

### **A.3 Boring Logs**



# BORING LOG WP152

Boring No.: WP152

Sheet: 1 of 2

Date Drilled: 12/21/2000

Project Name: IMP 111 Widen and Realignment

Logged By: J. Kermode

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Location: 55 m LT, STA 311+ 11

EA: 11-199363

Drilling Method: Mud Rotary Drag Bit (DB)

Top of Hole Elev.: 60.76 m. (Elev + 100)

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
0							Ground Surface
0							Sand with Silt (SM): Estimated Loose.
1		DB					
2							
3							
4							
5							
5	1	SPT		1-1-2	3		Silt (ML): Soft, brown, wet, non plastic, mild cohesion.
6							
7		DB					
8							
9							
9	2	SPT		5-4-6	10		Silty sand (SM): Loose, brown, wet, grading to silt (ML)- firm, brown, wet, non plastic, mild cohesion, very fine.
10							
11							
12		DB					
13							
14							
15							
15	3	SPT		4-4-9	13		Sandy silt / silty sand (SM/ML): As above.
16							
17		DB					
18							
19							
19							Silty clay (CL): Stiff, brown, moist, low to moderate plasticity.
20							



## BORING LOG WP-152

Boring No.: WP-152

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 2 of 2

Location:

Date Drilled: 11-28-2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: D.B.

Logged By: J. Kermodé

Top of Hole Elev.:

SAMPLE						PROFILE	DESCRIPTION
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	
21	4	SPT		1-6-8	14		Silty clay (CL): Stiff, brown, moist, low to moderate plasticity.
23	7	DB					
26	5	SPT		4-7-11	18		Clay (CL): Stiff, dark brown, moist, moderate plasticity.
28		DB					
31	6	SPT		5-9-12	21		Total depth- 9.6 m. Groundwater encountered.
39	12						



## BORING LOG WP-146

Boring No.: WP-146

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 1 of 2

Location: 17 m RT STA 313+89, "G" Line

Date Drilled: 12/21/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary; DRAG BIT (DB)

Logged By: B. Hinman

Top of Hole Elev.: 63.92 m (ELV.+100)

SAMPLE					PROFILE		
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
0						Ground Surface	
1						Sandy Silt, (SM): Estimated loose.	
2						Silty sand (SM): Loose, brown, wet, poorly graded, very fine, mild cohesion.	
3	1	SPT		3-5-4	9	▼	
4							
5							
6							
7							
8							
9							
10							
11	2	SPT		3-5-4	9		Silt (ML): Firm, brown, wet, non plastic, mild cohesion.
12							
13							
14							
15							
16	3	SPT		7-11-18	29		Sand (SP): Poorly graded, medium dense, brown, wet, fine.
17							
18							
19							
20							Silty sand / sandy silt (SM/ML): Medium dense, brown, wet, very fine; no cohesion to mild cohesion.



## BORING LOG WP-146

Boring No.: WP-146

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 2 of 2

Location: 84.3 m RT STA 315+28, "A" Line

Date Drilled: 11-28-2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary

Logged By: B. Hinman

Top of Hole Elev.: 63.92 m (Imp. Valley Datum +100)

SAMPLE					PROFILE		
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
21	4	SPT		3-13-11	24	[Symbol: Dotted pattern]	
22						[Symbol: Dotted pattern]	
23	7					[Symbol: Dotted pattern]	
24						[Symbol: Diagonal lines]	Clay (CL): Stiff, dark brown, moist, moderate plasticity.
25						[Symbol: Diagonal lines]	
26	5	SPT		4-6-8	14	[Symbol: Diagonal lines]	
27						[Symbol: Diagonal lines]	
28						[Symbol: Diagonal lines]	
29						[Symbol: Diagonal lines]	
30	9					[Symbol: Diagonal lines]	
31	6	SPT		3-5-7	12	[Symbol: Diagonal lines]	Piezometer installed. Groundwater encountered.
32						[Symbol: Diagonal lines]	
33	10					[Symbol: Diagonal lines]	
34						[Symbol: Diagonal lines]	
35						[Symbol: Diagonal lines]	
36	11					[Symbol: Diagonal lines]	
37						[Symbol: Diagonal lines]	
38						[Symbol: Diagonal lines]	
39	12					[Symbol: Diagonal lines]	
40						[Symbol: Diagonal lines]	



## BORING LOG B0012-6

Boring No.: B0012-6

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 1 of 2

Location: 10 m RT, STA 296 + 31, "G" Line

Date Drilled: 12/26/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary Drag Bit (DB)

Logged By: J. Kermode

Top of Hole Elev.: 57.535 m (ELV. +100)

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
0							Ground Surface
1							Silty Clay-Clayey Silt (CL/ML): Sandy clayey silt with plant detritis. Desicated open cracks 0.5 m deep 0.15 wide pentagonal and orthoganol PEDS, gilgai plagenn epipedon.
2							
3							GROUNDWATER LEVEL @ 1.84m (1/24/2001)
4							
5	1	SPT			16		Clay with Silt (CL): Very stiff brown moist silty clay, high plasticity massive, limely tough.
6							
7		DB					Silt with Clay and Sand (ML): Soft / firm brown, wet, clayey very fine sandy silt interbedded with very silty clay, high plasticity horizontal beds.
8							
9							
10	2	SPT			5		Clay with Silt (CL/ML): Stiff brown, moist silty clay, highly plastic massive; limey; tough.
11							
12	3	CA					
13							
14		DB					
15							
16	4	SPT			15		
17							
18		DB					
19							
20	6						



## BORING LOG B0012-6

Boring No.: B0012-6

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 2 of 2

Location: 10 m RT, STA 296 + 31, "G" Line

Date Drilled: 12/26/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary Drag Bit (DB)

Logged By: J. Kermode

Top of Hole Elev.: 57.535 m (ELV. +100)

SAMPLE						PROFILE	DESCRIPTION
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	
21	5	SPT			22		Clay with Silt (CL/CH): Very stiff brown, moist silty clay, highly plastic massive; limey; tough.
22-24		DB					
25	6	SPT			19		Sand (SP): Medium dense brown wet very fine to fine sand well sorted poorly graded, non plastic, well rounded.
26-29		DB					
30		SPT			12		Clay with Silt (CL/CH): Stiff brown, moist silty clay, highly plastic massive; limey; tough.
32-40							T.D 9.6 m, 12-26-2000, 12:43. Set 9.6 m PVC pipe on sand backfill, 20 Ft. slotted.



## BORING LOG HF0012-1

Boring No.: HF0012-1

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 1 of 2

Location: 58 m LT. STA 299+01. 'G' LINE'

Date Drilled: 12/19/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realign

Drilling Method: 152 mm Hollow Flight Auger

Logged By: J. Kermode

Top of Hole Elev.: 57.32 m; ELV. + 100 m

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
0 m							Ground Surface
1	1	SPT			15	/ / / / /	CLAY with SILT (CL): Stiff, mottled white in brown matrix, moist, fine sandy (<10%) silty Clay, greasy luster high plasticity, tough massive with plant debris. Plaggen Epipedon (farm soil) limely.
3.1					▼		<b>GROUNDWATER LEVEL @ 1.16 m (1/24/2001)</b>
2	2	SPT			12	/ / / / /	A/A with Laminae and "Dikes" of caliche.
3						/ / / / /	Clay with Silt (CL): Stiff brown moist silty clay, high plasticity tough, laminated; organic detritis, change at 9.4 (gradational)
3	3	SPT			9	. . . . .	Sand with Silt (SM-ML): Sand with silt (SM) loose, brown, wet silty very fine sand, well rounded, well sorted - poorly graded, non plastic bedded.
5	4	SPT			7	/ / / / /	SILT and CLAY (ML-CL): Loose and firm, brown, moist laminated silts and silty clays / clayey silts. Highly plastic clays medium to high plasticity silts, beds of laminated, Silt 3-5 cm thick, in a laminated, fissle, silty
6						/ / / / /	



## BORING LOG HF0012-1

Boring No.: HF0012-1  
 Sheet: 2 of 2  
 Date Drilled: 12/19/2000  
 Project Name: IMP 111 Widen and Realign  
 Logged By: J. Kermodé

Dist.-Co.-Rte.-P.M.: 11-IMP-111  
 Location: 58 m LT. STA 299+01. 'G' LINE'  
 EA: 11-199363  
 Drilling Method: 152 mm Hollow Flight Auger  
 Top of Hole Elev.: 57.32 m; ELV. + 100 m

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
21	5	SPT			14	[Diagonal Hatching]	Clay with Silt (CL): Stiff, brown, mottled with dark gray, moist to dry, silty clay. Dull luster, high plasticity, laminated, crudely fissile.
22							
23							
24							
25	8	SPT			8	[Dotted Pattern]	Sand (SP): Loose, light olive brown (variegated), wet, very fine, well rounded sand, clean well sorted non plastic fining to low plasticity silty Sand at tip.
26							
27							
28							
29	6	SPT			21	[Diagonal Hatching]	Clay (CL): Clay with Silt very stiff brown with dark gray mottles, moist to dry, silty Clay, highly pastic.
30							
31							
32							
33	10						TD 31.5 Ft. 13:20 12-19-2001, set slotted pipe. Groundwater encountered at 1.2 m depth.
34							
35							
36							
37	11						
38							
39							
40							
41	12						
42							
43							
44							



## BORING LOG B0012-7

Boring No.: B0012-7

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 1 of 2

Location: 17 m RT, STA 320+77, "G" Line

Date Drilled: 12/26/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary Drag Bit (DB)

Logged By: J. Kermode

Top of Hole Elev.: 61.7 m (ELV. +100)

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
0 m							Ground Surface
1		DB					Sandy Silt (ML)
2		DB					
3	1	SPT			7		Silt (ML) with very fine Sand: Loose, brown, wet, very fine sandy silt. Poorly graded, moderately well sorted medium to high plasticity mellow.
4		DB					
5					▼		<b>GROUNDWATER LEVEL @ 2.27m (1/24/2001)</b>
6		DB					-Groundwater level at 2.27 m. (01/24/01)
7	2	SPT			20		Silt / Sand (ML/SP): Medium dense brown, wet, very well sorted, poorly graded, very fine sand to coarse silt, well rounded, non plastic, mellow. Thinly bedded to thick laminae.
8		DB					
9							Sand / Silt - Poorly graded SP/ML Medium dense, brown, moist, very well sorted (clean) uniform well rounded, very fine sand or coarse silt, mellow non plastic bedding obscured if present.
10	3	SPT			41		
11		DB					
12							
13	4	SPT					
14		DB					
15							
16	5	SPT					
17		DB					
18							
19							
20	6	SPT					
		DB					



## BORING LOG B0012-7

Boring No.: B0012-7

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 2 of 2

Location: 17 m RT, STA 320+77, "G" Line

Date Drilled: 12/26/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary Drag Bit (DB)

Logged By: J. Kermodé

Top of Hole Elev.: 61.7 m (ELV. +100)

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
21	4	SPT			34		Sand / Silt - Poorly graded SP/ML Dense, brown, moist, very well sorted (clean) uniform well rounded, very fine sand or coarse silt, mellow non plastic bedding obscured if present.
22 23 24		DB					
25	5	SPT			5		Sand / Silt - Poorly graded (SP/ML): Very loose, wet.
26 27 28		DB					
29	6	SPT			17		Clay (CL): Very stiff dark grayish brown moist clay, highly plastic waxy luster to dull, tough massive - possibly finely laminated.
30 31 32							
33 34 35 36 37 38 39 40							T.D. 12/27/2000, 08:13 Set 9.6 m PVC pipe, upper 3.1 m. solid.



## BORING LOG B0012-8

Boring No.: B0012-8

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 1 of 2

Location: 8 m RT STA 305+90, "G" Line

Date Drilled: 12/27/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary Drag Bit (DB)

Logged By: J. Kermode

Top of Hole Elev.: 59.41 m (ELV.+100)

SAMPLE					PROFILE		
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
0							Ground Surface
1		DB				[Symbol: Dotted pattern]	Silty Sand (SM)
2							
3	1	SPT			6	[Symbol: Dotted pattern]	Sand with silt (SM): Loose, dark yellowish brown, moist silty very fine angular to subangular sand, poorly graded medium plasticity mellow micaceous.
4		DB					
5							Groundwater level at 3.28 m. (01/24/2001)
6	2	SPT			10	[Symbol: Dotted pattern]	
7							Silt with sand (ML): Stiff / Loose dark yellowish brown, wet, very fine sandy (40%) silt; medium plasticity, mellow thickly laminated, fissile change to silty clay at tip.
8		DB					
9							Silty Clay (CL)
10		DB				[Symbol: Diagonal hatching]	
11	3	SPT			6	[Symbol: Dotted pattern]	Silt with Clay (ML): Firm dark yellowish brown, moist clayey silt; medium plasticity.
12							Silt with Sand (ML)
13		DB					
14							Silt with Sand (ML)
15		DB					
16							Silt with Sand (ML)
17		DB					
18							Silt with Sand (ML)
19		DB					
20							Silt with Sand (ML)



## BORING LOG B0012-8

Boring No.: B0012-8

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 2 of 2

Location: 8 m RT STA 305+90, "G" Line

Date Drilled: 12/27/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary Drag Bit (DB)

Logged By: J. Kermodé

Top of Hole Elev.: 59.41 m (ELV.+100)

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
21	4	SPT			4	•••••	Silt w/ sand (ML) - silt w/ clay (ML): Interbedded soft, dark yellowish brown, moist, very fine sandy silt; highly plastic interbedded with clayey silt. Horizontal contacts bedding - 7 cm thick.
22	5	CA				/ / / / /	Clay (CL): Estimated stiff, brown moist.
23	7					/ / / / /	
24		DB				/ / / / /	
25						/ / / / /	Clay (CL/CH): Very stiff, brown moist clay; highly plastic, tough, massive, waxy luster.
26	6	SPT			25	/ / / / /	
27						/ / / / /	
28		DB				/ / / / /	As above
29						/ / / / /	
30	9					/ / / / /	
31	7	SPT			17	/ / / / /	T.D. 9.6 m, 12/27/2000 @ 11:00. Set 9.6 m PVC pipe, upper 3.1 m solid. Groundwater encountered.
32						/ / / / /	
33	10					/ / / / /	
34						/ / / / /	
35						/ / / / /	
36	11					/ / / / /	
37						/ / / / /	
38						/ / / / /	
39	12					/ / / / /	
40						/ / / / /	



## BORING LOG B0012-9

Boring No.: B0012-9

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 1 of 2

Location: 52 m LT STA 324+69 "G" Line

Date Drilled: 12/27/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary, Drag Bit (DB)

Logged By: J. Kermode

Top of Hole Elev.: 61.6 m (ELV.+100)

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
0							Ground Surface
1		DB					Sandy Silt (ML)
2	1	SPT			12		Sand with silt (SM/SP): Medium dense brown, wet, very silty, very fine sand; medium plasticity, mellow, fissle on thick laminae.
3		DB					Groundwater level at 1.89 m. (01/24/01)
4	2	SPT			14		Silt with sand (ML/SM): Medium dense / stiff, brown, wet, very sandy (very fine sand) silt with very silty very fine sand, bedded fissle at 20 degrees across sample axes, non plastic.
5	3	SPT			16		Silt with sand (ML): Very stiff/medium dense dark yellowish brown with brownish yellow mottles (weathered laminae surfaces), moist silt with abundant very fine sand; non pastic to highly plastic (thin clayey interbeds),
6		DB					



## BORING LOG B0012-9

Boring No.: B0012-9

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 2 of 2

Location: 52 m LT STA 324+69 "G" Line

Date Drilled: 12/27/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary, Drag Bit (DB)

Logged By: J. Kermode

Top of Hole Elev.: 61.6 m (ELV.+100)

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
21	4	SPT			26	[Symbol: Dotted pattern]	Sand with silt (SP/SM):- Medium dense, dark yellowish brown with brown with brownish yellow laminae, wet, well sorted uniform, very fine sand / very coarse silt; laminated - non plastic micaceous.
22							
23	7	DB				[Symbol: Dotted pattern]	Sand with silt (SP/SM): Medium dense, dark yellowish brown with brown with brownish yellow laminae, wet, moderately well sorted uniform, very fine sand / very coarse silt; laminated - non plastic micaceous.
24							
25						[Symbol: Dotted pattern]	Sand (SP): Dense, dark yellowish brown, wet, very fine well rounded sand - clean; non plastic.
26	5	SPT			18		
27						[Symbol: Dotted pattern]	-T.D. 9.6 m 12/27/2000, 13:15 Hrs. Set 9.6 m PVC pipe, lower 6.1 m slotted. Groundwater encountered.
28		DB					
29						[Symbol: Dotted pattern]	
30							
31	6	SPT			33	[Symbol: Dotted pattern]	
32							
33						[Symbol: Dotted pattern]	
34							
35						[Symbol: Dotted pattern]	
36							
37						[Symbol: Dotted pattern]	
38							
39						[Symbol: Dotted pattern]	
40							



## BORING LOG B0012-10

Boring No.: B0012-10

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 1 of 2

Location: 36 m LT STA 338+57, "G" Line

Date Drilled: 12/27/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary, Drag Bit (DB)

Logged By: J. Kermodé

Top of Hole Elev.: 63.41 m (ELV. +100)

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
0 m							Ground Surface
1		DB					Sandy Silt (ML)
2							
3							Silt and Sand (ML) (SP/SM): Stiff / medium dense, brown to dark yellowish brown, wet, interbedded, very fine sandy silt, medium plasticity with very silty very fine sand.
4		DB					
5	1	SPT			11		-Groundwater level at 2.96 m. (01/24/2001)
6							
7		DB					Silt / Sand (ML)(SM/SP): Medium dense, very stiff, dark yellowish brown, wet, silty, very fine well rounded sand, sandy well rounded coarse silt, low plasticity to non plastic laminated.
8							
9							Silt (ML): Stiff, brown, moist, very fine sandy silt, low to non plastic, micaceous with 2 cm thick interbeds of clayey silt. High plasticity clay at tip, micaceous.
10	2	SPT			17		
11							
12		DB					
13							
14							
15							
16	3	SPT			12		
17							
18		DB					
19							
20							



## BORING LOG B0012-10

Boring No.: B0012-10

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 2 of 2

Location: 36 m LT STA 338+57, "G" Line

Date Drilled: 12/27/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary, Drag Bit (DB)

Logged By: J. Kermode

Top of Hole Elev.: 63.41 m (ELV. +100)

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
21	4	SPT			7	[Symbol: Diagonal lines]	Silt and clay (ML/CL): Firm, grayish brown, mottled and olive brown mottled, moist, interlaminated and gradational, very silty clay - clayey silt and very fine sandy silt, plasticity varies from non plastic to high plastic
22-23	7	DB					
24-25						[Symbol: Diagonal lines]	Clay (CL/CH): Stiff, brown, moist to dry, silty clay, high plasticity, tough, massive; mottled, contains organics (carbonized plant debris).
26	5	SPT			14		
27-28		DB				[Symbol: Diagonal lines]	
29-30	9						
31	6	SPT			18	[Symbol: Vertical lines]	Silt (ML): Very stiff, mottled dark yellowish brown, wet, very fine sandy silt, well rounded grains. Non plastic, mellow laminated fissile, micaceous.
32-33						[Symbol: Vertical lines]	-T.D. 14:37 hrs, 12/27/200. Set 9.6 m PVC, lower 6.1 m were slotted. Groundwater encountered.
34-35							
36-37	11						
38-39							
40	12						



## BORING LOG B0012-11

Boring No.: B0012-11

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 1 of 2

Location: 22 m RT STA 330+01, "G" Line

Date Drilled: 12/27/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary, Drag Bit (DB)

Logged By: J. Kermode

Top of Hole Elev.: 62.84 m (ELV. +100)

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
0							Ground Surface
1		DB					Sandy Silt (ML)
2							
3	1	SPT			12		Clay (CL/CH): Stiff, brown, moist clay, high plasticity, massive, tough.
4		DB					Silt (ML): Stiff, brown laminated light brown, very sandy silt, well rounded, medium plasticity, thinly laminated, fissle elastic.
5							
6					▼		-Groundwater at 2.71 m. (01/24/2001)
7	2	SPT			12		Silty sand (SM): Medium dense, brown, moist, silty, very fine sand; subrounded sand, low plasticity, mellow.
8		DB					
9							Sand (SP): Medium dense, brown, moist, very fine to fine subangular to subrounded sand, low plasticity, mellow.
10	3	SPT			22		
11		DB					
12							
13							
14							
15							
16							
17							
18							
19							
20							



## BORING LOG B0012-11

Boring No.: B0012-11

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 2 of 2

Location: 22 m RT STA 330+01, "G" Line

Date Drilled: 12/27/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary, Drag Bit (DB)

Logged By: J. Kermodé

Top of Hole Elev.: 62.84 m (ELV. +100)

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
21	4	SPT			18		Sand (SP): Medium dense, brown, wet, silty to fine sand, subrounded, non plastic, mellow, liquifies when sampler hit, micaceous.
22-23	7	DB					
25	5	SPT			8		Silty clay/Clayey silt (CL/ML): Firm, brown, moist, very silty clay / clayey silt, highly plastic, massive.
26-28	8	DB					
30	6	SPT			13		Clay (CL/CH): Stiff, brown, moist, silty clay and clay, high plasticity, greasy luster, massive, tough.
31-32	9	DB					
32-33	10						T.D. 9.6 m, 12-25-2000 at 09:26. Set PVC pipe, lower 6.1 m slotted, sand backfill. Groundwater encountered.
36	11						
39	12						



## BORING LOG B0012-12

Boring No.: B0012-12

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 1 of 2

Location: 1 m LT STA 341+62 "G" Line

Date Drilled: 12/28/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary, Drag Bit (DB)

Logged By: J. Kermodé

Top of Hole Elev.: 64.271 m (ELV. +100)

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
0							Ground Surface
1		DB					Disturbed fine silt top-soil, farm soil (plaggen Epipeдон); residential parking lot.
2							
3	1	SPT			10		Silt with sand (ML): Stiff, brown, wet, very sandy, (very fine) silt; medium plasticity, mellow, laminated.
4							
5		DB					Firm, brown, moist, very silty clay; high plasticity, laminated micaceous, sticky.
6	2	SPT			6		
7							Firm, brown, moist, very silty clay; high plasticity, laminated micaceous, sticky.
8		DB					
9							Firm, brown, moist, very silty clay; high plasticity, laminated micaceous, sticky.
10	3	SPT			7		
11							Firm, brown, moist, very silty clay; high plasticity, laminated micaceous, sticky.
12		DB					
13							Firm, brown, moist, very silty clay; high plasticity, laminated micaceous, sticky.
14	4	SPT					
15							Firm, brown, moist, very silty clay; high plasticity, laminated micaceous, sticky.
16		DB					
17							Firm, brown, moist, very silty clay; high plasticity, laminated micaceous, sticky.
18	5	SPT					
19							Firm, brown, moist, very silty clay; high plasticity, laminated micaceous, sticky.
20		DB					

Groundwater at 2.57 m. (01/24/01)





## BORING LOG B0012-13

Boring No.: B0012-13

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 1 of 2

Location: 23 m RT STA 334+05, "G" Line

Date Drilled: 12/28/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary, 90mm Drag Bit (DB)

Logged By: J. Kermode

Top of Hole Elev.: 82.578 m (ELV. +100)

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
0 m							Ground Surface
1		DB					AC and silt, dry.
2	1	SPT			7		Clay (CL): Firm, brown, moist, silty clay; high plasticity, massive, tough. Contains plant debris (roots).
3		DB					
4	2	SPT			5		Silt (ML) / Silty, very fine sand (SM): Firm, loose, bedded and laminated, olive brown, dark grayish brown, and brown, very fine sandy silt / very silty very fine sand; non plastic, horizontal bedding, mellow, micaceous.
5		DB					
6	3	SPT			10		Silt (ML) (with clay): Stiff, brown, varved, thin dark gray laminae, wet, very fine, sandy clayey silt. High plasticity, mellow, micaceous.
7		DB					
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							



## BORING LOG B0012-13

Boring No.: B0012-13

Dist.-Co.-Rte.-P.M.: 11-IMP-111

Sheet: 2 of 2

Location: 23 m RT STA 334+05, "G" Line

Date Drilled: 12/28/2000

EA: 11-199363

Project Name: IMP 111 Widen and Realignment

Drilling Method: Mud Rotary, 90mm Drag Bit (DB)

Logged By: J. Kermodé

Top of Hole Elev.: 82.578 m (ELV. +100)

SAMPLE						PROFILE	
DEPTH	SAMPLE NUMBER	SAMPLE TYPE	RECOVERY (%)	BLOWS per 0.15 m	BLOW COUNTS per 0.3 m (N)	SYMBOL	DESCRIPTION
21	4	SPT			12		Clay (CL): Stiff, brown, moist, silty clay; highly plastic, tough. Changes at 20.2 Ft. to silt (ML)- stiff, brown, wet, very fine sandy silt; medium to non plastic, laminated (horizontal), micaceous, mellow, ch
22-23	7	DB					
24-25	5	SPT			9		Clay (CL/CH): Firm, brown, moist, silty clay; high plasticity, dull to greasy luster, massive.
26-28	8	DB					
29-30	6	SPT			19		Sand/Silt (SP/ML): Medium dense, brown, wet, silty, very fine sand / very fine sandy silt; well rounded, non plastic, massive.
31-32							T.D. 9.6 m at 13:30 on 12/28/2000, backfill with bentonite chips.
33-35	10						
36-37	11						
38-39	12						
40							

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