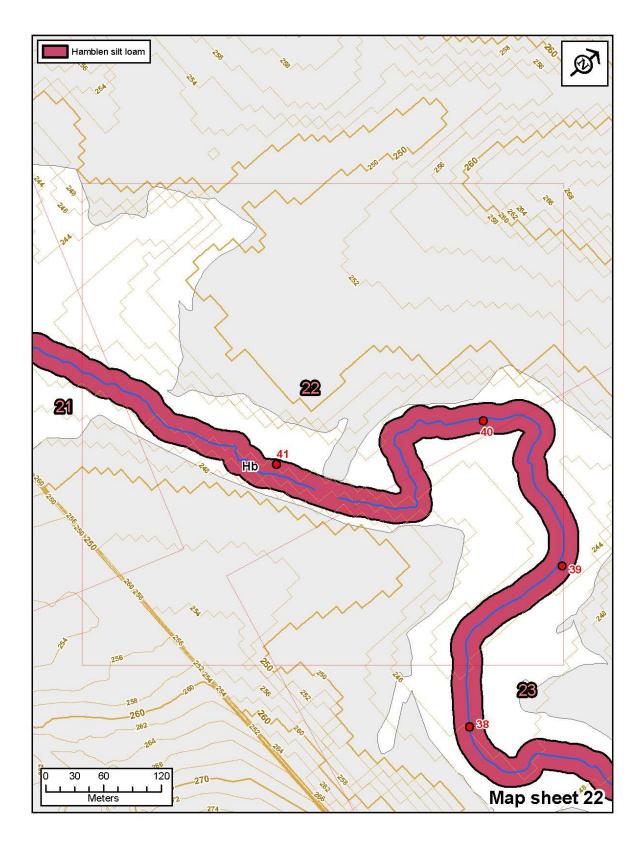


Fig. A.16. Map of soil types at bank locations 38-41 along lower East Fork Poplar Creek.

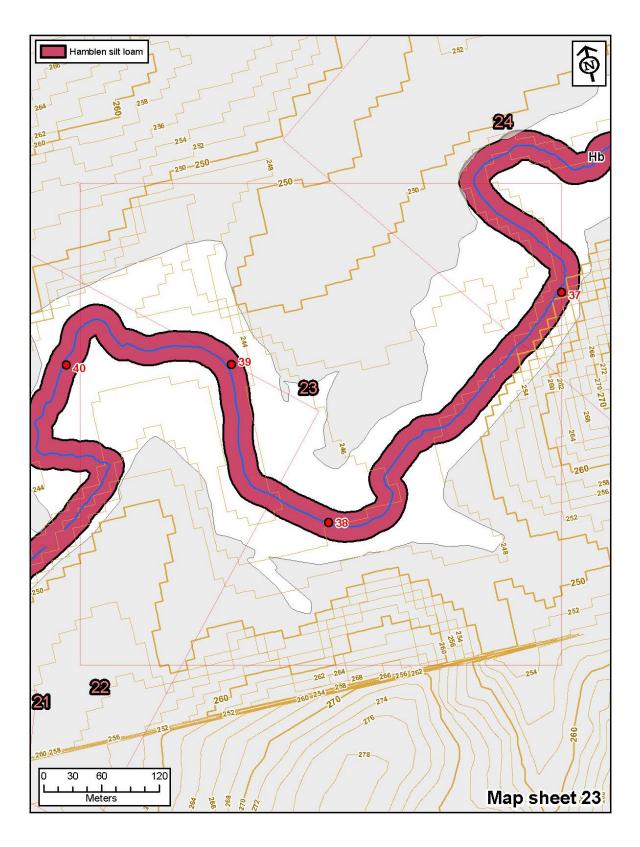


Fig. A.17. Map of soil types at bank locations 37–40 along lower East Fork Poplar Creek.

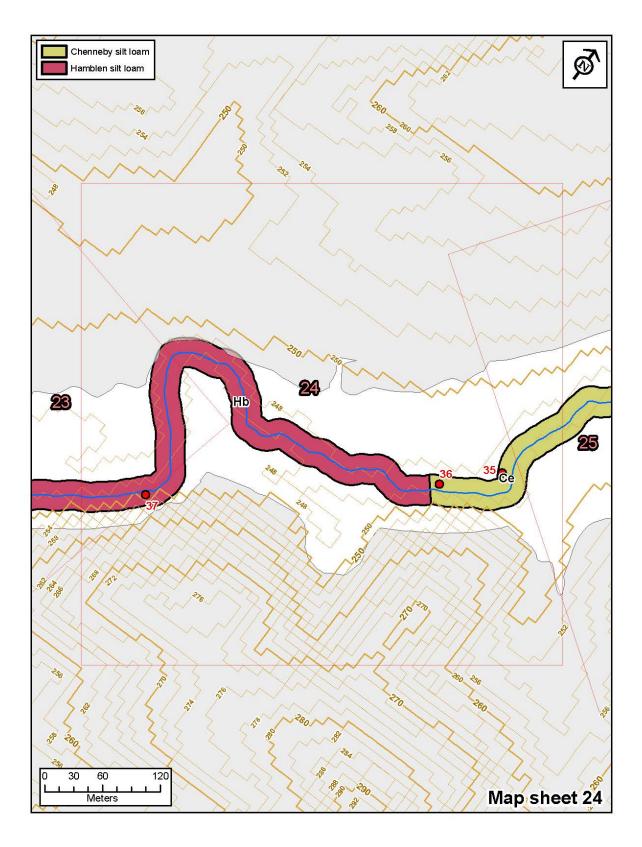


Fig. A.18. Map of soil types at bank locations 35–37 along lower East Fork Poplar Creek.

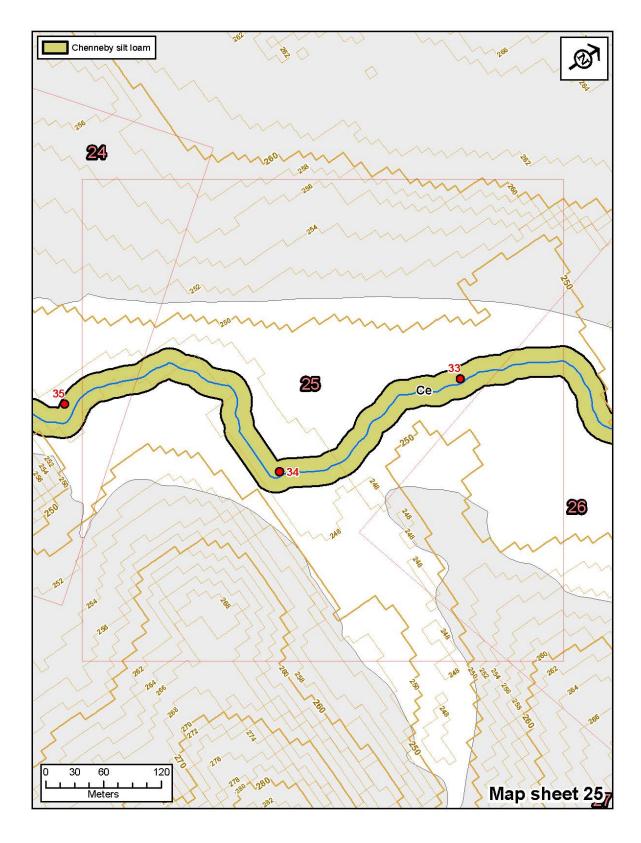


Fig. A.19. Map of soil types at bank locations 33–35 along lower East Fork Poplar Creek.

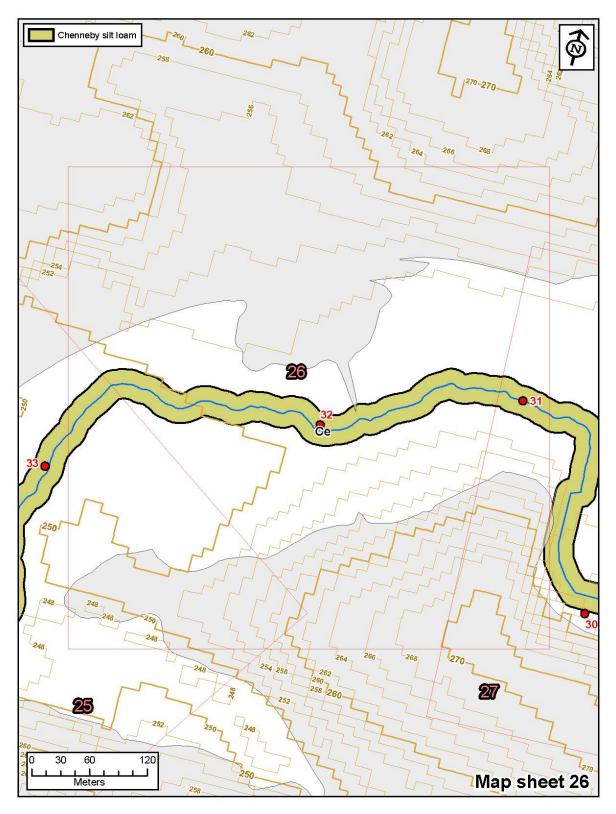


Fig. A.20. Map of soil types at bank locations 30–33 along lower East Fork Poplar Creek.

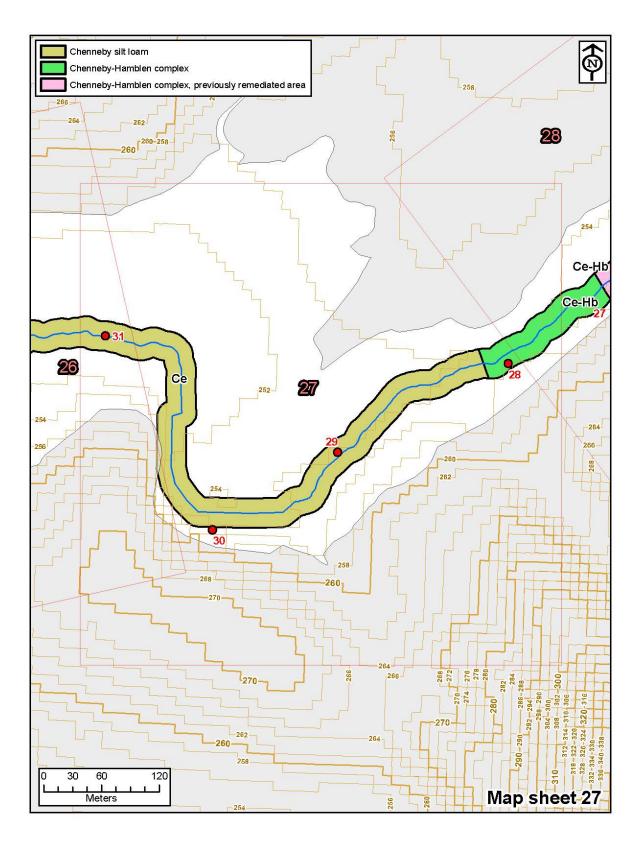


Fig. A.21. Map of soil types at bank locations 27–31 along lower East Fork Poplar Creek.

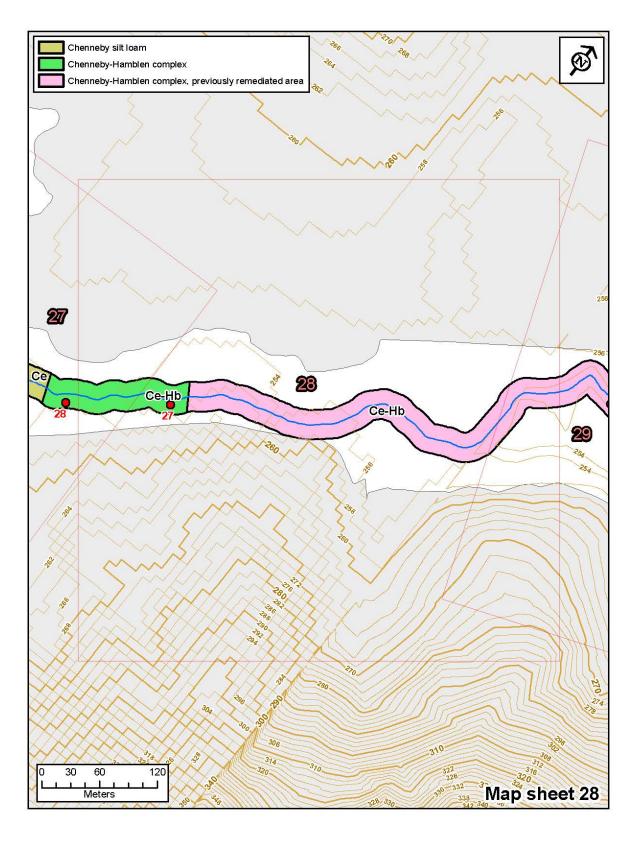


Fig. A.22. Map of soil types at bank locations 27–28 along lower East Fork Poplar Creek.

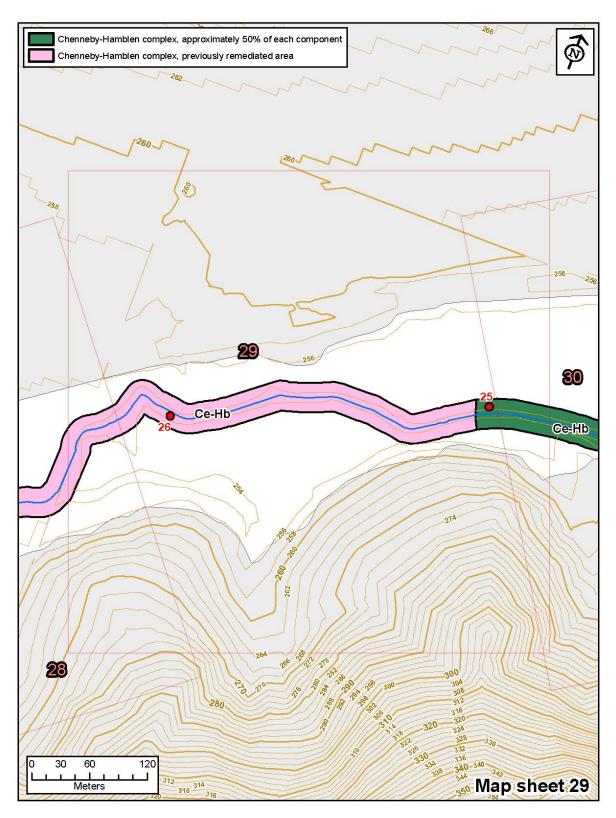


Fig. A.23. Map of soil types at bank locations 25–26 along lower East Fork Poplar Creek.

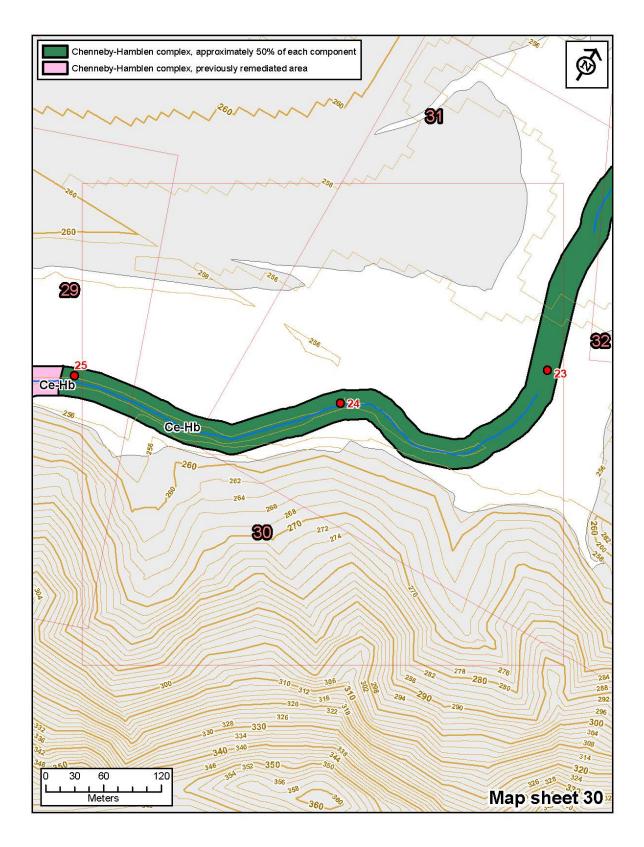


Fig. A.24. Map of soil types at bank locations 23–25 along lower East Fork Poplar Creek.

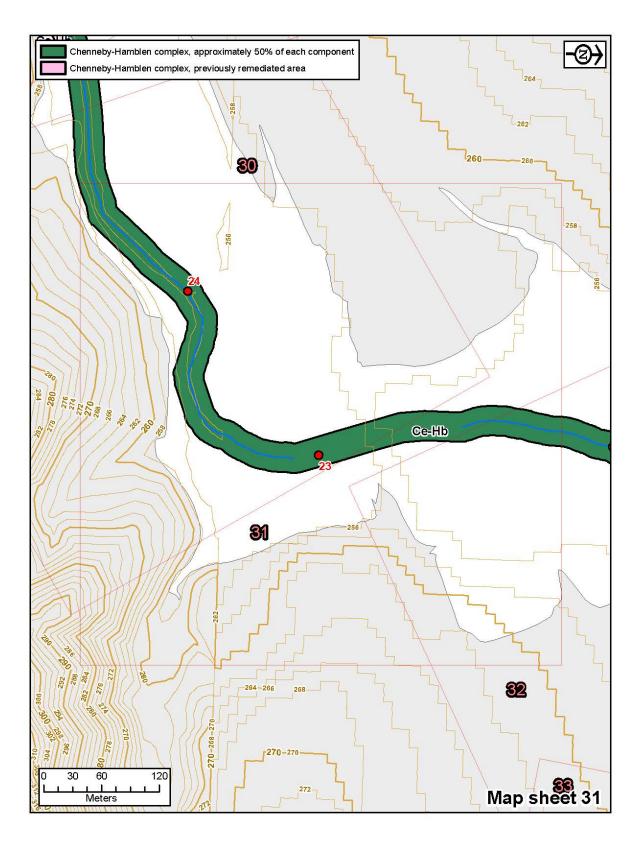


Fig. A.25. Map of soil types at bank locations 23-24 along lower East Fork Poplar Creek.

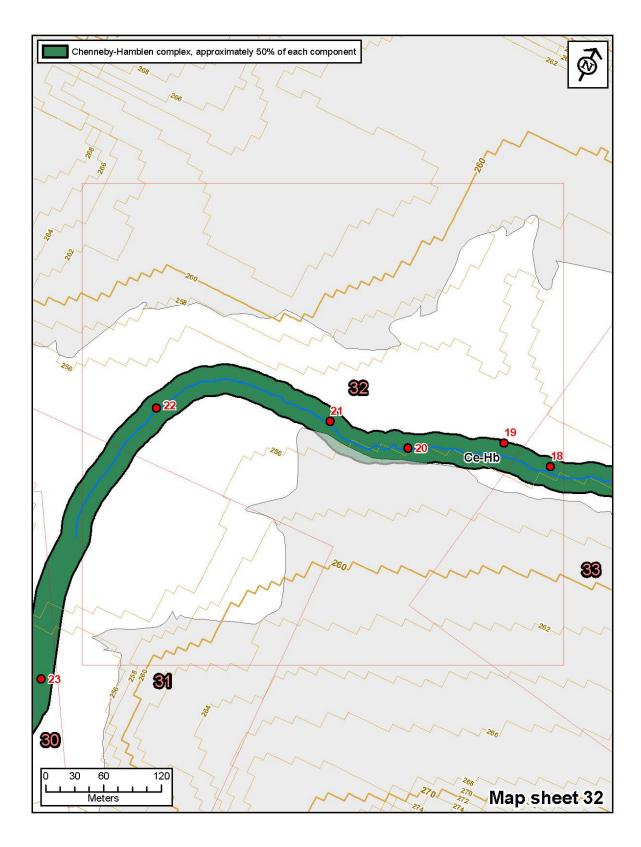


Fig. A.26. Map of soil types at bank locations 18–23 along lower East Fork Poplar Creek.

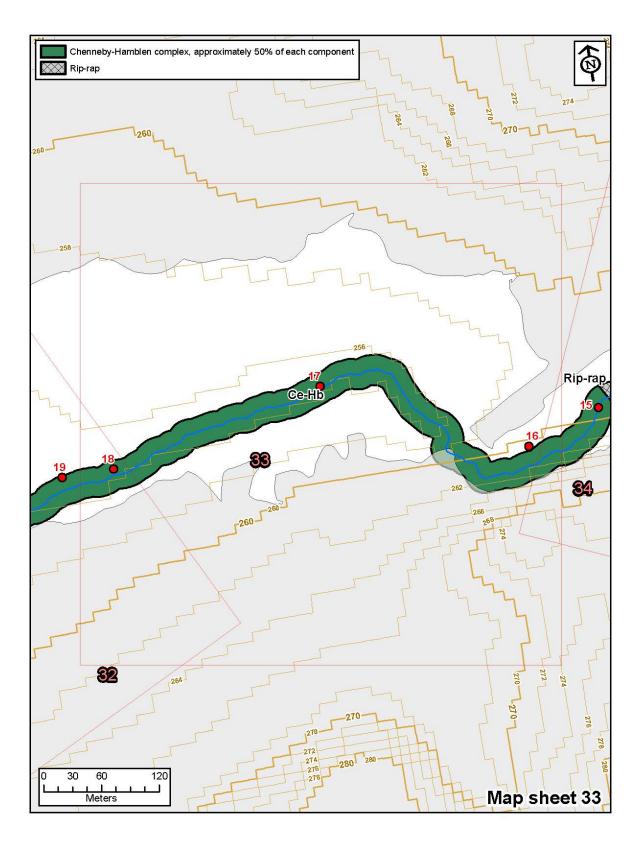


Fig. A.27. Map of soil types at bank locations 15–19 along lower East Fork Poplar Creek.

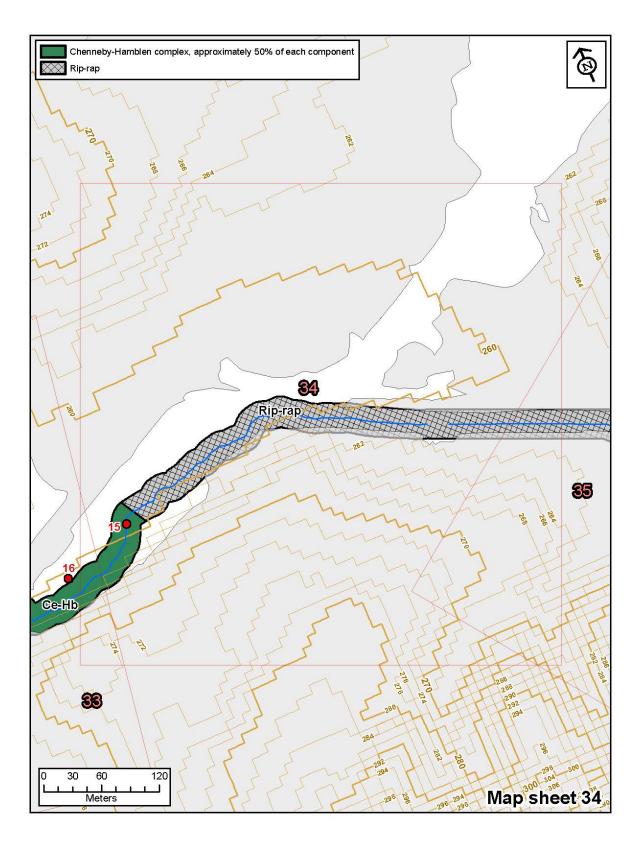


Fig. A.28. Map of soil types at bank locations 15–16 along lower East Fork Poplar Creek.

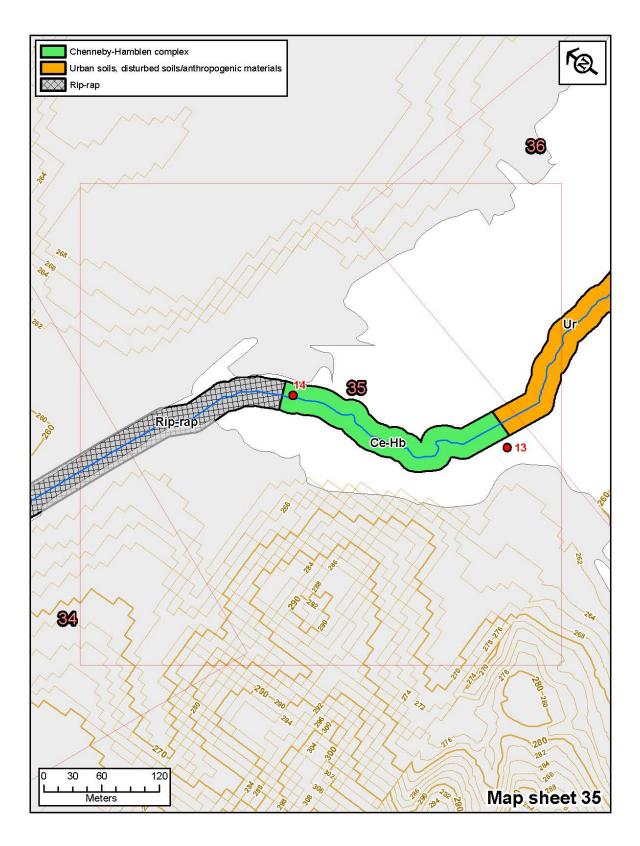


Fig. A.29. Map of soil types at bank locations 13–14 along lower East Fork Poplar Creek.

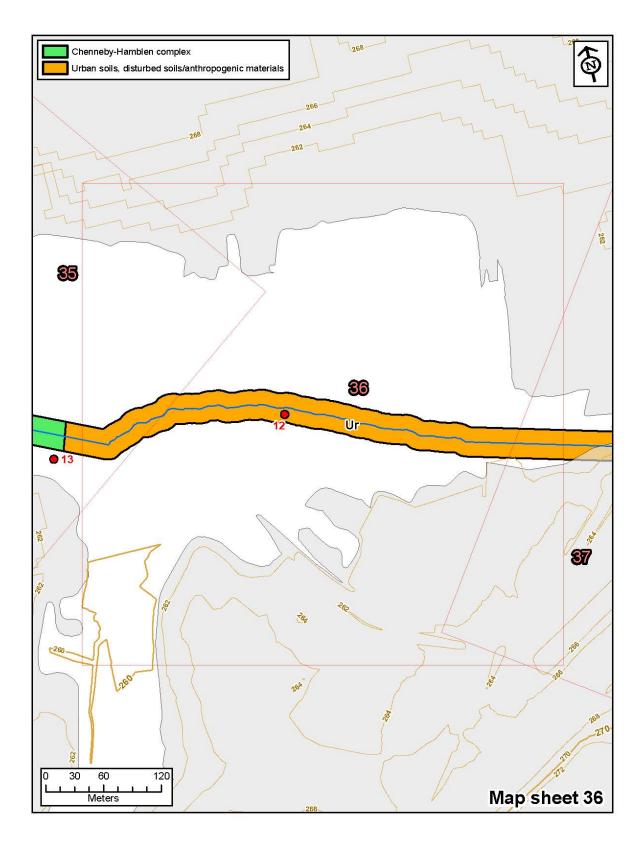


Fig. A.30. Map of soil types at bank locations 12–13 along lower East Fork Poplar Creek.

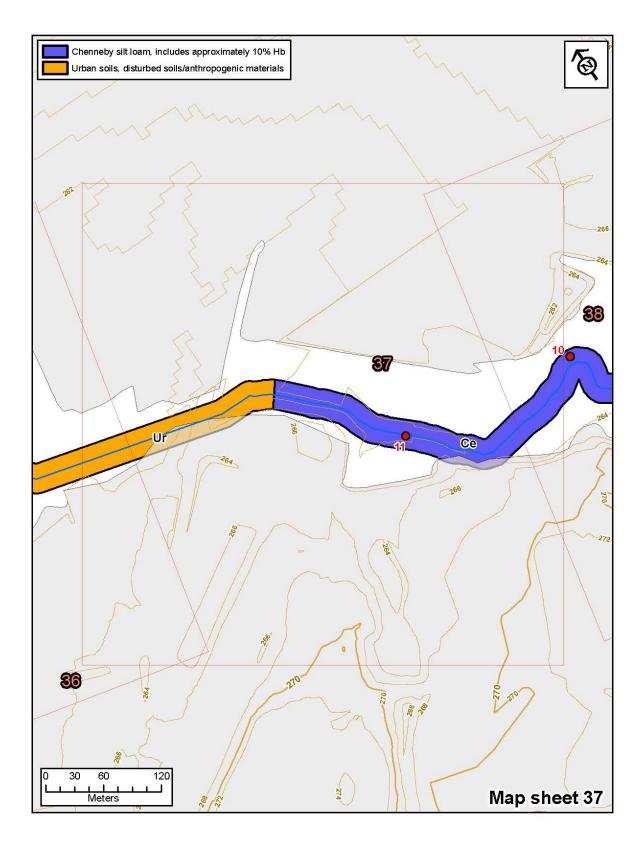


Fig. A.31. Map of soil types at bank locations 10-11 along lower East Fork Poplar Creek.

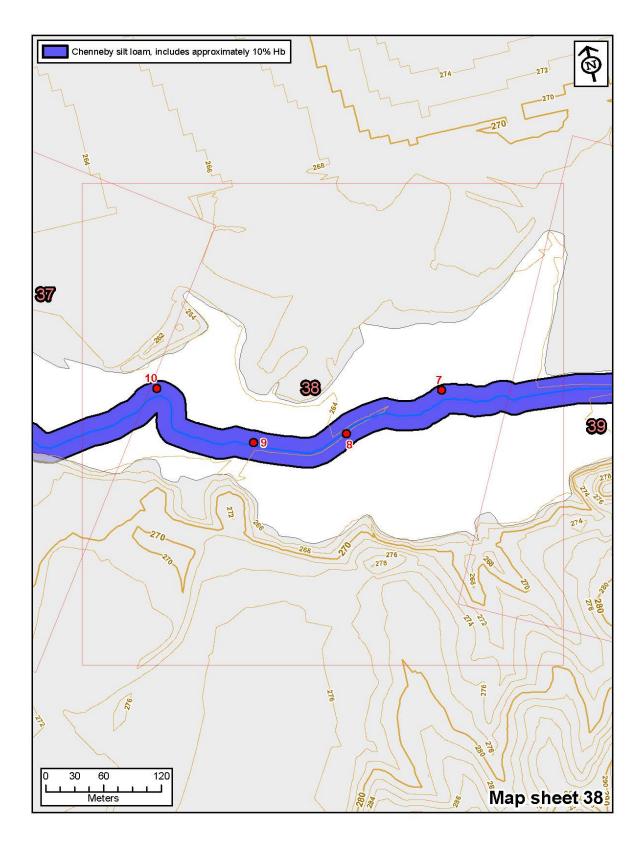


Fig. A.32. Map of soil types at bank locations 7–10 along lower East Fork Poplar Creek.

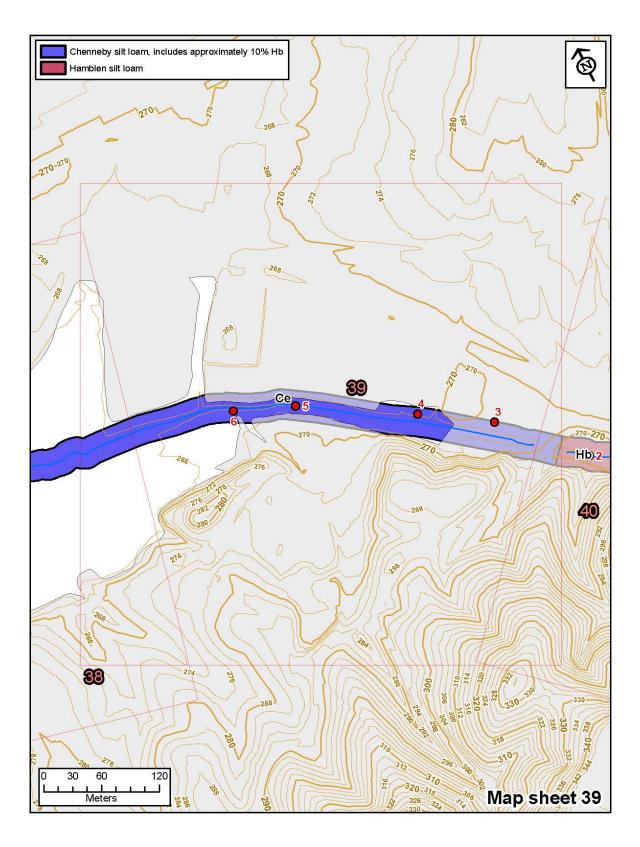


Fig. A.33. Map of soil types at bank locations 2–6 along lower East Fork Poplar Creek.

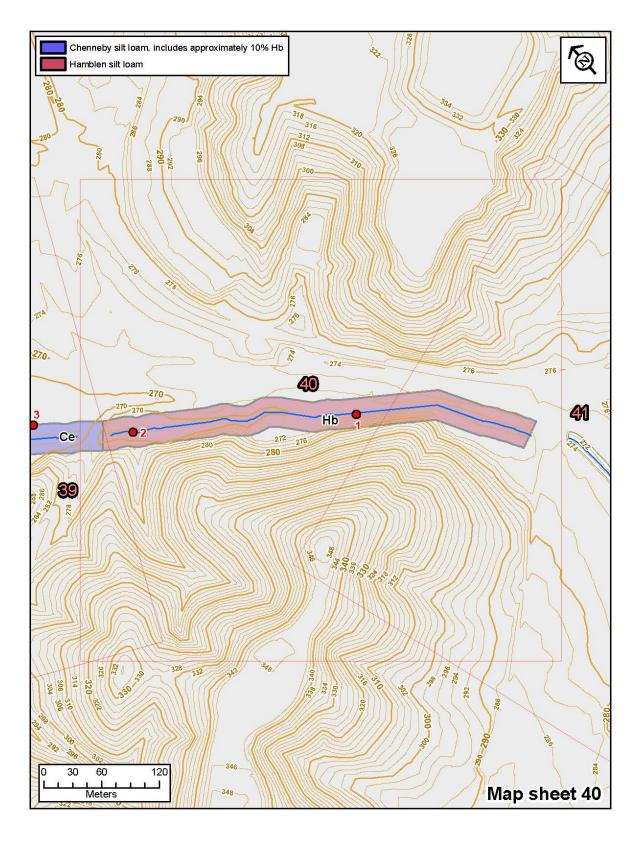
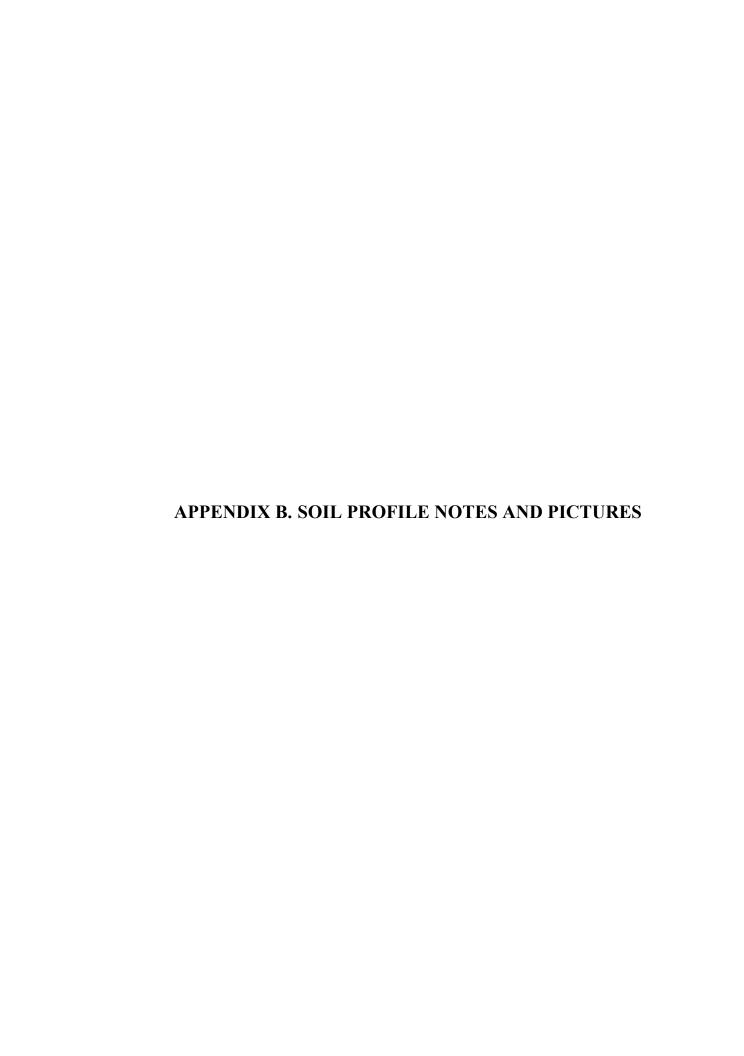


Fig. A.34. Map of soil types at bank locations 1–2 along lower East Fork Poplar Creek.



## APPENDIX B. SOIL PROFILE NOTES AND PICTURES



Soil Profile Notes

Profile #: SB-1 Date of Test: 5/11/15

Soil Boring X or Test Pits \_\_\_

Property Owner: DOE Location: LEFPC

Project: Hg TD

Project #: 3380-9014 CPSS License #: 36208

Site Evaluator: John Dickson w/Jennifer Earles

Slope: 10-15% Relief: Sidelope

Estimated Permeability (minutes/inch): (35 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): ~48 Soil Series Identified: Fluventic Dystrudepts

Ms	Hori: ster		ub	De	pth hes)	Matrix	Color Mottles	Ab.	ottles S. C	'on	Text	ure	G	Stru	cture F/T		nsiste	nce Cementation
IVIC	ister .	1 3	T	(IIIC	Hes;		Montes	Au.	1 5. 0	Jon.		r	-	г -	171	141013	t vice	Cementation
	A			0	12	10YR 3/ 2	0-0		12	2-2	gl		l i	f	gr			
_	23.		100001	Ü	12			_	-	_	8,	_		<u> </u>	g,	vfr	_	-
	В	w	1901	12	36	10YR 3/ 3			=	000	gl		١,	m	sbk			
-	ь	**	1	12	30				-	0-0	gı				SUK	fr		1
	В	w	200	36	72	10YR 3/ 3		_	_	-	-1		-	I	sbk			
-	ь	W	2	36	12	10YR 4/ 4		_	_		gl	-		m	SUK	fr	_	-
								_	-									
	С			72	90	10YR 4/ 4		_	_									
-	C	_	-	/2	90					-	gsil	-	-	-	m	fr	_	-

Comments:

GPS Coordinate: N: 35.99820; W: -84.24170

Depth to water surface in creek >90" from top of bank.

Entire profile contains gravel and cobbles of ~0.1 to 2" in diameter.

Profile occasionally flooded at 48" due to the presence of few, brightly-colored redoximorphic features





Profile #: SB-2 Date of Test: 5/11/15 Soil Boring X or Test Pits \_\_\_\_

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles

CPSS License #: 36208

Slope: 2-5% Relief: Lower Footslope (Terrace) Estimated Permeability (minutes/inch): ( 45 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): ~20

Soil Series Identified: Fluvaquentic Dystrudepts

	Horiz	on		De	pth		Color	M	ottles		Text	hano		Stru	cture	Cor	nsiste	nce
Ma	aster	Si	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1 6 1	ure	G	S	F/T	Mois	t Wet	Cementation
	A			0	12	10YR 4/ 3	<u> </u>			7_8	ř		1	f	gr			
-	ATA:		1000	U	12	·		_	22	2_8	*	-	-	1	S,	vfr	_=	-
	В	I	1000	12	20	10YR 5/ 3	10YR 5/ 1	f	1	d	í		-	I	sbk			
_	В	w	1	12	20	·—·	10YR 3/6	c	1	d	ļ	-	1	m	SOK	fr	_	1940
	ъ			20	24	10YR 6/ 3	10YR 6/ 2	С	2	f	l/sil		q	l	sbk			
-	В	w	2	20	24	.—	10YR 4/ 6	c	2	d	1/811	70-0	+	m	SDK	fr		-
	D.	Ι		24	28	10YR 6/ 3	10YR 6/ 2	С	2	f	sil		٦.		sbk			
-	В	w	3	24	20		10YR 3/6	c	2	d	SII		1	m	SOK	fr	_,	-
	C			28	40	2.5Y 5/ 3	10YR 5/ 2	c	3	f	sil				m			
-		-	-	28	40	10YR 4/ 4	10YR 4/6	c	2	d	SH	3-	-	-	m	fr	_	-
									-									
	_	_							_				_					
									_							_		

Comments:

GPS Coordinate: N: 35.99951; W: -84.24371

From 12" to >40" gravel and cobbles of ~0.1 to 1" in diameter.

Depth to water surface in creek ~42" from top of bank.







Soil	Profile
N	Jotes

Profile #: SB-3 Soil Boring X or Test Pits \_\_\_\_ Date of Test: 5/11/15

Property Owner: DOE Location: LEFPC Project #: 3380-9014 Project: Hg TD

Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Slope: 5-10% Relief: Lower Footslope (Terrace) Estimated Permeability (minutes/inch): (30 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): ~10"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horiz			De			Color		ottles		Text	hire		Struc			nsiste	
M	aster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	100	urc	G	S	F/T	Mois	t Wet	Cementation
-	A	_		0	10	10YR 4/ 3		_		77	1	72 <u>-</u> 53	1	f	gr	fr		120
		_		_				_	=	-		<u> </u>	_		-		Ī	
	В	w		10	25	10YR 4/ 2	2.5Y 5/ 2	c	1	f	gl		1	m	sbk			l
100	, D	VV.	1.775	10	23	10YR 4/ 4	10YR 4/6	c	1	d	81	8		111	JOK	fr	_	1=
	CD			2.5	48	2.5Y 4/ 4	2.5Y 5/ 2	c	1	d	. 1		4					
S	СВ	-	1000	25	48	.—.— .—.	10YR 4/ 6	c	1	d	gl	12	1	m	sbk	fr	_	-
									1	2-0								
-	_	-	7-27						_			-	-		-	_	_	-
						2 22 2 2 2			_	_								
-	_	-	rees						_			::	-	-	-		_	-
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	-								_	1_						_	_	

Comments:

GPS Coordinate: N: 36.0002; W: -84.24449 ±34'

From 10" to >48" gravel and cobbles of ~0.1 to 1" in diameter. Bedrocks at 48"

Depth to water surface in creek ~48" from top of bank.







Profile #: SB-4 Date of Test: 5/11/15 Soil Boring X or Test Pits

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles CPSS License #. 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (110 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features):  $\sim 18$ "

Soil Series Identified: Fluvaquentic Dystrudepts

	Horiz			De			Color		lottles		Text	ure			cture		nsiste	
M	aster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	2.411		G	S	F/T	Mois	t Wet	Cementation
-	A			0	11	10YR 3/ 3		_		-	1	7 <u></u>	1	f	gr	fr		
			100000	_				_	_	7-7			_	_	_	11	_	
	В	w	200	11	18	2.5Y 5/ 3	2.5Y 5/ 2	f	2	f	i		2	m	sbk			
-	В		1	11	10	10YR 4/ 6	10YR 3/6	c	1	d		00		1111	SUK	fr	_	-
				18	27	5Y 5/ 2	10YR 2.5/ 1	c	1	d	- 14		2					
-	В	w	2	18	27	5YR 4/ 6					sil	FS	2	m	sbk	fr	_	-
	-					2.5Y 6/ 1	10YR 2.5/ 1	f	2	d								
1	C	g	1221	27	36		10YR 5/6	С	2	d	cl	-	-	-	m	fr	_	-
				0.0		10YR 5/ 4	2.5Y 6/ 2	С	3	d					1001010			
-	C	_	(1 <u>111</u> )	36	66		5YR 4/6	с	2	d	cl	-	-	-	m	fĭ	_	-
							1	_	_	_								
_	_	_							_					_				
									1_				10011	10,751	NO	-	-	10000

Comments:

GPS Coordinate: N: 36.00060; W: -84.24523 ±15'

At 11-18" few pockets of clay (c); many black (Mn) concretions, 10YR 2/1.

At 18-27" lenses of coarse loamy sand

Site Evaluator's Signature:\_

At 36-66" inclusion of gravels, cobbles, ~50% of horizon; many black (Mn) concretions, 10YR 2/1.

At 66" and greater, gravels and cobbles with clays inclusion

Depth to water surface in creek ~66" from top of bank.





Soil Profile
Notes

Soil Boring X or Test Pits Profile #: SB-5 Date of Test: 5/11/15

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Slope: 0-1% Relief: Floodplain Estimated Permeability (minutes/inch): (45 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): ~15"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horizo		0.0	De			olor		ottles	000	Text	ure			cture		nsiste	
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. Ce	on.			G	S	F/T	Mois	t Wet	Cementation
	A			0	7	10YR 4/ 3		_	=	-	ī	NO. 101	1	f	gr			
-	12,00	_	1000	1000	12			_	-	7-3		-	-00		-	vfr	_	_
	A	b		7	15	10YR 2.5/ 1		_	Э.		î		1	m	sbk			
	А	0	1575	2	13			_	=	0_0	*	-		1111	SUK	vfr	Ĩ	(Am)
	В	w	2000	15	20	10YR 5/ 6	2.5Y 5/ 2	c	1	р	1		1	m	sbk			
-	ь	١ ٧	1	13	20		5YR 4/6	c	2	f	1	-	1	1111	SUK	fr	_	-
	В	I		20	28	10YR 5/ 6	2.5Y 6/ 2	С	1	р			1	I	sbk			
1-	В	w	2	20	28		5YR 4/6	С	1	d	1		1	m	SOK	fr	_	-
	СВ			28	60	10YR 4/ 4	2.5Y 5/ 2	c	2	d	sil		1	220				
-	CB	-	1000	28	60		5YR 4/4	c	2	f	SH	:	1	m	sbk	fr	_	-
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_	_	_							_	_								
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Comments:

GPS Coordinate: N: 36.00120; W: -84.24643

At 7-15" many black (Mn) concretions, 10YR 2/1. "Black layer" observed

Depth to water surface in creek >80" from top of bank.







Date of Test: 5/11/15 Profile #: SB-6 Soil Boring X or Test Pits \_\_\_

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Slope: 0-1% Relief: Floodplain Estimated Permeability (minutes/inch): (45 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features):  $\sim\!\!24^\circ\!\!\!\!$  Soil Series Identified: Fluvaquentic Eutrudepts

3.6	Hori: aster		ıb	De	pth hes)	Matrix	Color Mottles	Ab.	ottles S. C		Text	ure	G	Struc	cture F/T		nsiste	
101	aster		10	(IIIC	nesj	Mairix	Mottles	AU.	D. C	JUII.			9		F/ 1	muis	t wet	Cementation
	A			0	12	10YR 3/ 2		_	_	7-2	î		1	f	gr			
_	***		10000		12			_		2-2	å		*	•	ъ.	vfr	_	
	A	ь		12	24	10YR 2/ 1		_	_		i		۱.	m	sbk			
	Α	"	2,000	12	24	10YR 3/ 2			_	0		-	1	111	SUK	vfr		-
	n.			24	40	10YR 4/ 4	2.5Y 6/ 2	c	1	d	sil+		9					
-	В	w	1	24	40	1-0-0	10YR 5/6	С	1	d	SH	7-	1	m	sbk	fr		-
	-			4.0	72	2.5Y 5/ 4	2.5Y 6/ 2	С	2	d	- 1		,		١			
-	В	w	2	40	/2		5YR 4/6	С	1	d	sil	-	1	С	sbk	fr/fi	_	-
	~					2.5Y 6/ 4	2.5Y 6/ 1	С	3	р					50500			
-	C	_	read .	72	96		5YR 4/6	m	3	d	sil	s—s	-	-3	m	fr	_	-
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_	_	1_							1_						_			l _
						7—17—17—1										-	-	

Comments:

GPS Coordinate: N: 36.00143; W: -84.24709

At 12-24" many black (Mn) concretions, 10YR 2/1, "Black layer" observed

At 72-96" few inclusions of gravels

Below 96" very firm and gleyed clay horizon

Depth to water surface in creek >96" from top of bank.





Soil Profile
Notes

Profile #: SB-7 Date of Test: 5/11/15 Soil Boring X or Test Pits \_\_\_\_

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles CPSS License #. 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (110 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): n/a

Soil Series Identified: Fluvaquentic Dystrudepts-Disturbed

Ma	Horizo aster		ıb	De (inc		Matrix	Color Mottles	Ab.	ottles S. C	on.	Text	ure	G		cture F/T		isiste	nce Cementation
_	FILL		1000	0	16	10YR 4/ 4			12	_	Ī				m	fr/fi		-
	n	<b></b>		16	32	2.5Y 4/ 4	10YR 6/ 2	f	1	d	sil		9	<u> </u>	sbk			
-	В	W	1.770	16	32		10YR 5/6	c	2	d	SH	88	1	m	SDK	fi	_	-
	С	_		32	38	2.5Y 5/ 2	5YR 4/6	С	1	d	cl				m			
-	C	g	122	32	36	2.5Y 5/ 4		_	-	-	CI	77	-	-	m	fr/fi	_	_
								_	-	-								
	_	_	(420)					_	-	-		-	340		-	_		1
								_	-									
<u> </u>	-	-	1000						-	1-0			-	-	0-0	_	_	-
									_	-								
	_	-	0.000						_	-			-	-				-
						N-10-1			_	_						_		2

Comments:

GPS Coordinate: N: 36.00197; W: -84.24960

SB location appears to be previously remediated area covered with  $\sim\!\!16"$  fill material At 32-38" some inclusion of gravels

Depth to water surface in creek ~38" from top of bank.

Site Evaluator's Signature:

No photo



Soil Boring X or Test Pits \_\_\_ Profile #: SB-8 Date of Test: 5/13/15

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles

CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (50 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 10"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horiz			De			Color		ottles		Text	hira			cture		nsiste	
Ma	aster	St	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	Text	uic	G	S	F/T	Mois	t Wet	Cementation
	A			0	10	10YR 3/ 3		_		7-3	sil		1	m	sbk			
_			1,555	U	10			_	_	7-3	SAL	2-2	*		DOK	fr	_	-
	В	w		10	18	10YR 4/ 3	2.5Y 6/ 2	С	1	f	sil		,		sbk			
-	ь	W	2550	10	10	.—	10YR 5/6	c	1	p	SII	3-3	1	m	SUK	fr		-
	C			18	32	2.5Y 5/ 4	2.5Y 6/ 2	m	3	d	sicl							
-	C	_	1000	10	32	.—.	10YR 5/8	m	3	p	SICI			-	m	fr		144
									_									
1-	_	-	-					_	_					-	-			1
						2_70_0 P_7		_	_									
-	_	-	1000					_	_			S3	=3	-			_	-
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_	_	_							_	_			_	_				
									_							1	1	

Comments:

GPS Coordinate: N: 36.00179; W: -84.25079

Site Evaluator's Signature:\_\_

Firm, gleyed clayey (Cg) horizon at 32" and greater.

SB location prone to erosional deposition. Many gravels/pebbles observed in creek bed.

Depth to water surface in creek ~32" from top of bank.





Profile #: SB-9 Date of Test: 5/13/15 Soil Boring X or Test Pits \_\_\_\_

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles CPSS License #. 36208

Slope: 5-10% Relief: Floodplain

Estimated Permeability (minutes/inch): (110 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 15"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horiz			De			Color		ottles		Text	ure			cture		nsiste	
Ma	aster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.			G	S	F/T	Mois	t Wet	Cementation
	A			0	8	10YR 3/ 3		_	_	-	ı		l ,	f	gr			
_	1,1	_	1,000	Ü	Ů			_		_		_		1	81	fr	_	
	В	w	1	8	15	10YR 6/ 4			_	-	ī		ļ ,	m	sbk		ĺ	
100		(5.5)	1318	Ů	15	0-00-0		_	-					"	JOK	fr	_	-
	В	w	2000	15	27	10YR 5/ 6	2.5Y 5/ 2	С	2	р	sicl		2	c	sbk			
-	ь	W	2	13	2/		7.5YR 5/ 6	c	2	d	SICI	-	-	Ľ	SUK	fi		-
	С			27	48	2.5Y 6/ 3	2.5Y 6/2	С	2	f	cl							
-	C	-	1944	27	40	10YR 5/ 6	7.5YR 4/ 6	С	3	d	CI	-			m	fi	_	-
-	_	-	(September 1					_				SS	==	==	aa	1		=
								_	_									
_	_							_	_						_			-
																1	_	2

Comments:

GPS Coordinate: N: 36.00192; W: -84.25185 ±10'

SB location prone to erosional deposition. Fallen trees observed. From 15 -27" inclusion of pockets of black Mn masses, 10YR 2/1 At 48" firm, gleyed clay containing some gravels/cobbles

Depth to water surface in creek ~48" from top of bank.





Profile #. SB-10 Date of Test: 5/13/15 Soil Boring X or Test Pits X

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles CPSS License #. 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (>120 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): n/a

Soil Series Identified: Fluvaquentic Dystrudepts-Disturbed

M	Horiz aster		ıb		pth ches)	Matrix	Color Mottles	Ab.	ottles S. C	on	Text	ure	G	Struc	ture F/T		nsiste	nce Cementation
141	FILL		Ī	0	8	10YR 4/ 2			]_		sil				m		110	
_	FILL		10001	U	°			_		7	SII		220	220	ш	fr		
	В	w	2000	8	16	10YR 5/ 4	2.5Y 5/ 2	f	2	d	sil		1		sbk			
71	ь	W	1	ľ	16		10YR 4/ 6	f	2	d	SII	-	1	m	SOK	fr		-
	В	w		16	26	2.5Y 5/ 4	2.5Y 6/ 2	С	2	d			2	С	sbk			
-	ь	l w	2	16	26	.—	10YR 4/ 6	С	1	d	sic		2	C	SOK	fi		-
	С			26	45	2.5Y 5/ 3	2.5Y 6/ 2	С	3	d								
1-	C	_	7	26	43		10YR 5/6	С	2	d	c	-			m	fi		-
						R_30_6 N_2			_									
>	_	-	7227					_	_			-	-	-	8-0	]	_	-
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Comments:

GPS Coordinate: N: 36.00263; W: -84.25278

SB location located within previously remediated area.

From 26-45" inclusion of few gravels.

At 48" firm, gleyed clayey horizon containing some cobbles

Depth to water surface in creek ~45" from top of bank.







Soil Boring X or Test Pits \_\_\_\_ Profile #: SB-11 Date of Test: 5/13/15

Property Owner: DOE

Location: LEFPC Project #: 3380-9014 Project: Hg TD

Site Evaluator: John Dickson w/Jennifer Earles Slope: 0-1% Relief: Floodplain CPSS License #: 36208

Estimated Permeability (minutes/inch): (95 mpi for design purposes)
Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 16"
Soil Series Identified: Fluvaquentic Dystrudepts

	Horizo			De			olor		ottles		Text	ure		Struc			nsiste	
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. Co	on.	IVAL		G	S	F/T	Mois	t Wet	Cementation
	A			0	6	10YR 3/ 2		_	=	7-X	ĩ		1	f	gr			
-	2.1		100001		J					22	*	_	3		5.	fr		
	В	w	1000	6	16	10YR 4/ 4		_	-	000	sil		1	m	sbk			
_	D	W	11	U	10			_	=	-	511		1	111	SUK	fr		1
	В	w	2000	16	26	10YR 4/ 4	2.5Y 5/ 2	f	1	d	sil		1	m	sbk			
-	ь	W	2	10	20		7.5YR 4/ 6	f	1	d	SII	70	*	111	SUK	fr	_	-
	В	w		26	45	10YR 4/ 6	2.5Y 6/ 2	с	1	р	sicl		1		sbk			
1—	ь	W	3	20	43		7.5YR 4/6	с	1	f	SICI	-	1	m	SUK	fr	-,	-
	C			45	60	10YR 5/ 3	2.5Y 5/ 2	c	2	f	cl				m			
-		-	-	43	00		7.5YR 4/ 6	c	2	d	CI		-	-	III.	fr	_	-
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Comments:

GPS Coordinate: N: 36.00293; W: -84.25485 ±9.4'

Depth to water surface in creek ~60" from top of bank.







Soil Boring X or Test Pits \_\_\_ Profile #: SB-12 Date of Test: 5/13/15

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles

CPSS License #. 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (75 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): n/a

Soil Series Identified: Urban Soil

	Horiz			De			Color		ottles	0000	Text	ure			cture		nsiste	
M	aster	St	10	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.			G	S	F/T	Moss	t Wet	Cementation
	FILL		520	0	16	10YR 4/ 4	10YR 2/ 1	m	2	d	sil				m			
-	PILL	_	1	U	10			_		7	SII			20	ım	fr	_	-
	FILL		9005	16	30	10YR 4/ 4	10YR 2.5/ 1	m	3	d	sicl							
-	FILL	-	2	16	30		2.5Y 5/ 2	С	2	d	SICI	-	201	201	m	fi		-
								_	_	20-22								
-		-	1251					_	_	-				-	-	_		-
								_	_									
1-		_	7					_	_	2-0				-	99	_	_	-
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Comments:

GPS Coordinate: N: 36.00532; W: -84.26051

Site Evaluator's Signature:\_

Disturbed urban soil. Entire swath of stream bank appears to be anthropogenic materials

Depth to water surface in creek ~30" from top of bank.





Profile #: SB-13 Date of Test: 5/13/15 Soil Boring X or Test Pits \_\_\_

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (95 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 22"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horizo			De			Color		ottles		Text	ire			cture		nsiste	
Ma	ster	Si	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	Text		G	S	F/T	Mois	t Wet	Cementation
	A			0	5	10YR 4/ 3		_	-	7_7	sil		1	f	gr	fr		w
	_		1000					_		72						11	Ī	
	В	x		5	12	10YR 3/ 2		_	_	0_0	sicl		1	m	pl			
-	2	Λ	2,550	2	12	10YR 4/ 4			_	-	sici			m	þi	fi	_	12
	В	w		12	22	10YR 4/ 6			_	2-2	sicl		2	m	sbk			
-	Б	**	1	12	22	1-11-11		_		22-02	SICI	Ī	4	ш	SUK	fr		-
	D	w		22	48	10YR 4/ 6	2.5Y 5/ 2	f	1	p			2	c	sbk			
1	В	W	2	22	40		10YR 5/ 6	f	1	f	sil/sicl		2	· ·	SUK	fr	_	-
	С			48	72	10YR 4/ 4	2.5Y 5/ 2	f	1	d	cl				m			
-	C	-	-	40	12		7.5YR 4/ 6	f	1	d	CI		-	-	m	fr	_	-
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Comments:

GPS Coordinate: N: 36.00547; W: -84.26321 ±16'

At 12-22 few dead plant root channels.

Site Evaluator's Signature:\_\_

At 22-42 many dead root channels and Mn concretions of 10YR 2/1

Depth to water surface in creek ~72" from top of bank.





Profile #: SB-14 Date of Test: 5/13/15 Soil Boring X or Test Pits X

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Relief: Floodplain Slope: 0-1%

Estimated Permeability (minutes/inch): (75 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 20" Soil Series Identified: Fluvaquentic Eutrudepts

	Horiz			De			Color		ottles		Text	nire.			cture	Cor	nsiste	nce
Ma	aster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1 CAL	are	G	S	F/T	Mois	t Wet	Cementation
	A			0	5	10YR 3/ 3		_	122	×_8	ī		1	f	gr			
_			100001		2					220	•		8	•	5	vfr		
	В	w	1990	5	20	10YR 4/ 3			_	828	ī		1	m	sbk			
-	ь	\ W	1	3	20				_		1				SUK	fr	_	-
	n	T		20	30	10YR 4/ 4	10YR 4/ 6	c	3	d	sil		1	L	sbk			
-	В	w	2	20	30			_	_	10_0	SH	75	250	m	SDK	fr		-
				30	56	2.5Y 4/ 4	2.5Y 6/ 2	c	1	d	sicl				Ī			
-	С	-	100	30	36		7.5YR 4/ 6	С	1	d	Sici	-	-	-	m	fr	_	-
						0 20 0 0 2		_	-	-								
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Comments:

GPS Coordinate: N: 36.00739; W: -84.26414 ±12'

Depth to water surface in creek ~56" from top of bank.





Profile #: SB-15 Date of Test: 5/13/15 Soil Boring X or Test Pits \_\_\_\_

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (110 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 16"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horizo			De			olor		ottles		Text	ure		Stru			nsiste	
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	Text	are	G	S	F/T	Mois	t Wet	Cementation
	A			0	8	10YR 4/ 4		_	-		1	72 <u></u> 58	1	f	gr	fr		
			1,550				2-2	_	123	7.3						11 2	_	
	B/A	b		8	16	10YR 3/ 2		_	-	0_0	sicl		1	m	sbk			
-	Dire	Ü	1223	Ü	10	10YR 4/ 4			-		Sici		*		SOK	fr	_	-
	В	w	200,000	16	24	7.5YR 4/ 6	2.5Y 6/3	f	1	d	sicl		1	m	sbk			
-	Д	W	1	10	24		7.5YR 5/ 6	f	1	f	Sici	-	*	m	SUK	fi		-
	ъ	w		24	40	10YR 5/ 6	2.5Y 6/ 2	f	2	р	sicl		2	С	sbk			
>	В	, vv	2	24	40		7.5YR 4/ 6	f	2	f	SICI	-			SUK	fr	_,	-
	С			40	64	2.5Y 5/ 4	2.5Y 6/ 2	c	2	d	6							
-		-	7447	40	04		7.5YR 4/ 6	c	2	d	С	-	-	-	m	fr		-
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Comments:

GPS Coordinate: N: 36.00924; W: -84.27075

At 22-24" dark thin layer, 10YR 3/2.

Site Evaluator's Signature:\_\_

Depth to water surface in creek ~64" from top of bank.





Profile #: SB-16 Date of Test: 5/15/15 Soil Boring X or Test Pits \_\_\_

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Melanie Mayes CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (75 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"

Soil Series Identified: Fluvaquentic Eutrudepts

Ma	Horizo ster	on St	ıb	De (inc	pth hes)	Matrix	olor Mottles	Ab.	ottles S. C	on.	Text	ure	G	Strue	ture F/T		nsiste t Wet	nce Cementation
_	A	_	1000	0	12	10YR 4/ 3				_	1	_	1	f	gr	fr		=
-	В	w	2000	12	24	10YR 5/ 6			_		sicl	_	1	m	sbk	fr		=
-	B/A	ь	5226	24	54	10YR 4/ 3 10YR 4/ 6	2.5Y 5/ 2	f	1	d _	sicl	_	1	m	sbk	fr		-
·—	С	_	REER	54	70	10YR 4/ 4	10YR 5/ 2 10YR 4/ 6	f	2	d d	sicl		-	-	m	fr		-
-	_	_						-	-	-		-	-	-		-		-
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Comments:

GPS Coordinate: N: 36.00900; W: -84.27162 ±18'

At 32-54" dark thin layer, 10YR 4/3, appears to be buried soils.

SB located in the vicinity of over-head electric poles and, the area appears to be slightly disturbed.

Opposite bank located on a high landscape position.

Depth to water surface in creek ~70" from top of bank.





Profile #: SB-17 Date of Test: 5/15/15 Soil Boring X or Test Pits X

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Melanie Mayes CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (95 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 18"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horiz			De			Color		ottles		Text	nire		Stru			nsiste	
Ma	aster	St	ıb	(ınc	ches)	Matrix	Mottles	Ab.	S. C	on.			G	S	F/T	Mois	t Wet	Cementation
_	A	_	1 <del></del> 1	0	5	10YR 3/ 3	2-5	_			ī	% <u></u> 3	1	f	gr	fr	_	<b>12</b>
_	B/A	b	0.000	5	18	10YR 3/ 2 7.5YR 4/ 4			=	0-0	1	_	1	m	pr	fi		=
	В	w		18	36	2.5Y 4/ 4	2.5Y 6/ 2	c	2	d	sil		1	m	sbk			
_	1000		1000	12.00	1000		7.5YR 4/ 6	f	1	d	2000		1770		05550	fi		-
	С			36	64	2.5Y 4/ 4	2.5Y 6/ 2	с	2	d	cl				m	1040		
-	C	_	1944	30	04		7.5YR 5/6	c	2	d	61	-			m	fr	_,	-
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-	_	-	rees					_	_			-	-	-	-	_		-
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Comments:

GPS Coordinate: N: 36.00990; W: -84.27386

5-18" appears to be "Black layer", 10YR 3/3(2). Require additional investigation to confirm.

Depth to water surface in creek ~64" from top of bank.







Soil Boring X or Test Pits \_\_\_ Profile #: SB-18 Date of Test: 5/15/15

Property Owner: DOE Location: LEFPC

Project #: 3380-9014 Project: Hg TD

Site Evaluator: John Dickson w/Melanie Mayes

CPSS License #: 36208

Slope: 0-1% Relief: Floodplain
Estimated Permeability (minutes/inch): (60 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 12"

Soil Series Identified: Fluvaquentic Dystrudepts

Ma	Horiz ster		ıb	De (inc	pth hes)	Matrix	Color Mottles	Ab.	ottles S. C	on.	Text	ture	G	Struc	cture F/T		nsiste t Wet	nce Cementation
-	A			0	12	10YR 4/ 3		_	=	-	1	_	1	f	gr	vfr		-
	В			12	26	10YR 4/ 3	2.5Y 5/ 3	f	1	d	sil	H	,					
-	В	w	1000	12	26		10YR 5/ 6	f	1	d	SII	-	1	m	sbk	vfr	_	-
	A			26	36	2.5Y 3/ 3	2.5Y 5/ 3	f	1	f	sil		1		sbk			
-	A	b	5255	26	36		10YR 4/ 6	f	1	d	SII	_	1	m	SUK	fr	_	-
	С			36	42	2.5Y 5/ 2	10YR 5/6	с	2	d	sil				l	200		
-		g	1000	30	42			_	_		511		-		m	fr	_	-
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Comments:

GPS Coordinate: N: 36.00948; W: -84.27637

Depth to water surface in creek ~42" from top of bank.





Profile #: SB-19 Date of Test: 5/15/15 Soil Boring X or Test Pits X

Property Owner: DOE Location: LEFPC

Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Melanie Mayes
Slope: 0-1% Relief: Floodplain CPSS License #: 36208

Estimated Permeability (minutes/inch): (95 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 20"

Soil Series Identified: Fluvaquentic Eutrudepts

M	Horiz ster	on St	ıb	De		Matrix	Color Mottles	Ab.	ottles S. C	on	Text	ure	G	Stru	cture F/T		nsiste	nce Cementation
_	A			0	8	10YR 3/ 3			_	- I	sil		1	f	gr	fir		_
-	A	ь	2 <del>75</del> 1	8	20	10YR 2/ 2			_	-	sil	_	1	m	sbk	vfr		
_	В	w	1001	20	36	10YR 4/ 6	2.5Y 5/ 2 10YR 5/ 8	f	1	p d	sil		1	m	sbk	fr		144
-	С	_	name i	36	48	2.5Y 5/ 3	2.5Y 6/ 2 10YR 5/ 6	c	3 2	f	sicl		_	_	m	fi		_
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Comments:

GPS Coordinate: N: 36.00949; W: -84.27697

At 8-20" Black layer, 10YR 2/2 observed

Depth to water surface in creek ~48" from top of bank.







Soil Boring X or Test Pits \_\_\_ Profile #: SB-20 Date of Test: 5/18/15

Property Owner: DOE Location: LEFPC Project #: 3380-9014 Project: Hg TD

Site Evaluator: John Dickson w/Melanie Mayes

CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (85 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"

Soil Series Identified: Fluvaquentic Eutrudepts

M.	Hori: aster		ıb		pth ches)	Matrix	Color Mottles	Ab.	ottles S. C	on.	Text	ture	G	Stru	cture F/T		nsiste	nce Cementation
IVI	aster	1 31	10	(III)	nes)	Maily	Motifes	AU.	. O. C	on.		-	O.		171	WIOIS	1 10 61	Cementation
	A			0	8	10YR 3/ 3	22 202	_	-	7-2	i	_	1	f	gr	fr		
			100000					_	22	7-3						11	-	
	В	w		8	24	10YR 4/ 4					sil		1	m	sbk			
-	1 2	**	1.77	0	24				-	-	311	-	*	III	Jook	fr	_	122
	. 2			0.4	40	10YR 3/ 3	2.5Y 5/ 2	f	1	f	sil		-					
-	A	b	50.05	24	40	10YR 4/ 4	7.5YR 5/ 6	f	1	d	SII		1	m	sbk	fr		-
	С			40	56	10YR 4/ 6	2.5Y 6/ 2	с	1	р	cl							
-		-		40	36		7.5YR 5/8	с	1	d	CI		-		m	fr		-
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Comments:

GPS Coordinate: N: 36.00906; W: -84.27794

At 24-40" Black layer, 10YR 2/2, observed

Site Evaluator's Signature:\_

Depth to water surface in creek: ~56" from top of bank.





Profile #: SB-21 Date of Test: 5/18/15 Soil Boring X or Test Pits \_\_\_

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Melanie Mayes

CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (95 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 16"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horize			De			Color		ottles		Text	ure			cture		nsiste	
Ma	aster	St	ub	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.		-	G	S	F/T	Moss	t Wet	Cementation
	A	22		0	7	10YR 3/ 3		-	_=	-	sil	N 5	1	f	gr	fr		12
			1000000						122	7-3						11		
	A	ь		7	16	10YR 2/ 1				0=0	sicl		1	m	sbk			
_	7.1	<u>.</u>	2000	2.	10	10YR 3/ 3		_	-	000	Sici	-	*		SOR	fr	_	-
	В	w	2000	16	30	10YR 4/ 6	2.5Y 5/ 2	f	1	р			2	c	sbk			
-	ь	W	1	10	30		10YR 5/ 6	f	1	f	sicl+	-	4	•	SUK	fi	_	-
	В	l		30	40	10YR 4/ 6	2.5Y 5/ 2	f	1	p	sicl		2	I	-1.1.			
-	ь	w	2	30	40		10YR 5/8	f	2	d	sici	-	2	m	sbk	fr	_	-
	C			40	65	2.5Y 6/ 3	2.5Y 6/ 2	c	2	f	cl	,			m			
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Comments:

GPS Coordinate: N: 36.00897; W: -84.27888 ±7.5'

At 7-16" black layer, 10YR 2/2, observed

Depth to water surface in creek: ~65" from top of bank.





Profile #: SB-22 Date of Test: 5/18/15 Soil Boring X or Test Pits

Property Owner: DOE Location: LEFPC Project #: 3380-9014 CPSS License #: 36208 Project: Hg TD

Site Evaluator: John Dickson w/Melanie Mayes

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (110 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24" Soil Series Identified: Fluvaquentic Eutrudepts

1501.			ILITIC			quentie Euu u												
	Horiz				pth		Color	M	ottles		Text	hvec			cture	Cor	nsiste	nce
M	aster	Sı	ub	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1 CA	uie	G	S	F/T	Mois	t Wet	Cementation
	A			0	12	10YR 3/ 3			123	_	sil		1	f	gr	fr		325
			100000			5—33— 5—6	2.2.20.2		123	7-3						п	-	
	A	b		12	24	10YR 2/ 2			_	0=0	sil		1	m	sbk			
_	560	-00	1,000			10YR 3/ 3				100	2.55				100,000	fr	_	_
	В	w		24	52	10YR 4/ 6	2.5Y 5/ 2	f	2	р	sicl		1	m	sbk			
-	ь	W	1221	24	32		7.5YR 5/ 6	f	2	f	SICI	1313	1	111	SUK	fi	_	-
	С			52	64	2.5Y 5/ 2	7.5YR 5/ 6	с	1	р	sic				m	1000		
-	C	g	-	32	04				_	2-0	sic		3	=	111	fi	_	-
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Comments:

GPS Coordinate: N: 36.00838; W: -84.28075 ±11.5'

At 12-24" black layer, 10YR 2/2, observed

Depth to water surface in creek: ~64" from top of bank.







Profile #: SB-23 Date of Test: 5/18/15 Soil Boring X or Test Pits X

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Melanie Mayes CPSS License #: 36208

Relief: Floodplain Slope: 0-1%

Estimated Permeability (minutes/inch): (110 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horiz	on St		De		Matrix	Color Mottles		ottles S. C		Text	ure	G	Stru	cture F/T		nsiste	
Mi	aster	SI	10	(inc	hes)	Marrix	Monies	Ab.	S. C	on.			b	2	F/1	Mois	t Wet	Cementation
	A			0	10	10YR 3/ 3			=	-	sil		1	f	gr			
	3.80		1,000	1000				_0	122	7.0	0.430		0		0.	fr	_	-
	A	b		10	24	10YR 2/ 1			=	0=0	sil		1	m	sbk			
-	A	U	0.770	10	24	10YR 3/ 2			_		SII	-	1	1111	SUK	fr	_	-
	ъ	l		24	40	10YR 4/ 6	2.5Y 6/ 2	С	2	p	sicl		2	Ι	sbk			
-	В	w	1000	24	40	.—	7.5YR 5/6	c	2	f	Sici	10	2	m	SOK	fr	_,	-
	a			40	62	2.5Y 5/ 3	2.5Y 6/ 2	c	3	f					1			
:	C	-	222	40	62		10YR 4/6	С	2	d	c		-	-	m	fr	l _	-
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Comments:

GPS Coordinate: N: 36.00563; W: -84.28060

At 10-24" black layer, 10YR 2/2, observed Collected bulk density sample within black layer.

Depth to water surface in creek: ~62" from top of bank.







Profile #: SB-24 Date of Test: 5/18/15 Soil Boring X or Test Pits

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Melanie Mayes CPSS License #: 36208

Slope: 0-1% Relief: Floodplain
Estimated Permeability (minutes/inch): (120 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 8"
Soil Series Identified: Fluvaquentic Dystrudepts

	Horizo			De			Color	M	ottles		Text	2180		Stru		Con	nsiste	nce
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1 CA	ure	G	S	F/T	Mois	t Wet	Cementation
	A			0	8	10YR 3/ 3		_	12	72	ī		1	f	gr			
_	4.4	_	1,000		ľ			_	-	22		_	*	Ľ	81	fr	_	-
	A	ь		8	24	10YR 2/ 2	2.5Y 5/3	f	1	f	sil		2		sbk			
-	A	ь	1.000	°	24	10YR 3/ 3	10YR 5/6	f	1	p	SII	-	2	m	SOK	fr	_	12
	ъ	Ī		24	50	2.5Y 4/ 4	2.5Y 6/ 2	С	2	d	sicl		-		sbk			
-	В	w	1000	24	30	.—.— .—.	10YR 4/6	c	2	d	Sici	10	1	m	SOK	fi		F=
	С			50	64	2.5Y 5/ 2	10YR 5/6	С	2	p					l			
-	C	g	7-2-2	30	64				_		c	-	3	-	m	fi	_	-
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Comments:

GPS Coordinate: N: 36.00438; W: -84.28246

At 8-24" black layer, 10YR 2/2, observed At 25-50" gravels/cobbles (~5%)

Depth to water surface in creek: ~64" from top of bank.







Profile #: SB-25 Date of Test: 5/18/15 Soil Boring X or Test Pits

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles

CPSS License #: 36208

Slope: 0-1% Relief: Floodplain
Estimated Permeability (minutes/inch): (>120 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 8"
Soil Series Identified: Fluvaquentic Dystrudepts

	Horizo	on		De			Color	M	ottles		Text	1100		Stru		Co	nsiste	nce
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1 CAL	ure	G	S	F/T	Mois	t Wet	Cementation
	A			0	8	10YR 3/ 3		_		7_7	sicl		1	f	gr			
_		-	1,000		ľ	s-s-s-s		_	_	2-2	Sici	_		ļ ^	9,	fr	-	122
	A	ь		8	20	10YR 2/ 2	2.5Y 5/ 2	c	2	f	sicl		9		sbk			
_	A	ь	0.770	°	20	10YR 3/ 4	10YR 4/6	c	2	d	Sici	_	1	m	SOK	fr	_	100
	ъ	w		20	34	10YR 5/ 6	2.5Y 7/ 2	с	2	р	sicl		1		n1			
_	В	W	1221	20	34		7.5YR 4/ 6	С	2	d	Sici	-	1	m	pl	fi		3 <del>4</del>
				34	58	2.5Y 5/ 3	2.5Y 5/ 2	c	2	f	cl				I			
_	C	_		34	36	10YR 5/ 6	7.5YR 4/ 6	c	2	d	CI	-	-	-	m	fi	_,	-
	С	162		58	72	2.5Y 5/ 2	7.5YR 4/ 6	c	2	p	10							
_		g	1944	30	12				_		c	-	-	-	m	fi	_	-
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Comments:

GPS Coordinate: N: 36.00334; W: -84.28526 ±19.0'

At 8-20" black layer, 10YR 2/2, observed From 16" many mottles

Depth to water surface in creek: ~72" from top of bank.





Profile #: SB-26 Date of Test: 5/18/15 Soil Boring X or Test Pits X

Property Owner: DOE Location: LEFPC Project #: 3380-9014 Project: Hg TD

Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Relief: Floodplain Slope: 0-1%

Estimated Permeability (minutes/inch): (>120 mpi for design purposes) Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 11/a

Soil Series Identified: Fluvaquentic Dystrudepts

M:	Horiz aster		ıb	De (inc		Matrix	Color Mottles	Ab.	ottles S. C	on.	Text	ure	G	Stru	cture F/T		nsiste	nce Cementation
	20. 420700	T	Ī	1		10YR 4/ 4			I_		2 21			Ť		111010	<u> </u>	
_	FILL		10001	0	20				-	2_3	sicl	×_=	=	-	m	fi	_	120
	В			20	30	10YR 2/ 1	2.5Y 5/ 2	С	1	d	sicl		1.		sbk			
-	В	w	2.772	20	30	10YR 4/ 6	7.5YR 4/6	c	1	f	SICI	3-3	4	m	SDK	fi	_	-
	С			30	84	2.5Y 5/ 3	2.5Y 5/ 1	С	2	d								
-	C	-	1226	30	04		7.5YR 4/ 6	С	2	р	c	70-0	-	-	m	fi	_	-
									_	-								
-	_	_	100					_	_	-		-	100	-	-	_	_	-
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Comments:

GPS Coordinate: N: 36.00225; W: -84.28868 ±10.5'

At 20-30" many thin bands of black layer, 10YR 2/1 SB located within previously remediated area,  $\sim\!\!25$  " from SB 6-5

Depth to water surface in creek: ~84" from top of bank.





Soil Boring X or Test Pits X Profile #: SB-27 Date of Test: 5/20/15

Property Owner: DOE

Project #: 3380-9014

Location: LEFPC Project: Hg TD Site Evaluator: John Dickson w/Tonia Mehlhorn CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (115 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 20"

Soil Series Identified: Fluvaquentic Eutrudepts

	Hori		1001		pth		Color		ottles		Text	nre			cture		nsiste	
M:	aster	S	ub	(inc	ches)	Matrix	Mottles	Ab.	S. C	on.	10.0		G	S	F/T	Mois	t Wet	Cementation
_	A			0	6	10YR 3/ 3		_	=	-	sil	_	1	f	sbk	fr		
_		_	1,555					_	_	7						Ir	_	-
	A	ь		6	20	10YR 2/ 2		_	_	-	sil		1	m	sbk			
-	Α	U	10000	0	20	10YR 4/ 4			_	-	SII	27	-	m	SUK	fr	Ī	-
		l		20	32	2.5Y 5/ 4	2.5Y 5/ 2	c	1	d	sicl		1		sbk			
-	В	w	1	20	32	10YR 4/ 6	7.5YR 4/ 6	c	1	f	SICI	77		m	SDK	fr		-
	ъ	Ī		32	48	2.5Y 5/ 3	2.5Y 5/ 2	c	2	f	cl		1		.1.1.			
-	В	w	1	32	48		7.5YR 4/ 6	c	2	р	CI	-	1	m	sbk	fr	_,	-
	С			48	72	2.5Y 5/ 3	2.5Y 5/ 2	c	2	f					m			
-		_	10000	48	12		7.5YR 4/ 6	c	2	р	c	3-	-	-	m	fr/fi	_	-
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Comments:

GPS Coordinate: N: 35.99974; W: -84.29270 ±16'

6-20" appears to be a black layer, 10YR 2/2 Inclusions of coarse sands at 20-32"

Depth to water surface in creek: >72" from top of bank.







Date of Test: 5/20/15 Soil Boring X or Test Pits \_\_\_\_ Profile #: SB-28

Property Owner: DOE Location: LEFPC Project #: 3380-9014

Location: LEFPC Project: Hg TD Site Evaluator: John Dickson w/Tonia Mehlhorn CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (110 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"

Soil Series Identified: Fluvaquentic Eutrudepts

M	Horiz aster		ub	De	pth hes)	Matrix	Color Mottles	Ab.	ottles S. C	'on	Text	ure	G		cture F/T		nsiste	nce Cementation
IVI	asiei	I	I	(mc	nes)		Motifies	Au.	). C	T T		1	U	r ·	I'1	WIUIS	t wet	Cementation
25	A			0	6	10YR 3/ 3	<u></u>	_	122	2-2	ī		1	f	gr			100
	30,000		SERVE .						_	7-3		-			Ŭ.	fr	_	_
	A	ь		6	16	10YR 3/ 2		_	_	0-0	i i		1	l	sbk	l		
-	A	ь	1777)	0	10				_		1		Ψ.	m	SOK	fr	_	-
	Ti.			16	24	10YR 4/ 6			_		sicl							
-	В	w	1	16	24				_		SICI	10-0	2	m	pr	fi		-
	ъ			2.4	40	10YR 5/ 4	2.5Y 5/ 2	с	1	d			,					
-	В	w	2	24	40		10YR 5/6	С	1	d	sicl		1	m	sbk	fr	_	-
	_	200				2.5Y 5/ 4	2.5Y 6/ 2	c	2	d	2000				100000			
-	В	w	3	40	60		10YR 4/6	c	2	d	sicl	·		-	m	fr	_	-
	,					NO 6016-AARG 1997 19	2.5Y 6/ 2	С	2	d								
_	С	_		60	72	2.5Y 5/ 4	10YR 5/ 6	m	3	d	cl		_		m	fi		,_

Comments:

Site Evaluator's Signature:\_

GPS Coordinate: N: 35.99916; W: -84.29367 ±10'

Depth to water surface in creek: ~90" from top of bank.





Soil Boring X or Test Pits Profile #: SB-29 Date of Test: 5/20/15

Property Owner: DOE Location: LEFPC Project #: 3380-9014

Location: LEFPC Project: Hg TD
Site Evaluator: John Dickson w/Tonia Mehlhorn CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (120 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 18"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horize			De			Color		ottles		Tex	fure			cture		nsiste	
Ma	aster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1.4.1		G	S	F/T	Mois	t Wet	Cementation
	A			0	6	10YR 3/ 3				-	sil		1	f	gr			
			1,000		Ů				-	7	511			Ĺ	8.	fr	_	-
	A	b		6	18	10YR 2/ 1			-		sil		1	m	able			
-	A	U	0.000	0	10	10YR 3/ 3		_	_		SII	-	1	1111	sbk	fr	_	-
	n			18	34	7.5YR 4/ 4	10YR 2/ 1	c	3	d	cl		•	I	sbk			
-	В	W	1	18	34	.—	2.5Y 5/3	f	2	f	CI	71-	2	m	SOK	fï		-
					47	10YR 4/ 4	2.5Y 6/ 2	с	2	d	,		~					
-	В	W	2	34	4/		10YR 5/ 6	с	2	d	cl	3	2	С	sbk	fr/fi	_	-
	С			47	72	2.5Y 5/ 3	2.5Y 6/ 2	m	2	d					52365			
:		-	-	47	12		10YR 5/ 6	m	2	р	c	-	-	-	m	fi	_	-
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Comments:

GPS Coordinate: N: 35.99831; W: -84.29562 ±11'

6-18" appears to be black layer.

Depth to water surface in creek: ~86" from top of bank.







Date of Test: 5/20/15 Soil Boring X or Test Pits \_\_\_ Profile #: SB-30

Property Owner: DOE

Project #: 3380-9014

Location: LEFPC Project: Hg TD Site Evaluator: John Dickson w/Tonia Mehlhorn CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (>120 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 18"

Soil Series Identified: Fluvaquentic Dystrudepts

Ma	Horiz ster		ıb	De (inc	pth ches)	( Matrix	Color Mottles	Ab.	ottles S. C	on.	Text	ure	G	Struc	cture F/T		nsiste	nce Cementation
_	A	_	te <del>ne</del> ti	0	10	10YR 3/ 3	<u> </u>	_	100	_	sil	×_3	1	vf	gr	fr		
_	A	b	1777	10	18	10YR 3/ 2			=		sil	_	1	m	sbk	fr		
_	В	w	1	18	36	7.5YR 4/ 6	2.5Y 5/ 3 7.5YR 5/ 8	f c	2	p d	cl	-	2	m	pr	fi		-
	В	w	2	36	62	2.5Y 5/ 4	2.5Y 6/ 2	с	2	d	c1				m	fr/fi		_
	С	g		62	72	2.5 Y 5/ 2	10YR 5/ 6 10YR 5/ 6	c m	2	d p	c				m			
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Comments:

GPS Coordinate: N: 35.99757; W: -84.29705

10-18" appears to be black layer.

Depth to water surface in creek: ~84" from top of bank.







Profile #: SB-31 Date of Test: 5/20/15 Soil Boring X or Test Pits

Property Owner: DOE Location: LEFPC Project #: 3380-9014

Location: LEFPC Project: Hg TD
Site Evaluator: John Dickson w/Tonia Mehlhorn CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (120 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 10"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horiz			De	pth		Color		ottles		Text	nice			cture	Cor	nsiste	nce
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1 CAI	ure	G	S	F/T	Mois	t Wet	Cementation
	A			0	10	10YR 3/ 2		_	_	7_7	sil		1	f	gr			
_			1,000				20 -02-2	_	_	7-3	33.55			_	0.	fr		_
	В	T		10	20	10YR 5/ 6	2.5Y 5/3	f	1	р	sicl	П	1.	I	sbk			
-	ь	W	1	10	20	1 <del>-12-1</del> 1-2	10YR 5/ 6	f	1	f	SICI	11-11		m	SUK	fr/fi	_	1=
	В	T		20	36	2.5Y 5/ 6	2.5Y 5/ 2	c	2	р	cl		-	I	sbk			
-	ь	w	2	20	36		10YR 4/6	c	2	f	CI	10-0	1	m	SOK	fr/fi	_	-
	С			36	58	2.5Y 5/ 3	2.5Y 6/ 2	c	2	d	_				l			
_	C	_	100	36	36		10YR 5/ 6	m	2	р	c	-		-	m	fi	_,	-
						8_30_6 N_3		_	_	-								
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Comments:

GPS Coordinate: N: 35.99937; W: -84.29831 ±20'

No black layer observed

Site Evaluator's Signature:\_\_

Depth to water surface in creek: ~58" from top of bank.





Profile #: SB-32 Date of Test: 5/20/15 Soil Boring X or Test Pits

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Tonia Mehlhorn CPSS License #: 36208

Relief: Floodplain Slope: 0-1%

Estimated Permeability (minutes/inch): (75 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 12"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horiz			De	pth		Color	M	ottles		Text	*****			cture	Co	nsiste	nce
Ma	aster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1 671	ure	G	S	F/T	Mois	t Wet	Cementation
	A	4		0	5	10YR 3/3			=		ī		1	f	gr			522
	3.50		1,000	100				_		7_7		_		Ē		fr	_	-
	В	w	020	5	12	10YR 5/ 6			=	-	sil		1	m	chl			
-			(F)	-	1.5	1-11-11 (-1)		_	_	1000	SH	1	-		sbk	fi		1=
	В	I		12	20	10YR 4/ 4	2.5Y 5/ 2	f	1	d	sil		•	I	.1.1.			
_	ь	w	2	12	20	1-0-1	10YR 4/ 6	f	2	d	SH	10-0	2	m	sbk	fr	_,	-
	D.			20	36	10YR 3/ 4	2.5Y 5/ 2	f	1	d	sil		-		- 11			
:	В	w	3	20	36		10YR 5/ 6	f	1	р	SII		1	m	sbk	fr	l _	-
	C			36	48	10YR 4/ 4	2.5Y 5/ 2	f	1	d	sicl				222			
:	C	-		36	48	1_11_1 1_1	10YR 5/6	c	2	d	SICI		-	-	m	fr	_	-
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Comments:

GPS Coordinate: N: 35.99871; W: -84.30052

At 12-36" thin lenses of 10YR 2/1 observed Below 48" massive and firm clay, 2.5Y 5/3 with many redoximorphic features

Depth to water surface in creek: ~54" from top of bank.







Date of Test: 5/20/15 Soil Boring X or Test Pits \_\_\_ Profile #: SB-33

Property Owner: DOE

Location: LEFPC Project: Hg TD Site Evaluator: John Dickson w/Tonia Mehlhorn Project #: 3380-9014 CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (75 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 16"

Soil Series Identified: Fluvaquentic Dystrudepts

	Hori			De	pth		Color		ottles		Text	nra			cture	Cor	nsiste	nce
M	aster	Sı	ıb	(inc	ches)	Matrix	Mottles	Ab.	S. C	on.	16/1	ure	G	S	F/T	Mois	t Wet	Cementation
-	A			0	3	10YR 3/ 3			-	7_5	ī		1	f	gr			=
			1.555			c—c— c—c		_	=	7_3		-				fr	_	_
	В	w	100	3	16	10YR 5/ 6			=	0-0	sil		1	m	sbk			
-	D.	34	:1:	-	10	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		_		-	SII	S	***	***	JOK	fi	Ĭ	
	В	l		16	28	10YR 4/ 4	2.5Y 5/ 2	С	1	d	sil		4		sbk			
-	В	w	2	16	28	.—	10YR 4/6	c	1	d	SII	-	*	m	SDK	fr		-
	С			28	52	2.5Y 4/ 4	2.5Y 6/ 2	С	2	d	sicl				I			
-	C	_	1000	28	32		10YR 5/6	c	1	d	SICI	-	-	-	m	fr	_	-
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Comments:

Site Evaluator's Signature:\_

GPS Coordinate: N: 35.99774; W: -84.30349 ±14'

Depth to water surface in creek: ~54" from top of bank.





Date of Test: 5/20/15 Soil Boring X or Test Pits \_\_\_ Profile #: SB-34

Property Owner: DOE Location: LEFPC Project #: 3380-9014 Project: Hg TD

Site Evaluator: John Dickson w/Tonia Mehlhorn CPSS License #: 36208

Relief: Floodplain Slope: 0-1%

Estimated Permeability (minutes/inch): (75 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 9"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horizo			De			Color		ottles		Text	ure			cture		nsiste	
Ma	aster	St	ub	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	Text	uic	G	S	F/T	Mois	t Wet	Cementation
	A			0	9	10YR 3/ 2		_		723	sil		1	f	sbk			
-	***		1,000.1	Ü	1			_		7-3	SALE	_		1	JUK	fr	Ţ.	_
	В		1900	9	20	10YR 4/ 6	2.5Y 5/ 2	f	1	d	sil		2		sbk			
-	В	w	1	9	20	.—	10YR 5/8	f	2	d	SII		2	m	SUK	fr/fi	_	100
	ъ	l		20	36	10YR 4/ 4	2.5Y 5/ 2	С	2	d	sicl		1		sbk			
-	В	W	2	20	36	.—	10YR 4/6	c	1	d	Sici	77	1	c	SOK	fr		1
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-	_	_	-					_	_					-	-	_	_,	-
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Comments:

GPS Coordinate: N: 35.99586; W: -84.30384

Location prone to depositional erosion.

Depth to water surface in creek: ~42" from top of bank.





Profile #: SB-35 Date of Test: 5/20/15 Soil Boring X or Test Pits

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Tonia Mehlhorn CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (75 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 17"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horizo			De			olor		ottles		Text	ure		Struc			nsiste	
Ma	ster	St	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. Co	on.	1 CAL	urc	G	S	F/T	Mois	t Wet	Cementation
	A			0	10	10YR 3/ 3		_	=	y_1	ī		1	f	gr			
_		_	1,000					_	100	2-3	-			_	0.	fr	_	-
	В	w	1	10	17	10YR 5/ 6		_	=	-	sil		2	m	pr			
-		355	-11:	10	*			_	=	0-0	511		Ē	***	P	fi	_	1
	В			17	40	10YR 4/ 4	2.5Y 5/ 2	f	2	d	sil		9		sbk			
_	ь	W	2	1/	40		10YR 5/6	С	1	d	SH	13	1	m	SOK	fr	_,	-
	С			40	72	2.5Y 4/ 4	2.5Y 5/ 2	С	2	d	sicl							
-	C	_	7-2-2	40	12		10YR 5/6	С	2	d	sici		=		m	fr	_	-
						F2F5F			-									
-	-	_	1944						1			-	=	=:	e	2.3	_	-
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Comments:

GPS Coordinate: N: 35.99460; W: -84.30592 ±15'

At 17-40 variegation 10YR 4/6, 2.5Y 5/4 and 10YR 2/1 black (Mn) concretions Location prone to depositional erosion.

Depth to water surface in creek: ~84" from top of bank.







CPSS License #: 36208

Soil Profile Notes

Profile #: SB-36 Date of Test: 5/20/15 Soil Boring X or Test Pits

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Tonia Mehlhorn

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (95 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 16"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horizo			De			olor	M	ottles		Text	1100		Stru		Co	nsiste	nce
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1 CAL	ure	G	S	F/T	Mois	t Wet	Cementation
	A			0	10	10YR 3/ 3		_	122	7	ì		1	f	gr			
_			100001		10			_	_	7-3	•	_		1	8.	fr	_	-
	В	w	1	10	16	10YR 5/ 6			_		sicl		1	m	sbk			
-	D.	**	10	10	10			_	=	-	Sici	-	1	111	SUK	fr	_	7
	ъ			16	30	2.5Y 4/ 4	2.5Y 6/2	c	1	d	sicl		2		sbk			
-	В	W	2	10	30		10YR 5/8	c	1	р	SICI	-	2	m	SUK	fr	_	-
	С			30	60	2.5Y 5/ 3	2.5Y 6/2	m	3	d	cl				I			
-	C	-	100	30	60		10YR 5/6	С	2	р	CI	-	-	-	m	fr	_	-
						8_30_8 N_3			_	-								
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Comments:

GPS Coordinate: N: 35.99417; W: -84.30643

At 10-16" variegation of 2.5Y 5/4 and few redoximorphic features of 2.5Y 5/2 At 10-30' inclusions of 10YR 2/1 black (Mn) concretions

Depth to water surface in creek: ~72" from top of bank.





Profile #: SB-37 Date of Test: 5/27/15 Soil Boring X or Test Pits X

Property Owner: DOE Location: LEFPC Project: Hg TD

Site Evaluator: John Dickson w/Jennifer Earles

Project #: 3380-9014 CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (110 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horiz	on		De			Color	M	ottles		Text	1100			cture	Con	nsiste	nce
Ma	aster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1 6 1	ure	G	S	F/T	Mois	t Wet	Cementation
	A			0	12	10YR 4/ 3			122	-	sil		1	f	gr			
_	***		10,000					_		7-3	844	_	•	-	5.	fr	_	_
	В	w	1	12	24	10YR 4/ 4	<u> </u>	_	-		sil		2	m	sbk			
-	, D	, vv	1	12	24	1-0-0 1-0		_		1-0	511	-	2	111	SUK	fr	_	=
	ъ	I		24	36	10YR 4/ 4	2.5Y 5/ 2	f	2	d	-21		4	I	sbk			
-	В	w	2	24	36		10YR 5/ 6	f	2	d	sil	22	1	m	SOK	fr		-
	ъ	Ī		36	50	10YR 3/ 4	2.5Y 5/ 2	С	1	f	sil		,		sbk			
-	В	w	3	36	30		10YR 5/6	c	1	d	SH		1	С	SOK	fr	_	-
	C			50	64	2.5Y 5/ 3	2.5Y 5/ 2	m	3	d	cl	S 5			m			
-		-	10000	30	64		10YR 5/8	c	2	р	CI	S-3	-		m	fi	_	-
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	_	l											_	_	_			_
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Comments:

GPS Coordinate: N: 35.99248; W: -84.30910 ±6.7'

At 24-50" inclusions of 10YR 2/1 black (Mn) concretions Rocky outcrops on opposite bank of creek

Depth to water surface in creek: ~64" from top of bank.







Profile #: SB-38 Date of Test: 5/27/15 Soil Boring X or Test Pits \_\_\_

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles

CPSS License #: 36208

Relief: Floodplain Slope: 0-1%

Estimated Permeability (minutes/inch): (120 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horiz			De			Color		ottles		Text	nre			cture		nsiste	
Ma	aster	St	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	Text	urc	G	S	F/T	Mois	t Wet	Cementation
-	A			0	12	10YR 3/ 3			-	7_3	sil		1	f	gr	fr		122
		_	00000			0-03-0-0			121	7-8		_		_	1	-11		ļ
	В	w	1921	12	24	10YR 4/ 4		_	_	000	sil		1	m	sbk			
_	2	3.0	3 <b>1</b> 8	12	50			_	-	100	SII		**		JOK	fi	_	544
	В	w	2000	24	48	2.5Y 5/ 4	2.5Y 6/2	c	2	d	sicl		1	m	sbk			
-	ь	W	2	24	40		10YR 5/6	c	2	d	SICI	10-11	-	1111	SUK	fr/fi	_	7-
	С			48	54	5Y 5/ 2	10YR 5/8	m	2	р	cl				I			
-	C	g	1001	40	34			_	_		CI	-	-	-	m	fi	_	-
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Comments:

GPS Coordinate: N: 35.99090; W: -84.31233

At 12-24" inclusions of few 10YR 2/1 black (Mn) concretions

Depth to water surface in creek: ~54" from top of bank.





Profile #: SB-39 Date of Test: 5/27/15 Soil Boring X or Test Pits \_\_\_

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Slope: 0-1% Relief: Floodplain
Estimated Permeability (minutes/inch): (>120 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 16"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horiz				pth		Color		ottles		Text	nre			cture		nsiste	
M:	aster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.			G	S	F/T	Mois	t Wet	Cementation
-	A	-		0	6	10YR 3/ 3		_	<u>=</u>	-	sil	75 <u>-</u> 25	1	f	gr	fr		
		+		+	_				=	7-3		-	_	┡	_	_	_	
	В	w	100	6	16	10YR 4/ 3		_	-	0-0	sil		1	m	ebb			
_	1 2		1		10	10YR 4/ 6		_	_	1000	SII			""	sbk	fi		1=
	ъ			1,0	24	10YR 4/ 4	2.5Y 5/ 2	f	2	f	- 1		9					
-	В	w	2	16	24	.—	10YR 4/ 6	f	2	d	sil	10	1	m	sbk	fi		-
				2.1	10	2.5Y 5/ 2	7.5YR 5/8	с	1	р	1				1			
-	C	g	1	24	40		10YR 5/6	с	1	р	cl	n			m	fi	_	-
		- 65		10	40	2.5Y 6/ 2	10YR 5/6	c	2	р	- 1				222			. 2
-	C	g	2	40	43				_		c		=	==	m	fi	_	:=
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									-									

Comments:

GPS Coordinate: N: 35.99255; W: -84.31299

At 6-24" horizons are dry and very firm with some inclusions of prismatic structures

Depth to water surface in creek: ~43" from top of bank.







CPSS License #: 36208

Soil Profile Notes

Profile #: SB-40 Date of Test: 5/27/15 Soil Boring X or Test Pits \_\_\_

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Jennifer Earles

Slope: 0-1% Relief: Floodplain
Estimated Permeability (minutes/inch): (110 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"

Soil Series Identified: Fluvaquentic Eutrudepts

	Hori			De	pth		Color	M	ottles		Text	hano		Stru	cture	Co	nsiste	nce
M	aster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	Con.	1 ex	ure	G	S	F/T	Mois	t Wet	Cementation
	A			0	6	10YR 3/ 3		_	=	12	sil		1	f	gr	fr		(22)
			1.55					_	122	2						ır	_	
	В	w		6	16	10YR 4/ 4		_	_	0	sil		1	m	sbk			
_	L.	8.5	113	9	10	.—		_	_	000	311	-	**	***	SOK	fi	_	1=
l	В	w	2	16	24	10YR 4/ 4		_	-	12_0	sil		1	m	sbk			
_	D	**	2	10	533			_	ш.		311	20-0	150		SOK	fi	_	-
	ъ	w		24	42	10YR 3/ 4	10YR 2/ 1	с	1	d	sicl		1	m	sbk	2000		
-	В	, vv	3	24	42		10YR 6/3	f	2	d	SICI			III	SUK	fi	_	-
	С	-		42	62	2.5Y 5/ 2	10YR 5/6	c	2	р	sicl				m			0
-	C	g		42	62	8 <u>888 8</u> 8			_		SICI	3-		-	III	fr	_	-
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						S-03-4 S-0										_	_	27

Comments:

GPS Coordinate: N: 35.99291; W: -84.31484

At 24-42" some 10YR 2/1 Mn concretions

Depth to water surface in creek: ~62" from top of bank.







Profile #: SB-41 Date of Test: 5/27/15 Soil Boring X or Test Pits

Property Owner: DOE Location: LEFPC

Project #: 3380-9014 CPSS License #: 36208 Location: LEFPC Project: Hg TD
Site Evaluator: John Dickson w/Jennifer Earles

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (60 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 12"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horiz			De			Color	M	ottles		Tex	neo			cture	Co	nsiste	nce
M	aster	St	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	164	ure	G	S	F/T	Mois	t Wet	Cementation
	A			0	6	10YR 3/ 3	<u> </u>	_	_	7_7	i		1	f	gr			650
_		_	1,000					_	_	7-7		_			Ŭ	fr	$\rightarrow$	-
	В	w	1900	6	12	10YR 4/ 4		_	-	-	sil		1.	m	sbk			ľ
-	ъ	**	10	0	12			_	_	-	SII		8	ш	SUK	fr	_	-
	В	w	22.00	12	32	10YR 4/ 4	2.5Y 5/ 2	f	1	d	sil		-		sbk			
-	ь	W	2	12	32		10YR 5/6	c	2	d	SII	70-0	55.0	m	SUK	fr	_	-
	С			32	40	2.5Y 5/ 2	10YR 5/8	с	1	р	sil							
-	C	g	79901	32	40			_	-		SII	-	1	-	m	fr	_	-
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Comments:

GPS Coordinate: N: 35.99120; W: -84.31606

Depth to water surface in creek: ~40" from top of bank.







Profile #: SB-42 Date of Test: 5/29/15 Soil Boring X or Test Pits

Property Owner: DOE Location: LEFPC Project: Hg TD

Project #: 3380-9014 CPSS License #: 36208 Site Evaluator: John Dickson w/Kenneth Lowe

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (40 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 38"

Soil Series Identified: Fluvaquentic Eutrudepts

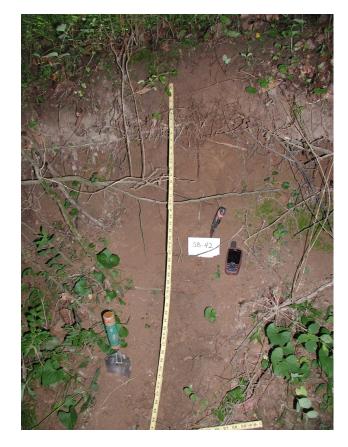
	Horizo	n		De			olor	Me	ottles		Text				cture	Cor	nsiste	nce
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. Ce	on.	1 CAL	ure	G	S	F/T	Mois	t Wet	Cementation
	A	-		0	5	10YR 3/ 3		_		_	ī		1	f	gr			
_		_	10000		7		22 202	_	_	7-7	-			_	0.	fr	_	
	В	w	1	5	12	10YR 4/ 4		_	-		ī		1	m	sbk			
_	D.	vv	110	2	12	1—11—11—1		_	=	0-0				ııı	SUK	fr	_	r=
	В	w	2	12	22	10YR 5/ 4		_	_	_	Ī		1	m	sbk			
_	ъ	W	2	12	22			_	=	-	i.	10-0	10	ııı	SUK	fr		-
	СВ			22	38	10YR 4/ 4	10YR 5/4	с	2	d	1		,	m	sbk			
-	CD	_	7427	22	30			_	=		Ī	-	1	m	SUK	fr		1
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Comments:

GPS Coordinate: N: 35.98987; W: -84.31950

At 22-38" common medium and distinct 10YR 5/4 variegations Bedrock at 38"

Depth to water surface in creek: ~96" from top of bank.







Profile #: SB-43 Date of Test: 5/29/15 Soil Boring X or Test Pits X

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Kenneth Lowe CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (75 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 22"

Soil Series Identified: Fluvaquentic Eutrudepts

21121	Horiz			De			Color		ottles		Text	hire			cture		nsiste	
Ma	aster	St	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	32.300		G	S	F/T	Mois	t Wet	Cementation
-	A	_		0	10	10YR 3/ 3		_	_	2-2	sil		1	f	gr			l sa
		_	10000					_	_	7-2						fr		_
	В	w	1	10	22	10YR 4/ 4			_	3-0	sil		1	m	ebk			
100	D	**	213	10	22						311	-	1	ım	sbk	fi		12
	D.	l		22	28	10YR 4/ 6	2.5Y 5/ 2	С	2	d	sil		,					
-	В	w	2	22	20	.—	10YR 5/6	с	2	f	SII	73	1	m	sbk	fi		-
	- n			28	45	10YR 4/ 4	2.5Y 5/ 2	f	1	d	sil				sbk			
1	В	w	3	28	43		10YR 5/ 6	f	2	d	SII		1	m	SDK	fr	l _	-
	C			45	56	2.5Y 5/ 3	2.5Y 5/ 2	c	3	f	sicl				2252			53
	C	-	-	45	36	8_38_8	10YR 5/6	с	1	р	SICI	3-3	-	-	m	fr	_	-
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_	_	_				1-1-1							_	_	_			
																_	_	

Comments:

GPS Coordinate: N: 35.98207; W: -84.32604

Rock outcrops on opposite creek bank

Depth to water surface in creek: ~56" from top of bank.







Date of Test: 5/29/15 Soil Boring X or Test Pits X Profile #: SB-44

Property Owner: DOE

Project #: 3380-9014

Location: LEFPC Project: Hg TD
Site Evaluator: John Dickson w/Kenneth Lowe CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (75 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 21"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horizo			De			Color		ottles		Text	ura		Struc		Co	nsiste	nce
Ma	aster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	Text	ui c	G	S	F/T	Mois	t Wet	Cementation
	A			0	6	10YR 3/ 3		_	=	7_7	Ť		1	f	gr			
_	-11	_	1,555	Ů	Ů	.—	<u> </u>	_	=	7_3		-	-	Ĺ	81	fr	_	_
	В	w	1000	6	15	7.5YR 4/ 4			-		Ī		1	m	sbk			
1-	ь	W	1	0	15			_	_		Ţ		*	111	SUK	fi	_	100
	В	w	100	15	21	7.5YR 4/ 4		_	_	-	Ī		9	m	sbk			
-	ь	VV	2	1.5	21			_	_	22-21		-	***	m	SUK	fr		-
	D	l		21	32	7.5YR 4/ 4	2.5Y 5/ 3	f	2	d	sil		2		sbk			
-	В	w	3	21	32		10YR 5/ 6	f	2	d	SII	-		m	SUK	fr	-	-
	СВ			32	52	10YR 4/ 4	10YR 2.5/ 1	С	1	d					m			
-	CB	-	1000	32	32		10YR 5/8	c	1	p	gl	-	-	-	m	fr	_	-
							2.5Y 5/ 2	c	2	f								
	С	_		52	72	2.5Y 5/ 3	10YR 5/ 6	с	2	р	sil	_	-		m	fi		
									_							222		

Comments:

GPS Coordinate: N: 35.98190; W: -84.32745

At 15-21" loam grading to silt loam, firm in places

At 32-52" lenses of coarse sands

Depth to water surface in creek: ~72" from top of bank.







Profile #: SB-45 Date of Test: 5/29/15 Soil Boring X or Test Pits \_\_\_

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Kenneth Lowe

CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (65 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 22"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horizo			De			Color		ottles	100.00	Text	nre			cture		nsiste	
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. Ce	on.			G	S	F/T	Mois	t Wet	Cementation
250	A	-		0	7	10YR 3/ 3		_	_	7-3	Ĩ		1	f	gr			122
			100001					_	122	7-8						fr		_
	В	w	1	7	12	10YR 4/ 4		_			ī		,	m	sbk			
-	D.	, v	10	-	12			_	-	-			1	ııı	SUK	fr/fi	_	F=
	В	w	2	12	22	10YR 4/ 6		_	_	_	Ī		ı,	m	sbk			
-	ъ	**	2	12	22			_	-	200		10-0	1	1111	SUK	fr/fi	_	-
	В	w		22	40	10YR 5/ 4	2.5Y 5/3	f	2	f	1		1	m	sbk			
-	ь	w	3	22	40		10YR 5/6	c	2	d	-		-	1111	SUK	fr/fi	_	-
	СВ			40	56	10YR 5/ 6	2.5Y 5/ 2	f	2	d	sil		3	c	able			12
-	СБ	-	(See	40	30		10YR 5/8	f	2	d	SII	S-3	1	U.	sbk	fr	_	-
						10/10/00 00 10/	2.5Y 6/ 2	c	2	f								
_	С		Deep.	56	76	2.5Y 5/ 3	10YR 5/8	С	2	р	sil	_	-	_	m	fr		
									_								_	

Comments:

GPS Coordinate: N: 35.97986; W: -84.33002

At 22-56" inclusions of 10YR 4/3 variegation

Depth to water surface in creek: ~76" from top of bank.







Date of Test: 5/29/15 Profile #: SB-46 Soil Boring X or Test Pits \_\_\_

Property Owner: DOE Location: LEFPC Project #: 3380-9014 Project: Hg TD

Site Evaluator: John Dickson w/Kenneth Lowe CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (60 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 22" Soil Series Identified: Fluvaquentic Dystrudepts

M	Horiz ster		ıb	De	pth hes)	Matrix (	olor Mottles	Ab.	ottles S. C	on	Text	ure	G	Struc	ture F/T		nsiste	nce Cementation
IVI	isici	100	10	(inc	nesj	Wallix	Motifies	AU.	. D. C	on.		-	0		17.1	141012	r wer	Cementarion
	A			0	12	10YR 3/ 3		_		-	i		1	f	gr			
_			10000					_	_	2-2	-			Ĺ	5.	fr	_	-
	В	w	1	12	22	7.5YR 4/ 4			_	-	l i		1	m	sbk			
-		**	11	12	22				_			·		***	JUK	fr		1-2
	В	w	2000	22	40	10YR 4/ 4	2.5Y 5/ 2	С	2	d	sil		1	m	sbk			
-	ь	W	2	22	40		10YR 5/6	С	2	d	SII	77			SUK	fr		722
	С			40	72	2.5Y 5/ 3	2.5Y 6/1	С	2	d	sil							
1-		_	-	40	12		10YR 5/8	m	2	р	SII	0		-	m	fr/fi	_	-
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Comments:

GPS Coordinate: N: 35.97903; W: -84.33080

Below 72" very firm silty clay loam grading to clay loam

Depth to water surface in creek: ~72" from top of bank.





Date of Test: 5/29/15 Profile #: SB-47 Soil Boring X or Test Pits \_\_\_

Property Owner: DOE Location: LEFPC Project #: 3380-9014 Project: Hg TD

Site Evaluator: John Dickson w/Kenneth Lowe CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (60 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 21"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horizo			De			olor		ottles		Text	ure		Struc			nsiste	
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.			G	S	F/T	Mois	t Wet	Cementation
	A			0	12	10YR 3/ 3		_		7_7	Ť		1	f	gr			
_	73.	_	10001	U	12							_			S,	fr	_	-
	В	w	1	12	21	10YR 4/ 4				920	i		1	m	sbk			
-	D.	33	1.	12	21				_				1.	III	SUK	fr	_	1
	В	w	2000	21	37	10YR 4/ 4	2.5Y 5/3	f	2	f	1		,	m	sbk			
-	ь	W	2	21	37	.—.	10YR 6/4	С	2	f	1	-	1.0	III	SUK	fr	_	) <del></del>
	С			37	60	10YR 5/ 6	2.5Y 5/ 2	с	3	p	sil				l			
-	C	_	11	37	00		10YR 5/8	С	1	d	SII				m	fr/fi	_	-
						5_35_5 F_3												
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Comments:

GPS Coordinate: N: 35.97827; W: -84.33189

At 21-37" inclusions of few fine distinct 10YR 2/1 Mn concretions

Depth to water surface in creek: ~72" from top of bank.







Profile #: SB-48 Date of Test: 5/29/15 Soil Boring X or Test Pits

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014

Site Evaluator: John Dickson w/Kenneth Lowe CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (110 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horizo			De			Color	M	ottles		Text	nra		Struc		Cor	nsiste	nce
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	Text	ure	G	S	F/T	Mois	t Wet	Cementation
	A			0	10	10YR 4/ 3			=	-	ĩ		1	f	gr			
_		_	10000		5.52			_		7-3	-				0.	fr	_	
	В	w	1	10	24	10YR 4/ 4		_	=	-	sil		1.	m	sbk			
-		3.5	1	10	50			_	_	-	311		-	***	JOK	fr/fi	_	-
	ъ	l	20.00	24	32	7.5YR 4/ 4	2.5Y 5/3	f	1	f	-21		-		sbk			
_	В	W	2	24	32	.—	10YR 5/ 6	f	1	d	sil	10-0	1	m	SOK	fi	_	-
	D	l		32	48	7.5YR 4/ 6	2.5Y 5/ 2	f	1	р	sicl		,		sbk			
-	В	W	3	32	40		10YR 5/8	c	2	d	SICI	-	1	m	SOK	fr/fi	_	-
	С			48	74	7.5YR 4/ 4	2.5Y 5/ 2	c	2	d	sicl							
-	C	_	-	40	74		10YR 5/8	c	2	p	SICI		-	-	m	fi	_	-
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Comments:

GPS Coordinate: N: 35.97793; W: -84.33270

The entire soil profile appears to be firm throughout

Depth to water surface in creek: ~74" from top of bank.







Soil Boring X or Test Pits Profile #: SB-49 Date of Test: 6/1/15

Property Owner: DOE Location: LEFPC Project #: 3380-9014 CPSS License #: 36208 Project: Hg TD Site Evaluator: John Dickson w/Jennifer Earles

Slope: 0-1% Relief: Floodplain
Estimated Permeability (minutes/inch): (120 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"
Soil Series Identified: Fluvaquentic Eutrudepts

	Horizo	n		De	pth		olor	M	ottles		Text	1180		Strue		Con	nsiste	nce
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1 6 1	ure	G	S	F/T	Mois	t Wet	Cementation
	A			0	12	10YR 3/ 3		_	=	7_7	ř		1	f	gr			
_	2,1	_	1,000		12		<u></u>		=	-	,	_		Ĺ	51	fr		-
	В	w	1	12	24	10YR 4/ 4		_	_	-	sil		1	m	chle			
-	Б	W	1	12	24			_	_	-	511		1	111	sbk	fr	_	1
	В	w	2000	24	36	10YR 4/ 4	2.5Y 5/ 2	c	1	d	sil		,	m	able			
-	ь	W	2	24	30		10YR 5/8	c	1	d	SII		1	111	sbk	fr		-
	BC			36	54	2.5Y 5/ 4	2.5Y 5/ 2	с	2	d	sicl		1	m	sbk	********		
-	ьс	_		30	34		10YR 5/8	с	2	р	Sici		1	111	SUK	fr/fi	_	-
	С	-		54	62	2.5Y 5/ 2	10YR 5/8	c	2	p	cl/c				m			
-	C	g	1000	34	62				_	_	CI/C		-	-	m	fi	_	-
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Comments:

GPS Coordinate: N: 35.97694; W: -84.33470

At 24-36" inclusions of silty clay loam At 54-62" very firm gleyed clay

Depth to water surface in creek: ~62" from top of bank.







Soil Boring X or Test Pits Profile #: SB-50 Date of Test: 6/1/15

Property Owner: DOE Location: LEFPC Location: LEFPC Project: Hg TD Site Evaluator: John Dickson w/Jennifer Earles Project #: 3380-9014 CPSS License #: 36208

Slope: 0-1% Relief: Floodplain
Estimated Permeability (minutes/inch): (45 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 20" Soil Series Identified: Fluvaquentic Eutrudepts

	Horize			De			Color		ottles		Text	ure		Stru			nsiste	
Ma	aster	St	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	TOAL	uic	G	S	F/T	Mois	t Wet	Cementation
	A			0	12	10YR 3/ 3		_		-	ì		1	f	gr			
_			1,000	Ü	12			_		7-0		_	*		51	fr	_	2
	В	w	1	12	20	10YR 4/ 4			-	-	ı		1	m	sbk			
-		**	11:	12	20			_	-	-	*		8		SUK	fr	_	1
	В	w	22.00	20	34	10YR 4/ 4	2.5Y 5/ 2	f	1	d	-21		-	m	sbk			
-	ь	, v	2	20	34		10YR 5/ 6	f	1	d	sil	-	250	1111	SUK	fr		-
	ВС			34	45	10YR 2/ 2	2.5Y 5/ 2	c	1	f	sil		,	I	sbk			
-	ъс	-	7-21	34	43	10YR 4/ 4	10YR 5/6	c	1	d	SII	-	*	m	SUK	fr	_	-
	C	- 0		45	54	2.5Y 5/ 2	10YR 5/8	c	1	d	l/sil							
:	C	g	-	45	34			_	_	-	1/811	-	-	-	m	fr	_	-
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Comments:

GPS Coordinate: N: 35.97560; W: -84.33669

Depth to water surface in creek: ~54" from top of bank.







Profile #: SB-51 Date of Test: 6/1/15 Soil Boring X or Test Pits \_\_\_

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014 Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208 Relief: Floodplain Slope: 0-1%

Estimated Permeability (minutes/inch): (75 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 18" Soil Series Identified: Fluvaquentic Dystrudepts

	Horizo			De			olor		ottles		Text	ure			cture		nsiste	
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	10.00		G	S	F/T	Mois	t Wet	Cementation
	A			0	5	10YR 3/ 3		_=	_	-	ĩ		1	f	gr			
-	**		1,000	Ü				_	<u></u>	-		-		_	5.	fr	_	-
	В	w	1	5	18	10YR 4/ 3		_	_		sil		1	m	sbk			
-			11:		10			_	_		511	-	*	***	JOK	fr/fi	_	
	В	w	****	18	22	10YR 4/ 6	2.5Y 5/ 2	f	1	р	sil		1.		sbk			
-	ь	w	2	10	22		10YR 5/8	f	1	d	SII		*	m	SUK	fr/fi	_	-
	D.			22	36	10YR 4/ 4	2.5Y 5/ 2	c	1	d	sil				.1.1.			
-	В	w	3	22	36		10YR 5/8	с	1	d	SII	-	1	m	sbk	fr		-
	C			36	50	2.5Y 5/ 3	2.5Y 5/ 1	m	2	d	sicl							
-	C	-	1220	36	30		10YR 5/8	m	2	р	SICI	3-3		-	m	fr	_	-
								_	-									
_	_	_						_	_	_			-					_
								_	_	_						_		

Comments:

GPS Coordinate: N: 35.97334; W: -84.33720

At 36-50" inclusions of lenses of gravels, ~2% of C horizon

At 50" very firm clay

Site Evaluator's Signature:\_

Depth to water surface in creek: ~50" from top of bank.





Profile #: SB-52 Date of Test: 6/1/15 Soil Boring X or Test Pits

Property Owner: DOE Location: LEFPC Project #: 3380-9014 Project: Hg TD CPSS License #: 36208 Site Evaluator: John Dickson w/Jennifer Earles Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (45 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 20"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horiz			De			Color		ottles		Tex	fure			cture		nsiste	
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	Con.	1.0.1		G	S	F/T	Mois	t Wet	Cementation
	A			0	5	10YR 3/ 3		_	_	-	ī		1.	f	gr			
			10.000						-	2.00		-	8		δ.	fr	_	-
	В	w		5	20	10YR 4/ 4		_	=	-	sil		4	m	sbk			
_	ь	\ W	1	,	20			_	_	-	SII	_	1	""	SUK	fr	_	-
				20	50	10YR 4/ 4	2.5Y 5/ 3	С	1	f	- 4		9		- 11			
-	В	w	2	20	30	1-11-11	10YR 5/ 6	f	2	d	sil	10	1	m	sbk	fr		-
	_					10YR 4/ 4	2.5Y 5/ 3	с	1	f					1			
-	В	w	3	50	56		10YR 5/ 6	с	1	d	1	0-0	1	С	m	fr	_	-
	100					2.5Y 4/ 4	2.5Y 5/ 2	c	2	d					2000			
-	C	-	-	56	60		10YR 5/8	c	2	р	1 1	0-0	-	-	m	fr	_	:
											1							
-		-							T-	1	1	10-10	-	-	-	_	_	100

Comments:

GPS Coordinate: N: 35.97129; W: -84.33987

At 20-56" inclusions of 10YR 2/1 Mn concretions

Depth to water surface in creek: ~60" from top of bank.





Profile #: SB-53 Date of Test: 6/1/15 Soil Boring X or Test Pits \_\_\_

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014 Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Relief: Floodplain Slope: 0-1%

Estimated Permeability (minutes/inch): (95 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horiz			De			Color	M	ottles		Text	uro			cture	Cor	nsiste	nce
Ma	aster	St	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1 ext	ure	G	S	F/T	Mois	t Wet	Cementation
	A			0	12	10YR 3/ 3		_	_	-	i		1	f	gr	fr		
			1,57,21					_		7-2						II	_	
	В	w		12	24	10YR 4/ 6			-	000	sil		2	m	sbk			
1	D	.vv	155	12	24				-	-	311		2	m	SUK	fr/fi		1
	BC			24	48	10YR 4/ 4	2.5Y 5/ 2	С	1	d	sicl		,	c	sbk			
-	ьс	_	1021	24	40		10YR 5/8	С	1	d	Sici	-	1.0		SUK	fr/fi		-
	С			48	62	2.5Y 4/ 4	2.5Y 5/ 1	m	3	p	sicl				l			
1—	C	_	1221	40	02		10YR 5/8	С	1	p	SICI				m	fr/fi	_	-
						R_305_6 N_30			_	-								
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Comments:

GPS Coordinate: N: 35.97162; W: -84.34135

Depth to water surface in creek: ~62" from top of bank.







Profile #: SB-54 Date of Test: 6/1/15 Soil Boring X or Test Pits X

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014 Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Relief: Floodplain Slope: 0-1%

Estimated Permeability (minutes/inch): (60 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horiz			De			Color		ottles		Text	ure			cture		nsiste	
Ma	aster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1.041		G	S	F/T	Mois	t Wet	Cementation
	A	_		0	8	10YR 3/ 3		_	_	7-2	i		1	f	gr			
-	(0.00)	_	10001	1000				_		7-2			-0.	_	-	fr	_	_
	В	w	Neo	8	16	10YR 4/ 4			_	920	1/si1		1	m	ne			
1	ь	W	1	0	10			_	_	0_0	1/811	-	4	m	pr	fi	_	1
	В	w	2000	16	24	10YR 4/ 6			_	20-21	1		, i	m	sbk			
-	ь	W	2	10	24			_	_	-	1	-	10	m	SUK	fr/fi		P==
	В	l		24	48	10YR 4/ 4	2.5Y 5/ 2	f	1	d	sil		٦.		sbk			
-	ь	w	3	24	40		10YR 5/8	f	1	p	SH		1	С	SOK	fr	_	-
	C	15		48	72	2.5Y 5/ 2	10YR 5/8	m	2	p	sil							
-		g	-	40	12	1_71_			I _		SH			-0	m	fr	_	-
	,								_									
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Comments:

GPS Coordinate: N: 35.96987; W: -84.34129

Depth to water surface in creek: ~72" from top of bank.







Date of Test: 6/3/15

Soil Boring X or Test Pits

Property Owner: DOE

Profile #: SB-55

Location: LEFPC Project: Hg TD Site Evaluator: John Dickson w/Jennifer Earles Project #: 3380-9014 CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (60 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 20"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horizo			De			Color		ottles		Text	ure		Strue			nsiste	
Ma	ster	St	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	Tea	ure	G	S	F/T	Mois	t Wet	Cementation
	A			0	8	10YR 3/ 2		_		1-	l i		١,	f	gr			
_	73	_	10001	U	Ů					7_7		_	*:		S,	fr	_	-
	В	w	1	8	20	10YR 4/ 4	<u> </u>	_	_		sil		ı,	m	sbk			
	2	(5.6)	7316		20				-	-	SIL	_	*	***	JOK	fr/fi	_	2
	В	w	2000	20	28	10YR 4/ 6	2.5Y 5/ 2	f	1	p	sil		, i	m	sbk			
-	ь	W	2	20	20		10YR 5/8	f	1	f	SII	-	Ţ	III	SUK	fr/fi		-
	СВ			28	52	10YR 4/ 4	2.5Y 5/ 2	С	2	d	-1				l			
-	СБ	_	1944	20	32		10YR 6/8	С	2	p	gl				m	fr	_	-
	С	15		52	62	2.5Y 5/ 2	10YR 5/8	c	2	p	-1				m			
×	C	g	1000	32	02				_		gl	::::::::::::::::::::::::::::::::::::	=3	-	1111	fr	_	-
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Comments:

GPS Coordinate: N: 35.96993; W: -84.34292

At 28-52" many coarse gravels (pebbles) comprising ~50% of horizons

At 52-62" lenses of gravels

Site Evaluator's Signature:\_

Depth to water surface in creek: ~62" from top of bank.





Profile #: SB-56 Soil Boring X or Test Pits \_\_\_ Date of Test: 6/3/15

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014 Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Relief: Floodplain Slope: 0-1%

Estimated Permeability (minutes/inch): (65 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 20"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horiz			De			Color		ottles		Text	ure			cture		nsiste	
Ma	aster	St	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	Text	ui c	G	S	F/T	Mois	t Wet	Cementation
_	A			0	6	10YR 3/ 3		_	_	72	i		1	f	gr			
	3000	_	1000					_	=	7_7	***		0.00		Ŭ	fr	_	_
	В	w	1	6	20	10YR 4/ 4		_	_	00	i		1	m	sbk			
ļ	ь		1	U	20				22		*	-	18	ш	SUK	fr	_	120
	ъ	l	2000	20	30	10YR 4/ 4	2.5Y 5/3	f	1	f	sil		-		sbk			
-	В	w	2	20	30		10YR 6/ 6	f	1	d	SII	_	***	m	SOK	fr	_	1-
	D	Ī		30	46	2.5Y 4/ 4	2.5Y 5/ 3	f	2	d	sicl				.1.1.			
>	В	w	3	30	46		10YR 6/ 6	f	2	р	Sici		1	m	sbk	fr	_	-
	C	85		46	62	2.5Y 5/ 2	10YR 6/8	m	2	р	sil				22327			
-		g	-	46	62	8_86_6 F_8			_		SH	::	-	-	m	fr	_	-
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	_	_							_					_		l		_
																_	_	

Comments:

GPS Coordinate: N: 35.96962; W: -84.34557

Below 62" firm gleyed clay layer

Site Evaluator's Signature:\_

Depth to water surface in creek: ~62" from top of bank.





Profile #: SB-57 Date of Test: 6/3/15 Soil Boring X or Test Pits \_\_\_\_

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014
Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208
Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (110 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 20"

Soil Series Identified: Fluvaquentic Dystrudepts

Ma	Horiz ster		ıb		pth hes)	Matrix	Color Mottles	M Ab.	ottles S. C	on.	Text	ure	G	Stru S	cture F/T		nsiste t Wet	nce Cementation
-	A			0	6	10YR 3/ 3		_		-	ī		1	f	gr	fr		
		_	1,1			(—):—):—):		_	_	22					Ŭ	ir	_	_
	В	w	1	6	20	10YR 4/ 4		_	920	-	sil		1	m	pr			
			10	"	20	s <del>-22-4</del> 0-0				0_0	311	-	*	1	Pi	fr/fi	_	-
	D.			20	32	10YR 4/ 6	2.5Y 5/ 2	f	1	р	-97		9					
_	В	w	2	20	32	1-0-1	10YR 5/8	f	1	d	sil		***	m	sbk	fr	_	-
	D.G				58	10YR 4/ 4	2.5Y 5/ 2	f	1	d					١			
-	BC	-	-	32	58		10YR 5/ 8	f	1	р	sicl		1	m	sbk	fr	_	-
	100	45				2.5Y 5/ 2	10YR 6/8	с	2	р					10000			
-	C	g	(See	58	62			1_	1_		cl		-	-	m	fi	_	-
											1				1			
=	_					7 <del>-73-4</del> 5-5			T -	-		10-11		-	0 0	-	_	-

Comments:

GPS Coordinate: N: 35.97066; W: -84.34676

At 12-20" inclusion of gravels/pebbles comprising ~5-15% of horizon in places

At 32-58" inclusion of 10YR 2/1 Mn concretions

Depth to water surface in creek: ~62" from top of bank.







Soil Boring X or Test Pits \_\_\_ Profile #: SB-58 Date of Test: 6/3/15

Property Owner: DOE Location: LEFPC Project #: 3380-9014 Project: Hg TD Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (60 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 22"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horiz			De			Color		ottles		Text	hira			cture		nsiste	
M	aster	Si	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	ICA	uire	G	S	F/T	Mois	t Wet	Cementation
	A	l		0	7	10YR 3/ 3			122	2	ī		1	f	gr			
			10000					_	120	2.00				Ĺ	٠.	fr	_	_
	В	I		7	22	7.5YR 4/ 6		_	_		sil		2		.1.1.			
-	ь	w	1	1	22						SH	-	2	m	sbk	fr	_	-
	n			22	36	10YR 4/ 4	2.5Y 5/ 3	f	1	f			ų.		١.,			
_	В	w	2	22	36	1-0-1-1	10YR 5/ 6	f	1	d	sil	77—7	1	m	sbk	fr/fi	_	-
				26	60	2.5Y 4/ 4	2.5Y 6/ 2	С	2	d								
-	С	_	1000	36	60		10YR 5/6	c	1	d	sil	2-0	-	-	m	fr	_,	-
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												50			10 10	-	_	51025

Comments:

GPS Coordinate: N: 35.97077; W: -84.34891

At 22-36" inclusions of SiL+, and SiCL in places

Below 60" firm, gleyed clay horizon

Depth to water surface in creek: ~60" from top of bank.





Soil Boring X or Test Pits \_\_\_ Profile #: SB-59 Date of Test: 6/3/15

Property Owner: DOE Location: LEFPC Project #: 3380-9014 Project: Hg TD Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208 Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (60 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 28"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horiz			De			Color	M	ottles		Text	hico			cture	Cor	nsiste	nce
M	aster	St	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1 CA	ure	G	S	F/T	Mois	t Wet	Cementation
	A			0	9	10YR 3/ 3		_		2-2	sil		1	f	gr			
_	*******		100001					_	ω.	7-2			-			fr	_	_
	В	w	100	9	28	7.5YR 4/ 6		_	-	_	sil		1	с	sbk		l	
-		(55)	1318	<b>*</b>	20					-	SIL	_	*	300	JOK	fr/fi	_	-
	D	w	2000	28	50	7.5YR 4/ 6	2.5Y 6/ 1	С	3	p	sil		1	c	sbk			
-	В	VV	2	20	30		7.5YR 5/8	С	1	d	SII		1		SUK	fr/fi		-
2	С			50	60	7.5YR 4/ 4	2.5Y 6/1	С	1	d	ls				l			
- 2	C	_	1	30	60		7.5YR 5/8	С	1	p	IS	-	-		m	fr/fi	_	-
3	C			60	96	7.5YR 4/ 4	2.5Y 5/ 2	c	2	d	sil				m			
3		_	2	60	96		10YR 4/6	c	2	d	SH	-	-		m	fr	_	-
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_	_	_											_	_				_
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Comments:

GPS Coordinate: N: 35.97025; W: -84.35024

At 50-60" lenses of gravels Below 96" firm/brittle gleyed clay layer

Depth to water surface in creek: ~96" from top of bank.







Soil Boring X or Test Pits \_\_\_ Profile #: SB-60 Date of Test: 6/3/15

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014 Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Relief: Floodplain Slope: 0-1%

Estimated Permeability (minutes/inch): (65 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horiz				pth		olor	M	ottles		Text	uro		Stru	cture	Cor	nsiste	ence
M	aster	Si	ıb	(inc	ches)	Matrix	Mottles	Ab.	S. C	on.	Text	uic	G	S	F/T	Mois	t Wet	Cementation
	A			0	6	10YR 3/ 3		_	_	725	sil	72 <u>—</u> 3	1	f	gr	fr		-
-		-	100000	_	_			_	-	-		_		_			_	
	В	w	1	6	24	7.5YR 4/ 4			-	0_0	sil		1	m	sbk			
-	2	(8.0)	313	Ů	22						311		***	***	JOK	fr		120
	- D			24	42	10YR 4/ 4	2.5Y 5/ 2	f	2	d	sil				1,1			
-	В	w	2	24	42		10YR 5/ 6	f	2	d	SII	77	1	m	sbk	fr	_	12
	С			42	52	2.5Y 5/ 3	2.5Y 5/ 2	m	2	f	sicl							
1			7227	42	32		10YR 5/8	с	1	р	Sici		-	-	m	fr	l _	-
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Comments:

GPS Coordinate: N: 35.96901; W: -84.35249

Below 52" firm gleyed clay horizon

Depth to water surface in creek: ~52" from top of bank.





Date of Test: 6/3/15 Soil Boring X or Test Pits Profile #: SB-61

Property Owner: DOE Location: LEFPC Project #: 3380-9014 Project: Hg TD Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Slope: 0-1% Relief: Floodplain
Estimated Permeability (minutes/inch): (60 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 22"

Soil Series Identified: Fluvaquentic Eutrudepts

500000	Horiz		91	De	pth		Color		ottles		Text	hire	1991		cture		nsiste	
M	aster	S	ub	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	2 011		G	S	F/T	Mois	t Wet	Cementation
_	A	_	-	0	7	10YR 4/ 4		-	-	-	sil	_	1	f	gr	fr		=
	1	+		1				+	-	-		_		-	+	388	_	
	В	w	1	7	22	7.5YR 4/ 4			-	-	sil		1	m	sbk	fi		
5-3			Ĺ					_	-			6				11	-	50
	В			22	38	10YR 4/ 4	2.5Y 5/ 2	f	1	d	sil				-1.1.			
_	В	W	2	22	38		10YR 5/ 8	f	1	р	SH	-	1	m	sbk	fi	_	-
	BC			38	58	10YR 4/ 3	2.5Y 5/ 2	f	2	f	sil		i	l	sbk			
-	ВС	::	-	30	٥٥		10YR 5/ 8	f	2	p	SII	-	1	m	SUK	fi	_	-
	С	100		58	62	2.5Y 5/ 1	10YR 5/ 8	с	2	р					m			
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Comments:

Site Evaluator's Signature:\_

GPS Coordinate: N: 35.96820; W: -84.35178

Depth to water surface in creek: ~62" from top of bank.





Soil Boring X or Test Pits \_\_\_ Profile #: SB-62 Date of Test: 6/3/15

Property Owner: DOE Location: LEFPC Project #: 3380-9014 Project: Hg TD Site Evaluator: John Dickson w/Jennifer Earles
Slope: 0-1% Relief: Floodplain CPSS License #: 36208

Estimated Permeability (minutes/inch): (45 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horizo			De			Color		ottles		Text	ure			cture		nsiste	
Ma	aster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.			G	S	F/T	Mois	t Wet	Cementation
	A			0	10	10YR 3/ 3		_		7	ī		1	f	gr			120
_	38,3000	_	10000	30000				_		7-7		_			ľ	fr	_	_
	В	w	1	10	24	10YR 4/ 6	<u> </u>	_	_	-	ī		ı,	m	sbk			
-	ь	355	10	10	24			_	_	-			Ţ	111	SUK	vfr	_	=
	В	w	869	24	40	10YR 4/ 4	2.5Y 5/ 2	f	3	d	sil		q	m	sbk			
-	ь	VV	2	24	40		10YR 5/ 6	f	2	d	SII	75	*	m	SUK	fr	_	-
	В	w		40	56	10YR 4/ 4	2.5Y 5/ 2	с	1	d	1		1	m	sbk			
-	ь	W	3	40	30		10YR 5/6	с	1	d	ė.	-	+	m	SUK	vfr	_	-
	ВС			56	96	10YR 4/ 3	2.5Y 5/ 2	m	2	f	sil		,	c	alala			
-	ьс	-	F	36	96		10YR 5/6	c	2	p	SII	-	1	C.	sbk	fr		-
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Comments:

GPS Coordinate: N: 35.96772; W: -84.35081

Site Evaluator's Signature:\_

Depth to water surface in creek: ~96" from top of bank.





Soil Boring X or Test Pits \_\_\_ Profile #: SB-63 Date of Test: 6/5/15

Property Owner: DOE Location: LEFPC Project #: 3380-9014 Project: Hg TD Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208 Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (65 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horiz			De	pth		Color		ottles	•10000	Tex	ture			cture		nsiste	
M	aster	Si	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1.000.000.000	-	G	S	F/T	Moss	t Wet	Cementation
	A	-		0	6	10YR 3/ 3		_	-	-	ī		1	f	gr			
_	18,50	_	1000		-				122	7		_		-		fr	_	-
	AB			6	24	10YR 4/ 3			_	0				m	sbk			
_	Ab	_	2770	0	24	10YR 4/ 4				0	1	-	1	""	SUK	fr/fi	_	-
	_				50	10YR 3/ 2	2.5Y 6/ 2	c	2	f			-		l			
-	В	W	1	24	50	1-0-0	10YR 5/8	c	2	р	sil	-	1	С	sbk	fr/fi	_	-
					74	10YR 3/ 2	2.5Y 5/ 2	m	2	f	sil				١.,			
-	В	w	2	50	/4		10YR 5/ 6	c	2	р	SII	-	1	c	sbk	fr	_	-
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Comments:

GPS Coordinate: N: 35.96635; W: -84.35150

Site Evaluator's Signature:\_\_

Depth to water surface in creek: ~74" from top of bank.





Date of Test: 6/5/15 Soil Boring X or Test Pits \_\_\_\_ Profile #: SB-64

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014 Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Slope: 0-1% Relief: Floodplain
Estimated Permeability (minutes/inch): ( 110 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horize			De			Color		ottles		Text	ure			cture		nsiste	
Ma	aster	Si	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	Text	.urc	G	S	F/T	Mois	t Wet	Cementation
	A			0	12	10YR 3/ 3		_			sil		1	f	gr	•		
_			10001					_	_	2-2						fr	_	_
	В	w	500	12	24	10YR 4/ 4		_	-	0_0	sil		1	m	sbk			
-	D	355	:1:	12	24				-		311	3—1	3	ш	SUK	fr	Ī	12
	В	w	23.00	24	42	10YR 4/ 3	2.5Y 5/ 2	f	1	f	sil		1.	m	sbk			
-	ь	, v	2	24	42	10YR 4/ 4	10YR 5/8	f	1	р	SII		-	ш	SUK	fr	_	1900
	BC			42	54	10YR 4/ 6	2.5Y 5/ 2	С	1	p	sicl		1		sbk			
-	ьс	_		42	34		10YR 5/8	c	1	d	sici	-	1	m	SOK	fr	_	-
	С			54	60	10YR 5/ 6	2.5Y 5/ 2	m	3	p	cl				m			
-		_	1000	34	60		10YR 5/8	c	1	d	CI		-	-	III	fr/fi	_	-
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Comments:

GPS Coordinate: N: 35.96577; W: -84.35435

Site Evaluator's Signature:\_

Depth to water surface in creek: ~60" from top of bank.





Soil Boring X or Test Pits \_\_\_ Profile #: SB-65 Date of Test: 6/5/15

Property Owner: DOE Location: LEFPC Location: LEFPC Project: Hg TD Site Evaluator: John Dickson w/Jennifer Earles Project #: 3380-9014 CPSS License #: 36208

Slope: 0-1% Relief: Floodplain
Estimated Permeability (minutes/inch): (110 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 20"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horiz			De	pth		Color		ottles		Text	nre			cture		nsiste	
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.			G	S	F/T	Mois	t Wet	Cementation
	A			0	7	10YR 3/ 2		_	=	7.5	ī		1	f	gr			
	10,200		10001	50000	16.			_		7_3		-	1000			fr		
	В	w	1	7	20	10YR 4/ 4			-	0-0	sil		1	m	sbk			
-	2	**	113	2	20			_	-	0	SII	SS		***	JOK	fr	Ĭ	100
	В	l		20	36	10YR 4/ 4	2.5Y 5/ 2	c	2	d	sicl		1.		sbk			
-	В	w	2	20	36		10YR 5/8	c	1	р	SICI	-	*	m	SDK	fr		-
	С			36	66	10YR 5/ 4	2.5Y 5/ 2	С	3	d	cl							
>	C	-	( <del></del>	36	00		10YR 5/8	с	2	р	Ci	-	-	-	m	fr/fi	ĺ	-
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Comments:

GPS Coordinate: N: 35.96619; W: -84.35594

Depth to water surface in creek: >66" from top of bank.







Profile #: SB-66 Date of Test: 6/5/15 Soil Boring X or Test Pits

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014 Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (>120 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 12"

Soil Series Identified: Fluvaquentic Dystrudepts

	Horizo			De			olor		ottles		Text	ure			cture		nsiste	
Ma	ster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1.4.1.		G	S	F/T	Mois	t Wet	Cementation
	A			0	8	10YR 4/ 3		_	=	2-8	sil		1	f	sbk	fr		100
			1,000						=	2_3						II	-	
	В	w	19	8	12	10YR 4/ 4		_	=	0_0	sicl		1	m	sbk			
-	-	10.00		100.0		2-2/3-0 (2-2)		_	-	000	2552	-				fr	_	-
	В	w	0.000	12	27	2.5Y 5/ 4	2.5Y 5/ 2	С	2	d	sicl		1	С	sbk			
-	ъ	w	2	12	27		10YR 5/8	m	2	p	SICI	77—7	8		SUK	fr/fi	ľ	-
	вс			27	48	2.5Y 5/ 3	2.5Y 5/ 2	С	2	d	cl		7	c	sbk	NOVC3		
-	ъс	_	2000	21	40	10YR 4/ 4	10YR 5/8	c	2	p	CI	-			SUK	fr	ſ	-
	С			48	52	10YR 4/ 2	10YR 5/8	С	2	p	c				m			
-	C	-		40	32			_	-			-	ï	-	ш	fi	1	-
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Comments:

GPS Coordinate: N: 35.96609; W: -84.35918

At 45-48" lenses of coarse sand (LS)

Depth to water surface in creek: ~52" from top of bank.







Soil Boring X or Test Pits \_\_\_ Profile #: SB-67 Date of Test: 6/5/15

Property Owner: DOE Location: LEFPC Project: Hg TD Project #: 3380-9014 Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208

Slope: 0-1% Relief: Floodplain
Estimated Permeability (minutes/inch): (45 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 20"

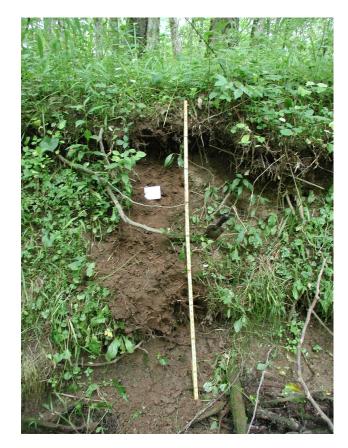
Soil Series Identified: Fluvaquentic Eutrudepts

	Horiz			De			Color		ottles		Text	ure			cture		nsiste	
Ma	aster	Sı	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	100		G	S	F/T	Mois	t Wet	Cementation
	A			0	10	10YR 3/ 3		_		7	sil		1	f	gr			
_	***	_	1,000	Ü	10			_	_	7	SII.	-		_	5,	fr	_	_
	В	w	100	10	20	10YR 4/ 6		_	_	00	sil		1	m	sbk			
-	D	**	1	10	20			_		-	311	3_1	*	ш	SUK	fr	_	1
	В	l		20	36	10YR 4/ 4	2.5Y 5/ 2	f	1	d	1		9		sbk			
-	ь	w	2	20	30	.—	10YR 5/ 6	f	1	d	1	70-0	***	m	SUK	fr	_	-
				36	54	2.5Y 5/ 3	2.5Y 5/ 2	С	1	f					I			
-	C	-	1000	36	34		10YR 5/ 6	С	1	р	1 '		-	-	m	fr	_	-
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Comments:

GPS Coordinate: N: 35.96331; W: -84.35963

Depth to water surface in creek: ~54" from top of bank.





Soil	Profi	le
N	Votes	

Soil Boring X or Test Pits \_\_\_ Profile #: SB-68 Date of Test: 6/5/15

Property Owner: DOE Location: LEFPC Project #: 3380-9014 CPSS License #: 36208 Project: Hg TD Site Evaluator: John Dickson w/Jennifer Earles

Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (45 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 24" Soil Series Identified: Fluvaquentic Eutrudepts

	Horizon			De		Color		Mottles		Texture		Structure		Consistence							
Ma	ster	St	ıb	(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	1 6 % 1	ure	G	S	F/T	Mois	t Wet	Cementation			
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Comments:

GPS Coordinate: N: 35.96196; W: -84.35997

Site Evaluator's Signature:\_\_\_

Depth to water surface in creek: ~60" from top of bank.





Profile #: SB-69 Date of Test: 6/5/15 Soil Boring X or Test Pits \_\_\_\_

Property Owner: DOE

Location: LEFPC Project: Hg TD Project #: 3380-9014
Site Evaluator: John Dickson w/Jennifer Earles CPSS License #: 36208
Slope: 0-1% Relief: Floodplain

Estimated Permeability (minutes/inch): (45 mpi for design purposes)

Depth to Limiting Zone (inches below existing ground surface to redoximorphic features): 22"

Soil Series Identified: Fluvaquentic Eutrudepts

	Horizon Dej				Color			Mottles			Texture		Structure			Consistence							
Ma	Master Sub		(inc	hes)	Matrix	Mottles	Ab.	S. C	on.	IVA		G	S	F/T	Mois	t Wet	Cementation						
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	_ B w	w	1	12	22	10YR 4/ 6		_	=	0_0	sil _		1	m	sbk								
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Comments:

GPS Coordinate: N: 35.96228; W: -84.36070

Site Evaluator's Signature:\_

Depth to water surface in creek: ~62" from top of bank.





# APPENDIX C. BULK DENSITY SUMMARY TABLE

Table C.1. Bulk density summary table for soil mapping locations along lower East Fork Poplar Creek

Soil Map ID	Bulk Density (g/cm³)
SB-1	0.984
SB-5	0.751
SB-7	1.329
SB-8	1.000
SB-10	1.321
SB-14	1.007
SB-15	1.467
SB-19	1.280
SB-23	0.914
SB-24	1.493
SB-28	1.315
SB-32	1.038
SB-35	1.116
SB-38	1.305
SB-43	1.259
SB-45	1.310
SB-58	1.391
SB-61	1.379
SB-62	1.223
SB-63	1.277
SB-67	1.386