



Northern Technical Services

8 East Main Street, Malone, NY 12953
Phone: (518) 481-5008 Fax: (518) 483-2932

July 9, 1997

IEM Sealand Corporation
215 McAuslin Road
North Lawrence, NY

Attn: Mr. Joe Mahoney

Re: Monitor Well Installation Services
North Lawrence Oil Dump Site
IEM P.O. No. 60.006-03
NTS Report No. JN103-3-7-96

Ladies/Gentlemen:

In accordance with your request three monitor wells were installed at the referenced project site on July 1 and July 2, 1997. All Work was performed under the direction of representatives of ABB Environmental Services, and was completed in general accordance with the project specifications.

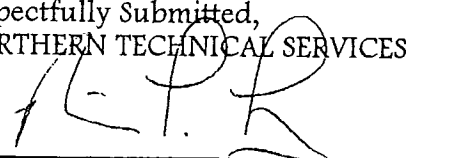
All soil borings were advanced using 4-1/4 inch I. D. hollow stem augers. Soil samples were obtained and standard penetration testing was performed utilizing a 2 inch O.D. split barrel sampler in accordance with ASTM D- 1586.

All soil samples were field classified by a representative of Northern Technical Services using the Burmister Soil Classification System (see "Classification of Material" on the Soil Boring Logs). The soil classifications are based on field observations only and should be considered approximate.

Monitor wells were installed in the completed bore holes, as outlined in the project specifications (Monitor Well Installation Details are attached here-to). The monitor wells were subsequently developed on July 3, 1997.

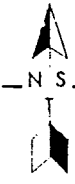
Attached are three Soil Boring Logs, three Monitor Well Installation Details, and three Well Development Logs. Please call our office should you have any questions or comments on the enclosed, or if we may be of any further service.

Respectfully Submitted,
NORTHERN TECHNICAL SERVICES


Richard L. Lucey, P.E.
Project Manager

RLL/ljl

MLC
7-22-97



NORTHERN TECHNICAL SERVICES

8 East Main St., Malone, NY

SOIL BORING LOG

CLIENT: IEM Sealand Corporation
North Lawrence, New York

Boring No. 301 Sheet 1 of 2
 Date Start: 7/1/97 Finish 7/1/97
 NTS Report No. JN 103-3-7-97
 Location of Boring: As Staked
 Ground Elevation: _____

PROJECT: North Lawrence Oil Dump Site
North Lawrence, New York

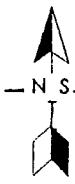
NTS DRILLERS: C. Wheeler
L. DeBuque
 Sampler Hammer
 Casing _____ Wt. 140 lbs.
 H.S. Auger 4 1/4" Fall 30 in.

Ground Water Observations

Date	Time	Depth	Casing at
7/3/97	AM	1.41	15.0

CASING TYPE	DEPTH	SAMPLE NO.	DEPTH OF SAMPLE (Ft.)		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" DROP (2" O.D. SAMPLER)	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION RESISTANCE (N)	
			From	To				f - fine m - medium c - coarse		and - 35-50% some - 20-35% little - 10-20% trace - 0-10%
H S A U G E R		1	0.0	2.0		1	1.0	Topsoil		
						3		Brown cmf SAND, trace f GRAVEL, trace SILT (saturated, non-plastic)	7	
						4				
						3				
		2	2.0	4.0		4	4.0		Brown cmf SAND, some mf GRAVEL, little SILT (wet, non-plastic)	17
						6				
						11				
						19		Brown cmf SAND, some SILT, little mf GRAVEL (wet, non-plastic) GLACIAL TILL	39	
		3	4.0	6.0		15				
						14				
						25		Similar Soils	93	
						31				
		4	6.0	8.0		32				
						45		Similar Soils	51	
						49				
						60				
		5	8.0	10.0		11	4.0		Similar Soils	60
						24				
						27				
						36		Similar Soils		
		6	10.0	12.0		14				
						24				
						36		NOTES: Boring terminated at 15.5 feet. Monitor well installed in completed bore hole. Cobbles and boulders encountered from 4.0 to 15.5 feet.		
						42				

SS-Split Spoon Sample NX-Rock Core U-Undisturbed Sample P-Piston Type Sample



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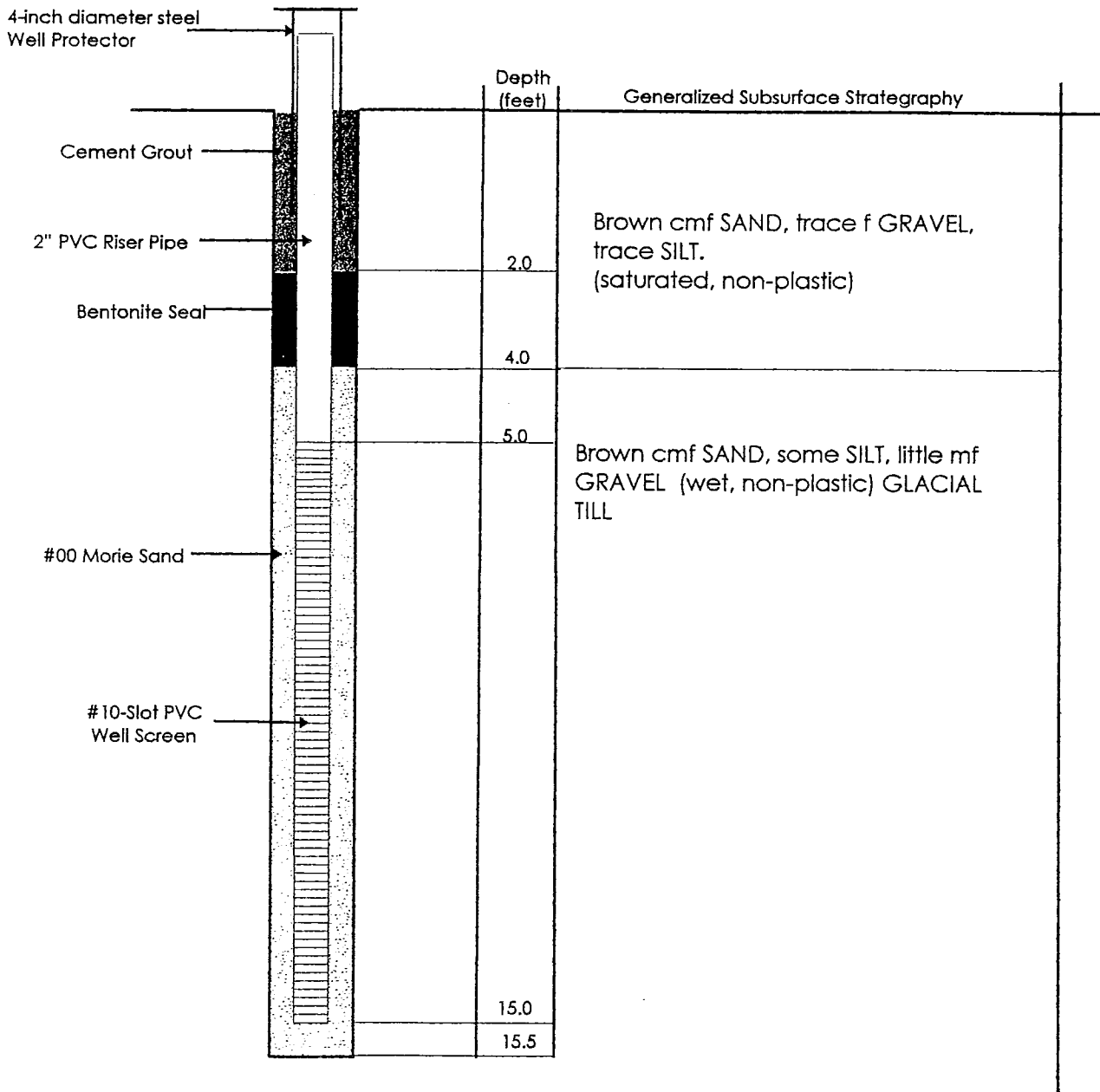
MONITOR WELL INSTALLATION DETAIL

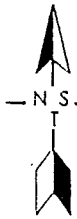
CLIENT: IEM Sealand Corporation
North Lawrence, New York

Well No.: MW-301
NTS Report No.: JN103-3-7-97

PROJECT: North Lawrence Oil Dump Site
North Lawrence, New York

Date: 7/1/97
DRILLERS: C. Wheeler, L. DeBuque





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Phone (518) 481-5008, Fax 483-2932

FIELD DATA SHEET MONITOR WELL EVACUATION AND SAMPLING

HISTORICAL:

Project: North Lawrence Pil Dump Well Number: MW-301
North Lawrence, N.Y. NTS Project No.: JN103-3-7-97
Client: IEM Sealand Corp Well Depth: 15.0 Feet
North Lawrence, N.Y. Well Diameter: 2.0 Inches

EVACUATION:

Development method: Pump & Surze Date: 7/3/97
Initial Static Water Level: 1.41 Feet Developer(s): C. Wheeler
B.G.S.

Event	Water Level (Ft.) <u>B.G.S.</u>	Time	Cum. amt. rem.	Temp. (°F)	pH (S.U.)	Cond. (MHOS)	Turbidity (NTU)	COMMENTS (color, odor, turbidity, recovery)
one	1.41	8:00	5 gal	53		590	129	No odor very turbid
two	2.23	10:20	10 gal	56			120	Slow Recovery
three	1.91	13:40	20 gal	55		660	101	
four	2.12	15:45	30 gal	56		680	51	
five								
six								

Well Volume Calculations

diameter	volume
1 1/2"	0.092 gal/feet
2"	0.163 gal/feet
3"	0.367 gal/feet
6"	1.47 gal/feet

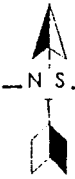
Volume \approx 2.2 gal

SAMPLING:

Date: _____ Time: _____ Sampled by: _____

Weather: _____ Field refrigeration: yes no

COMMENTS:



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8 East Main St., Malone, NY

SOIL BORING LOG

CLIENT: IEM Sealand Corporation
North Lawrence, New York

Boring No. 302 Sheet 1 of 2

Date Start: 7/1/97 Finish 7/2/97

NTS Report No. JN 103-3-7-97

Location of Boring: _____

Ground Elevation: _____

PROJECT: North Lawrence Oil Dump Site
North Lawrence, New York

NTS DRILLERS: C. Wheeler
L. DeBuque

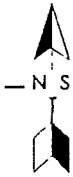
Ground Water Observations

Sampler Hammer
 Casing _____ Wt. 140 lbs.
 H.S. Auger 4 1/4" Fall 30 in.

Date	Time	Depth	Casing at
7/3/97	AM	1.80	15.0

CASING TYPE	DEPTH	SAMPLE NO.	DEPTH OF SAMPLE (Ft.)		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" DROP (2" O.D. SAMPLER)	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION RESISTANCE (N)
			From	To					
H S A U G E R		1	0.0	2.0		4	2.0	Brown cmf SAND, some mf GRAVEL, little SILT (wet, non-plastic)	8
						6			
						2			
						3			
		2	2.0	4.0		4	14	Brown cmf SAND, some SILT, little cmf GRAVEL (wet, non-plastic)	14
						7			
						7			
						9			
		3	4.0	6.0		11			
						16			
						32			
						29			
		4	6.0	8.0		21	100+	Similar Soils	100+
						39			
						100/3"			
		5	8.0	10.0		16	49	Similar Soils	49
						20			
						29			
						40			
	6	15.0	17.0		26	16.0	Similar Soils to 16.0'	69	
					30				
					39				
					46				
						69	Brownish gray cmf SAND, little SILT, trace mf GRAVEL.	69	
							NOTES: Cobbles and boulders encountered from 4.0 to 17.0 feet.		

SS-Split Spoon Sample NX-Rock Core U-Undisturbed Sample P-Piston Type Sample



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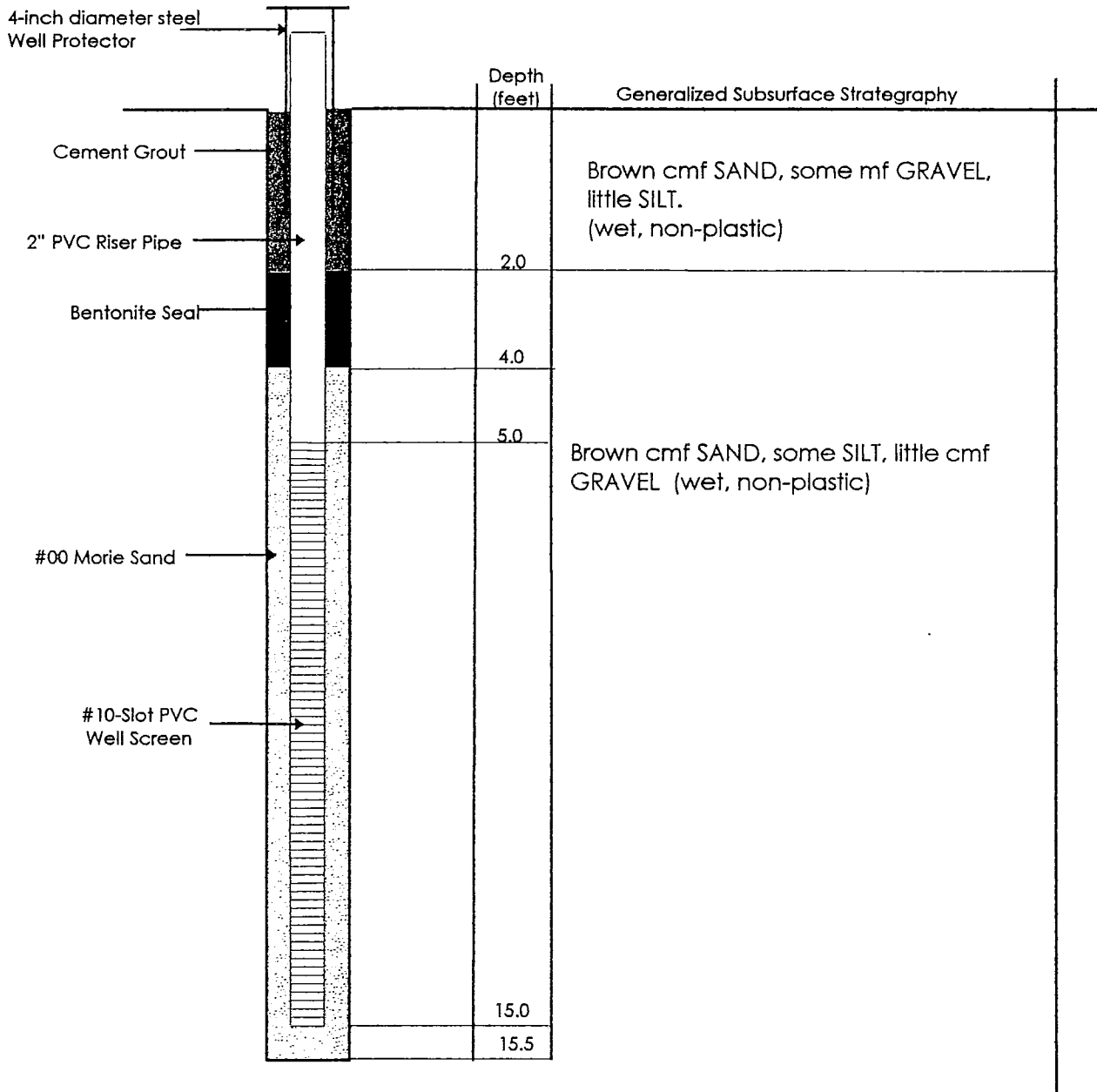
MONITOR WELL INSTALLATION DETAIL

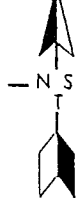
CLIENT: IEM Sealand Corporation
North Lawrence, New York

Well No.: MW-302
NTS Report No.: JN103-3-7-97

PROJECT: North Lawrence Oil Dump Site
North Lawrence, New York

Date: 7/2/97
DRILLERS: C. Wheeler, L. DeBuque





NORTHERN TECHNICAL SERVICES

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Phone (518) 481-5008, Fax 483-2932

FIELD DATA SHEET MONITOR WELL EVACUATION AND SAMPLING

HISTORICAL:

Project: North Lawrence Oil Dump Well Number: MW-302
North Lawrence, N.Y. NTS Project No.: IN103-3-7-97
Client: TEM Sealand Corp Well Depth: 15.0 Feet
North Lawrence, N.Y. Well Diameter: 2.0 Inches

EVACUATION:

Development method: Pump & Surze Date: 7/3/97
Initial Static Water Level: 1.80 Feet Developer(s): C. Wheeler
B.S.

Event	Water Level (Ft.)	Time	Cum. amt. rem.	Temp. (°F)	pH (S.U.)	Cond. (MHOS)	Turbidity (NTU)	COMMENTS (color, odor, turbidity, recovery)
one	<u>1.30</u>	<u>8:30</u>	<u>5 gal</u>	<u>60</u>		<u>710</u>	<u>160</u>	<u>Brown very turbid.</u> <u>1.0 - 1.5</u>
two		<u>11:00</u>	<u>10 gal</u>	<u>57</u>			<u>120</u>	<u>slow recovery</u>
three	<u>2.32</u>	<u>14:10</u>	<u>20 gal</u>	<u>56</u>		<u>680</u>	<u>90</u>	
four	<u>2.81</u>	<u>16:30</u>	<u>30 gal</u>	<u>57</u>		<u>690</u>	<u>45</u>	
five								
six								

Well Volume Calculations

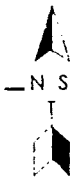
diameter	volume
1 1/2"	0.092 gal/feet
2"	0.163 gal/feet
3"	0.367 gal/feet
6"	1.47 gal/feet

Volume \approx 2.6

SAMPLING:

Date: _____ Time: _____ Sampled by: _____
Weather: _____ Field refrigeration: yes no

COMMENTS:



NORTHERN TECHNICAL SERVICES

8 East Main St., Malone, NY

SOIL BORING LOG

CLIENT: IEM Sealand Corporation
North Lawrence, New York

Boring No. 303 Sheet 1 of 2

Date Start: 7/2/97 Finish 7/2/97

NTS Report No. JN 103-3-7-97

Location of Boring: As Staked

Ground Elevation: _____

PROJECT: North Lawrence Oil Dump Site
North Lawrence, New York

NTS DRILLERS: C. Wheeler
L. DeBuque

Ground Water Observations

Sampler Hammer

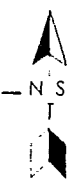
Casing _____ Wt. 140 lbs.

H.S. Auger 4 1/4" Fall 30 in.

Date	Time	Depth	Casing at
7/3/97	AM	2.30	15.0

CASING TYPE	DEPTH	SAMPLE NO.	DEPTH OF SAMPLE (Ft.)		SAMPLE TYPE	BLOWS ON SAMPLER PER 6" DROP (2" O.D. SAMPLER)	DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	STANDARD PENETRATION RESISTANCE (N)	
			From	To				f - fine m - medium c - coarse and - 35-50% some - 20-35% little - 10-20% trace - 0-10%		
H S A U G E R		1	0.0	2.0		2		Brown cmf SAND, little SILT, trace f GRAVEL (moist, non-plastic)	18	
						8				
						10				
						10				
			2	2.0	4.0		4		Brown cmf SAND, some SILT, little f GRAVEL (wet, non-plastic)	27
							11			
							16			
							15			
			3	4.0	6.0		19	4.0	Brown cmf SAND, little SILT, trace mf GRAVEL few COBBLES (wet, non-plastic)	57
							21			
							36			
							40			
			4	6.0	8.0		17		Similar Soils	40
							18			
							32			
							46			
			5	8.0	10.0		36		Brown cmf SAND, some SILT, little mf GRAVEL (wet, non-plastic)	100+
							62			
							100/2"			
		6	15.0	17.0		32	16.0	Similar Soils to 16.0'		
						26		Brown cmf SAND, some mf GRAVEL, trace SILT (wet, non-plastic)	42	
						16				
						21				
								NOTES: Cobbles and boulders encountered from 4.0 to 17.0 feet.		

SS-Split Spoon Sample NX-Rock Core U-Undisturbed Sample P-Piston Type Sample



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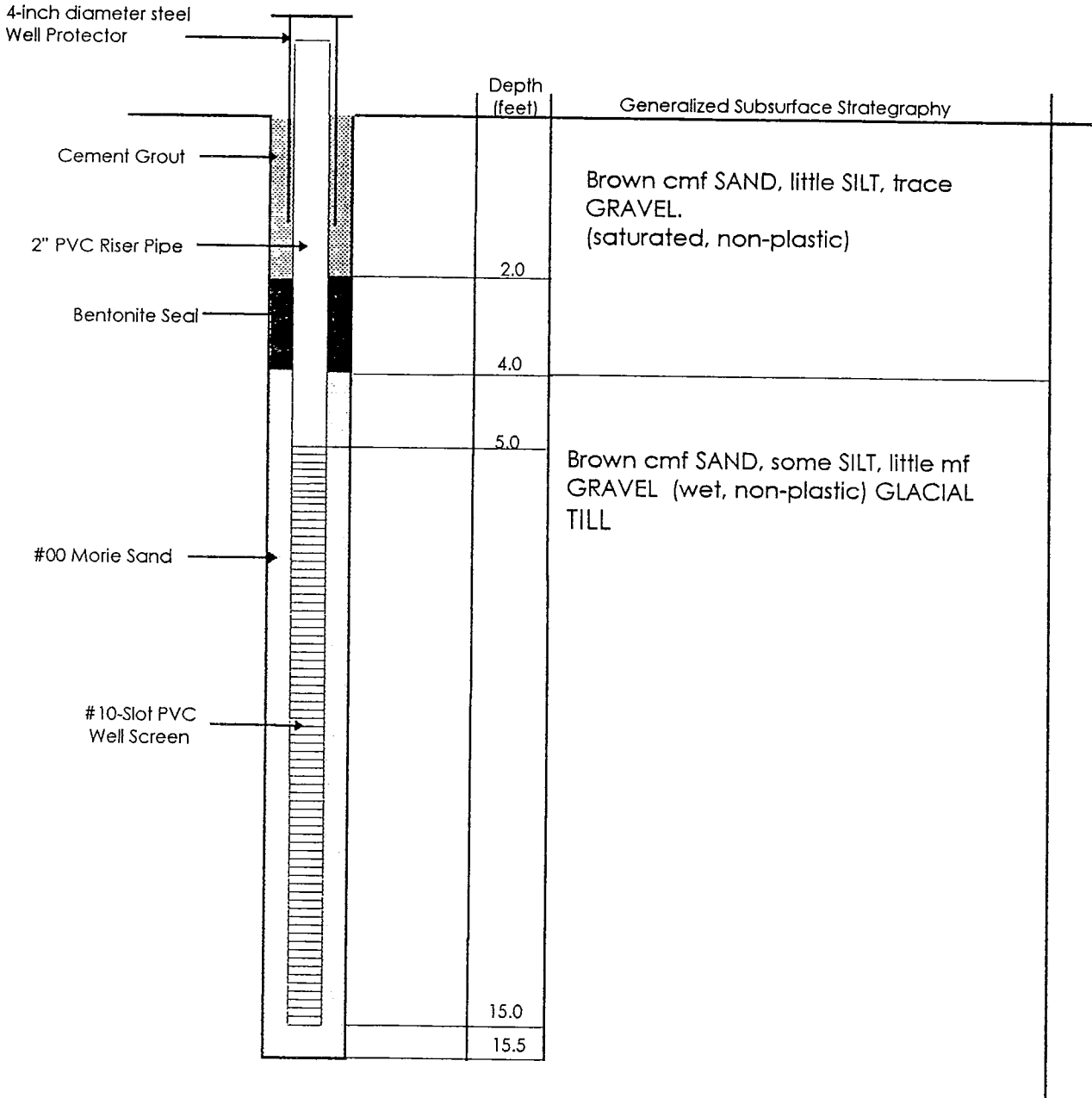
MONITOR WELL INSTALLATION DETAIL

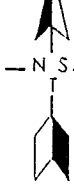
CLIENT: IEM Sealand Corporation
North Lawrence, New York

Well No.: MW-303
NTS Report No.: JN103-1-7-97

PROJECT: North Lawrence Oil Dump Site
North Lawrence, New York

Date: 7/2/97
DRILLERS: C. Wheeler, L. DeBuque





NORTHERN TECHNICAL SERVICES

8 East Main Street, Malone, New York 12953

Phone (518) 481-5008, Fax 483-2932

FIELD DATA SHEET MONITOR WELL EVACUATION AND SAMPLING

HISTORICAL:

Project: North Lawrence O.I. Dump Well Number: MW-303
North Lawrence, N.Y. NTS Project No.: JN03-3-7-97

Client: IEM Sealand Corp. Well Depth: 15.0 Feet
North Lawrence, N.Y. Well Diameter: 2.0 Inches

EVACUATION:

Development method: Pump & Treat Date: 7/3/97

Initial Static Water Level: 2.30 Feet Developer(s): C. Wheeler
B.E.S.

Event	Water Level (Ft.)	Time	Cum. amt. rem.	Temp. (°F)	pH (S.U.)	Cond. (MHOS)	Turbidity (NTU)	COMMENTS (color, odor, turbidity, recovery)
one	2.30	7:30	0 gal	57			200	No odor Very turbid
two	2.69	9:45	30 gal	56			120	Turbid, fair recovery
three	2.51	12:30	45 gal	54		690	80	
four	2.40	15:00	60 gal	55		680	50	clear, no odor
five								
six								

Well Volume Calculations

diameter	volume
1 1/2"	0.092 gal/feet
2"	0.163 gal/feet
3"	0.367 gal/feet
6"	1.47 gal/feet

SAMPLING:

Date: _____ Time: _____ Sampled by: _____

Weather: _____ Field refrigeration: yes no

COMMENTS: