Direct Push Technology (DPT)
Bore Logs From The
Georgia Pacific/New York State Canal Corporation Site

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Borehole Record for GBGP01

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

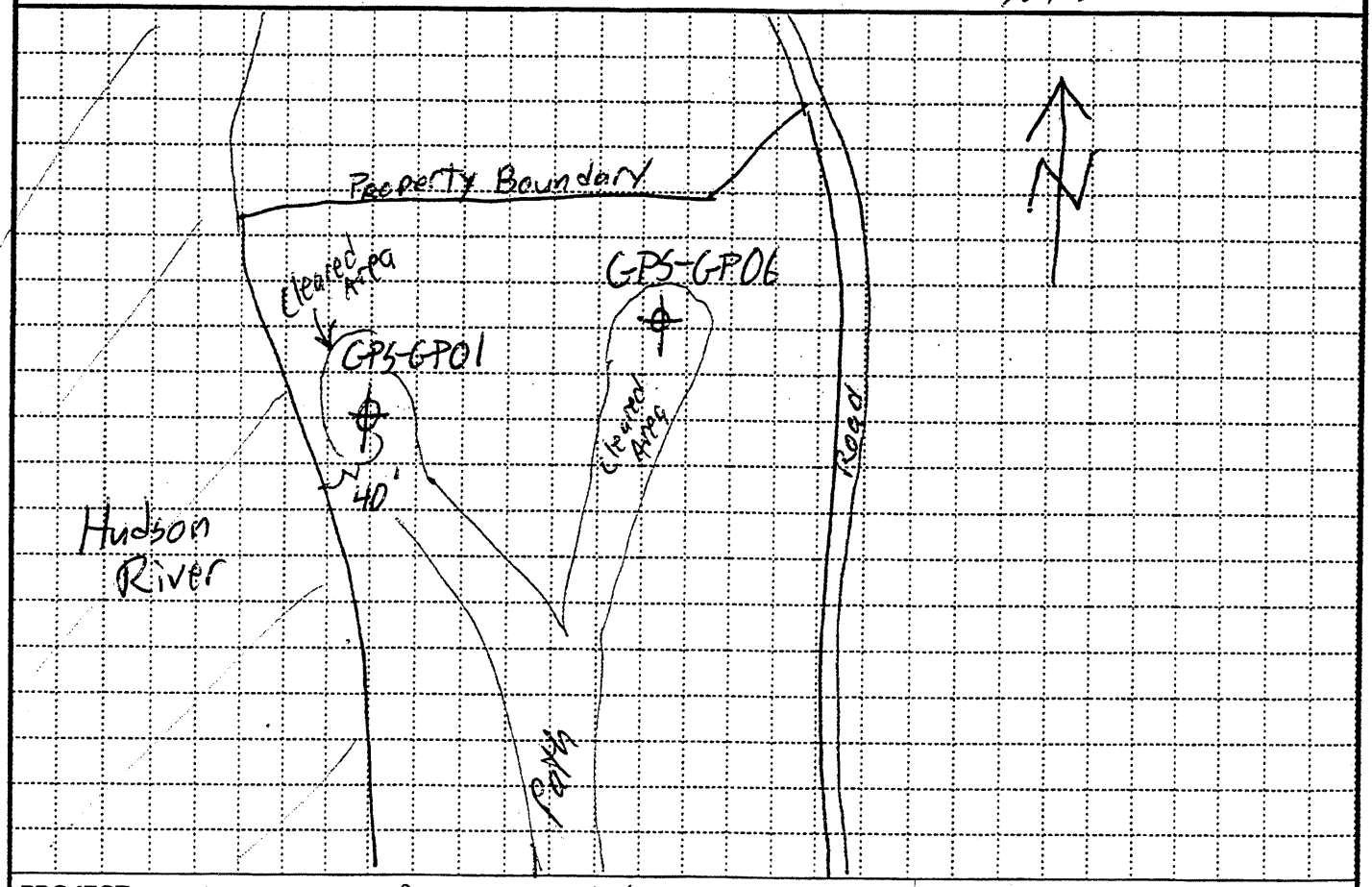
31 AUG 94

HTRW DRILLING LOG

District: Kansas City		Hole Number: GP-GP01
1. Company Name: Ecology & Environment Inc.	2. Drill Subcontractor: Northstar/Geologic Inc.	Sheet 1 of Sheets 8
3. Project: Hudson Superfund Facility Siting	4. Location: Greenwich, NY	
5. Name of Driller: Jud Powell	6. Manufacturer's Designation of Drill: Geoprobe 5400	
7. Sizes and Types of Drilling and Sampling Equipment: 1.75" O.D. Macro core Geoprobe rods with acetate sleeves and discreet soil sampling system	8. Hole Location: North end of site, 40' East of Hudson River	
	9. Surface Elevation	
	10. Date Started: 10-9-03	11. Date Completed: 10-9-03
12. Overburden Thickness: 24.9'	15. Depth Groundwater Encountered: 6.6' BGS	
13. Depth Drilled Into Rock: ~~NA BGS~~ 0.1'	16. Depth to Water and Elapsed Time After Drilling Completed: 6.65' BGS @ 12 minutes	
14. Total Depth of Hole: 25'	17. Other Water Level Managements (Specify)	

18. Geological Samples: NA	Disturbed: —		Undisturbed: —			19. Total Number of Core Boxes: NA	
20. Samples For Chemical Analysis	VOC: ✓	Metals: ✓	Other (Specify): SVOC	Other (Specify): Pest/PCB	Other (Specify): CN	21. Total Core Recovery: NA%	
21. Disposition of Hole	Backfilled	Monitoring Well: Temporary	Other (Specify)	23. Signature of Inspector: Robert A Mayer			

LOCATION SKETCH/COMMENTS SCALE: NTS



PROJECT: Hudson Superfund Facility Siting	HOLE NO.: GP-GP01

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

Lock Number unnumbered Master Lock

SCREENED WELL

Stick-up 3.15 ft

Top of Grout NA ft

Top of Seal at 2 ft

Top of Sand Pack 4 ft

Top of Screen at 15 ft

Bottom of Screen at 25 ft

Bottom of Hole at 25 ft

Bottom of Sandpack at 25'

Inner Casing Material NA

Inner Casing Inside Diameter NA inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole Diameter 1.75' inches

Cement/ Bentonite _____

Grout _____

Screen Slot Size .010"

Screen Type slotted

☒ PVC Sch. 40, 1" dia.

☐ Stainless Steel ____

Pack Type/Size:

☒ Sand No. 0

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GP-GP01

Project: Hudson Facility Siting | Inspector: Robert A Meyers | Sheet 3 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	0	0' to 4' Fill	FID Unless noted	NA		NA	
	1		0.4 ppm FID 0.1 ppm PID				4' Run 1.9' Rec
	2						
	3						
	4	4' to ≃ 5.5' fill					
	5	5.5' to 8' ML	40 ppm FID 1 ppm PID				4' Run 3.4' Rec
	6						Water @ 6.6' BGS
	7						
	8						

PROJECT: Hudson Facility Siting | HOLE NO.: GP-GP01

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	0' to 4', Fill Material, Ash/Cinders and decomposing Wood shavings with some silt, VF to Coarse sand and fine to med. pebbles.			
	4' to 5.5' Fill as above.			
	5.5' to 8', Clayey light gray silt with little VF sand, slightly plastic. Water @ 6.6' BGS			

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GP-GP01

Project: Hudson Facility Siting | Inspector: Robert A Myers | Sheet 5 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	8	8' to 12' Fill/SM	↑ 20ppm FID ≈2ppm PID	NA		NA	
	9						4' Run 3.8' Rec
	10		↑ 65ppm FID ≈15ppm PID		0900 Collect GPS-GP01-SB from 10' to 12' BGS		
	11						
	12	12' to 16' Fill/SM					4' Run 2.9' Rec
	13		32ppm FID 6ppm PID				
	14						
	15						
	16						

PROJECT: Hudson Facility Siting | HOLE NO.: GP-GP01

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	8' to 12', Wet, Gray silt and VF to Fine sand with decomposing wood shavings,	○	○	⊗
	12' to 16', Silty VF to Fine Sand and wood shavings as above	○	○	⊗

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GP-GP01

Project: Hudson Facility Siting | Inspector: Robert A Myer | Sheet 7 of 8

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	16	16' to 20' Fill/SM	↑ 26ppm FID 0.2ppm PID	NA		NA	4' Run 2.7' Rec
	17						
	18						
	19						
	20	20' to 24' SM	↓ ~17ppm FID ~0.3ppm PID				4' Run 3.3' Rec.
	21						
	22						
	23						
	24	24' to 25' SM	↓ ~4ppm FID 0ppm PID				1' Run 0.45' Rec.
	25						

PROJECT: Hudson Facility Siting | HOLE NO.: GP-GP01

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	16' to 18.7', Silt/Sand and wood shavings as above	○	○	⊘
	18.7' to 20', VF to Fine Sand with 25% Silt, No Fill (Natural)	○	○	○
	20' to 24', VF to Fine Sand with few Silt	○	○	○
	24' to 24.9', Same as above	○	○	○
	24.9' to 25', Weathered Gray Shale (Top of ~~Bedrock~~ REFUSAL)	○	○	✓

B-197

B.O.H @ 25' BGS

Borehole Record for GPS-GP02

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

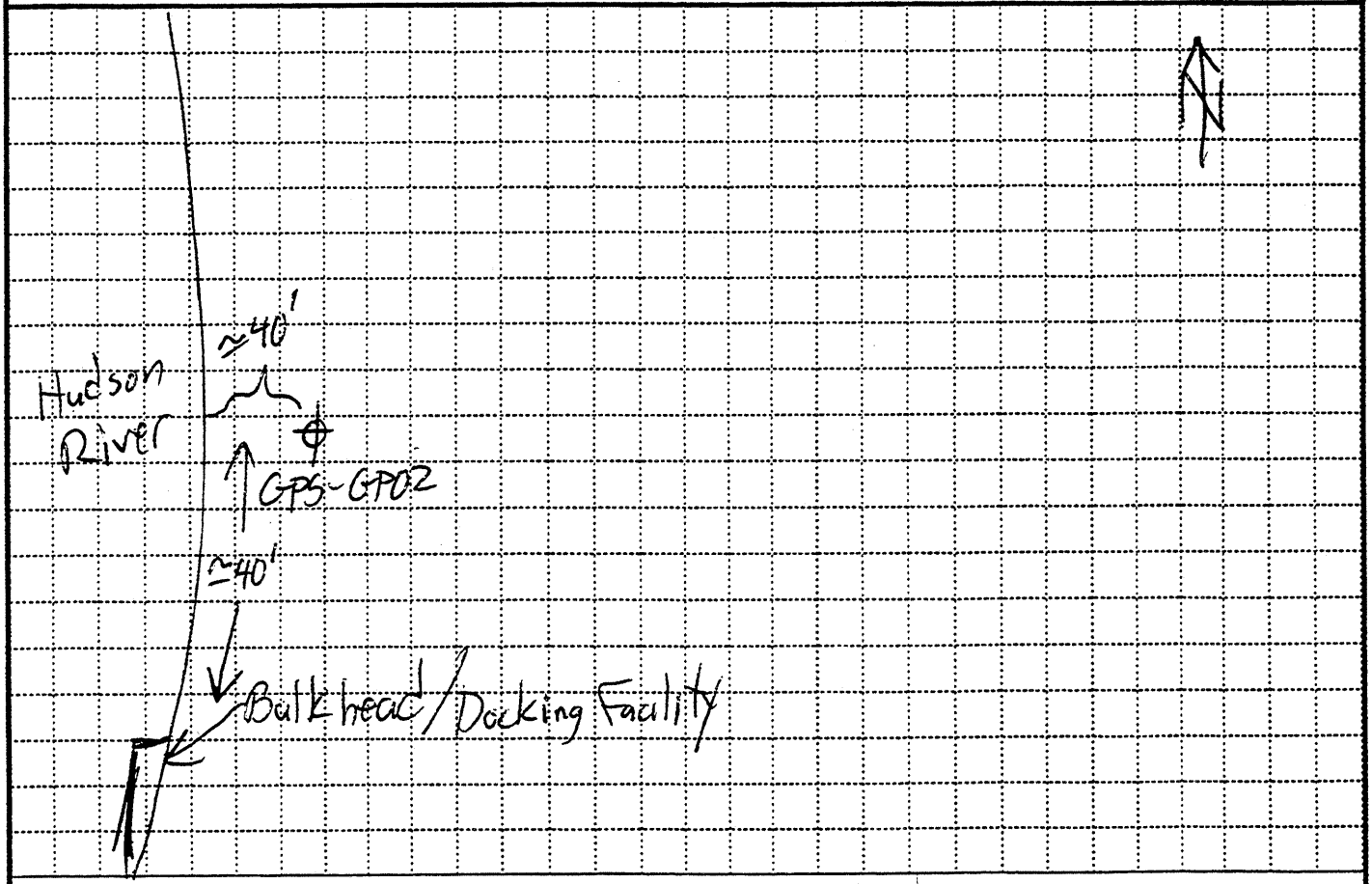
HTRW DRILLING LOG

District: Kansas City

Hole Number: GPS-GP02

1. Company Name	Ecology & Environment Inc.
2. Drill Subcontractor	Northstar / Geologic Inc.
Sheet / Sheets	1 of 8
3. Project	Hudson Superfund Facility Siting
4. Location	Greenwich, NY
5. Name of Driller	Jud Powell
6. Manufacturer's Designation of Drill	Geoprobe 5400
7. Sizes and Types of Drilling and Sampling Equipment	1.75" O.D. Geoprobe Macro-Core Rods with acetate sleeves and discreet sampling system.
8. Hole Location	North section of site, ~40' from River (East)
9. Surface Elevation	
10. Date Started	10-8-03
11. Date Completed	10-8-03
12. Overburden Thickness	9.1'
15. Depth Groundwater Encountered	7' BGS
13. Depth Drilled Into Rock	NA
16. Depth to Water and Elapsed Time After Drilling Completed	6.35' BGS after 18 minutes
14. Total Depth of Hole	9.3'
17. Other Water Level Managements (Specify)	
18. Geological Samples	NA
Disturbed	—
Undisturbed	—
19. Total Number of Core Boxes	NA
20. Samples For Chemical Analysis	VOC ✓ Metals ✓ Other (Specify) SVOC's Other (Specify) Pest/PCBs Other (Specify) CN
21. Total Core Recovery	NA %
21. Disposition of Hole	Backfilled — Monitoring Well (Temporary) — Other (Specify)
23. Signature of Inspector	Robert A Mayo

LOCATION SKETCH/COMMENTS SCALE: NTS



PROJECT: Hudson Superfund Facility Siting

HOLE NO.: GPS-GP02

ENG FORM 5056-R, AUG 94

(Proponent: CECW-EG)

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE DRILL LOG FORM

Lock Number unnumbered Master lock

SCREENED WELL

Stick-up 2.5 ft

Top of Grout _____ ft

Sand 0.5' to surface

Top of Seal at 0.5 ft

Top of Sand Pack 3 ft

Top of Screen at 4.3 ft

Bottom of Screen at 9.3 ft

Bottom of Hole at 9.3 ft

Bottom of Sandpack at 9.3' BGS

Inner Casing Material NA

Inner Casing Inside Diameter NA inches

GROUND SURFACE

Quantity of Material Used:
Bentonite Pellets _____

Cement _____

Borehole 1.75 inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size .010"

Screen Type slotted

☒ PVC sch. 40, 1" dia.

☐ Stainless Steel ____

Pack Type/Size:

☒ Sand No. 0

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

EM 1110-1-4000
31 AUG 94

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP02

Project: Hudson Facility Siting | Inspector: Robert A Myers | Sheet 3 of 5

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	0	0' to 4' Fill	FID Unless Noted	NA		NA	4' Run 3.1' Rec
	1						
	2		0ppm in BZ & off soil				
	3						
	4	4' to 5' ML & Fill					4' Run 3.5' Rec.
	5						
	6						
	7				1700 Collect Sample GPS-GP02-5B 7' to 9'		Water @ ~7' BGS
	8						
	9						

PROJECT: Hudson Facility Siting | HOLE NO.: GPS-GP02

ENG FORM 5056A-R, AUG 94 (Proponent: CECW-EG)

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	0' to 4', to 0.2' Silt loam Topsoil.	⊗	○	○
	0.2' to 4' black Fill Material (Cinders)	○	○	○
	Silt ~~to~~ and VF to coarse Sand sized ~~particles~~	○	○	○
	with angular fine to med. pebble sized	○	○	○
	particles.	○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
	4' to 8' Fill Material as above with Silt and trace	○	○	○
	fine pebbles from 4.4' to 6.1' BGS.	○	○	○
		○	○	○
		○	○	○
		○	○	○
		⊗	○	○
		⊗	○	○
		○	⊗	○
		○	⊗	○
		○	⊗	○
		○	⊗	○
	Water @ 7' BGS	○	○	⊗
		○	○	⊗
		○	○	⊗
		○	○	⊗
		○	○	⊗

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP02

Project: Hudson Facility Siting | Inspector: Robert A Meyers | Sheet 5 of 6

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	8	8' to 9.1' SM/CL	0ppm in BZ & Soil core	NA	See Page 3 of 6	NA	1.3' Run 1.3' Rec.
	9	9.1' to 9.3 Weathered Shale					
		Shale Bedrock Refusal @ 9.3' BGS					Refusal @ 9.3' BGS
	10						
	11						
	12						
	13						
	14						
	15						
	16						

PROJECT: Hudson Facility Siting | HOLE NO.: GPS-GP02

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	8' to 8.7', light brown silt & VF Sand with trace clay;			X
				X
	8.7' to 9.1', Silty light brown CLAY, Wet/Confining layer			X
	9.1' to 9.3', Weathered dark gray shale, DRY	X		
	Refusal @ 9.3' BGS			
	B.O.H @ 9.3' BGS			

Borehole Record for GP5-GP03

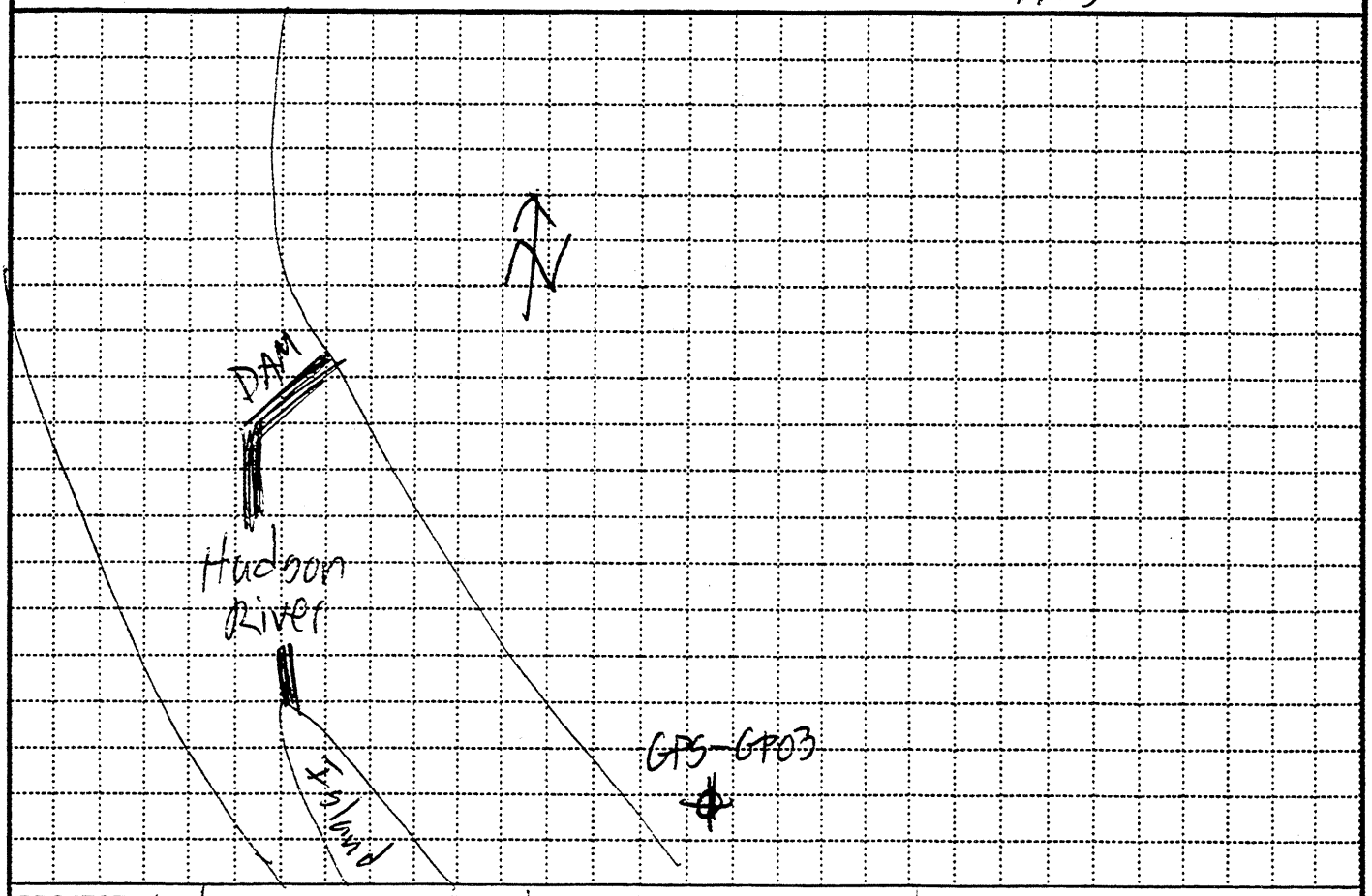
- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

HTRW DRILLING LOG

	District: Kansas City		Hole Number: GPS-GP03
1. Company Name: Ecology & Environment Inc.	2. Drill Subcontractor: Northstar/Geologic Inc.		Sheet: 1 of 8
3. Project: Hudson Superfund Facility Siting		4. Location: Greenwich NY	
5. Name of Driller: Jud Powell		6. Manufacturer's Designation of Drill: Geoprobe 5400	
7. Sizes and Types of Drilling and Sampling Equipment: 1.75" OD. Geoprobe Macro-Core Rods with acetate sleeves		8. Hole Location: West Edge (Central) of site, South of Dam. (40' from River)	
		9. Surface Elevation	
		10. Date Started: 10-8-03	11. Date Completed: 10-8-03
12. Overburden Thickness: >25.5'		15. Depth Groundwater Encountered: 9.5' BGS	
13. Depth Drilled Into Rock: NA		16. Depth to Water and Elapsed Time After Drilling Completed: 14.36' after 18 minutes.	
14. Total Depth of Hole: 25.5'		17. Other Water Level Managements (Specify)	

18. Geological Samples: NA	Disturbed: —		Undisturbed: —		19. Total Number of Core Boxes: NA		
20. Samples For Chemical Analysis	VOC: ✓	Metals: ✓	Other (Specify): SVOC's	Other (Specify): Pest/PCBs	Other (Specify): CN	21. Total Core Recovery: NA %	
21. Disposition of Hole	Backfilled	Monitoring Well (Temporary)	Other (Specify)	23. Signature of Inspector: Robert A Meyer			

LOCATION SKETCH/COMMENTS **SCALE:** NTS



PROJECT Hudson Superfund Facility Siting **HOLE NO.** GPS-GP03

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE DRILL LOG FORM

Lock Number Unnumbered Master Lock

SCREENED WELL

Stick-up 2.05 ft

Top of Grout NA ft

Sand 2' to surface

Top of Seal at 2 ft

Top of Sand Pack 4 ft

Top of Screen at 15.5 ft

Bottom of Screen at 25.5' ft

Bottom of Hole at 25.5 ft

Bottom of Sandpack at 25.5'

Inner Casing Material NA

Inner Casing Inside Diameter NA inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole Diameter 1.75 inches

Cement/ Bentonite _____

Grout _____

Screen Slot Size .010"

Screen Type slotted

☒ PVC sch. 40, 1" dia.

☐ Stainless Steel _____

Pack Type/Size:

☒ Sand No. 0

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Cathedral City

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP03

Project: Hudson Facility Siting | Inspector: Robert A Myers | Sheet 3 of 8

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	0	0' to 4' Fill (Ash)	FID Unless noted	NA		NA	4' Run 2.4' Rec
	4	4' to 8' Fill (Ash)					4' Run 0.75' rec.
	8						

PROJECT: Hudson Facility Siting | HOLE NO. GPS-GP03

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry / Moist / Wet
	0' to 4', Fill Material (Ash) with 0.15' clayey Brown silt @ Surface, and some rounded fine pebbles/Sand throughout	
	4' to 8' Fill Material (Ash) with some Sand and fine rounded pebbles	

EM 1110-1-4000
31 AUG 94

HTRW DRILLING LOG (Continuation Sheet)

Hole Number GPS-GP03

Project Hudson Facility Siting | Inspector Robert A Magee | Sheet 5 of 8

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	8	8' to 9.3' Fill	0 ppm BZ & Soil	NA		NA	
	9	9.3' to 12' ML		9.5'	1520 Collect GPS-GP03-SB Plus Duplicate 9.5' to 12.0'		Water @ 9.5'
	10		~0 ppm FID ~0.5 ppm PID				
	11						
	12	12' to 16 SM/CC	PID = 0.3 ppm FID = 0 ppm				4' Run 4' Rec
	13						
	14						
	15						
	16						

PROJECT Hudson Facility Siting | HOLE NO. GPS-GP03

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	8' to 9.3' Fill (Ash) as above, dry to Moist	⊗	⊗	○
	9.3' to 12', Clayey Silt and VF Sand with trace Fine rounded pebbles	○	○	⊗
	Water @ 9.5' BGS	○	○	○
	12' to 16', Gray Silt & VF Sand with some coars sand and fine Pebbles & trace clay	○	○	○

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP03

Project: Hudson Facility Siting | Inspector: Robert A Myer | Sheet 7 of 8

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	16	16' to 20'	↑	NA		NA	
		SM/CC	31 ppm PID				
			0.3 PID				
	17						4' Run
							4' Rec.
	18						
			0.3 ppm PID				
			0 ppm FID				
	19		↓				
	20	20' to 24'					
		ML	0.4 ppm PID				
			0.2 ppm FID				4' Run
	21						4' Rec.
	22						
			30 ppm FID				
			0.2 ppm PID				
	23						
	24	24' to 25'					1' Run
		ML	0 ppm FID/PID				1' Rec.
	25						

PROJECT: Hudson Facility Siting | HOLE NO.: GPS-GP03

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	16' to 20' Gray Silt and VF Sand with some coarse sand and fine rounded pebbles, and trace clay	○	○	⊘
	20' to 24' Gray Silt with trace VF Sand, Clay & Rounded fine/med Pebbles & weathered shale,	○	○	⊘
	24' to 25' Silt as above	○	○	○
	B.O.H @ 25' BGS	○	○	○

Borehole Record for GPS-GP04

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

HTRW DRILLING LOG

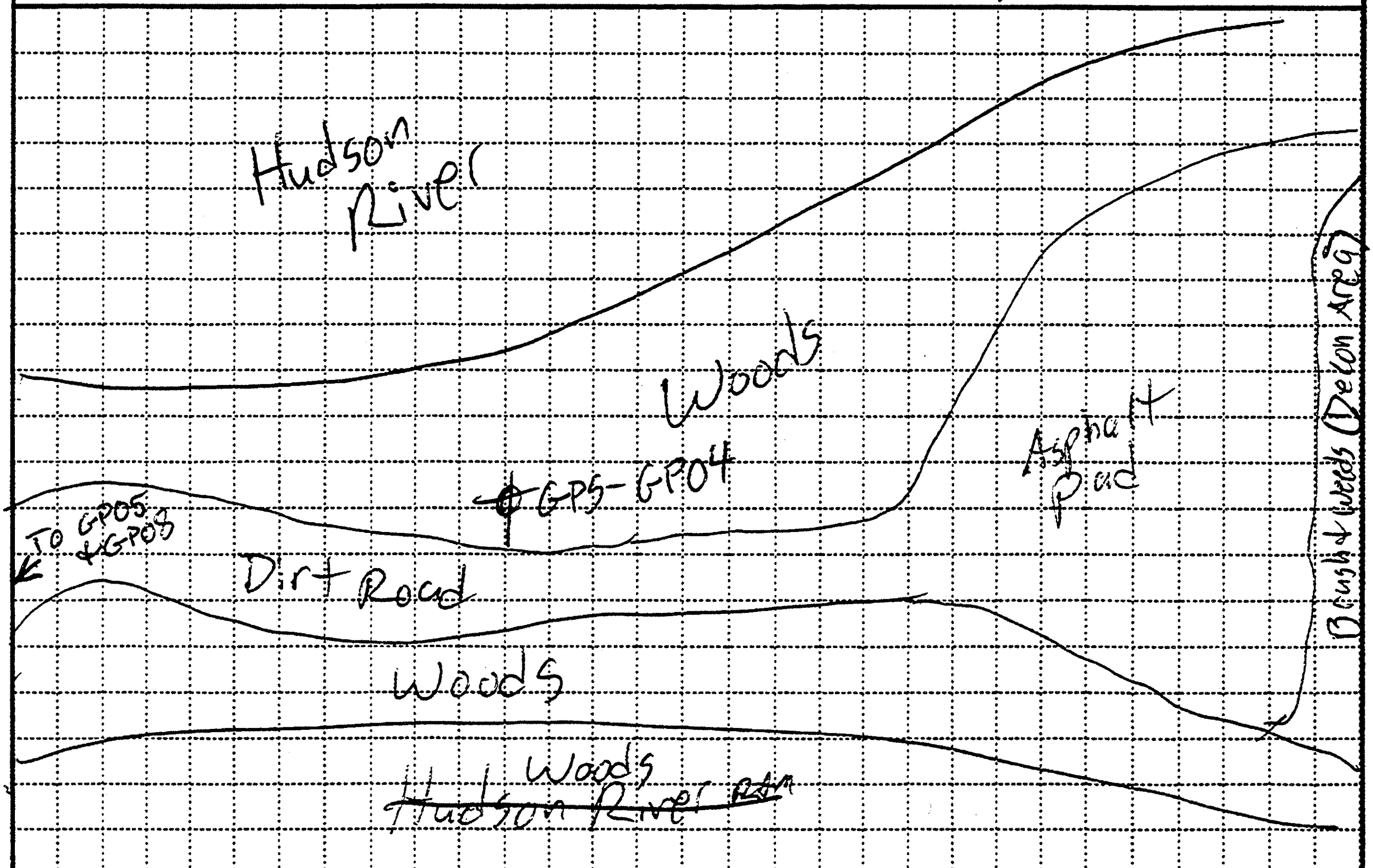
District: Kansas City

Hole Number: GPS-GP04

Sheet 1 of 8

1. Company Name: Ecology & Environment Inc.
2. Drill Subcontractor: Northstar/Geologic Inc.
3. Project: Hudson Superfund Facility Siting
4. Location: Greenwich, NY
5. Name of Driller: Jud Powell
6. Manufacturer's Designation of Drill: Geoprobe 5400
7. Sizes and Types of Drilling and Sampling Equipment: 1.75" Geoprobe Macro-core Rods w/acetate sleeves and discrete soil sampling system
8. Hole Location: South end of site, ≃50' East of Hudson River
9. Surface Elevation:
10. Date Started: 10-8-03
11. Date Completed: 10-8-03
12. Overburden Thickness: 25.7'
13. Depth Drilled Into Rock: Rock/Refusal @ 25.7' BGS
14. Total Depth of Hole: 25.7' BGS
15. Depth Groundwater Encountered: 22.2' BGS
16. Depth to Water and Elapsed Time After Drilling Completed: 20.28' BGS after 10 minutes
17. Other Water Level Managements (Specify):
18. Geological Samples: NA — Disturbed: — ; Undisturbed: —
19. Total Number of Core Boxes: NA
20. Samples For Chemical Analysis: VOC ✓; Metals ✓; Other (Specify): SVOCs; Other (Specify): Pest/PCB; Other (Specify): CN
21. Total Core Recovery: NA %
21. Disposition of Hole: Backfilled; Monitoring Well: Temporary; Other (Specify):
23. Signature of Inspector: [signature]

LOCATION SKETCH/COMMENTS SCALE: NTS



PROJECT: Hudson Superfund Facility Siting — HOLE NO. GPS-GP04

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE DRILL LOG FORM

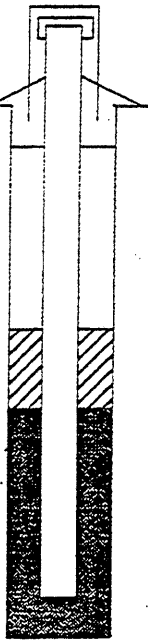
Lock Number unnumbered MasterLock

SCREENED WELL

Inner Casing Material NA

Stick-up ≈2.5 ft

Inner Casing Inside Diameter NA inches



GROUND SURFACE

Top of Grout NA ft
Sand 2' to Surface

Top of Seal at 2 ft

Top of Sand Pack 4 ft

Top of Screen at 15.7 ft

Bottom of Screen at 25.7 ft

Bottom of Hole at 25.7 ft

Bottom of Sandpack at 25.7

Quantity of Material Used:
Bentonite Pellets

Cement

Borehole 1.75" inches Diameter

Cement/ Bentonite

Grout

Screen Slot Size .010"

Screen Type slotted
☒ PVC Sch. 40
☐ Stainless Steel

Pack Type/Size:
☒ Sand No. 0
☐ Gravel
☐ Natural

OPEN-HOLE WELL

Stick-up ft

Inner Casing Material

Inner Casing Inside Diameter inches

Outer Casing Diameter inches

Borehole Diameter ft

Bedrock ft

Bottom of Rock Socket/ Outer Casing ft

Bottom of Inner Casing ft

Corehole Diameter

Bottom of Corehole ft

NOTE: See pages 136 and 137 for well construction diagrams

EM 1110-1-4000
31 AUG 94

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP04

Project: Hudson Facility Siting | Inspector: Robert A Myers | Sheet 3 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	0	0' to 0.6' GM 0.6' to 4.0' ML	FID Unless noted ↑ 0ppm in BZ and off soil core	NA		NA	4' Run 3.5' Rec.
	4	4'-5' ML	↓				
	5						4' Run 4' Rec.
	6						
	7						
	8						

PROJECT: Hudson Facility Siting | HOLE NO.: GPS-GP04

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	0' to 0.6', moist top soil, med. brown Silt with some Sand & Rounded fine pebbles	○	⊘	○
	0.6' to 4.0', Tan Silt w/ trace rounded fine pebbles, dry	⊘	○	○
	4' to 8' Silt as above, dry	○	○	○

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HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP04

Project: Hudson Facility Siting | Inspector: Robert A Mayer | Sheet 5 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	8	8' to 9'	0 ppm in BZ and off soil cores	NA		NA	
		ML					
	9	9' to 12'					4' Run
		GM					3.5' Rec
	10						
	11						
	12	12' to 16'					
		GM					
	13						4' Run
							3.4' Rec
	14						
	15						
	16						

PROJECT: Hudson Facility Siting | HOLE NO.: GPS-GP04

ENG FORM 5056A-R, AUG 94 (Proponent: CECW-EG)

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	8' to 9', Dry silt as above	⊗	○	○
		⊗	○	○
		⊗	○	○
	9' to 12' VF to coarse Sand and fine to med. pebbles (Subrounded to rounded), dry, with little silt	⊗	○	○
		⊗	○	○
		⊗	○	○
		⊗	○	○
		⊗	○	○
		⊗	○	○
		⊗	○	○
		⊗	○	○
		⊗	○	○
		⊗	○	○
		⊗	○	○
	12' to 16', Sand, Gravel (Pebbles) & Silt as above, Dry to Moist	⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○
		⊗	⊗	○

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP04

Project: Hudson Facility Siting | Inspector: Robert A Myers | Sheet 7 of 8

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	16	16' to 20' GM		NA		NA	
	17		Oppm in BZ and off soil core				
	18						4' Run 3.4' Rec
	19						
	20	20' to 22.2' GM					Cave/Ravel stable during drilling
	21						
	22	22.2' to 24' ML			1405 Collect Sample GPS-GP04-SB 22' to 24'		4' Run 4' Rec Water @ 22.2' BGS
	23						
	24	24' to 25.7' ML					1.7' Run 1.1' Rec
	25						

PROJECT: Hudson Facility Siting | HOLE NO.: GPS-GP04

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	16' to 20 VF to coarse Sand and Gravel (fine to med. Pebbles (rounded) with some silt, Dry to Moist	⊗	⊗	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
	20' to 22.2' Sand, pebbles & silt as above	⊗	⊗	○
	Water @ 22.2' BGS	⊗	⊗	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
	22.2' to 25.7' Clayey Gray Silt (Saturated)	○	○	⊗
	Water @ 22.2' BGS	○	○	⊗
		○	○	⊗
		○	○	⊗
		○	○	⊗
		○	○	⊗
		○	○	⊗
		○	○	⊗
	B.O.H @ 25.7' BGS	○	○	⊗
		○	○	⊗

Borehole Record for GP5-GP05

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

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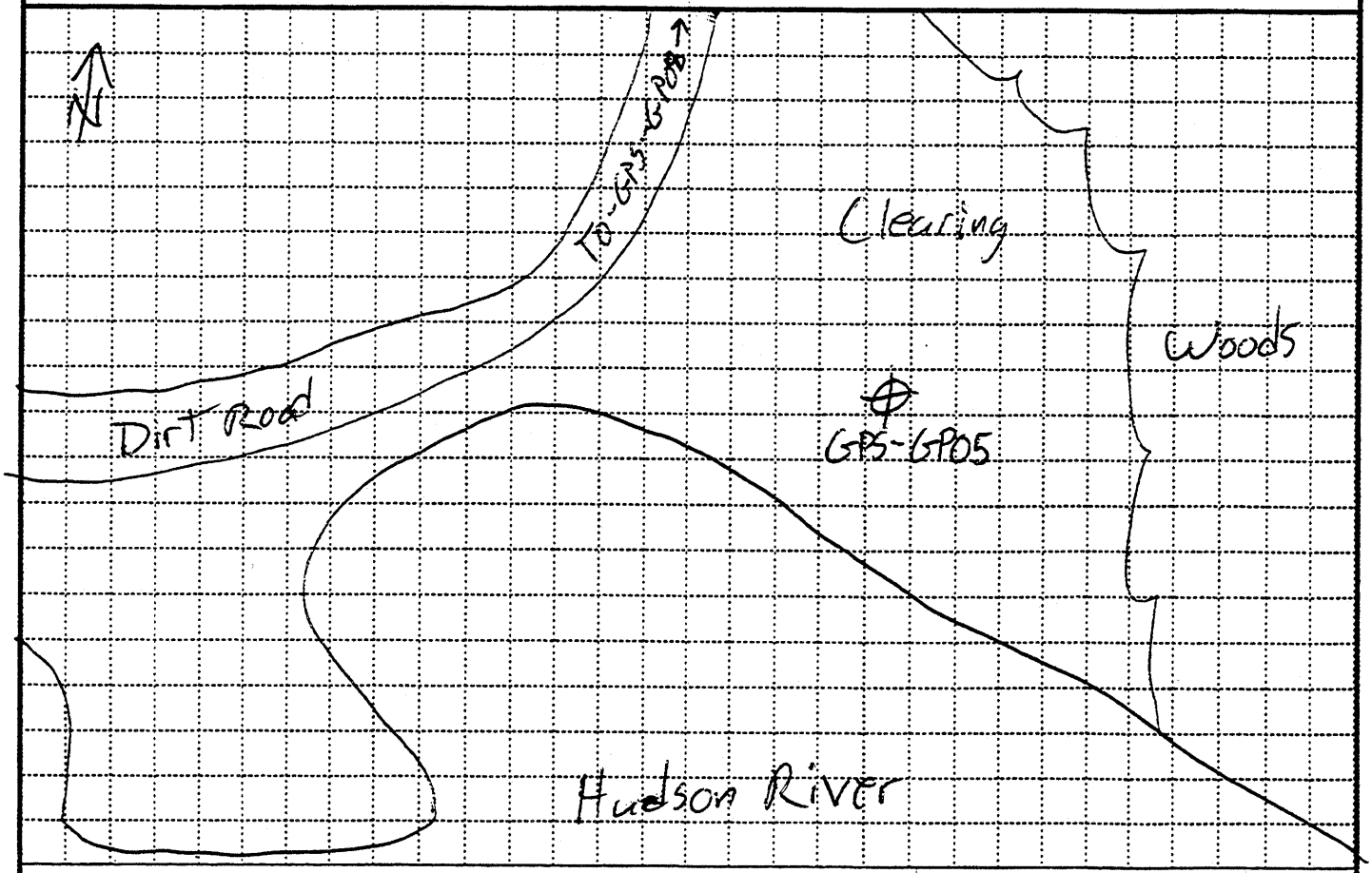
HTRW DRILLING LOG

District: Kansas City		Hole Number: GPS-GP05
1. Company Name: Ecology & Environment Inc.	2. Drill Subcontractor: Northstar/Geologic Inc.	Sheet 1 of 8 Sheets
3. Project: Hudson Superfund facility Siting	4. Location: Greenwich, N.Y.	
5. Name of Driller: Jud Powell	6. Manufacturer's Designation of Drill: Geoprobe 5400	
7. Sizes and Types of Drilling and Sampling Equipment: 1.75" O.D. Geoprobe macro-core Rods with acetate sleeves and discreet Soil Sampling System.	8. Hole Location: South End Near River	
	9. Surface Elevation	
	10. Date Started: 10-8-03	11. Date Completed: 10-8-03
12. Overburden Thickness: >25'	15. Depth Groundwater Encountered: ≃ 14'BGS	
13. Depth Drilled Into Rock: NA	16. Depth to Water and Elapsed Time After Drilling Completed: 15.61' after 14 minutes	
14. Total Depth of Hole: 25'	17. Other Water Level Managements (Specify)	

18. Geological Samples: NA	Disturbed: —		Undisturbed: —		19. Total Number of Core Boxes: NA		
20. Samples For Chemical Analysis	VOC: ✓	Metals: ✓	Other (Specify): SVOC	Other (Specify): Pest/PCB	Other (Specify): CN	21. Total Core Recovery: NA %	
21. Disposition of Hole	Backfilled	Monitoring Well	Other (Specify)	23. Signature of Inspector			

LOCATION SKETCH/COMMENTS **SCALE:** NTS



PROJECT Hudson Superfund Facility Siting **HOLE NO.** GPS-GP05

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE DRILL LOG FORM

Lock Number unnumbered Master Lock

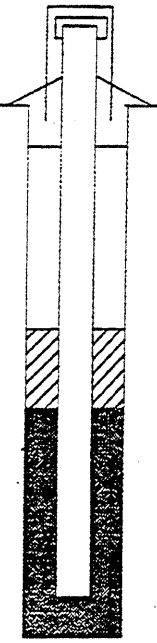
SCREENED WELL

Inner Casing Material NA

Stick-up 2.6 ft

Inner Casing Inside Diameter NA inches

GROUND SURFACE



Top of Grout NA ft

Top of Seal at 2' ft

Top of Sand Pack 4' ft

Top of Screen at 14.35 ft

Bottom of Screen at 24.35 ft

Bottom of Hole at 25' ft

Bottom of Sandpack at 25'

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole 1.75 inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size .010"

Screen Type slotted

☒ PVC sch. 40

☐ Stainless Steel ____

Pack Type/Size:

☒ Sand No.0

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP05

Project: Hudson Facility Siting | Inspector: Robert A Myers | Sheet 3 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	0	0' to 1.9' Fill	FID Unless Noted	NA		NA	4' Run 1.9' Rec. (Note Recovered top 1.9')
	1						
	2	1.9' to 4' No Recovery	0 ppm in BZ & off Fill				
	3						
	4	4' to 7' Fill					
	5						4' Run 2.6' Rec.
	6						
	7	7' to 8'	0 ppm in BZ & off Soil Core				
	8						

PROJECT: Hudson Facility Siting | HOLE NO.: GPS-GP05

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	0' to 1.9', Fill Materials, Dry, cinders/Asphalt, Brick, and concrete	⊗	○	○
	1.9' to 4', No Recovery	○	○	○
	4' to 7', Fill as above	○	○	○
	7' to 8', VF ~~to C~~ Sand and Silt with few coarse sand and fine subrounded pebbles Moist	○	⊗	○

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP05

Project: Hudson Facility Siting | Inspector: [illegible signature] | Sheet 5 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	8	8' to 12' Fill	0 ppm in BZ & off Fill	NA		NA	4' Run 2.8' Rec
	9						
	10						
	11						
	12	12' to ≃14' Fill	↑		1057 Collect Sample GPS-GP05-SB1 12' to 16'		
	13		PID=2.5ppm FID=0.4ppm				4' Run 1.9' Rec
	14	14' to 16' SM/SC	↓				water @ ≃14' bgs
	15						
	16						

PROJECT: Hudson Facility Siting | HOLE NO. GPS-GP05

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry / Moist / Wet
	8' to 12', Fill Material, 35% brick, 25% cinders &/or Asphalt, 15% crushed stone/concrete with some Silt & VF to Fine Tan to brown sand.	
	12' to ≈14' Fill as above	
	≈14' to 16', brown Silt & VF Sand with Trace angular fine Pebbles (Natural) & little clay	

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP05

Project: Hudson Facility Siting

Inspector: Robert A Myers

Sheet 7 of 8

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	16	16' to ≃ 18'		NA		NA	4' Run
		~~SM/RAM~~ CC					2.4' Rec
	17		0 ppm in BZ and off set				
	18	≃18' to 20' Weathered shale					
	19						
	20	20' to 24' GM					
	21						4' Run 4' Rec
			22'		1130 Collect extra Sample GPS-GP05-SB2 from 22' to 24' BGS		
	23		20 ppm FID 5 ppm PID				
	24		FID = 15 ppm PID = 4 ppm				1' Run 1' Rec.
	25						

PROJECT: Hudson Facility Siting

HOLE NO. GPS-GP05

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	≃16' to 18' Silty Clay and shale Fragments, brown	○	○	⊘
	≃18' to 20' Weathered shale and some gray silt ~~y clay~~, Saturated.	○	○	○
	20' to 24', Gray Silt, VF Sand & angular fine pebbles / coarse sand.	○	○	○
	24' to 25' Same as above	○	○	○
	B.O.H @ 25' BGS	○	○	○

Borehole Record for GPS-GP06

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

31 AUG 94

HTRW DRILLING LOG

District: Kansas City		Hole Number: GPS-GP06
1. Company Name: Ecology & Environment Inc.	2. Drill Subcontractor: Northstar/Geologic	Sheet 1 of 3 Sheets
3. Project: Hudson Superfund Facility Siting	4. Location: Greenwich, NY	
5. Name of Driller: Jud Powell	6. Manufacturer's Designation of Drill: Geoprobe 5400	
7. Sizes and Types of Drilling and Sampling Equipment: 1.75" OD Geoprobe Rods with acetate sleeves and discrete soil sampling System	8. Hole Location: In woods (cleared area) Northend of site/upgradient.	
	9. Surface Elevation	
	10. Date Started: 10-9-03	11. Date Completed: 10-9-03
12. Overburden Thickness: >25'	15. Depth Groundwater Encountered: 5' BGS	
13. Depth Drilled Into Rock: NA	16. Depth to Water and Elapsed Time After Drilling Completed: 4.93' after 12 minutes	
14. Total Depth of Hole: 25'	17. Other Water Level Managements (Specify)	

18. Geological Samples: NA	Disturbed: —		Undisturbed: —		19. Total Number of Core Boxes: NA	
20. Samples For Chemical Analysis	VOC: ✓	Metals: ✓	Other (Specify): SVOCs	Other (Specify): Pest/PCBs	Other (Specify): CN	21. Total Core Recovery: NA %
21. Disposition of Hole	Backfilled	Monitoring Well: Temporary	Other (Specify)	23. Signature of Inspector: Robert C. Ryan		

LOCATION SKETCH/COMMENTS — **SCALE:**

See GPS-GP01 Log

PROJECT Hudson Superfund Facility Siting	**HOLE NO.** GPS-GP06

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE DRILL LOG FORM

Lock Number un-numbered Master Lock

SCREENED WELL

Stick-up 2.5 ft

Top of Grout NA ft
Sand 1' to Surface

Top of Seal at 1 ft

Top of Sand Pack 3 ft

Top of Screen at 5 ft

Bottom of Screen at 15 ft

Bottom of Hole at 25' ft

Bottom of Sandpack at 15'

Inner Casing Material NA

Inner Casing Inside Diameter NA inches

GROUND SURFACE

Quantity of Material Used:
Bentonite Pellets

Cement

Borehole 1.75" inches Diameter

Cement/ Bentonite

Grout

Screen Slot Size .010"

Screen Type slotted
☒ PVC sch. 40, 1" dia.
☐ Stainless Steel

Pack Type/Size:
☒ Sand No. 0
☐ Gravel
☐ Natural

Note: Hole was allowed to collapse up to 15' BGS.

OPEN-HOLE WELL

Stick-up ft

Inner Casing Material

Inner Casing Inside Diameter inches

Outer Casing Diameter inches

Borehole Diameter ft

Bedrock ft

Bottom of Rock Socket/ Outer Casing ft

Bottom of Inner Casing ft

Corehole Diameter

Bottom of Corehole ft

NOTE: See pages 136 and 137 for well construction diagrams

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HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP06

Project: Hudson Facility Siting | Inspector: Robert A Myers | Sheet 3 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	0	0' to 4' SM	FID = 0 ppm PID = 0.4 ppm	NA		NA	
	1						4' Run 3.3' Rec.
	2						
	3						
	4	4' to 8' SM	0 ppm FID/PID				
	5						4' Run 3.4' Rec.
	6						Water @ ≈5' BGS
	7						
	8						

PROJECT: Hudson Facility Siting | HOLE NO.: GPS-GP06

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry / Moist / Wet
	0' to 1.2', Med brown Silt with little clay and VF to Med Sand & few Shale fragments, Moist	
	1.2' to ≃ 3.2' Tan Silty Clay, slightly plastic, moist.	
	3.2' to 4', VF to fine Sand and Silt, Gray/brown.	
	4' to 8', VF Tan/Gray Sand and Silt, water @ ≃ 5' BGS, little Clay.	

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP06

Project: Hudson Facility Siting | Inspector: Robert A Meyer | Sheet 5 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	8	8' to 12' SM/SC	0ppm in BZ & off soil con	NA		NA	
	9						4' Run 4' Rec
	10				1042 Collect GPS-GP06-SB from 10' to 12' BGS		
	11						
	12	12' to 16' SM/~~SC~~ BAM					
	13						4' Run 4' Rec.
	14						
	15						
	15.5						
	16						

PROJECT ~~GPS-GP06~~ BAM Hudson Facility Siting | HOLE NO. GPS-GP06

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	8' to 12' Tan/Gray VF to Fine Sand and Silt with little Clay. Iron staining (heavy) from 10' to 12' BGS.	○	○	⊗
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
	12' to 15.3', VF to Fine Tan/Gray Sand with little Silt	○	○	⊗
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
	15.3' to 16' light Gray Clayey Silt with little VF Sand	○	○	○
		○	○	○
		○	○	○
		○	○	⊗

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HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP06

Project: Hudson Facility Siting | Inspector: Robert A Mayer | Sheet 7 of 8

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	16	16' to 20'		NA		NA	
		SW					
	17		NA				4' Run
							No Recovery
	18						flowing fine sand
	19						
	20	20' to 24'					
		SW					
	21						4' Run
			0ppm FID/PID off soil & in BZ				1.3' Rec
	22						
	23		O2/LEL Readings Stable during drilling				
	24	24' to 25'					1' Run
	25	SW					0.2' Rec

PROJECT: Hudson Facility Siting | HOLE NO.: GPS-GP06

ENG FORM 5056A-R, AUG 94 (Proponent: CECW-EG)

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	16' to 20', No Recovery, flowing fine Sand coming out of the sampler.	○	○	⊗
		○	○	⊗
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
	20' to 24', VF to Fine flowing Tan Sand,	○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
	24' to 25' Same as above	○	○	○
		○	○	○
		○	○	○
	B.O.H @ 25' BGS	○	○	⊗

Borehole Record for GP5-GP07

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

31 AUG 94

HTRW DRILLING LOG

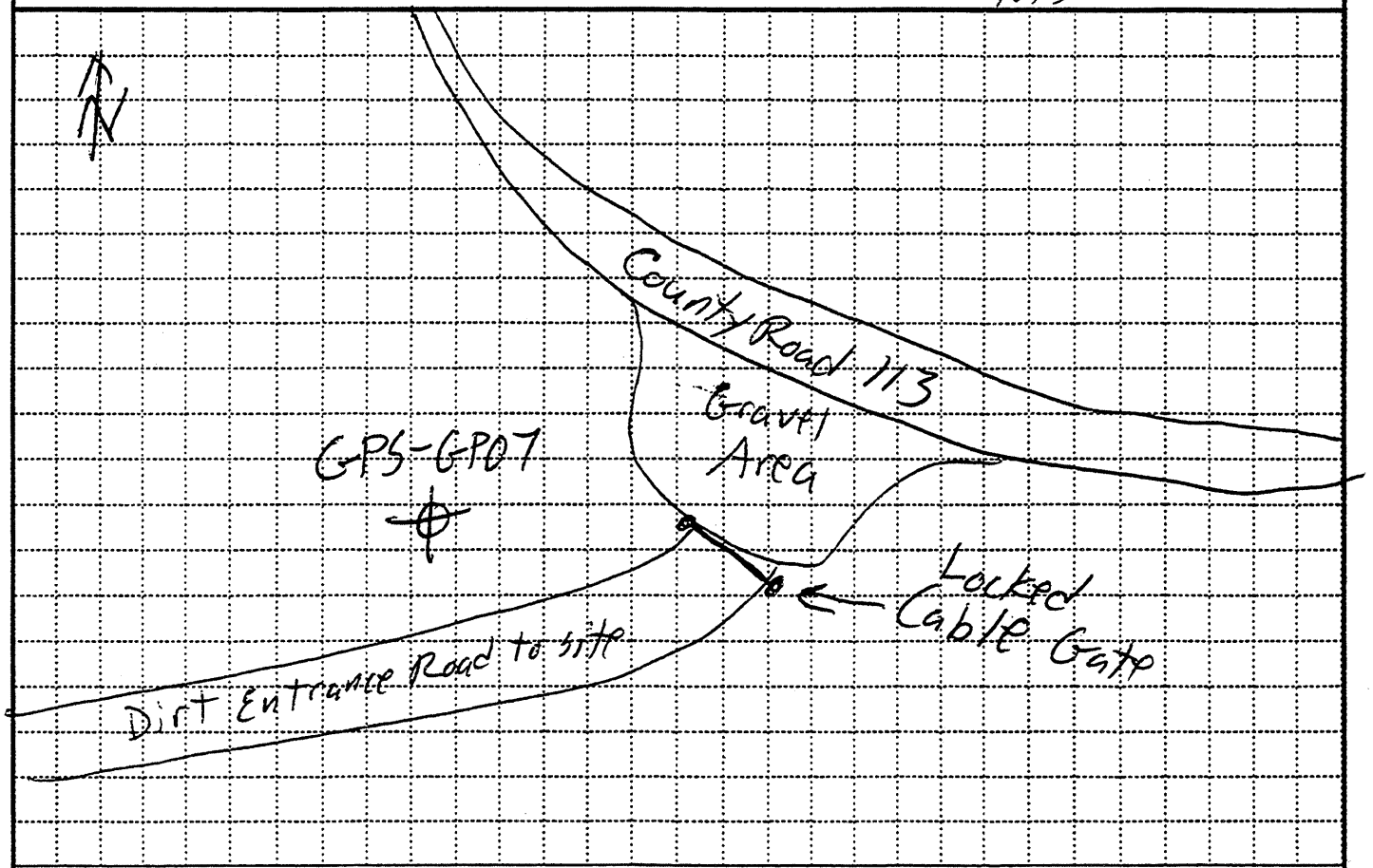
	District: Kansas City	Hole Number: GPS-GP07
1. Company Name: Ecology & Environment Inc	2. Drill Subcontractor: Northstar/Geologic Inc.	Sheet 1 of 3
3. Project: Hudson Superfund Facility Siting	4. Location: Greenwich, N.Y.	
5. Name of Driller: Jud Powell	6. Manufacturer's Designation of Drill: Geoprobe 5400	
7. Sizes and Types of Drilling and Sampling Equipment: 1.75" O.D. Geoprobe Macro-core Rods with acetate sleeves and discrete soil sampling system	8. Hole Location: Center of site, just inside entrance off County Road 113	
	9. Surface Elevation	
	10. Date Started: 10-9-03	11. Date Completed: 10-9-03
12. Overburden Thickness: >25'	15. Depth Groundwater Encountered: 9' BGS	
13. Depth Drilled Into Rock: NA	16. Depth to Water and Elapsed Time After Drilling Completed: 10.14' BGS ~~after~~ after 10 minutes	
14. Total Depth of Hole: 25'	17. Other Water Level Managements (Specify)	

18. Geological Samples	Disturbed	Undisturbed	19. Total Number of Core Boxes
NA	—	—	NA

20. Samples For Chemical Analysis	VOC	Metals	Other (Specify)	Other (Specify)	Other (Specify)	21. Total Core Recovery
	✓	✓	SVOCs	Pest/PCBs	CN	NA %

21. Disposition of Hole	Backfilled	Monitoring Well	Other (Specify)	23. Signature of Inspector
		Temporary		Robert A Myers

LOCATION SKETCH/COMMENTS SCALE: NTS



PROJECT	HOLE NO.
Hudson Superfund Facility Siting	GPS-GP07

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE DRILL LOG FORM

Lock Number un-numbered Master Lock

SCREENED WELL

Stick-up 2.4 ft

Top of Grout NA ft

Top of Seal at 0.5 ft

Top of Sand Pack 3 ft

Top of Screen at 10 ft

Bottom of Screen at 20 ft

Bottom of Hole at 25 ft

Bottom of Sandpack at 20'

Inner Casing Material NA

Inner Casing Inside Diameter NA inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole 1.75" inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size .010"

Screen Type slotted

☒ PVC sch. 40, 1" dia

☐ Stainless Steel _____

Pack Type/Size:

☒ Sand No. 0

☐ Gravel _____

☐ Natural _____

★ Bottom 5' allowed to collapse

NOTE: See pages 136 and 137 for well construction diagrams

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

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HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GP5-GP07

Project: Hudson Facility Siting | Inspector: Robert A Myers | Sheet 3 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	0	0' to 3.4' Fill and Silt	FID Unless Noted ↑	NA		NA	
	1		0ppm FID				4' Run 3.1' Rec.
			9ppm PID (moisture)				
	2						
	3	3.4' to 4' CL					
	4	4' to 8' SM/ML					
			3ppm FID				
	5		1ppm PID				4' Run 4' Rec.
	6						
	7						
	8						

PROJECT: Hudson Facility Siting | HOLE NO.: GP5-GP07

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	0' to 3.4' Fill Material (Cinders, Ash & crushed limestone) with some brown silt.			
	3.4' to 4.0' Silty brown Clay with trace VF Sand Moist			
	4' to 8', Silt & VF Sand with few Clayey Silt and Silty Clay, Slightly to NON-Plastic. Moist			

EM 1110-1-4000
31 AUG 94

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP07
Project: Hudson Facility Siting
Inspector: Robert A Myers
Sheet 5 of 8

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	8	8' to 12' SM	0.6 PID 3.6 FID	NA	1225 Collect GPS-GP07-SB3 9' to 11'	NA	4' Run 3.7' Rec. Water @ 9' BGS
	12	12' to 16' SM	Oppm FID/PID in BZ & off soil				4' Run 4' Rec
	16						

PROJECT: Hudson Facility Siting
HOLE NO.: GPS-GP07

ENG FORM 5056A-R, AUG 94
(Proponent: CECW-EG)

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	8' to 12', water @ 9' BGS., light gray Silt and VF to Fine sand with few Clay.	○	⊗	○
		○	⊗	○
		○	⊗	○
		○	⊗	○
		○	○	⊗
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
	12' to 16' Gray VF to Fine Sand and Silt with trace clay	○	○	⊗
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○

EM 1110-1-4000
31 AUG 94

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP07

Project: Hudson Facility Siting | Inspector: Robert A Meyer | Sheet 7 of 8

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	16	16' to 18.2' SM	0ppm FID/PID in BZ and off Soil Core	NA		NA	4' Run 3.1' Rec
	17						
	18	18.2' to 19.3' CL					
	19	19.3' to 20' SP					
	20	20' to 24' SW					4' Run 3.1' Rec
	21						
	22						
	23						
	24	24' to 25' SW					1' Run 0.9' Rec
	25						

PROJECT: Hudson Facility Siting | HOLE NO.: GPS-GP07

ENG FORM 5056A-R, AUG 94 (Proponent: CECW-EG)

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	16' to 18.2' Gray VF to Fine Sand and Silt	○	○	⊗
	18.2' to 19.3' Gray Silty Clay	○	○	○
	19.3' to 20' Med. to Coarse sand and fine rounded pebbles, little silt.	○	○	○
	20' to 24', VF to Fine gray Sand, flowing	○	○	○
	24' to 25', Sand as above	○	○	○

Borehole Record for GPS-GP08

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

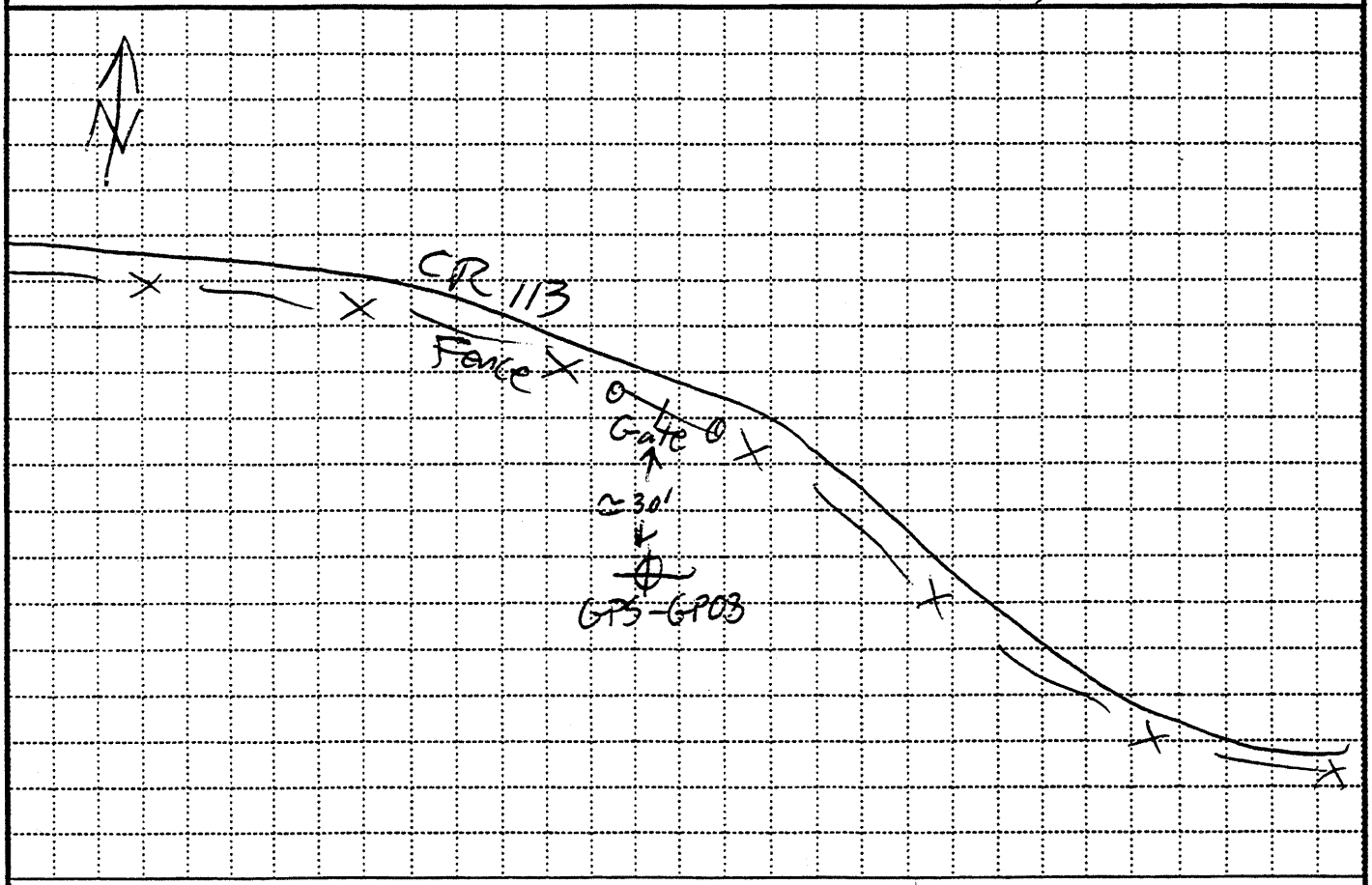
31 AUG 94

HTRW DRILLING LOG

	District: Kansas City	Hole Number: GP5-GP08
1. Company Name: Ecology & Environment Inc.	2. Drill Subcontractor: Northstar/Geologic Inc	Sheet: 1 of Sheets: 8
3. Project: Hudson Superfund Facility Siting	4. Location: Greenwich NY	
5. Name of Driller: Jud Powell	6. Manufacturer's Designation of Drill: Geoprobe 5400	
7. Sizes and Types of Drilling and Sampling Equipment: 1.75" Geoprobe Macro-core Rods with acetate sleeves and discreet soil sampling system	8. Hole Location: South Section Near C.R. 113	
	9. Surface Elevation	
	10. Date Started: 10-8-03	11. Date Completed: 10-8-03
12. Overburden Thickness: 18.5' BGS	15. Depth Groundwater Encountered: 5.3' BGS	
13. Depth Drilled Into Rock: NA (Rock @ 18.5' BGS)	16. Depth to Water and Elapsed Time After Drilling Completed: 9.74' BGS @ 17 min	
14. Total Depth of Hole: 18.5' BGS	17. Other Water Level Managements (Specify)	

18. Geological Samples: NA	Disturbed: —		Undisturbed: —		19. Total Number of Core Boxes: NA		
20. Samples For Chemical Analysis	VOC: ✓	Metals: ✓	Other (Specify): SVOCs	Other (Specify): Pest/PCBs	Other (Specify): CN	21. Total Core Recovery: NA %	
21. Disposition of Hole	Backfilled	Monitoring Well: Temporary	Other (Specify)	23. Signature of Inspector: Robert A Meyer			

LOCATION SKETCH/COMMENTS SCALE: NTS



PROJECT Hudson Superfund Facility Siting **HOLE NO.** GP5-GP08

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE DRILL LOG FORM

Lock Number unnumbered Master Lock

SCREENED WELL

Stick-up ~1.2' ft

Top of Grout NA ft

Sand 1' to surface

Top of Seal at 1 ft

Top of Sand Pack 3 ft

Top of Screen at 5.5 ft

Bottom of Screen at 18.5' ft

Bottom of Hole at 18.5 ft

Bottom of Sandpack at 18.5'

Inner Casing Material NA

Inner Casing Inside Diameter NA inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole 1.75" inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size .010"

Screen Type slotted

☒ PVC sch. 40

☐ Stainless Steel ____

Pack Type/Size:

☒ Sand No. 0

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

HTRW DRILLING LOG (Continuation Sheet)

Hole Number GPS-GP08

Project Hudson Facility Siting | Inspector Robert A Magee | Sheet 3 of 8

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	0	0' to 2.3' Fill GM	FID unless noted ↑ 0ppm in ~~BZ~~ & off soil	NA		NA	4' Run 3.7' Rec.
	1						
	2	2.3' to 4' CL					
	3						
	4	4' to 5.3' CL					4' Run 4' Rec. Water @ 5.3' BGS
	5	5.3' to 7.8'	0ppm in ~~BZ~~ & soil core		0855 collect GPS-GP08-SB 5.3' to 7.3'		
	6						
	7						
	8	7.8' to 8' CL					

PROJECT Hudson Facility Siting | HOLE NO. GPS-GP08

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	0' to 2.3', Dry to moist Fill Material, brown to black Silt, VF to Coarse Sand & angular Fine to med. pebbles, cinders throughout			
	2.3' to 4.0' Silty tan Clay, slight to Moderate plasticity, moist			
	4' to 5.3' CLAY as above			
	5.3' to 7.8' VF Gray & Tan Sand with some silt Water @ 5.3' BGS			
	7.8' to 8', silty/Sandy Clay, tan, wet			

HTRW DRILLING LOG (Continuation Sheet)

Project	Inspector	Hole Number
Hudson Facility Siting	Robert A Meyer	GPS-GP08
		Sheet 5 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	8	8' to 12' SM	↑ 0ppm in BZ & soil core ↓	NA		NA	4' Run 4' Rec.
	9						
	10						
	11						
	12	12' to 16' SM	↓				4' Run 0.4' Rec, silt & sand flowing out of sampler
	13						
	14						
	15						
	16						

PROJECT Hudson Facility Siting HOLE NO. GPS-GP08

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	8' to 12' Tan to Pale gray Silt & VF Sand. flowing out of acetate sleeve SAMPLE	○	○	⊗
	12' to 16', Tan/Pale gray (flowing out of acetate sleeve) Silt and VF Sand.	○	○	○

EM 1110-1-4000
31 AUG 94

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GP08

Project: Hudson Facility Siting | Inspector: Robert A Mayer | Sheet 7 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	16	16' to 18.5'		NA		NA	
		SM	0ppm in BZ & Soil Core				2.5' Run 0.3' Rec Silt+Sand flowing out of acetate sleeve.
	17						
	18		02/LEL stable during Drilling				@ Refusal Rock @ 18.5' bgs
	19						
	20						
	21						
	22						
	23						
	24						
	25						

PROJECT: Hudson Facility Siting | HOLE NO.: GPS-GP08

ENG FORM 5056A-R, AUG 94 (Proponent: CECW-EG)

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	16' to 18.5', Silt + VF sand flowing out of			X
	acetate sleeve.			↓
	~~Rock~~/Refusal @ 18.5' BGS, Solid No chips Recovered.			✓
	(8) 18.5' = B.O.H			X

Geotechnical Bore Logs
From The
Georgia Pacific/New York State Canal Corporation Site

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Borehole Record for GTS671

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

31 AUG 94

HTRW DRILLING LOG

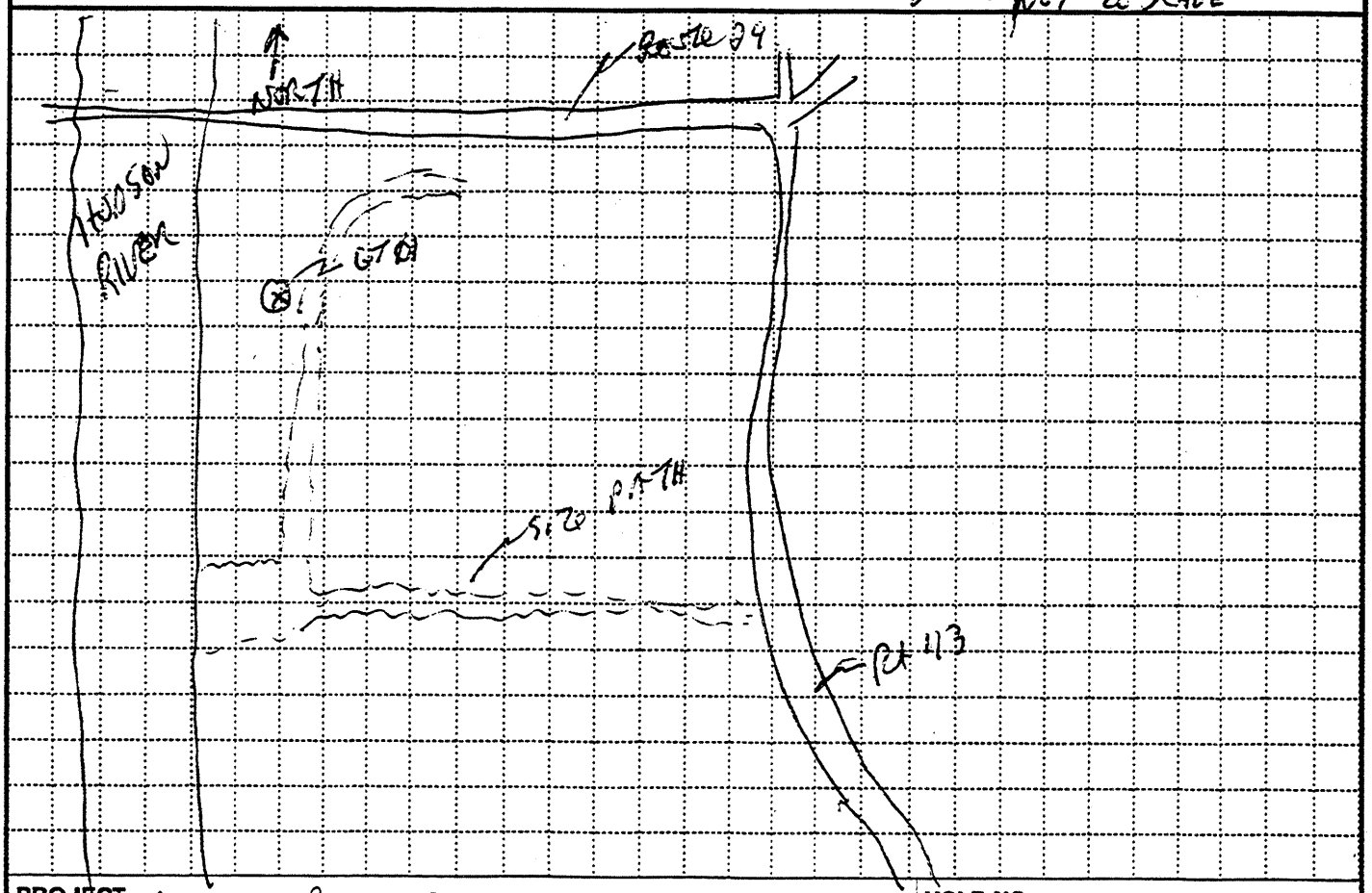
	District: Kansas City Corp	Hole Number: GPS-GT01
1. Company Name: Ecology And Environment, Inc.	2. Drill Subcontractor: Geologic / Nor Thstar Drilling	Sheet: 1 of 8
3. Project: Georgia Pacific	4. Location: Thomson, NY	
5. Name of Driller: Steve LARAMIE	6. Manufacturer's Designation of Drill: CME-45C	
7. Sizes and Types of Drilling and Sampling Equipment: 4¼" HSA; 2"X24" SPLIT SPOON	8. Hole Location: NW Corner of site, ~2ft East of Hudson River	
	9. Surface Elevation:	
	10. Date Started: 10/8/03	11. Date Completed: 10/8/03
12. Overburden Thickness: 21'	15. Depth Groundwater Encountered: 15'	
13. Depth Drilled into Rock: 0.2'	16. Depth to Water and Elapsed Time After Drilling Completed: 16.1 1 hour after augers / ~~Open Hole~~	
14. Total Depth of Hole: 21.2'	17. Other Water Level Measurements (Specify): OPEN hole after drilling augers	

18. Geological Samples	Disturbed	Undisturbed	19. Total Number of Core Boxes
	0	~~PARTICLE~~ SIZE & MOISTURE (16) ATTERBERG (1)	0

20. Samples For Chemical Analysis	VOC	Metals	Other (Specify)	Other (Specify)	Other (Specify)	21. Total Core Recovery
	0	0	~~PARTICLE~~			0 %

21. Disposition of Hole	Backfilled	Monitoring Well	Other (Specify)	23. Signature of Inspector
	X	—	—	

LOCATION SKETCH/COMMENTS SCALE: NOT TO SCALE

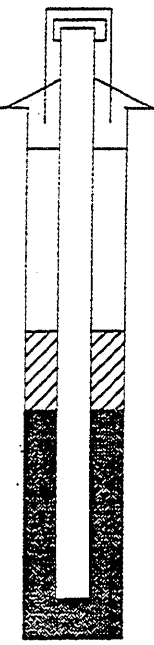


PROJECT Hudson River PCB Facility Siting **HOLE NO.** GPS-GT01

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE DRILL LOG FORM

SCREENED WELL



Stick-up __________ ft

Top of Grout __________ ft

Top of Seal at ________ ft

Top of Sand Pack _______ ft

Top of Screen at ______ ft

Bottom of Screen at ___________ ft

Bottom of Hole at ______________ ft

Bottom of Sandpack at _________

Lock Number __________

Inner Casing Material ______________

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets ______________

Cement ______________

Borehole Diameter ________ inches

Cement/ Bentonite ______________

Grout ______________

Screen Slot Size ________

Screen Type ________

☐ PVC ________

☐ Stainless Steel ____

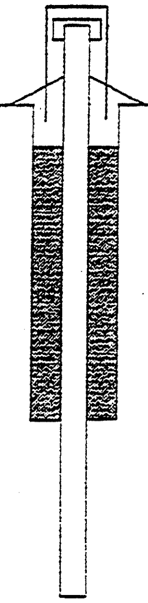
Pack Type/Size:

☐ Sand ____________

☐ Gravel ____________

☐ Natural ____________

OPEN-HOLE WELL



Stick-up __________ ft

Inner Casing Material ____________

Inner Casing Inside Diameter ________ inches

Outer Casing Diameter ________ inches

Borehole Diameter ________ ft

Bedrock ________ ft

Bottom of Rock Socket/ Outer Casing ______ ft

Bottom of Inner Casing __________ ft

Corehole Diameter ____________

Bottom of Corehole __________ ft

NOTE: See pages 136 and 137 for well construction diagrams

No well Constructed; Bore Hole for Geotechnical Purposes Only

- Drilled Horizontal split spoon sampler 0 → 4' so as to provide sufficient volume for suite of geotechnical analyses. PID = 0.35 ; FID = 0.1
- Sample Volume Collected from 2.0 → 2.6' bgs 10:50
  Sample No.: GPS-GT01-B, Collected @ 0847
- Decon water source: Northeast's Shop, which draws from the local municipal water supply
- Breathing zone TVA-1000 readings all <1 ppm

HTRW DRILLING LOG (Continuation Sheet)

Project	Inspector	Hole Number
Georgia Pacific ~~[illegible]~~ (2)	Jon Nickerson	GPS-GT01
		Sheet 3 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	0–1	OL; Gm; ~~Fm~~ SP	PID = 0, FID = 0	NA	GPS-GT01 A, 0845	3/6/6/4	70%
	2–3	SM	PID = 0.1, FID = 0.0		GPS-GT01-B, 0847	2/2/4/4	90%
	3–6.3	CL					
	4–6		PID =, FID =		No Recovery For Sample	2/3/4/5	0%
	6–8	MH	PID = 0, FID = 0		GPS-GT0?, 0900	4/5/5/5	75%

PROJECT: Hudson River PCB Facility Siting

HOLE NO. GPS-GT01

ENG FORM 5056A-R, AUG 94 (Proponent: CECW-EG)

Page ~~6~~ 8

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
0'-0.4'	Brown silty loam; Trace gravel; Roots, Dry			
0.4'-0.8'	Brown ~~sandy~~ gravelly sand; Rounded clasts to 1.5 cm diameter, ~~trace~~ silt = 2%			
0.8'-1.5	Black gravelly sand; Damp; silt ≈ 5%			
1.5'-3.1	Tan v.f.g. silty sand damp [illegible] inclusions, soft			
3.1 → 6.8	Tan clay silt, mod cohesion, low plasticity, hard			
At 34'	split spoon blocked by cobble fragment			
6.8 ↓ 83	Tan clay silt; but higher silt content; clay ≈ 10%			

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GT01

Project: Georgia Pacific

Inspector: Jon Nickerson

Sheet: 5 of 8

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D) ppm	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	9	MH CH	PID = 0 FID = 0	N/A	GPS-GT01-E 0907	8/2/1/1 ~~3/1/2~~ 0	95% Rec
	10		FID = 0 PID = 0.1			2/2/2/2	
	11				GPS-GT01-F 0912		100% Rec
	12	Sm CH	FID = 0. PID = 0.2			wait/1/2/2	
	13				G 0920		100% Rec.
	14		FID = 0 PID = 0.25				
	15				H 0929	wait/wait/wait/wait	100% Rec
	16	Sm					

PROJECT: Hudson River PCB Facility Siting

HOLE NO.: GPS-GT01

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
8.3 →	Gravel & A Silty Clay Tan ~~Bg~~ Highly plasticity; ~~mod~~ cohesive. Damp			
↓	No inclusions. Soft. ~~Ta~~ ~~5~~ Silt ≈15-20%			
	Wet @ 10.1 Feet BGS			✓
11.9 ↓ 12.2	Black F.g. S. Not well sorted. No inclusions. Silt ≈ 25% wet			✓
12.2 →	Dark Gray/Black Silty Clay. Highly plastic; cohesive; No inclusions. Saturated. Very Soft			
	Contains minor (1/2") silty sand lens of V.F.g. sand at 15.8→15.9' BGS. Saturated. No inclusions Silt ≈ 25%			
15.8'				

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GT01

Project: GEORGIA PACIFIC

Inspector: JON NICKERSON

Sheet 7 of 8

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D) ppm	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
		CH		N/A			
	17		PID = 0 PID = 0		0939 F	1/1/1/2	100% Rec
	18	CH/SC	PID = 0 PID = 0		0948 J	WOH/WOH/WOH/3	100%
	19						
	20	CH	PID = 0 PID = 0.6		1010 K	WOH WOR 50/.2	
	21	SPLIT SPOON REFUSAL					
		BOTTOM OF HOLE 21.2' BGS					
	22						
	23						
	24						

PROJECT: HUDSON RIVER PCB FACILITY SITING

HOLE NO. GPS-GT01

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry / Moist / Wet
18 → 18.9	GRADES INTO A SILTY CLAY; DARK GRAY/BLACK; SATURATED; MED. PLASTICITY; MED COHESION	
18.9 →	WET @ HIGHLY COHESIVE GRAY CLAY; SATURATED; SOFT; HIGHLY PLASTIC	
21.2 →	GRAY SILTY HIGHLY LAMINATED DRY	
21.6	AUGER REFUSAL.	

Borehole Record for GPS-GT02

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

HTRW DRILLING LOG

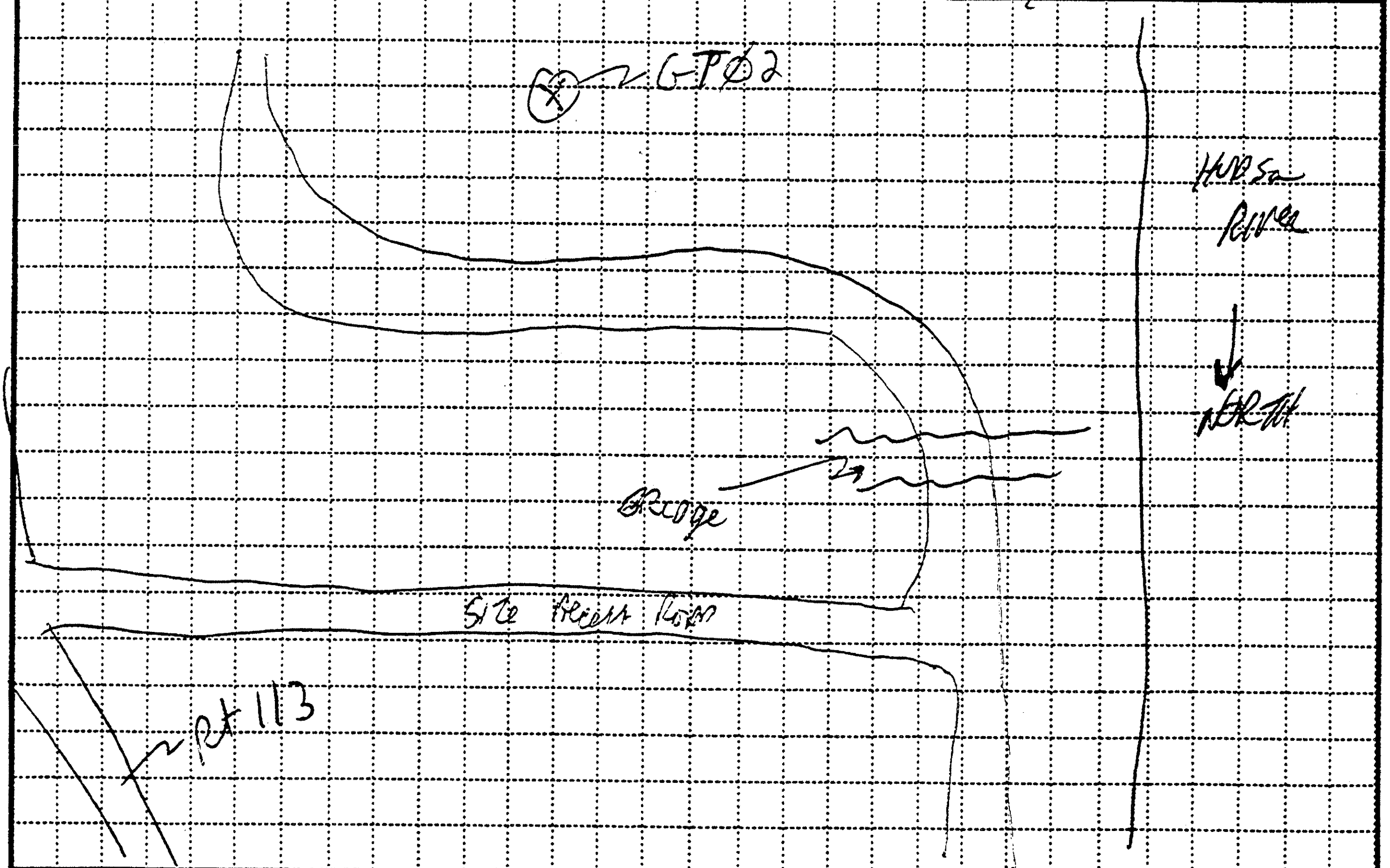
Field	Entry
District	Kansas City Corps
Hole Number	GPS-GP02
Sheet	1 of 70
1. Company Name	Ecology and Environment, Inc
2. Drill Subcontractor	Geologic / Northstar Drilling
3. Project	Georgia Pacific
4. Location	Thomson NY
5. Name of Driller	
6. Manufacturer's Designation of Drill	CME 45C
7. Sizes and Types of Drilling and Sampling Equipment	4¼" HSA; 2" X 24" Split Spoon
8. Hole Location	Central part of site; South of canal
9. Surface Elevation	
10. Date Started	10/8/03
11. Date Completed	10/8/03
12. Overburden Thickness	14'
13. Depth Drilled Into Rock	0.2'
14. Total Depth of Hole	14.2'
15. Depth Groundwater Encountered	~~Seepage~~ @ 1' on top of liner. No free
16. Depth to Water and Elapsed Time After Drilling Completed	No free water ever encountered
17. Other Water Level Managements (Specify)	N/A

18. Geological Samples	Disturbed	Undisturbed	19. Total Number of Core Boxes
	0	1	0

20. Samples For Chemical Analysis	VOC	Metals	Other (Specify)	Other (Specify)	Other (Specify)	21. Total Core Recovery %
			Moisture	Atterberg	Grain Size	0 %

21. Disposition of Hole	Backfilled	Monitoring Well	Other (Specify)	23. Signature of Inspector
	X			[signature]

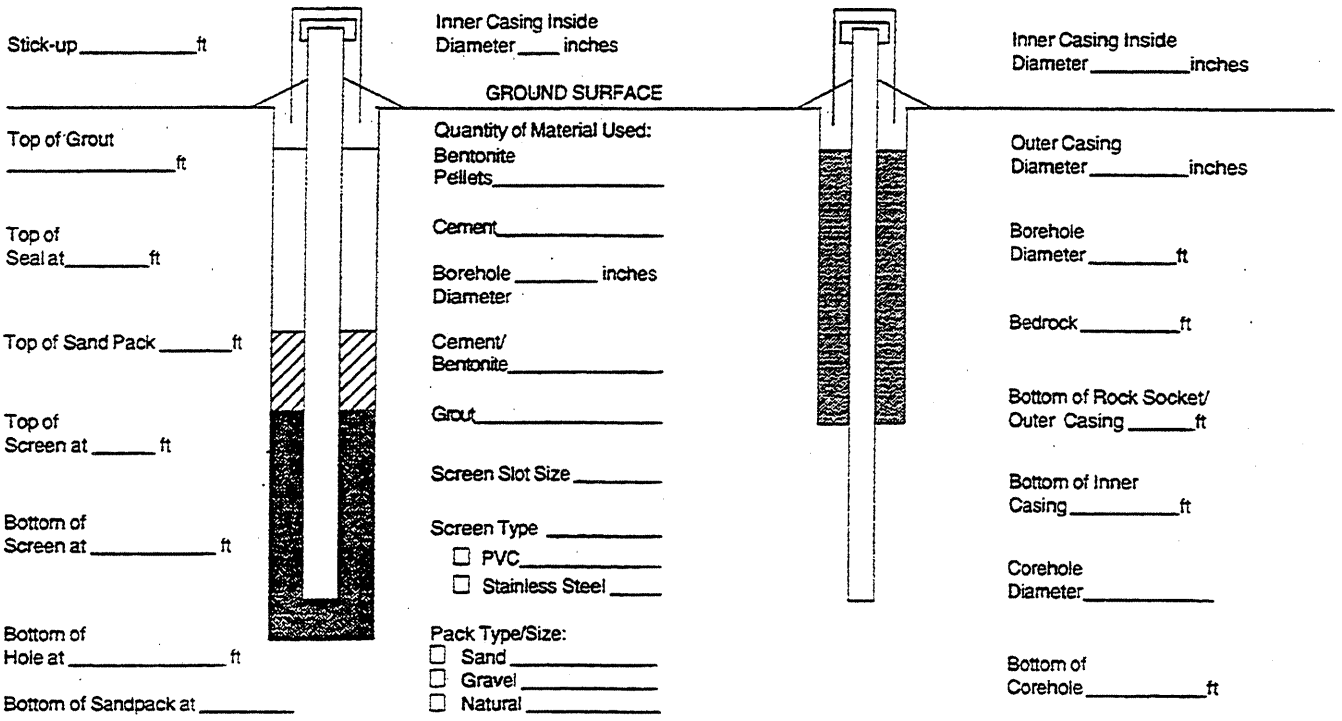
LOCATION SKETCH/COMMENTS SCALE: Not to Scale



PROJECT	HOLE NO.
Hudson River PCB Facility Siting	GPS GP02

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE DRILL LOG FORM



NOTE: See pages 136 and 137 for well construction diagrams

Well not constructed; drilled borehole for geotechnical information only

- Collected sample GPS-GT02-B @ 13:02 submitted for particle size, Atterberg limit, and moisture content analyses

- Breathing zone TVA readings all < 1 ppm.

EM 1110-1-4000
31 AUG 94

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GT02
Project: Georgia Pacific
Inspector: Jon Nickerson
Sheet 3 of 10

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	1	PLASTIC LINER @ 1.0 GM	PID 10.1 FID 2.6	N/A		2/4/4/4	50%
	2	GM					
	3	SM	PID = 35 FID = 3.3 @ 3.5' BGS		@13:02 B GPS-GT02-B	6/3/4/5	50%
	4	SM	PID = 33.4 FID = 2.6			3/2/3/4	80%
	5						
	6		PID = 35.3 FID = 4.7			3/3/3/3	80%
	7						
	8						

PROJECT: Hudson River Facility Siting
HOLE NO.: GPS-GT02

ENG FORM 5056A-R, AUG 94
(Proponent: CECW-EG)

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
0	BROWN GRAVELLY SAND w/ SILT ≈15%. WET TO			
↓	0.5-0.'BGS, TAPERING OFF IN MOISTURE TO DRYNESS @			
	1.0 BGS ROUNDED GRAVEL, AND ANGULAR, SUBANGULAR			
2.2	CLASTS, AS WELL. PLASTIC SHEET @ 1.0' BGS.			
	CLASTS ≤ 1.5 CM IN LENGTH.			
2.2	TIGHT, MOD. HARD TAN SILT, DRY; LOW DENSITY			
↓	LOW COHESION, NO PLASTICITY. CLAY ≈ 10%			
	TRACE V.F.G. SAND: WELL-ROUNDED GRAINS			
4.2				
	SAND/SILT MIXTURE, WELL-ROUNDED V.F.G. QUARTZ SAND. SILT			
	IS BROWN TAN. DAMP.			
	6.8 : MINOR (<10%) INCLUSIONS; 3 MM IN LENGTH;			
	VERY WELL ROUNDED;			
	~~FID~~ READINGS			
	OVA ON ~~FIA INDICATES FID READINGS ARE NOT METHANE~~			

HTRW DRILLING LOG (Continuation Sheet)

Hole Number GPS-GT02

Project: Georgia Pacific | Inspector: Jon Nicholson | Sheet 3 of 10

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	9	SM SW SM SW	PID = 8.2 0-35	N/A		2/2/3/3	90% Rec.
	10	SM SW SM	PID = 8.3 FID = 1.1			2/2/3/3	
	11	SW SM SW					90% Rec
	12	SM SW SM SW	PID = 4.5 FID = 0			1/1/2/4	90% Rec
	13	SM					
	14	WEATHERED BLACK SHALE Bottom of Hole @ 14.2' BGS	PID = 1.6 FID = 0.0			50/0.2	10%
	15						
	16						

PROJECT: Hudson River PCB Facility Siting

HOLE NO.: GPS-GT02

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
8 ↓	SAME SAND / SILT MIXTURE AS ABOVE, WITH DISTINCT INTERVALS (1"-2" WIDE) OF V. F-g SAND - F-g SAND BROWN ~~DRY~~ DRY. NO INCLUSIONS	●	○	○
		●	○	○
		●	○	○
		●	○	○
		●	○	○
		●	○	○
	DAMPNESS increases at 10'-10.5'; NOW MOIST	○	●	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
	Auger Refusal @ 14.0' BGS	○	○	○
	14.0: WEATHERED BEDROCK SHALE; VERY FINELY LAMINATED DARK.	○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○
		○	○	○

Borehole Record for GPS-GTW3

- HTRW Drilling Log
- Narrative Lithologic Description and Well Construction Diagram
- Well Development Record
- Well Development -- Parameter Measurements
- Groundwater Purge and Sampling Log
- Investigation - Derived Waste Inventory Sheet

31 AUG 94

HTRW DRILLING LOG

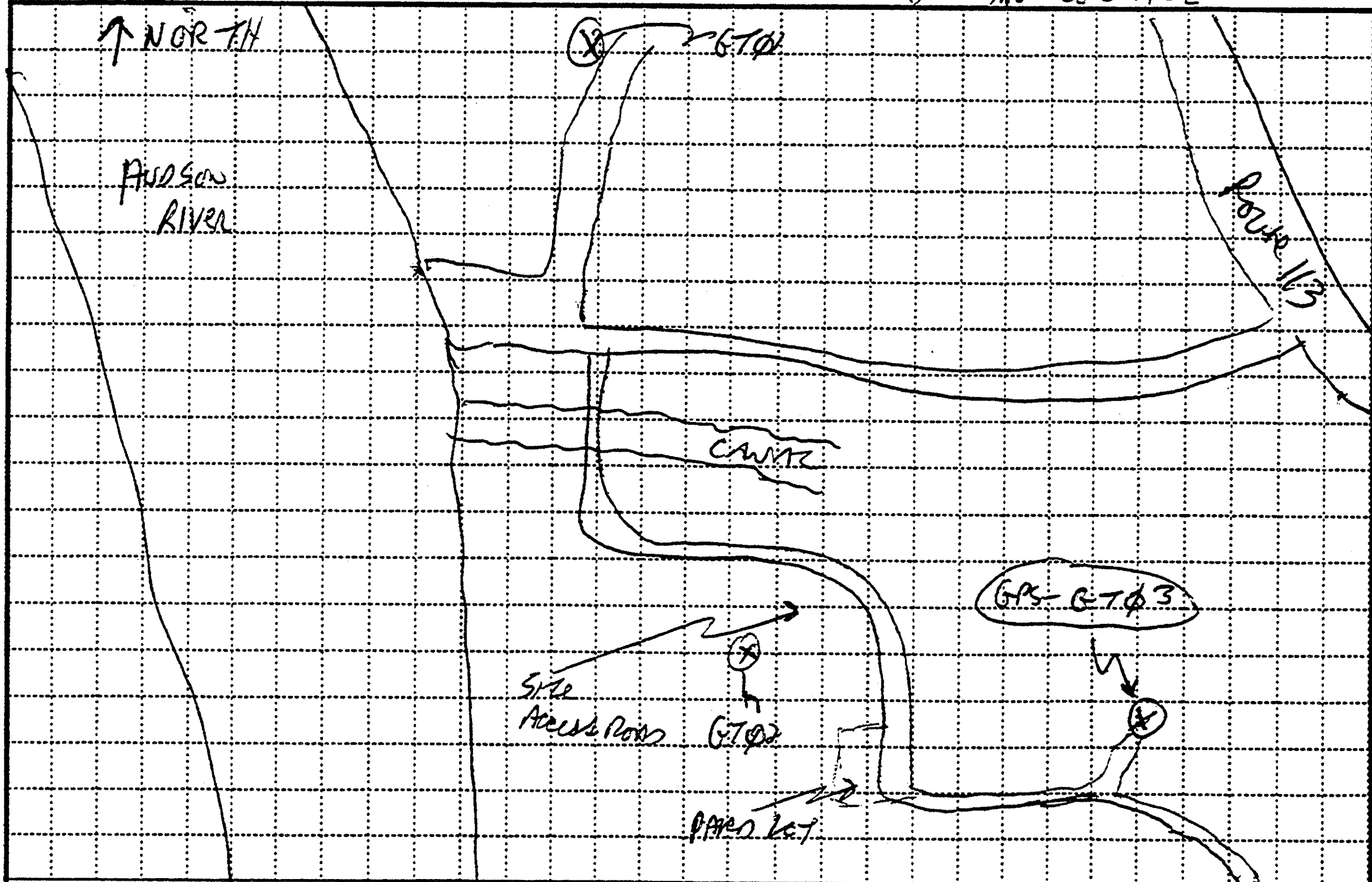
District: Kansas City		**Hole Number:** GPS GT03
1. Company Name: Ecology & Environment, Inc.	**2. Drill Subcontractor:** Northstar Drilling	**Sheet** 1 **of** 8 **Sheets**
3. Project: Georgia Pacific	**4. Location:** Thomson NY	
5. Name of Driller: Steve Laramie	**6. Manufacturer's Designation of Drill:** CME 45C	
7. Sizes and Types of Drilling and Sampling Equipment: 4 1/4" HSA; 2" X 24" Split Spoon Sampler	**8. Hole Location:** North of Site Access Road, S. of Canal	
	9. Surface Elevation:	
	10. Date Started: 10/8/03	**11. Date Completed:** 10/8/03
12. Overburden Thickness: 17.8'	**15. Depth Groundwater Encountered:** 16.3	
13. Depth Drilled Into Rock: 0	**16. Depth to Water and Elapsed Time After Drilling Completed:** Not Read	
14. Total Depth of Hole: 17.8'	**17. Other Water Level Managements (Specify):** N/A	

18. Geological Samples	Disturbed		Undisturbed		19. Total Number of Core Boxes	
			13		0	

20. Samples For Chemical Analysis	VOC	Metals	Other (Specify)	Other (Specify)	Other (Specify)	21. Total Core Recovery %
	0	0	Moisture	Atterberg	Grain Size	N/A

21. Disposition of Hole	Backfilled	Monitoring Well	Other (Specify)	23. Signature of Inspector
—	X	—	—	[signature]

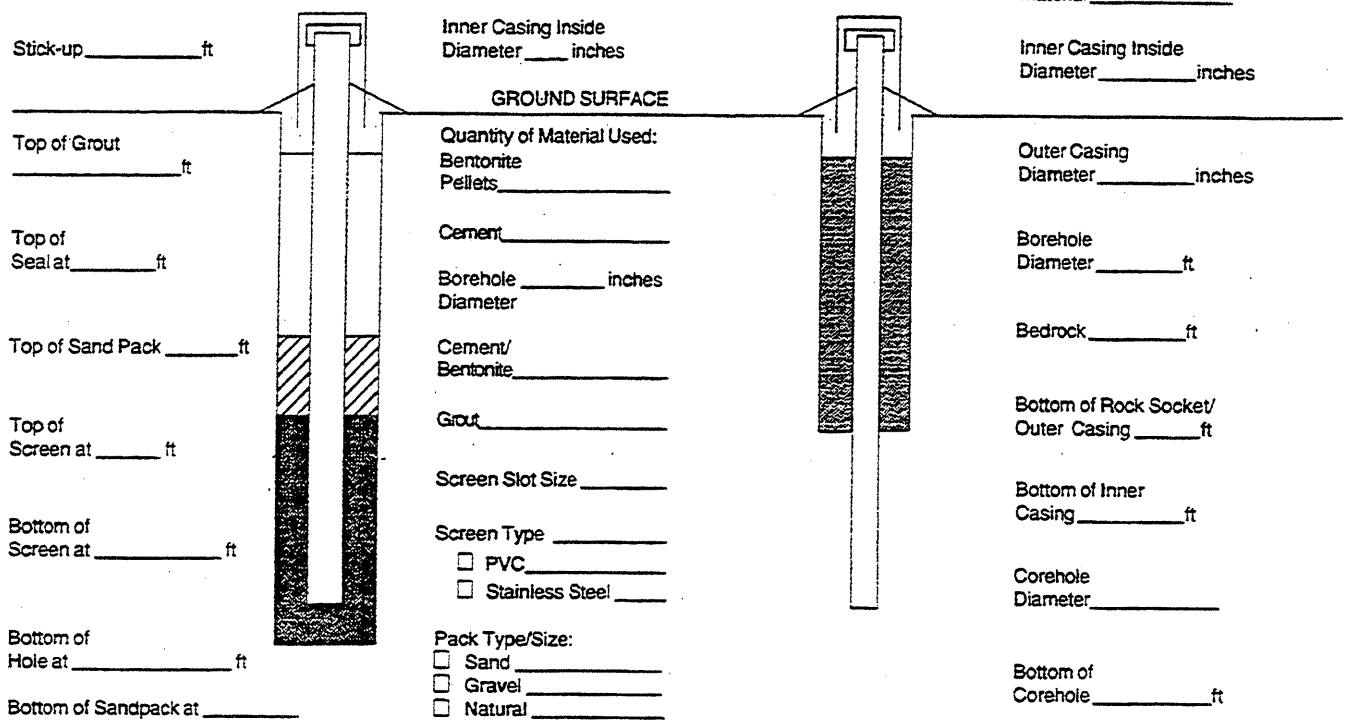
LOCATION SKETCH/COMMENTS **SCALE:** Not to Scale



PROJECT	HOLE NO.
Hudson River PCB Facility Siting Project	GPS GT03

ENG FORM 5056-R, AUG 94 (Proponent: CECW-EG)

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE DRILL LOG FORM



NOTE: See pages 136 and 137 for well construction diagrams

GEOTECHNICAL BORING ONLY; NO WELL INSTALLED

Collected Geotech Soil Sample from the 1'-2' depth interval GPS-GT03-A at 15:18.

Collected a 2nd Geotech Soil Sample from the 12'-14' depth interval at 15:18 & GPS-GT03-C due to encountering a horizon type not previously characterized.

- Breathing zone TVA Readings all 2ppm

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GT03

Project: Georgia-Pacific

Inspector: Jon Nicholson

Sheet 3 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	1	OL	PID = 0.45	N/A	GPS-GT03-A	4/3/5/7	95%
		MH	FID = 0.1		15:18		
		GM					
		SP			A		
	2	~~MH~~ SM	15:18				
			PID = 0.47			2/4/5/5	
			FID = 0.83				
	3						50%
			15:23		GPS-GT03-B		
	4						
			PID = 0.95		GPS-GT03-C	1/2/4	80%
			FID = 1.2				
	5						
		SW	15:31				
	6						
			PID = .95		GPS-GT03-D	4/4/3/3	75%
			FID = 0.60				
	7	~~GM/GP~~ (B)					
			15:36				
	8						

PROJECT: Hudson River PCB Facility Siting

HOLE NO.: GPS-GT03

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
0 ↓				
0.5	Organic silty loam; Rooty; Gravel 10%; Damp	X		
0.5–0.75	Brown silty clay			
0.7 → 0.9	Gravel/silt/sand mixture; Brown; Damp, Some roots, hard pebble are angular and sub angular			
0.9 → 1.5	Black sand/~~grail~~ gravel mixture; Appears to possibly be fill. Angular gravel clasts. Dry			
1.5 → ↓	Brown sandy silt; Loess; Cohesion; Hard; and very little plasticity. Damp. Sand is V.F.G. Brown sand			
5.8	Brown ~~silty~~ sand, F.G. (F.G.–M.G.) little silt; Damp, no inclusions			
	Grades to coarser sand at 6.5, then back to fine and medium-grained sand at 6.8 No pebbles			
8.8 ↓	Rounded gravel/sand mixture, trace silt. (<5%) Poorly sorted no stratification within interval Damp; silt and sand are brown no cohesion no plasticity			
		✓		

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GT03

Project: GEORGIA PACIFIC

Inspector: Jon Nicholson

Sheet 5 of 8 Sheets

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D) ppm	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	9	SW GP	PID=1.65 FID=1.1 15:52	N/A	GPS GT03-E	4/6/7/7	75% Rec.
	10		PID=0.22 FID=0.6		GPS GT03-F 16:04	9/8/7/7	
	11						60% Rec.
	12		PID=0.15 FID=0.42		GPS GT03 G 16:10	5/6/8/6	50% Rec.
	13						
	14		PID=0.15 FID=0.4		GPS GT03 H 16:14	5/7/6/7	5% Rec.
	15	~~SP~~ SM					
	16						

PROJECT: HUDSON RIVER PCB FACILITY SITING

HOLE NO. GPS-GT03

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
8.8 ↓	See description written on page 4			
	10'-12': CLASTS increase in size & 3 cm; well-Rounded, SUB Rounded; Mostly QUARTZ CLASTS. ARY.			
12.9→14	SAND is more Angular; less Rounding still well-graded.			
14.4	Rocky CLAY & well graded SAND; gravel 10%; Dry; Some Fines			

HTRW DRILLING LOG (Continuation Sheet)

Hole Number: GPS-GT03
Project: Georgia Pacific
Inspector: Jon Nickerson
Sheet: 7 of 8

Elevation (A)	Depth (B)	Description of Materials (C)	Field Screening Results (D)	Geotech Sample or Core Box No. (E)	Analytical Sample No. (F)	Blow Count (G)	Remarks (H)
	17	SM GP ↓ CH ~~CL~~ CC	PID = 0.25 FID = 0.38	NA	GPS-GT03-I 16:29	7/8/50/12	50%
	18	REFUSAL BLACK WEATHERED SHALE	~~PID = 0.1~~ ~~FID = 0.3~~		GPS-GT03-J 16:37	6/4/50/0.3 (2)/10	30%
	19	Bottom of Hole @ 17.8' BGS					
	20						
	21						
	22						
	23						
	24						

PROJECT: HUDSON RIVER PCB FACILITY SITING
HOLE NO.: GPS-GT03

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16 → 16.2	well graded sand as described above			
16.2 → 17.0	Gravelly sand; rounded clasts (< 1 cm) wet; trace silt			X
	Water @ 16.3' BGS			
17 ↓	Wet silty clay highly plastic, very cohesive.			
17.2 ↓	Wet gravel / clay / sand mixture. Rounded clasts w/ some shale fragments. Brown.			
17.8'	Weathered black shale, damp. Highly fractured			

Georgia Pacific/New York State Canal Corporation Site

Supplemental Geotechnical Information

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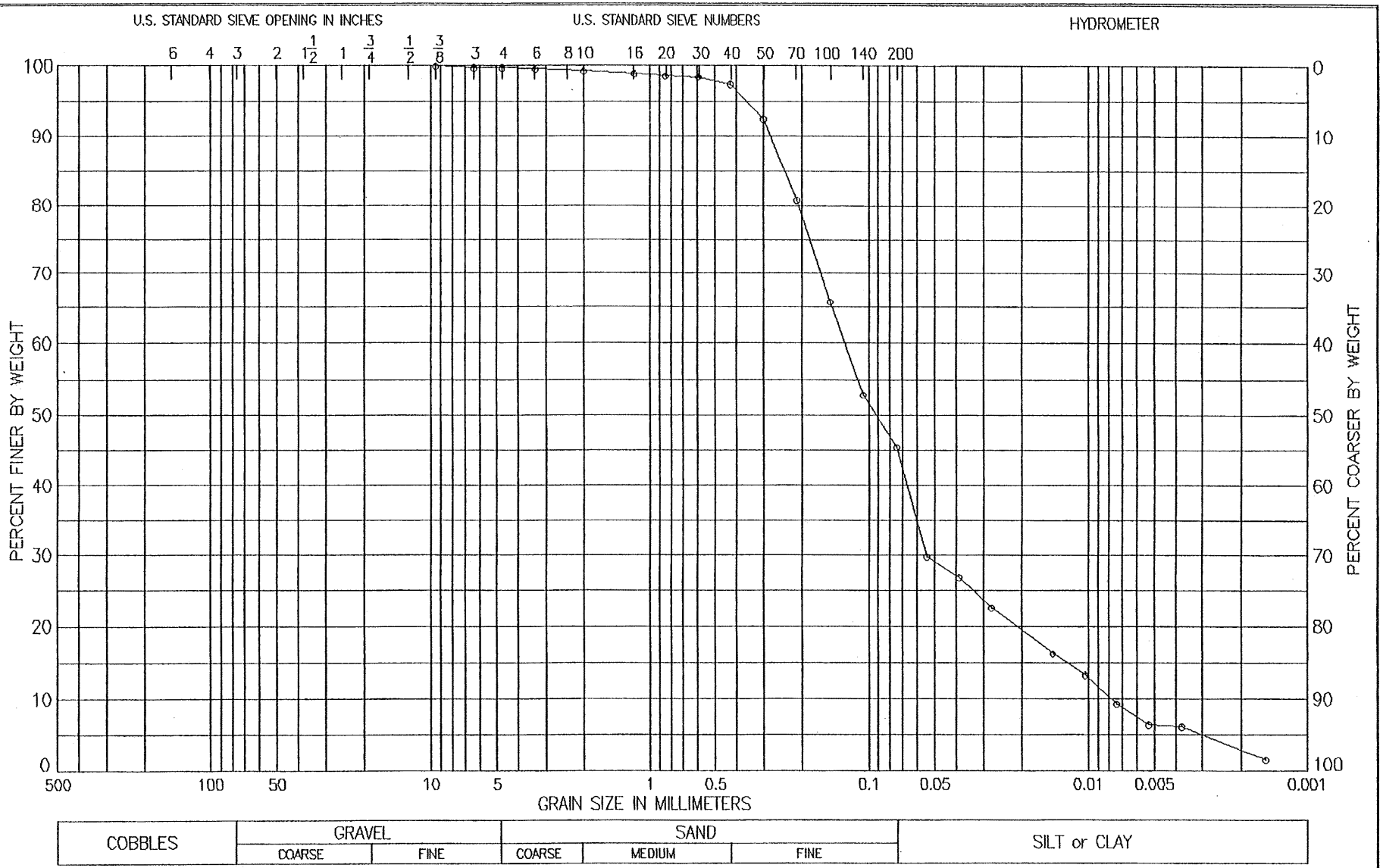
TABLE 1
SUMMARY

PROJECT: HUDSON RIVER PCB FACILITY SITING PROJECT

FILE NO.: 0204 | DATE: | CLASSIFIED BY: AT AND LDD

LOCATION OR BORING	SAMPLE NO.	ELEV. OR DEPTH	LL/PL	SAMPLE DESCRIPTION	NAT. W.C. %
GPS-GT01	A	0-2			14.0
GPS-GT01	B	2-4	21/18	SILTY SAND (SM), BROWN	18.9
GPS-GT01	D	6-8			23.9
GPS-GT01	E	8-10			28.9
GPS-GT01	F	10-12			34.8
GPS-GT01	G	12-14			23.0
GPS-GT01	H	14-16			30.6
GPS-GT01	I	16-18			24.1
GPS-GT01	J	18-20			24.7
GPS-GT01	K	20-21			23.3
GPS-GT02	B	2-4	25/21	SANDY SILTY CLAY (CL), BROWN	16.5
GPS-GT03	A	0.9-1.5	NP	GRAVELLY SILTY SAND (SM), GRAY	16.7
GPS-GT03	B	2-4			22.8
GPS-GT03	C	4-6			15.5
GPS-GT03	D	6-8			5.7
GPS-GT03	E	8-10			4.3
GPS-GT03	F	10-12			4.7
GPS-GT03	G	12-14	NP	GRAVELLY SILTY SAND (SW-SM), GRAY	5.7
GPS-GT03	H	14-16			4.9
GPS-GT03	I	16-17			28.6

REMARKS:



LL	PL	PI	GS	NAT W,%	ORG,%
21	18	3	2.68 EST	18.9	

CLASSIFICATION
SILTY SAND (SM), BROWN

GRADATION CURVE | LABORATORY USAE WES – STF/GL

PROJECT HUDSON RIVER PCB FACILITY SITING
PROJECT
BORING NO. GPS-GT01 SAMPLE NO. B
DEPTH/ELEV 2-4 DATE 06 NOV 03

SIEVE ANALYSIS

PROJECT: HUDSON RIVER PCB FACILITY SITING
PROJECT

BORING: GPS-GT01 SAMPLE: B DF: 0204 .DAT
DEPTH: 2-4 DATE: 06 NOV 03

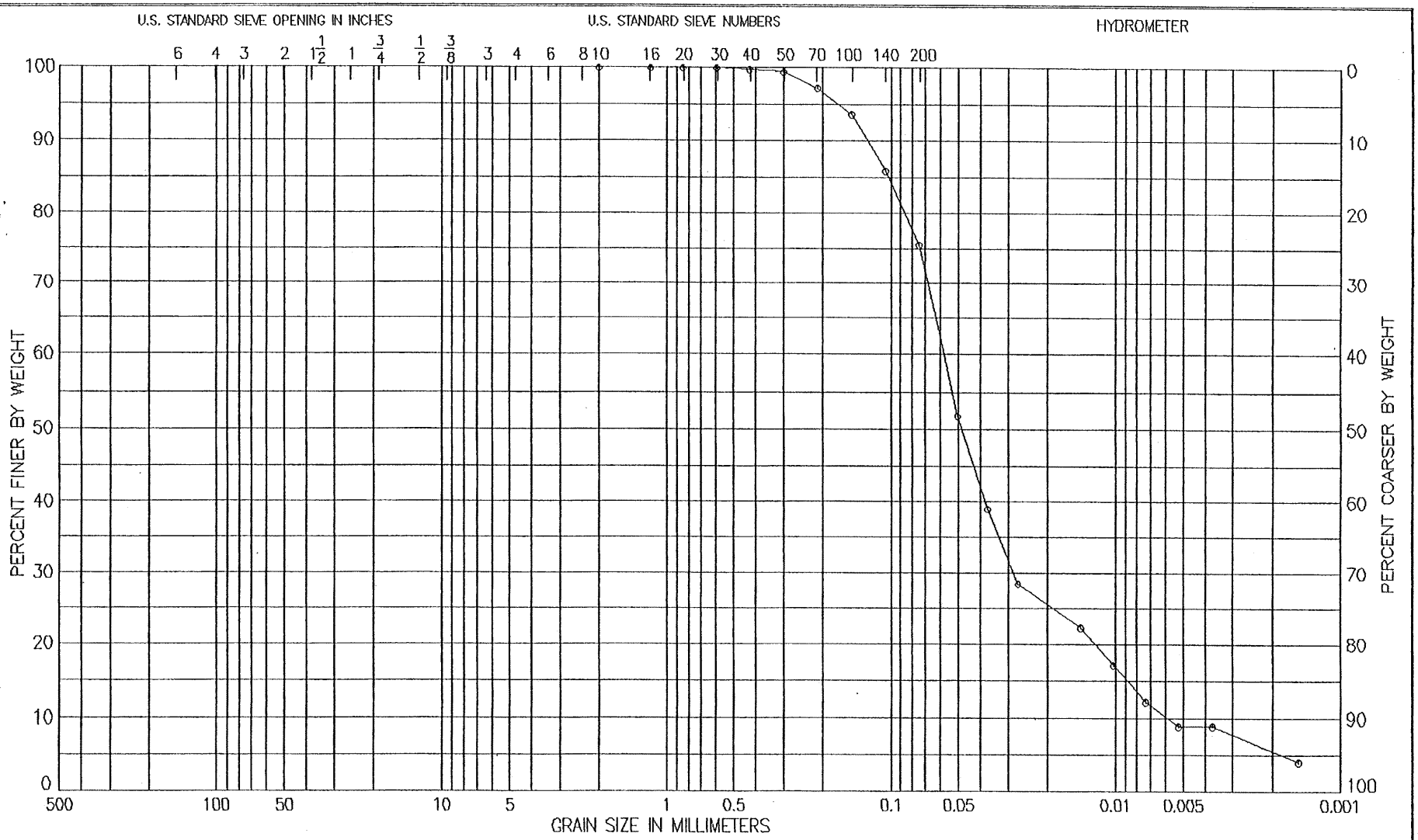
LL: 21 PL: 18 PI: 3 GS: 2.68 est WC: 18.90
CLASSIFICATION: 144
SILTY SAND (SM), BROWN

TOTAL WEIGHT OF SAMPLE: 513.8 gms.
PARTIAL WEIGHT AFTER SPLIT: 59.5 gms.

WEIGHTS gm.	SIEVE SIZE or NUMBER	OPENING mm	PERCENT FINER	PERCENT COARSER
.0	3/8 in	9.500	100.0	.0
1.2	No 3	6.350	99.8	.2
.0	No 4	4.750	99.8	.2
.9	No 6	3.350	99.6	.4
1.4	No 10	2.000	99.3	.7
.2	No 16	1.180	99.0	1.0
.4	No 20	.850	98.7	1.3
.5	No 30	.600	98.5	1.5
1.1	No 40	.425	97.5	2.5
4.1	No 50	.300	92.5	7.5
11.1	No 70	.212	80.8	19.2
20.1	No 100	.150	65.8	34.2
27.8	No 140	.106	52.9	47.1
32.3	No 200	.075	45.4	54.6
HYDROMETER:				
RDGS	TEMP			
11.1	23.0	.0542	29.8	70.2
10.0	23.0	.0387	26.9	73.1
8.4	23.0	.0277	22.6	77.4
6.0	23.0	.0146	16.2	83.8
4.9	23.0	.0104	13.3	86.7
3.4	23.0	.0074	9.3	90.7
2.3	23.0	.0053	6.4	93.6
2.1	23.5	.0038	6.1	93.9
.5	23.0	.0016	1.6	98.4

PERCENT GRAVEL = .2
PERCENT SAND = 54.4
PERCENT FINES = 45.4

EDE



LL	PL	PI	GS	NAT W,%	ORG,%
25	21	4	2.68 EST	16.5	

CLASSIFICATION
SANDY SILTY CLAY (CL), BROWN

GRADATION CURVE | LABORATORY USAE WES – STF/GL

PROJECT HUDSON RIVER PCB FACILITY SITING
PROJECT
BORING NO. GPS-GT02 SAMPLE NO. B
DEPTH/ELEV 2-4 DATE 06 NOV 03

SIEVE ANALYSIS

PROJECT: HUDSON RIVER PCB FACILITY SITING
PROJECT

BORING: GPS-GT02 SAMPLE: B DF: 0204 .DAT
DEPTH: 2-4 DATE: 06 NOV 03

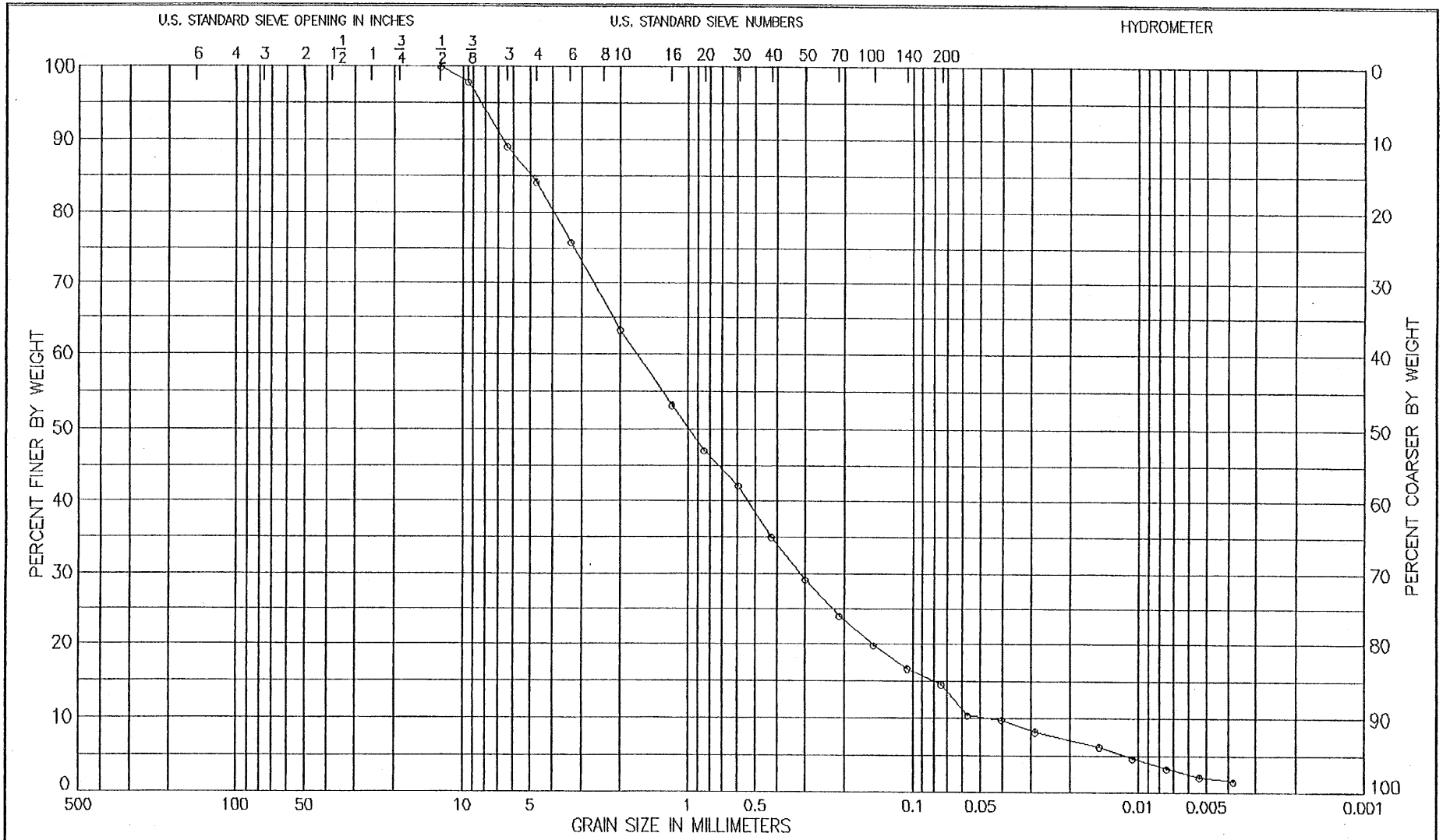
LL: 25 PL: 21 PI: 4 GS: 2.68 est WC: 16.50
CLASSIFICATION: 162
SANDY SILTY CLAY (CL), BROWN

TOTAL WEIGHT OF SAMPLE: .0 gms.
PARTIAL WEIGHT AFTER SPLIT: 58.8 gms.

WEIGHTS gm.	SIEVE SIZE or NUMBER	OPENING mm	PERCENT FINER	PERCENT COARSER
.0	No 10	2.000	100.0	.0
.0	No 16	1.180	100.0	.0
.0	No 20	.850	100.0	.0
.0	No 30	.600	100.0	.0
.1	No 40	.425	99.8	.2
.3	No 50	.300	99.5	.5
1.6	No 70	.212	97.3	2.7
3.7	No 100	.150	93.7	6.3
8.3	No 140	.106	85.9	14.1
14.4	No 200	.075	75.5	24.5
HYDROMETER:				
RDGS	TEMP			
19.0	23.0	.0505	51.8	48.2
14.3	23.0	.0373	39.1	60.9
10.4	23.0	.0273	28.5	71.5
8.1	23.0	.0144	22.2	77.8
6.2	23.0	.0103	17.1	82.9
4.4	23.0	.0074	12.2	87.8
3.2	23.0	.0053	9.0	91.0
3.1	23.5	.0037	9.0	91.0
1.4	23.0	.0015	4.1	95.9

PERCENT GRAVEL = .0
PERCENT SAND = 24.5
PERCENT FINES = 75.5

EDE



LL	PL	PI	GS	NAT W,%	ORG,%
NP			2.67 EST	16.7	

CLASSIFICATION
GRAVELLY SILTY SAND (SM), GRAY

GRADATION CURVE | LABORATORY USAE WES – STF/GL

PROJECT HUDSON RIVER PCB FACILITY SITING
PROJECT
BORING NO. GPS-GT03 SAMPLE NO. A
DEPTH/ELEV 0.9-1.5 DATE 06 NOV 03

SIEVE ANALYSIS

PROJECT: HUDSON RIVER PCB FACILITY SITING
PROJECT

BORING: GPS-GT03 SAMPLE: A DF: 0204 .DAT
DEPTH: 0.9-1.5 DATE: 06 NOV 03

NON-PLASTIC GS: 2.67 est WC: 16.70
CLASSIFICATION: 180
GRAVELLY SILTY SAND (SM), GRAY

TOTAL WEIGHT OF SAMPLE: 553.6 gms.
PARTIAL WEIGHT AFTER SPLIT: 51.5 gms.

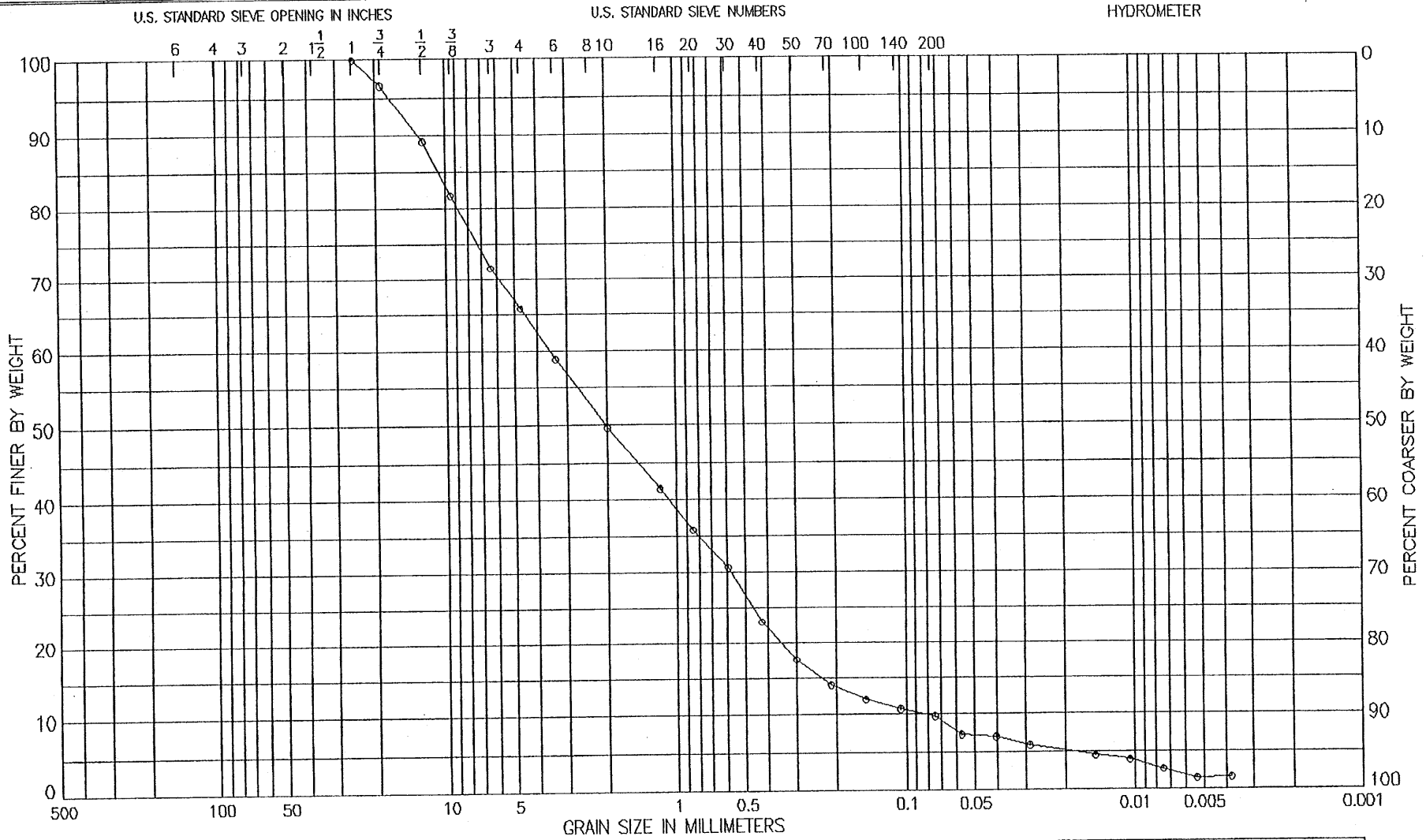
WEIGHTS gm.	SIEVE SIZE or NUMBER	OPENING mm	PERCENT FINER	PERCENT COARSER
.0	1/2 in	12.500	100.0	.0
11.2	3/8 in	9.500	98.0	2.0
49.3	No 3	6.350	89.1	10.9
27.2	No 4	4.750	84.2	15.8
46.1	No 6	3.350	75.8	24.2
69.4	No 10	2.000	63.3	36.7
8.2	No 16	1.180	53.2	46.8
13.2	No 20	.850	47.1	52.9
17.2	No 30	.600	42.2	57.8
23.0	No 40	.425	35.0	65.0
27.8	No 50	.300	29.1	70.9
32.0	No 70	.212	24.0	76.0
35.4	No 100	.150	19.8	80.2
38.0	No 140	.106	16.6	83.4
39.7	No 200	.075	14.5	85.5

HYDROMETER:

RDGS	TEMP			
5.2	23.0	.0571	10.4	89.6
4.9	23.0	.0404	9.8	90.2
4.1	23.0	.0288	8.3	91.7
3.1	23.0	.0150	6.3	93.7
2.3	23.0	.0107	4.7	95.3
1.6	23.0	.0076	3.3	96.7
1.0	23.0	.0054	2.2	97.8
.6	23.5	.0038	1.6	98.4

PERCENT GRAVEL = 15.8
PERCENT SAND = 69.7
PERCENT FINES = 14.5

EDE



COBBLES	GRAVEL		SAND			SILT or CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LL	PL	PI	GS	NAT W,%	ORG,%
NP			2.67 EST	5.7	

CLASSIFICATION
GRAVELLY SILTY SAND (SW–SM), GRAY

PROJECT HUDSON RIVER PCB FACILITY SITING
PROJECT
BORING NO. GPS–GT03 SAMPLE NO. G
DEPTH/ELEV 12–14 DATE 06 NOV 03

GRADATION CURVE | LABORATORY USAE WES – STF/GL

SIEVE ANALYSIS

PROJECT: HUDSON RIVER PCB FACILITY SITING
PROJECT

BORING: GPS-GT03 SAMPLE: G DF: 0204 .DAT
DEPTH: 12-14 DATE: 06 NOV 03

NON-PLASTIC GS: 2.67 est WC: 5.70
CLASSIFICATION: 198
GRAVELLY SILTY SAND (SW-SM), GRAY

TOTAL WEIGHT OF SAMPLE: 1494.0 gms.
PARTIAL WEIGHT AFTER SPLIT: 57.4 gms.

WEIGHTS gm.	SIEVE SIZE or NUMBER	OPENING mm	PERCENT FINER	PERCENT COARSER
.0	1 in	25.000	100.0	.0
49.6	3/4 in	19.100	96.7	3.3
112.0	1/2 in	12.500	89.2	10.8
111.0	3/8 in	9.500	81.8	18.2
151.2	No 3	6.350	71.6	28.4
85.6	No 4	4.750	65.9	34.1
104.5	No 6	3.350	58.9	41.1
138.1	No 10	2.000	49.7	50.3
9.4	No 16	1.180	41.5	58.5
15.9	No 20	.850	35.9	64.1
21.9	No 30	.600	30.7	69.3
30.8	No 40	.425	23.0	77.0
37.1	No 50	.300	17.6	82.4
41.2	No 70	.212	14.0	86.0
43.5	No 100	.150	12.0	88.0
45.0	No 140	.106	10.7	89.3
46.1	No 200	.075	9.8	90.2
HYDROMETER:				
RDGS	TEMP			
5.2	23.0	.0571	7.3	92.7
5.0	23.0	.0404	7.1	92.9
4.2	23.0	.0288	5.9	94.1
3.2	23.0	.0150	4.6	95.4
2.8	23.0	.0106	4.0	96.0
1.9	23.0	.0076	2.8	97.2
1.0	23.0	.0054	1.5	98.5
1.0	23.5	.0038	1.7	98.3

PERCENT GRAVEL = 34.1
PERCENT SAND = 56.1
PERCENT FINES = 9.8

D60 = 3.57
D30 = .58
D10 = .08
CU = 43.38
CC = 1.16

EDE