

Appendix B

Boring Logs, Test Trench Logs, Sealing Records, Spatial Data Reporting Form, and Groundwater Sampling Forms

LOG OF WELL SOC1-GP1

Client University of Minnesota Drill Contractor Matrix Environmental LLC
 Project Name UMA Phase II Investigation Drill Method Direct Push - Dual Tube
 Number 23/19-0B05 Drilling Started 6/5/09 Ended 6/8/09
 Location 4953492.8 UTMN, 492303.4 UTME Logged By JME/EJC

Elevation 944.2
 Total Depth 68
 Screened Interval 58-68'

SHEET 1 OF 3

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Organic Silt (OL): brown, roots, dry. [Topsoil]	PRO. CASING Diameter: None Type: None Interval: None RISER CASING Diameter: 1" Type: PVC Interval: 0-58' GROUT Type: None Interval: None SEAL Type: None Interval: None SANDPACK Type: None Interval: None SCREEN Diameter: 1" Type: 10 Slot, PVC Interval: 58-68' BOREHOLE Diameter: 2"	
		1	0	Silt with Sand (ML): brown (10YR 4/3), dry, 90% non-plastic fines, 10% sand, trace gravel. [Loess]		
5		2	0	Poorly Graded Sand (SP): light yellowish brown (10YR 6/4), dry, 95% medium-grained sand, 5% coarse-grained sand and fine gravel. [Outwash]		940
10		3	0	Medium-grained sand.		935
15		4	0	Few medium gravel.		930
20		5	0	Few bedding planes.		925
25		6	0	Coarser than above.		920
		7		Poorly Graded Sand with Gravel (SP): light yellowish brown (10YR 6/4), dry, 90% medium and coarse-grained sand, 10% fine gravel.	915	
				Sand grades from fine to medium-grained. 29.5-30': Abundant gravel.	915	

(continued)

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 No unusual odor or discoloration. DTW = 62.05'. Temporary well installed and removed on 6/8/09. Borehole sealed on 6/8/09.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC1-GP1

Client University of Minnesota Drill Contractor Matrix Environmental LLC
 Project Name UMA Phase II Investigation Drill Method Direct Push - Dual Tube
 Number 23/19-0B05 Drilling Started 6/5/09 Ended 6/8/09
 Location 4953492.8 UTMN, 492303.4 UTME Logged By JME/EJC

Elevation 944.2
 Total Depth 68
 Screened Interval 58-68'

SHEET 2 OF 3

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
		8		Poorly Graded Sand (SP) <i>(continued)</i>		
		9		1" thick Clay (CL) lens. 100% fine sand, laminated.		910
35				Silt (ML) with Clay (CL) interbedded: dark yellowish brown (10YR 4/4), moist, 100% fines. [Lacustrine]		
				Clay interbeds approximately 1 to 3 inches thick.		
		10		Poorly Graded Sand (SP): brown, dry, 100% fine sand, laminated. [Outwash]		905
40				100% medium-grained sand.		
		11		44-45': Few gravel.		900
45				100% fine-grained sand, laminated.		
		12		Abundant coarse-grained sand.		895
50				Few fine gravel.		
		13		52.5-54': Medium to coarse-grained sand.		890
55				100% fine-grained sand.		
		14		Abundant medium gravel.		885
		15		Medium and coarse-grained sand.		

(continued)

SIMPLE ENVIRO LOG 5 23190B05-GP1 BARRLOG6 28.GDT 10/22/09



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 4700 W 77th St. Suite 200
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 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:

No unusual odor or discoloration. DTW = 62.05'. Temporary well installed and removed on 6/8/09. Borehole sealed on 6/8/09.

BGS = "below ground surface"

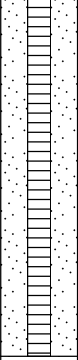
Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC1-GP1

SHEET 3 OF 3

Client University of Minnesota Drill Contractor Matrix Environmental LLC
 Project Name UMA Phase II Investigation Drill Method Direct Push - Dual Tube
 Number 23/19-0B05 Drilling Started 6/5/09 Ended 6/8/09
 Location 4953492.8 UTMN, 492303.4 UTME Logged By JME/EJC

Elevation 944.2
 Total Depth 68
 Screened Interval 58-68'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
65		16		Poorly Graded Sand (SP) <i>(continued)</i> Fine to medium gravel, 25%. Medium to coarse-grained sand, wet at 62' bgs, heaving sand.		880
65		17		Fine to medium-grained sand, coarsening slightly.		875
70				End of Boring - 68 feet		870
75						865
80						860
85						855

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



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 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 No unusual odor or discoloration. DTW = 62.05'. Temporary well installed and removed on 6/8/09. Borehole sealed on 6/8/09.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF BORING SOC1-GP2

Client University of Minnesota

Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation

Drill Method Direct Push - Macrocore

SHEET 1 OF 1

Number 23/19-0B05

Drilling Started 6/8/09 Ended 6/8/09

Elevation 923.9

Location 4953442.9 UTMN, 492299.5 UTME

Logged By EJC

Total Depth 20

Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
0		1	0	Organic-rich Silty Soil (OL): very dark brown (10YR 2/2), moist, (0/0/100). [Topsoil] Poorly Graded Sand (SP): dark yellowish brown (10YR 4/4), medium to coarse-grained, moist. [Fill?] Lean Clay (CL): brown (10YR 4/3), moist, oxidation stains. Clayey Silt (ML): very dark grayish brown (10YR 3/2), (0/0/100), oxidation staining. [Loess]	920
5		2	0		
10		3	0	Poorly Graded Sand (SP): dark brown (10YR 3/3), medium to coarse-grained, moist. [Outwash] Sandy Lean Clay (CL): brown (10YR 4/3), medium-grained sand, moist. [Till]	915
15		4	0	Poorly Graded Sand (SP): dark yellowish brown (10YR 4/4), medium to coarse-grained sand. [Outwash]	910
20				End of Boring - 20 feet	905
25					900
					895

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Remarks:
 No unusual odor or discoloration. Borehole sealed on 6/8/09.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC1-GP3

Client University of Minnesota Drill Contractor Matrix Environmental LLC
 Project Name UMA Phase II Investigation Drill Method Direct Push - Dual Tube
 Number 23/19-0B05 Drilling Started 6/9/09 Ended 6/9/09
 Location 4953524.7 UTMN, 492534.3 UTME Logged By EJC

Elevation 912.2
 Total Depth 44
 Screened Interval 29-44'

SHEET 1 OF 2

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
0		1	0	Organic-rich Silty Soil (OL): very dark brown (10YR 2/2), (0/0/100). [Topsoil] Silty Sand (SM): very dark grayish brown (10YR 3/2), some organic content, (0/60/40), moist.	PRO. CASING Diameter: None Type: None Interval: None	910
0-5		2	0	Silty Organic-rich Clay (CL): black (10YR 2/1), bright red veins, roots, moist.	RISER CASING Diameter: 1" Type: PVC Interval: 0-29'	
5-10		3	0	Lean Clay with Silt (CL): olive brown (10YR 4/3), (0/0/100), trace oxidation mottling and black coloration along microfractures, moist. [Lacustrine]	GROUT Diameter: None Interval: None	905
10-15		4		Two inch layer of dark reddish brown clayey sand.	SEAL Type: None Interval: None	900
15-20		5	0	Poorly Graded Sand (SP): dark yellowish brown (10YR 3/4), medium grained, (0/95/5), moist. [Outwash] Coarsening with depth.	SANDPACK Type: None Interval: None	
20-25		6		Fine gravel at 18'.	SCREEN Diameter: 1" Type: 10 Slot, PVC Interval: 29-44'	895
25-30		7		Fine to medium-grained sand.	BOREHOLE Diameter: 2"	890
30-35				Silty lens. 1/4 inch thick at 25', underlain by six inches of fine gravel and coarse-grained sand.		885
35-44				Medium to coarse-grained sand, fining downward, wet.		

(continued)

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 4700 W 77th St. Suite 200
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Remarks:
 No unusual odor or discoloration. DTW = 37'. Temporary well installed and removed on 6/9/09. Borehole sealed on 6/9/09.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC1-GP3

SHEET 2 OF 2

Client University of Minnesota Drill Contractor Matrix Environmental LLC
 Project Name UMA Phase II Investigation Drill Method Direct Push - Dual Tube
 Number 23/19-0B05 Drilling Started 6/9/09 Ended 6/9/09
 Location 4953524.7 UTMN, 492534.3 UTME Logged By EJC

Elevation 912.2
 Total Depth 44
 Screened Interval 29-44'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
35		8		Poorly Graded Sand (SP) <i>(continued)</i>		880
		9		Silty Sand (SM): wet.		875
40		10		Poorly Graded Sand (SP): medium to coarse-grained, wet.		870
		11		Medium to coarse-grained, fining with depth.		865
45				End of Boring - 44 feet		860
55						855

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Remarks:
 No unusual odor or discoloration. DTW = 37'. Temporary well installed and removed on 6/9/09. Borehole sealed on 6/9/09.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF Boring SOC1-GP3R

Client University of Minnesota

Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation

Drill Method Geoprobe

SHEET 1 OF 2

Number 23/19-0B05

Drilling Started 9/11/09 Ended 9/11/09

Elevation 912.2

Location 4953524.7 UTMN, 492534.3 UTME

Logged By EJC

Total Depth 44

Screened Interval 34-44'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Blind drilled to water. See log for SOC1-GP3.		
					PRO. CASING Diameter: None Type: None	910
					Interval: None	
5					RISER CASING Diameter: 1" Type: PVC	
					Interval: 0-34'	905
					GROUT Type: None	
					Interval: None	
10					SEAL Type: None	
					Interval: None	900
					SANDPACK Type: None	
					Interval: None	
15					SCREEN Diameter: 1" Type: 10 Slot, PVC	895
					Interval: 34-44'	
20					BOREHOLE Diameter: 2"	890
						885

(continued)



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Remarks:
DTW = 38.15' bgs. No odor or discoloration observed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF Boring SOC1-GP3R

SHEET 2 OF 2

Client University of Minnesota Drill Contractor Matrix Environmental LLC
 Project Name UMA Phase II Investigation Drill Method Geoprobe
 Number 23/19-0B05 Drilling Started 9/11/09 Ended 9/11/09
 Location 4953524.7 UTMN, 492534.3 UTME Logged By EJC

Elevation 912.2
 Total Depth 44
 Screened Interval 34-44'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
35				Blind drilled to water. See log for SOC1-GP3. <i>(continued)</i>		880
40						875
45				End of Boring - 44 feet		870
50						865
55						860
						855

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



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 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 DTW = 38.15' bgs. No odor or discoloration observed.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF BORING SOC3-GP1

Client University of Minnesota

Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation

Drill Method Direct Push - Macrocore

SHEET 1 OF 1

Number 23/19-0B05

Drilling Started 6/4/09 Ended 6/4/09

Elevation 945.0

Location 4951472.2 UTMN, 492838.7 UTME

Logged By JME

Total Depth 20

Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
				Organic-rich Soil (OL): black, dry. [Topsoil]	
		1	0	Silt (ML): yellowish brown (10YR 5/6), moist, 95% fines, 5% sand. [Loess]	
5				Poorly Graded Sand with Gravel (SP): yellowish brown (10YR 5/4), moist, 80% medium-grained sand, 20% medium to fine gravel. [Outwash] Dry at 5'.	940
		2	0	7.5-9': Abundant gravel.	
10				10.5-12': Grades to coarse-grained sand with gravel.	935
		3	0		
15					930
		4	0	17.5-18': Fine gravel lens.	
20				End of Boring - 20 feet	925
25					920

SIMPLE ENVIRO LOG 5 23190B05.GP.J BARRLOG6 28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
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 Fax: 952-832-2601

Remarks:
 No odors or discoloration, moisture in headspace baggie samples.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC3-GP2

Client University of Minnesota Drill Contractor Matrix Environmental LLC
 Project Name UMA Phase II Investigation Drill Method Direct Push - Dual Tube
 Number 23/19-0B05 Drilling Started 6/5/09 Ended 6/5/09
 Location 4951569.5 UTMN, 493051.5 UTME Logged By JME

Elevation 936.0
 Total Depth 44
 Screened Interval 33.5-43.5'

SHEET 1 OF 2

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET	
			0	Organic-rich Soil (OL): black, roots, dry. [Topsoil]	PRO. CASING Diameter: None Type: None Interval: None RISER CASING Diameter: 1" Type: PVC Interval: 0-33.5' GROUT Type: None Interval: None SEAL Type: None Interval: None SANDPACK Type: None Interval: None SCREEN Diameter: 1" Type: 10 Slot, PVC Interval: 33.5-43.5' BOREHOLE Diameter: 2"	935	
		1	0	Poorly Graded Sand (SP): light yellowish brown (10YR 6/4), moist, 95% medium-grained sand, 5% fine gravel. [Outwash]			
5		2	0	Few roots.			930
			0	Trace coarse gravel, remainder is medium-grained sand.			
10		3	0				
			0	Fine to medium-grained sand, horizontal bedding planes.			
		4	0	13.5-14': Grades from fine to medium-grained sand.			
15			0				
			0	95% medium to coarse-grained sand, 5% fine gravel.			
20			0	Poorly Graded Sand with Gravel (SP): light yellowish brown (10YR 6/4), moist, 80% medium and coarse-grained sand, 20% fine gravel.		925	
		6	0				
25			0	Medium-grained sand, trace gravel.		920	
		7	0				
				Coarse-grained sand with some gravel.		915	

(continued)

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 Temporary well installed on 6/5/09. Well removed and sealed on 6/9/09. DTW = 37.07'. No unusual odors or discoloration.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC3-GP2

Client University of Minnesota Drill Contractor Matrix Environmental LLC
 Project Name UMA Phase II Investigation Drill Method Direct Push - Dual Tube
 Number 23/19-0B05 Drilling Started 6/5/09 Ended 6/5/09
 Location 4951569.5 UTMN, 493051.5 UTME Logged By JME

Elevation 936.0
 Total Depth 44
 Screened Interval 33.5-43.5'

SHEET 2 OF 2

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
0		8	0	Poorly Graded Sand (SP) (<i>continued</i>) 30.5': Dry.		905
9			Sandy Lean Clay (CL): yellowish brown (10YR 5/6), 70% fines, 30% sand and gravel, hard, massive, strong reaction to HCl. [Till]	900		
35			Sand seams at 34' (fine-grained sand) and 34.5' (medium-grained sand), both wet and less than one inch thick.	895		
40			36.5': Three inch medium-grained sand seam, wet.	890		
45			Firm to hard, dry, sandier than above.	885		
44			End of Boring - 44 feet		880	

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



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 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 Temporary well installed on 6/5/09. Well removed and sealed on 6/9/09. DTW = 37.07'. No unusual odors or discoloration.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF Boring SOC3-GP2R

Client University of Minnesota

Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation

Drill Method Geoprobe

SHEET 1 OF 2

Number 23/19-0B05

Drilling Started 9/9/09 Ended 9/9/09

Elevation 936.0

Location 4951569.5 UTMN, 493051.5 UTME

Logged By EJC

Total Depth 43

Screened Interval 33-43'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Blind drilled to water. See log for SOC3-GP2.		
					PRO. CASING Diameter: None	935
					Type: None	
					Interval: None	
					RISER CASING Diameter: 1"	
5					Type: PVC	930
					Interval: 0-33'	
					GROUT Type: None	
					Interval: None	
10					SEAL Type: None	925
					Interval: None	
					SANDPACK Type: None	
					Interval: None	
15					SCREEN Diameter: 1"	920
					Type: 10 Slot, PVC	
					Interval: 33-43'	
20					BOREHOLE Diameter: 2"	915
25						910

(continued)



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 Fax: 952-832-2601

Remarks:
 DTW = 35.0' bgs. No odor or discoloration observed.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

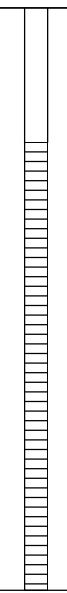
SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09

LOG OF Boring SOC3-GP2R

SHEET 2 OF 2

Client University of Minnesota Drill Contractor Matrix Environmental LLC
 Project Name UMA Phase II Investigation Drill Method Geoprobe
 Number 23/19-0B05 Drilling Started 9/9/09 Ended 9/9/09
 Location 4951569.5 UTMN, 493051.5 UTME Logged By EJC

Elevation 936.0
 Total Depth 43
 Screened Interval 33-43'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
35				Blind drilled to water. See log for SOC3-GP2. <i>(continued)</i>		905
40			900			
45				End of Boring - 43 feet		895
50						890
55						885
						880

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



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 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 DTW = 35.0' bgs. No odor or discoloration observed.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC3-GP3

Client University of Minnesota Drill Contractor Matrix Environmental LLC
 Project Name UMA Phase II Investigation Drill Method Direct Push - Dual Tube
 Number 23/19-0B05 Drilling Started 6/4/09 Ended 6/4/09
 Location 4951438.8 UTMN, 492757.8 UTME Logged By JME

Elevation 942.6
 Total Depth 60
 Screened Interval 45-60'

SHEET 1 OF 2

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Organic-rich Soil (OL): black, roots. [Topsoil]	PRO. CASING Diameter: None Type: None Interval: None RISER CASING Diameter: 1" Type: PVC Interval: 0-45' GROUT Type: None Interval: None SEAL Type: None Interval: None SANDPACK Type: None Interval: None SCREEN Diameter: 1" Type: 10 Slot, PVC Interval: 45-60' BOREHOLE Diameter: 2"	
		1	0	Silt (ML): yellowish brown (10YR 5/6), dry, 100% fines, trace sand, massive, soft. [Loess]		940
5		2	0	Poorly Graded Sand with Gravel (SP): light yellowish brown (10YR 6/4), dry, 90% medium-grained sand, 10% fine gravel. [Outwash]		
10		3	0	Approximately 60% medium-grained sand, 40% coarse-grained sand, few medium gravel.		935
15		4	0	90% medium-grained sand, 10% coarse-grained sand and fine gravel.		930
20		5	0	Trace gravel.		925
25		6	0	Abundant coarse-grained sand and fine to medium gravel.		920
		7	0	Coarse gravel.		
				80% medium-grained sand, 20% fine gravel.		915

(continued)

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



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 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 Temporary well installed on 6/4/09. Well removed and sealed on 6/10/09. DTW = 54.16'. No unusual odors or discoloration observed.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC3-GP3

Client University of Minnesota Drill Contractor Matrix Environmental LLC
 Project Name UMA Phase II Investigation Drill Method Direct Push - Dual Tube
 Number 23/19-0B05 Drilling Started 6/4/09 Ended 6/4/09
 Location 4951438.8 UTMN, 492757.8 UTME Logged By JME

Elevation 942.6
 Total Depth 60
 Screened Interval 45-60'

SHEET 2 OF 2

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Poorly Graded Sand (SP) (continued)		
		9		100% medium and coarse-grained sand.		910
35		10		37.5-38.5': Abundant gravel.		905
40		11		Silty Sand (SM): strong brown (7.5Yr 4/6), moist, 60% fine-grained sand, 40% fines. One inch thick sand seams at 41.5' and 42.75', dry.		900
45		12		Poorly Graded Sand (SP): light yellowish brown (10YR 6/4), dry, 100% medium-grained sand.		
				Silty Sand (SM): brown (7.5Y 4/4), wet, approximately 70% fine-grained sand, 30% fines, firm, cohesive.		895
50		13		Abundant fine to medium-grained sand seams, ranging in thickness from 1 cm to 2 inches, wet.		
				Silty Sand (SM): strong brown (7.5YR 4/6), wet, 70% fine-grained sand, 30% fines.		890
55		14		Sandy Silty with Gravel (ML): brown (7.5YR 4/4), moist, 60% non-plastic fines, 40% sand and gravel, firm, gravel mineralogy includes fine-grained mafics, no reaction to HCl. [Till]		
				No sample.		885
				End of Boring - 60 feet		

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 Temporary well installed on 6/4/09. Well removed and sealed on 6/10/09. DTW = 54.16'. No unusual odors or discoloration observed.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF Boring SOC3-GP3R

Client University of Minnesota

Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation

Drill Method Geoprobe

SHEET 1 OF 3

Number 23/19-0B05

Drilling Started 9/9/09 Ended 9/9/09

Elevation 942.6

Location 4951438.8 UTMN, 492757.8 UTME

Logged By EJC

Total Depth 67

Screened Interval 37-67'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Blind drilled to water. See log for SOC3-GP3.		
					PRO. CASING Diameter: None Type: None Interval: None	940
5					RISER CASING Diameter: 1" Type: PVC Interval: 0-37'	
					GROUT Type: None Interval: None	935
10					SEAL Type: None Interval: None	
					SANDPACK Type: None Interval: None	930
15					SCREEN Diameter: 1" Type: 10 Slot, PVC Interval: 37-67'	925
20					BOREHOLE Diameter: 2"	920
25						915

(continued)



Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:
DTW = 51.91' bgs. No odor or discoloration observed.

BGS = "below ground surface"
Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09

LOG OF Boring SOC3-GP3R

SHEET 2 OF 3

Client University of Minnesota

Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation

Drill Method Geoprobe

Number 23/19-0B05

Drilling Started 9/9/09 Ended 9/9/09

Elevation 942.6

Location 4951438.8 UTMN, 492757.8 UTME

Logged By EJC

Total Depth 67

Screened Interval 37-67'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
35				Blind drilled to water. See log for SOC3-GP3. <i>(continued)</i>		910
40						905
45						900
50						895
55						890
						885

(continued)



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
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 Fax: 952-832-2601

Remarks:
 DTW = 51.91' bgs. No odor or discoloration observed.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09

LOG OF Boring SOC3-GP3R

SHEET 3 OF 3

Client University of Minnesota

Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation

Drill Method Geoprobe

Number 23/19-0B05

Drilling Started 9/9/09 Ended 9/9/09

Elevation 942.6

Location 4951438.8 UTMN, 492757.8 UTME

Logged By EJC

Total Depth 67

Screened Interval 37-67'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
65				Blind drilled to water. See log for SOC3-GP3. <i>(continued)</i>		880
70				End of Boring - 67 feet		875
75						870
80						865
85						860
						855

SIMPLE ENVIRO LOG 5 23190B05 GP.J BARRLOG6 28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 DTW = 51.91' bgs. No odor or discoloration observed.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC3-GP4

Client University of Minnesota Drill Contractor Matrix Environmental LLC
 Project Name UMA Phase II Investigation Drill Method Direct Push - Dual Tube
 Number 23/19-0B05 Drilling Started 6/5/09 Ended 6/5/09
 Location 4951455.8 UTMN, 492945.2 UTME Logged By JME

Elevation 937.8
 Total Depth 44
 Screened Interval 34-44'

SHEET 2 OF 2

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
35				Poorly Graded Sand (SP) <i>(continued)</i>		905
40		6		Sandy Lean Clay (CL): brown (7.5YR 4/4), moist, 70% non-plastic fines, 30% sand and gravel, hard, massive, strong reaction to HCl. [Diamicton]		900
		7				895
		8		Clayier than above, few gravel.		890
45				End of Boring - 44 feet		885
50						880
55						

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:

Temporary well installed on 6/5/09. Well removed and sealed on 6/10/09. DTW = 44.64'. No unusual odors or discoloration. No water observed. Set temporary well at top of Diamicton to see if any infiltrates for sampling.

BGS = "below ground surface"

Additional data may have been collected in the field which is not included on this log.

LOG OF BORING SOC6-GP1

Client University of Minnesota

Drill Contractor Matrix Technologies

Project Name UMA Phase II Investigation

Drill Method Direct Push - Dual Tube

SHEET 1 OF 1

Number 23/19-0B05

Drilling Started 6/10/09 Ended 6/10/09

Elevation 945.5

Location 4950064.6 UTMN, 492032.2 UTME

Logged By EJC

Total Depth 26

Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
				Organic-rich Silty Soil (OL): black (10YR 2/1), (0/0/100), moist. [Topsoil]	945
		1	0	Silt (SM): dark yellowish brown (10YR 4/4), (0/0/100), moist. [Loess]	
5		2	0	Poorly Graded Sand (SP): dark yellowish brown (10YR 4/4), medium to coarse-grained sand, (5/95/0), moist. [Outwash]	940
				20% fine-grained gravel, mostly granitic.	
10		3	0	25% fine to coarse-grained gravel, granitic.	935
				30% fine to coarse-grained gravel, granitic.	
15		4	0	10% fine-grained gravel, granitic.	930
				5% fine-grained gravel, granitic.	
20		5	0		925
				Lean Clay (CL): dark yellowish brown (10YR 4/4), medium to coarse-grained sand, (0/5/95), moist. [Till]	
		6		Very dark gray (5Y 3/1), medium to coarse-grained sand, (0/10/90), hard, stiff.	
				Dark yellowish brown (10YR 4/4).	
				Poorly Graded Sand (SP): yellowish brown (10YR 5/6), fine to coarse-grained, (5/90/5), moist.	
25		7		Sandstone: light yellowish brown (10YR 6/4), very fine-grained, moist, strong reaction to HCl. [Weathered St. Peter Sandstone?]	920
				Refusal. End of Boring - 26 feet	

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:

No odor or discoloration observed. No well installed. Refusal at 26'.

BGS = "below ground surface"

Additional data may have been collected in the field which is not included on this log.

LOG OF BORING SOC6-GP2

Client University of Minnesota
 Project Name UMA Phase II Investigation
 Number 23/19-0B05
 Location 4950086.2 UTMN, 492032.5 UTME

Drill Contractor Matrix Environmental LLC
 Drill Method Direct Push - Dual Tube
 Drilling Started 6/10/09 Ended 6/10/09
 Logged By EJC

Elevation 945.2
 Total Depth 20
 Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
				Organic-rich Silty Soil (OL): black (10YR 2/1), moist. [Topsoil]	945
		1		Silt (ML): very dark grayish brown to dark yellowish brown (10YR 4/4), (0/0/100), dry. [Loess]	
5				Poorly Graded Sand (SP): dark yellowish brown (10YR 4/4), fine to coarse-grained sand with 5% fine-grained gravel, granitic, (5/95/0), moist. [Outwash]	
		2		5-6': Fine to medium-grained sand, coarsening to medium to coarse-grained sand with 15% fine to coarse-grained gravel below 6'.	940
10				35% fine to coarse-grained gravel, granitic.	935
		3			
15				Lean Clay (CL): dark brown (10YR 4/3), medium to coarse-grained carbonate sand, (0/5/95), moist. [Till] Very dark gray (5Y 3/1), very stiff.	930
		4		16.5-19.5': Brown (10YR 4/3), some oxidation mottling.	
20				Sandstone: light yellowish brown (10YR 6/4), very fine-grained, moist. [Weathered St. Peter Sandstone?] Refusal. End of Boring - 20 feet	925
25					920

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 No odor or discoloration observed. Refusal at 20'.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF BORING SOC6-GP3

Client University of Minnesota
 Project Name UMA Phase II Investigation
 Number 23/19-0B05
 Location 4950104.9 UTMN, 492032.4 UTME

Drill Contractor Matrix Environmental LLC
 Drill Method Direct Push - Dual Tube
 Drilling Started 6/9/09 Ended 6/9/09
 Logged By EJC

Elevation 944.8
 Total Depth 28
 Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
		1	0	Organic-rich Silty Soil (OL): black (10YR 2/1), (0/0/100), moist. [Topsoil] Silt (ML): very dark grayish brown (10YR 3/2), (0/0/100), dry. [Loess] 2-4': Dark yellowish brown (10YR 4/4), moist.	
5		2	0	Silty Sand (SM): yellowish brown (10YR 5/4), fine-grained, (0/80/20), moist. Poorly Graded Sand (SP): yellowish brown (10YR 5/4), medium to coarse-grained, (5/95/0), moist. [Outwash]	940
10		3	0	Medium to coarse-grained with 5% gravel.	935
15		4	0	Coarse-grained sand with 10% fine gravel.	930
20		5	0	Lean Clay (CL): dark yellowish brown (10YR 4/4), coarse-grained carbonate sand and oxidation mottling, (0/15/85). [Till] Dark gray (10YR 3/1), trace sand and gravel, (2/2/96), moist, very stiff.	925
25		6		No recovery 20-24' - driller indicates interval felt like clay from 16-20'.	
		7		Sandstone: light yellowish brown (2.5Y 6/4), fine-grained, few pieces of mafic igneous fine gravel. Very dense, cohesive, moist to dry, oxidation mottling. Slow drilling. [Weathered St. Peter Sandstone?]	920
				Refusal. End of Boring - 28 feet	915

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 No odor or discoloration observed. No well installed. Refusal at 24' on first attempt, moved 5' south and redrilled blind. Refusal at 28' on second attempt.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF BORING SOC6-GP4

Client University of Minnesota
 Project Name UMA Phase II Investigation
 Number 23/19-0B05
 Location 4950254.2 UTMN, 492025.9 UTME

Drill Contractor Matrix Environmental LLC
 Drill Method Direct Push - Macrocore
 Drilling Started 6/3/09 Ended 6/3/09
 Logged By JME

Elevation 946.3
 Total Depth 51.5
 Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
		1	1.4	Silty Sand (SM): brown (10YR 4/3), dry, few roots. [Topsoil]	945
				Silt (ML): dark yellowish brown (10YR 4/4), moist, approximately 95% fines, 5% fine-grained sand, non-plastic, soft to firm, massive. [Loess]	
5		2	0.3	Poorly Graded Sand with Gravel (SP): yellowish brown (10YR 4/4), moist, 90% medium-grained sand, 10% gravel, trace fines. [Outwash]	940
			0.7	Poorly Graded Gravel with Sand (GP): dry, mineralogies include basalts and granites.	
10		3	1.9	Poorly Graded Sand with Gravel (SP): yellowish brown (10YR 4/4), moist, 90% medium to coarse-grained sand, 10% fine gravel.	935
			1.9		
15		4			
			1.0	Cobble. Rock obstruction resulted in poor recovery. Cleared rock with center bit.	930
20		5			
				Poorly Graded Sand (SP): light yellowish brown (10YR 6/4), moist, approximately 95% medium-grained sand, 5% coarse-grained sand and fine gravel.	925
		6			
25				Weak lamination with subtle grain size variations between approximately 4 inch intervals (i.e., fine sand, coarse sand, medium sand).	
		7		Few dark bedding plane traces.	920
				Approximately 100% medium-grained sand, trace coarse-grained sand.	

(continued)

SIMPLE ENVIRO LOG 5 23190B05.GP.J BARRLOG6 28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 Location from building 706 (NE corner) - 21' N, 11.5' E. No well installed. Refusal at 51.5'. No unusual odor or discoloration.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF BORING SOC6-GP4

Client University of Minnesota
 Project Name UMA Phase II Investigation
 Number 23/19-0B05
 Location 4950254.2 UTMN, 492025.9 UTME

Drill Contractor Matrix Environmental LLC
 Drill Method Direct Push - Macrocore
 Drilling Started 6/3/09 Ended 6/3/09
 Logged By JME

Elevation 946.3
 Total Depth 51.5
 Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
		8		Poorly Graded Sand (SP) <i>(continued)</i>	915
35		9		Increasing coarse-grained sand content with depth.	
		10		Abundant gravel.	910
40		11		40-41': Approximately 100% medium-grained sand. 41-42': 90% coarse-grained sand and fine gravel, 10% medium-grained sand.	905
45		12		Coarse-grained sand, moist.	900
50		13		Poorly Graded Sand with Gravel (SP): light yellowish brown (10YR 6/4), moist, 70% medium-grained sand, 30% fine gravel.	
				Sandstone: white, dry. [St. Peter Sandstone]	895
				Refusal at 51.4' bgs. End of Boring - 51.5 feet	
55					890

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 Location from building 706 (NE corner) - 21' N, 11.5' E. No well installed. Refusal at 51.5'. No unusual odor or discoloration.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF BORING SOC6-GP5

Client University of Minnesota

Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation

Drill Method Direct Push - Macrocore

SHEET 1 OF 1

Number 23/19-0B05

Drilling Started 6/4/09 Ended 6/4/09

Elevation 946.1

Location 4950049.9 UTMN, 491998.5 UTME

Logged By JME

Total Depth 20

Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
				Soil: roots, dry. [Topsoil]	
		1	0	Silt (ML): yellowish brown (10YR 5/6), moist, 100% non-plastic fines, trace sand. [Loess]	945
5		2	0.9	Poorly Graded Sand with Gravel (SP): yellowish brown (10YR 5/4), moist, 70% medium-grained sand, 30% gravel. [Outwash]	940
10		3	0.8	12-13': Abundant fine gravel.	935
15		4	1.0	Abundant gravel.	930
20				Sandy Lean Clay (CL): dark yellowish brown (10YR 4/6), moist, 70% medium plasticity fines, 30% sand and gravel, firm, massive, weak reaction to HCl. [Till] Color grades to greenish black (10R 2.5/1). End of Boring - 20 feet	925
25					920

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 Moisture in headspace bags. No well installed. No unusual odor or discoloration.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF WELL SOC6-GP6

Client University of Minnesota

Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation

Drill Method Direct Push - Macrocore

SHEET 1 OF 1

Number 23/19-0B05

Drilling Started 6/3/09 Ended 6/3/09

Elevation 945.5

Location 4950028.3 UTMN, 492028.2 UTME

Logged By JME

Total Depth 25

Screened Interval 11-21'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Organic-rich Soil (OL): black, grass, roots. [Topsoil]	PRO. CASING Diameter: None Type: None Interval: None RISER CASING Diameter: 1" Type: PVC Interval: GROUT Type: None Interval: None SEAL Type: None Interval: None SANDPACK Type: None Interval: None SCREEN Diameter: 1" Type: 10 Slot, PVC Interval: 11-21' BOREHOLE Diameter: 2"	945
		1	1.4	Silt with Sand (ML): brown (10YR 4/3), moist, 85% fines, 15% fine-grained sand, firm, massive. [Loess]		940
5			2.4	Poorly Graded Sand with Gravel (SP): yellowish brown (10YR 5/4), moist, 85% medium-grained sand, 15% coarse-grained sand and gravel. [Outwash]		940
		2		8-9': Gravel lens.		
10				Few coarse gravel at 11' bgs.		935
		3				
15						930
		4		100% medium-grained sand, wet from 18.5' to 19.5'.		
20				Lean Clay with Sand (CL): dark yellowish brown (10YR 4/4), moist, 90% medium plasticity fines, 10% sand. [Till]		925
		5		Yellowish brown (10YR 5/6), moist, abundant mottles and oxidized traces.		
25				Silty Sand (SM): brownish yellow (10YR 6/6), moist, 70% fine-grained sand, 30% fines.		
				End of Boring - 25 feet		920

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6_28.GDT 10/22/09



Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-832-2601

Remarks:

DTW = 17.5' bgs. Temporary well installed on 6/3/09. Well removed and sealed on 6/9/09. No unusual odor or discoloration.

BGS = "below ground surface"

Additional data may have been collected in the field which is not included on this log.

LOG OF BORING SOC6-GP7

Client University of Minnesota

Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation

Drill Method Direct Push - Macrocore

SHEET 1 OF 1

Number 23/19-0B05

Drilling Started 6/3/09 Ended 6/3/09

Elevation 946.8

Location 4950233.8 UTMN, 492015.8 UTME

Logged By JME

Total Depth 20

Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
				Topsoil (OL)	
		1	0	Gravel Sandy Silt (ML): dark yellowish brown (10YR 4/4), moist, 70% non-plastic fines, 30% fine-grained sand, firm, massive. [Loess]	945
5			0	Poorly Graded Sand with Gravel (SP): light yellowish brown (10YR 6/4), dry, 80% medium-grained sand, 20% fine gravel. [Outwash]	940
10		2	0		
		3	0	70% medium-grained sand, 30% fine gravel.	935
15					930
		4		Few coarse gravel.	
20				End of Boring - 20 feet	925
25					920

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 Sample SOC6-GP7 0-4' collected at 14:15. No well installed.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF BORING SOC6-GP8

Client University of Minnesota

Drill Contractor Matrix Environmental LLC

Project Name UMA Phase II Investigation

Drill Method Direct Push - Macrocore

SHEET 1 OF 1

Number 23/19-0B05

Drilling Started 6/4/09 Ended 6/4/09

Elevation 946.0

Location 4950049.9 UTMN, 492020.9 UTME

Logged By JME

Total Depth 20

Screened Interval NA

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	ELEV. FEET
				Gravel Ground Cover (Fill)	
		1	0	Organic-rich Soil (OL): dark. [Topsoil]	945
5			0	Silt (ML): dark yellowish brown, moist, 95% non-plastic fines, 5% sand, trace fine gravel. [Loess]	
		2	0	Poorly Graded Sand with Gravel (SP): light yellowish brown, dry, 90% sand, 10% medium gravel. [Outwash]	940
10			0	Abundant coarse-grained sand and gravel.	935
		3	0		
15			0		930
		4	0		
20			0	Lean Clay with Sand (CL): yellowish brown (10YR 5/4), moist, 95% lean clay, 5% sand and gravel, firm to hard, massive, sand/gravel includes felsic clasts, weak reaction to HCl. [Till]	925
				End of Boring - 20 feet	
25					920

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 Sample SOC6-GP8 2-4' collected. No well installed.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF Boring MW-E2-012

Client University of Minnesota Drill Contractor SDE
 Project Name UMA Phase II Investigation Drill Method HSA
 Number 23/19-0B05 Drilling Started 9/25/09 Ended 9/28/09
 Location 4950337.9 UTMN, 492396.1 UTME Logged By EJC

Elevation 945.3
 Total Depth 75
 Screened Interval 60-70'

SHEET 1 OF 3

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET	
5				Soil (OL): black. [Topsoil]	<p>PRO. CASING Diameter: 8" Type: Steel Interval: 0-4'</p> <p>RISER CASING Diameter: 2" Type: Threaded Black Steel Interval: 0-60'</p> <p>GROUT Type: Cement Interval: 1-51'</p> <p>SEAL Type: Bentonite Interval: 51-53'</p> <p>SANDPACK Type: Naturals Interval: 53-75'</p> <p>SCREEN Diameter: 2" Type: 10 Slot, Stainless Steel Interval: 60-70'</p> <p>BOREHOLE Diameter: 8.5"</p>	945	
				Silt (ML): yellowish brown. [Loess]			
				Sand and Gravel (SP): yellowish brown. [Outwash]			940
				Gravel at 7' bgs.			
10				Gravel at 12' bgs.		935	
15						930	
20						925	
25						920	

(continued)



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 Unable to slit-spoon sample due to repeatedly clogged drill stem and gravel/cobbles at 50' bgs. DTW = 62.8' bgs. No odor or discoloration observed.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09

LOG OF Boring MW-E2-012

SHEET 2 OF 3

Client University of Minnesota Drill Contractor SDE
 Project Name UMA Phase II Investigation Drill Method HSA
 Number 23/19-0B05 Drilling Started 9/25/09 Ended 9/28/09
 Location 4950337.9 UTMN, 492396.1 UTME Logged By EJC

Elevation 945.3
 Total Depth 75
 Screened Interval 60-70'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
				Sand and Gravel (SP): yellowish brown. [Outwash] <i>(continued)</i>		915
35						910
40						905
45				Gravel from 45' to 50' bgs.		900
50						895
55						890

(continued)

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 Unable to slit-spoon sample due to repeatedly clogged drill stem and gravel/cobbles at 50' bgs. DTW = 62.8' bgs. No odor or discoloration observed.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

LOG OF Boring MW-E2-012

SHEET 3 OF 3

Client University of Minnesota Drill Contractor SDE
 Project Name UMA Phase II Investigation Drill Method HSA
 Number 23/19-0B05 Drilling Started 9/25/09 Ended 9/28/09
 Location 4950337.9 UTMN, 492396.1 UTME Logged By EJC

Elevation 945.3
 Total Depth 75
 Screened Interval 60-70'

DEPTH FEET	SAMP. LENGTH & RECOVERY	SAMP. NUMBER	Headspace ppm	DESCRIPTION	WELL OR PIEZOMETER CONSTRUCTION DETAIL AND DRILLING REMARKS	ELEV. FEET
65				Sand and Gravel (SP): yellowish brown. [Outwash] <i>(continued)</i>		885
70						880
75				End of Boring - 75 feet		875
80						870
85						865
						860

SIMPLE ENVIRO LOG 5 23190B05.GPJ BARRLOG6 28.GDT 10/22/09



Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-832-2601

Remarks:
 Unable to slit-spoon sample due to repeatedly clogged drill stem and gravel/cobbles at 50' bgs. DTW = 62.8' bgs. No odor or discoloration observed.

BGS = "below ground surface"
 Additional data may have been collected in the field which is not included on this log.

Burr-Umore

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING RECORD
Minnesota Statutes, Chapter 1031

MINNESOTA UNIQUE WELL
AND BORING NO.

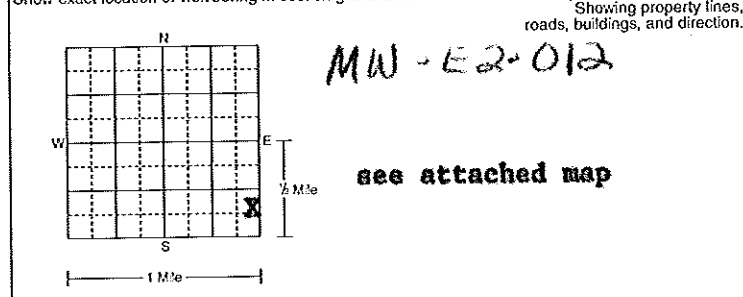
770718

WELL OR BORING LOCATION
County Name
Dakota

Township Name: **Empire Twp.**
Township No.: **114N**
Range No.: **29W**
Section No.: **4**
Fraction: **NE SE SE 1/4**

GPS LOCATION: Latitude _____ degrees _____ minutes _____ seconds _____
Longitude _____ degrees _____ minutes _____ seconds _____

House Number, Street Name, City, and Zip Code of Well Location
approx. 1300 ft NW of Station Tr1 and 170th St, Rosemount MN 55024



PROPERTY OWNER'S NAME/COMPANY NAME
University of Minnesota
Property owner's mailing address if different than well location address indicated above.
**Boytton Health Center, RM W-140
410 Church St.
Minneapolis, MN 55455**

WELL OWNER'S NAME/COMPANY NAME
University of Minnesota
Well/boring owner's mailing address if different than property owner's address indicated above.
**501 23rd Ave SE
Minneapolis, MN 55414**

GEOLOGICAL MATERIALS	COLOR	HARDNESS OF MATERIAL	FROM	TO
top soil	tan		0	3
sand & gravel	gray		3	70

REMARKS, ELEVATION, SOURCE OF DATA, etc.
Use a second sheet, if needed.

WELL CONTRACTOR COPY **770718**

WELL/BORING DEPTH (completed) **70** ft. DATE WORK COMPLETED **Sept. 28, 2009**

DRILLING METHOD
 Cable Tool Driven Dug
 Auger Rotary Jetted

DRILLING FLUID _____ WELL HYDROFRACTURED? Yes No

USE
 Domestic Monitoring Heating/Cooling
 Noncommunity PWS Environ. Bore Hole Industry/Commercial
 Community PWS Irrigation Remedial
 Elevator Dewatering _____

CASING MATERIAL Drive Shoe? Yes No
 Steel Threaded Welded
 Plastic _____

CASING Diameter **2** in. to **60** ft. Weight _____ lbs./ft. Specifications _____
HOLE DIAM. **8 1/2** in. to **70** ft.

SCREEN Make **Johnson** OPEN HOLE From _____ ft. To _____ ft.
Type _____ Diam. **2"**
Slot/Gauze **10** Length **10'**
Set between **60** ft. and **70** ft. FITTINGS **thread**

STATIC WATER LEVEL Measured from **grade**
61 ft. Below Above land surface Date measured **9/28/09**

PUMPING LEVEL (below land surface)
_____ ft. after _____ hrs. pumping **1** g.p.m.

WELLHEAD COMPLETION
 Pitless/adaptor manufacturer _____ Model _____
 Casing Protection **8" x 6'** Above grade **24"**
 At-grade (Environmental Well and Boring ONLY)

GROUTING INFORMATION
Well grouted Yes No
Grout materials Neat cement Bentonite Concrete Other _____
From **0** To **55 1/2** ft. **16** Yds. Bags
From _____ To _____ ft. _____ Yds. Bags
From _____ To _____ ft. _____ Yds. Bags

NEAREST KNOWN SOURCE OF CONTAMINATION
_____ feet _____ direction _____ type

Well disinfected upon completion? Yes No

PUMP
 Not installed Date installed _____
Manufacturer's name _____
Model Number _____ HP _____ Volts _____
Length of drop pipe _____ ft. Capacity _____ g.p.m.
Type: Submersible L.S. Turbine Reciprocating Jet _____

ABANDONED WELLS
Does property have any not in use and not sealed well(s)? Yes No

VARIANCE
Was a variance granted from the MDH for this well? Yes No TN# _____

WELL CONTRACTOR CERTIFICATION
This well was drilled under my supervision and in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Stevens Drilling & Env. Svc. Inc. 2255
Licensee Business Name Lic. or Reg. No.
[Signature] 556 10/6/09
Certified Representative Signature Certified Rep. No. Date
Randy Johnson
Name of Driller

WELL OR BORING LOCATION
 County Name Dakota

MINNESOTA DEPARTMENT OF HEALTH
WELL AND BORING SEALING RECORD
 Minnesota Statutes, Chapter 103I

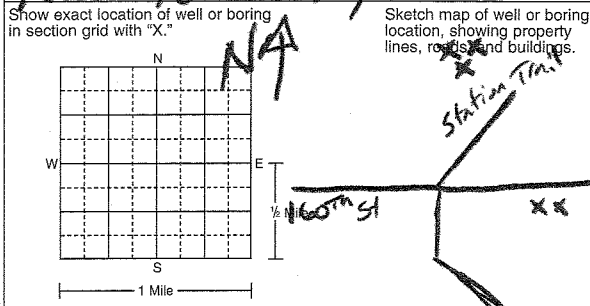
Minnesota Well and Boring Sealing No. _____
 Minnesota Unique Well No. or W-series No. _____
 (Leave blank if not known)

H 280656

Township Name _____ Township No. 114N Range No. 19W Section No. 4 Fraction (sm. → lg.) NENWNE Date Sealed 6/3-10/09 Date Well or Boring Constructed 6/3-10/09

GPS LOCATION: Latitude _____ degrees _____ minutes _____ seconds
 Longitude _____ degrees _____ minutes _____ seconds
 Depth Before Sealing 45-68 ft. Original Depth 45-68 ft.

Numerical Street Address or Fire Number and City of Well or Boring Location: 1605 160th St. W, Rosemount
 AQUIFER(S) Single Aquifer Multiaquifer
 WELL/BORING Water-Supply Well Monit. Well Env. Bore Hole Other _____
 STATIC WATER LEVEL Measured Estimated Date Measured 6/3-10/09
45-60 ft. Below above land surface



CASING TYPE(S) Steel Plastic Tile Other _____

WELLHEAD COMPLETION
 Outside: Well House At Grade Pitless Adapter/Unit Well Pit Other _____
 Inside: Basement Offset Well Pit Buried Other _____

PROPERTY OWNER'S NAME/COMPANY NAME: U. of MN c/o Barr Engineering
 Property owner's mailing address if different than well location address indicated above:
1605 160th St. W.
Rosemount, MN 55024

CASING(S)
 Diameter _____ in. from _____ to _____ ft. Set in oversize hole? Yes No Annular space initially grouted? Yes No Unknown
 _____ in. from _____ to _____ ft. Yes No Yes No Unknown
 _____ in. from _____ to _____ ft. Yes No Yes No Unknown

WELL OWNER'S NAME/COMPANY NAME: SAA
 Well owner's mailing address if different than property owner's address indicated above:
SAA

SCREEN/OPEN HOLE
 Screen from _____ to _____ ft. Open Hole from _____ to _____ ft.

GEOLOGICAL MATERIAL	COLOR	HARDNESS OR FORMATION	FROM	TO
Organic Top Soil	Black	Soft	0	3
Fine/med sand	Brown	mod	3	10
S. lty Clay Till	Gray	mod	10	42
med SD	Brown	mod	42	68

OBSTRUCTIONS
 Reds/Drop Pipe Check Valve(s) Debris Fill No Obstruction
 Type of Obstructions (Describe) _____
 Obstructions removed? Yes No Describe _____

If not known, indicate estimated formation log from nearby well or boring.

GEOLOGICAL MATERIAL	COLOR	HARDNESS OR FORMATION	FROM	TO
Organic Top Soil	Black	Soft	0	3
Fine/med sand	Brown	mod	3	10
S. lty Clay Till	Gray	mod	10	42
med SD	Brown	mod	42	68

PUMP
 Type _____
 Removed Not Present Other _____

REMARKS, SOURCE OF DATA, DIFFICULTIES IN SEALING

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE:
 Annular Space Exists Annular Space Grouted with Tremie Pipe Casing Perforation/Removal
 _____ in. from _____ to _____ ft. Perforated Removed
 _____ in. from _____ to _____ ft. Perforated Removed
 Type of Perforator _____
 Other _____

GROUTING MATERIAL(S) (One bag of cement = 94 lbs., one bag of bentonite = 50 lbs.)
 Grouting Material Bentonite Grout from 0 to 45-68 ft. _____ yards 4 bags
 _____ from _____ to _____ ft. _____ yards _____ bags
 _____ from _____ to _____ ft. _____ yards _____ bags

OTHER WELLS AND BORINGS
 Other unsealed and unused well or boring on property? Yes No How many? _____

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION
 This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.
Matrix Environmental, LLC License Business Name License or Registration No. 1916
Dan Thompson Certified Representative Signature Certified Rep. No. 1200 Date 6/15/09
Gay Bagnato Name of Person Sealing Well or Boring

IMPORTANT-FILE WITH PROPERTY PAPERS-WELL OWNER COPY **H 280656**

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC2

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC2-TT1

Elevation: 943.614-947.034' MSL

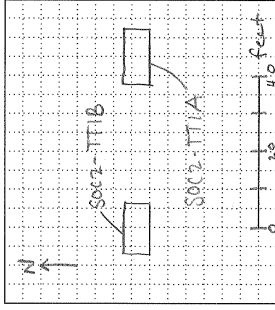
Date Started: 6/5/09

Logged By: KCB/LM12

Total Depth: 10 feet

Ended: 6/5/09

Map View



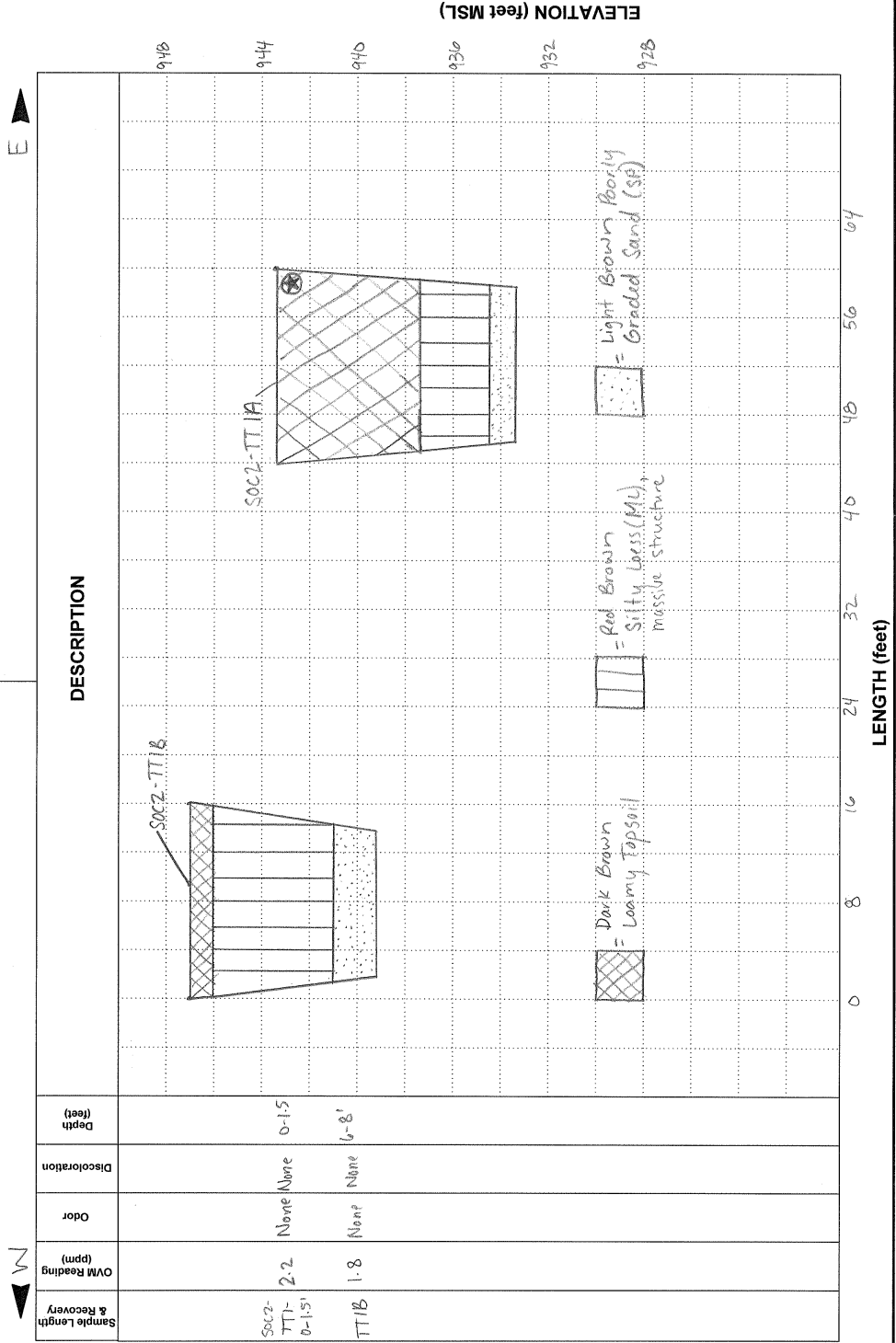
Remarks:

* Samples SOC2-TT1A-0-1.5' and SOC2-TT1B-0-1.5' collected from test trench SOC2-TT1A

⊗ Approximate Sample Location

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC2

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC2-TTZ

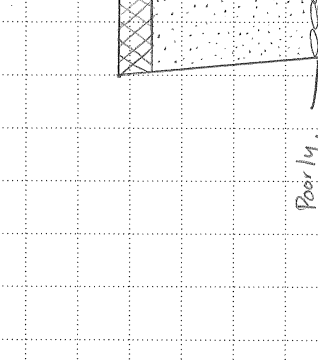
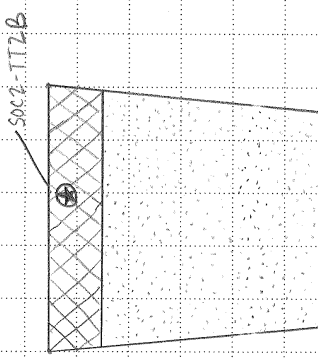
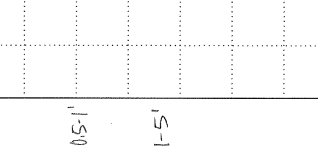
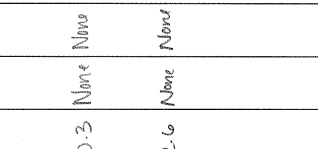
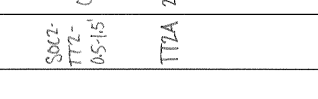

Elevation: 942.366-943.442' MSL

Total Depth: 5 feet

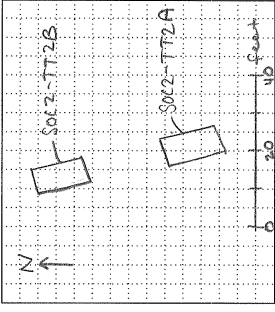
Date Started: 6/5/09

Ended: 6/5/09

Logged By: LMC2

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)	DESCRIPTION	LENGTH (feet)	ELEVATION (feet MSL)
SOC2-TTZ-05-15'	0.3	None	None	0.5'	 <p>SOC2-TTZB</p>	0 - 6	944
TTZA	2.6	None	None	1-5'	 <p>Poorly Graded Gravel (GP)</p>	6 - 12	942
					 <p>Light Brown Poorly Graded Sand (SP) with gravel and cobbles</p>	12 - 18	940
					 <p>Dark Brown Loamy Topsoil</p>	18 - 24	938
					 <p>Poorly Graded Gravel (GP)</p>	24 - 30	936
					 <p>Light Brown Poorly Graded Sand (SP) with gravel and cobbles</p>	30 - 36	934
						36 - 42	
						42 - 48	
						48 - 54	

Map View



Remarks:

* Sample SOC2-TTZ-05-15' collected from test trench SOC2-TTZB
 * ⊗ = approximate sample location
 * Stratification and cross bedding observed in sand and gravel layers

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC 2

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC2-TT3

Elevation: 946.889 - 946.891' MSL

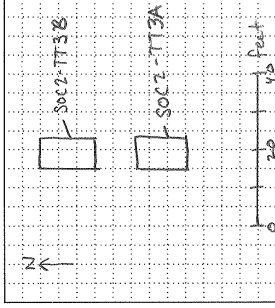
Total Depth: 8 feet

Date Started: 6/5/09

Ended: 6/5/09

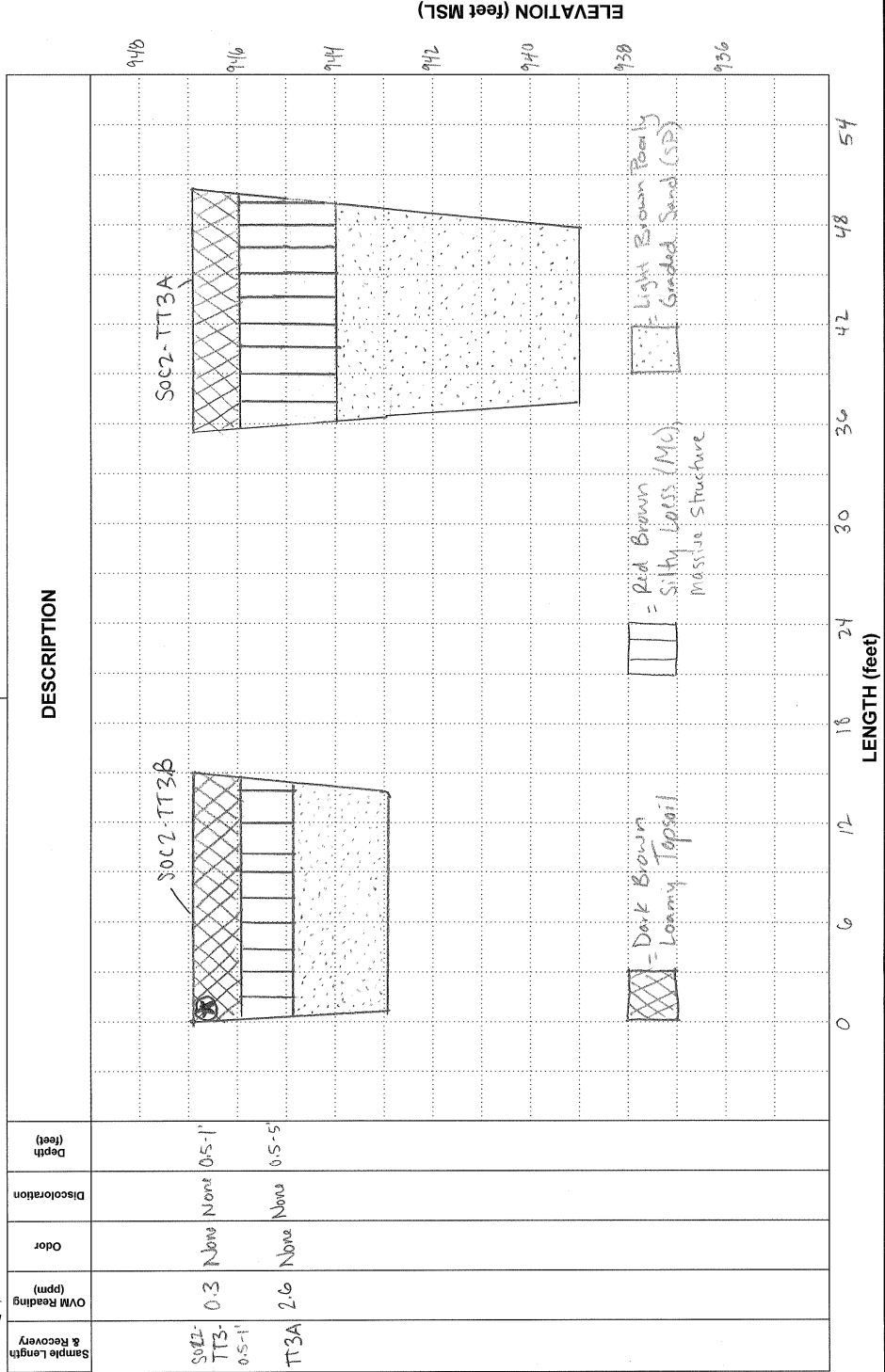
Logged By: LML2

Map View



Remarks:

* Samples SOC2-TT3-0.5-1' and SOC2-TT3R-05-1' collected from test trench SOC2-TT3B
 (X) Approximate Sample Location



BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Figure

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC2

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC2-TT4

Elevation: 947.631-948.489' MSL

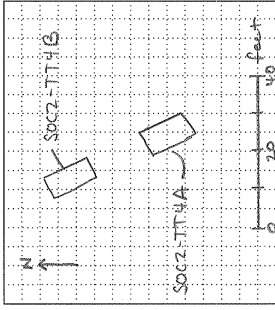
Date Started: 6/5/09

Logged By: LMLZ

Total Depth: 5 feet

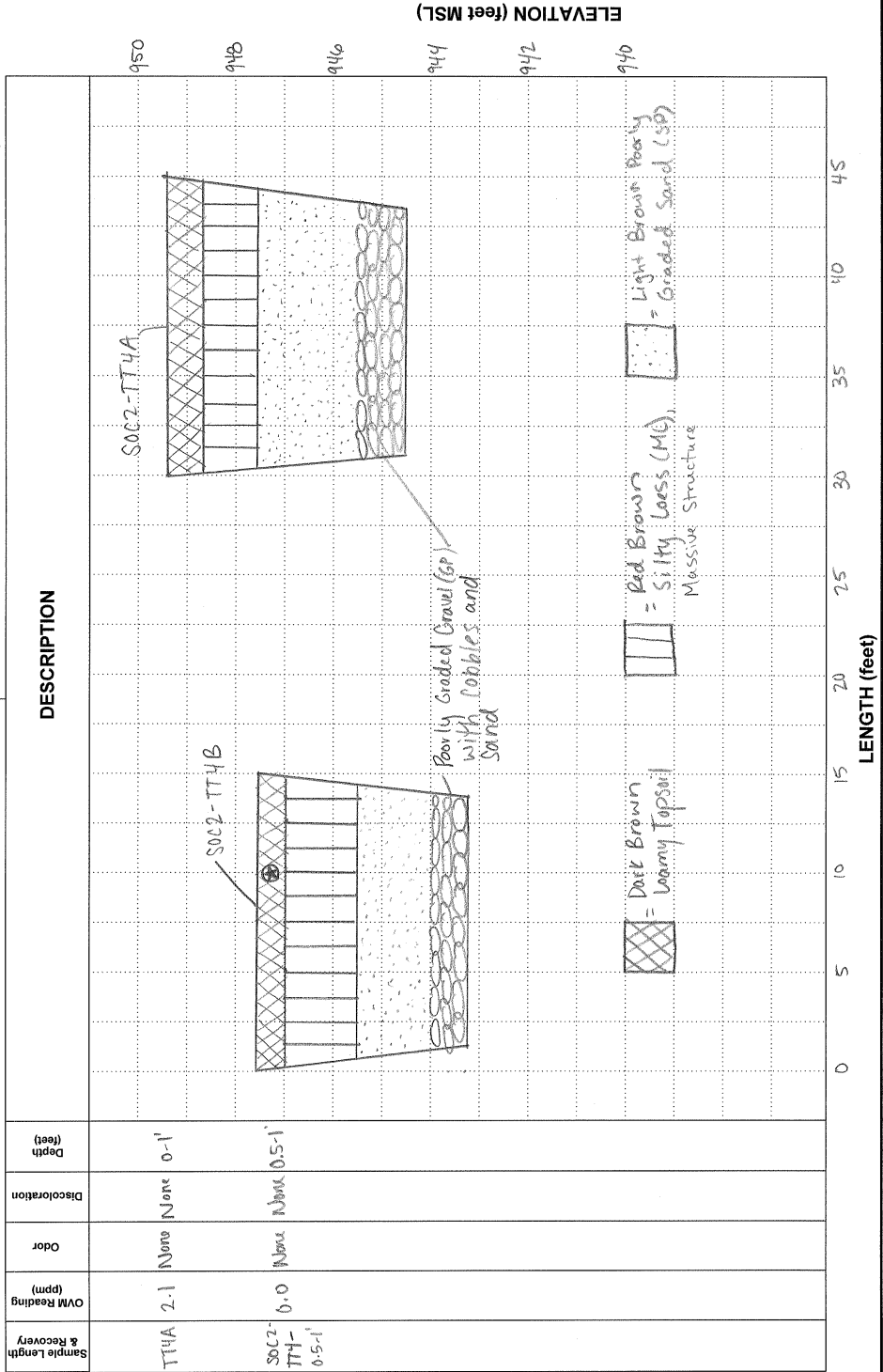
Ended: 6/5/09

Map View



Remarks:

* Samples SOC2-TT4-0.5-1' and SOC2-TT4R-0.5-1' collected from test trench SOC2-TT4B
 Ⓞ = Approximate sample location



Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC2

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC2-TT5

Elevation: 947.49 - 947.705' MSL

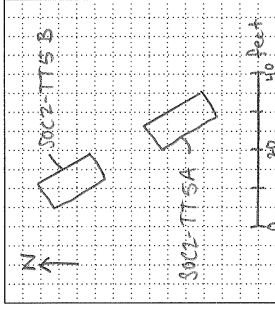
Date Started: 6/5/09

Logged By: LML2

Total Depth: 7.5 feet

Ended: 6/5/09

Map View

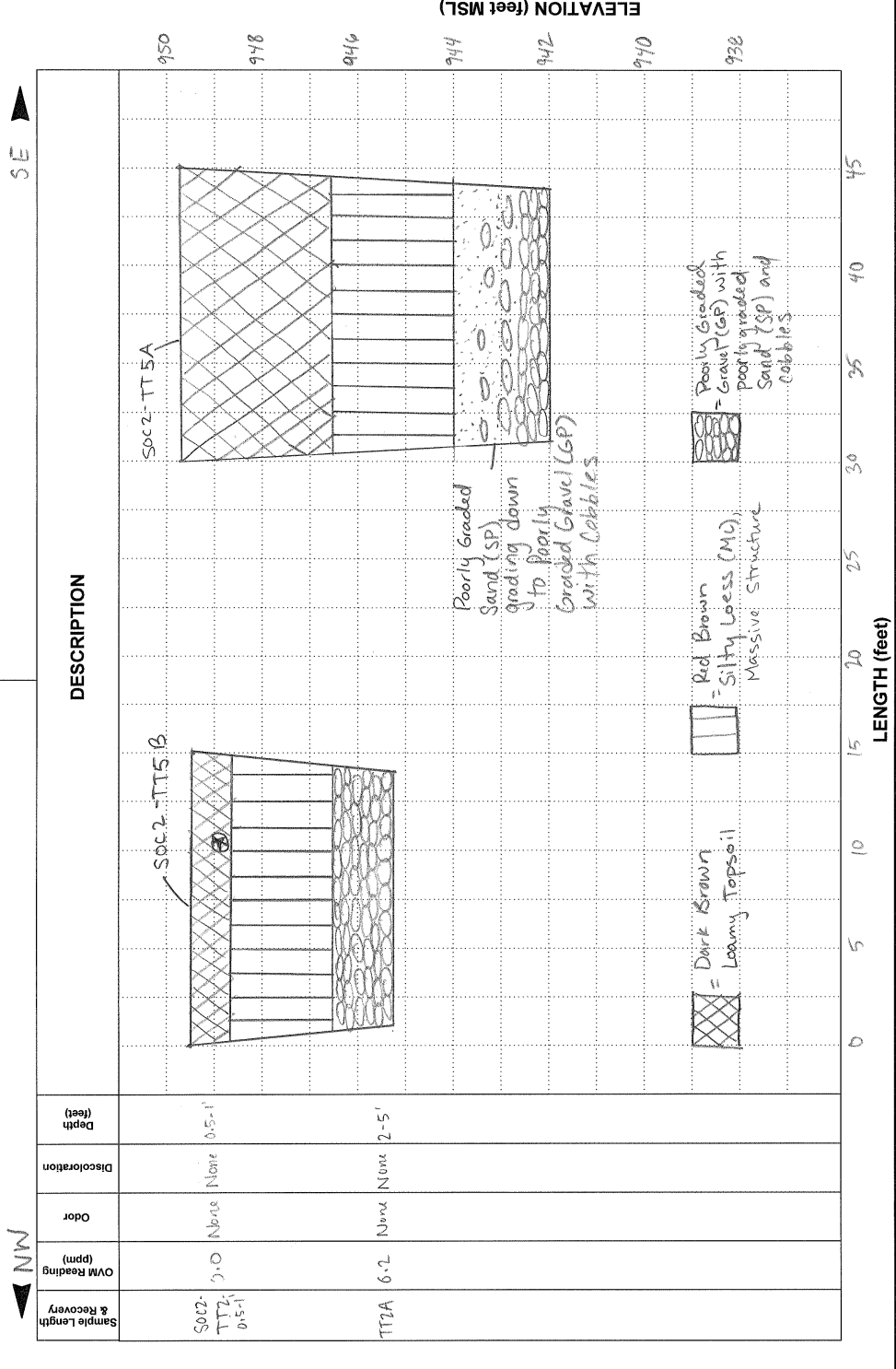


Remarks:

- * Samples SOC2-TT5-0.5-1' and SOC2-TT5R-0.5-1' collected from test trench SOC2-TT5B.
- ⊗ Approximate Sample Location

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: Soc2

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. Soc2-TT6

Elevation: 946.01 - 946.566' MSL

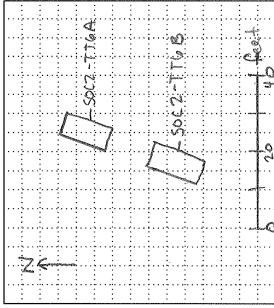
Date Started: 6/4/09

Logged By: LMLZ

Total Depth: 8 feet

Ended: 6/4/09

Map View

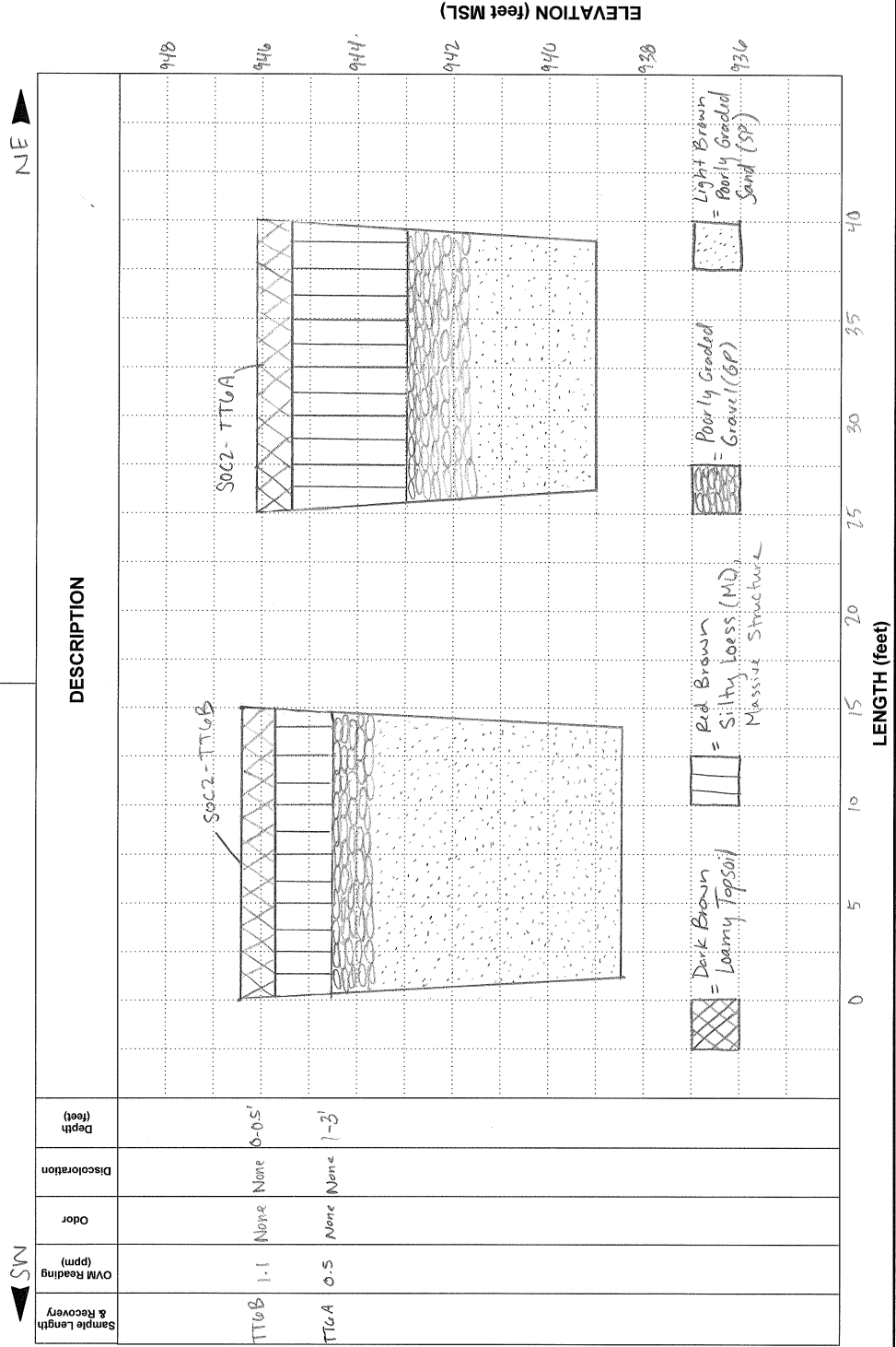


Remarks:

- * No analytical samples were collected from test trench Soc2-TT9.
- * Laminations and bedding observed in the sand and gravel layers.

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2800
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC2

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC2-TT7

Elevation: 946.122 - 946.506 / MSL

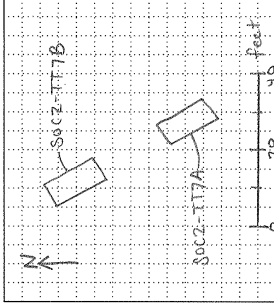
Date Started: 6/4/09

Logged By: LMLL

Total Depth: 8 feet

Ended: 6/4/09

Map View

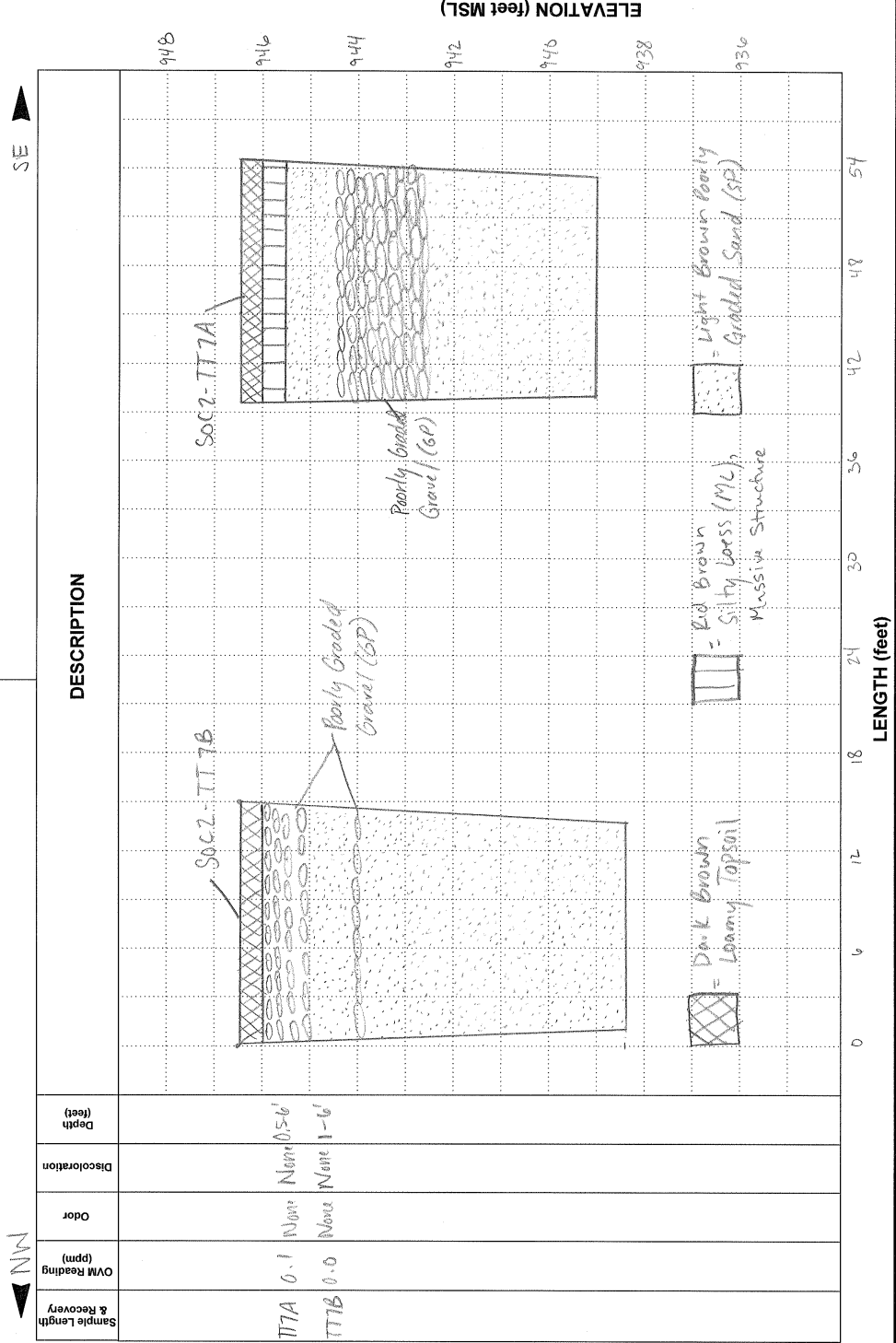


Remarks:

*No analytical samples were collected from test trench SOC2-TT7

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: Soc2

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. Soc2-TT8

Elevation: 944.855 - 945.473 MSL

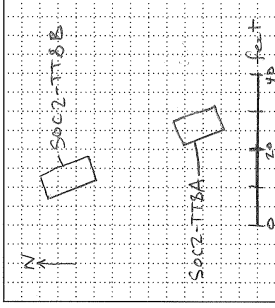
Date Started: 6/4/09

Logged By: LML2

Total Depth: 8 feet

Ended: 6/4/09

Map View

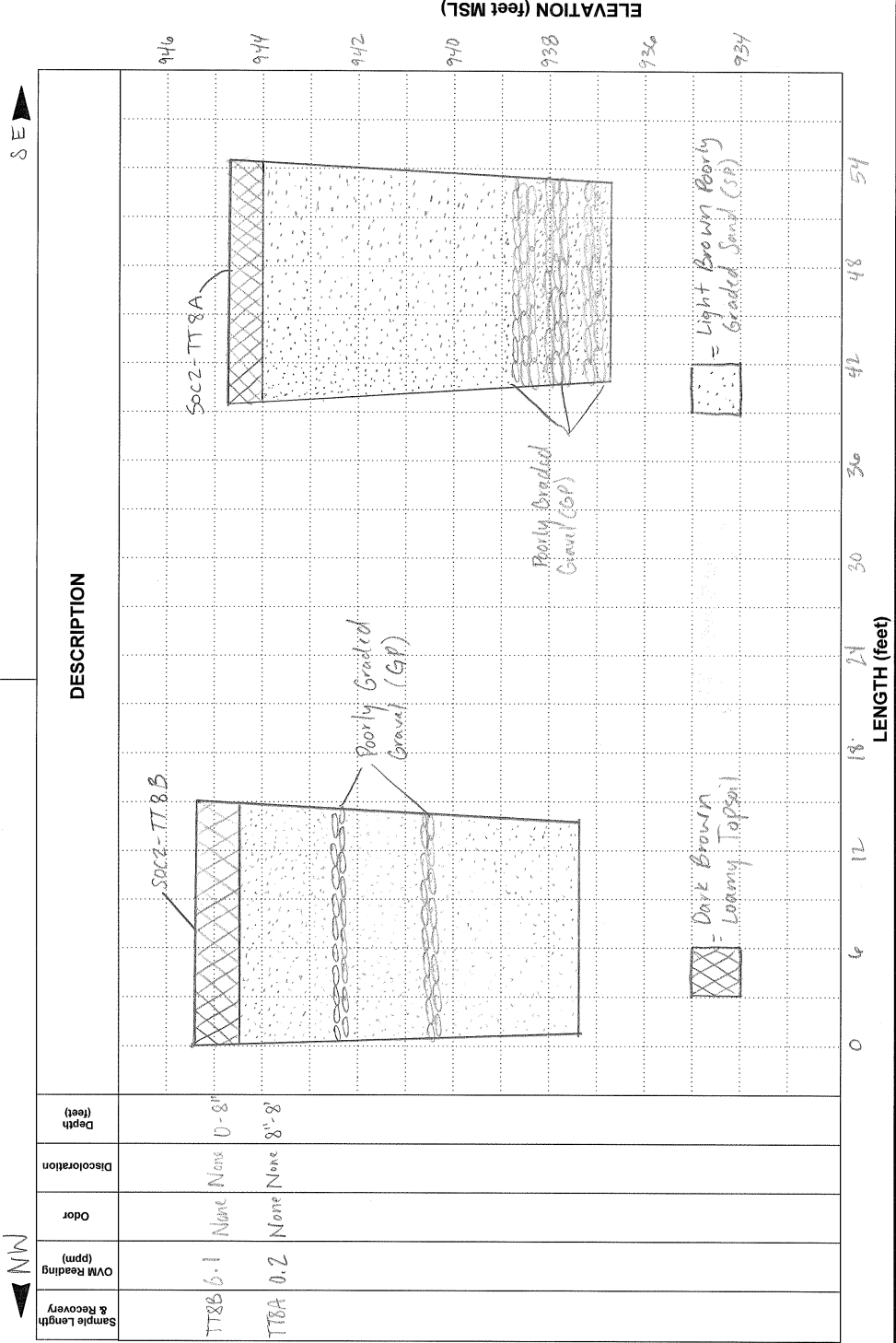


Remarks:

* No analytical samples were collected from test trench Soc2-TT8

Figure

Barr Engineering Co.
4700 W 77th St. Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC2

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC2-TT9

Elevation: 943.529 - 946.102' MSL

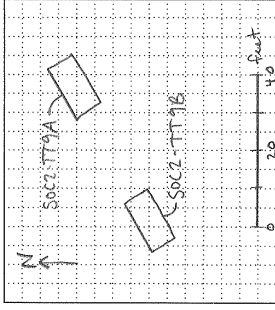
Date Started: 6/4/09

Logged By: LMCZ

Total Depth: 10 feet

Ended: 6/4/09

Map View

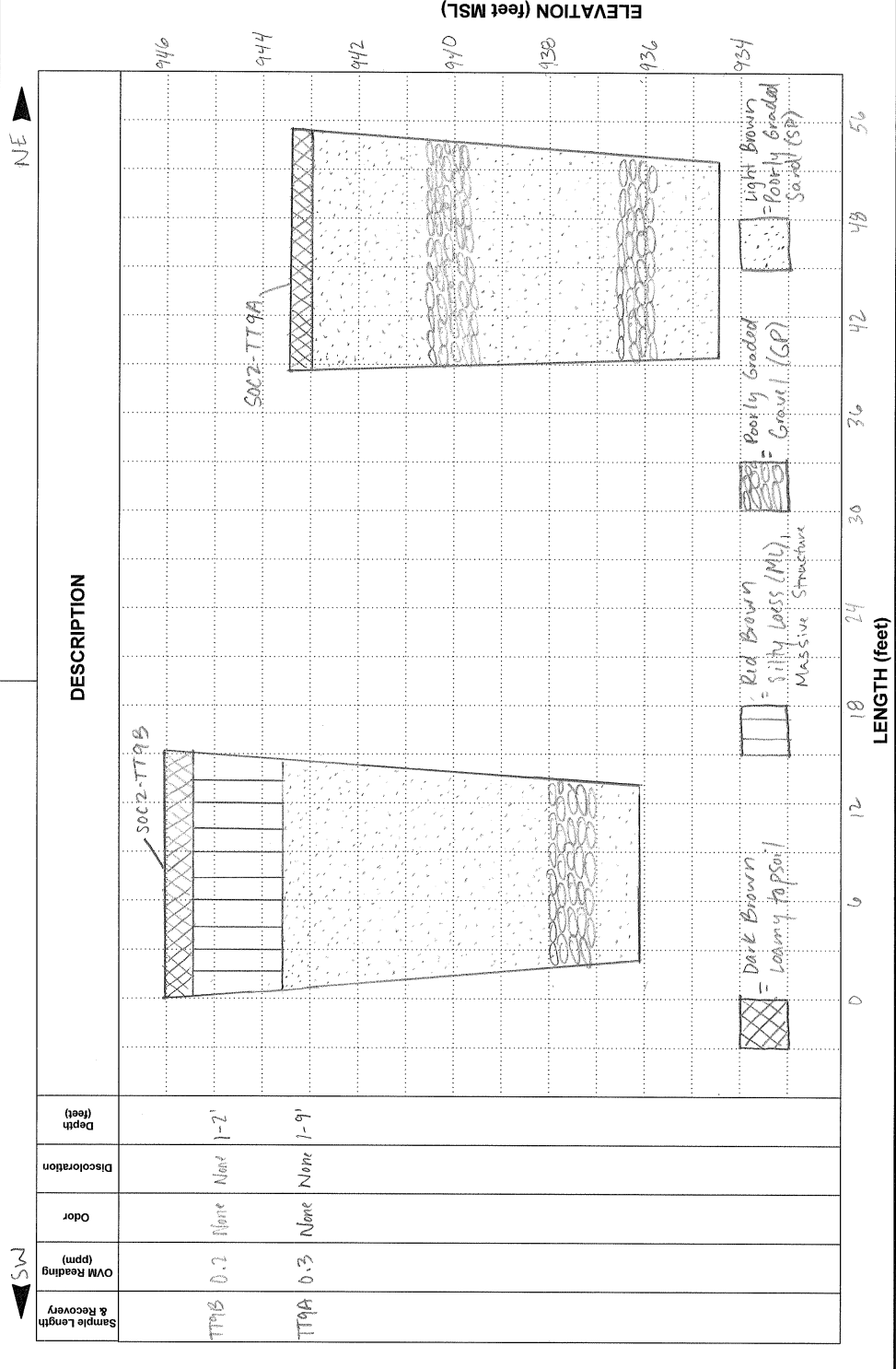


Remarks:

- * No analytical samples were collected from test trench SOC2-TT9.
- * Laminations and bedding observed in sand layers.

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: Soc2

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. Soc2 - TT10

Elevation: 946.058 - 946.281' MSL

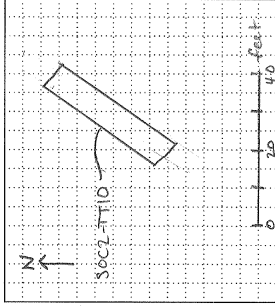
Total Depth: 8 feet

Date Started: 6/4/09

Ended: 6/4/09

Logged By: LMLZ

Map View

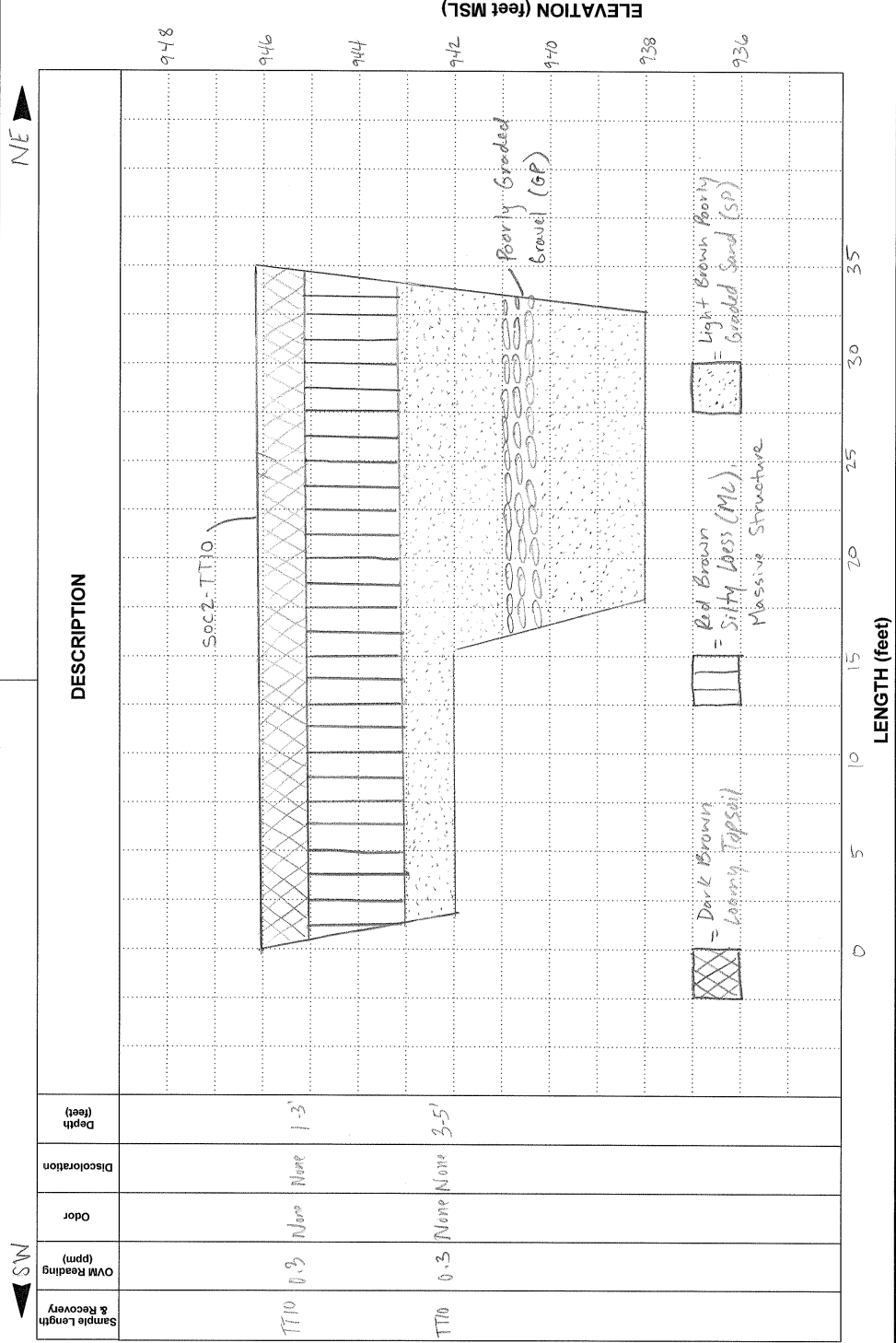


Remarks:

*No analytical sample was collected from test trench Soc2-TT10.

Figure

BARR
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 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)	DESCRIPTION
TT10 0-3	None	None	None	1-3'	Dark Brown loamy topsoil
TT10 0-3	None	None	None	3-5'	Red Brown Silty Loess (ML)
					Light Brown poorly graded sand (SP)
					Poorly graded gravel (GP)
					Massive Structure

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOCZ

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOCZ-TT11

Elevation: 945.047-945.218' MSL

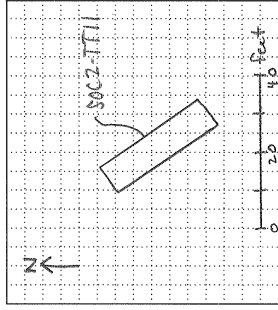
Date Started: 6/4/09

Logged By: LMLZ

Total Depth: 10.5 feet

Ended: 6/4/09

Map View

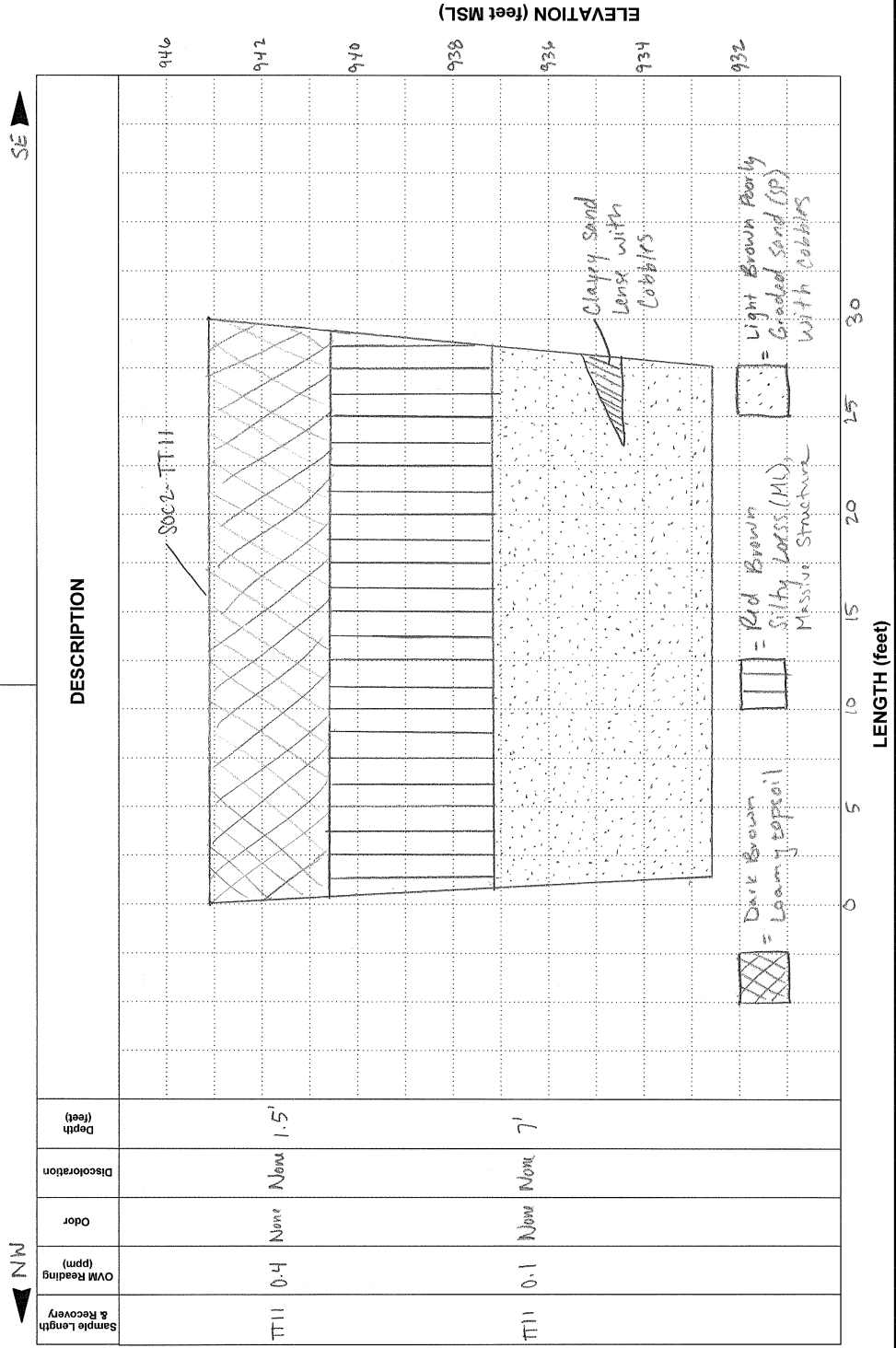


Remarks:

* No analytical samples were collected from test trench SOCZ-TT11.

Figure

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 Edina, MN 55435
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 Fax: 952-862-2601



SE

NW

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT11	0.4	None	None	1.5'
TT11	0.1	None	None	7'

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC 2

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC2-TT12

Elevation: 942.37 - 943.44' MSL

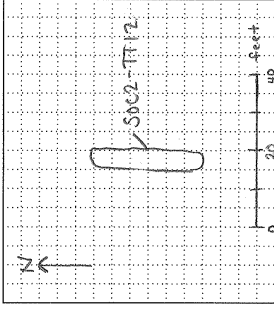
Date Started: 6/4/09

Logged By: LMLZ

Total Depth: 4 feet

Ended: 6/4/09

Map View

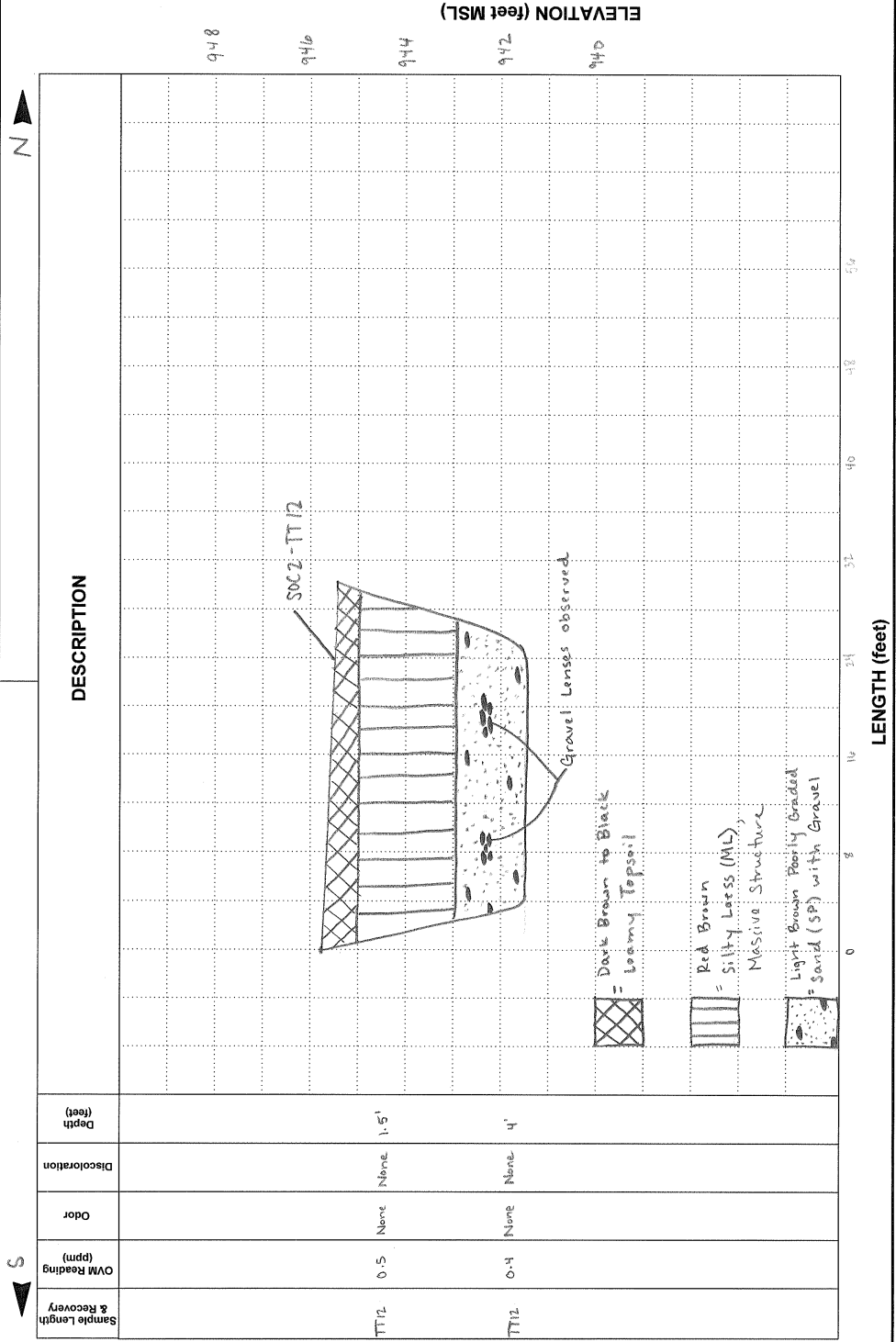


Remarks:

* No analytical samples were collected from test trench SOC2-TT12.

Figure

BARR
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 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC2

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC2-TT13

Elevation: 946.68 - 947.11' MSL

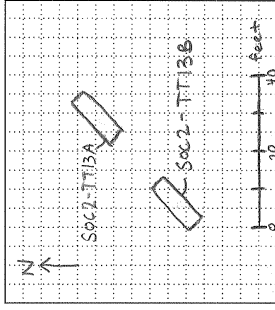
Date Started: 6/4/09

Logged By: LMLZ

Total Depth: 8 feet

Ended: 6/4/09

Map View

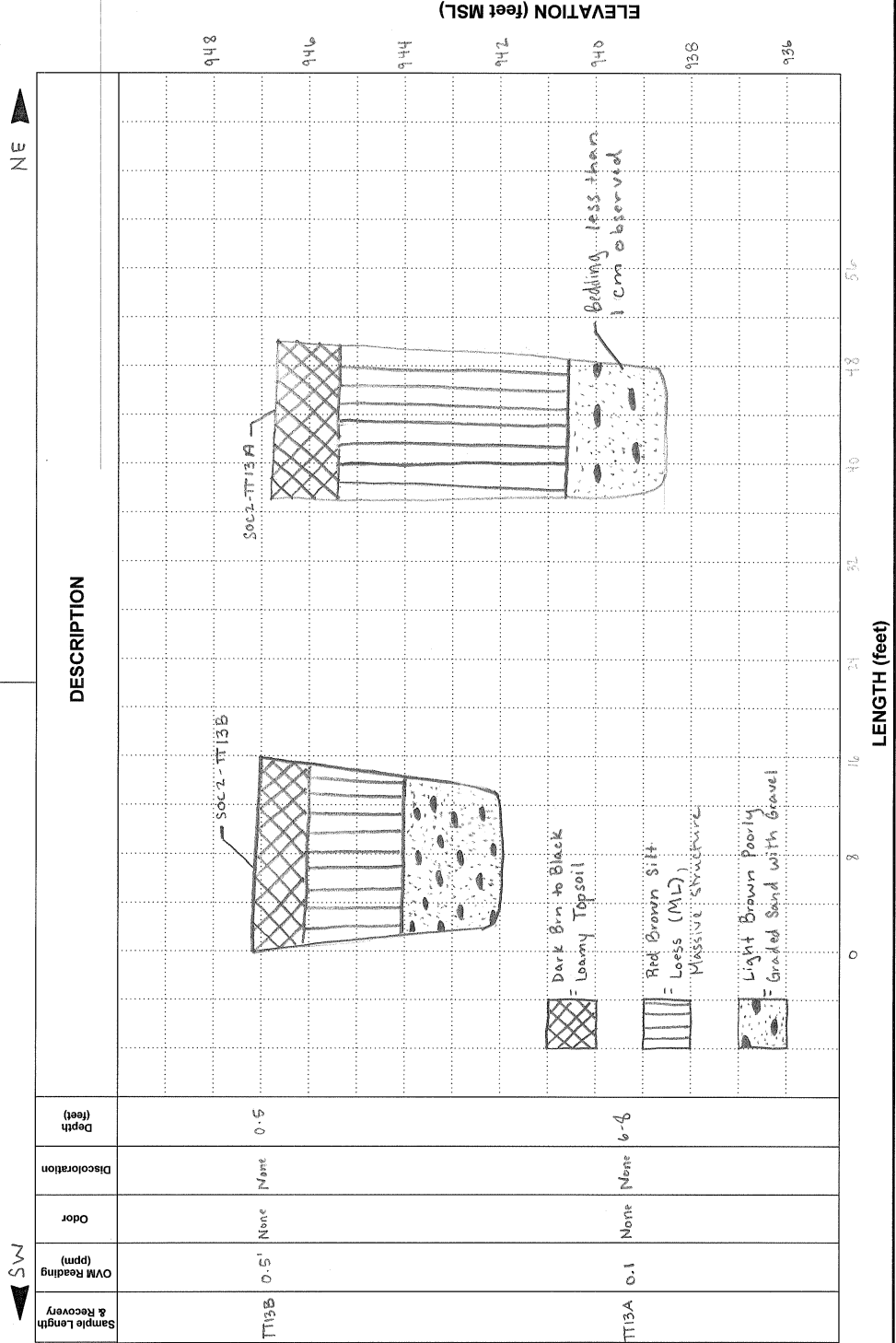


Remarks:

* No analytical samples were collected from test trench SOC2-TT13

Figure

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 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: Soc 2

Contractor: Stevens Drilling and Environmental Services, Inc.

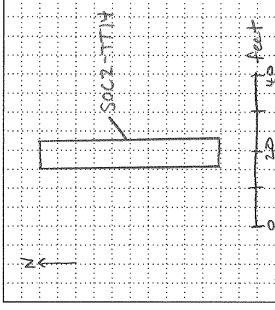
Log of Test Pit No. SOC2-TT14

Elevation: 944.044 - 944.446' MSL Total Depth: 7.5 feet

Date Started: 6/4/09 Ended: 6/4/09

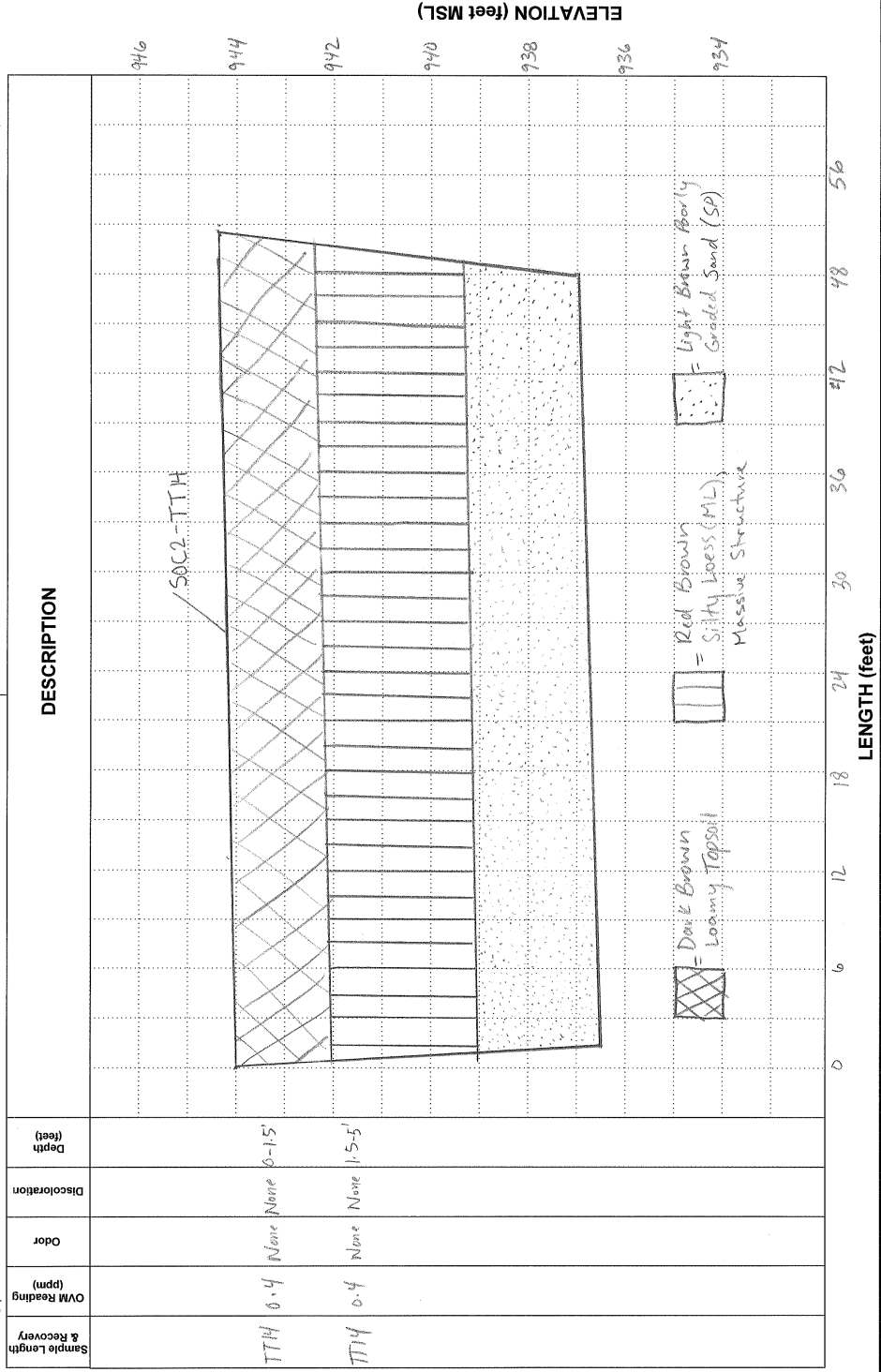
Logged By: LMLZ

Map View



Remarks:

* No analytical samples were collected from test trench SOC2-TT14



BARR
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 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Figure

Project Name: UMore Park

Log of Test Pit No. SOC2-TT15

Client: University of Minnesota

Number: 23190B05.07

Elevation: 946.666-947.498' MSL

Total Depth: 12 feet

Location: SOC2

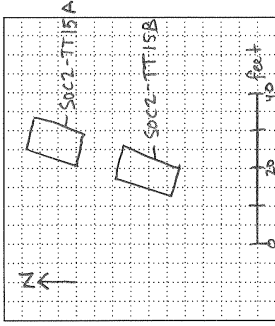
Date Started: 6/5/09

Ended: 6/5/09

Contractor: Stevens Drilling and Environmental Services, Inc.

Logged By: LMLZ

Map View

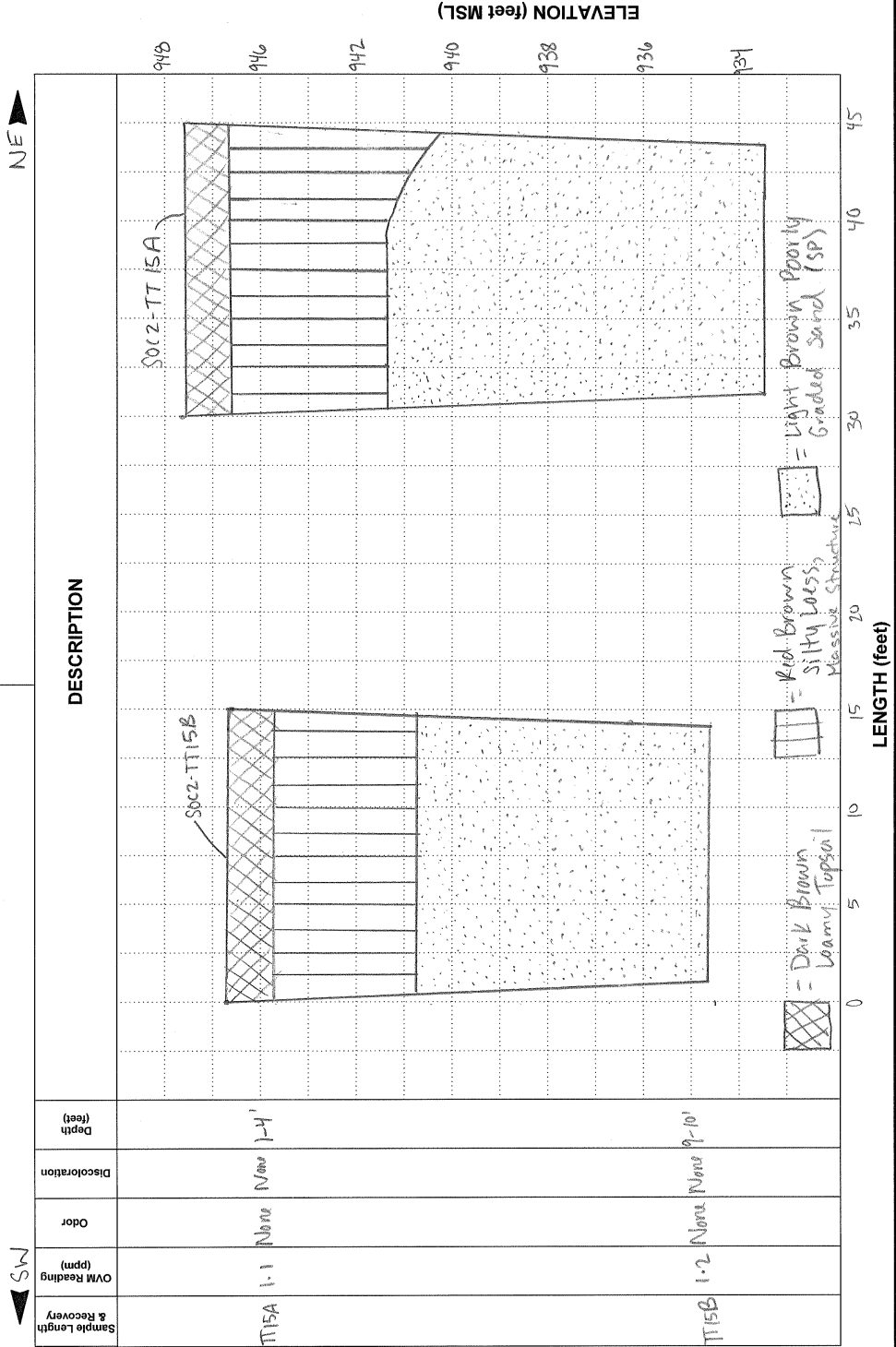


Remarks:

* No analytical samples were collected from test trench SOC2-TT15

Figure

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 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC2

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC2-TT16

Elevation: 946.827' MSL

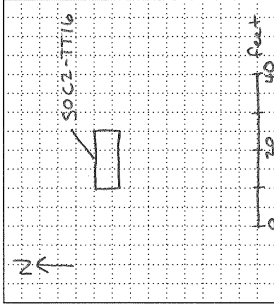
Date Started: 6/5/09

Logged By: LMLZ

Total Depth: 3 feet

Ended: 6/5/09

Map View

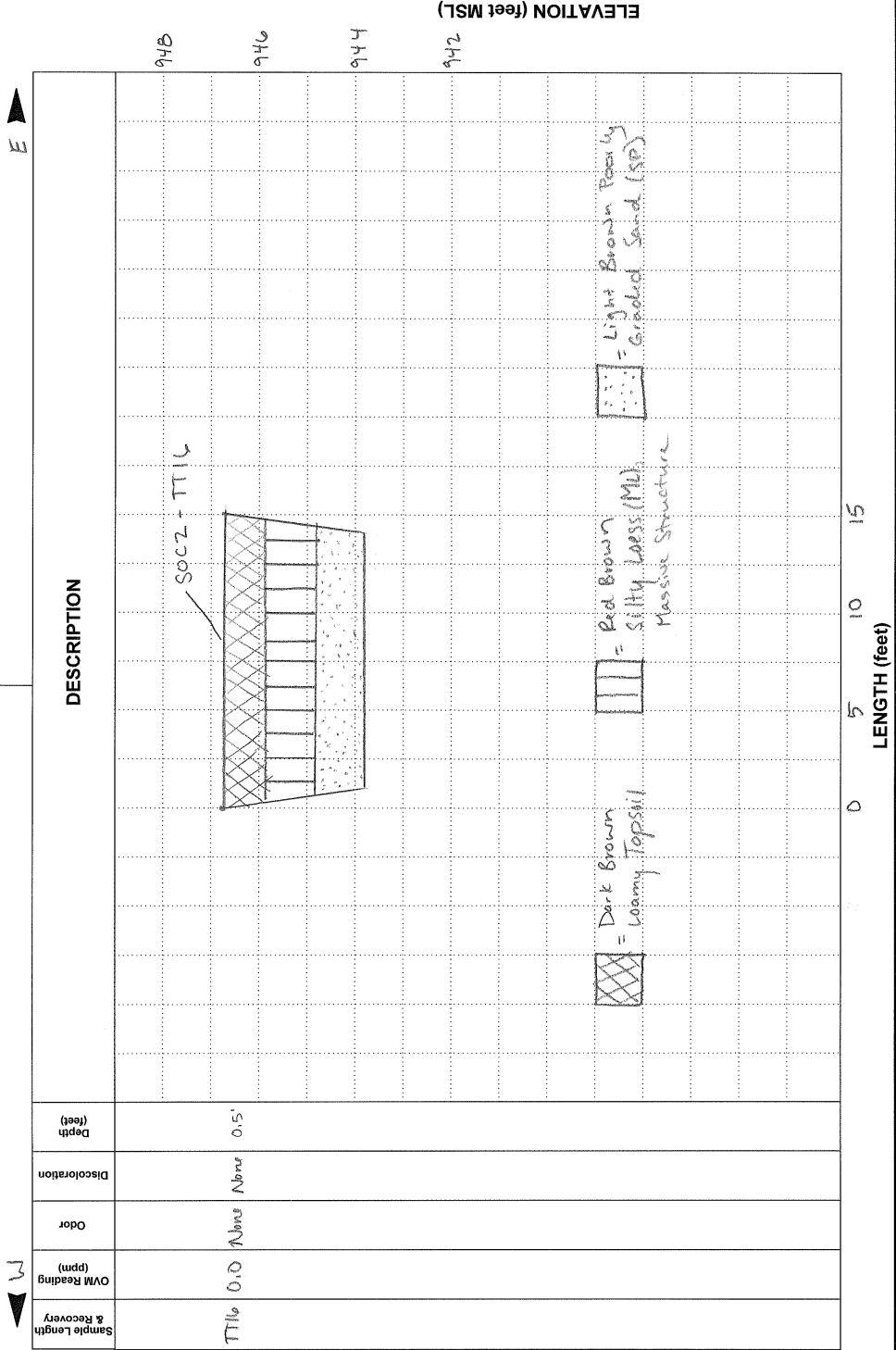


Remarks:

* No analytical samples were collected from test trench SOC2-TT16

Figure

BARR
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 Edina, MN 55435
 Telephone: 952-832-2800
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC3-TT1

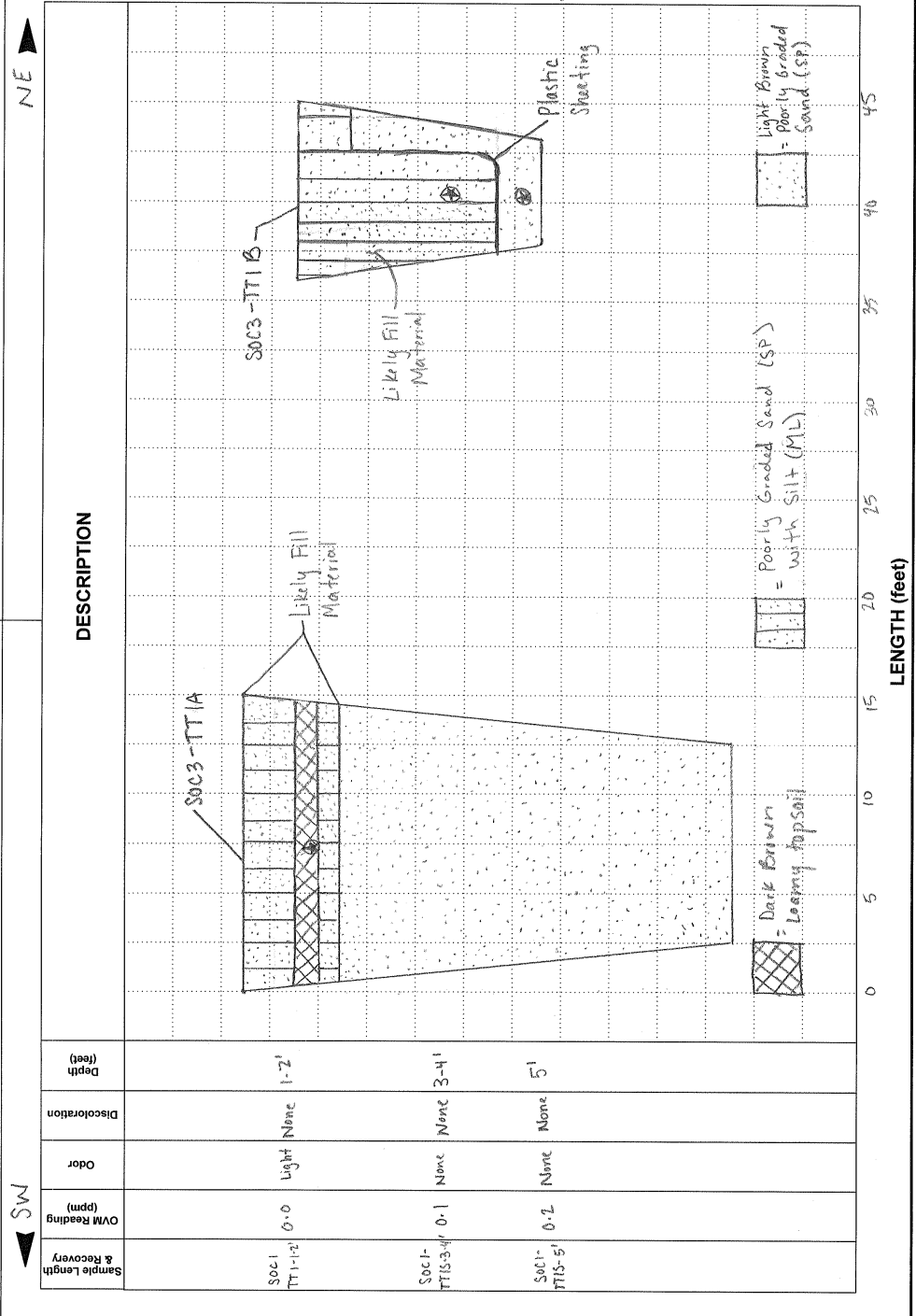
Elevation: 939.584 - 940.55' MSL

Total Depth: 10 feet

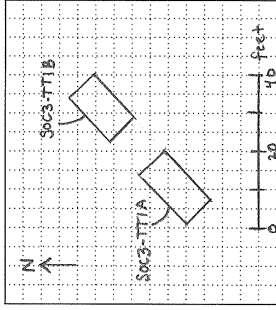
Date Started: 6/9/09

Ended: 6/9/09

Logged By: KCB



Map View



Remarks:

- * Sample SOC3-TT1-1-2' was collected from test trench SOC3-TT1A.
- * Samples SOC3-TT1S-3-4' and SOC3-TT1S-5' were collected from Test Trench SOC3-TT1B.
- * Stratification and bedding observed in sand layer
- * Fill Material above Plastic Sheeting
- ⊙ = approximate sample location

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC3 - TT2

Elevation: 938.53 - 939.17' MSL

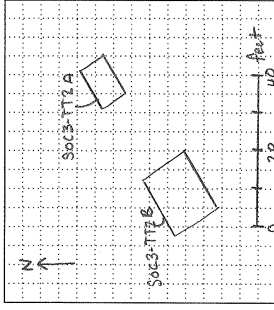
Total Depth: 6 feet

Date Started: 6/9/09

Ended: 6/9/09

Logged By: KCB

Map View

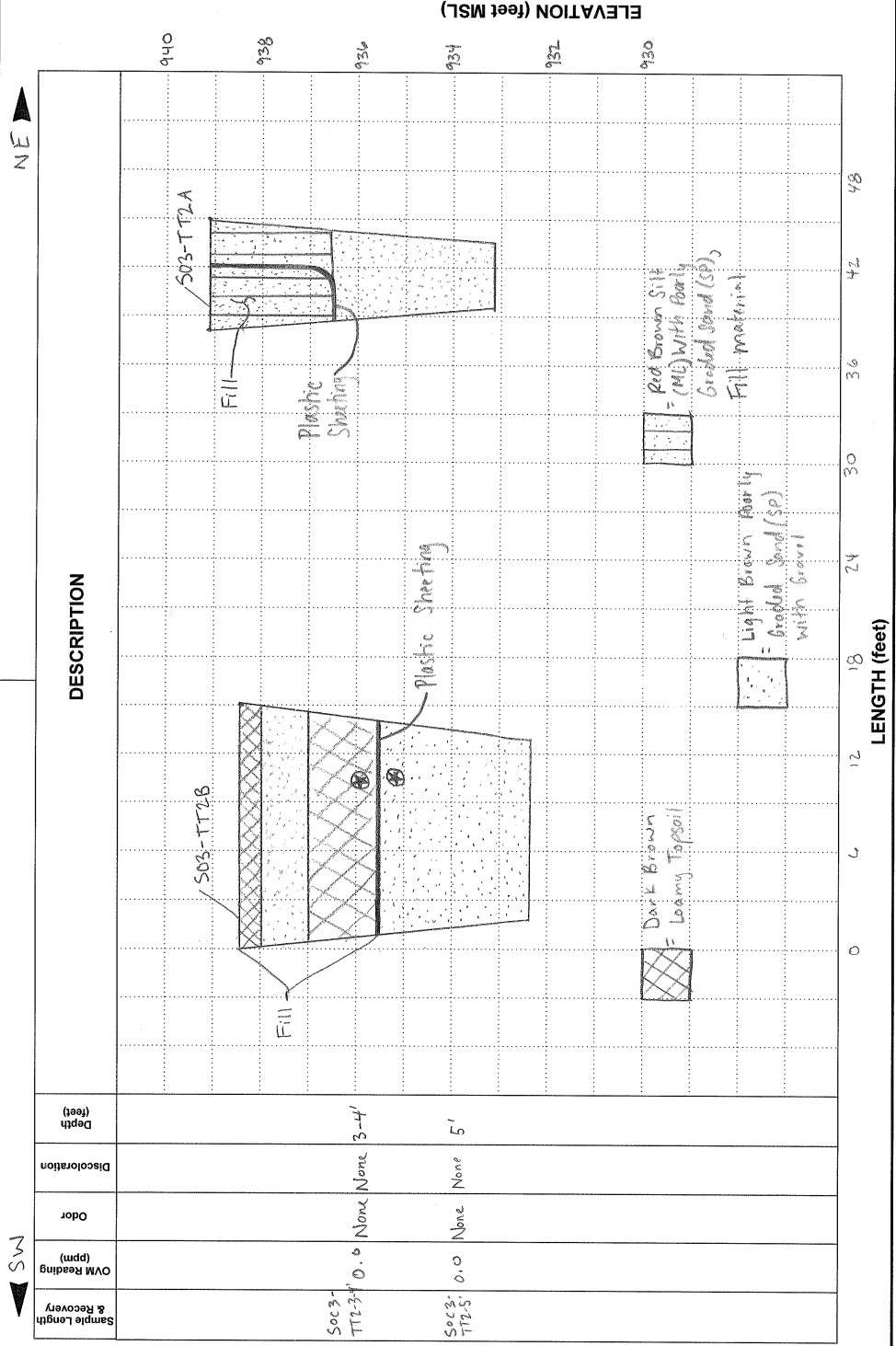


Remarks:

- * Samples SOC3-TT2-3-4' and SOC3-TT2-5' were collected from test trench SOC3-TT2B
- * Debris encountered in the fill above the plastic sheeting included metal, wood and PVC
- ⊗ = Approximate Sample Location

Figure

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 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC3 - TT3

Elevation: 945.38 - 945.305

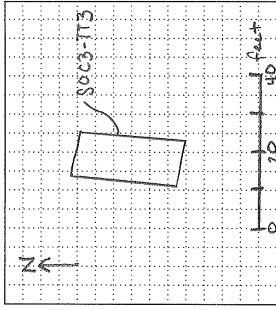
Date Started: 6/12/09

Logged By: KCB

Total Depth: 8 feet

Ended: 6/12/09

Map View

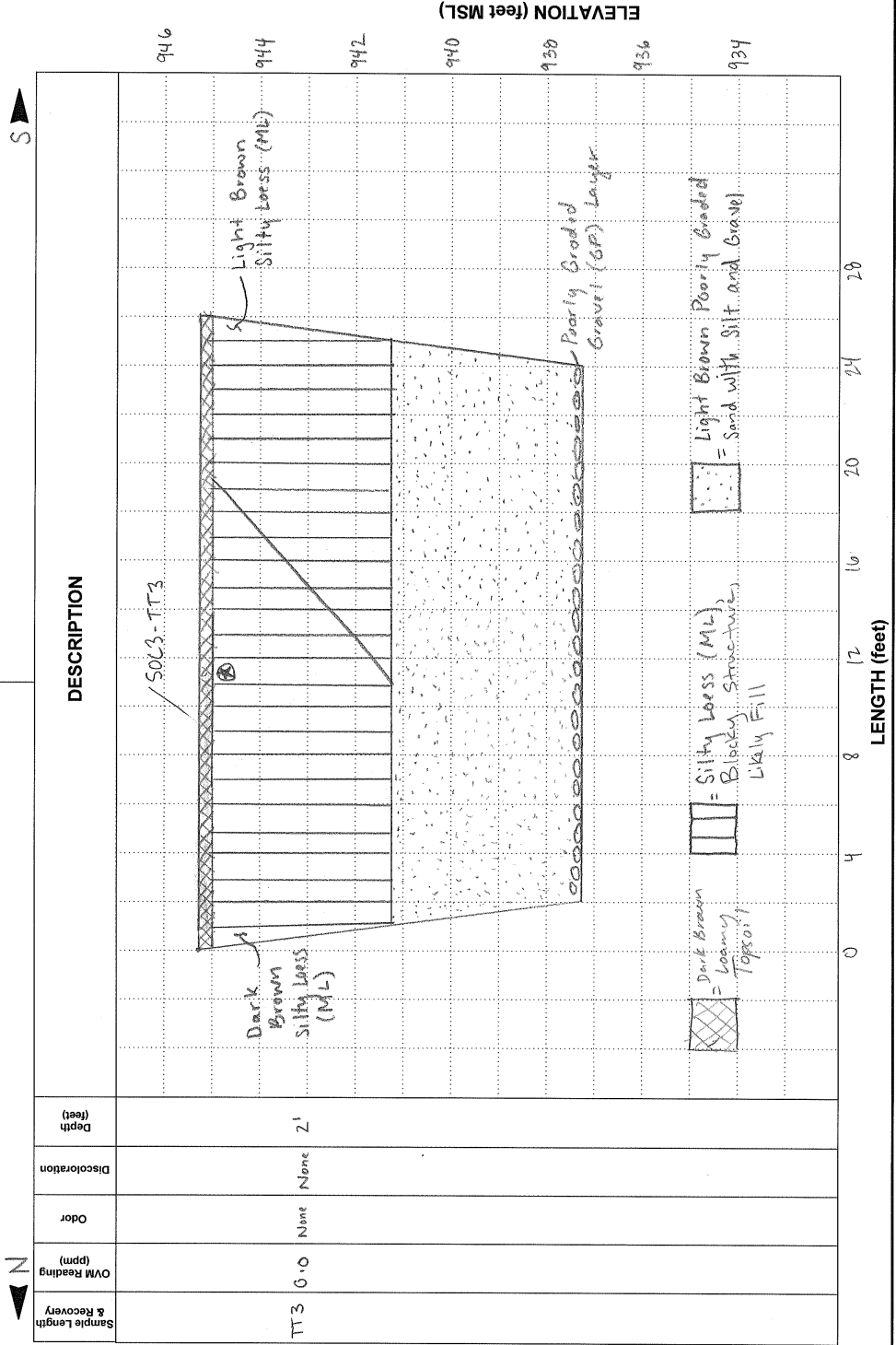


Remarks:

- * Sample SOC3-TT3-0.5' was collected from test trench SOC3-TT3
- * Silty Layer appeared to be fill
- ⊗ Approximate Sample Location

Figure

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Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC 3

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC 3-TT 4

Elevation: 940.53 - 945.772 MSL

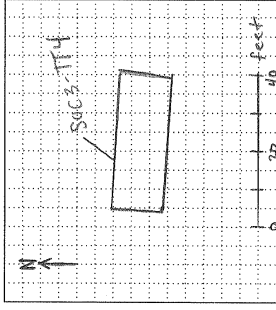
Date Started: 6/12/09

Logged By: RUC

Total Depth: 11 feet

Ended: 6/12/09

Map View

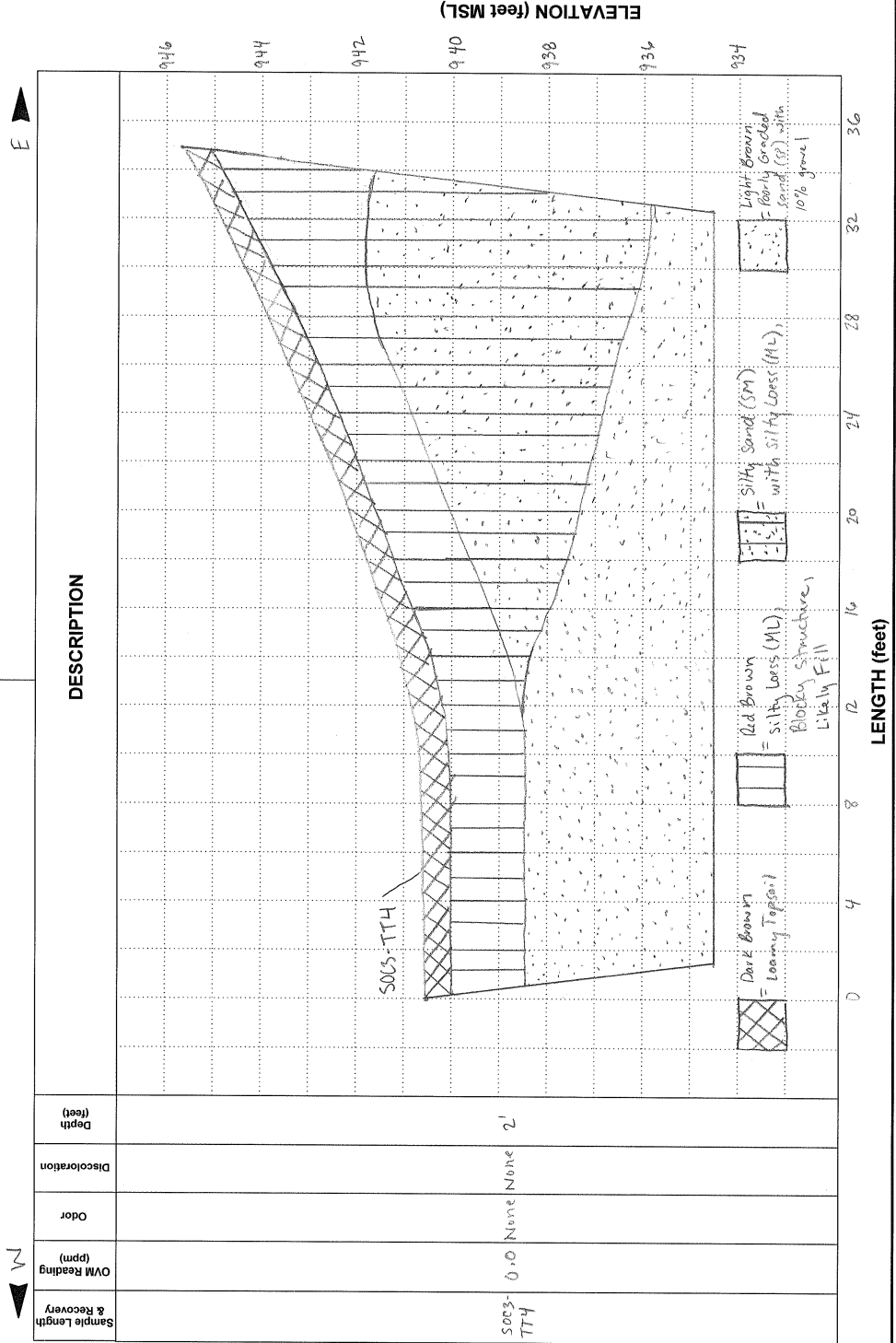


Remarks:

- * No analytical sample was collected at test trench SOC3-TT4.
- * Bedding observed in sand and gravel layer.
- * Silty loess likely fill

Figure

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 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190505.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

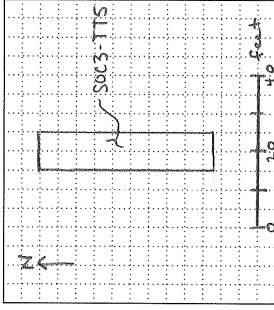
Log of Test Pit No. SOC3 - TTS

Elevation: 940.224 - 944.419' MSL Total Depth: 10 feet

Date Started: 6/12/09 Ended: 6/12/09

Logged By: KCB

Map View

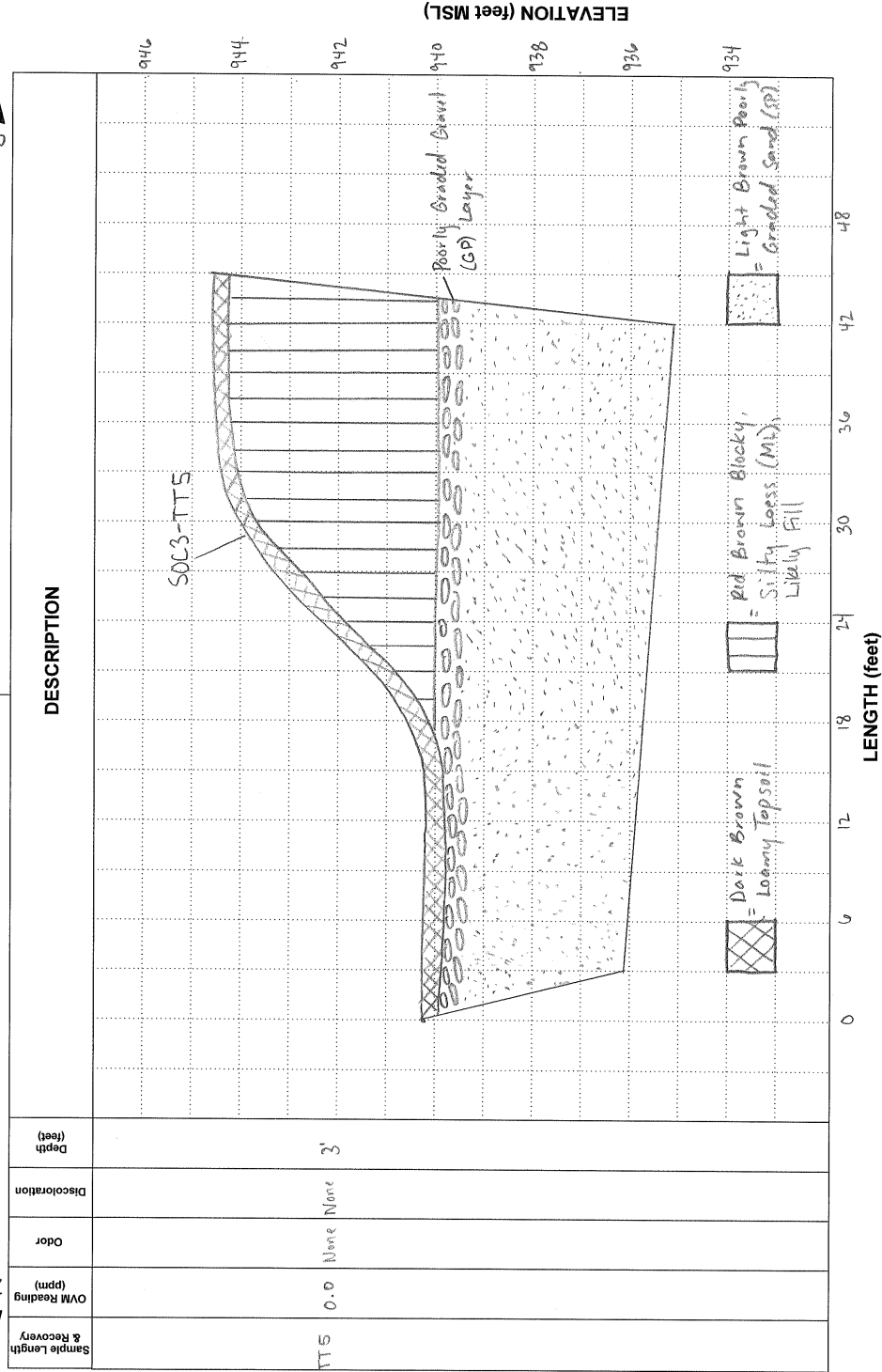


Remarks:

- * No analytical samples were collected from test trench SOC3-TTS
- * Silty layer appeared to be fill
- * Stratification and Bedding observed in the sand and gravel layer

Figure

Barr Engineering Co.
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Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC3-TT6

Elevation: 942.087 - 944.809' MSL

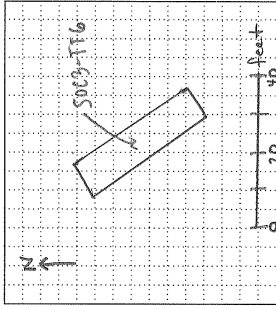
Date Started: 6/15/09

Logged By: KCB

Total Depth: 9 feet

Ended: 6/15/09

Map View

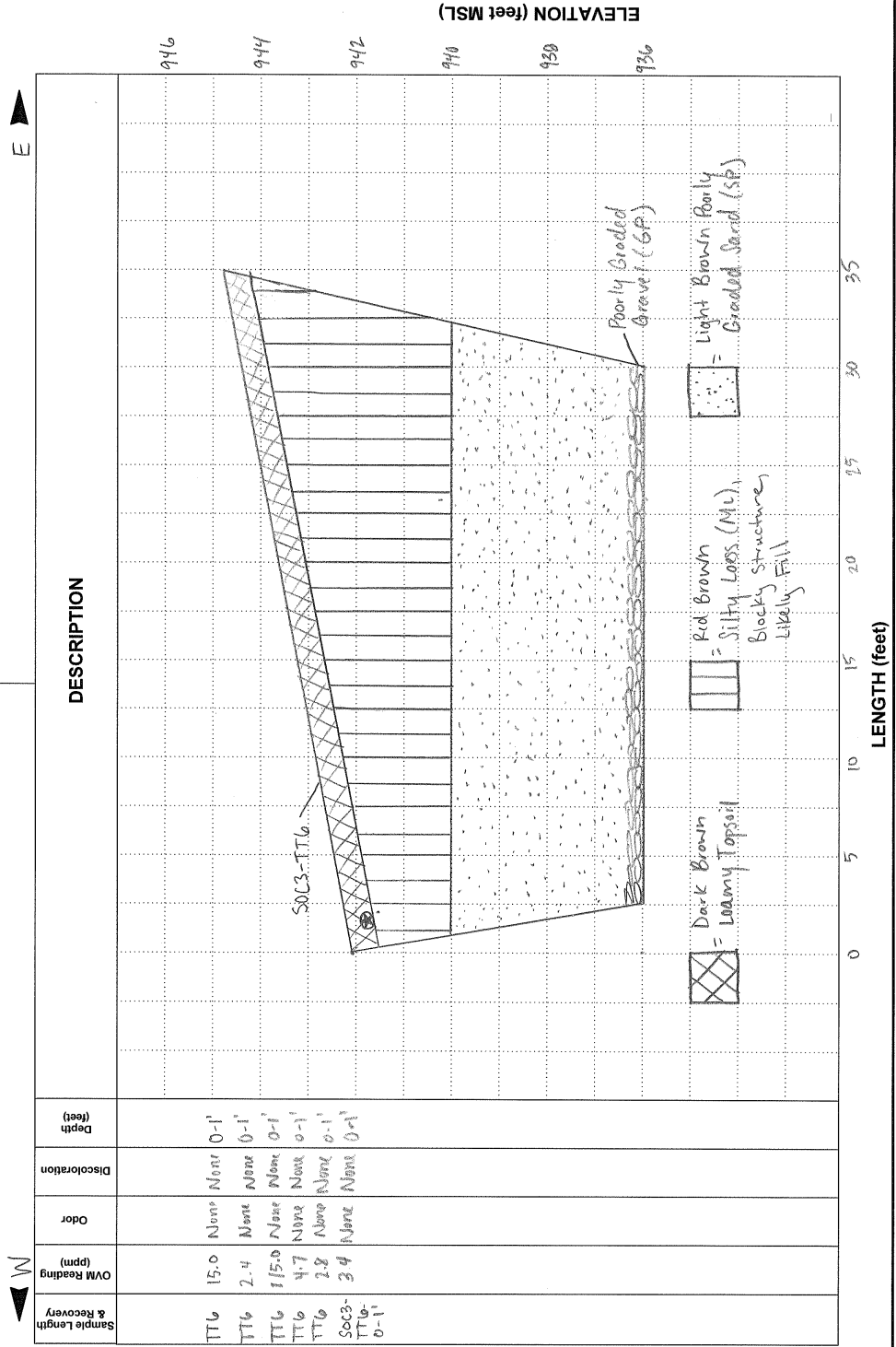


Remarks:

- * Samples SOC3-TT6-0-1' and SOC3-TT6E-0-1' collected from trench SOC3-TT6 in the area of elevated headspace.
- * Bedding and Stratification observed in the sand and gravel layer
- * Silt layer appeared to be fill
- ⊗ Approximate Sample Location

Figure

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 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Log of Test Pit No. SOC3-TT7

Client: University of Minnesota

Number: 23190B05.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

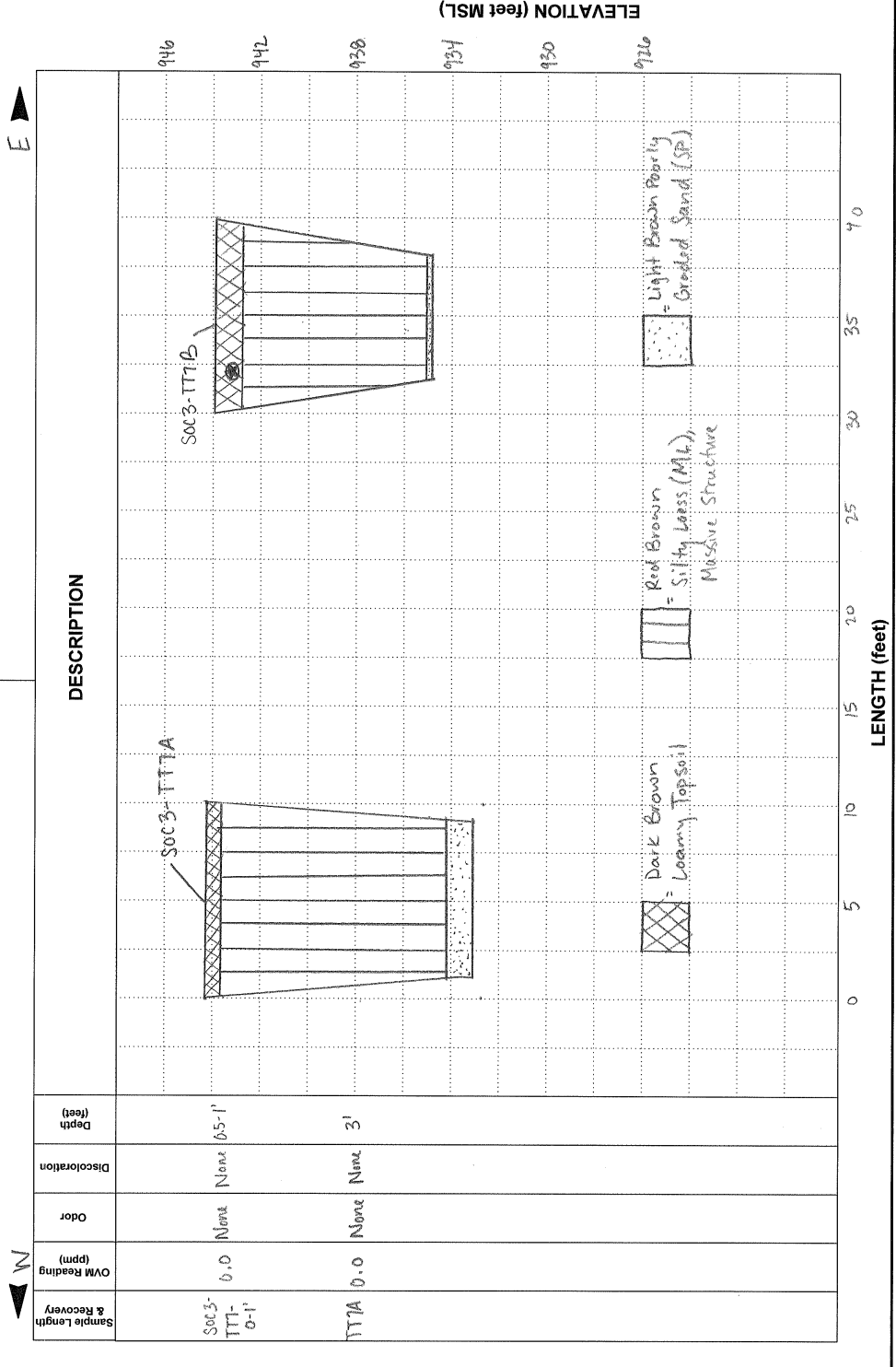
Elevation: 943.989 - 944.227' MSL

Total Depth: 11 feet

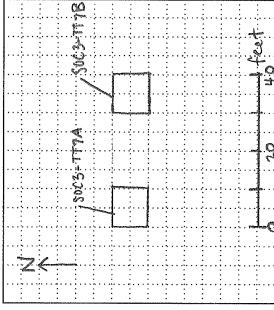
Date Started: 6/8/09

Ended: 6/8/09

Logged By: KCB



Map View



Remarks:

- * Sample SOC3-TT7-0.5-1' collected from test trench SOC3-TT7B
- ⊗ Approximate Sample Location

Figure

BARR
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 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC3-TT8

Elevation: 946.029-946.138' MSL

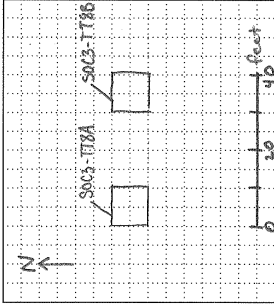
Date Started: 6/8/09

Logged By: KUB

Total Depth: 9 feet

Ended: 6/8/09

Map View

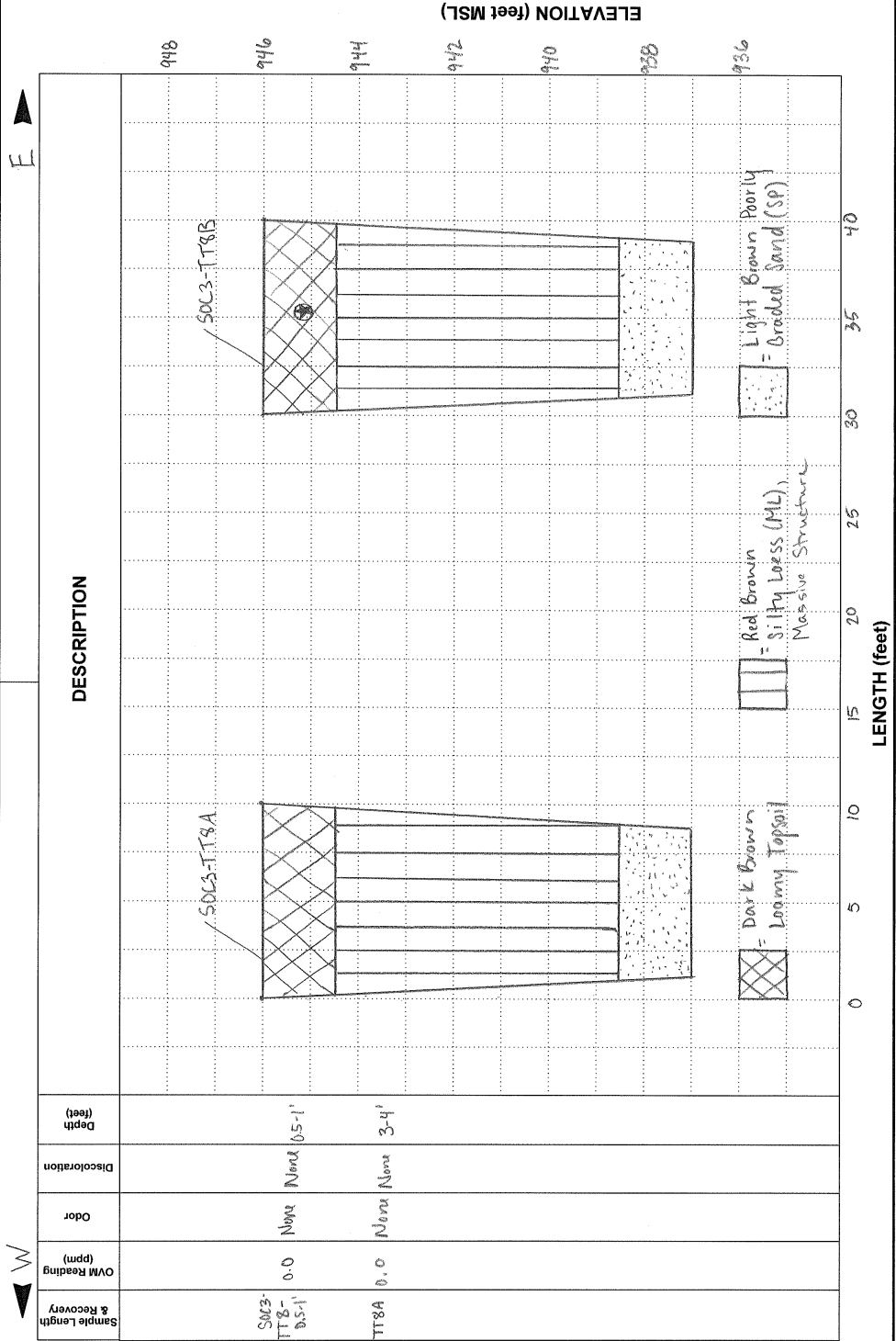


Remarks:

- * Sample SOC3-TT8-0.5-1' collected from test trench SOC3-TT8B
- ⊗ Approximate Sample Location

Figure

BARR
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 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC3 - TT9

Elevation: 935.761 - 943.013' MSL

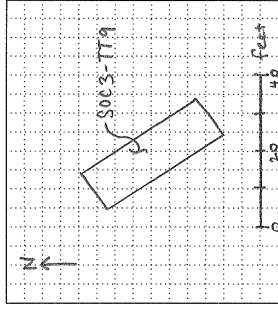
Date Started: 6/12/09

Logged By: KCB

Total Depth: 12 feet

Ended: 6/12/09

Map View



Remarks:

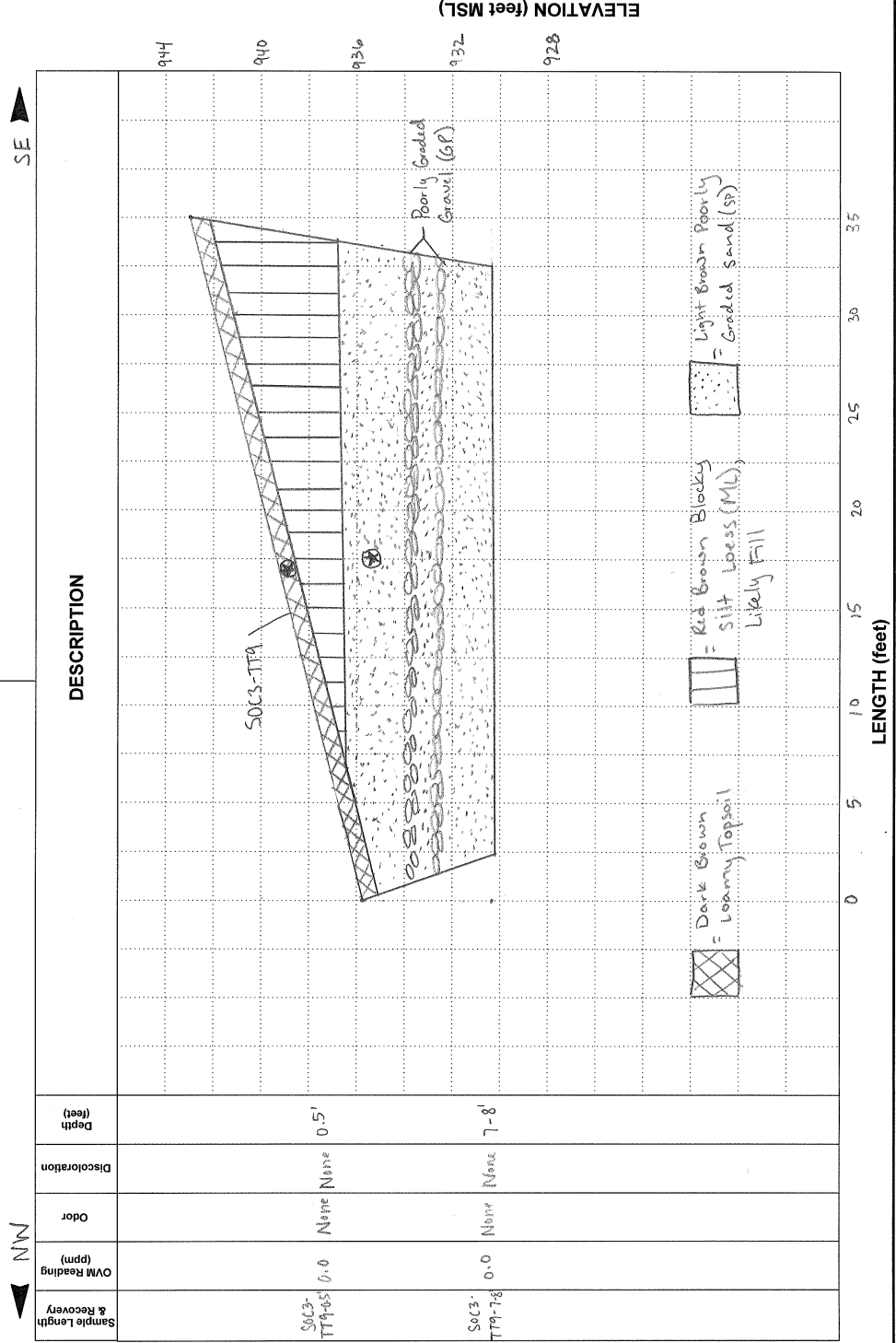
* Samples SOC3-TT9-0.5' and SOC3-TT9-7-8' were collected from test trench SOC3-TT9

* Silty layer appeared to be fill. Concrete, wood, and metal debris encountered.

⊙ Approximate Sample Location

Figure

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Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601



SE

NW

Sample Length & Recovery	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)
SOC3-TT9-0.5'	0.0	None	None	0.5'
SOC3-TT9-7-8'	0.0	None	None	7-8'

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC3-TT10

Elevation: 943.902 - 944.98' MSL

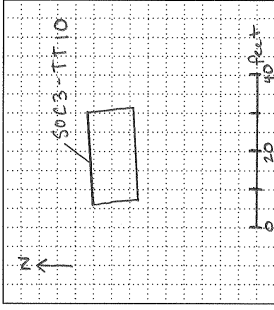
Date Started: 6/12/09

Logged By: KCB

Total Depth: 9 feet

Ended: 6/12/09

Map View

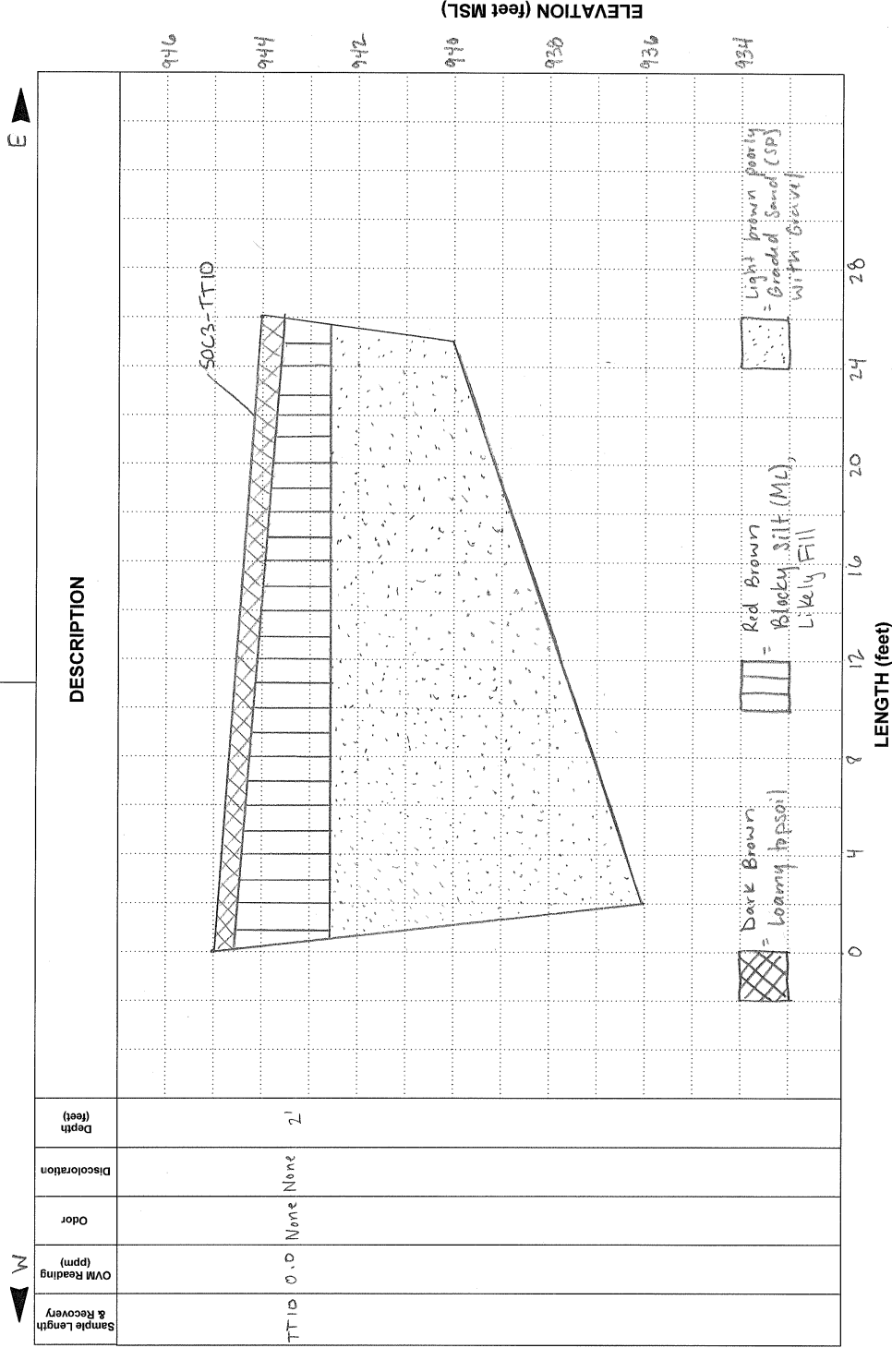


Remarks:

- * No analytical samples collected at test trench SOC3-TT10
- * Silty layer appeared to be fill
- * Stratification and bedding observed in sand and gravel layer

Figure

BARR
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 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

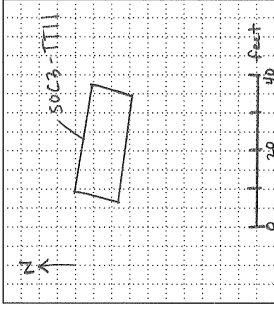
Log of Test Pit No. SOC3 - TT11

Elevation: 941.619 - 942.518' MSL **Total Depth: 7 feet**

Date Started: 6/15/09 **Ended: 6/15/09**

Logged By: KCB

Map View

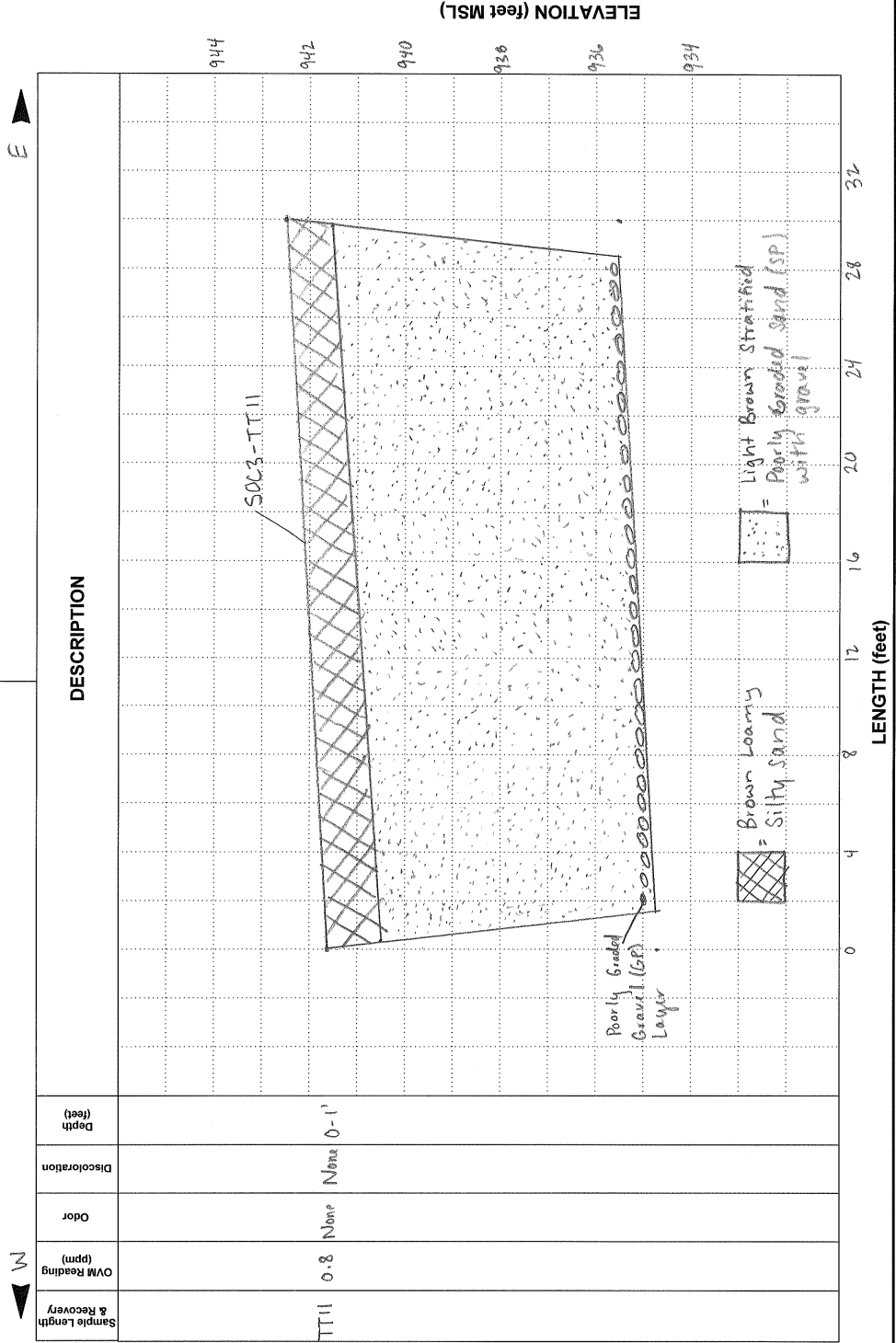


Remarks:

- * No analytical sample collected at test trench SOC3-TT11
- * Stratification and Bedding observed in sand and gravel layer

Figure

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 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: Soc3

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. Soc3 -TT12

Elevation: 939.409 - 939.584' MSL

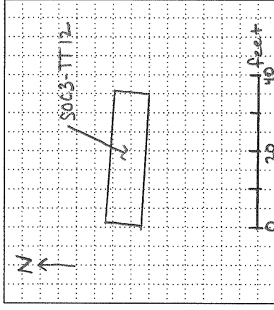
Date Started: 6/15/09

Logged By: KCB

Total Depth: 9 feet

Ended: 6/15/09

Map View

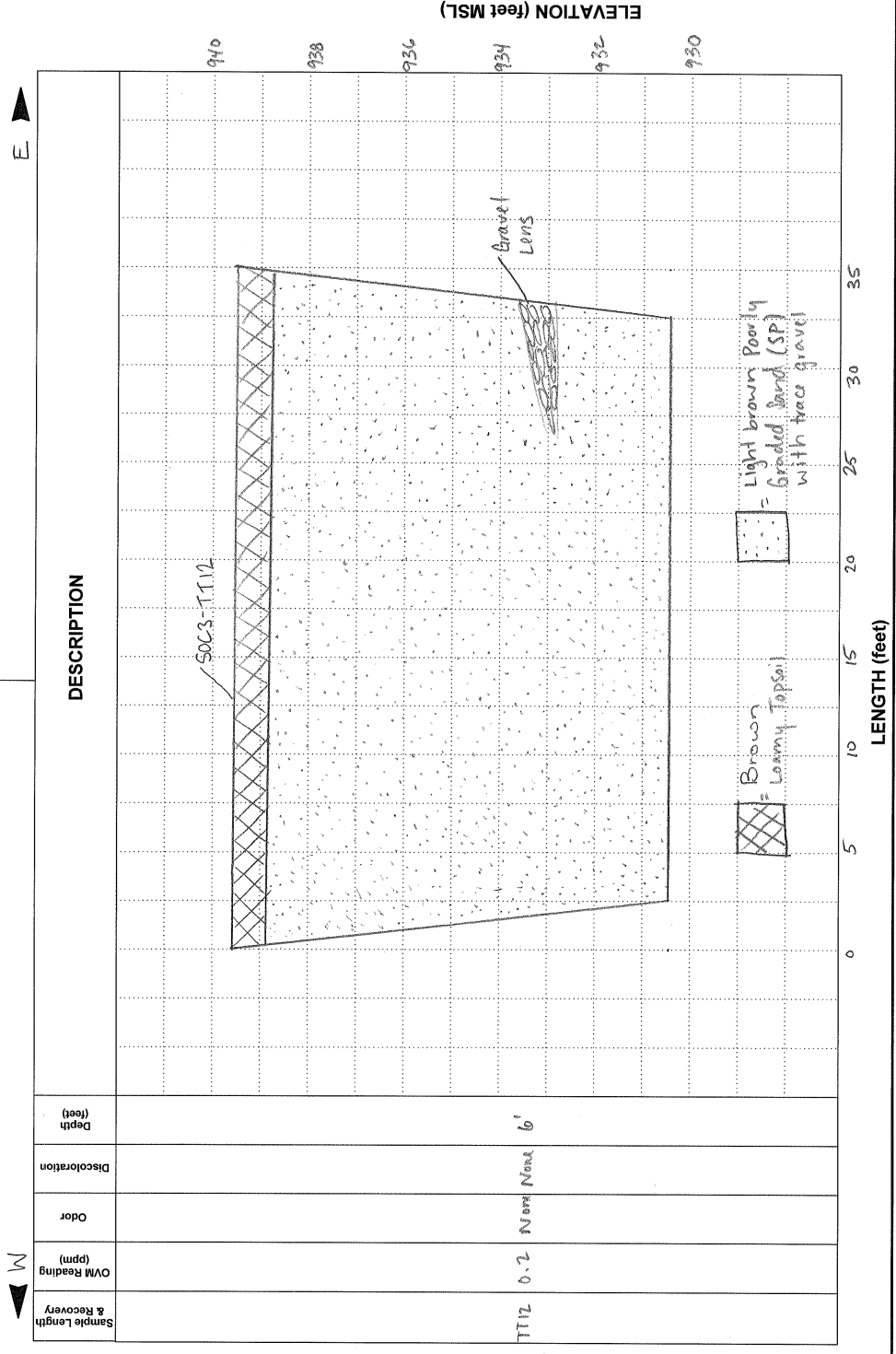


Remarks:

* Analytical Samples were not collected from test trench Soc3-TT12
 * Bedding and Stratification observed in the sand and gravel layer

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Sample Length	OVM Reading (ppm)	Odor	Discoloration	Depth (feet)	DESCRIPTION
TT12	0.2	None	None	6'	Light brown Poorly Graded Sand (SP) with trace gravel

Project Name: Umore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC3-TT13

Elevation: 945.453 - 945.694' MSL

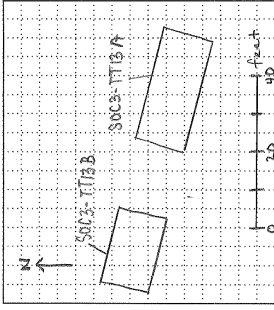
Date Started: 6/15/09

Logged By: KIB

Total Depth: 12 feet

Ended: 6/15/09

Map View

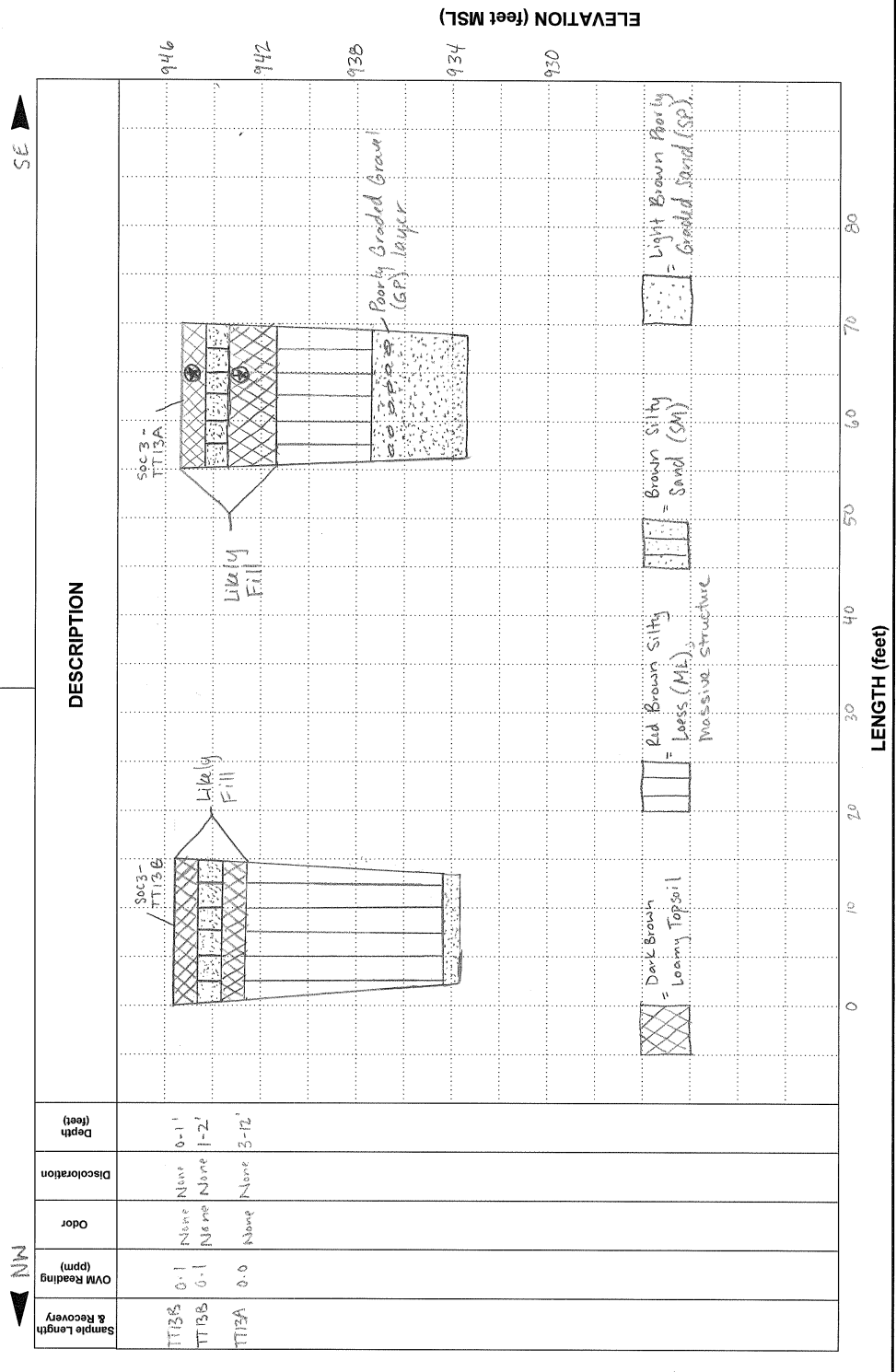


Remarks:

- * Samples SOC3-TT13-0.5' and SOC3-TT13-1' collected from test trench SOC3-TT13A
- * Stratification and cross-bedding observed in sand and gravel layer in test trench SOC3-TT13A.
- * SOC3-TT13A conducted to extent of excavator reach.
- ⊗ Approximate Sample Location

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Sample Length & Recovery	VOM Reading (ppm)	Odor	Discoloration	Depth (feet)
TT13B 0-1'	None	None	None	0-1'
TT13B 0-1'	None	None	None	1-2'
TT13A 0-0'	None	None	None	3-12'

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC3-TT14

Elevation: 944.814 - 945.283 MSL

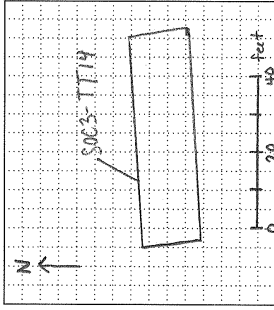
Date Started: 6/12/09

Logged By: KCB

Total Depth: 14 feet

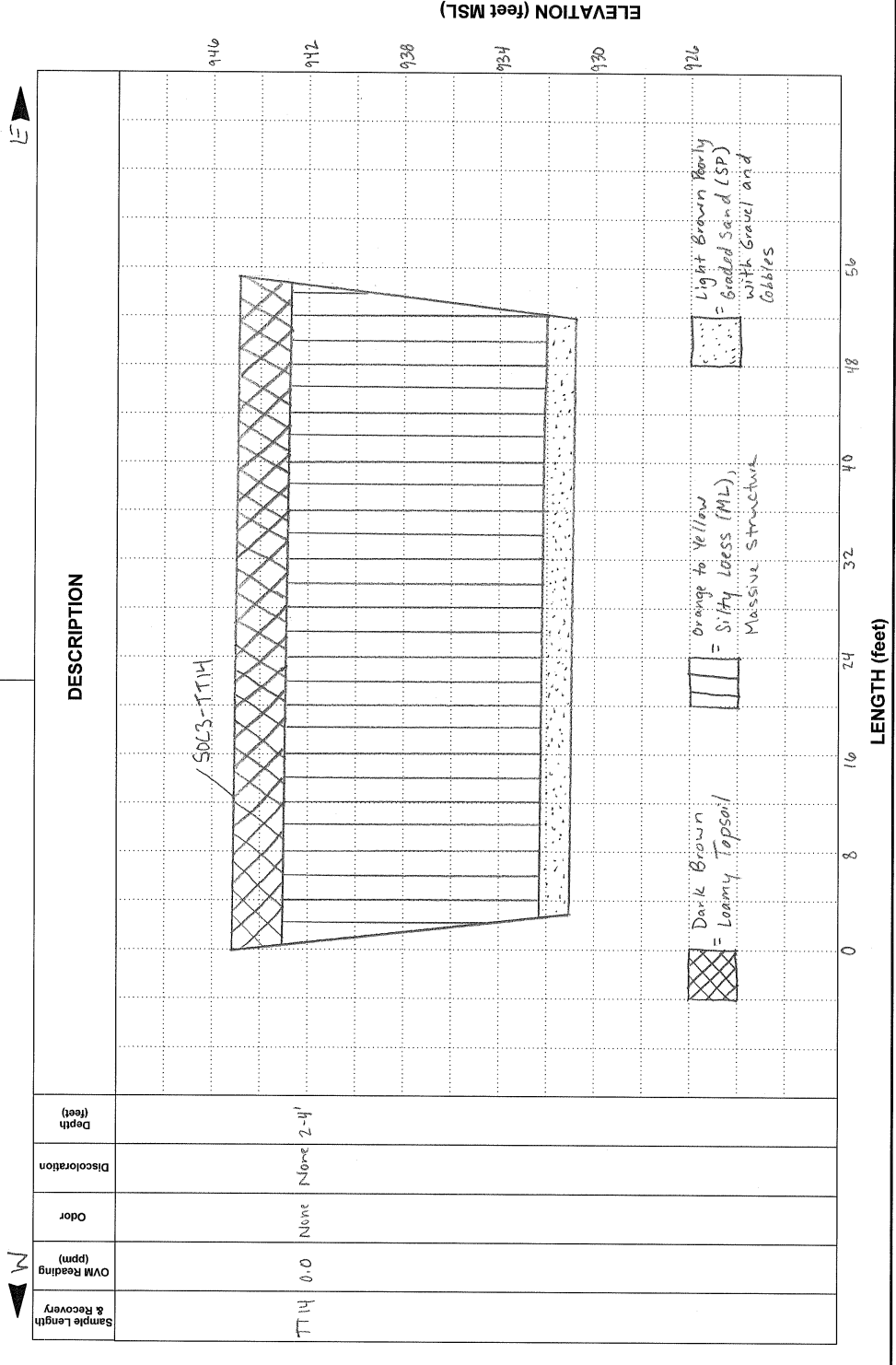
Ended: 6/12/09

Map View



Remarks:

* No analytical sample was collected from test trench SOC3-TT14



Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC 3

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC3-TT15

Elevation: 944.365-944.452 MSL

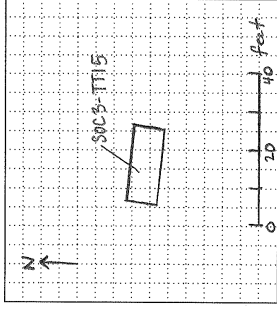
Date Started: 6/15/09

Logged By: KLB

Total Depth: 9 feet

Ended: 6/15/09

Map View

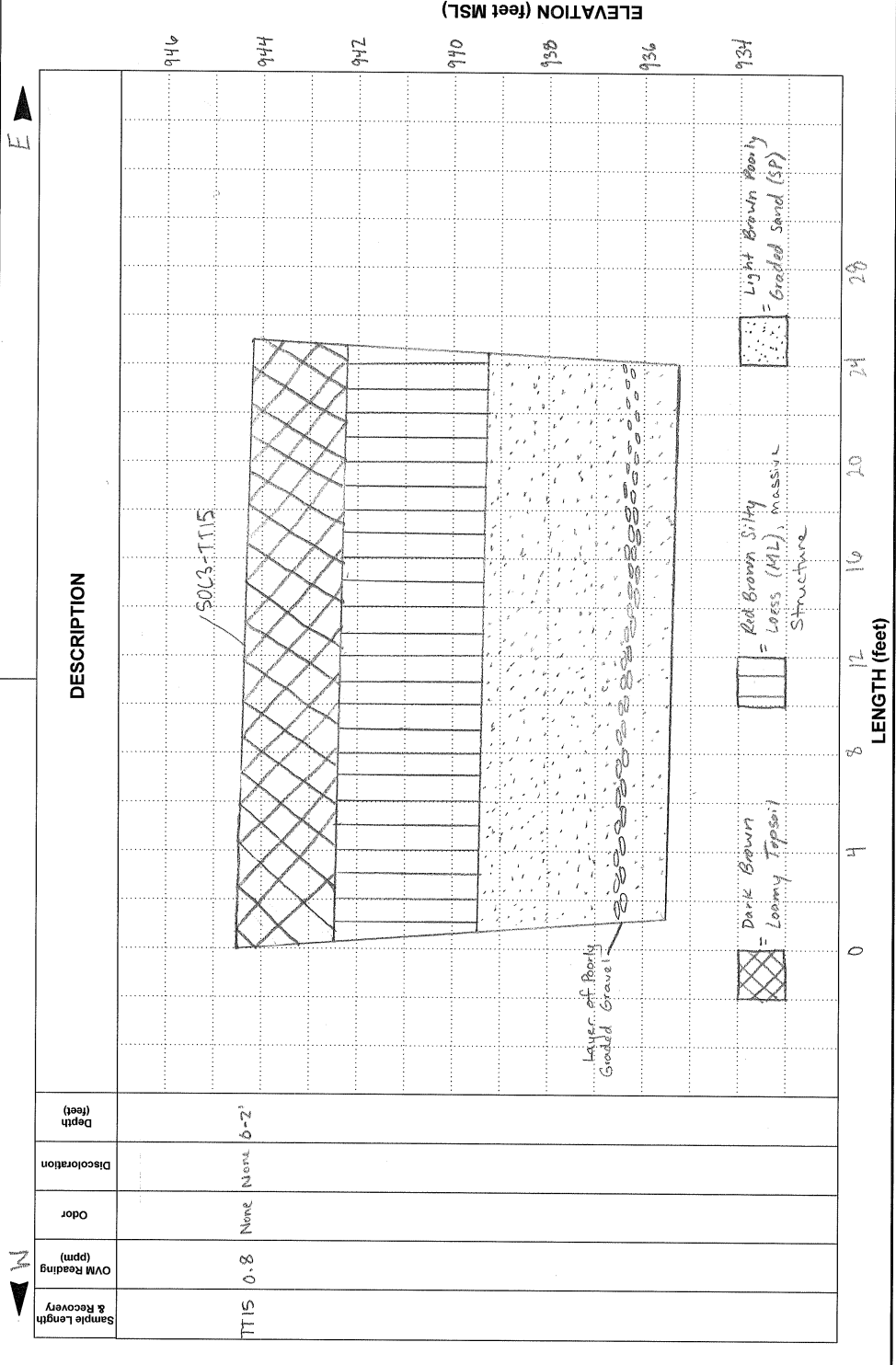


Remarks:

* No analytical sample collected from SOC3-TT15

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC3-TT16

Elevation: 938.847 - 943.486' MSL

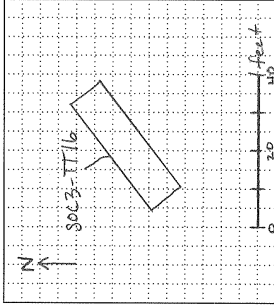
Date Started: 6/15/09

Logged By: KCB

Total Depth: 8 feet

Ended: 6/15/09

Map View

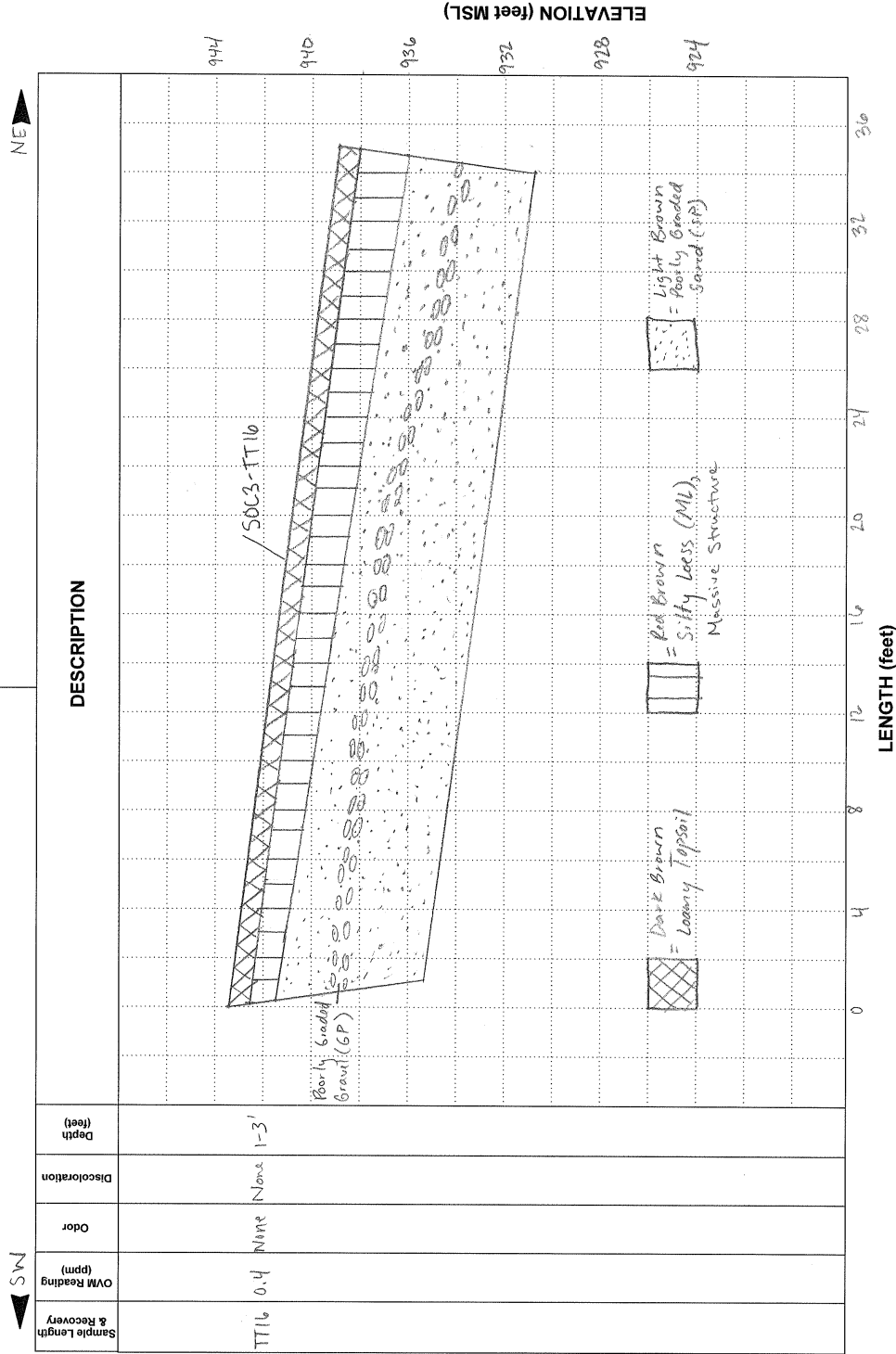


Remarks:

*No analytical samples were collected from test trench SOC3-TT16

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: Umore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

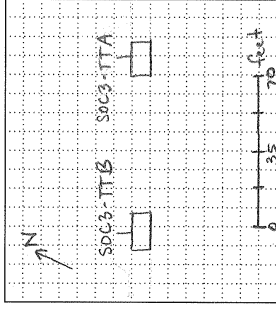
Log of Test Pit No. SOC3-TTA, SOC3-TTB

Elevation: 939.843 - 942.70' MSL Total Depth: 4 feet

Date Started: 6/9/09 Ended: 6/9/09

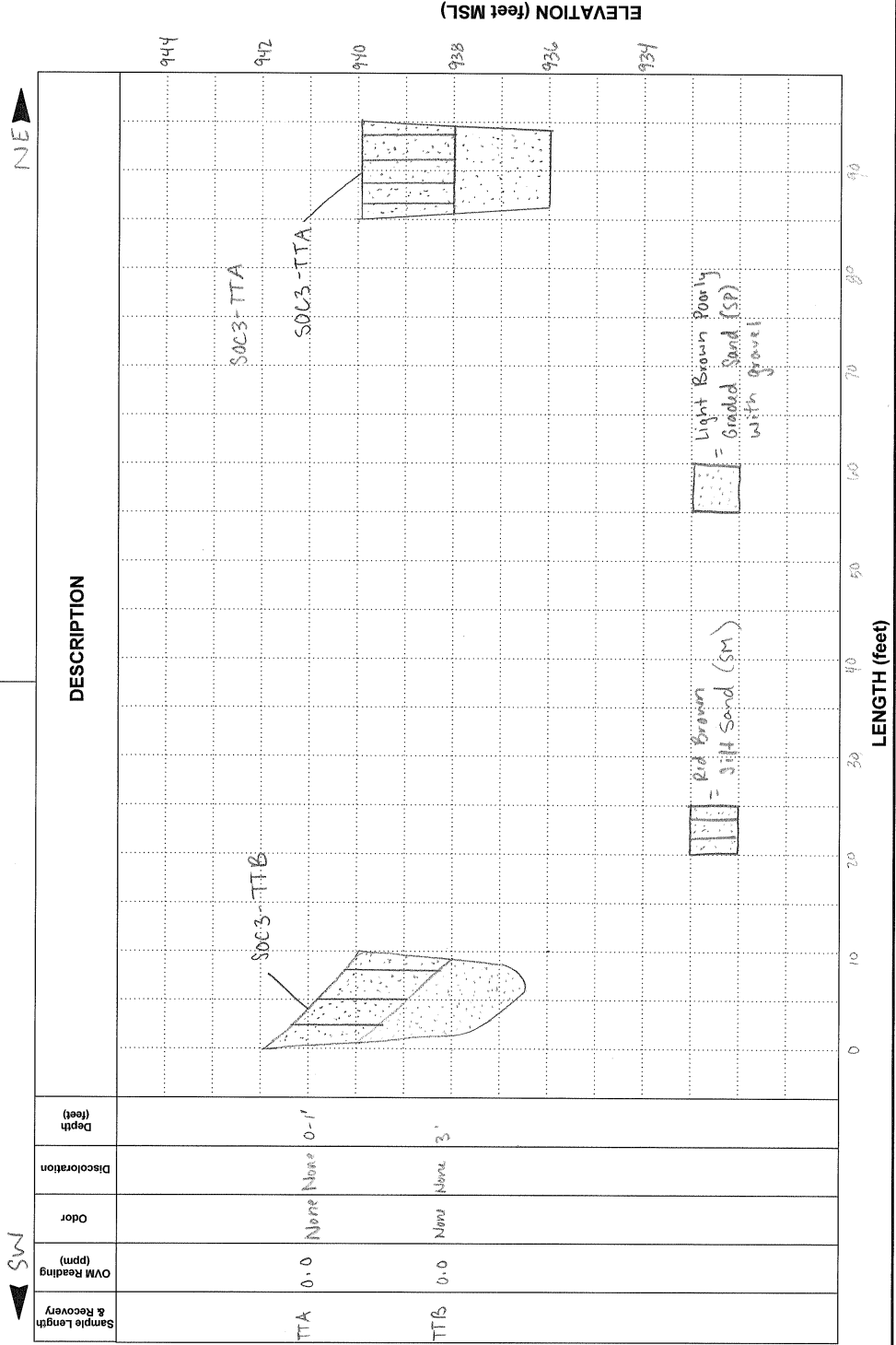
Logged By: KLB

Map View



Remarks:

* No analytical samples collected from test trenches SOC3-TTA or SOC3-TTB



Figure

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 Barr Engineering Co.
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 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC3

Contractor: Stevens Drilling and Environmental Services, Inc.

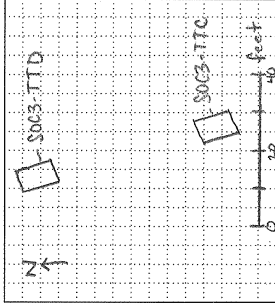
Log of Test Pit No. SOC3-TTC, SOC3-TTD

Elevation: 939.921 - 942.201/4 Total Depth: 4 feet

Date Started: 6/9/09 Ended: 6/9/09

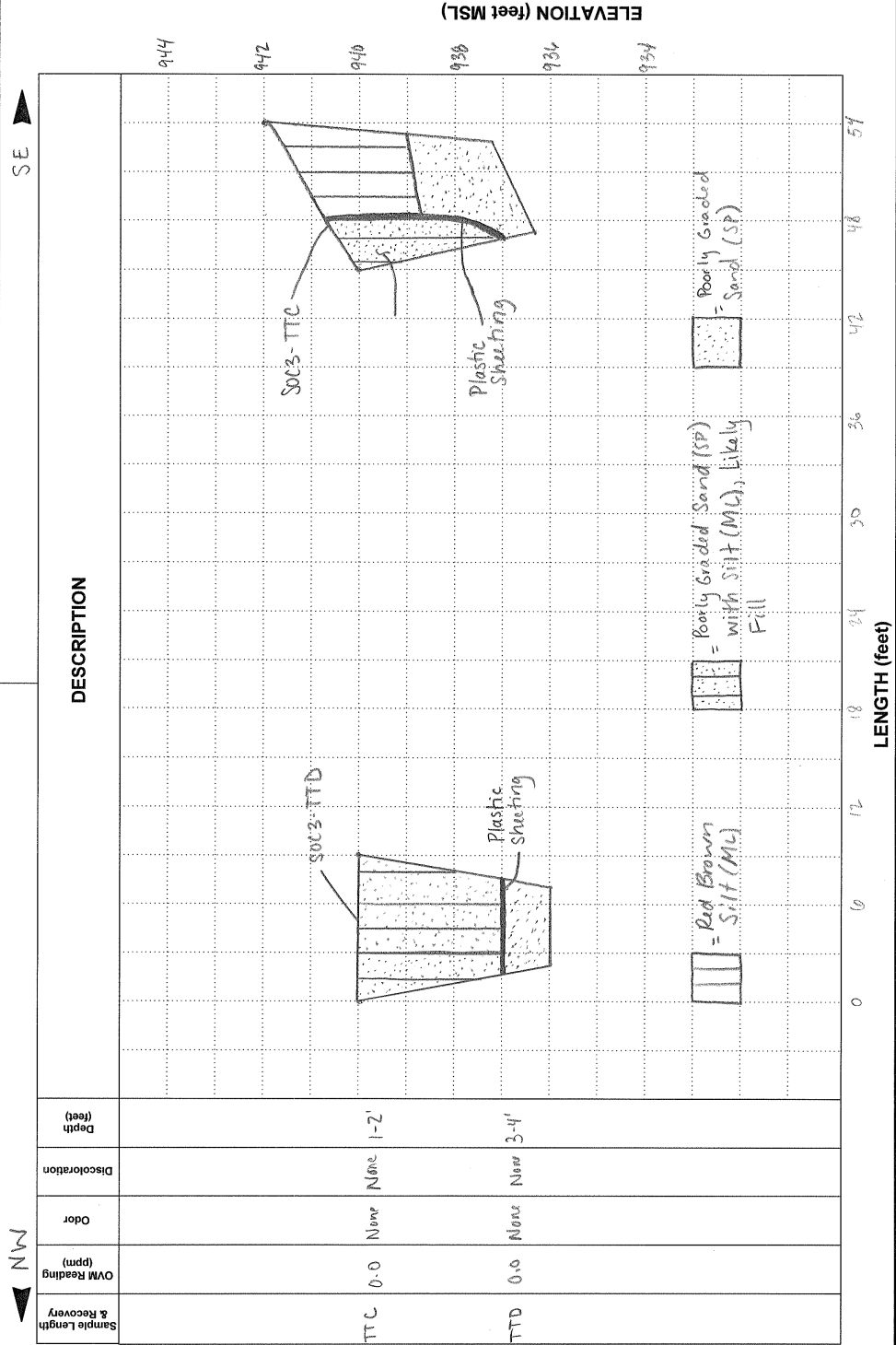
Logged By: KCB

Map View



Remarks:

- * No analytical samples were collected from test trenches SOC3-TTC or SOC3-TTD.
- * Fill soil above plastic liner



Figure

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 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC7

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC7-TT1

Elevation: 953.552-953.962 MSL

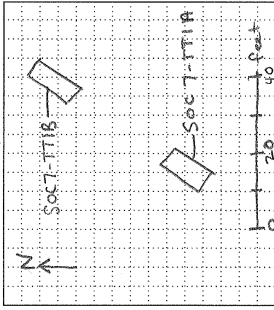
Date Started: 6/8/09

Logged By: KCB

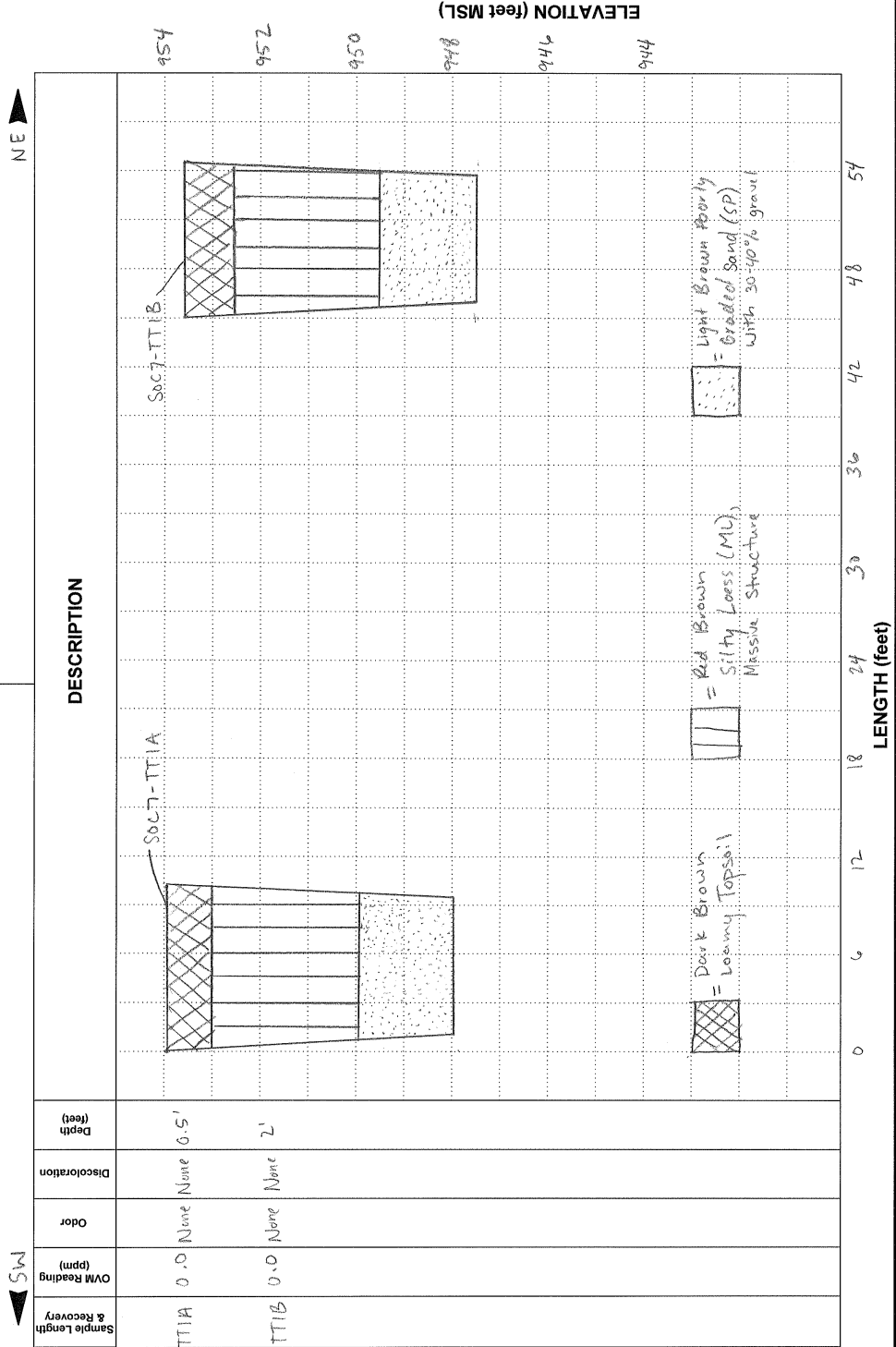
Total Depth: 6 feet

Ended: 6/8/09

Map View



Remarks:
 *No analytical Samples were collected from test trench SOc7-TT1



Figure

BARR
 Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC7

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC7-TT2

Elevation: 946.51 - 949.81' MSL

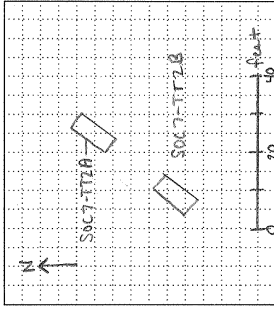
Total Depth: 4 feet

Date Started: 6/8/09

Ended: 6/8/09

Logged By: KIB

Map View

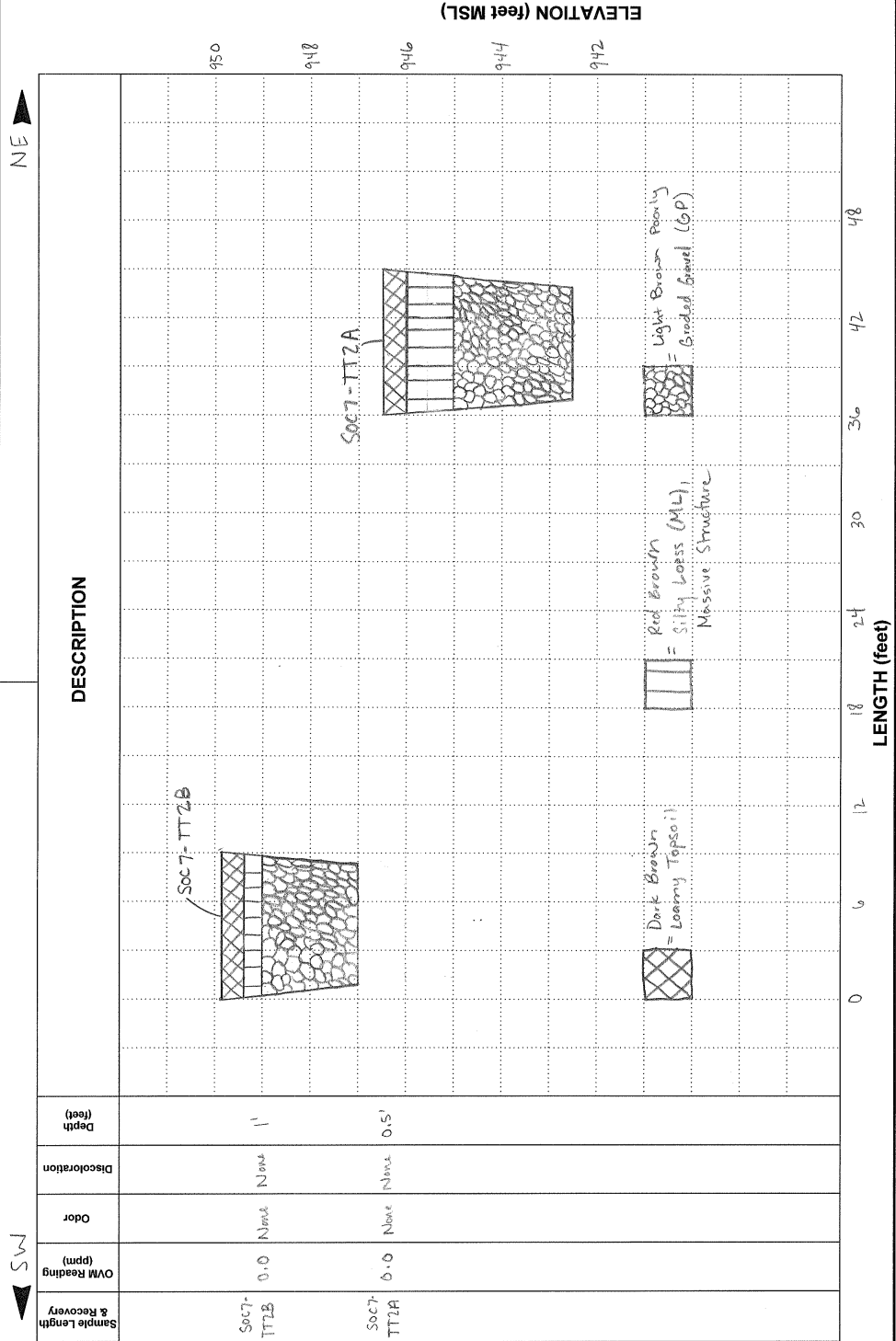


Remarks:

* No analytical samples were collected from test trench SOC7-TT2.

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC7

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC7-TT3

Elevation: 944.02 - 945.17' MSL

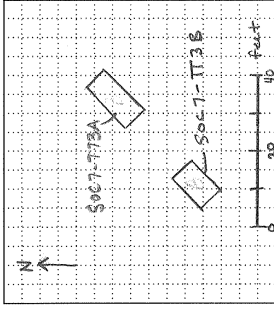
Total Depth: 6 feet

Date Started: 6/18/09

Ended: 6/18/09

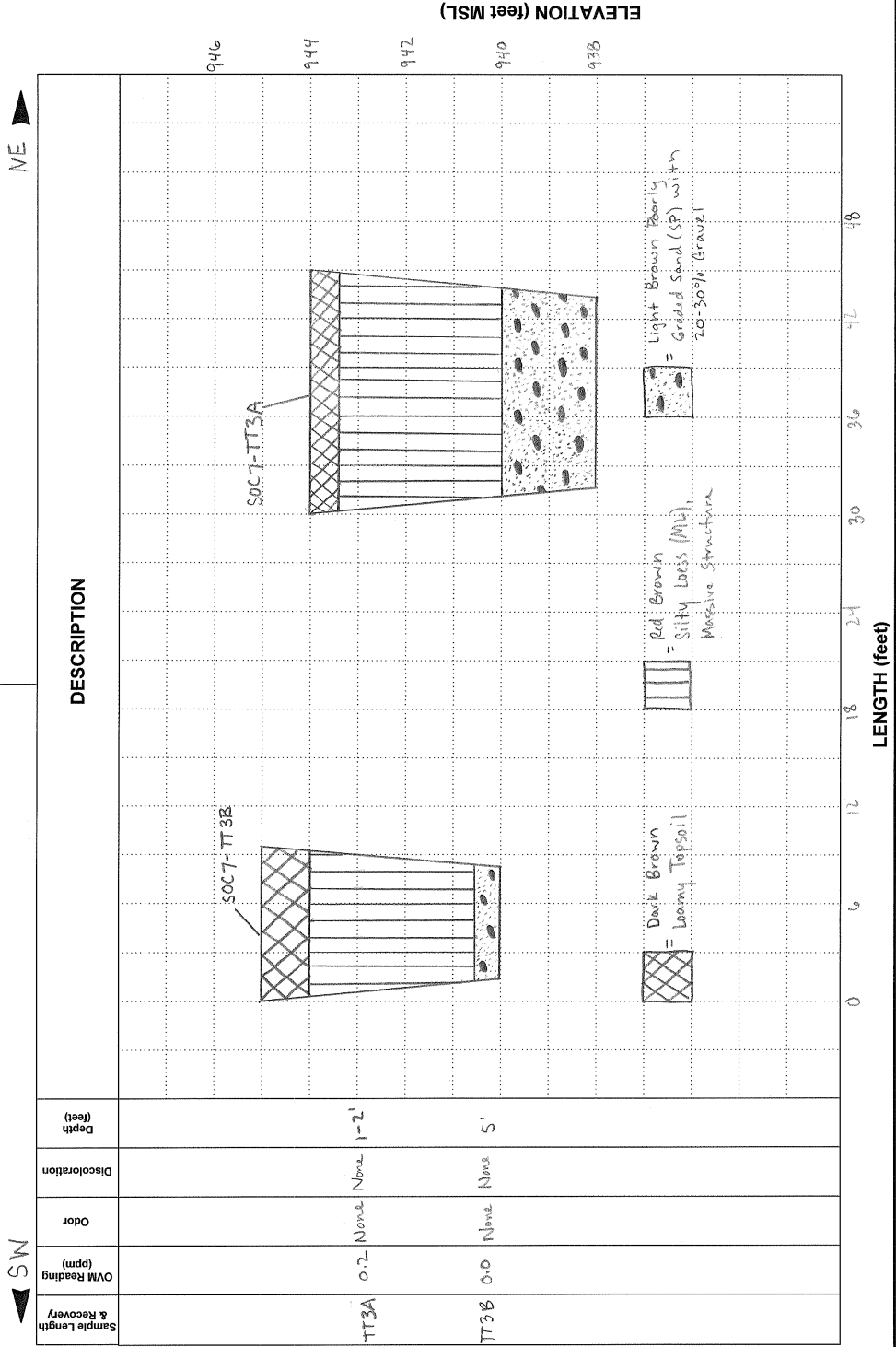
Logged By: KCB

Map View



Remarks:

* No analytical samples were collected from test trench SOC7-TT3



Figure



Barr Engineering Co.
4700 W 77th St, Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC7

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC7-TT4

Elevation: 941.368 - 942.987' MSL

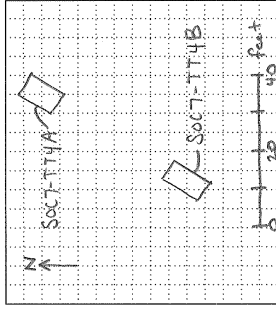
Total Depth: 12 feet

Date Started: 6/8/09

Ended: 6/8/09

Logged By: KUB

Map View

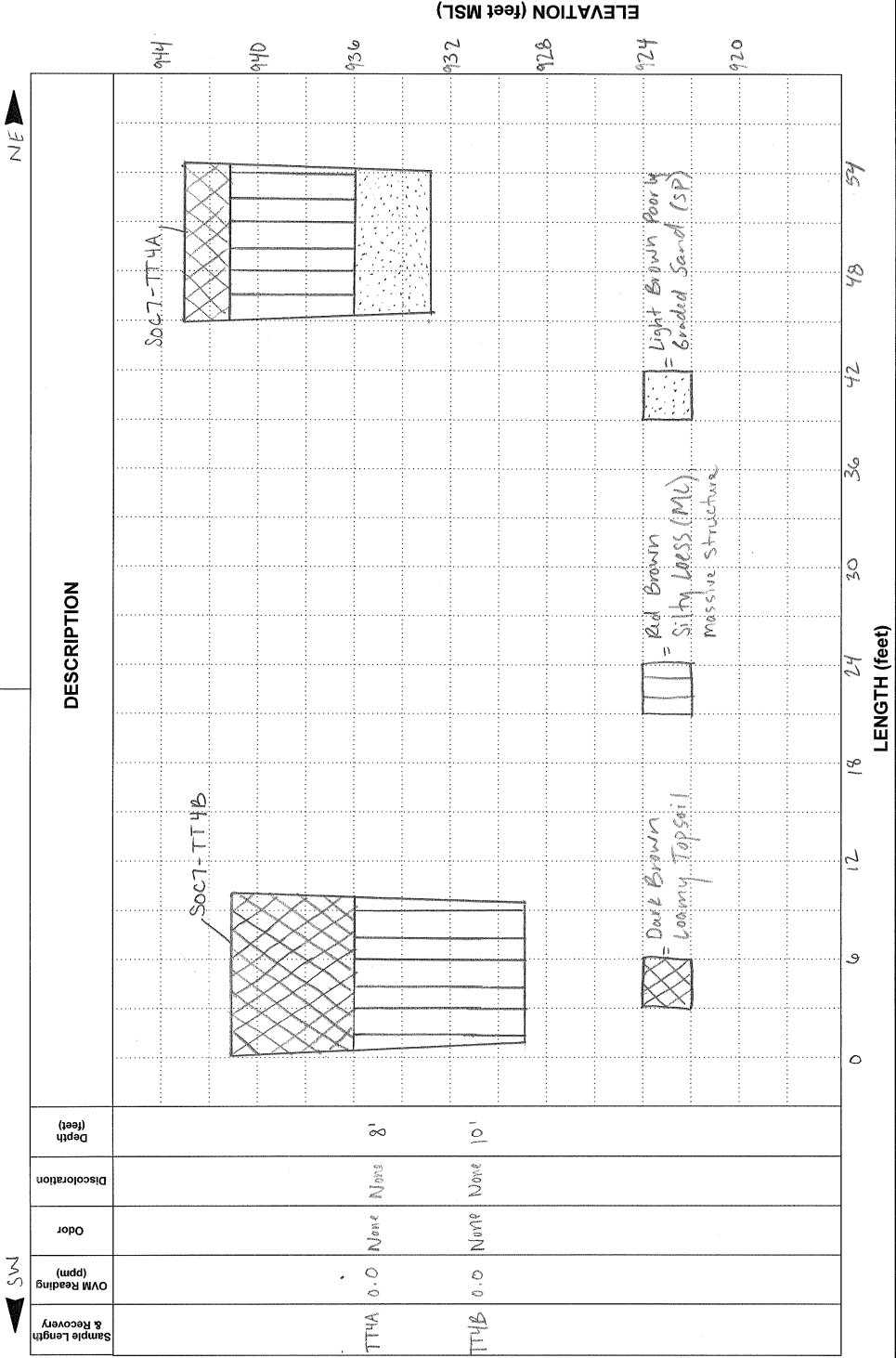


Remarks:

*No analytical samples were collected from test trench SOC7-TT4.

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC7

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC7-TT5

Elevation: 949.126 - 949.743 MSL

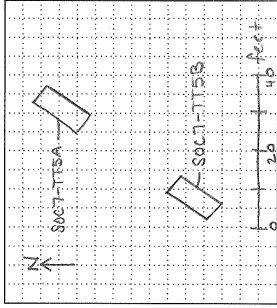
Total Depth: 8 feet

Date Started: 6/8/09

Ended: 6/8/09

Logged By: KCB

Map View

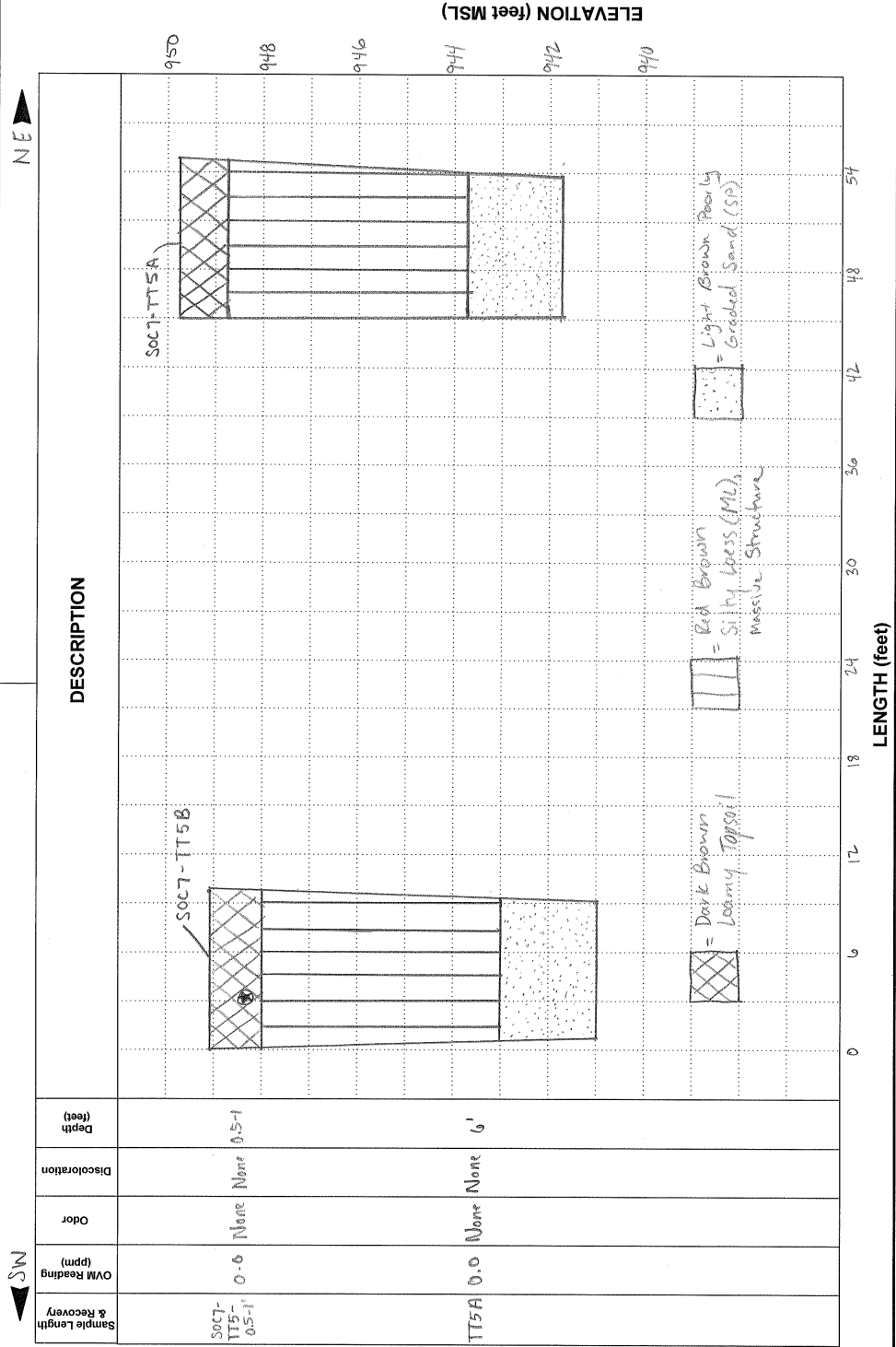


Remarks:

- * Sample SOC7-TT5-0.5-1' was collected from test trench SOC7-TT5B
- ⊗ Approximate Sample Location

Figure

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 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC7

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC7-TT6

Elevation: 951.823 - 952.385

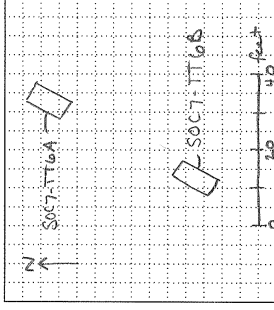
Date Started: 6/8/09

Logged By: KCB

Total Depth: 6 feet

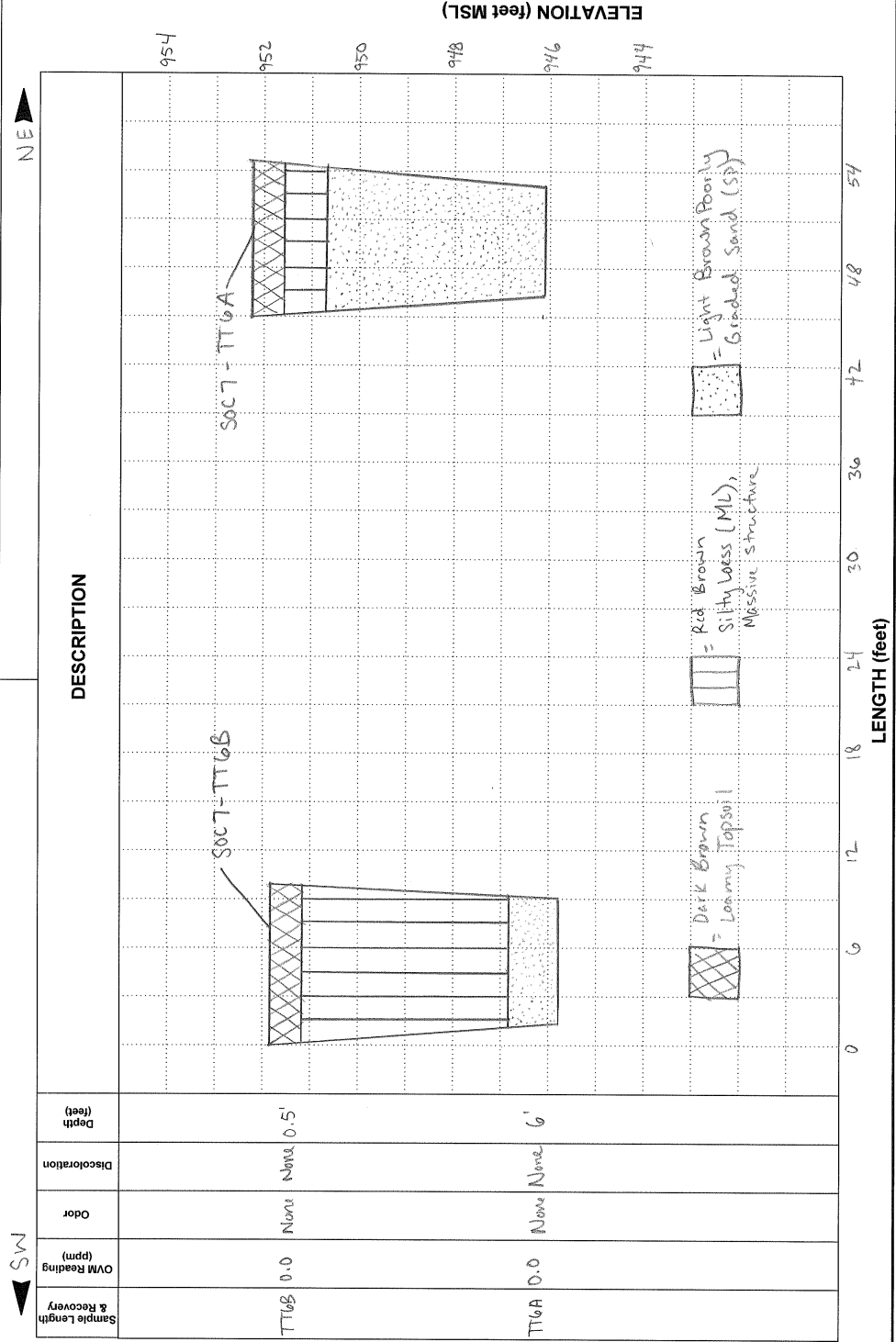
Ended: 6/8/09

Map View



Remarks:

* No analytical samples were collected from test trench SOC7-TT6



BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Figure

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: Soc 7

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC 7 - TT7

Elevation: 939.24-939.74' MSL

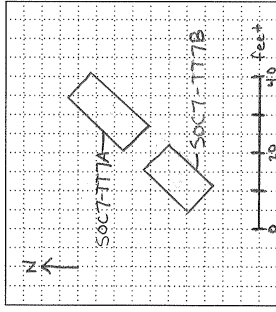
Date Started: 6/8/09

Logged By: KCB

Total Depth: 17 feet

Ended: 6/8/09

Map View



Remarks:

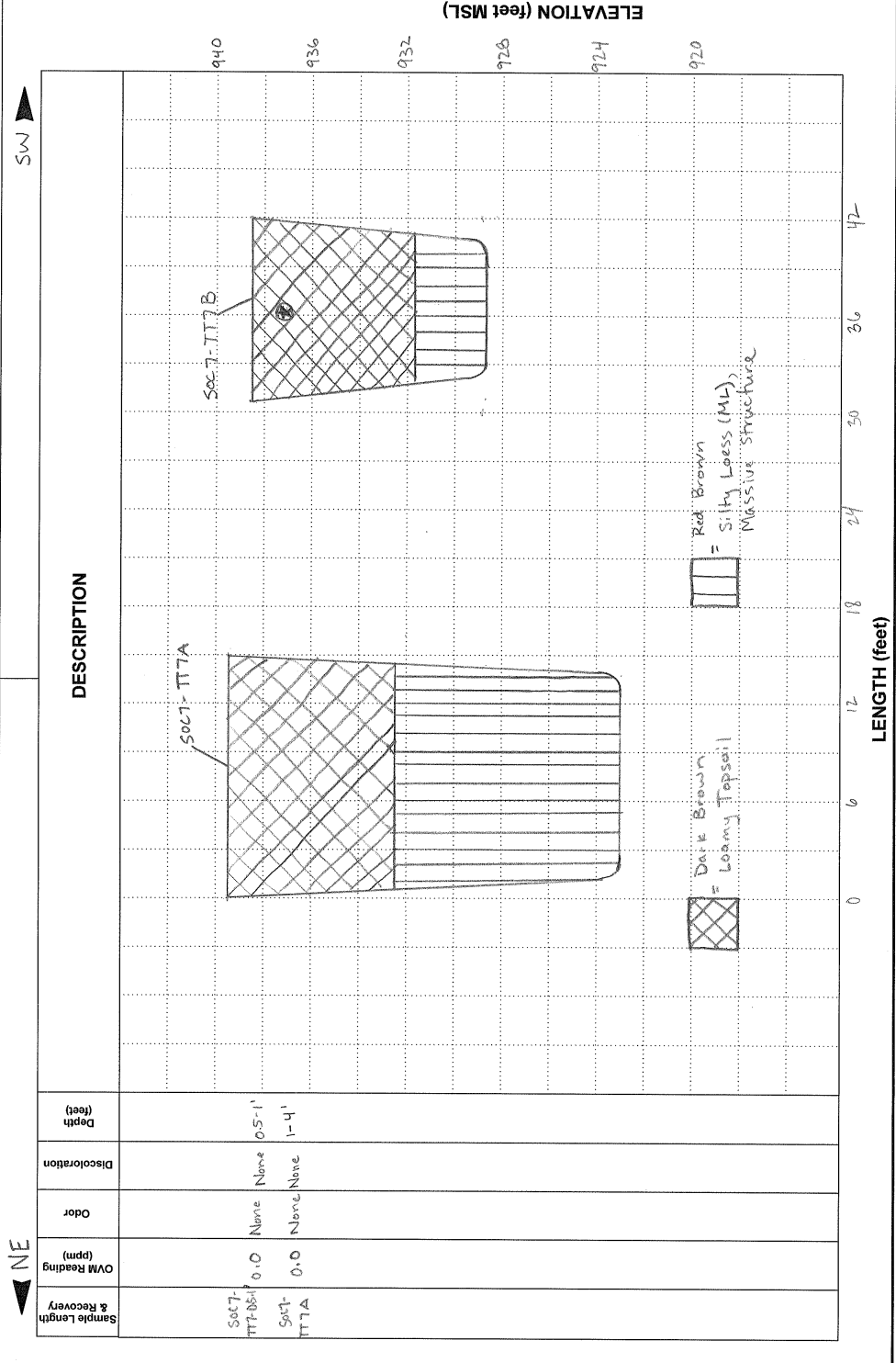
* Test trench SOC7-TT7A was excavated to the maximum depth possible with the equipment onsite. The sand and gravel layer was not encountered.

* Sample SOC7-TT7-0.5-1 was collected from test trench SOC7-TT7B

⊗ Approximate Sample Location

Figure

BARR
Barr Engineering Co.
4700 W 77th St, Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: Soc 7

Contractor: Stevens Drilling and Environmental Services, Inc.

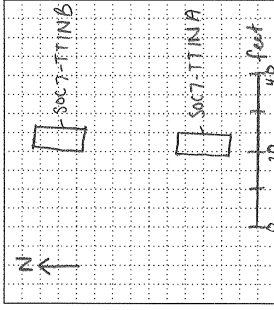
Log of Test Pit No. Soc 7 - TTIN

Elevation: 946.768 - 948.777' MSL **Total Depth: 5.5 feet**

Date Started: 6/11/09 **Ended: 6/11/09**

Logged By: KEB

Map View

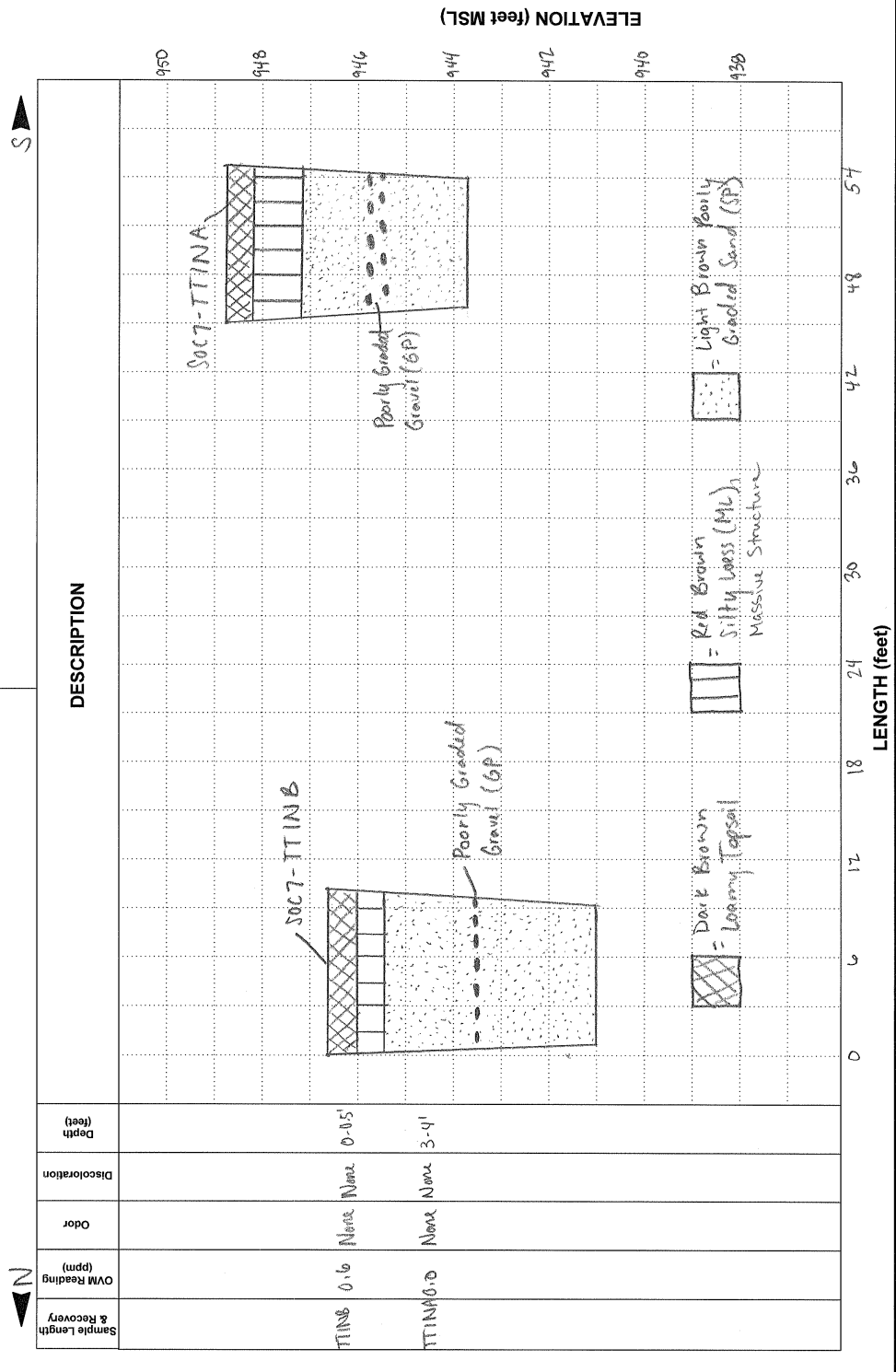


Remarks:

* No analytical samples were collected from test trench Soc 7-TTIN
 * Stratification and bedding observed in sand layer

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2800
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC7

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC7-TT2N

Elevation: 937.454 - 938.391' MSL

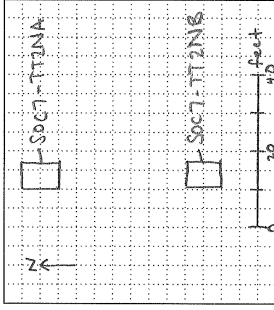
Date Started: 6/11/09

Logged By: keB

Total Depth: 10 feet

Ended: 6/11/09

Map View

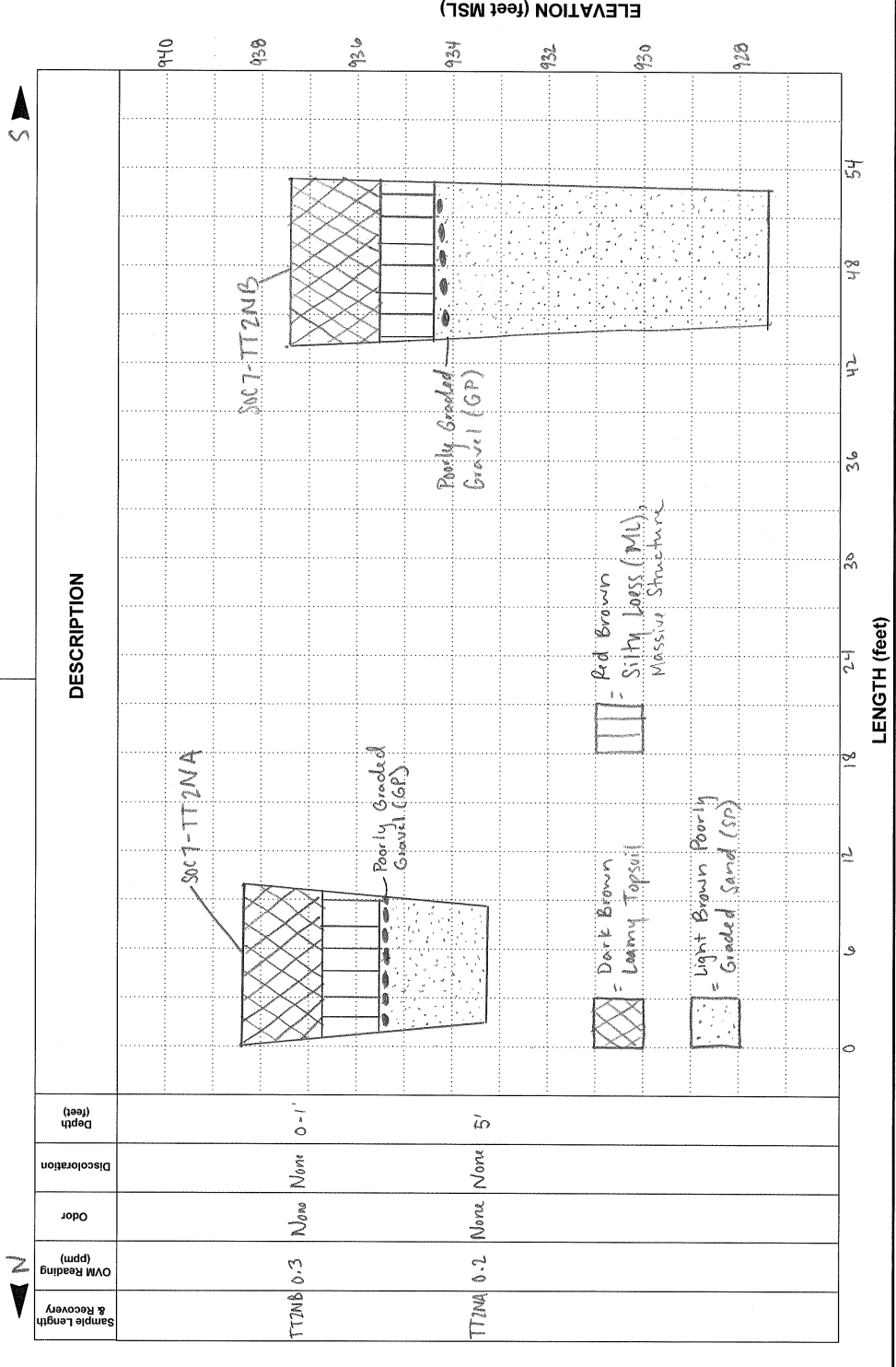


Remarks:

* No analytical samples were collected from test trench SOC7-TT2N
 * Stratification and bedding observed in sand layer

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Elyria, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC7

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC7-TT3N

Elevation: 944.818-947.477 MSL

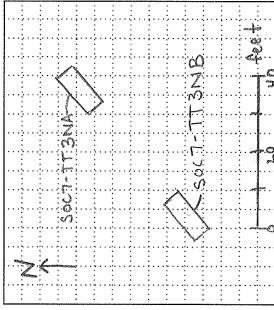
Date Started: 6/11/09

Logged By: KCB

Total Depth: 5 feet

Ended: 6/11/09

Map View

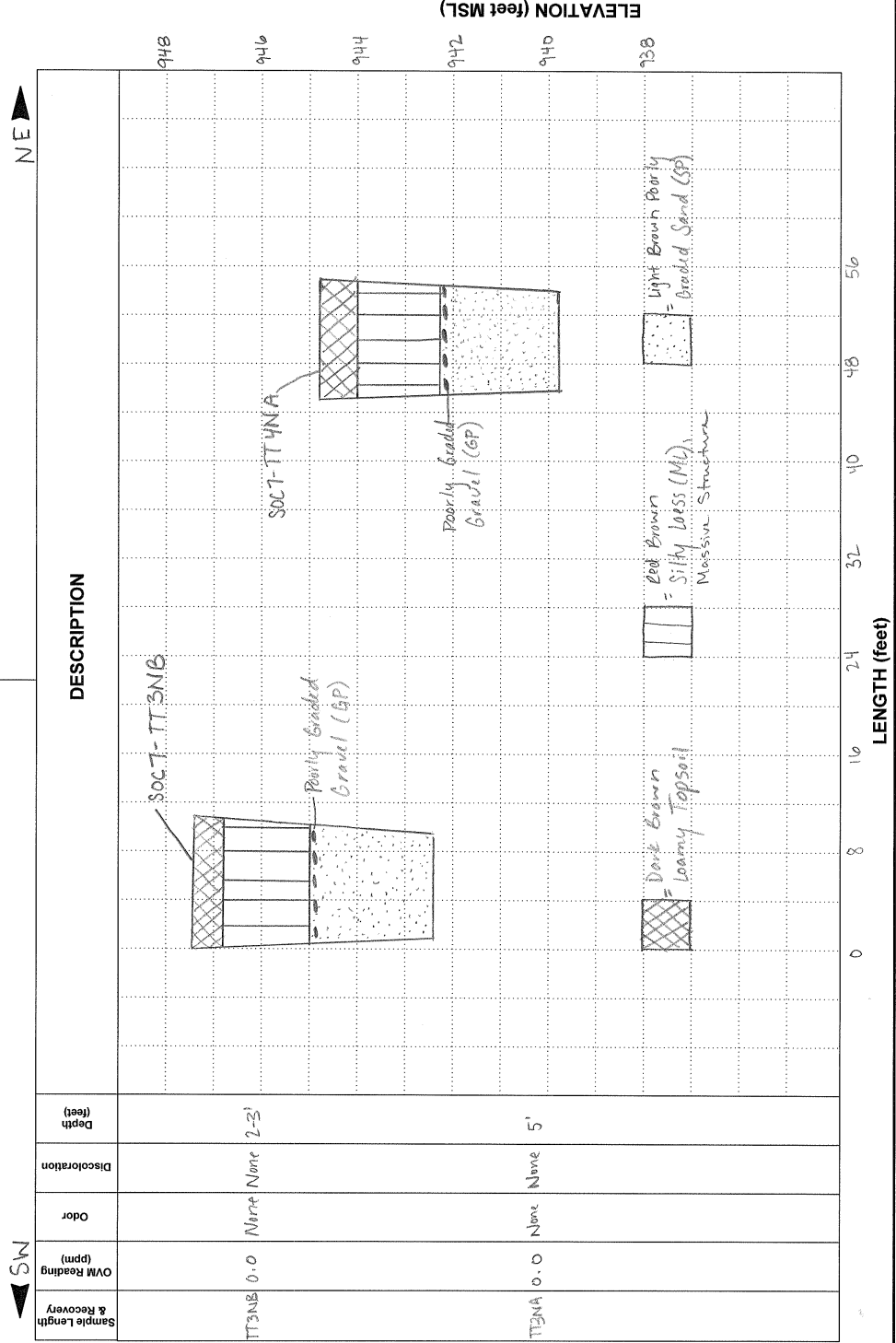


Remarks:

* No analytical samples were collected at test trench SOC7-TT3N

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Sample Length & Recovery	ODM Reading (ppm)	Odor	Discoloration	Depth (feet)	DESCRIPTION
TT3NB 0-0	None	None	None	2-3'	Dark Brown Loamy Topsoil
TT3NA 0-0	None	None	None	5'	Poorly-Graded Gravel (GP)

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC7

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC7-TT4N

Elevation: 950.506 - 950.605

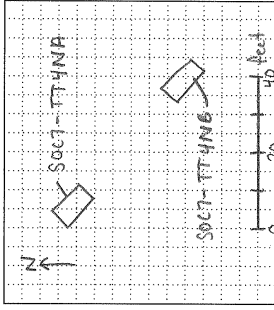
Date Started: 6/11/09

Logged By: KLB

Total Depth: 6 feet

Ended: 6/11/09

Map View

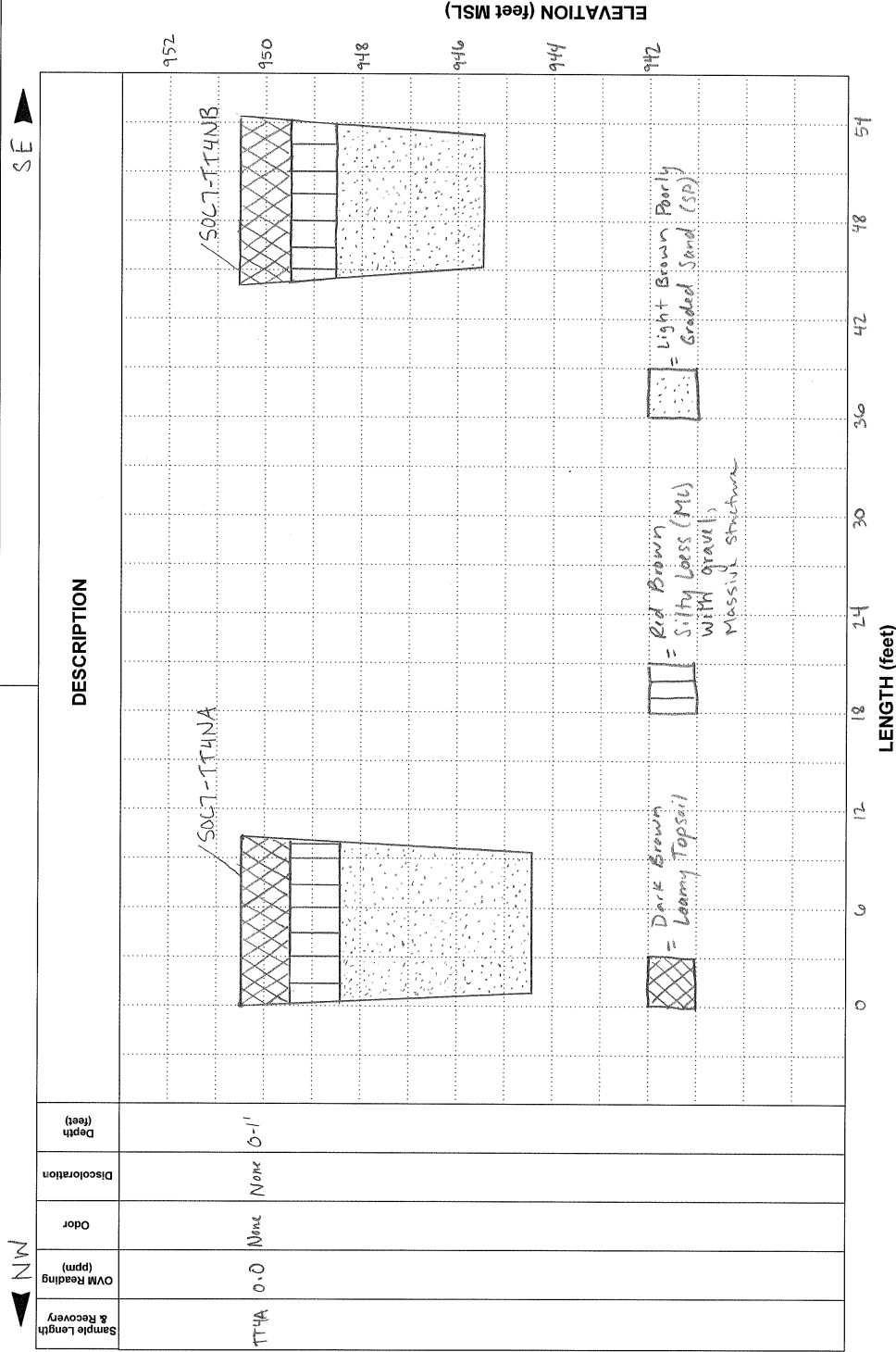


Remarks:

* No analytical samples were collected from test trench SOC7-TT4N

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC 8

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC 8 - TT1

Elevation: 949.91 - 950.91' MSL

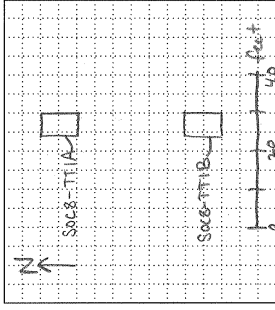
Date Started: 6/3/09

Logged By: LMLZ

Total Depth: 4 feet

Ended: 6/3/09

Map View

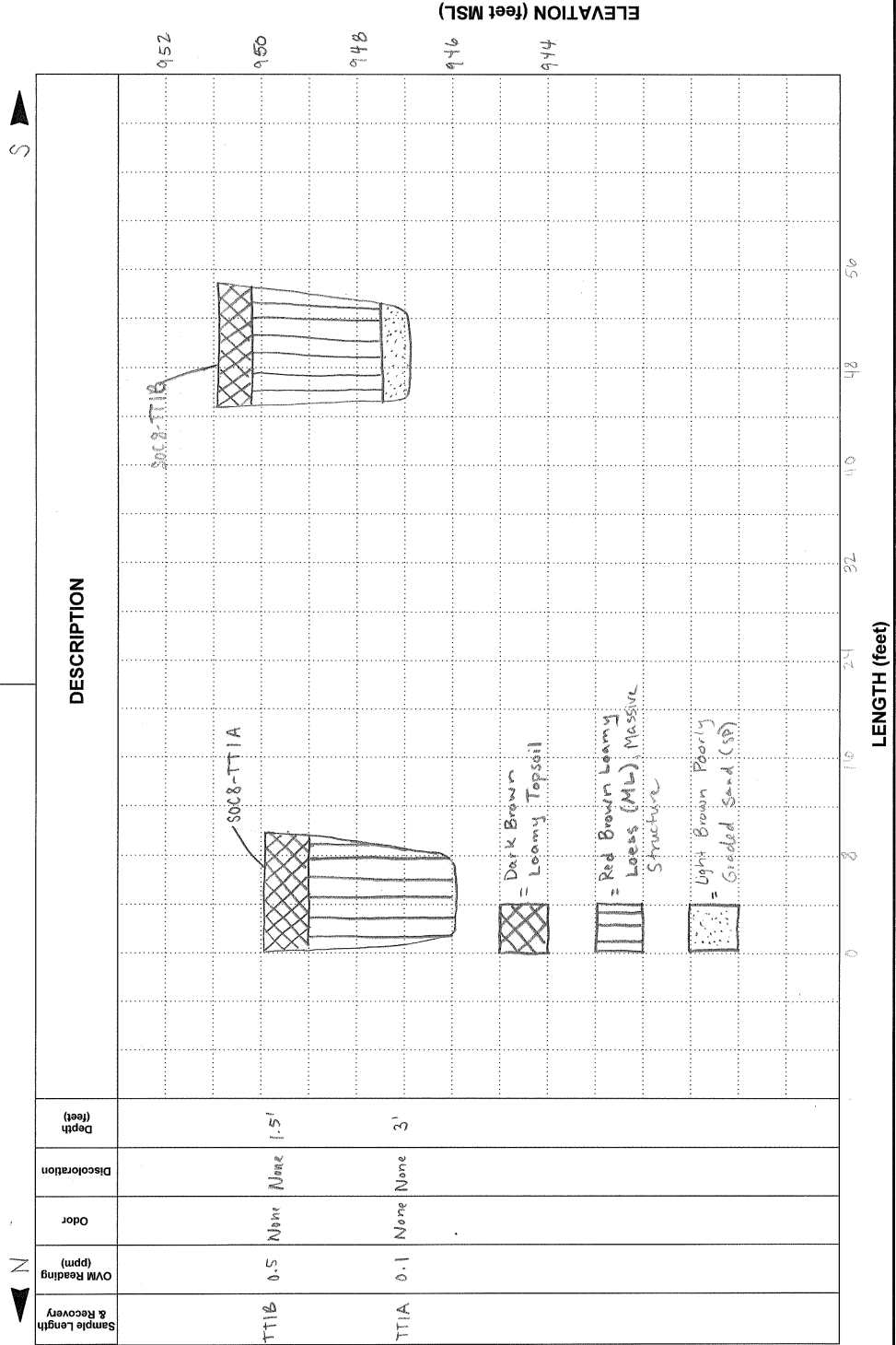


Remarks:

- *Asbestos Containing Material (ACM) observed near SOC8-TT1 including transite shingles and tiles.
- * All ACM debris was surficial.
- * No analytical samples were collected from test trench SOC8-TT1

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Sample Length & Recovery	OMV Reading (ppm)	Odor	Discoloration	Depth (feet)	DESCRIPTION
TT1B 0.5	None	None	None	1.5'	SOC8-TT1A Dark Brown Loamy Topsoil
TT1A 0.1	None	None	None	3'	SOC8-TT1B Red Brown Loamy Loess (ML) Massive Structure Light Brown Poorly Graded Sand (SP)

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC8

Contractor: Stevens Drilling and Environmental Services, Inc.

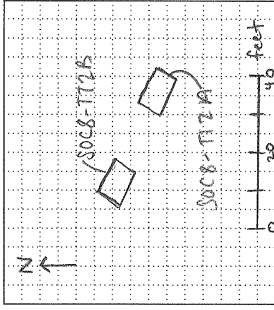
Log of Test Pit No. SOC8-TT2

Elevation: 950.823-951.319' MSL **Total Depth:** 6 feet

Date Started: 6/11/09 **Ended:** 6/11/09

Logged By: KLB

Map View

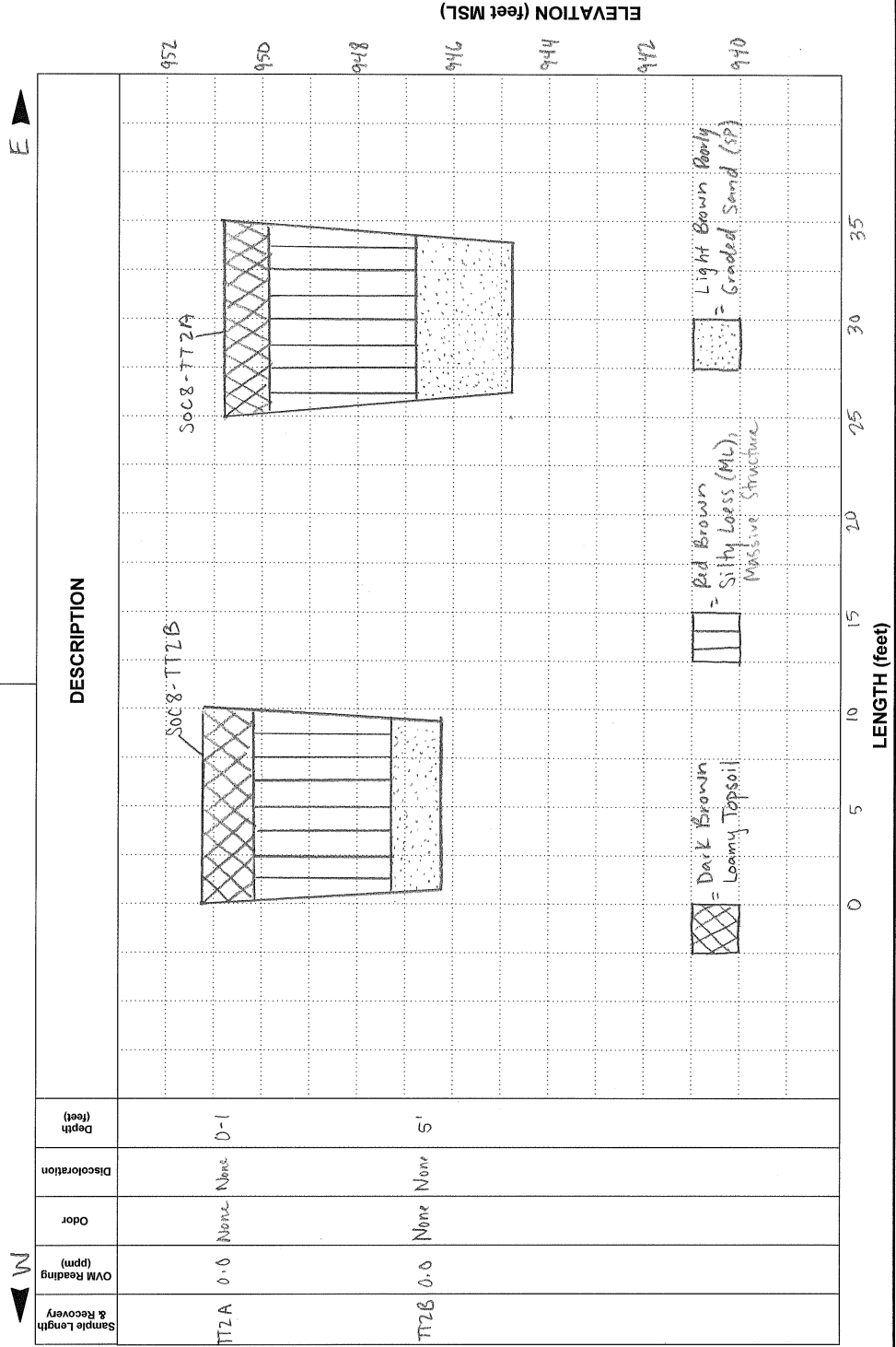


Remarks:

* No analytical samples were collected from test trench SOC8-TT2

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC 8

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC 8 - TT3

Elevation: 949.48' - 949.73' MSL

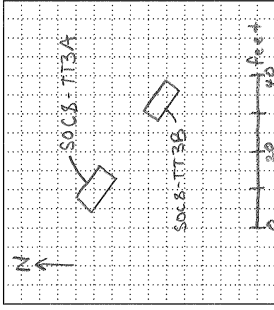
Date Started: 6/3/09

Logged By: LMLZ

Total Depth: 4 feet

Ended: 6/3/09

Map View

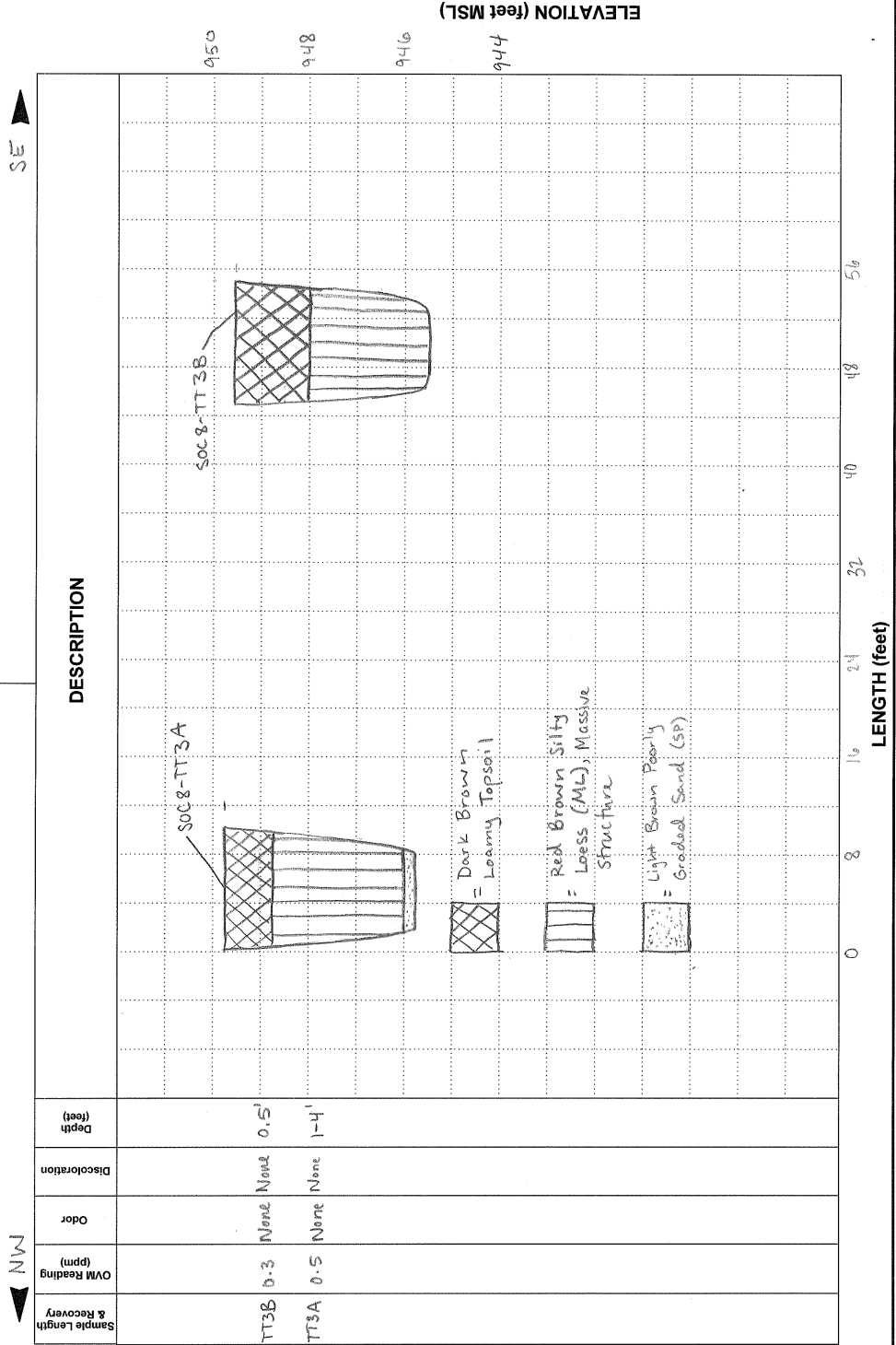


Remarks:

* No analytical samples were collected from test trench SOC 8-TT3

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC 8

Contractor: Stevens Drilling and Environmental Services, Inc.

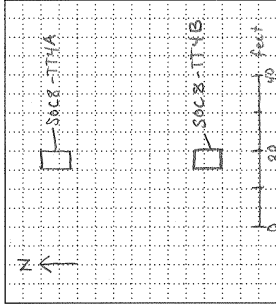
Log of Test Pit No. SOC8-TT4

Elevation: 948.42 - 948.53 MSL Total Depth: 4 feet

Date Started: 6/3/09 Ended: 6/3/09

Logged By: LMLZ

Map View

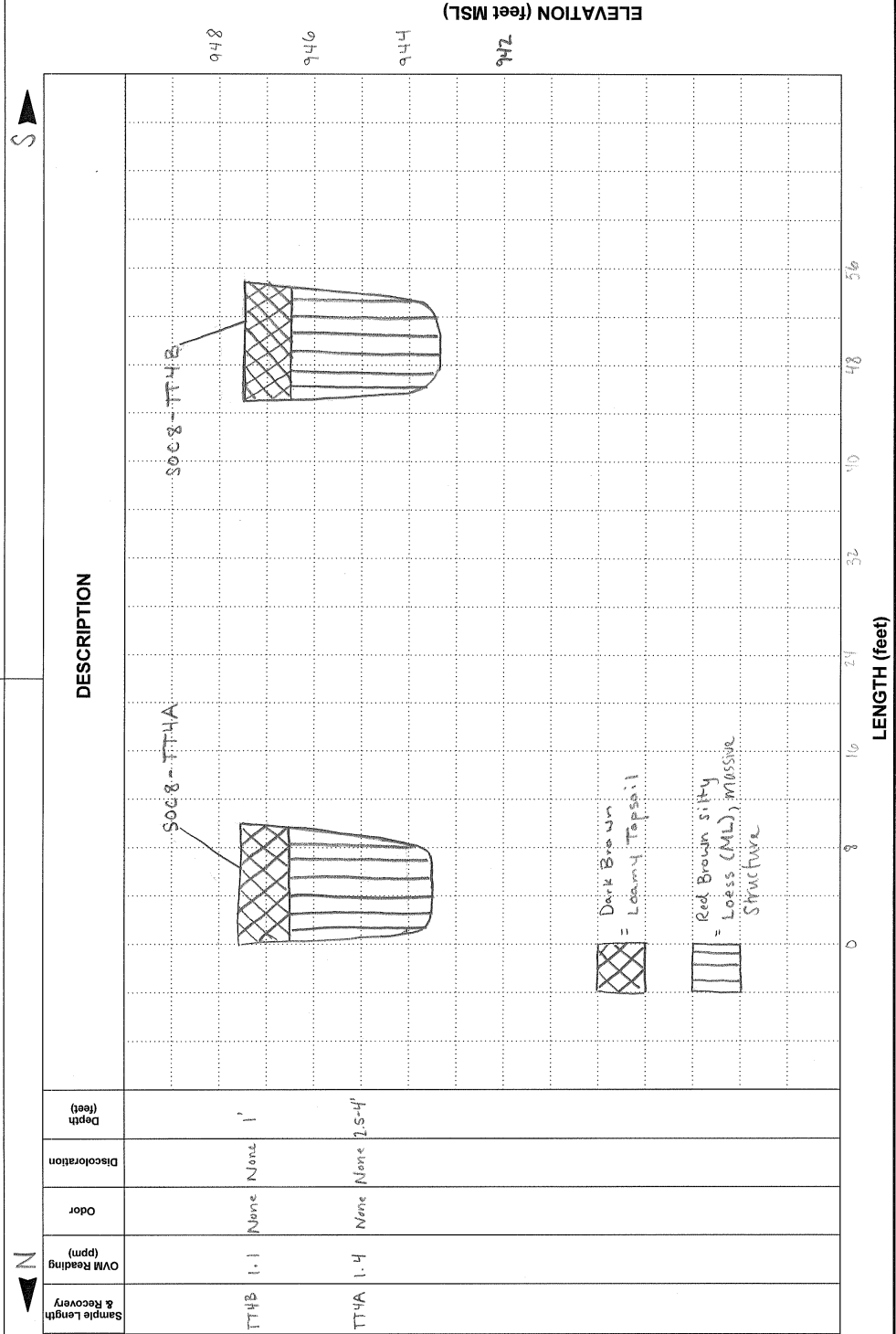


Remarks:

*No analytical samples were collected from test trench SOC8-TT4

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC 8

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC8-TT5

Elevation: 947.93 - 948.18' MSL

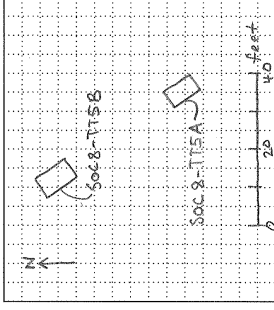
Date Started: 6/3/09

Logged By: LML2

Total Depth: 4 feet

Ended: 6/3/09

Map View

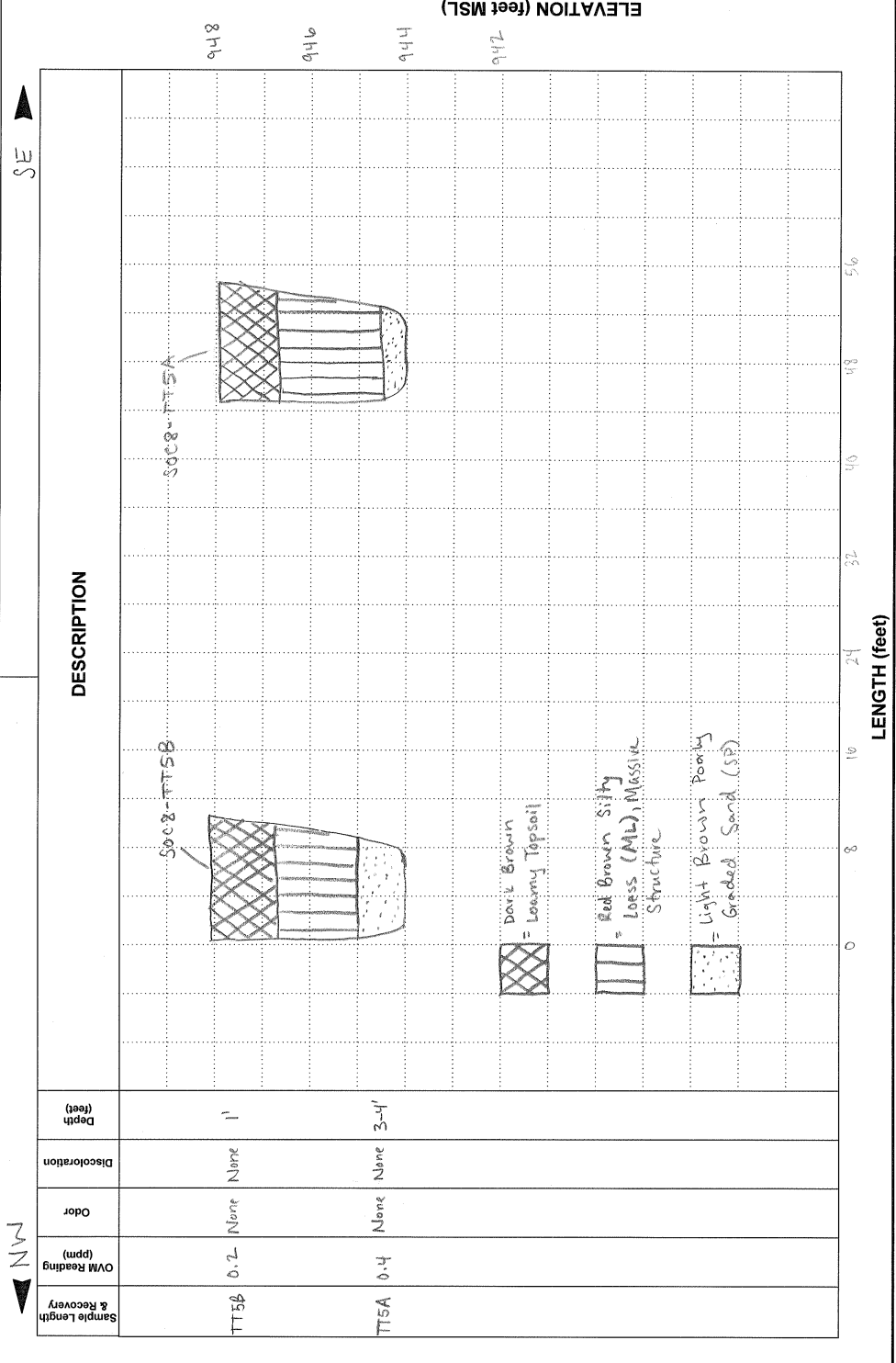


Remarks:

* No analytical Samples were collected from test trench SOC8-TT5

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOL8

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC8-TT6

Elevation: 950.653 - 951.043 MSL

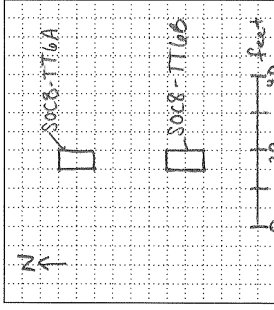
Date Started: 6/11/09

Logged By: KLB

Total Depth: 6 feet

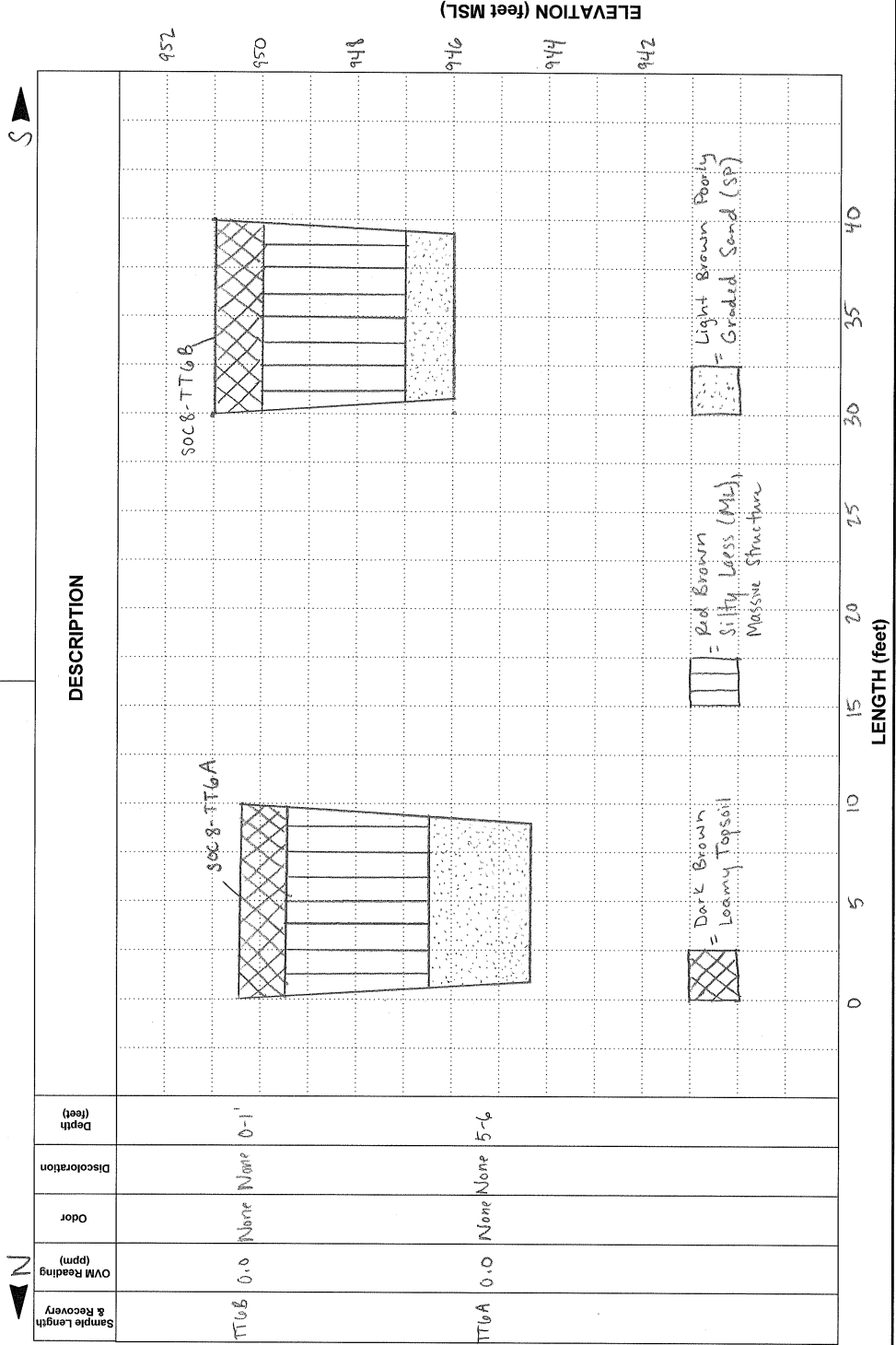
Ended: 6/11/09

Map View



Remarks:

* No analytical samples were collected from test trench SOC8-TT6.



BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Figure

Project Name: UMore Park

Client: University of Minnesota

Number: 23190505.07

Location: SOC8

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC8-TT7

Elevation: 948.29-949.33' MSL

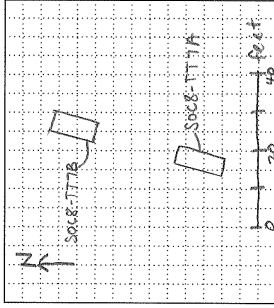
Date Started: 6/3/09

Logged By: LMLZ

Total Depth: 4 feet

Ended: 6/3/09

Map View

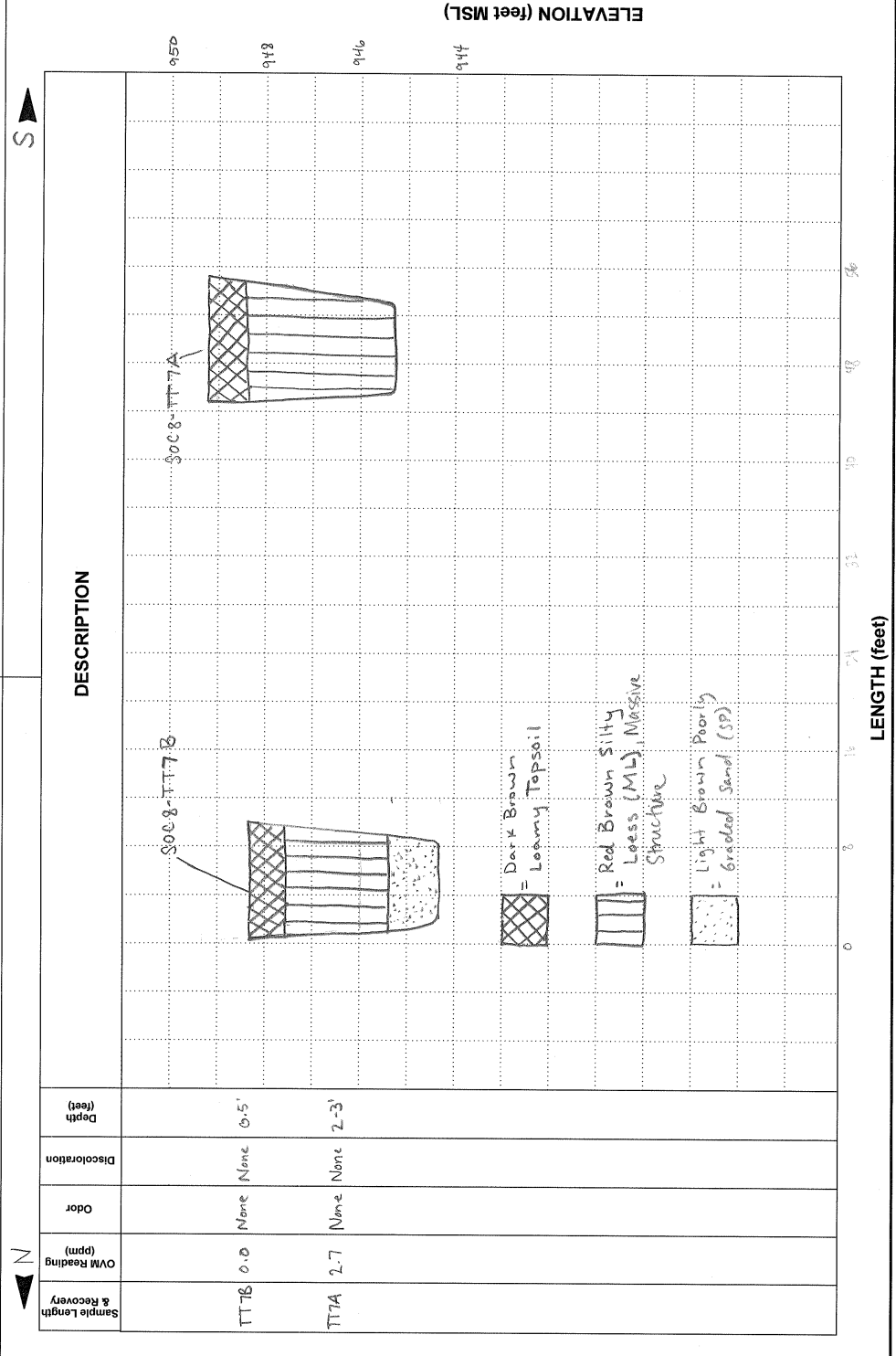


Remarks:

* No analytical samples were collected from test trench SOC8-TT7

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC 8

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC 8-TTIN

Elevation: 950.226-950.418' MSL

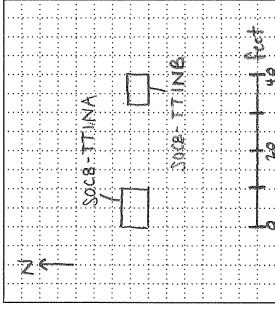
Total Depth: 6 feet

Date Started: 6/10/09

Ended: 6/10/09

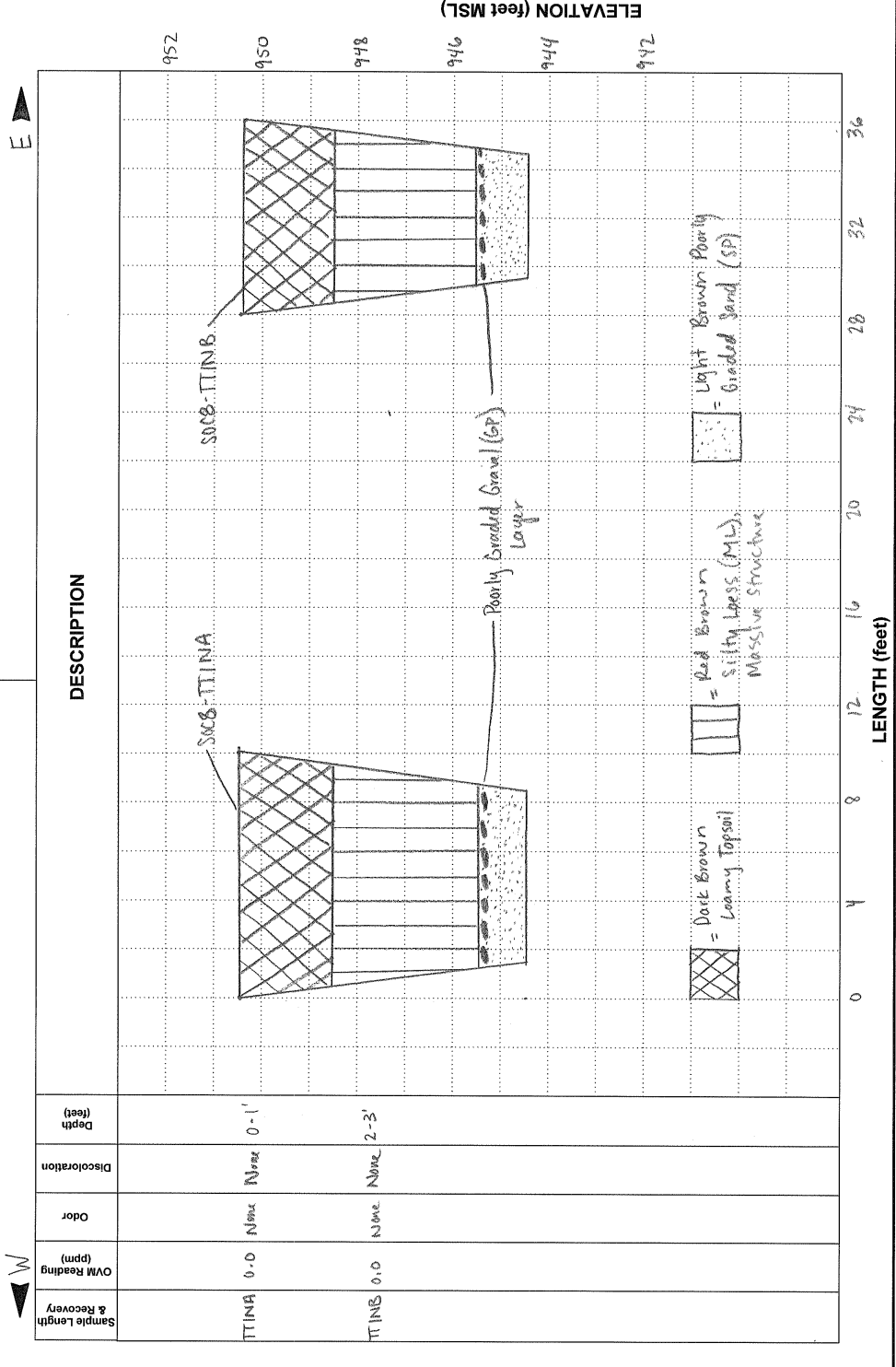
Logged By: KMB

Map View



Remarks:

*No analytical samples were collected from SOC 8-TTIN



Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Eolina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Project Name: UMore Park

Log of Test Pit No. SOC8 - TT2N

Client: University of Minnesota

Number: 23190B05.07

Elevation: 949.755 - 949.894' MSL

Total Depth: 5 feet

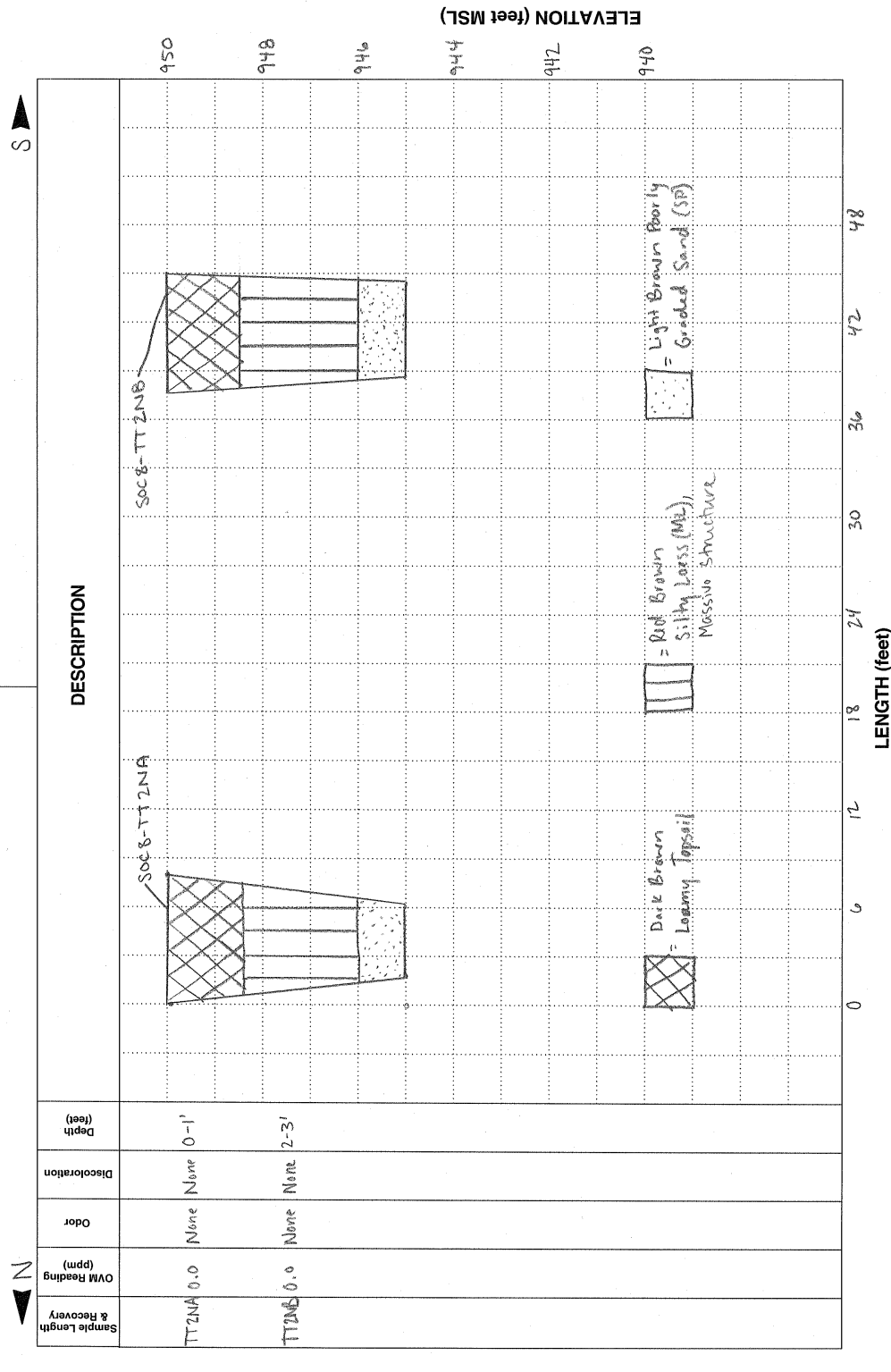
Location: SOC8

Date Started: 6/10/09

Ended: 6/10/09

Contractor: Stevens Drilling and Environmental Services, Inc.

Logged By: KCB



DESCRIPTION

Sample Length & Recovery

ODM Reading (ppm)

Odor

Discoloration

Depth (feet)

TT2NA 0.0 None None 0-1'

TT2NB 0.0 None None 2-3'

950

948

946

944

942

940

SOC8-TT2NA

SOC8-TT2NB

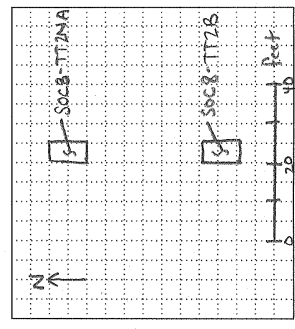
Light Brown Poorly Graded Sand (SP)

Red Brown Silty Loess (ML) - Massive Structure

Dark Brown - Loamy Topsoil

LENGTH (feet)

Map View



Remarks:

* No analytical samples were collected at test trench SOC8-TT2N

Figure

Barr Engineering Co.
4700 W 77th St, Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601

Project Name: UMore Park

Client: University of Minnesota

Number: 23190505.07

Location: SOC 8

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC8-TT3N

Elevation: 950.503-950.613

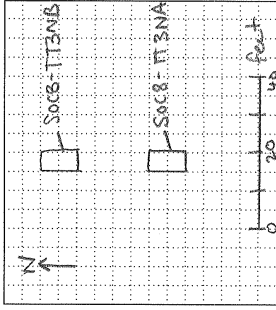
Date Started: 6/11/09

Logged By: KCB

Total Depth: 5 feet

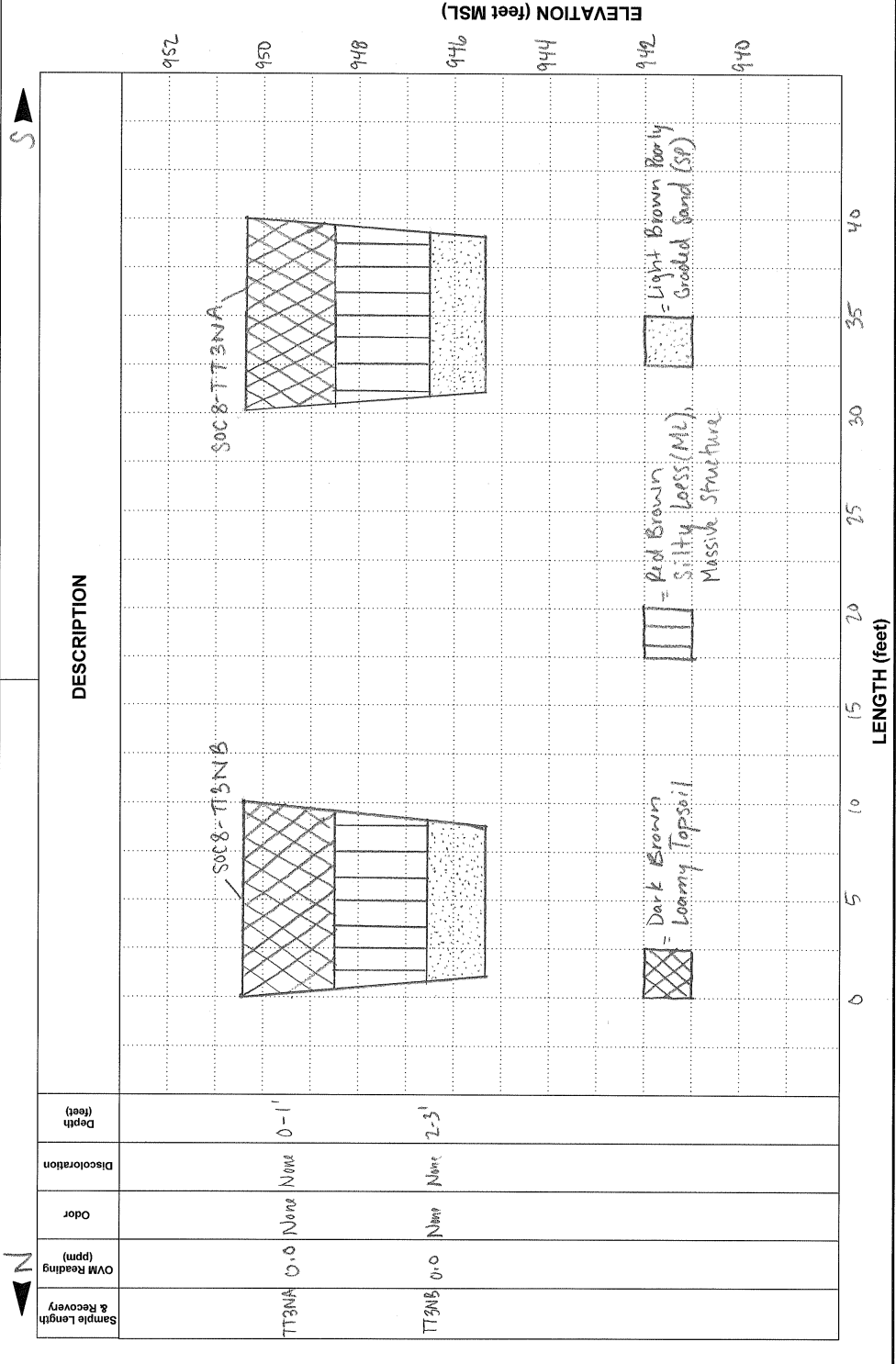
Ended: 6/11/09

Map View



Remarks:

* No analytical samples were collected at test trench SOC8-TT3N



Figure

BARR
 Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC 8

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC 8-TT4N

Elevation: 951.483 - 951.643' MSL

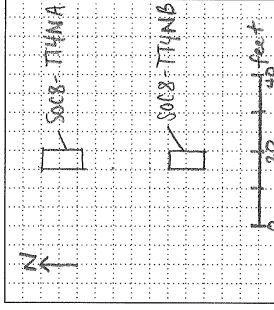
Total Depth: 5 feet

Date Started: 6/11/09

Ended: 6/11/09

Logged By: KCB

Map View

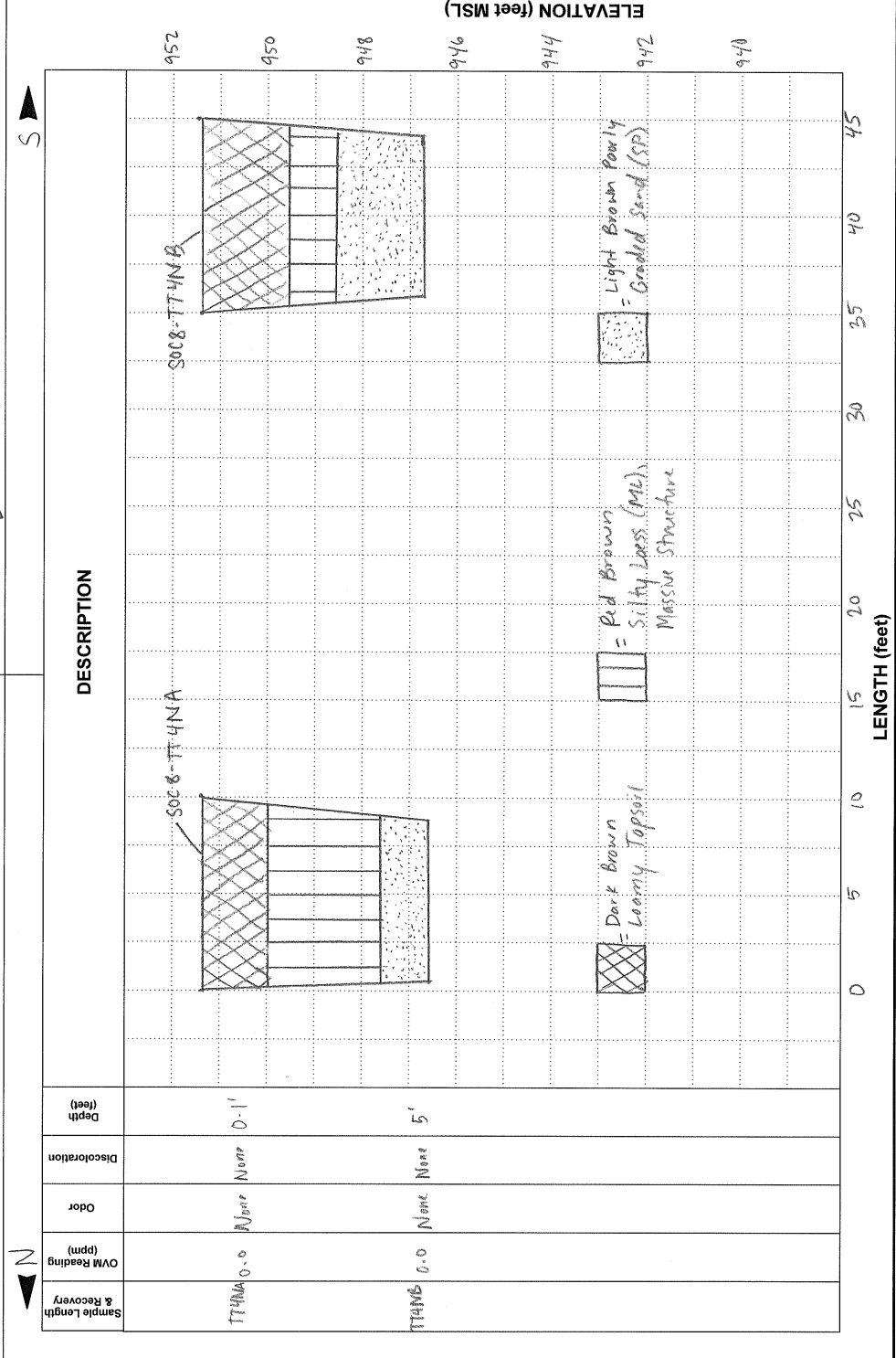


Remarks:

* No analytical samples were collected from test trench SOC 8-TT4N.

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC 8

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC 8 - TT 1S

Elevation: 949.769 - 950.293' MSL

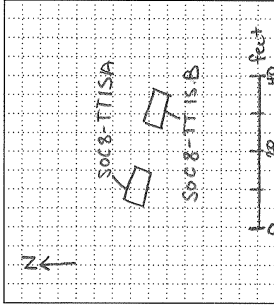
Date Started: 6/10/09

Logged By: KOB

Total Depth: 6 feet

Ended: 6/10/09

Map View

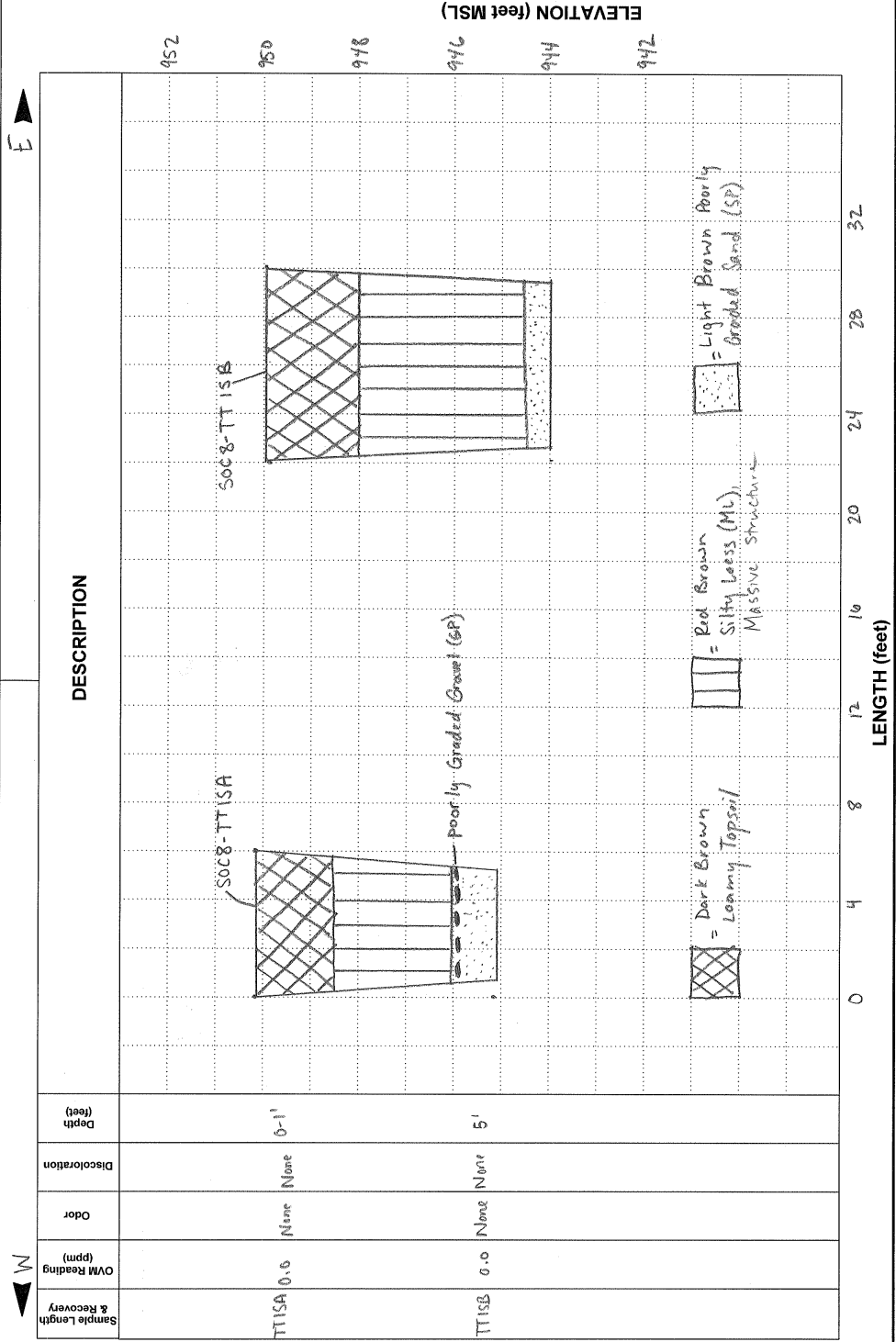


Remarks:

* No analytical samples were collected at test trench SOC 8-TT 1S.

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC 8

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC 8 - TT2S

Elevation: 948.652-948.674

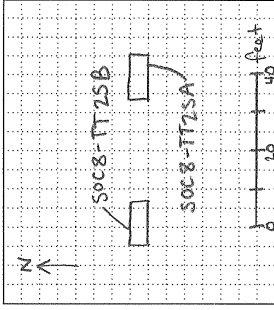
Date Started: 6/10/09

Logged By: KCB

Total Depth: 10 feet

Ended: 6/10/09

Map View

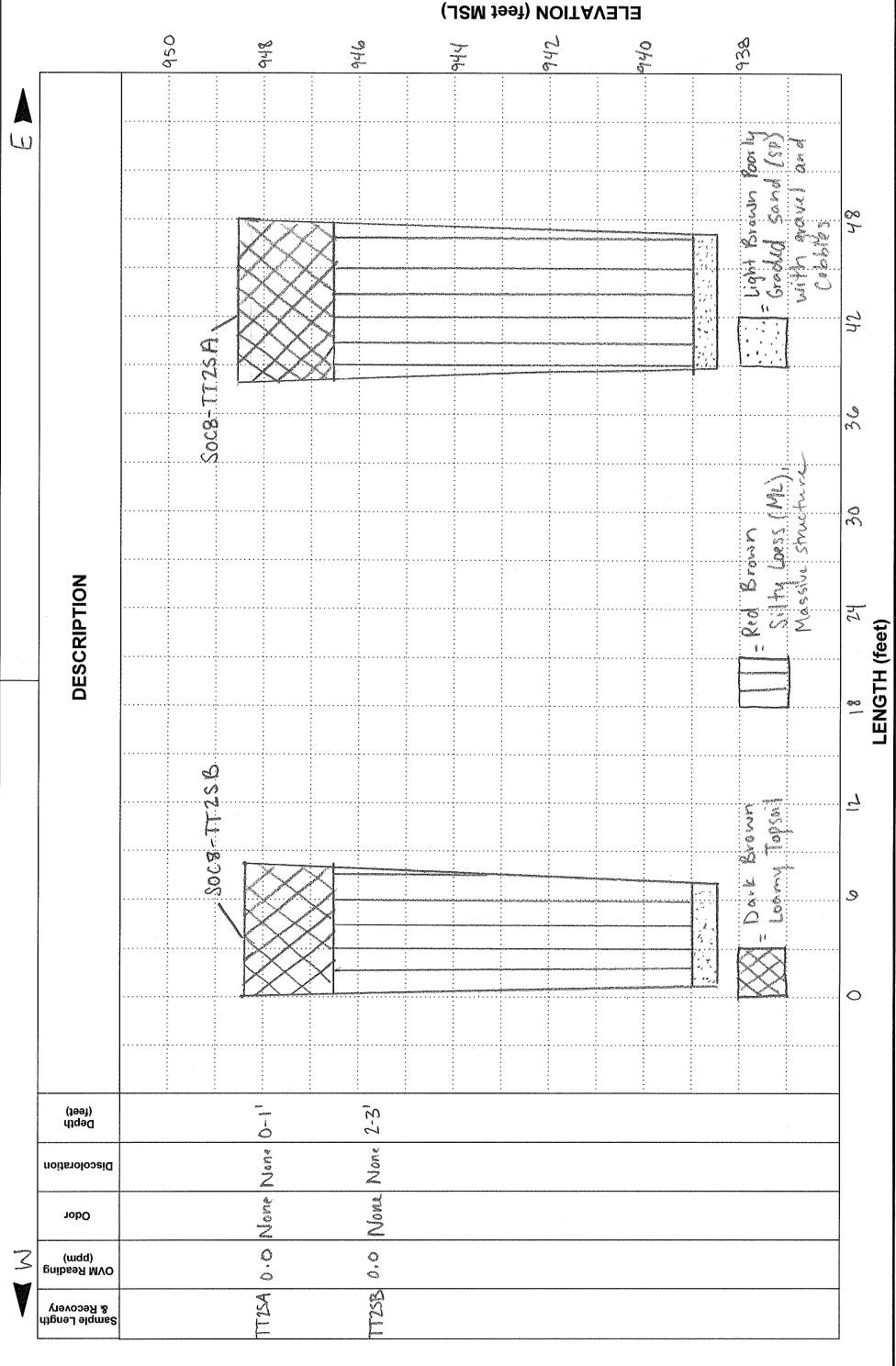


Remarks:

* No analytical samples were collected from test trench SOC8-TT2S.

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC 8

Contractor: Stevens Drilling and Environmental Services, Inc.

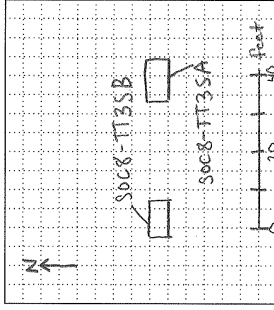
Log of Test Pit No. SOC 8 - TT3S

Elevation: 948.423-948.551' MSL **Total Depth: 6 feet**

Date Started: 6/10/09 **Ended: 6/10/09**

Logged By: KCB

Map View

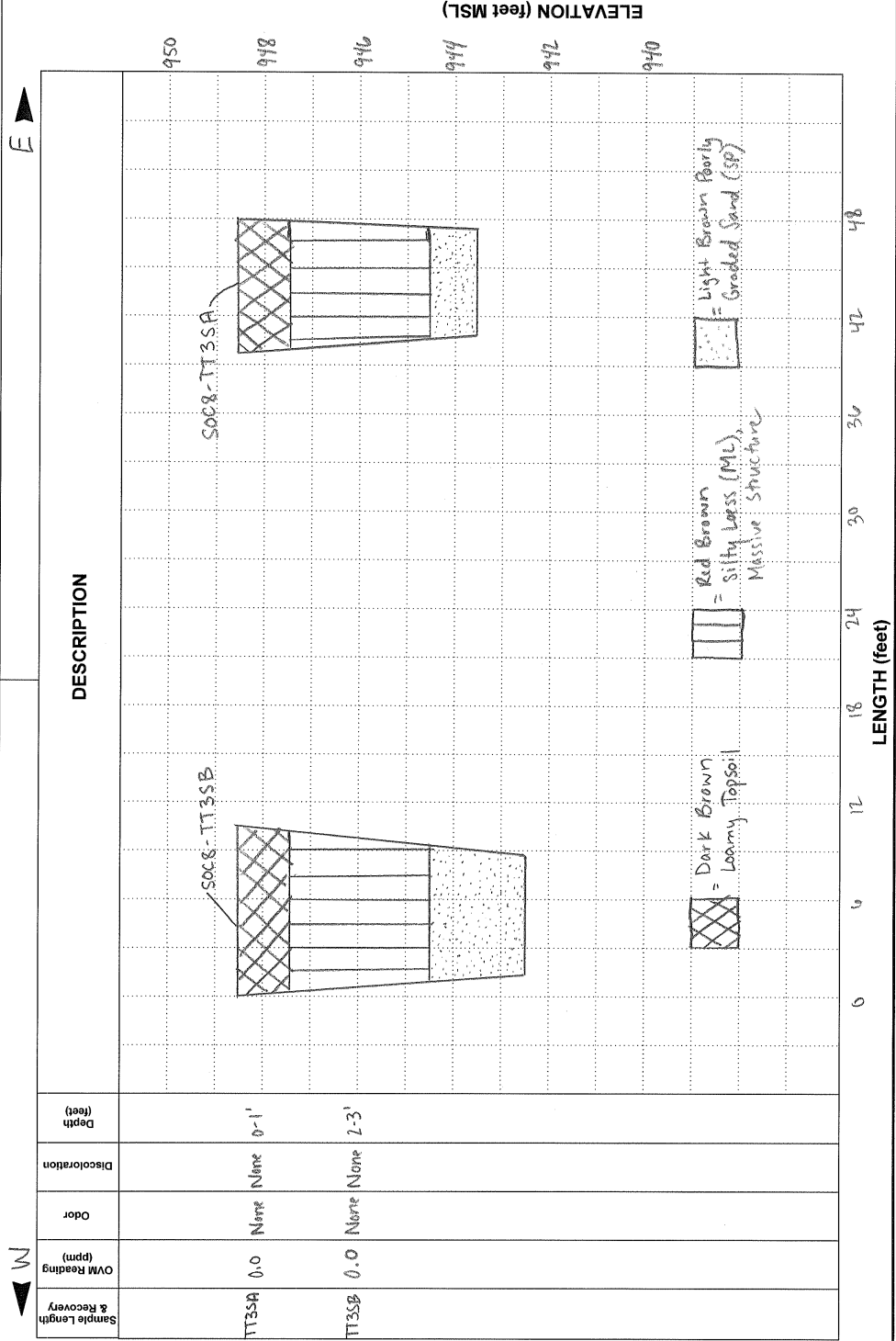


Remarks:

*No analytical samples were collected at test trench SOC8-TT3S

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC8

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC8-TT4S

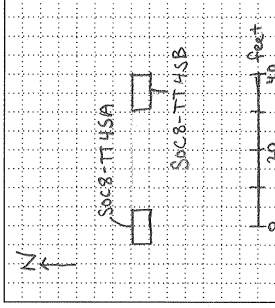
Elevation: 950.786 - 951.014' MSL Total Depth: 5 feet.

Date Started: 6/11/09

Ended: 6/11/09

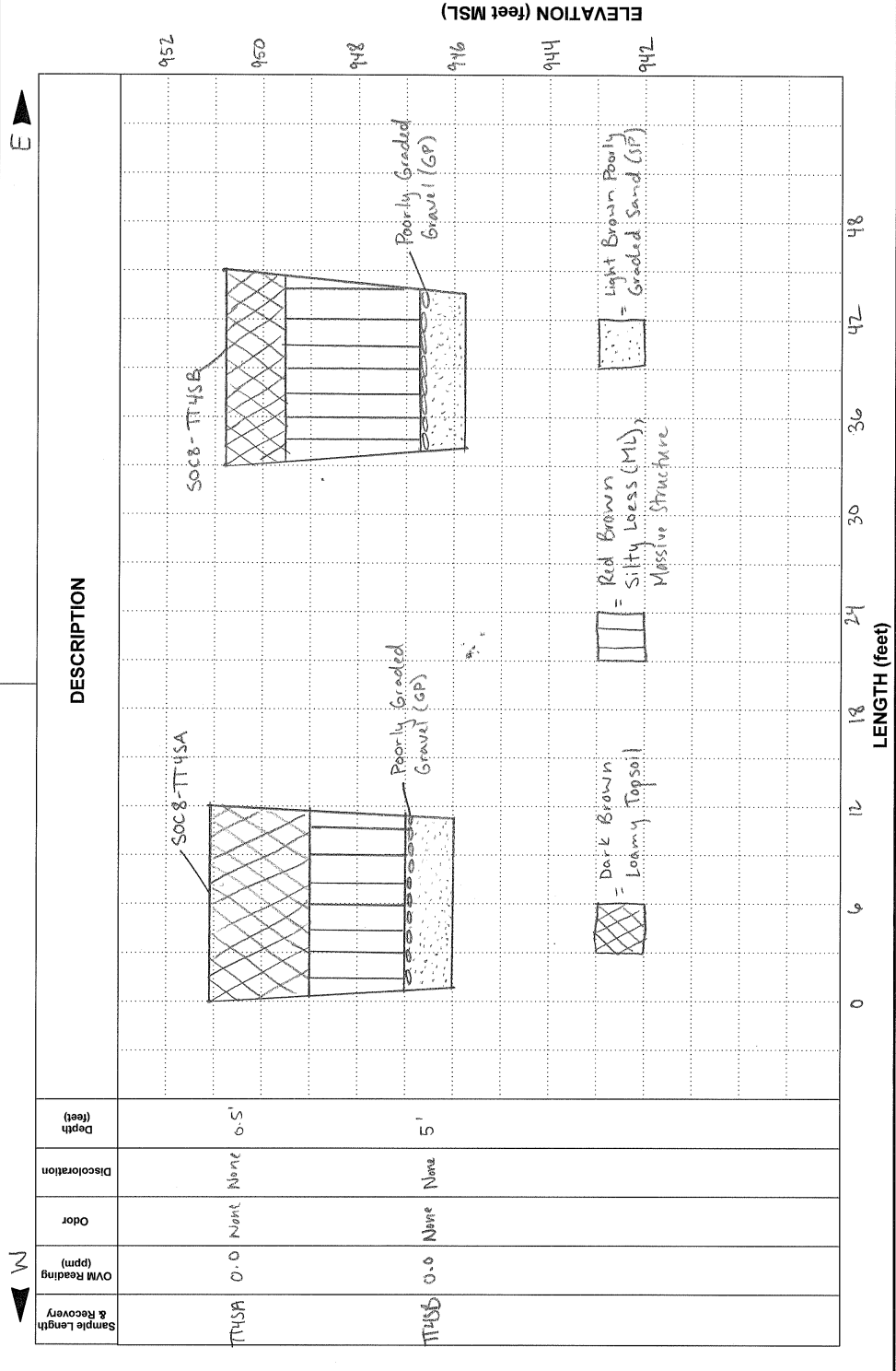
Logged By: KOB

Map View



Remarks:

*No analytical samples were collected from test trench SOC8-TT4S.



Figure

BARR
 Barr Engineering Co.
 4700 W 77th St. Suite 200
 Edina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601

Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: SOC8

Contractor: Stevens Drilling and Environmental Services, Inc.

Log of Test Pit No. SOC8-TT55

Elevation: 948.016 - 948.215' MSL

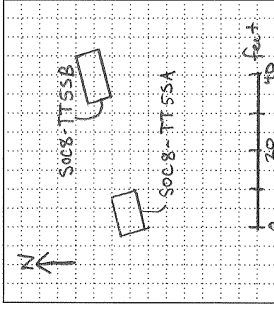
Date Started: 6/11/09

Logged By: KCB

Total Depth: 7 feet

Ended: 6/11/09

Map View

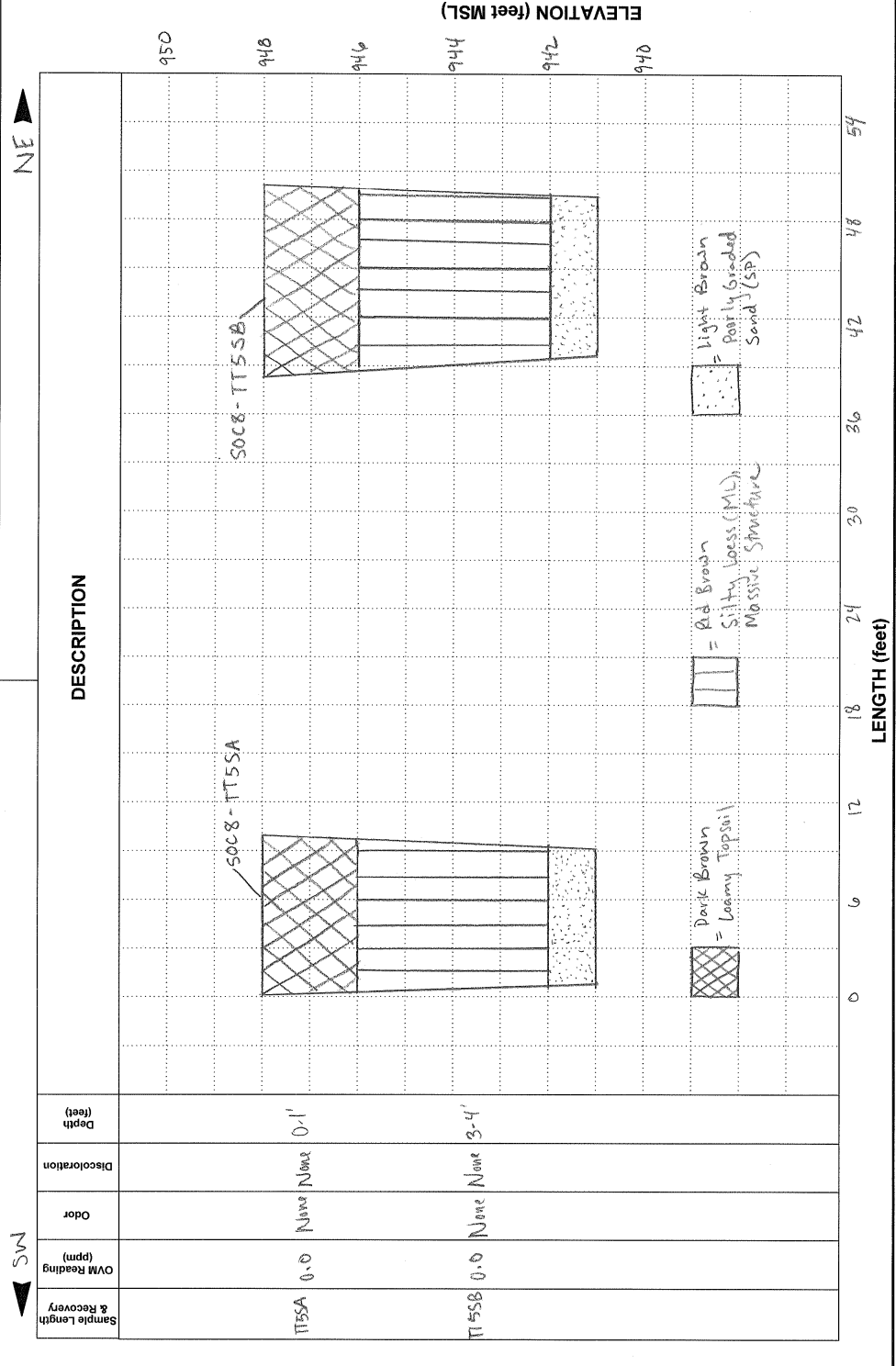


Remarks:

* No analytical samples
were collected from
test trench SOC8-TT55

Figure

BARR
Barr Engineering Co.
4700 W 77th St, Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: Soc 8

Contractor: Stevens Drilling and Environmental Services, Inc.

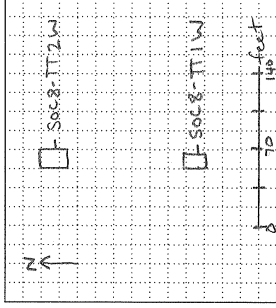
Log of Test Pit No. Soc 8 - TT1W, Soc 8 - TT2W

Elevation: 948.110-949.749' MSL Total Depth: 9 feet

Date Started: 6/10/09 Ended: 6/11/09

Logged By: VUB

Map View

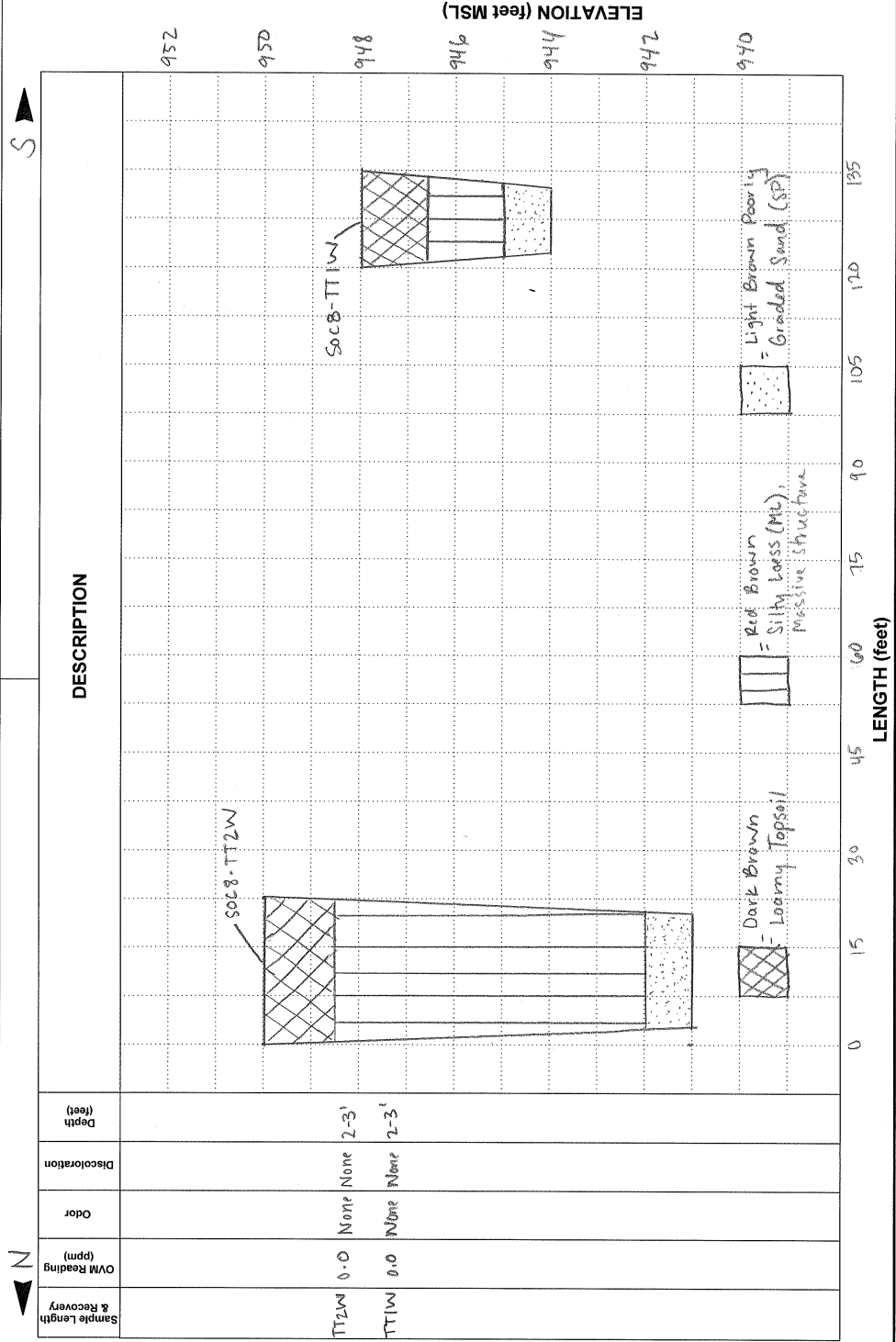


Remarks:

* No analytical samples were collected from test trench: Soc 8 - TT1W or Soc 8 - TT2W

Figure

BARR
Barr Engineering Co.
4700 W 77th St, Suite 200
Edina, MN 55435
Telephone: 952-832-2600
Fax: 952-862-2601



Project Name: UMore Park

Client: University of Minnesota

Number: 23190B05.07

Location: S0C8

Contractor: Stevens Drilling and Environmental Services, Inc.

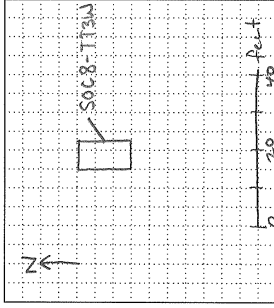
Log of Test Pit No. S0C8-TT3W

Elevation: 951.721 - 952.105' MSL **Total Depth: 8 feet**

Date Started: 6/11/09 **Ended: 6/11/09**

Logged By: KCB

Map View

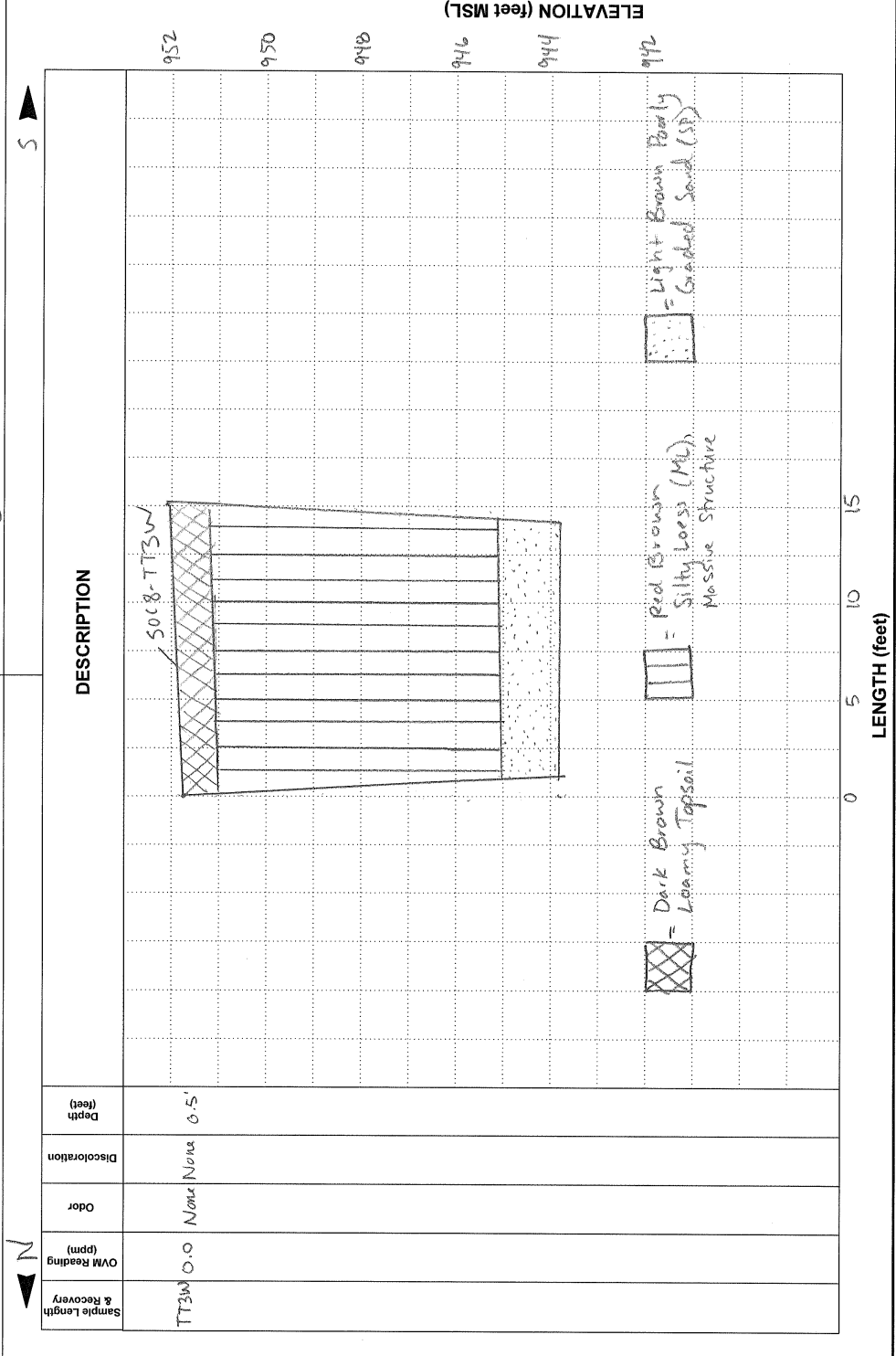


Remarks:

* No analytical samples were collected from test trench S0C8-TT3W

Figure

BARR
 Barr Engineering Co.
 4700 W 77th St, Suite 200
 Eolina, MN 55435
 Telephone: 952-832-2600
 Fax: 952-862-2601



SPATIAL DATA REPORTING FORM

Site Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Site Location Data

Site Location Point Description	Center of Site
Latitude/Easting/X Coordinate	491908.21
Longitude/Northing/Y Coordinate	4951565.37
Collection Method	GPS - Survey Quality
Collection Date	6/19/2009
Organization Name	Barr Engineering Company
Organization Type	Consultant

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Boring	Boring	Boring
Station Name		SOC1-GP1	SOC1-GP2	SOC3-GP1
Latitude/Easting/X Coordinate		4953492.798	4953442.896	4951472.15
Longitude/Northing/Y Coordinate		492303.4079	492299.5261	492838.6571
Collection Method		GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date		6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type		Consultant	Consultant	Consultant
Ground Elevation		944.192	923.907	945.047
Unique Well Number				
Top Screen Elevation				
Bottom Screen Elevation				
Comments				

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Boring	Boring	Boring
	Station Name	SOC3-GP2	SOC3-GP3	SOC3-GP4
	Latitude/Easting/X Coordinate	4951569.492	4951438.817	4951455.805
	Longitude/Northing/Y Coordinate	493051.4713	492757.7965	492945.2495
	Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
	Collection Date	6/19/2009	6/19/2009	6/19/2009
	Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
	Organization Type	Consultant	Consultant	Consultant
	Ground Elevation	936.028	942.55	937.83
	Unique Well Number			
	Top Screen Elevation			
	Bottom Screen Elevation			
	Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Boring	Boring	Boring
	Station Name	SOC6-GP1	SOC6-GP2	SOC6-GP3
	Latitude/Easting/X Coordinate	4950064.618	4950086.203	4950104.9
	Longitude/Northing/Y Coordinate	492032.2319	492032.5486	492032.4065
	Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
	Collection Date	6/19/2009	6/19/2009	6/19/2009
	Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
	Organization Type	Consultant	Consultant	Consultant
	Ground Elevation	945.548	945.193	944.81
	Unique Well Number			
	Top Screen Elevation			
	Bottom Screen Elevation			
	Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Boring	Boring	Boring
	Station Name	SOC6-GP4	SOC6-GP5	SOC6-GP6
	Latitude/Easting/X Coordinate	4950254.237	4950049.914	4950028.327
	Longitude/Northing/Y Coordinate	492025.9063	491998.4651	492028.1803
	Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
	Collection Date	6/19/2009	6/19/2009	6/19/2009
	Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
	Organization Type	Consultant	Consultant	Consultant
	Ground Elevation	946.308	946.094	945.528
	Unique Well Number			
	Top Screen Elevation			
	Bottom Screen Elevation			
	Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Boring	Boring	Test Trench Sample
	Station Name	SOC6-GP7	SOC6-GP8	SOC2-TT1
	Latitude/Easting/X Coordinate	4950233.816	4950049.86	4951896.148
	Longitude/Northing/Y Coordinate	492015.7832	492020.906	492406.829
	Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
	Collection Date	6/19/2009	6/19/2009	6/19/2009
	Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
	Organization Type	Consultant	Consultant	Consultant
	Ground Elevation	946.783	945.965	947.034
	Unique Well Number			
	Top Screen Elevation			
	Bottom Screen Elevation			
	Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
	Station Name	SOC2-TT10	SOC2-TT11	SOC2-TT12
	Latitude/Easting/X Coordinate	4951870.495	4951852.192	4951812.37
	Longitude/Northing/Y Coordinate	492471.1573	492489.2594	492451.4989
	Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
	Collection Date	6/19/2009	6/19/2009	6/19/2009
	Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
	Organization Type	Consultant	Consultant	Consultant
	Ground Elevation	946.058	945.218	945.772
	Unique Well Number			
	Top Screen Elevation			
	Bottom Screen Elevation			
	Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name		SOC2-TT13	SOC2-TT14	SOC2-TT15
Latitude/Easting/X Coordinate		4951819.961	4951829.936	4952136.442
Longitude/Northing/Y Coordinate		492434.0928	492494.6264	492486.5778
Collection Method		GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date		6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type		Consultant	Consultant	Consultant
Ground Elevation		946.683	944.044	946.666
Unique Well Number				
Top Screen Elevation				
Bottom Screen Elevation				
Comments				

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name		SOC2-TT2	SOC2-TT3	SOC2-TT4
Latitude/Easting/X Coordinate		4951928.878	4951908.221	4951964.598
Longitude/Northing/Y Coordinate		492507.456	492476.4801	492439.3331
Collection Method		GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date		6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type		Consultant	Consultant	Consultant
Ground Elevation		943.442	946.891	948.489
Unique Well Number				
Top Screen Elevation				
Bottom Screen Elevation				
Comments				

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name		SOC2-TT5	SOC2-TT6	SOC2-TT7
Latitude/Easting/X Coordinate		4952016.957	4952004.504	4951929.249
Longitude/Northing/Y Coordinate		492393.9354	492439.8436	492479.1211
Collection Method		GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date		6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type		Consultant	Consultant	Consultant
Ground Elevation		947.49	946.566	946.122
Unique Well Number				
Top Screen Elevation				
Bottom Screen Elevation				
Comments				

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
Site Program ID:
Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC2-TT8	SOC2-TT9	SOC3-TT1
Latitude/Easting/X Coordinate	4951912.446	4951899.325	4951496.563
Longitude/Northing/Y Coordinate	492491.8692	492491.3475	492938.9749
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	944.855	946.102	940.55
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name		SOC3-TT10	SOC3-TT11	SOC3-TT12
Latitude/Easting/X Coordinate		4951556.134	4951545.748	4951508.11
Longitude/Northing/Y Coordinate		493040.8022	492976.6792	492959.9
Collection Method		GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date		6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type		Consultant	Consultant	Consultant
Ground Elevation		943.902	941.619	939.584
Unique Well Number				
Top Screen Elevation				
Bottom Screen Elevation				
Comments				

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
	Station Name	SOC3-TT13	SOC3-TT14	SOC3-TT15
	Latitude/Easting/X Coordinate	4951511.129	4951504.728	4951534.241
	Longitude/Northing/Y Coordinate	492995.7271	493011.8869	493028.7521
	Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
	Collection Date	6/19/2009	6/19/2009	6/19/2009
	Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
	Organization Type	Consultant	Consultant	Consultant
	Ground Elevation	945.694	945.283	944.452
	Unique Well Number			
	Top Screen Elevation			
	Bottom Screen Elevation			
	Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name		SOC3-TT16	SOC3-TT2	SOC3-TT3
Latitude/Easting/X Coordinate		4951530.764	4951437.597	4951523.597
Longitude/Northing/Y Coordinate		493055.8739	492935.3844	493007.8256
Collection Method		GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date		6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type		Consultant	Consultant	Consultant
Ground Elevation		943.486	938.53	945.385
Unique Well Number				
Top Screen Elevation				
Bottom Screen Elevation				
Comments				

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name		SOC3-TT4	SOC3-TT5	SOC3-TT6
Latitude/Easting/X Coordinate		4951518.212	4951552.208	4951541.543
Longitude/Northing/Y Coordinate		492969.8995	493024.2275	493013.9348
Collection Method		GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date		6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type		Consultant	Consultant	Consultant
Ground Elevation		940.53	944.419	944.809
Unique Well Number				
Top Screen Elevation				
Bottom Screen Elevation				
Comments				

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name		SOC3-TT7	SOC3-TT8	SOC3-TT9
Latitude/Easting/X Coordinate		4951424.898	4951550.176	4951565.897
Longitude/Northing/Y Coordinate		492877.9643	492880.469	493040.8792
Collection Method		GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date		6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type		Consultant	Consultant	Consultant
Ground Elevation		943.989	946.138	935.761
Unique Well Number				
Top Screen Elevation				
Bottom Screen Elevation				
Comments				

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name		SOC3-TTA	SOC3-TTB	SOC3-TTC
Latitude/Easting/X Coordinate		4951428.957	4951426.486	4951445.411
Longitude/Northing/Y Coordinate		492940.7977	492922.8586	492920.0933
Collection Method		GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date		6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type		Consultant	Consultant	Consultant
Ground Elevation		939.843	942.201	939.921
Unique Well Number				
Top Screen Elevation				
Bottom Screen Elevation				
Comments				

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name		SOC3-TTD	SOC7-TT1	SOC7-TT1N
Latitude/Easting/X Coordinate		4951446.395	4951336.022	4951501.152
Longitude/Northing/Y Coordinate		492959.663	491313.2732	491356.1005
Collection Method		GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date		6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type		Consultant	Consultant	Consultant
Ground Elevation		941.918	953.552	946.768
Unique Well Number				
Top Screen Elevation				
Bottom Screen Elevation				
Comments				

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
	Station Name	SOC7-TT2	SOC7-TT2N	SOC7-TT3
	Latitude/Easting/X Coordinate	4951333.508	4951520.166	4951296.485
	Longitude/Northing/Y Coordinate	491377.6099	491284.2788	491459.6399
	Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
	Collection Date	6/19/2009	6/19/2009	6/19/2009
	Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
	Organization Type	Consultant	Consultant	Consultant
	Ground Elevation	949.809	938.391	945.174
	Unique Well Number			
	Top Screen Elevation			
	Bottom Screen Elevation			
	Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC7-TT3N	SOC7-TT4	SOC7-TT4N
Latitude/Easting/X Coordinate	4951436.587	4951232.139	4951484.403
Longitude/Northing/Y Coordinate	491286.4317	491412.112	491220.3243
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	947.477	942.987	950.605
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name		SOC7-TT5	SOC7-TT6	SOC7-TT7
Latitude/Easting/X Coordinate		4951262.685	4951271.597	4951345.931
Longitude/Northing/Y Coordinate		491276.5063	491361.0556	491457.3059
Collection Method		GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date		6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type		Consultant	Consultant	Consultant
Ground Elevation		949.743	951.823	939.735
Unique Well Number				
Top Screen Elevation				
Bottom Screen Elevation				
Comments				

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name		SOC8-TT4N	SOC8-TT3N	SOC8-TT4S
Latitude/Easting/X Coordinate		4951472.899	4951425.71	4951278.209
Longitude/Northing/Y Coordinate		491801.5862	491844.2347	491826.7797
Collection Method		GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date		6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type		Consultant	Consultant	Consultant
Ground Elevation		951.483	950.613	950.786
Unique Well Number				
Top Screen Elevation				
Bottom Screen Elevation				
Comments				

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
	Station Name	SOC8-TT2W	SOC8-TT5S	SOC8-TT1
	Latitude/Easting/X Coordinate	4951263.299	4951192.745	4951507.465
	Longitude/Northing/Y Coordinate	491775.1405	491791.5136	491799.3503
	Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
	Collection Date	6/19/2009	6/19/2009	6/19/2009
	Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
	Organization Type	Consultant	Consultant	Consultant
	Ground Elevation	949.749	948.016	950.909
	Unique Well Number			
	Top Screen Elevation			
	Bottom Screen Elevation			
	Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC8-TT1N	SOC8-TT1S	SOC8-TT1W
Latitude/Easting/X Coordinate	4951413.57	4951286.731	4951207.876
Longitude/Northing/Y Coordinate	491894.5137	491886.8528	491776.2802
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	950.226	950.293	948.116
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
	Station Name	SOC8-TT2	SOC8-TT2N	SOC8-TT2S
	Latitude/Easting/X Coordinate	4951392.689	4951353.426	4951210.726
	Longitude/Northing/Y Coordinate	491828.743	491891.0147	491887.9106
	Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
	Collection Date	6/19/2009	6/19/2009	6/19/2009
	Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
	Organization Type	Consultant	Consultant	Consultant
	Ground Elevation	950.823	949.755	948.652
	Unique Well Number			
	Top Screen Elevation			
	Bottom Screen Elevation			
	Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name		SOC8-TT3	SOC8-TT3S	SOC8-TT4
Latitude/Easting/X Coordinate		4951253.093	4951155.468	4951182.545
Longitude/Northing/Y Coordinate		491864.8872	491865.6854	491832.6412
Collection Method		GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date		6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type		Consultant	Consultant	Consultant
Ground Elevation		949.726	948.551	948.526
Unique Well Number				
Top Screen Elevation				
Bottom Screen Elevation				
Comments				

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Test Trench Sample	Test Trench Sample	Test Trench Sample
Station Name	SOC8-TT5	SOC8-TT6	SOC8-TT7
Latitude/Easting/X Coordinate	4951115.97	4951325.535	4951497.943
Longitude/Northing/Y Coordinate	491857.2357	491847.4826	491885.5347
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	948.176	951.043	948.295
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

	Station Type	Surface Sample	Surface Sample	Surface Sample
	Station Name	SOC1-SS1A	SOC1-SS1B	SOC1-SS1C
	Latitude/Easting/X Coordinate	4953558.006	4953554.266	4953548.052
	Longitude/Northing/Y Coordinate	492134.608	492132.2152	492135.9458
	Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
	Collection Date	6/19/2009	6/19/2009	6/19/2009
	Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
	Organization Type	Consultant	Consultant	Consultant
	Ground Elevation	938.499	942.212	939.773
	Unique Well Number			
	Top Screen Elevation			
	Bottom Screen Elevation			
	Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund
 Site Program ID:
 Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Surface Sample	Surface Sample	Surface Sample
Station Name	SOC1-SS2A	SOC1-SS2B	SOC1-SS2C
Latitude/Easting/X Coordinate	4953563.377	4953550.246	4953524.645
Longitude/Northing/Y Coordinate	492519.9312	492523.91	492536.3494
Collection Method	GPS - Survey Quality	GPS - Survey Quality	GPS - Survey Quality
Collection Date	6/19/2009	6/19/2009	6/19/2009
Organization Name	Barr Engineering Company	Barr Engineering Company	Barr Engineering Company
Organization Type	Consultant	Consultant	Consultant
Ground Elevation	924.402	933.662	912.218
Unique Well Number			
Top Screen Elevation			
Bottom Screen Elevation			
Comments			

SPATIAL DATA REPORTING FORM

Feature Location Data Reporting Form

Background

Remediation Program: Superfund

Site Program ID:

Site Name: UMore Park - UMore Mining Area

Feature Location Data

Station Type	Well
Station Name	MW-E2-012
Latitude/Easting/X Coordinate	4950337.948
Longitude/Northing/Y Coordinate	492396.106
Collection Method	GPS - Survey Quality
Collection Date	10/2/2009
Organization Name	Barr Engineering Company
Organization Type	Consultant
Ground Elevation	945.3
Unique Well Number	770718
Top Screen Elevation	885.3
Bottom Screen Elevation	875.3
Comments	



Barr Engineering Company Field Log Data Sheet

Client: U of M		Monitoring Point: SOC1-GP1						
Location: UMore Park		Date: 6/9/09						
Project #: 23/19-0B05.07		Sample Time: 1100						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	None	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter:	1" PVC							
Total well depth:*	68							
Static water level:*	62.02							
Water depth:*	5.95							
Well volume: (gal)	0.24							
Purge method:	None							
Sample method:	Check valve							
Start time:	1115	Odor: None						
Stop time:	1145	Purge Appearance: n/a						
Duration: (minutes)	30	Sample Appearance: Tan						
Rate, gpm:	Not measured	Comments: Well not purged before sampling. Sample filtered by the lab.						
Volume, purged:	n/a							
Duplicate collected?	Yes							
Sample collection by:	EJC	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:	Guy & Sam (Matrix)	Well Condition: OK						
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:Temporary
VOC-Y	semi-volatile-Y	general-Y	nutrient-	cyanide-	DRO-	Sulfide-		
oil,grease-	bacteria-	total metal-	filtered metal-Y	methane-	filter-			
Others: Pesticides								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: U of M		Monitoring Point: SOC1-GP3						
Location: UMore Park		Date: 6/9/09						
Project #: 23/19-0B05.07		Sample Time: 1345						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	None	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter:	1" PVC							
Total well depth:*	44							
Static water level:*	39.81							
Water depth:*	5.19							
Well volume: (gal)	0.21							
Purge method:	None							
Sample method:	Check valve							
Start time:	1400	Odor: None						
Stop time:	1430	Purge Appearance: n/a						
Duration: (minutes)	30	Sample Appearance: Tan						
Rate, gpm:	Not measured	Comments: Well not purged before sampling. Sample filtered by the lab.						
Volume, purged:	n/a							
Duplicate collected?	Yes							
Sample collection by:	EJC	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:	Guy & Sam (Matrix)	Well Condition OK						
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:Temporary
VOC-Y	semi-volatile-Y	general-Y	nutrient-	cyanide-	DRO-	Sulfide-		
oil,grease-	bacteria-	total metal-	filtered metal-Y	methane-	filter-			
Others:Pesticides								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

R

Client: <i>Do/M</i>		Monitoring Point: <i>SDC31-GP3 (Dup)</i>						
Location: <i>W More Park</i>		Date: <i>9-11-09</i>						
Project #: <i>23/19-B05</i>		Sample Time: <i>1115</i>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<i>None</i>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter:	<i>1"</i>							
Total well depth:*	<i>44</i>							
Static water level:*	<i>39.75 - 1.6 = 38.15</i>							
Water depth:*	<i>5.85</i>							
Well volume: (gal)	<i>0.24</i>							
Purge method:	<i>check valve</i>							
Sample method:	<i>check valve</i>							
Start time:		Odor: <i>None</i>						
Stop time:		Purge Appearance: <i>opaque, chocolate brown</i>						
Duration: (minutes)		Sample Appearance:						
Rate, gpm:		Comments: <i>1 L. plastic → siphon → filter → 500 ul preserved</i>						
Volume, purged:	<i>1 gal</i>							
Duplicate collected?	<i>None</i>							
Sample collection by:	<i>ESC</i>							
Others present: <i>Matrix (buy, Pat)</i>		CO2-	Mn2-	Fe(T)-	Fe2-	Well Condition:		
MW: groundwater monitoring well	WS: water supply well	SW: surface water	SE: sediment	other:	<i>temporary well</i>			
VOC-	semi-volatile-	general-	nutrient-	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal-	X	methane-	filter-		
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: U of M		Monitoring Point: SOC3-GP2						
Location: UMore Park		Date: 6/9/09						
Project #: 23/19-0B05.07		Sample Time: 1000						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	No	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter:	1" PVC							
Total well depth:*	44							
Static water level:*	37.07							
Water depth:*	6.93							
Well volume: (gal)	0.28							
Purge method:	None							
Sample method:	Check valve							
Start time:	1015	Odor: None						
Stop time:	1045	Purge Appearance: n/a						
Duration: (minutes)	30	Sample Appearance: Tan						
Rate, gpm:	Not measured	Comments: Well not purged before sampling. Sample filtered by the lab.						
Volume, purged:	n/a							
Duplicate collected?	Yes							
Sample collection by:	EJC	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:	Guy & Sam (Matrix)	Well Condition: OK						
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:Temporary
VOC-Y	semi-volatile-Y	general-Y	nutrient-	cyanide-	DRO-	Sulfide-		
oil,grease-	bacteria-	total metal-	filtered metal-Y	methane-	filter-			
Others: Pesticides								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <i>UofM</i>		Monitoring Point: <i>SOC3-GP2 (Dup)</i> R						
Location: <i>SOC3</i>		Date: <i>9/9/09 - purge</i> <i>9-10-09 - sample</i>						
Project #: <i>23/19-B05</i>		Sample Time: <i>0910</i>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<i>None</i>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter:	<i>1"</i>							
Total well depth:*	<i>43'</i> <i>37.9-2.4</i>							
Static water level:*	<i>41.26</i> <i>2.4</i> <i>41.86</i> <i>35</i>							
Water depth:*	<i>8</i>							
Well volume: (gal)	<i>0.328</i>							
Purge method:	<i>check valve</i>							
Sample method:	<i>check valve</i>							
Start time:		Odor: <i>None</i>						
Stop time:		Purge Appearance: <i>Tan, opaque but clearing</i>						
Duration: (minutes)		Sample Appearance: <i>tan, opaque</i>						
Rate, gpm:		Comments: <i>Purged on 9/9/09 Sampled on 9/10/09 - filled 1 plastic org. liter bottle, allowed it to settle, then decont, filtered, and preserved in 500mL.</i>						
Volume, purged:	<i>1 1/2 gal</i>							
Duplicate collected?	<i>No</i>							
Sample collection by: <i>ISC</i>		CO2-	Mn2-	Fe(T)-	Fe2-			
Others present: <i>Matrix (Guy, Pat)</i>		Well Condition:						
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other: <i>temporary well</i>
VOC-	semi-volatile-	general-	nutrient-	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal-	<i>X</i>	methane-	filter-		
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: U of M		Monitoring Point: SOC3-GP3						
Location: UMore Park		Date: 6/8/09 – 6/10/09						
Project #: 23/19-0B05-.07		Sample Time: 1630						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	None	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter:	1" PVC							
Total well depth:*	60							
Static water level:*	54.16							
Water depth:*	5.84							
Well volume: (gal)	0.24							
Purge method:	None							
Sample method:	Check valve							
Start time:	1645 on 6/8/09	Odor: None						
Stop time:	0845 on 6/10/09	Purge Appearance: n/a						
Duration: (minutes)	n/a	Sample Appearance: Tan						
Rate, gpm:	Not measured	Comments: Not purged before sampling. Sample collected over a period of three days because the well was pumped dry quickly. Sample filtered by the lab.						
Volume, purged:	n/a							
Duplicate collected?	No							
Sample collection by:	EJC	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:	Guy & Sam (Matrix)	Well Condition: OK						
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:Temporary
VOC-Y	semi-volatile-Y	general-Y	nutrient-	cyanide-	DRO-	Sulfide-		
oil,grease-	bacteria-	total metal-	filtered metal-Y	methane-	filter-			
Others: Pesticides								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

R

Client: <u>UofM</u>	Monitoring Point: <u>SOL3-GP3 (Dup)</u>
Location: <u>SOL3</u>	Date: 9-9-09 <u>9-9-09 and 9/10/09</u>
Project #: <u>23/17-B05</u>	Sample Time: <u>0900</u>

GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>None</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter:	<u>1"</u>							
Total well depth:*	<u>67'</u>							
Static water level:*	52.75-56 <u>55.16-3.25</u> <u>51.91</u>							
Water depth:*	<u>15.09</u>							
Well volume: (gal)	<u>0.62</u>							
Purge method:	<u>check valve</u>							
Sample method:	<u>check valve</u>							
Start time:	<u>1100</u>	Odor: <u>None</u>						
Stop time:	<u>1130</u>	Purge Appearance: <u>Opaque, tan</u>						
Duration: (minutes)		Sample Appearance: <u>Tan, opaque</u>						
Rate, gpm:		Comments: <u>Purged on 9/9/09</u> <u>sampled on 9/10/09 - 1L. placed in unsp. plastic bottle, then allowed to settle, then decanted and filtered, then processed in 500mL jar</u>						
Volume, purged:	<u>4gal</u>							
Duplicate collected?	<u>None</u>							
Sample collection by:	<u>ESC</u>							
Others present:		CO2-	Mn2-	Fe(T)-	Fe2-			
Well Condition:								
MW: groundwater monitoring well WS: water supply well SW: surface water SE: sediment other:								
VOC- semi-volatile- general- nutrient- cyanide- DRO- Sulfide-								
oil,grease- bacteria- total metal- filtered metal- <input checked="" type="checkbox"/> methane- filter-								
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: U of M		Monitoring Point: SOC3-GP4						
Location: UMore Park		Date: 6/9/09						
Project #: 23/19-0B05.07		Sample Time: 0900						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	None	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter:	1" PVC							
Total well depth:*	44							
Static water level:*	44							
Water depth:*	< 1 ft							
Well volume: (gal)	<0.041							
Purge method:	None							
Sample method:	Check valve							
Start time:	0915	Odor: None						
Stop time:	1845	Purge Appearance: n/a						
Duration: (minutes)	n/a	Sample Appearance: Tan						
Rate, gpm:	Not measured	Comments: Well not purged before sampling. Only VOCs were collected because the well could only produce approximately 40 ml before running dry.						
Volume, purged:	n/a							
Duplicate collected?	No							
Sample collection by:	EJC	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:	Guy & Sam (Matrix)	Well Condition: OK						
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:Temporary
VOC-Y	semi-volatile-	general-	nutrient-	cyanide-	DRO-	Sulfide-		
oil,grease-	bacteria-	total metal-	filtered metal-	methane-	filter-			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: U of M		Monitoring Point: SOC6-GP6						
Location: UMore park		Date: 6/8/2009						
Project #: 23/19-0B05.07		Sample Time: 1500						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	None	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter:	1" PVC							
Total well depth:*	25							
Static water level:*	20.22							
Water depth:*	4.78							
Well volume: (gal)	0.20							
Purge method:	None							
Sample method:	Check valve							
Start time:	1515	Odor: None						
Stop time:	1530	Purge Appearance: n/a						
Duration: (minutes)	30	Sample Appearance: Tan						
Rate, gpm:	Not measured	Comments: Well not purged before collecting sample						
Volume, purged:	None							
Duplicate collected?	Yes							
Sample collection by:	EJC							
Others present:	Guy & Sam (Matrix)	Well Condition: OK						
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other: Temporary well
VOC-	semi-volatile-	general- Yes	nutrient-	cyanide-	DRO-	Sulfide-		
oil,grease-	bacteria-	total metal-	filtered metal-	methane-	filter-			
Others: Pesticides								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>U MORE</u>		Monitoring Point: <u>MW-BI-001</u>						
Location: <u>Rosemount</u>		Date: <u>6/11/09</u>						
Project #: <u>23/19-OBOS6WAS330</u>		Sample Time: <u>1055</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>NO-"u"</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>72.0</u>	<u>1027/3g</u>	<u>10.21</u>	<u>454</u>	<u>7.67</u>	<u>148</u>	<u>7.74</u>	<u>Clear</u>
Static water level:*	<u>65.58</u>	<u>1031/4g</u>	<u>10.10</u>	<u>460</u>	<u>7.57</u>	<u>159</u>	<u>7.88</u>	<u>"</u>
Water depth:*	<u>6.4</u>	<u>1035/5g</u>	<u>10.08</u>	<u>464</u>	<u>7.49</u>	<u>154</u>	<u>8.39</u>	<u>"</u>
Well volume: (gal)	<u>1</u>	<u>1039/6g</u>	<u>10.12</u>	<u>463</u>	<u>7.45</u>	<u>151</u>	<u>8.60</u>	<u>"</u>
Purge method:	<u>Submersible</u>	<u>1043/7g</u>	<u>10.17</u>	<u>465</u>	<u>7.49</u>	<u>153</u>	<u>8.83</u>	<u>"</u>
Sample method:	<u>"</u>	<u>1047/8g</u>	<u>10.19</u>	<u>464</u>	<u>7.53</u>	<u>152</u>	<u>8.77</u>	<u>"</u>
Start time:	<u>1015</u>	Odor: <u>None detected</u>						
Stop time:	<u>1047</u>	Purge Appearance: <u>begin-cloudy, silty brown/ends</u>						
Duration: (minutes)	<u>32</u>	Sample Appearance: <u>Clear</u>						
Rate, gpm:	<u>.25</u>	Comments:						
Volume, purged:	<u>8 gal</u>							
Duplicate collected?	<u>no</u>							
Sample collection by:	<u>KST</u>							
Others present:		CO2-	Mn2-	Fe(T)-	Fe2-			
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC- <u>3</u>	semi-volatile- <u>5</u>	general-	nutrient-	cyanide-	DRO-	Sulfide-		
oil,grease-	bacteria-	total metal-	filtered metal-	methane-	filter-			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>U MORE</u>		Monitoring Point: <u>MW-EZ-209</u>						
Location: <u>Rosemount</u>		Date: <u>6/11/09</u>						
Project #: <u>23/19-OB05.GWAS330</u>		Sample Time: <u>1310</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>no "u"</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>127.2</u>	<u>1222/33g</u>	<u>9.67</u>	<u>424</u>	<u>7.80</u>	<u>-234</u>	<u>0.48</u>	<u>clear</u>
Static water level:*	<u>62.78</u>	<u>1233/44g</u>	<u>9.64</u>	<u>418</u>	<u>7.65</u>	<u>-190</u>	<u>0.40</u>	<u>"</u>
Water depth:*	<u>64.4</u>	<u>1244/55g</u>	<u>9.72</u>	<u>423</u>	<u>7.55</u>	<u>-163</u>	<u>0.38</u>	<u>"</u>
Well volume: (gal)	<u>11</u>	<u>1255/66g</u>	<u>9.67</u>	<u>423</u>	<u>7.45</u>	<u>-148</u>	<u>0.35</u>	<u>"</u>
Purge method:	<u>Submersible</u>	<u>1306/77g</u>	<u>9.64</u>	<u>425</u>	<u>7.37</u>	<u>-134</u>	<u>0.36</u>	<u>"</u>
Sample method:	<u>"</u>							
Start time:	<u>1149</u>	Odor: <u>none detected</u>						
Stop time:	<u>1306</u>	Purge Appearance: <u>clear</u>						
Duration: (minutes)	<u>77</u>	Sample Appearance: <u>clear</u>						
Rate, gpm:	<u>1</u>	Comments:						
Volume, purged:	<u>77 gal</u>							
Duplicate collected?	<u>no</u>							
Sample collection by:	<u>KST</u>							
Others present:		CO2-	Mn2-	Fe(T)-	Fe2-			
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:	COLLAR:	LOCK:	OTHER:					
MW: groundwater monitoring well	WS: water supply well	SW: surface water	SE: sediment	other:				
VOC- <u>3</u>	semi-volatile- <u>6</u>	general-	nutrient- <u>1</u>	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal- <u>1</u>	methane-	filter- <u>1</u>			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>UMORE</u>		Monitoring Point: <u>MW-E2-009</u>						
Location: <u>Rosemount</u>		Date: <u>6/11/09</u>						
Project #: <u>23/19-OBOS GWAS330</u>		Sample Time: <u>1435</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>no "u"</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	<u>69.6</u>	<u>1405/3g</u>	<u>10.77</u>	<u>1021</u>	<u>7.41</u>	<u>-59</u>	<u>1.48</u>	<u>clear</u>
Static water level:*	<u>63.22</u>	<u>1408/4g</u>	<u>10.89</u>	<u>930</u>	<u>7.40</u>	<u>-45</u>	<u>3.12</u>	<u>"</u>
Water depth:*	<u>6.4</u>	<u>1411/5g</u>	<u>11.01</u>	<u>845</u>	<u>7.36</u>	<u>-32</u>	<u>4.80</u>	<u>"</u>
Well volume: (gal)	<u>1</u>	<u>1415/6g</u>	<u>11.12</u>	<u>749</u>	<u>7.35</u>	<u>-28</u>	<u>5.12</u>	<u>"</u>
Purge method:	<u>Submersible</u>	<u>1419/7g</u>	<u>11.24</u>	<u>690</u>	<u>7.34</u>	<u>-27</u>	<u>5.39</u>	<u>"</u>
Sample method:	<u>"</u>	<u>1423/8g</u>	<u>11.32</u>	<u>586</u>	<u>7.34</u>	<u>-29</u>	<u>5.61</u>	<u>"</u>
Start time:	<u>1355</u>	Odor:						
Stop time:	<u>1423</u>	Purge Appearance: <u>Clear - begin cloudy brown</u>						
Duration: (minutes)	<u>28</u>	Sample Appearance: <u>Clear</u>						
Rate, gpm:	<u>.4</u>	Comments: <u>FB-1 collected @ 1525</u>						
Volume, purged:	<u>8 gal</u>							
Duplicate collected?	<u>MS/MSD</u>							
Sample collection by:	<u>KSJ</u>	CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC- <u>9</u>	semi-volatile-	general-	nutrient-	cyanide-	DRO-	Sulfide-		
oil,grease-	bacteria-	total metal-	filtered metal-	methane-	filter-			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: <u>UMORE</u>		Monitoring Point: <u>WSW-207605</u>						
Location: <u>Rosemount</u>		Date: <u>6/11/09</u>						
Project #: <u>23/19-OBOS GWAS330</u>		Sample Time: <u>1635</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>no</u>							
Casing diameter:		Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*		<u>1610</u>	<u>11.09</u>	<u>481</u>	<u>7.36</u>	<u>25</u>	<u>2.96</u>	<u>clear</u>
Static water level:*		<u>1625</u>	<u>11.05</u>	<u>482</u>	<u>7.40</u>	<u>17</u>	<u>2.25</u>	<u>"</u>
Water depth:*								
Well volume: (gal)								
Purge method:	<u>Dedicated</u>							
Sample method:	<u>Grab</u>							
Start time:	<u>1555</u>	Odor: <u>none detected - sky</u>						
Stop time:	<u>1625</u>	Purge Appearance: <u>clear - slightly cloudy - initial</u>						
Duration: (minutes)	<u>30</u>	Sample Appearance: <u>clear</u>						
Rate, gpm:	<u>≈ 2-3</u>	Comments:						
Volume, purged:	<u>≈ 60-90 gal</u>							
Duplicate collected?	<u>no</u>							
Sample collection by:	<u>KST</u>							
Others present:		CO ₂ -	Mn ²⁺ -	Fe(T)-	Fe ²⁺ -			
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC- <u>3</u>	semi-volatile- <u>6</u>	general-	nutrient- <u>1</u>	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal-	methane-	filter-			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

BARR ENGINEERING COMPANY
METER CALIBRATION SUMMARY

PROJECT U More Park
TECHNICIAN KSJ

WEATHER CONDITIONS

Date	Wind Direction	Wind Speed	Temperature F	Cloud Cover	Comments
6/11/09	NNE	5-10	57-70	20%	

Meter type and number	Date	Time	Temperature .C	Standard Solution	pH Meter Reading	Cond. Cell Result	ORP Reading
YSI 556	6/11/09	0945	18	Z/10	7.00/10.00	1000 μ mho	239 mV

231+/- 10mV @ 25C
231mV = Display Value + [(Display Temp. - 25 C) x (1.3 mV)]



Barr Engineering Company Field Log Data Sheet

Client: <i>U MORE</i>				Monitoring Point: <i>WSW-207605</i>				
Location: <i>ROSEMOUNT</i>				Date: <i>6/18/09</i>				
Project #: <i>23/19-OBOS</i>				Sample Time: <i>1410</i>				
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<i>no</i>							
Casing diameter:		Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*		<i>1350</i>	<i>9.69</i>	<i>476</i>	<i>7.20</i>	<i>6</i>	<i>1.12</i>	<i>clear</i>
Static water level:*		<i>1405</i>	<i>9.85</i>	<i>471</i>	<i>7.20</i>	<i>9</i>	<i>1.25</i>	<i>u</i>
Water depth:*								
Well volume: (gal)								
Purge method:	<i>Dedicated</i>							
Sample method:	<i>Grab</i>							
Start time:	<i>1335</i>	Odor: <i>none detected</i>						
Stop time:		Purge Appearance: <i>clear</i>						
Duration: (minutes)		Sample Appearance: <i>clear</i>						
Rate, gpm:		Comments:						
Volume, purged:								
Duplicate collected?	<i>no</i>							
Sample collection by:	<i>KSJ</i>							
Others present:		CO2-	Mn2-	Fe(T)-	Fe2-			
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:	COLLAR:	LOCK:	OTHER:					
MW: groundwater monitoring well	WS: water supply well	SW: surface water	SE: sediment	other:				
VOC-	semi-volatile- <i>3</i>	general-	nutrient-	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal-	methane-	filter-			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: UMORE		Monitoring Point: MW-D3-007						
Location: Rosemount		Date: 9/29/09						
Project #: 23/14-0305 SOC 325		Sample Time: 1530						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	NO							
Casing diameter:	2"	Time/Volume	Temp. °C	Cond. @25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:*	71.8	1502/6g	9.71	612	7.47	62	6.44	med cloudy
Static water level:*	62.06	1506/8g	9.67	615	7.37	66	6.87	clearing
Water depth:*	9.7	1510/10g	9.70	613	7.26	62	7.09	"
Well volume: (gal)	1.6	1514/12g	9.71	614	7.15	58	7.21	clear
Purge method:	Submersible	1518/14g	9.72	612	7.27	61	7.29	"
Sample method:	"	1522/16g	9.74	609	7.33	63	7.37	"
Start time:	1450	Odor: none detected						
Stop time:	1522	Purge Appearance: begin - cloudy black fend - clear						
Duration: (minutes)	16	Sample Appearance: clear						
Rate, gpm:	.5	Comments:						
Volume, purged:	32 gal							
Duplicate collected?	NO							
Sample collection by:	KSS							
		CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment other:		
VOC-	semi-volatile- 6	general-	nutrient-	cyanide-	DRO-	Sulfide-		
oil, grease-	bacteria-	total metal-	filtered metal-	methane-	filter-			
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

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Barr Engineering Company Field Log Data Sheet

Client: <u>UMORE</u>		Monitoring Point: <u>MW-E2-305</u>						
Location: <u>Rosemount</u>		Date: <u>9/29/09</u>						
Project #: <u>23/19-0B05 SOC 325</u>		Sample Time: <u>1735</u>						
GENERAL DATA		STABILIZATION TEST						
Barr lock:	<u>NO</u>							
Casing diameter:	<u>2"</u>	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Total well depth:	<u>77.0</u>	<u>1644/12</u>	<u>9.88</u>	<u>401</u>	<u>8.76</u>	<u>78</u>	<u>1.06</u>	<u>clear</u>
Static water level:	<u>55.33</u>	<u>1650/16</u>	<u>9.82</u>	<u>430</u>	<u>7.89</u>	<u>59</u>	<u>3.49</u>	<u>"</u>
Water depth:	<u>21.7</u>	<u>1658/20</u>	<u>9.80</u>	<u>457</u>	<u>7.65</u>	<u>48</u>	<u>5.57</u>	<u>"</u>
Well volume: (gal)	<u>3.6</u>	<u>1706/24</u>	<u>9.81</u>	<u>489</u>	<u>7.41</u>	<u>37</u>	<u>6.03</u>	<u>"</u>
Purge method:	<u>Submersible</u>	<u>1714/28</u>	<u>9.78</u>	<u>517</u>	<u>7.29</u>	<u>33</u>	<u>6.30</u>	<u>"</u>
Sample method:	<u>"</u>	<u>1722/32</u>	<u>9.79</u>	<u>532</u>	<u>7.</u>	<u>28</u>	<u>6.57</u>	<u>"</u>
Start time:	<u>1618</u>	Odor: <u>none detected</u>						
Stop time:	<u>1727</u>	Purge Appearance: <u>begin - slightly cloudy / end - clear</u>						
Duration: (minutes)	<u>64</u>	Sample Appearance: <u>clear</u>						
Rate, gpm:	<u>.5</u>	Comments:						
Volume, purged:	<u>32 gal</u>							
Duplicate collected?	<u>NO</u>							
Sample collection by:	<u>KST</u>							
		CO2-	Mn2-	Fe(T)-	Fe2-			
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:		COLLAR:		LOCK:		OTHER:		
MW: groundwater monitoring well		WS: water supply well		SW: surface water		SE: sediment		other:
VOC- <u>semi-volatile- 6</u>		general-		nutrient-		cyanide-		DRO- Sulfide-
oil, grease-		bacteria-		total metal-		filtered metal- <u>1</u>		methane- filter- <u>1</u>
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

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Barr Engineering Company Field Log Data Sheet

Client: UMORE	Monitoring Point: MW-EZ-009
Location: Rosemount	Date: 9/30/09
Project #: 23/14-OBOS SOC 325	Sample Time: 1305

GENERAL DATA		STABILIZATION TEST						
Barr lock:	Umore	Time/ Volume	Temp. °C	Cond. @ 25	pH	Eh	D.O.	Turbidity Appearance
Casing diameter:	2"							
Total well depth:*	69.6	1215/3g	10.44	569	7.64	97	1.42	clear
Static water level:*	64.08	1248/4g	10.59	558	7.52	85	3.45	"
Water depth:*	5.5	1252/5g	10.69	552	7.41	76	4.12	"
Well volume: (gal)	.9	1259/6g	10.78	549	7.37	71	4.40	"
Purge method:	Submersible							
Sample method:	"							
Start time:	1235	Odor: none detected						
Stop time:	1259	Purge Appearance: begin - slightly cloudy then clear						
Duration: (minutes)	24	Sample Appearance: clear						
Rate, gpm:	.3	Comments:						
Volume, purged:	6 gal							
Duplicate collected?	NO							
Sample collection by:	K5J							
Others present:		CO2-	Mn2-	Fe(1)-	Fe2-			

WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)

CASING & CAP:	COLLAR:	LOCK:	OTHER:
MW: groundwater monitoring well	WS: water supply well	SW: surface water	SE: sediment other:
VOC- 6	semi-volatile- 6	general- 6	nutrient- 6
oil, grease-	bacteria-	total metal-	filtered metal- /
			methane- filter- /
Others:			

*Measurements are referenced from top of riser pipe, unless otherwise indicated.



Barr Engineering Company Field Log Data Sheet

Client: UMORE		Monitoring Point: MW-E2-01Z						
Location: Rosemount		Date: 9/30/09 / 10/2/09						
Project #: 23/19-0805 SOC 325		Sample Time: 1140						
GENERAL DATA		STABILIZATION TEST						
Bar lock:	YES							
Casing diameter:	2"	Time/Volume	Temp. °C	Cond. @ 25	pH	En	D.O.	Turbidity Appearance
Total well depth:*	72.4	9/30/09 9:57/20 1020/60g	9.95 9.90	708 704	7.40 7.34	80 67	6.73 7.84	dk brown Med brown
Static water level:*	63.02 ✓	10/2/09 10:50/200g 1120/200g	9.98 10.05	695 676	7.35 7.41	59 68	8.37 8.26	dk. brown "
Water depth:*	9.2	10/2/09 10:50/5g	9.97	713	7.35	84	7.52	Slightly cloudy
Well volume: (gal)	1.5	1054/7g	9.88	714	7.32	82	7.95	"
Purge method:	Submersible	1058/9g	9.90	711	7.30	79	8.15	clear
Sample method:	"	1104 11g 1112/13g	9.88	710	7.29	77	8.21	"
Start time:	9:40	10/2/09 11:21	Odor: None detected					
Stop time:	11:20	11/2	Purge Appearance: begin - dk brown / end - clear					
Duration: (minutes)	142	26	Sample Appearance: clear					
Rate, gpm:	2.5		Comments: Developed MW-E2-01Z on 9/30/09 Collected samples on 10/2/09					
Volume, purged:	13 gal							
Duplicate collected?	NA-1							
Sample collection by:	K.S.J.		CO2-	Mn2-	Fe(T)-	Fe2-		
Others present:								
WELL INSPECTION (answer for each category, state if lock replaced, detail any repairs needed on back of form)								
CASING & CAP:			COLLAR:		LOCK:		OTHER:	
MW: groundwater monitoring well			WS: water supply well		SW: surface water		SE: sediment other:	
VOC: semi-volatile- 6+6			general-		nutrient-		cyanide- DRO- Sulfide-	
oil, grease- bacteria-			total metal-		filtered metal- 1+		methane- filter-	
Others:								

*Measurements are referenced from top of riser pipe, unless otherwise indicated.

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**BARR ENGINEERING COMPANY
METER CALIBRATION SUMMARY**

PROJECT U-MORE
TECHNICIAN KST

WEATHER CONDITIONS

Date	Wind Direction	Wind Speed	Temperature F	Cloud Cover	Comments
9/29/09	NW	5-15	71-60	50%	
9/30/09	SE	5-15	72-62	Clear	
10/2/09	SE	5-10	76-56	Overcast	Rain / Drizzle

Meter type and number	Date	Time	Temperature .C	Standard Solution	pH Meter Reading	Cond. Cell Result	ORP Reading
YSI 556	9/29/09	0955	11	7/10	7.00/10.00	1000 μ S/cm	250 mV
YSI 556	9/30/09	0915	10	7/10	7.00/10.00	1000 μ S/cm	250 mV
YSI 556	10/2/09	0935	11	7/10	7.00/10.00	1000 μ S/cm	252 mV

±10mV @ 25C
 $23 \text{ mV} = \text{Display Value} + [(\text{Display Temp.} - 25 \text{ C}) \times (1.5 \text{ mV})]$