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February 15, 2013

Project Reference #13621

Mr. Binyoti Amungwafor
c/o Ms. Victoria Stovall
Wisconsin Dept. of Natural Resources
2300 N. Martin Luther King Jr. Drive
Milwaukee, WI 53212

RE: Impacted Soil Screening Criteria
Former Lakefield Sand & Gravel Property
7003 West Good Hope Road, Milwaukee, Wisconsin
WDNR BRRTS No. 02-41-548828 FID No. 241377070

Dear Mr. Amungwafor:

On behalf of the SWP Properties LLC, (property owner) Sigma Environmental Services, Inc. (Sigma) has prepared this letter to present the soil screening criteria recommended for the acceptance and placement of impacted soil at the former Lakefield Sand and Gravel property (Lakefield). The import of the impacted soil is one component of the Wisconsin Department of Natural Resources (WDNR) approved conditional closure/remedial action plan (WDNR letter dated October 24, 2012).

With this document Sigma requests written agreement for the proposed criteria. A check in the amount of $500 for a technical review is attached.

BACKGROUND

Several series of investigations have been completed at the former Lakefield property since its use in the 1960's for the disposal of construction debris. The investigation activities have included multiple soil and groundwater sampling and water level monitoring events to evaluate the potential for impact. The investigation activities have determined that subsurface soil and groundwater have been impacted as a result of the historic filling activities. The nature of both the impacts as well as the site characteristics indicate that the primary risk associated with the site is through direct contact with shallow soil impacts.

WDNR Approved Remedial Strategy

Based on the direct contact risk and the planned long term use of the property (soccer fields) the import and placement of low level impacted soil beneath a cap was the recommended and approved remedial strategy. The proposed import and filling activities would occur in stages as low level impacted material becomes available *and WDNR approval is received for each source*. To date, one source of low level impacted material has been approved for placement at Lakefield beneath the specified direct contact cap. The WDNR outlined this specific site approval in their October 10, 2012 letter.

The specific criteria for the approval of additional sources of impacted soil has not however been established. Therefore, this request presents the recommended soil screening criteria and associated justification to meet approved site closure requirements.

PROPOSED CRITERIA AND JUSTIFICAITON

The proposed criteria for the impacted soil to be imported to the former Lakefield Sand and Gravel site as part of the WDNR approved remedial action plan, presented in Table 1, are based on:

1 - Consideration of current WDNR standards and guidelines,

Several but not all RCRA metal, VOC or PAH constituents were detected within soil samples collected from the Lakefield property. The criteria to be used for those constituents not detected previously at the property include the ch. NR 720 standards for direct contact. The specific parameters are highlighted on the attached table in orange. The proposed concentration for arsenic highlighted on the attached table in purple, is based on typical background concentrations detected within southeastern Wisconsin.

For those parameters for which no ch. NR 720 standards have been established, site-specific RCLs for direct contact exposure (based on outdoor worker) were calculated using the WDNR and US EPA Web Calculator. Those parameters are highlighted on the attached table in green. The web calculator results are included in Attachment A.

2 - Existing Lakefield soil and groundwater quality

The Lakefield site contains impacted soil and groundwater as a result of historic filling activities. The soil impacts however, are generally limited to the fill mass. Groundwater sampling at the site has demonstrated that limited groundwater impacts have resulted from the presence of these contaminants. In addition, groundwater sampling has shown that groundwater impacts decrease with both depth and distance across the site indicating that in the site's current condition the underlying native materials have the ability to effectively attenuate the migration of impacts from soil to groundwater.

3 - The protections of the approved remedial action to address potential future risks to groundwater and the threat from direct contact.

The pre-remediation site conditions and on-going natural attenuation are effectively protective of the site groundwater as demonstrated by the presence of minimally impacted groundwater. The WDNR approved remedial cap will further reduce the potential for groundwater impact by significantly minimizing the infiltration of precipitation through a WDNR approved cap. The cap consists of one foot thick layer of low permeability soil, one foot of clean soil and 3-inches of top soil that will be graded to direct storm water off of the impacted area. The placement of impacted soil below the low permeability cap at an elevation greater than 10 feet from the measured water table would continue to be protective of groundwater.

The site in its pre-remediation condition is not however protective of the direct contact threat, therefore the proposed 2-foot - 3-inch clean soil cap will provide an erosion resistant barrier from direct contact from existing shallow soil impacts as well as imported impacted soil.

The threshold criteria for the balance of the constituents detected at the site therefore reflect the maximum concentrations detected and therefore allowable at the property. The criteria for those parameters are presented in blue.

In addition to the constituent threshold criteria the following imported soil criteria are proposed:

Soil Source
The site from which impacted soil is generated may be within the NR 700 program as regulated by the WDNR or a site for which detected concentrations are greater than detection but less than published State cleanup levels.

Soil Types
The imported soil may consist of re-worked soil fill with less than 10% foundry or historically incorporated non-native non-exempt materials (including: glass, ceramic, or other typical urban fill materials) but SHALL NOT contain any other forms of solid or industrial wastes (i.e. non-fill related foundry material, industrial waste products, TSCA or RCRA regulated waste, asbestos or lead containing building materials.).

Remediation Implementation
To ensure the import, placement and final capping of the impacted soil the following site management practices and remediation activities will be implemented:

Imported Soil Management
The filling and capping activities will be completed at the direction and under the observation of Sigma personnel to ensure and document that only WDNR approved impacted soil is imported to the site. In addition, a gate will be installed to prohibit unauthorized site access.

Cap Construction
Sigma personnel will also direct and document that the WDNR approved cap is constructed as follows:

A cap of one foot of clean soil beneath one foot of clean low permeable soils with a hydraulic conductivity of $1x10^{-6}$ cm/sec must be placed on-site over low level impacted soil (one source of which has been approved for placement). A minimum of 3-inches of topsoil will be placed on top to accommodate seeding for stabilization and use as soccer fields. The cap will be graded to minimize precipitation infiltration and the development of cap erosion features.

Requested Clarification: *We request that the WDNR agree that the one-foot of low permeability soil may be placed below the one-foot of clean soil and 3-inches of top soil. This will ensure constructability and viability of the stabilization seeding.*

Please call me at 414-643-4127 if you have any questions. I will call you soon to set up a meeting to discuss the requested approval.

Sincerely,

SIGMA ENVIRONMENTAL SERVICES, INC.

Kristin Kurzka, P.E.
Senior Engineer

Randy E. Boness, P G.
Geosciences Group Leader

kal

cc: Ms. Pam Mylotta, WDNR

Lakefield Sand and Gravel Data Summary					Proposed Threshold Soil Concentrations	
RCRA Metals						
Arsenic	3.6	to	12	mg/kg	15	mg/kg
Cadmium	0.35	to	54	mg/kg	510	mg/kg
Chromium, total	13	to	100	mg/kg	200	mg/kg
Lead	7.2	to	4800	mg/kg	500	mg/kg
Mercury	0.031	to	0.57	mg/kg	0.57	mg/kg
Silver	0.27	to	9.6	mg/kg	9.6	mg/kg
VOCs						
Benzene	32	to	890	ug/kg	8500	ug/kg
sec-Butylbenzene	26.3	to	46000	ug/kg	46000	ug/kg
tert-Butylbenzene	26.9	to	99	ug/kg	99	ug/kg
n-Butylbenzene	88	to	272000	ug/kg	272000	ug/kg
Chlorobenzene	54	to	135	ug/kg	135	ug/kg
1,4-Dichlorobenzene	50	to	155	ug/kg	11.9	ug/kg
1,2-Dichlorobenzene	35	to	208	ug/kg	9690	ug/kg
cis-1,2-Dichloroethene	37	to	290	ug/kg	2270	ug/kg
trans-1,2-Dichloroethene		25.2		ug/kg	670	ug/kg
1,2-Dichloropropane		660		ug/kg	4.61	ug/kg
Ethylbenzene	36	to	137000	ug/kg	4600	ug/kg
Isopropylbenzene	28.7	to	26100	ug/kg	26100	ug/kg
p-Isopropyltoluene	29.3	to	46000	ug/kg	46000	ug/kg
n-Propylbenzene	29	to	91000	ug/kg	91000	ug/kg
Toluene	71	to	4000	ug/kg	38000	ug/kg
Trichloroethene	47	to	520	ug/kg	692	ug/kg
1,2,4-Trimethylbenzene	27.5	to	890000	ug/kg	83000	ug/kg
1,3,5-Trimethylbenzene	40	to	180000	ug/kg	11000	ug/kg
Total Xylenes	71	to	428000	ug/kg	42000	ug/kg
PAHs						
Acenaphthene	69	to	43300	ug/kg	43300	ug/kg
Acenphthylene	36	to	177	ug/kg	177	ug/kg
Anthracene	12	to	103000	ug/kg	103000	ug/kg
Benzo(a)anthracene	15	to	104000	ug/kg	104000	ug/kg
Benzo(b)fluoranthene	12	to	128000	ug/kg	128000	ug/kg
Benzo(k)fluoranthene	21	to	44000	ug/kg	44000	ug/kg
Benzo(a)pyrene	9.3	to	93600	ug/kg	93600	ug/kg
Benzo(g,h,i)perylene	23	to	46800	ug/kg	46800	ug/kg
Chrysene	27	to	90500	ug/kg	90500	ug/kg
Dibenzo(a,h)anthracene	30	to	12000	ug/kg	12000	ug/kg
Fluoranthene	22	to	300000	ug/kg	300000	ug/kg
Fluorene	11	to	69500	ug/kg	69500	ug/kg
Indeno(1,2,3-cd)pyrene	12	to	53600	ug/kg	53600	ug/kg
1-Methylnaphthalene	13	to	36000	ug/kg	36000	ug/kg
2-Methylnaphthalene	16	to	115000	ug/kg	115000	ug/kg
Naphthalene	19	to	662000	ug/kg	662000	ug/kg
Phenanthrene	9.9	to	290000	ug/kg	290000	ug/kg
Pyrene	18	to	210000	ug/kg	210000	ug/kg
PCBs						
PCB-1248		17		ug/kg	17	ug/kg

Legend:

= ch. NR 720 RCLs

= calculated site-specific RCLs for drect contact exposure based on outdoor workers

= maximum concentration detected at the property

= typical southeastern Wisconsin background concentration

ATTACHMENT 1

Site-Specific Web Based Calculations
Outdoor Worker Equations

Site-specific

Outdoor Worker Equation Inputs for Soil

Variable	Value
TR (target cancer risk) unitless	1.0E-6
THQ (target hazard quotient) unitless	1
AT_{ow} (averaging time)	365
EF_{ow} (exposure frequency) d/yr	225
ED_{ow} (exposure duration) yr	25
ET_{ow} (exposure time) hr	8
LT (lifetime) yr	70
BW_{ow} (body weight)	70
IR_{ow} (soil ingestion rate) mg/day	100
SA_{ow} (surface area) cm^2/day	3300
AF_{ow} (skin adherence factor) mg/cm^2	0.2
City (Climate Zone) PEF Selection	Chicago, IL (7)
A_c (acres) PEF Selection	10
Q/C_{wp} (g/m^2-s per kg/m^3) PEF Selection	59.64691
PEF (particulate emission factor) m^3/kg	945642494
A (PEF Dispersion Constant)	16.8653
B (PEF Dispersion Constant)	18.7848
C (PEF Dispersion Constant)	215.0624
V (fraction of vegetative cover) unitless	0.5
U_m (mean annual wind speed) m/s	4.65
U_t (equivalent threshold value)	11.32
F(x) (function dependant on U_m/U_t) unitless	0.182
City (Climate Zone) VF Selection	Chicago, IL (7)
A_c (acres) VF Selection	10
Q/C_{wp} (g/m^2-s per kg/m^3) VF Selection	59.64691
foc (fraction organic carbon in soil) g/g	0.006
ρ$_b$ (dry soil bulk density) g/cm^3	1.5

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Site-specific

Outdoor Worker Equation Inputs for Soil

Variable	Value
ρ$_s$ (soil particle density) g/cm^3	2.65
θ$_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15
T (exposure interval) s	9.5e8
A (VF Dispersion Constant)	16.8653
B (VF Dispersion Constant)	18.7848
C (VF Dispersion Constant)	215.0624

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Site-specific

Outdoor Worker Risk-Based Screening Levels (RSL) for Soil

ca=Cancer, nc=Noncancer, ca* (Where nc SL < 100 x ca SL),
ca** (Where nc SL < 10 x ca SL),
max=SL exceeds ceiling limit (see User's Guide), sat=SL exceeds csat

Chemical	CAS Number	Ingestion SF $(mg/kg\text{-}day)^{-1}$	SFO Ref	Inhalation Unit Risk $(ug/m^3)^{-1}$	IUR Ref	Chronic RfD (mg/kg-day)	RfD Ref	Chronic RfC (mg/m^3)	RfC Ref	GIABS	ABS	Volatilization Factor (m^3/kg)	Soil Saturation Concentration (mg/kg)
Benzene	71-43-2	5.50E-02	I	7.80E-06	I	4.00E-03	I	3.00E-02	I	1	-	3.33E+03	1.82E+03
Dichlorobenzene	25321-22-6	-		-		-		-		1	0.1	9.98E+03	1.93E+02
Dichlorobenzene, 1,2-	95-50-1	-		-		9.00E-02	I	2.00E-01	H	1	-	1.10E+04	3.76E+02
Dichlorobenzene, 1,3-	541-73-1	-		-		-		-		1	-	9.35E+03	2.97E+02
Dichlorobenzene, 1,4-	106-46-7	5.40E-03	C	1.10E-05	C	7.00E-02	A	8.00E-01	I	1	-	9.83E+03	-
Dichloroethane, 1,1-	75-34-3	5.70E-03	C	1.60E-06	C	2.00E-01	P	-		1	-	1.96E+03	1.69E+03
Dichloroethane, 1,2-	107-06-2	9.10E-02	I	2.60E-05	I	6.00E-03	X	7.00E-03	P	1	-	4.31E+03	2.98E+03
Dichloroethylene, 1,1-	75-35-4	-		-		5.00E-02	I	2.00E-01	I	1	-	1.09E+03	1.19E+03
Dichloroethylene, 1,2- (Mixed Isomers)	540-59-0	-		-		9.00E-03	H	-		1	-	2.36E+03	1.29E+03
Dichloroethylene, 1,2-cis-	156-59-2	-		-		2.00E-03	I	-		1	-	2.35E+03	2.37E+03
Dichloroethylene, 1,2-trans-	156-60-5	-		-		2.00E-02	I	6.00E-02	P	1	-	2.36E+03	1.67E+03
Dichloropropane, 1,2-	78-87-5	3.60E-02	C	1.00E-05	C	9.00E-02	A	4.00E-03	I	1	-	3.57E+03	1.36E+03
Dichloropropane, 1,3-	142-28-9	-		-		2.00E-02	P	-		1	-	6.37E+03	1.49E+03
Dichloropropane, 2,2-	594-20-7	-		-		-		-		1	-	1.42E+03	5.27E+02
Dichloropropanol, 2,3-	616-23-9	-		-		3.00E-03	I	-		1	0.1	-	-
Dichloropropene, 1,3-	542-75-6	1.00E-01	I	4.00E-06	I	3.00E-02	I	2.00E-02	I	1	-	3.35E+03	1.57E+03
Dichloropropene, 2,3-	78-88-6	-		-		-		-		1	0.1	2.91E+03	1.07E+03
Dichloropropene, cis-1,3-	10061-01-5	-		-		-		-		1	0.1	3.34E+03	1.22E+03
Dichloropropene, trans-1,3-	10061-02-6	-		-		-		-		1	0.1	3.35E+03	1.57E+03
Ethylbenzene	100-41-4	1.10E-02	C	2.50E-06	C	1.00E-01	I	1.00E+00	I	1	-	5.34E+03	4.80E+02
Acenaphthene	83-32-9	-		-		6.00E-02	I	-		1	0.13	1.32E+05	-
Acenaphthylene	208-96-8	-		-		-		-		1	0.13	1.78E+05	-
Anthracene	120-12-7	-		-		3.00E-01	I	-		1	0.13	4.93E+05	-
Benz[a]anthracene	56-55-3	7.30E-01	W	1.10E-04	C	-		-		1	0.13	-	-
Benzo(j)fluoranthene	205-82-3	1.20E+00	C	1.10E-04	C	-		-		1	0.13	-	-
Benzo[a]pyrene	50-32-8	7.30E+00	I	1.10E-03	C	-		-		1	0.13	-	-

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ca** (Where nc SL < 10 x ca SL),
max=SL exceeds ceiling limit (see User's Guide), sat=SL exceeds csat

Chemical	Particulate Emission Factor (m^3/kg)	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)	Screening Level (mg/kg)
Benzene	9.46E+08	5.78E+01	-	5.82E+00	5.29E+00	4.54E+03	-	4.86E+02	4.39E+02	5.29E+00 ca*
Dichlorobenzene	9.46E+08	-	-	-	-	-	-	-	-	
Dichlorobenzene, 1,2-	9.46E+08	-	-	-	-	1.02E+05	-	1.07E+04	9.69E+03	9.69E+03 sat
Dichlorobenzene, 1,3-	9.46E+08	-	-	-	-	-	-	-	-	
Dichlorobenzene, 1,4-	9.46E+08	5.89E+02	-	1.22E+01	1.19E+01	7.95E+04	-	3.83E+04	2.58E+04	1.19E+01 ca
Dichloroethane, 1,1-	9.46E+08	5.58E+02	-	1.67E+01	1.62E+01	2.27E+05	-	-	2.27E+05	1.62E+01 ca
Dichloroethane, 1,2-	9.46E+08	3.49E+01	-	2.26E+00	2.12E+00	6.81E+03	-	1.47E+02	1.44E+02	2.12E+00 ca*
Dichloroethylene, 1,1-	9.46E+08	-	-	-	-	5.68E+04	-	1.06E+03	1.04E+03	1.04E+03 nc
Dichloroethylene, 1,2- (Mixed Isomers)	9.46E+08	-	-	-	-	1.02E+04	-	-	1.02E+04	1.02E+04 sat
Dichloroethylene, 1,2-cis-	9.46E+08	-	-	-	-	2.27E+03	-	-	2.27E+03	2.27E+03 nc
Dichloroethylene, 1,2-trans-	9.46E+08	-	-	-	-	2.27E+04	-	6.90E+02	6.70E+02	6.70E+02 nc
Dichloropropane, 1,2-	9.46E+08	8.83E+01	-	4.86E+00	4.61E+00	1.02E+05	-	6.94E+01	6.94E+01	4.61E+00 ca*
Dichloropropane, 1,3-	9.46E+08	-	-	-	-	2.27E+04	-	-	2.27E+04	2.27E+04 sat
Dichloropropane, 2,2-	9.46E+08	-	-	-	-	-	-	-	-	
Dichloropropanol, 2,3-	9.46E+08	-	-	-	-	3.41E+03	5.16E+03	-	2.05E+03	2.05E+03 nc
Dichloropropene, 1,3-	9.46E+08	3.18E+01	-	1.14E+01	8.39E+00	3.41E+04	-	3.26E+02	3.23E+02	8.39E+00 ca*
Dichloropropene, 2,3-	9.46E+08	-	-	-	-	-	-	-	-	
Dichloropropene, cis-1,3-	9.46E+08	-	-	-	-	-	-	-	-	
Dichloropropene, trans-1,3-	9.46E+08	-	-	-	-	-	-	-	-	
Ethylbenzene	9.46E+08	2.89E+02	-	2.91E+01	2.64E+01	1.14E+05	-	2.60E+04	2.11E+04	2.64E+01 ca
Acenaphthene	9.46E+08	-	-	-	-	6.81E+04	7.94E+04	-	3.67E+04	3.67E+04 nc
Acenaphthylene	9.46E+08	-	-	-	-	-	-	-	-	
Anthracene	9.46E+08	-	-	-	-	3.41E+05	3.97E+05	-	1.83E+05	1.83E+05 max
Benz[a]anthracene	9.46E+08	4.36E+00	5.08E+00	1.17E+05	2.34E+00	-	-	-	-	2.34E+00 ca**
Benzo(j)fluoranthene	9.46E+08	2.65E+00	3.09E+00	1.17E+05	1.43E+00	-	-	-	-	1.43E+00 ca**
Benzo[a]pyrene	9.46E+08	4.36E-01	5.08E-01	1.17E+04	2.34E-01	-	-	-	-	2.34E-01 ca**

Site-specific

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ca** (Where nc SL < 10 x ca SL),
max=SL exceeds ceiling limit (see User's Guide), sat=SL exceeds csat

Chemical	CAS Number	Ingestion SF $(mg/kg\text{-}day)^{-1}$	SFO Ref	Inhalation Unit Risk $(ug/m^3)^{-1}$	IUR Ref	Chronic RfD (mg/kg-day)	RfD Ref	Chronic RfC (mg/m^3)	RfC Ref	GIABS	ABS	Volatilization Factor (m^3/kg)	Soil Saturation Concentration (mg/kg)
Benzo[b]fluoranthene	205-99-2	7.30E-01	W	1.10E-04	C	-		-		1	0.13	-	-
Benzo[g,h,i]perylene	191-24-2	-		-		-		-		1	0.13	-	-
Benzo[k]fluoranthene	207-08-9	7.30E-02	W	1.10E-04	C	-		-		1	0.13	-	-
Chrysene	218-01-9	7.30E-03	W	1.10E-05	C	-		-		1	0.13	-	-
Dibenz[a,h]anthracene	53-70-3	7.30E+00	W	1.20E-03	C	-		-		1	0.13	-	-
Dibenzo(a,e)pyrene	192-65-4	1.20E+01	C	1.10E-03	C	-		-		1	0.13	-	-
Fluoranthene	206-44-0	-		-		4.00E-02	I	-		1	0.13	-	-
Fluorene	86-73-7	-		-		4.00E-02	I	-		1	0.13	2.65E+05	-
Indeno[1,2,3-cd]pyrene	193-39-5	7.30E-01	W	1.10E-04	C	-		-		1	0.13	-	-
Methylnaphthalene, 1-	90-12-0	2.90E-02	P	-		7.00E-02	A	-		1	0.13	5.52E+04	-
Methylnaphthalene, 2-	91-57-6	-		-		4.00E-03	I	-		1	0.13	5.46E+04	-
Naphthalene	91-20-3	-		3.40E-05	C	2.00E-02	I	3.00E-03	I	1	0.13	4.36E+04	-
Phenanthrene	85-01-8	-		-		-		-		1	0.13	6.06E+05	-
Pyrene	129-00-0	-		-		3.00E-02	I	-		1	0.13	2.24E+06	-
Tetrachloroethylene	127-18-4	2.10E-03	I	2.60E-07	I	6.00E-03	I	4.00E-02	I	1	-	2.21E+03	1.66E+02
Trichloroethylene	79-01-6	4.60E-02	I	4.10E-06	I	5.00E-04	I	2.00E-03	I	1	-	2.08E+03	6.92E+02
Trimethylbenzene, 1,2,3-	526-73-8	-		-		-		5.00E-03	P	1	-	8.89E+03	2.93E+02
Trimethylbenzene, 1,2,4-	95-63-6	-		-		-		7.00E-03	P	1	-	7.45E+03	2.19E+02
Trimethylbenzene, 1,3,5-	108-67-8	-		-		1.00E-02	X	-		1	-	6.22E+03	1.82E+02
Vinyl Chloride	75-01-4	7.20E-01	I	4.40E-06	I	3.00E-03	I	1.00E-01	I	1	-	9.00E+02	3.92E+03
Xylenes	1330-20-7	-		-		2.00E-01	I	1.00E-01	I	1	-	5.48E+03	2.58E+02

Site-specific

Outdoor Worker Risk-Based Screening Levels (RSL) for Soil
ca=Cancer, nc=Noncancer, ca* (Where nc SL < 100 x ca SL),
ca** (Where nc SL < 10 x ca SL),
max=SL exceeds ceiling limit (see User's Guide), sat=SL exceeds csat

Chemical	Particulate Emission Factor (m^3/kg)	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)	Screening Level (mg/kg)
Benzo[b]fluoranthene	9.46E+08	4.36E+00	5.08E+00	1.17E+05	2.34E+00	-	-	-	-	2.34E+00 ca**
Benzo[g,h,i]perylene	9.46E+08	-	-	-	-	-	-	-	-	
Benzo[k]fluoranthene	9.46E+08	4.36E+01	5.08E+01	1.17E+05	2.34E+01	-	-	-	-	2.34E+01 ca**
Chrysene	9.46E+08	4.36E+02	5.08E+02	1.17E+06	2.34E+02	-	-	-	-	2.34E+02 ca**
Dibenz[a,h]anthracene	9.46E+08	4.36E-01	5.08E-01	1.07E+04	2.34E-01	-	-	-	-	2.34E-01 ca**
Dibenzo(a,e)pyrene	9.46E+08	2.65E-01	3.09E-01	1.17E+04	1.43E-01	-	-	-	-	1.43E-01 ca**
Fluoranthene	9.46E+08	-	-	-	-	4.54E+04	5.29E+04	-	2.44E+04	2.44E+04 nc
Fluorene	9.46E+08	-	-	-	-	4.54E+04	5.29E+04	-	2.44E+04	2.44E+04 nc
Indeno[1,2,3-cd]pyrene	9.46E+08	4.36E+00	5.08E+00	1.17E+05	2.34E+00	-	-	-	-	2.34E+00 ca**
Methylnaphthalene, 1-	9.46E+08	1.10E+02	1.28E+02	-	5.90E+01	7.95E+04	9.26E+04	-	4.28E+04	5.90E+01 ca
Methylnaphthalene, 2-	9.46E+08	-	-	-	-	4.54E+03	5.29E+03	-	2.44E+03	2.44E+03 nc
Naphthalene	9.46E+08	-	-	1.75E+01	1.75E+01	2.27E+04	2.65E+04	6.37E+02	6.05E+02	1.75E+01 ca*
Phenanthrene	9.46E+08	-	-	-	-	-	-	-	-	
Pyrene	9.46E+08	-	-	-	-	3.41E+04	3.97E+04	-	1.83E+04	1.83E+04 nc
Tetrachloroethylene	9.46E+08	1.51E+03	-	1.16E+02	1.08E+02	6.81E+03	-	4.30E+02	4.05E+02	1.08E+02 ca**
Trichloroethylene	9.46E+08	6.91E+01	-	6.91E+00	6.28E+00	5.68E+02	-	2.02E+01	1.95E+01	6.28E+00 ca**
Trimethylbenzene, 1,2,3-	9.46E+08	-	-	-	-	-	-	2.16E+02	2.16E+02	2.16E+02 nc
Trimethylbenzene, 1,2,4-	9.46E+08	-	-	-	-	-	-	2.54E+02	2.54E+02	2.54E+02 sat
Trimethylbenzene, 1,3,5-	9.46E+08	-	-	-	-	1.14E+04	-	-	1.14E+04	1.14E+04 sat
Vinyl Chloride	9.46E+08	4.42E+00	-	2.79E+00	1.71E+00	3.41E+03	-	4.38E+02	3.88E+02	1.71E+00 ca
Xylenes	9.46E+08	-	-	-	-	2.27E+05	-	2.67E+03	2.64E+03	2.64E+03 sat

Amungwafor, Binyoti - DNR

From: Ryan, Nancy D - DNR
Sent: Tuesday, July 24, 2012 11:45 AM
To: Sheikholeslami, Bizhan - DNR; Amungwafor, Binyoti - DNR
Subject: RE: Lakefield Sand and Gravel/MSOE Soil Cap plan

My comments (and see below too in red): My understanding of what Binyoti and I had agreed would be acceptable was: after hot spot excavations, allowing fill material from MSOE site to be moved to Lakefield S&G if the fill is then capped with a minimum of one foot of the native soil from the MSOE site and a minimum of one foot of clean, imported clay soil on top of the native.
Since the depth to fill varies at the site and no screening process was discussed, Sigma would need to elaborate on how they would screen "native" vs. fill to ensure that the first cap layer over the fill is native soil. So option 2 would be ok as long as they can propose a satisfactory screening method to distinguish fill from native soil.

I'm not sure what you mean regarding the third option.

I'll be available after lunch to discuss if you like.

Nancy D. Ryan
Hydrogeologist
Bureau for Remediation and Redevelopment
Wisconsin Department of Natural Resources
2300 N. Dr. Martin Luther King, Jr. Dr.
Milwaukee, WI 53212
(☎) phone: (414) 263-8533
(✉) e-mail: nancy.ryan@wisconsin.gov

From: Sheikholeslami, Bizhan - DNR
Sent: Tuesday, July 24, 2012 10:11 AM
To: Amungwafor, Binyoti - DNR; Ryan, Nancy D - DNR
Subject: FW: Lakefield Sand and Gravel/MSOE Soil Cap plan

Let's have a call today sometimes. I still don't see the proposed cap. I suggest the following cap sent to her.

from top to bottom

3 inch top soil and seed
Option 1 2 feet fine grain soil/clay meeting 10-5 permeability or better NR 506.08(3)(a)
Option 2 OR 1 foot fine grain soil/clay meeting 10-5 plus one foot least contaminated fine grained soil/clay from the site I think this option should be acceptable if: they are talking about the native soil under the fill and they have excavated the hot spot areas and they can propose a satisfactory method for how they will monitor/screen what is native.
Option 3 OR 1 foot fine grain soil meeting 10-5/clay plus 2 feet of least contaminated soil from the site. I'm not sure what the definition of "least contaminated soil" from the site is. Is it native? Or soil/fill from below a certain depth?

All above soil must be compacted at 8 inch lift

What do you think?

They have already moved contaminated soils to a landfill and have started moving less contaminated soils to a landfill most likely Veolia.

Bizhan Zia Sheikholeslami
Bizhan Zia Sheikholeslami
Environmental Engineer
Waste and Materials Management Program
Southeast Region - Waukesha Service Center
Wisconsin Department of Natural Resources
141 NW Barstow St., Room 180
Waukesha, WI, 53188
(☎) phone: (262) 574-2143
(☎) fax: (262) 574-2117
(✉) e-mail: bizhan.sheikholeslami@wisconsin.gov
DNR Internet Address: www.dnr.wi.gov

From: Kristin Kurzka [mailto:kkurzka@thesigmagroup.com]
Sent: Monday, July 23, 2012 10:08 AM
To: Amungwafor, Binyoti - DNR; Sheikholeslami, Bizhan - DNR
Cc: Randy Boness; Adam Roder
Subject: Lakefield Sand and Gravel/MSOE Soil Cap plan

Gentlemen,

Attached is our detailed fill/cap plan for the MSOE soil based on my recent conversation with Bizhan – which conflicts with our most recent conversation with Binyoti. Again we'd like to meet to discuss the specifics and clarify the requirements for the cap. Please call me at your earliest convenience.

Thank you,

Kristin Kurzka, P.E.
Senior Engineer
The Sigma Group
414.643.4127 (direct)
1300 W Canal Street, Milwaukee, WI 53233
kkurzka@thesigmagroup.com | www.thesigmagroup.com

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June 25, 2012 Project Reference #7743

Mr. Binyoti Amungwafor
c/o Ms. Victoria Stovall
Wisconsin Dept. of Natural Resources
2300 N. Martin Luther King Jr. Drive
Milwaukee, WI 53212

RE: Remedial Action Plan Approval Request
Former Lakefield Sand & Gravel Property
7003 West Good Hope Road, Milwaukee, Wisconsin
WDNR BRRTS No. 02-41-548828 FID No. 241377070

Dear Mr. Amungwafor:

On behalf of the Clifford H. Hendricks Revocable Trust and Good Lad, LLC, the property co-owners, Sigma Environmental Services, Inc. (Sigma) has prepared this letter to present the latest round of groundwater sampling results and to request Wisconsin Department of Natural Resources (WDNR) approval of the November 2, 2007 Remedial Action Plan (RAP) (**Appendix A**) for the former Lakefield Sand and Gravel property. A check in the amount of $500 for a technical review is attached.

BACKGROUND
On April 17, 2012, Sigma personnel representing Clifford H. Hendricks Revocable Trust and Good Lad, LLC, met with WDNR personnel to discuss the current status of the site as well as to develop a path to closure. Based on the results of our discussion, the following scope of activities was developed:

- Information regarding possible filling of properties to the north, south and west of the Lakefield Sand and Gravel would be presented,
- Groundwater sampling would be conducted to evaluate current groundwater quality and the potential need for a groundwater monitoring well at the southwestern property boundary, and
- A path to site closure would be developed.

The groundwater sampling results, adjacent site information and proposed path to closure are presented below.

HISTORIC FILLING ACTIVITIES – ADJACENT PROPERTIES
To evaluate the potential for off-site sources or possible contribution to on-site groundwater quality, Sigma conducted a review of available information regarding the Milwaukee County owned Uhlein Soccer fields to the north, the Milwaukee County owned former Melody Top property to the west and the private property to the south (across the rail road tracks) specifically as it relates to historic filling activities. Each property is discussed as follows:

Appendix D

June 25, 2012, Remedial Action Plan Approval Request

Uihlein Soccer Fields – Milwaukee County Property
Review of the available site-specific information included:

May 3, 1991: *Phase I Environmental Site Assessment, Uihlein Polo Field, 7003 West Good Hope Road, Milwaukee, Wisconsin,* prepared by Dames and Moore

June 1994: *Phase II Investigation Report Uihlein Polo Field, 7003 West Good Hope Road, Milwaukee, Wisconsin,* prepared by Vijay Environmental, Inc.

Information provided in these reports indicated that prior to development as the soccer fields the property was an undeveloped portion of the J. Tobin estate and later was used as a polo field. Soil borings completed in 1994 on the Milwaukee County side of the Lakefield Sand and Gravel property boundary show no significant fill materials but soil comprised primarily of clayey silt units with interbedded sand and/or gravel rich units and sand and/or gravel seams. A figure showing the locations of the soil borings and the applicable soil boring logs are included in **Appendix B.**

Former Melody Top – Milwaukee County Property
Review of the available site-specific information included:

June 1991: *Phase II Environmental Assessment of Property at 7201 West Good Hope Road, Milwaukee, Wisconsin,* prepared by Graef, Anhalt, Schloemer & Associates

October 16, 2000: *Phase I Environmental Site Assessment, Former Melody Top, 7201 West Good Hope Road, Milwaukee, Wisconsin,* prepared by Key Engineering Group, Ltd

Information provided in this report indicated that the land was undeveloped prior to use as an outdoor theater between 1963 and approximately 1988. The property has been vacant since approximately 1988. Apparent dumping of containers and materials was noted on the property in 1991 including the presence of drums/barrels within a pond located on the property.

Soil beneath the site consists primarily of clay and silt. No evidence of filling below ground was noted within the three soil borings completed at the site. Groundwater sampling indicated the presence of chlorinated volatile organic compounds (CVOCs) within two of the site's three groundwater monitoring wells. The soil boring locations figure and the soil boring logs are included in **Appendix C.**

Private Properties South of Tracks
A 1963 aerial photograph of the Lakefield Sand and Gravel property and the surrounding area shows land disturbance attributed to the land filling activities on the Lakefield Sand and Gravel property and on a similar triangular shaped property south of the railroad tracks. This aerial photograph is included in **Appendix D.** The southern property is currently comprised of three separate parcels as determined through Map Milwaukee:

6710-6732 N. Industrial Road: Owned by the City of Milwaukee and is in use as a DPW Station.

6750 N. Industrial Road: Owned by Midwest Park LLC, and appears to be occupied by J&J Salvage Auto Wrecking Parts (BRRTS #02-41-513575, FID#341083050).

6780 N. Industrial Road: Owned by North Industrial Property and appears to be used for parking/staging of vehicles possibly by J&J Salvage.

Review of the BRRTS web page for J&J Salvage indicates no activity at the site since a release was reported on October 10, 2003.

SUMMARY OF GROUNDWATER SAMPLING

Groundwater Sampling Activities

Static Water Level Measurements

Static water levels were obtained from the monitoring well network On April 6, 2012 and June 8, 2012 to determine the horizontal groundwater flow direction and monitor temporal fluctuations in the water table. The water levels were measured with an electronic water level indicator to the nearest one-hundredth of a foot and were referenced to the surveyed monitoring well top of casing elevation.

Groundwater Sampling and Analysis

Groundwater samples were collected from the monitoring well network on June 8, 2012. Groundwater samples collected from the entire monitoring well network were submitted for laboratory analysis of RCRA metals, volatile organic compounds (VOCs) and polynuclear aromatic hydrocarbons (PAHs).

A duplicate groundwater sample and equipment blank were also submitted during the groundwater sampling events for quality assurance/quality control purposes. Duplicate groundwater samples were collected as a means to measure laboratory precision. Equipment blanks were analyzed to determine if contaminants infiltrated the sample during transportation or field procedures.

Investigative Waste Handling

Groundwater monitoring well purge water was transported to Prot Washington wastewater treatment facility for proper treatment and disposal.

Site Hydrogeology

The site's monitoring well network indicates groundwater is present within the noted fill material at depths between 8 and 26 feet below ground surface (bgs) and consistently flows in a south southwestward direction. The groundwater elevation data are presented in **Table 1.** A groundwater contour map is provided in **Appendix E.**

Analytical Results

Review of the groundwater data indicates that the individual RCRA metals, PAHs and VOCs were detected at similar or lower concentrations relative to the December 2006 sampling event. More specifically:

RCRA Metals - Concentrations of arsenic greater than the ch. NR 140 Preventive Action Limit (PAL) but significantly less than the Enforcement Standard (ES) were detected within groundwater samples collected from monitoring wells MW-1, PZ-2, and MW-N3. In addition, the detected concentrations were less than previously reported concentrations of arsenic at each location.

Polynuclear Aromatic Hydrocarbons - Concentrations of select PAH constituents were detected within four of the ten groundwater samples collected from the site. The reported concentrations, with the exception of naphthalene at monitoring wells MW-2 (9.3 µg/l),

MW-3 (8.2 µg/l), and MW-4 (550 µg/l) were all detected between the limit of quantitation and limit of quantification. The detection of naphthalene was the only PAH constituent present at a concentration greater than its ch. NR 140 ES.

Volatile Organic Carbons - Detected concentrations of benzene, although greater than ch. NR 140 ES, were consistent with previously detected concentrations at monitoring wells MW-2 (15.2 µg/l), MW-3 (54 µg/l), MW-4 (152 µg/l), MW-N3 (2.76 µg/l), MW-N6 (6.9 µg/l) and MW-N7 (0.74 µg/l). In addition, ethylbenzene (312 µg/l) and total trimethylbenzenes (724 µg/l) were detected at concentrations greater than their ch. NR 140 PALs within the groundwater sample collected from monitoring well MW-4.

Select CVOCs were present at concentrations at or less than previous detections including chloroethane (1180 µg/l) at monitoring well MW-4 and trichloroethene (TCE) at monitoring well MW-N5 (1.73 µg/l). No other CVOCs were detected at concentrations greater than the method detection limits.

No other VOCs were detected at concentrations greater than the method detection limits within the samples collected from the site groundwater monitoring well network.

The groundwater analytical results are summarized in **Table 1** and on **Figure 1.** The laboratory reports are included in **Appendix E.**

PROPOSED PATH TO CLOSURE/RECOMMENDATION

As stated in the November 7, 2007 Remedial Action Plan, future development of the property is limited by site constraints including: limited access (i.e. the property is essentially landlocked) and the presence of the fill mass complicates building constructability. An adjacent property owner, Milwaukee County, however has expressed interest in acquiring the land to construct more soccer fields. With this end use in mind, the initial remedial approach of capping the shallow impacted soils within clean soil is appropriate.

Therefore, based on the June 2012 groundwater sampling results, the adjacent properties histories, and the proposed long term ownership and use of the property, Sigma requests that the WDNR approve the proposed remedial strategy.

Please call me at 414-643-4127 if you have any questions. I will call you soon to set up a meeting to discuss the requested approval.

Sincerely,

SIGMA ENVIRONMENTAL SERVICES, INC.

Kristin Kurzka, P.E.
Senior Engineer

Randy E. Boness, P G.
Geosciences Group Leader

kal

cc: Mr. John Gehringer, Esq. - O'Neil, Cannon, Hollman, DeJong, S.C.

List of Appendices:

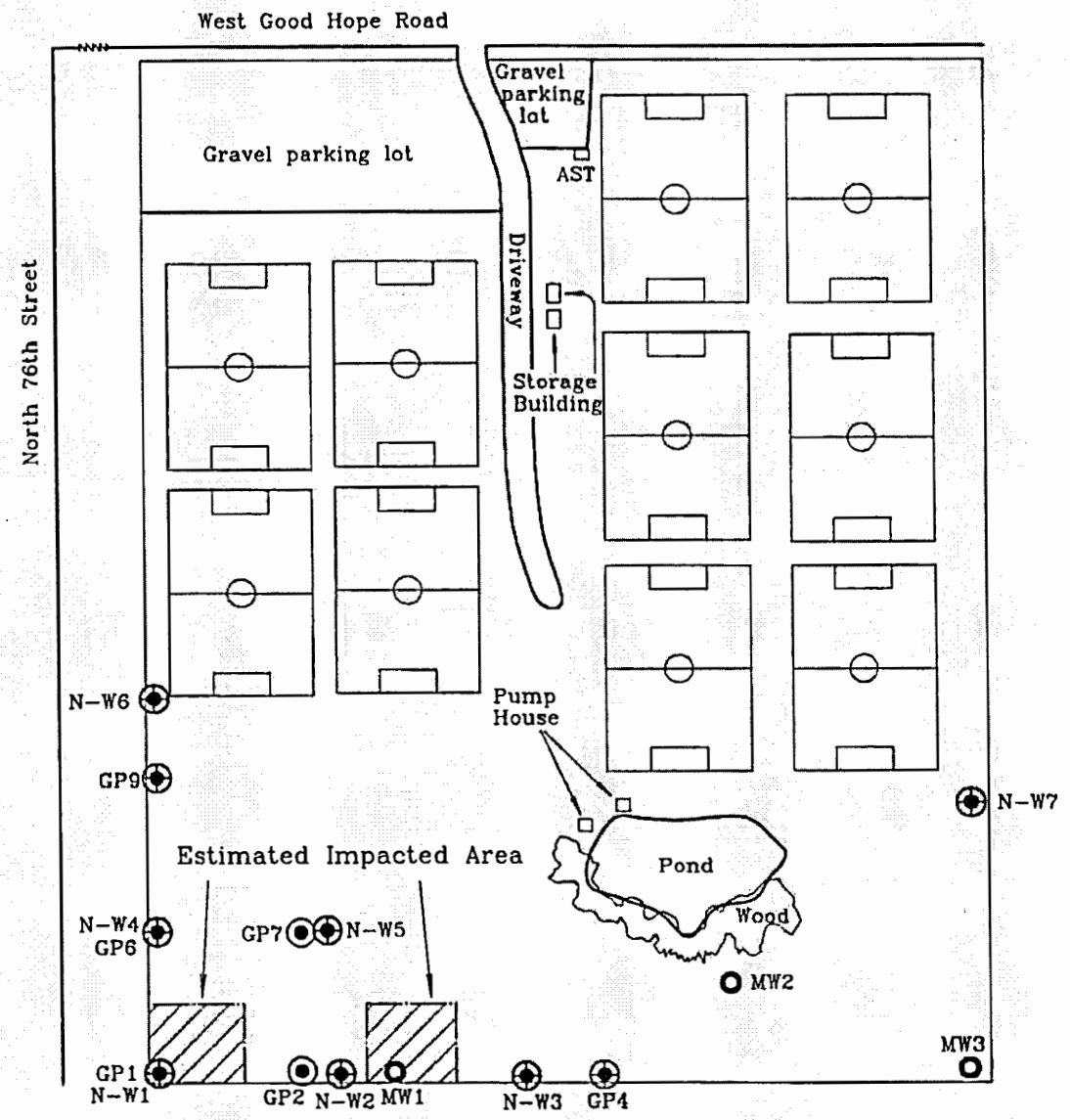
Appendix A	November 7, 2007 Remedial Action Plan
Appendix B	Uihlein Soccer Fields Soil Boring Logs and Figure
Appendix C	Former Melody Top Soil Boring Logs and Figure
Appendix D	1963 Aerial Photograph
Appendix E	Lakefield Sand & Gravel Groundwater Sampling Results: figures, tables and lab reports

APPENDIX A

November 7, 2007 Remedial Action Plan

APPENDIX B

Uihlein Soccer Fields Soil Boring Logs and Figure



LEGEND		Project	Polo Field
MW2	Existing monitoring well location	Vijay Environmental Inc.	
N-W2	Monitoring well location	614 W. Brown Deer Road, Milwaukee, WI 53217 Phone: (414)-352-9491 Fax: (414)-351-1417	
GP2	Geoprobe soil sample location	Figure 7. Estimated Area of Groundwater Impact	
GP4	Geoprbe water sample location		
Scale: 1" = 300'	0 150 300 ft	Drawn: XZ	Date: 6/5/1994

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Superfund ☐ Other

SOIL BORING LOG INFORMATION
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Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Uihlein Polo Field		N-W1

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
M&K Environmental Drilling, Mike McArdle	5/16/94	5/16/94	Hollow-Stem Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		N-W1	Feet MSL	Feet MSL	8 inches

Boring Location
State Plane ____ N, ____ E S/C/N
NE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 E/W
Lat ° ' "
Long ° ' "

Local Grid Location (If applicable)
☐ N ☐ E
____ Feet ☐ S ____ Feet ☐ W

County	DNR County Code	Civil Town/City/ or Village
Milwaukee		Milwaukee

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
1		13		0-1' Black top soil, Silty clay				0						
2		23	5	1-5.5' Brown Silty clay with accessory gravels	CL			0		Moist				
3		46		5.5-9.5' Brown Clayey Silt and Sand with traces of gravels	ML			0						
4		22	10	9.5-10.5' Brown medium Sand	SW			0		Wet				
5		25		10.5-12' Brown Clayey Sand	SC			0						
				12-13' Medium to Coarse Sand	SP									
6		17	15	13-14.5' Coarse Sand				0						
				14.5-15' Grey Clayey Silt and Sand	ML									
				End of Boring at 15.5'										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Xiaomeo Jiang Firm: Vijay Environmental, Inc.

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Superfund ☐ Other

SOIL BORING LOG INFORMATION
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Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Uihlein Polo Field		N-W2

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started	Date Drilling Completed	Drilling Method
M&K Environmental Drilling, Mike McArdle	5/17/94	5/17/94	Hollow Stem Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		N-W1	Feet MSL	Feet MSL	8 inches

Boring Location
State Plane ____ N, ____ E S/C/N
NE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 E/W
Lat ° ' "
Long ° ' "

Local Grid Location (If applicable)
☐ N ☐ E
____ Feet ☐ S ____ Feet ☐ W

County	DNR County Code	Civil Town/City/ or Village
Milwaukee		Milwaukee

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
1		9	0	0-4' Black silty clay with gravels and boulders	CL			0						
2		12	5	4-8' Brown clayey silt with accessory gravels	ML			0						
3		29						0		moist				
4		26		8-10.5' Brown Clayey Silt and Sand with accessory gravels	ML			0						
5		30	10	10.5-14.5' Grey medium to coarse Sand	SP			0		wet				
6		37		14.5-15' Grey Silty clay	CL			0						
			15	15-15.5 Sand and gravel	SP									
				end of boring at 15.5'										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Xiaomao Zhang Firm Vijay Environmental, Inc.

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other _____

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Uihlein Polo Field		N-W3

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (MM DD YY)	Date Drilling Completed (MM DD YY)	Drilling Method
M&K Environmental Drilling, Mike McArdle	5 17 94	5 17 94	Hollow Stem Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		N-W3	____ Feet MSL	____ Feet MSL	8 inches

Boring Location
State Plane _____ N, _____ E S/C/N | Lat ___ ___ ___
NE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 (E)W | Long ___ ___ ___

Local Grid Location (If applicable)
____ Feet ☐ N ☐ S ____ Feet ☐ E ☐ W

County	DNR County Code	Civil Town/City/ or Village
Milwaukee		Milwaukee

Sample Number	Sample Length Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1		14	0	0-1' Black top soil										
				1-3' Brown Silty clay with organic relics	OL			0						
2		17	5	3-6' Brown Silty clay	CL			0						
3		22		6-13' Brown Clayey Silt and Sand with accessory gravels				0						
4		36	10		ML			3		Moist				
5		12						0						
6		12	15	13-17' Grey clayey Silt with traces of gravels	ML			0		Wet				
				End of boring at 17'										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Xiaomao Zhang | Firm: Vijay Environmental, Inc.

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other _____

SOIL BORING LOG INFORMATION

Form 4400-122 7-91

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Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Uihlein Polo Field		N-W4

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (M M D D Y Y)	Date Drilling Completed (M M D D Y Y)	Drilling Method
M&K Environmental Drilling, Mike McArdle	5/16/94	5/16/94	Hollow Stem Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		N-W4	_____ Feet MSL	_____ Feet MSL	8 inches

Boring Location
State Plane _____ N, _____ E S/C/N | Lat ___ ___ ___
NE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 (E/W) | Long ___ ___ ___

Local Grid Location (If applicable)
_____ Feet ☐ N ☐ S _____ Feet ☐ E ☐ W

County	DNR County Code	Civil Town/(City)/ or Village
Milwaukee		Milwaukee

Sample Number	Sample Length Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1		19		0-1' Black top Soil 1-2.3' Brown Silty clay	CL			6		Moist				
2		33	5	2.3-5' Brown Sand and gravel	SP			0		Wet				
3		16		5-9' Brown Silty clay with traces of gravel and limestone fragments	CL			0						
4		36	10					0						
5		44		9-20' Grey Silty clay or clayey Silt, with traces of gravels and rock fragments	ML			0		Moist				
6		51	15					1						
7		29						0		Wet				
			20	End of boring at 20'										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Xiaomao Zhang Firm Vijay Environmental, Inc.

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 for each violation. Fined not less than $10 or more than $100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other _____

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Uihlein Polo Field	_ _ _ _ _ _ _ _	N-W5

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (M M D D Y Y)	Date Drilling Completed (M M D D Y Y)	Drilling Method
M&K Environmental Drilling, Mike McArdle	5 1 1 6 9 4	5 1 1 6 9 4	Hollow Stem Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _ _	_ _ _ _ _ _ _ _	N-W5	_____ Feet MSL	_____ Feet MSL	8 inches

Boring Location
State Plane _____ N, _____ E S/C/N
NE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 (E)W
Lat _ _ _ Long _ _ _

Local Grid Location (If applicable)
_____ Feet ☐ N ☐ S _____ Feet ☐ E ☐ W

County	DNR County Code	Civil Town/City/ or Village
Milwaukee	_ _	Milwaukee

Sample Number	Sample Length Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1		10		0-1' Black top soil				0						
				1-9' Brown Silty clay with traces of gravels	CL									
2		8	5					114						
3		35						9		Moist				
4		32	10	9-15' Grey Silty clay or clayey silt with accessory gravels				51						
5		20			ML			0		Wet				
6		18	15					4						
				End of boring at 15.5'										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
Xiaomao Zhang	Vijay Environmental, Inc.

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State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other _____

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Uihlein Polo Field	_ _ _ _ _ _ _ _	N-w6

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (M M D D Y Y)	Date Drilling Completed (M M D D Y Y)	Drilling Method
	5/16/94	5/16/94	Hollow Stem Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _	_ _ _ _ _ _ _ _	N-w6	_____ Feet MSL	_____ Feet MSL	8 inches

Boring Location
State Plane _____ N, _____ E S/C/N | Lat _____ Long _____
NE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 E/W

Local Grid Location (If applicable)
_____ Feet ☐ N ☐ S _____ Feet ☐ E ☐ W

County: Milwaukee | DNR County Code: _____ | Civil Town/City/or Village: Milwaukee

Sample Number	Sample Length Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1		16		0-1' Black top soil 1-3' Brown to grey Sandy clay with traces of gravels	CL			0						
2		17	5	3-13' Grey Silty clay or clayey silt with traces of gravels	ML			0						
3		17						0						
4		24	10					0		Moist				
5		29						0						
				13-14.5' Silt and fine sand	SM					Wet				
6		21	15	14.5-15' medium sand	SW			0						
				End of boring at 15.5'										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Xiaomeo Huang | Firm: Vijay Environmental, Inc

State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Superfund ☐ Other _____

SOIL BORING LOG INFORMATION
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Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Uihlein Polo Field	_ _ _ _ _ _ _ _	N-W7

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (M M D D Y Y)	Date Drilling Completed (M M D D Y Y)	Drilling Method
M&K Environmental Drilling, Mike McArdle	5/17/94	5/17/94	Hollow Stem Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _	_ _ _ _ _ _ _ _	N-W7	_____ Feet MSL	_____ Feet MSL	8 inches

Boring Location
State Plane _____ N, _____ E S/C/N
NE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 E/W
Lat ° ' "
Long ° ' "

Local Grid Location (If applicable)
☐ N _____ Feet ☐ S ☐ E _____ Feet ☐ W

County	DNR County Code	Civil Town/City/ or Village
Milwaukee	_ _ _	Milwaukee

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
1		10	5	0-1' Black top soil 1-3' Brown Silty Clay	CL			0		Moist				
2		42		3-5' Sand and gravel	SP			0		Wet				
3				5-9' Brown clayey Silt and Sand with accessory gravels	ML			0						
4		35	10	9-11.5' Brown Silt and fine Sand	SM			0						
5		18		11.5-14' Grey Silty clay	CL			0		Moist				
6		25	15	14-14.5' Sand and gravel 14.5-20' Grey clayey silt	SP			0		Wet				
7		26	20	End of boring at 20'				0						

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Xiaoming Zhang Firm Vijay Environmental, Inc.

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State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other _____

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Uihlein Polo Field	_ _ _ _ _ _ _	SB-1

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (M M D D Y Y)	Date Drilling Completed (M M D D Y Y)	Drilling Method
M&K Environmental Drilling, Mike McArdle	5/17/94	5/17/94	Hollow Stem Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _	_ _ _ _ _ _ _ _		_____ Feet MSL	_____ Feet MSL	8 inches

Boring Location
State Plane _____ N, _____ E S/C/N | Lat ___ ___ ___ | Long ___ ___ ___
NE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 (E)W

Local Grid Location (If applicable)
_____ Feet ☐ N ☐ S _____ Feet ☐ E ☐ W

County	DNR County Code	Civil Town/City/ or Village
Milwaukee	_ _ _	Milwaukee

Sample Number	Sample Length Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
1		6	2.5	0-1' Black top soil 1-7' Brown clayey silt to clayer sand	ML					Moist				
2		9	5											
3		9	7.5	7-7.5' Grey silty clay with traces of gravels End of boring at 7.5'	CL					Wet				

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
Xiaoman Jiang	Vijay Environmental, Inc.

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State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

Page 1 of 1

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Uihein Polo Field		SB-2

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (M M D D Y Y)	Date Drilling Completed (M M D D Y Y)	Drilling Method
Vijay Environmental, Inc, Gopal Adhikary	5/18/94	5/18/94	Hand Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			Feet MSL	Feet MSL	3.5 inches

Boring Location
State Plane _____ N, _____ E S/C/N | Lat ___ ___ ___
NE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 E/W | Long ___ ___ ___

Local Grid Location (If applicable)
_____ Feet ☐ N ☐ S _____ Feet ☐ E ☐ W

County	DNR County Code	Civil Town/City/ or Village
Milwaukee		Milwaukee

Sample Number	Sample Length Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
				0-2' Black organic top soil	OL					wet/moist				
				2-4' Grey Silty clay	CL									
			5	End of boring at 4'										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Xiaomeng Zhang Firm Vijay Environmental, Inc

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State of Wisconsin
Department of Natural Resources

Route To:
☐ Solid Waste ☐ Haz. Waste
☐ Emergency Response ☐ Underground Tanks
☐ Wastewater ☐ Water Resources
☐ Other _____

SOIL BORING LOG INFORMATION
Form 4400-122 7-91

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Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Uihlein Polo Field	_ _ _ _ _ _ _ _	SB-3

Boring Drilled By (Firm name and name of crew chief)	Date Drilling Started (M M D D Y Y)	Date Drilling Completed (M M D D Y Y)	Drilling Method
Vijay Environmental, Inc., Gopal Adhikary	5/18/94	5/18/94	Hand Auger

DNR Facility Well No.	WI Unique Well No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
_ _ _	_ _ _ _ _ _ _		_____ Feet MSL	_____ Feet MSL	3.5 inches

Boring Location
State Plane _____ N, _____ E S/C/N | Lat _ _ _ _ _ _
NE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 E/W | Long _ _ _ _ _ _

Local Grid Location (If applicable)
_____ Feet ☐ N ☐ S _____ Feet ☐ E ☐ W

County	DNR County Code	Civil Town/City/ or Village
Milwaukee	_ _ _	Milwaukee

Sample Number	Sample Length Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/ Comments
			2.5	0-1' Black top soil 1-3' Grey silty clay with traces of gravels	CL					Moist				
			5	End of boring at 3'										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Xicomao Jhang | Firm Vijay Environmental, Inc.

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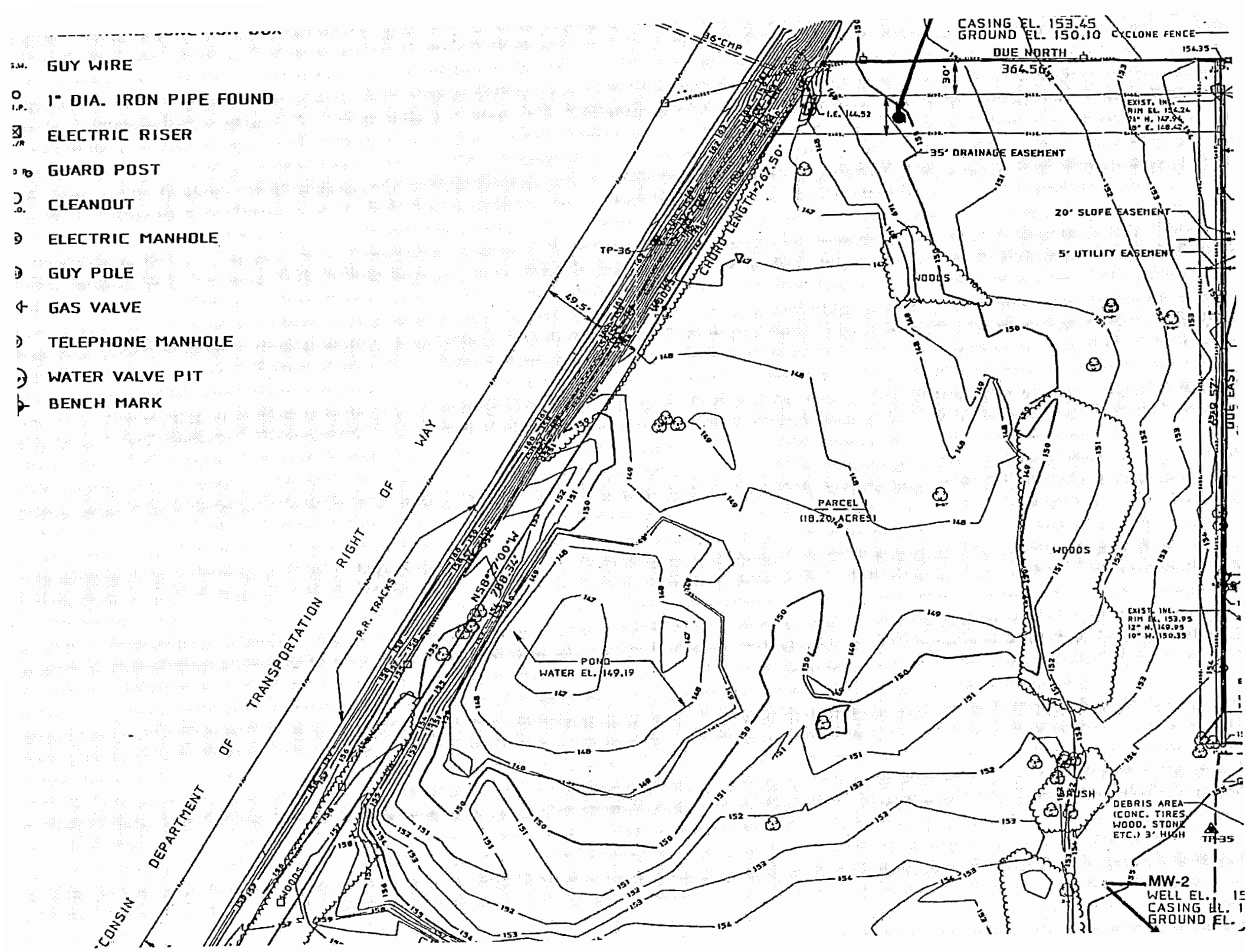
APPENDIX C

Former Melody Top Soil Boring Logs and Figure


GUY WIRE
1" DIA. IRON PIPE FOUND
ELECTRIC RISER
GUARD POST
CLEANOUT
ELECTRIC MANHOLE
GUY POLE
GAS VALVE
TELEPHONE MANHOLE
WATER VALVE PIT
BENCH MARK
CASING EL. 153.45
GROUND EL. 150.10
CYCLONE FENCE
DUE NORTH
364.56'
30'
I.E. 144.52
EXIST. INL.
RIM EL. 154.24
21" N. 147.94
18" E. 148.42
35' DRAINAGE EASEMENT
20' SLOPE EASEMENT
5' UTILITY EASEMENT
36"CMP
CHORD LENGTH=267.50'
TP-36
WOODS
49.5'
R.R. TRACKS
RIGHT OF WAY
DEPARTMENT OF TRANSPORTATION
N58°27'00"W
288.32'
PARCEL 1
(18.20 ACRES)
POND
WATER EL. 149.19
DUE EAST
EXIST. INL.
RIM EL. 153.95
12" N. 149.95
10" W. 150.35
BRUSH
DEBRIS AREA
(CONC. TIRES,
WOOD, STONE
ETC.) 3' HIGH
TP-35
MW-2
WELL EL.
CASING EL.
GROUND EL.

GRAEF
ANHALT
SCHLOEMER
and Associates Inc.

BORING LOG

FACILITY NAME MELODY TOP
DRILLED BY 72ND & GOOD HOPE
WELL NUMBER SB-1/MW-1 WI UNIQUE WELL No. _____
HOLE DIAMETER 8.25 INCHES
NW 1/4 OF NW 1/4 OF SECTION 22 T 8N , R 21E
COUNTY MILWAUKEE COUNTY CODE 41

LICENSE/PERMIT/MONITORING No. _____
DATE INSTALLED 5-6-91
SURFACE ELEVATION 156.9 FEET MSL
WATER LEVEL 7 FEET BELOW SURFACE
GRID LOCATION _____
CIVIL TOWN MILWAUKEE

DEPTH FEET	SAMP. NO.	SAMP. REC.	BLOWS/6 IN 0/6 6/12	OVM (ppm)	OVM (ppm) 0 5	USCS	GRAPHIC LOG	GEOLOGIC DESCRIPTION	REMARKS
								GRASS AND TOPSOIL	
2	SS-1	8"	2 2 3 4	0.0		OL		SOFT TO MEDIUM BROWN SILTY CLAY; TRACE OF ORGANICS	
4	SS-2	10"	3 5 5 7	0.0		ML		LOOSE TO MEDIUM LIGHT BROWN SANDY SILT; WET TRACE OF GRAVEL	
6	SS-3	7"	1 2 3 6	0.0					▽
8	SS-4	24"	7 6 8 11	0.0		ML		MEDIUM TO DENSE LIGHT BROWN TO YELLOWISH BROWN SILTY SAND AND GRAVEL; WET	
10	SS-5	24"	6 9 15 16	0.0		CL		MEDIUM TO STIFF GRAY SILTY CLAY, SOME SAND, TRACE OF GRAVEL	
12	SS-6	24"	11 10 14 28	0.0					
14								END OF BORING AT 13 FEET	
16									
18									

GRAEF
ANHALT
SCHLOEMER
and Associates Inc.

BORING LOG

FACILITY NAME MELODY TOP
DRILLED BY 72ND & GOOD HOPE
WELL NUMBER SB-2/MW-2 WI UNIQUE WELL No. _____
HOLE DIAMETER 8.25 INCHES
NW 1/4 OF NW 1/4 OF SECTION 22 T 8N , R 21E
COUNTY MILWAUKEE COUNTY CODE 41

LICENSE/PERMIT/MONITORING No. _____
DATE INSTALLED 5-6-91
SURFACE ELEVATION 156.7 FEET MSL
WATER LEVEL 13 FEET BELOW SURFACE
GRID LOCATION _____
CIVIL TOWN MILWAUKEE

DEPTH FEET	SAMP. NO.	SAMP. REC.	BLOWS/6 IN 0/6 6/12	OVM (ppm)	OVM (ppm) 0 5	USCS	GRAPHIC LOG	GEOLOGIC DESCRIPTION	REMARKS
								TOPSOIL AND GRASS	
2	SS-1	24"	4 8 9 11	0.0		SM		MEDIUM BROWN SAND; SOME SILT, MOIST	
4	SS-2	24"	11 12 14 14	0.0		SW		MEDIUM TO DENSE BROWN SAND AND GRAVEL	
6	SS-3	24"	18 10 14 17	1.3		CL		SILTY CLAY, TRACE GRAVEL, BROWNISH, MOIST RUST COLORED MOTTLES	LAB SAMPLE TAKEN FROM SS-3
8	SS-4	24"	10 11 15 17	0.8		CL		MEDIUM TO STIFF BROWN SILTY CLAY WITH TRACE OF GRAVEL	
10	SS-5	24"	17 11 13 13	0.2		CL		STIFF TO VERY STIFF GRAY CLAY, TRACE OF SAND AND GRAVEL	SOME FINE GREEN/BLACK SAND
12	SS-6	24"	13 13 14 16	0.8		CL			
14	SS-7	NR	29 20 14 30			CL		DENSE GRAY COARSE TO FINE SAND WITH GRAVEL, WELL SORTED; WET	▽
16	SS-8	24"	21 28 18 29	0.0		SW			
18								END OF BORING AT 17 FEET	

GRAEF
ANHALT
SCHLOEMER
and Associates Inc.

BORING LOG

FACILITY NAME MELODY TOP
DRILLED BY 72ND & GOOD HOPE
WELL NUMBER SB-3/MW-3 WI UNIQUE WELL No. _____
HOLE DIAMETER 8.25 INCHES
NW 1/4 OF NW 1/4 OF SECTION 22 T 8N , R 21E
COUNTY MILWAUKEE COUNTY CODE 41

LICENSE/PERMIT/MONITORING No. _____
DATE INSTALLED 5-6-91
SURFACE ELEVATION 150.1 FEET MSL
WATER LEVEL 6 FEET BELOW SURFACE
GRID LOCATION _____
CIVIL TOWN MILWAUKEE

DEPTH FEET	SAMP. NO.	SAMP. REC.	BLOWS/6 IN (0/6 6/12)	OVM (ppm)	OVM (ppm) (0 5)	USCS	GRAPHIC LOG	GEOLOGIC DESCRIPTION	REMARKS
								GRASS AND TOPSOIL	
2	SS-1	24"	6 9 5 3	1.8		SW		MEDIUM BROWN SAND AND GRAVEL	LAB SAMPLE TAKEN FROM SS-1
4	SS-2	24"	3 2 4 5	0.2		SM		LOOSE TO MEDIUM RUSTY BROWN SILTY SANDS, SOME GRAVEL; WET	
6	SS-3	24"	5 3 5 9	0.2		CL		MEDIUM BROWN SILTY CLAY; SOME SAND AND GRAVEL	▽
8	SS-4	NR	5 5 6 7	0.2					
10	SS-5	24"	4 5 6 7	0.0		CL		CLAY, SOME SAND AND GRAVEL; MOIST	
12	SS-6	24"	8 10 13 11	1.3					
14	SS-7	6"	6 8 8 8						
								END OF BORING AT 14.5 FEET	
16									
18									

APPENDIX D

1963 Aerial Photograph

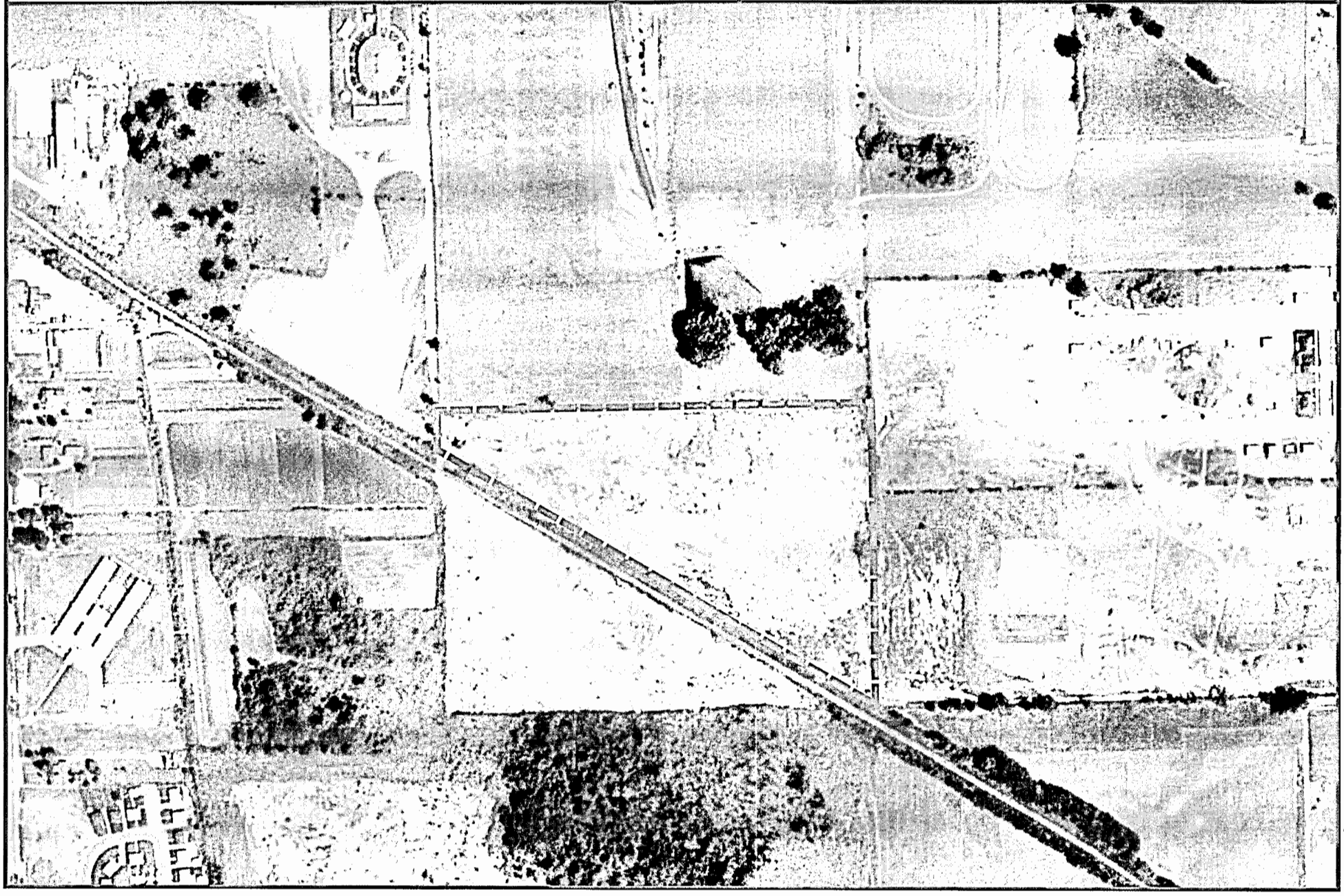
THE SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
414-643-4200

N

Project #7743

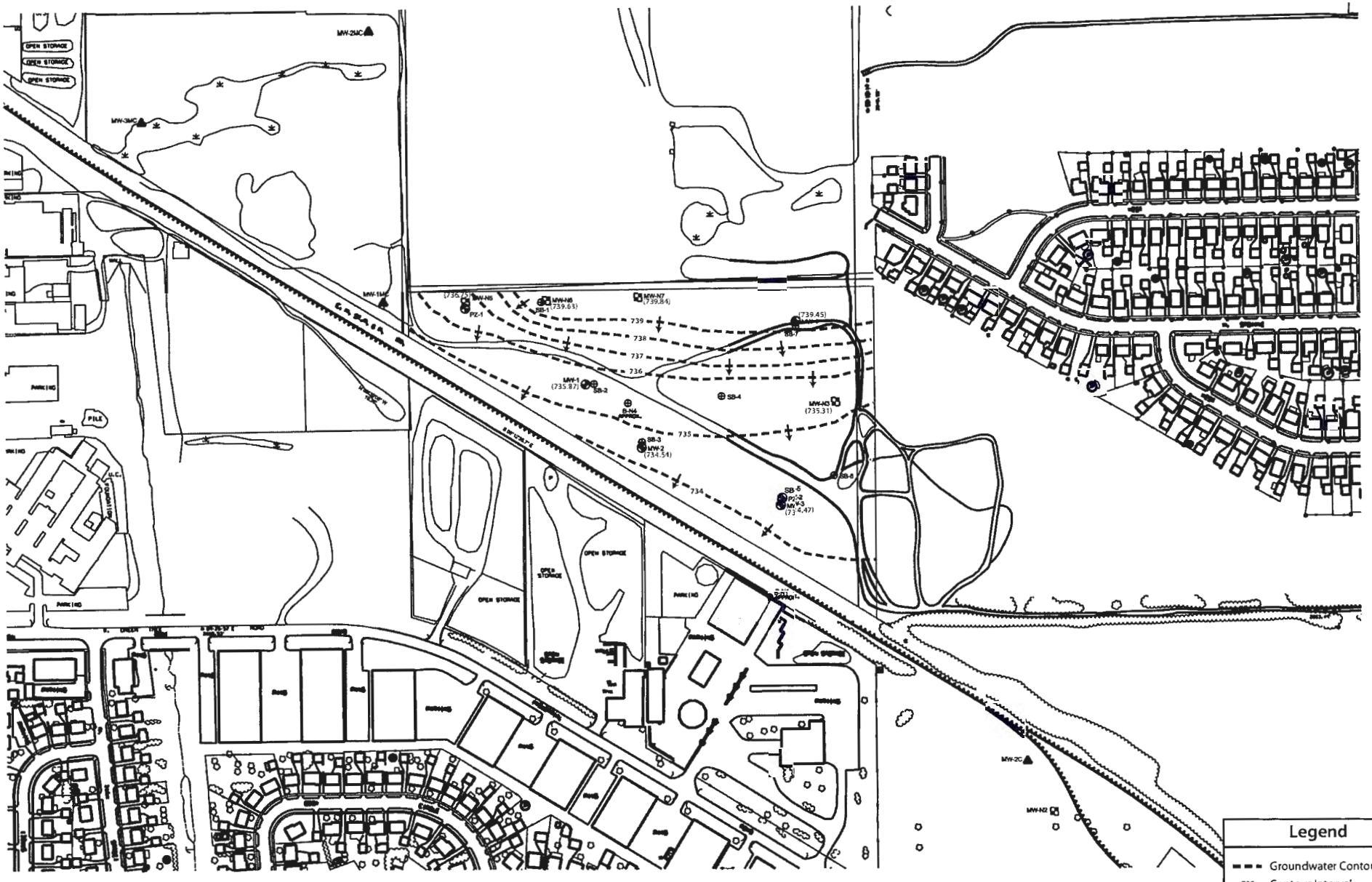
Lakefield Sand and Gravel
1963 Aerial Photograph

Part of the NW 1/4 of Section 22, T8N, R21E



APPENDIX E

Lakefield Sand & Gravel Groundwater Sampling Results



SIGMA ENVIRONMENTAL SERVICES, INC.
1300 WEST CANAL STREET
MILWAUKEE, WISCONSIN 53233
PHONE : (414) 643-4200
FAX : (414) 643-4210

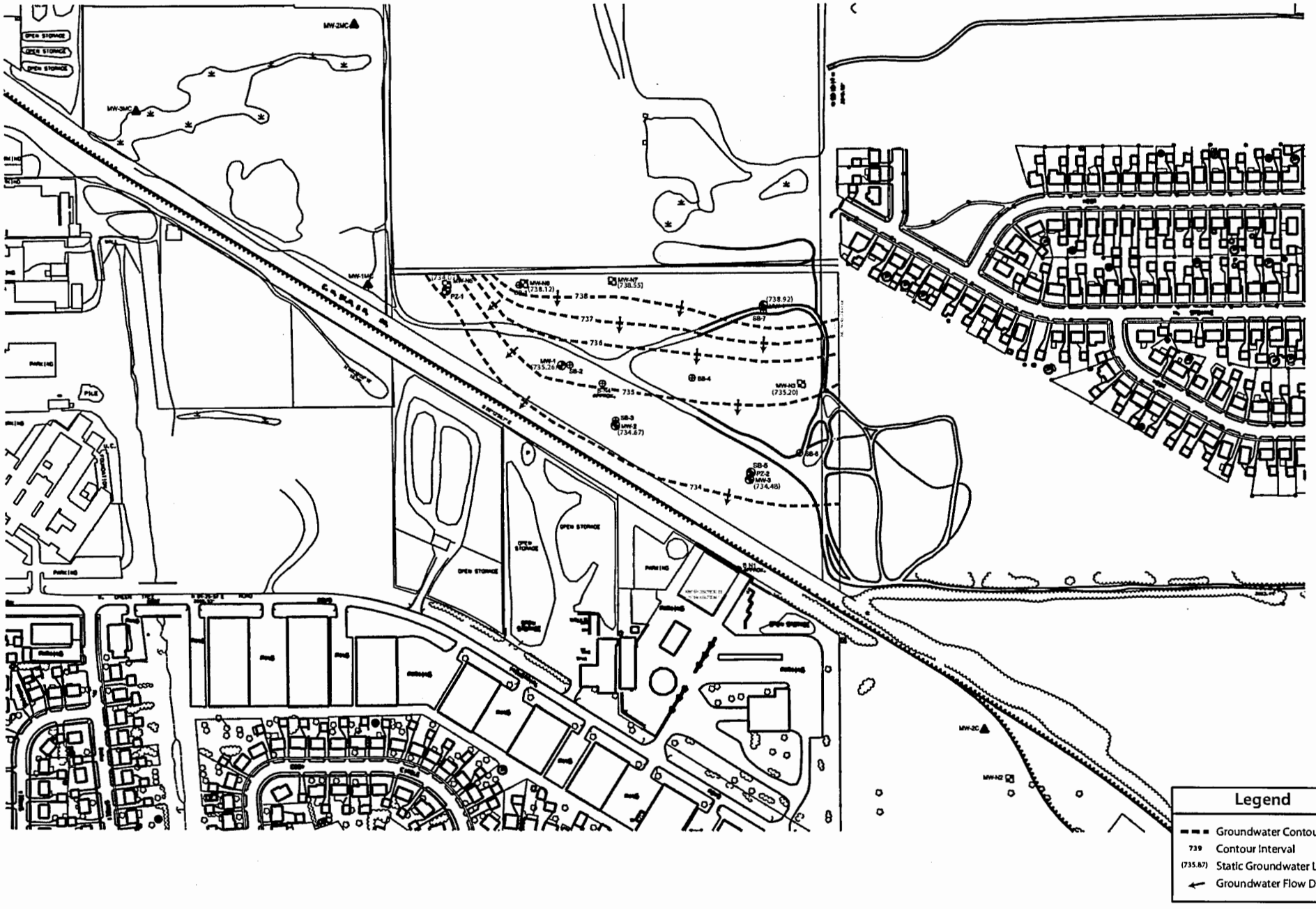
SCALE - 1" = 200'
0' 100' 200' 300' 400'

NO	DATE	REVISIONS	BY	APVD

	NAME:	DATE:
DRAWN BY:		
DESIGNED BY:		
CHECKED BY:		
APPROVED BY:		

FORMER LAKEFIELD SAND AND GRAVEL
7003 WEST GOOD HOPE ROAD - MILWAUKEE, WI
GROUNDWATER CONTOUR MAP - April 6, 2012

Figure 1



SIGMA
ENVIRONMENTAL SERVICES, INC.
1300 WEST CANAL STREET
MILWAUKEE, WISCONSIN 53233
PHONE : (414) 643-4200
FAX : (414) 643-4210

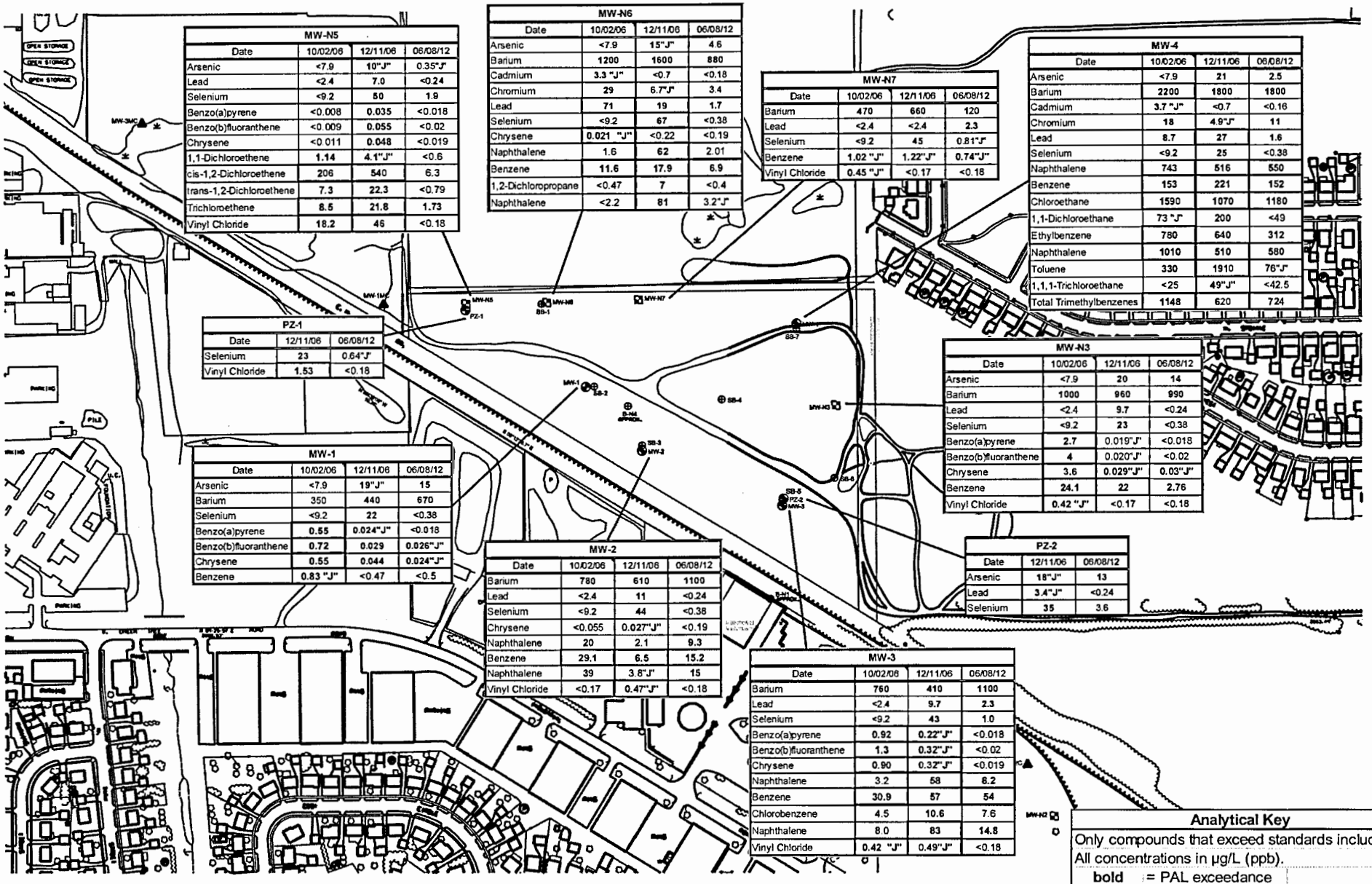
SCALE - 1" = 200'
0' 100' 200' 300' 400'

NO	DATE	REVISIONS	BY	APVD

	NAME:	DATE:
DRAWN BY:		
DESIGNED BY:		
CHECKED BY:		
APPROVED BY:		

FORMER LAKEFIELD SAND AND GRAVEL
7003 WEST GOOD HOPE ROAD - MILWAUKEE, WI
GROUNDWATER CONTOUR MAP - June 8, 2012

Figure 2



MW-N5			
Date	10/02/06	12/11/06	06/08/12
Arsenic	<7.9	10"J"	0.35"J"
Lead	<2.4	7.0	<0.24
Selenium	<9.2	50	1.9
Benzo(a)pyrene	<0.008	0.035	<0.018
Benzo(b)fluoranthene	<0.009	0.055	<0.02
Chrysene	<0.011	0.048	<0.019
1,1-Dichloroethene	1.14	4.1"J"	<0.6
cis-1,2-Dichloroethene	206	540	6.3
trans-1,2-Dichloroethene	7.3	22.3	<0.79
Trichloroethene	8.5	21.8	1.73
Vinyl Chloride	18.2	46	<0.18

MW-N6			
Date	10/02/06	12/11/06	06/08/12
Arsenic	<7.9	15"J"	4.6
Barium	1200	1600	880
Cadmium	3.3 "J"	<0.7	<0.18
Chromium	29	6.7"J"	3.4
Lead	71	19	1.7
Selenium	<9.2	67	<0.38
Chrysene	0.021 "J"	<0.22	<0.19
Naphthalene	1.6	62	2.01
Benzene	11.6	17.9	6.9
1,2-Dichloropropane	<0.47	7	<0.4
Naphthalene	<2.2	81	3.2"J"

MW-N7			
Date	10/02/06	12/11/06	06/08/12
Barium	470	660	120
Lead	<2.4	<2.4	2.3
Selenium	<9.2	45	0.81"J"
Benzene	1.02 "J"	1.22"J"	0.74"J"
Vinyl Chloride	0.45 "J"	<0.17	<0.18

MW-4			
Date	10/02/06	12/11/06	06/08/12
Arsenic	<7.9	21	2.5
Barium	2200	1800	1800
Cadmium	3.7 "J"	<0.7	<0.16
Chromium	18	4.9"J"	11
Lead	8.7	27	1.6
Selenium	<9.2	25	<0.38
Naphthalene	743	516	550
Benzene	153	221	152
Chloroethane	1590	1070	1180
1,1-Dichloroethane	73 "J"	200	<49
Ethylbenzene	780	640	312
Naphthalene	1010	510	580
Toluene	330	1910	76"J"
1,1,1-Trichloroethane	<25	49"J"	<42.5
Total Trimethylbenzenes	1148	620	724

PZ-1		
Date	12/11/06	06/08/12
Selenium	23	0.64"J"
Vinyl Chloride	1.53	<0.18

MW-N3			
Date	10/02/06	12/11/06	06/08/12
Arsenic	<7.9	20	14
Barium	1000	960	990
Lead	<2.4	9.7	<0.24
Selenium	<9.2	23	<0.38
Benzo(a)pyrene	2.7	0.019"J"	<0.018
Benzo(b)fluoranthene	4	0.020"J"	<0.02
Chrysene	3.6	0.029"J"	0.03"J"
Benzene	24.1	22	2.76
Vinyl Chloride	0.42 "J"	<0.17	<0.18

MW-1			
Date	10/02/06	12/11/06	06/08/12
Arsenic	<7.9	19"J"	15
Barium	350	440	670
Selenium	<9.2	22	<0.38
Benzo(a)pyrene	0.55	0.024"J"	<0.018
Benzo(b)fluoranthene	0.72	0.029	0.026"J"
Chrysene	0.55	0.044	0.024"J"
Benzene	0.83 "J"	<0.47	<0.5

MW-2			
Date	10/02/06	12/11/06	06/08/12
Barium	780	610	1100
Lead	<2.4	11	<0.24
Selenium	<9.2	44	<0.38
Chrysene	<0.055	0.027"J"	<0.19
Naphthalene	20	2.1	9.3
Benzene	29.1	6.5	15.2
Naphthalene	39	3.8"J"	15
Vinyl Chloride	<0.17	0.47"J"	<0.18

PZ-2		
Date	12/11/06	06/08/12
Arsenic	18"J"	13
Lead	3.4"J"	<0.24
Selenium	35	3.6

MW-3			
Date	10/02/06	12/11/06	06/08/12
Barium	760	410	1100
Lead	<2.4	9.7	2.3
Selenium	<9.2	43	1.0
Benzo(a)pyrene	0.92	0.22"J"	<0.018
Benzo(b)fluoranthene	1.3	0.32"J"	<0.02
Chrysene	0.90	0.32"J"	<0.019
Naphthalene	3.2	58	8.2
Benzene	30.9	57	54
Chlorobenzene	4.5	10.6	7.6
Naphthalene	8.0	83	14.8
Vinyl Chloride	0.42 "J"	0.49"J"	<0.18

Analytical Key	
Only compounds that exceed standards included.	
All concentrations in µg/L (ppb).	
bold	= PAL exceedance
bold, box	= ES exceedance
J	= Detected between LOD and LOQ

SIGMA ENVIRONMENTAL SERVICES, INC.
1300 WEST CANAL STREET
MILWAUKEE, WISCONSIN 53233
PHONE : (414) 643-4200
FAX : (414) 643-4210

SCALE - 1" = 200'

0' 100' 200' 300' 400'

NO	DATE	REVISIONS	BY	APVD

	NAME:	DATE:
DRAWN BY:		
DESIGNED BY:		
CHECKED BY:		
APPROVED BY:		

FORMER LAKEFIELD SAND AND GRAVEL
7003 WEST GOOD HOPE ROAD - MILWAUKEE, WI
GROUNDWATER QUALITY MAP

Figure 1

	04/06/12			11.22	8.25	735.87	
	06/08/12			11.83	8.86	735.26	
	10/02/06			10.74	13.48	735.78	
	12/11/06			14.83	12.22	731.69	
MW-2	07/19/07	743.73	**746.52**	13.97	11.18	732.55	722.73 - 732.73
	07/17/08			10.14	7.35	736.38	
	04/06/12			11.98	9.19	734.54	
	06/08/12			11.85	9.06	734.67	
	10/02/06			20.17	17.21	730.92	
	12/11/06			18.88	15.92	732.21	
MW-3	07/19/07	747.90	**751.09**	17.95	14.76	733.14	727.90 - 737.90
	07/17/08			24.19	21.00	726.90	
	04/06/12			16.62	13.43	734.47	
	06/08/12			16.61	13.42	734.48	
	10/02/06			10.79	7.77	738.43	
	12/11/06			12.37	9.35	736.85	
MW-4	07/19/07	745.94	**749.22**	11.16	7.88	738.06	725.94 - 735.94
	07/17/08			9.70	6.42	739.52	
	07/17/08			9.77	6.49	739.45	
	06/08/12			10.3	7.02	738.92	
	10/02/06			13.28	10.99	730.26	
MW-N2	07/19/07	***740.74***	**743.54**	12.84	12.84	730.70	720.96 - 735.96
	10/02/06			17.41	14.88	731.68	
	12/11/06			15.79	13.26	733.30	
MW-N3	07/19/07	***746.16***	**749.09**	15.11	12.18	733.98	720.42 - 730.42
	04/06/12			13.78	10.85	735.31	
	06/08/12			13.89	10.96	735.20	
	10/02/06			18.17	15.16	727.00	
	12/11/06			13.31	10.30	731.86	
MW-N5	07/19/07	***741.65***	**745.17**	13.71	10.19	731.46	721.29 - 736.29
	07/17/08			11.01	7.49	734.16	
	04/06/12			8.42	4.90	736.75	
	06/08/12			11.14	7.62	734.03	
	10/02/06			9.33	6.72	736.02	
	12/11/06			8.06	5.45	737.29	
MW-N6	07/19/07	***742.38***	**745.35**	8.13	5.16	737.22	722.17 - 737.17
	07/17/08			7.03	4.06	738.32	
	04/16/12			5.72	2.75	739.63	
	06/08/12			7.23	4.26	738.12	
	10/02/06			18.19	15.56	728.93	
	12/11/06			18.32	15.69	728.80	
MW-N7	07/19/07	***744.02***	**747.12**	12.30	9.20	734.82	723.34 - 738.34
	07/17/08			8.83	5.73	738.29	
	04/06/12			7.28	4.18	739.84	
	06/08/12			8.57	5.47	738.55	
	12/11/06			17.56	14.53	727.51	
	07/19/07			18.93	15.70	726.14	
PZ-1	07/17/08	741.84	**745.07**	15.56	12.33	729.51	706.84 - 711.84
	04/06/12			13.42	10.19	731.65	
	06/08/12			14.71	11.48	730.36	
	12/11/06			26.63	23.96	723.99	
	07/19/07			28.32	25.39	722.30	
PZ-2	07/17/08	747.69	**750.62**	14.83	11.90	735.79	705.69 - 710.69
	04/06/12			23.93	21.00	726.69	
	06/08/12			23.66	20.73	726.96	
	10/02/06			11.04	7.03	730.4	
MW-2C	07/19/07	***737.43***	741.44	10.67	6.66	730.77	
	10/02/06			11.89	8.83	728.79	
MW-1MC	07/19/07	737.41	**740.68**	9.70	6.43	730.98	
	04/06/12			5.03	1.76	735.65	
	10/02/06			6.54	3.74	733.66	
MW-2MC	07/19/07	737.29	**740.20**	6.77	6.77	733.43	

Synergy Environmental Lab, INC.

1990 Prospect Ct., Appleton, WI 54914 *P 920-830-2455 * F 920-733-0631

KRISTIN KURZKA
SIGMA ENVIRONMMENTAL
1300 W. CANAL STREET
MILWAUKEE. WI 53233

Report Date *20-Jun-12*

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Proiect # 7743

Lab Code 5023891A
Sample ID MW-N5
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Arsenic, Dissolved	0.35 "J"	ug/l	0.25	1	1	6020		6/13/2012	ESC	1
Barium, Dissolved	52	ug/l	0.36	2	1	6020		6/13/2012	ESC	1
Cadmium, Dissolved	< 0.16	ug/l	0.16	0.5	1	6020		6/13/2012	ESC	1
Chromium, Dissolved	0.91 "J"	ug/l	0.54	2	1	6020		6/13/2012	ESC	1
Lead, Dissolved	< 0.24	ug/l	0.24	1	1	6020		6/13/2012	ESC	1
Mercury, Dissolved	0.060 "J"	ug/l	0.015	0.2	1	7470A		6/13/2012	ESC	1
Selenium, Dissolved	1.9	ug/l	0.38	1	1	6020		6/13/2012	ESC	1
Silver, Dissolved	< 0.31	ug/l	0.31	1	1	6020		6/13/2012	ESC	1
Organic										
PAH SIM										
Acenaphthene	< 0.025	ug/l	0.025	0.082	1	M8270D	6/15/2012	6/15/2012	MDK	1
Acenaphthylene	< 0.019	ug/l	0.019	0.06	1	M8270D	6/15/2012	6/15/2012	MDK	1
Anthracene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)anthracene	< 0.024	ug/l	0.024	0.075	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)pyrene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(b)fluoranthene	< 0.02	ug/l	0.02	0.066	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(g,h,i)perylene	< 0.019	ug/l	0.019	0.06	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(k)fluoranthene	< 0.022	ug/l	0.022	0.072	1	M8270D	6/15/2012	6/15/2012	MDK	1
Chrysene	< 0.019	ug/l	0.019	0.059	1	M8270D	6/15/2012	6/15/2012	MDK	1
Dibenzo(a,h)anthracene	< 0.019	ug/l	0.019	0.061	1	M8270D	6/15/2012	6/15/2012	MDK	1
Fluoranthene	< 0.022	ug/l	0.022	0.069	1	M8270D	6/15/2012	6/15/2012	MDK	1
Fluorene	< 0.02	ug/l	0.02	0.064	1	M8270D	6/15/2012	6/15/2012	MDK	1
Indeno(1,2,3-cd)pyrene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
1-Methyl naphthalene	< 0.022	ug/l	0.022	0.072	1	M8270D	6/15/2012	6/15/2012	MDK	1
2-Methyl naphthalene	< 0.024	ug/l	0.024	0.078	1	M8270D	6/15/2012	6/15/2012	MDK	1
Naphthalene	< 0.021	ug/l	0.021	0.067	1	M8270D	6/15/2012	6/15/2012	MDK	1
Phenanthrene	< 0.019	ug/l	0.019	0.062	1	M8270D	6/15/2012	6/15/2012	MDK	1
Pyrene	< 0.02	ug/l	0.02	0.065	1	M8270D	6/15/2012	6/15/2012	MDK	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891A
Sample ID MW-N5
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
VOC's										
Benzene	< 0.5	ug/l	0.5	1.6	1	8260B		6/15/2012	CJR	1
Bromobenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/15/2012	CJR	1
Bromodichloromethane	< 0.68	ug/l	0.68	2.2	1	8260B		6/15/2012	CJR	1
Bromoform	< 0.43	ug/l	0.43	1.4	1	8260B		6/15/2012	CJR	1
tert-Butylbenzene	< 0.71	ug/l	0.71	2.3	1	8260B		6/15/2012	CJR	1
sec-Butylbenzene	< 1	ug/l	1	3.3	1	8260B		6/15/2012	CJR	1
n-Butylbenzene	< 0.9	ug/l	0.9	2.9	1	8260B		6/15/2012	CJR	1
Carbon Tetrachloride	< 0.47	ug/l	0.47	1.5	1	8260B		6/15/2012	CJR	1
Chlorobenzene	< 0.51	ug/l	0.51	1.6	1	8260B		6/15/2012	CJR	1
Chloroethane	< 1.4	ug/l	1.4	4.5	1	8260B		6/15/2012	CJR	1
Chloroform	< 0.49	ug/l	0.49	1.5	1	8260B		6/15/2012	CJR	1
Chloromethane	< 1.9	ug/l	1.9	6.1	1	8260B		6/15/2012	CJR	1
2-Chlorotoluene	< 0.7	ug/l	0.7	2.2	1	8260B		6/15/2012	CJR	1
4-Chlorotoluene	< 0.44	ug/l	0.44	1.4	1	8260B		6/15/2012	CJR	1
1,2-Dibromo-3-chloropropane	< 2.8	ug/l	2.8	8.9	1	8260B		6/15/2012	CJR	1
Dibromochloromethane	< 0.55	ug/l	0.55	1.8	1	8260B		6/15/2012	CJR	1
1,4-Dichlorobenzene	< 0.98	ug/l	0.98	3.1	1	8260B		6/15/2012	CJR	1
1,3-Dichlorobenzene	< 0.87	ug/l	0.87	2.8	1	8260B		6/15/2012	CJR	1
1,2-Dichlorobenzene	< 0.76	ug/l	0.76	2.4	1	8260B		6/15/2012	CJR	1
Dichlorodifluoromethane	< 1.8	ug/l	1.8	5.9	1	8260B		6/15/2012	CJR	1
1,2-Dichloroethane	< 0.5	ug/l	0.5	1.6	1	8260B		6/15/2012	CJR	1
1,1-Dichloroethane	< 0.98	ug/l	0.98	3.1	1	8260B		6/15/2012	CJR	1
1,1-Dichloroethene	< 0.6	ug/l	0.6	1.9	1	8260B		6/15/2012	CJR	1
cis-1,2-Dichloroethene	6.3	ug/l	0.74	2.4	1	8260B		6/15/2012	CJR	1
trans-1,2-Dichloroethene	< 0.79	ug/l	0.79	2.5	1	8260B		6/15/2012	CJR	1
1,2-Dichloropropane	< 0.4	ug/l	0.4	1.3	1	8260B		6/15/2012	CJR	1
2,2-Dichloropropane	< 1.9	ug/l	1.9	5.9	1	8260B		6/15/2012	CJR	4 8
1,3-Dichloropropane	< 0.71	ug/l	0.71	2.3	1	8260B		6/15/2012	CJR	1
Di-isopropyl ether	< 0.69	ug/l	0.69	2.2	1	8260B		6/15/2012	CJR	1
EDB (1,2-Dibromoethane)	< 0.63	ug/l	0.63	2	1	8260B		6/15/2012	CJR	1
Ethylbenzene	< 0.78	ug/l	0.78	2.5	1	8260B		6/15/2012	CJR	1
Hexachlorobutadiene	< 2.2	ug/l	2.2	6.8	1	8260B		6/15/2012	CJR	1
Isopropylbenzene	< 0.92	ug/l	0.92	2.9	1	8260B		6/15/2012	CJR	1
p-Isopropyltoluene	< 0.92	ug/l	0.92	2.9	1	8260B		6/15/2012	CJR	1
Methylene chloride	< 1.1	ug/l	1.1	3.4	1	8260B		6/15/2012	CJR	1
Methyl tert-butyl ether (MTBE)	< 0.8	ug/l	0.8	2.5	1	8260B		6/15/2012	CJR	1
Naphthalene	< 2.1	ug/l	2.1	6.8	1	8260B		6/15/2012	CJR	1
n-Propylbenzene	< 0.59	ug/l	0.59	1.9	1	8260B		6/15/2012	CJR	1
1,1,2,2-Tetrachloroethane	< 0.53	ug/l	0.53	1.7	1	8260B		6/15/2012	CJR	1
1,1,1,2-Tetrachloroethane	< 1	ug/l	1	3.2	1	8260B		6/15/2012	CJR	1
Tetrachloroethene	< 0.44	ug/l	0.44	1.4	1	8260B		6/15/2012	CJR	1
Toluene	< 0.53	ug/l	0.53	1.7	1	8260B		6/15/2012	CJR	1
1,2,4-Trichlorobenzene	< 1.5	ug/l	1.5	4.6	1	8260B		6/15/2012	CJR	1
1,2,3-Trichlorobenzene	< 1.3	ug/l	1.3	4.2	1	8260B		6/15/2012	CJR	1
1,1,1-Trichloroethane	< 0.85	ug/l	0.85	2.7	1	8260B		6/15/2012	CJR	1
1,1,2-Trichloroethane	< 0.47	ug/l	0.47	1.5	1	8260B		6/15/2012	CJR	1
Trichloroethene (TCE)	1.73	ug/l	0.47	1.5	1	8260B		6/15/2012	CJR	1
Trichlorofluoromethane	< 1.7	ug/l	1.7	5.3	1	8260B		6/15/2012	CJR	1
1,2,4-Trimethylbenzene	< 0.8	ug/l	0.8	2.5	1	8260B		6/15/2012	CJR	1
1,3,5-Trimethylbenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/15/2012	CJR	1
Vinyl Chloride	< 0.18	ug/l	0.18	0.56	1	8260B		6/15/2012	CJR	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891A
Sample ID MW-N5
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
m&p-Xylene	< 1.1	ug/l	1.1	3.5	1	8260B		6/15/2012	CJR	1
o-Xylene	< 0.8	ug/l	0.8	2.6	1	8260B		6/15/2012	CJR	1
SUR - Dibromofluoromethane	103	REC %			1	8260B		6/15/2012	CJR	1
SUR - Toluene-d8	94	REC %			1	8260B		6/15/2012	CJR	1
SUR - 4-Bromofluorobenzene	100	REC %			1	8260B		6/15/2012	CJR	1
SUR - 1,2-Dichloroethane-d4	107	REC %			1	8260B		6/15/2012	CJR	1

Lab Code 5023891B
Sample ID PZ-1
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Arsenic, Dissolved	2.8	ug/l	0.25	1	1	6020		6/13/2012	ESC	1
Barium, Dissolved	61	ug/l	0.36	2	1	6020		6/13/2012	ESC	1
Cadmium, Dissolved	< 0.16	ug/l	0.16	0.5	1	6020		6/13/2012	ESC	1
Chromium, Dissolved	< 0.54	ug/l	0.54	2	1	6020		6/13/2012	ESC	1
Lead, Dissolved	< 0.24	ug/l	0.24	1	1	6020		6/13/2012	ESC	1
Mercury, Dissolved	0.090 "J"	ug/l	0.015	0.2	1	7470A		6/13/2012	ESC	1
Selenium, Dissolved	0.64 "J"	ug/l	0.38	1	1	6020		6/13/2012	ESC	1
Silver, Dissolved	< 0.31	ug/l	0.31	1	1	6020		6/13/2012	ESC	1
Organic										
PAH SIM										
Acenaphthene	< 0.025	ug/l	0.025	0.082	1	M8270D	6/15/2012	6/15/2012	MDK	1
Acenaphthylene	< 0.019	ug/l	0.019	0.06	1	M8270D	6/15/2012	6/15/2012	MDK	1
Anthracene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)anthracene	< 0.024	ug/l	0.024	0.075	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)pyrene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(b)fluoranthene	< 0.02	ug/l	0.02	0.066	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(g,h,i)perylene	< 0.019	ug/l	0.019	0.06	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(k)fluoranthene	< 0.022	ug/l	0.022	0.072	1	M8270D	6/15/2012	6/15/2012	MDK	1
Chrysene	< 0.019	ug/l	0.019	0.059	1	M8270D	6/15/2012	6/15/2012	MDK	1
Dibenzo(a,h)anthracene	< 0.019	ug/l	0.019	0.061	1	M8270D	6/15/2012	6/15/2012	MDK	1
Fluoranthene	< 0.022	ug/l	0.022	0.069	1	M8270D	6/15/2012	6/15/2012	MDK	1
Fluorene	< 0.02	ug/l	0.02	0.064	1	M8270D	6/15/2012	6/15/2012	MDK	1
Indeno(1,2,3-cd)pyrene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
1-Methyl naphthalene	< 0.022	ug/l	0.022	0.072	1	M8270D	6/15/2012	6/15/2012	MDK	1
2-Methyl naphthalene	< 0.024	ug/l	0.024	0.078	1	M8270D	6/15/2012	6/15/2012	MDK	1
Naphthalene	< 0.021	ug/l	0.021	0.067	1	M8270D	6/15/2012	6/15/2012	MDK	1
Phenanthrene	< 0.019	ug/l	0.019	0.062	1	M8270D	6/15/2012	6/15/2012	MDK	1
Pyrene	< 0.02	ug/l	0.02	0.065	1	M8270D	6/15/2012	6/15/2012	MDK	1
VOC's										
Benzene	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
Bromobenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Bromodichloromethane	< 0.68	ug/l	0.68	2.2	1	8260B		6/13/2012	CJR	1
Bromoform	< 0.43	ug/l	0.43	1.4	1	8260B		6/13/2012	CJR	1
tert-Butylbenzene	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
sec-Butylbenzene	< 1	ug/l	1	3.3	1	8260B		6/13/2012	CJR	1
n-Butylbenzene	< 0.9	ug/l	0.9	2.9	1	8260B		6/13/2012	CJR	1
Carbon Tetrachloride	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891B
Sample ID PZ-1
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Chlorobenzene	< 0.51	ug/l	0.51	1.6	1	8260B		6/13/2012	CJR	1
Chloroethane	< 1.4	ug/l	1.4	4.5	1	8260B		6/13/2012	CJR	1
Chloroform	< 0.49	ug/l	0.49	1.5	1	8260B		6/13/2012	CJR	1
Chloromethane	< 1.9	ug/l	1.9	6.1	1	8260B		6/13/2012	CJR	1
2-Chlorotoluene	< 0.7	ug/l	0.7	2.2	1	8260B		6/13/2012	CJR	1
4-Chlorotoluene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
1,2-Dibromo-3-chloropropane	< 2.8	ug/l	2.8	8.9	1	8260B		6/13/2012	CJR	1
Dibromochloromethane	< 0.55	ug/l	0.55	1.8	1	8260B		6/13/2012	CJR	1
1,4-Dichlorobenzene	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,3-Dichlorobenzene	< 0.87	ug/l	0.87	2.8	1	8260B		6/13/2012	CJR	1
1,2-Dichlorobenzene	< 0.76	ug/l	0.76	2.4	1	8260B		6/13/2012	CJR	1
Dichlorodifluoromethane	< 1.8	ug/l	1.8	5.9	1	8260B		6/13/2012	CJR	1
1,2-Dichloroethane	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethane	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethene	< 0.6	ug/l	0.6	1.9	1	8260B		6/13/2012	CJR	1
cis-1,2-Dichloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
trans-1,2-Dichloroethene	< 0.79	ug/l	0.79	2.5	1	8260B		6/13/2012	CJR	1
1,2-Dichloropropane	< 0.4	ug/l	0.4	1.3	1	8260B		6/13/2012	CJR	1
2,2-Dichloropropane	< 1.9	ug/l	1.9	5.9	1	8260B		6/13/2012	CJR	1
1,3-Dichloropropane	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
Di-isopropyl ether	< 0.69	ug/l	0.69	2.2	1	8260B		6/13/2012	CJR	1
EDB (1,2-Dibromoethane)	< 0.63	ug/l	0.63	2	1	8260B		6/13/2012	CJR	1
Ethylbenzene	< 0.78	ug/l	0.78	2.5	1	8260B		6/13/2012	CJR	1
Hexachlorobutadiene	< 2.2	ug/l	2.2	6.8	1	8260B		6/13/2012	CJR	1
Isopropylbenzene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
p-Isopropyltoluene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
Methylene chloride	< 1.1	ug/l	1.1	3.4	1	8260B		6/13/2012	CJR	1
Methyl tert-butyl ether (MTBE)	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
Naphthalene	< 2.1	ug/l	2.1	6.8	1	8260B		6/13/2012	CJR	1
n-Propylbenzene	< 0.59	ug/l	0.59	1.9	1	8260B		6/13/2012	CJR	1
1,1,2,2-Tetrachloroethane	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,1,1,2-Tetrachloroethane	< 1	ug/l	1	3.2	1	8260B		6/13/2012	CJR	1
Tetrachloroethene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
Toluene	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,2,4-Trichlorobenzene	< 1.5	ug/l	1.5	4.6	1	8260B		6/13/2012	CJR	1
1,2,3-Trichlorobenzene	< 1.3	ug/l	1.3	4.2	1	8260B		6/13/2012	CJR	1
1,1,1-Trichloroethane	< 0.85	ug/l	0.85	2.7	1	8260B		6/13/2012	CJR	1
1,1,2-Trichloroethane	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichlorofluoromethane	< 1.7	ug/l	1.7	5.3	1	8260B		6/13/2012	CJR	1
1,2,4-Trimethylbenzene	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
1,3,5-Trimethylbenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Vinyl Chloride	< 0.18	ug/l	0.18	0.56	1	8260B		6/13/2012	CJR	1
m&p-Xylene	< 1.1	ug/l	1.1	3.5	1	8260B		6/13/2012	CJR	1
o-Xylene	< 0.8	ug/l	0.8	2.6	1	8260B		6/13/2012	CJR	1
SUR - 1,2-Dichloroethane-d4	104	REC %			1	8260B		6/13/2012	CJR	1
SUR - 4-Bromofluorobenzene	113	REC %			1	8260B		6/13/2012	CJR	1
SUR - Dibromofluoromethane	102	REC %			1	8260B		6/13/2012	CJR	1
SUR - Toluene-d8	104	REC %			1	8260B		6/13/2012	CJR	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891C
Sample ID MW-N6
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Arsenic, Dissolved	4.6	ug/l	0.25	1	1	6020		6/13/2012	ESC	1
Barium, Dissolved	880	ug/l	3.6	20	10	6020		6/13/2012	ESC	1
Cadmium, Dissolved	< 0.16	ug/l	0.16	0.5	1	6020		6/13/2012	ESC	1
Chromium, Dissolved	3.4	ug/l	0.54	2	1	6020		6/13/2012	ESC	1
Lead, Dissolved	1.7	ug/l	0.24	1	1	6020		6/13/2012	ESC	1
Mercury, Dissolved	0.020 "J"	ug/l	0.015	0.2	1	7470A		6/13/2012	ESC	1
Selenium, Dissolved	< 0.38	ug/l	0.38	1	1	6020		6/13/2012	ESC	1
Silver, Dissolved	< 0.31	ug/l	0.31	1	1	6020		6/13/2012	ESC	1
Organic										
PAH SIM										
Acenaphthene	0.264 "J"	ug/l	0.25	0.82	10	M8270D	6/15/2012	6/15/2012	MDK	1
Acenaphthylene	< 0.19	ug/l	0.19	0.6	10	M8270D	6/15/2012	6/15/2012	MDK	1
Anthracene	< 0.18	ug/l	0.18	0.58	10	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)anthracene	< 0.24	ug/l	0.24	0.75	10	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)pyrene	< 0.18	ug/l	0.18	0.58	10	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(b)fluoranthene	< 0.2	ug/l	0.2	0.66	10	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(g,h,i)perylene	< 0.19	ug/l	0.19	0.6	10	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(k)fluoranthene	< 0.22	ug/l	0.22	0.72	10	M8270D	6/15/2012	6/15/2012	MDK	1
Chrysene	< 0.19	ug/l	0.19	0.59	10	M8270D	6/15/2012	6/15/2012	MDK	1
Dibenzo(a,h)anthracene	< 0.19	ug/l	0.19	0.61	10	M8270D	6/15/2012	6/15/2012	MDK	1
Fluoranthene	< 0.22	ug/l	0.22	0.69	10	M8270D	6/15/2012	6/15/2012	MDK	1
Fluorene	0.68	ug/l	0.2	0.64	10	M8270D	6/15/2012	6/15/2012	MDK	1
Indeno(1,2,3-cd)pyrene	< 0.18	ug/l	0.18	0.58	10	M8270D	6/15/2012	6/15/2012	MDK	1
1-Methyl naphthalene	0.78	ug/l	0.22	0.72	10	M8270D	6/15/2012	6/15/2012	MDK	1
2-Methyl naphthalene	< 0.24	ug/l	0.24	0.78	10	M8270D	6/15/2012	6/15/2012	MDK	1
Naphthalene	2.01	ug/l	0.21	0.67	10	M8270D	6/15/2012	6/15/2012	MDK	1
Phenanthrene	< 0.19	ug/l	0.19	0.62	10	M8270D	6/15/2012	6/15/2012	MDK	1
Pyrene	< 0.2	ug/l	0.2	0.65	10	M8270D	6/15/2012	6/15/2012	MDK	1
VOC's										
Benzene	6.9	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
Bromobenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Bromodichloromethane	< 0.68	ug/l	0.68	2.2	1	8260B		6/13/2012	CJR	1
Bromoform	< 0.43	ug/l	0.43	1.4	1	8260B		6/13/2012	CJR	1
tert-Butylbenzene	1.48 "J"	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
sec-Butylbenzene	9.2	ug/l	1	3.3	1	8260B		6/13/2012	CJR	1
n-Butylbenzene	6.5	ug/l	0.9	2.9	1	8260B		6/13/2012	CJR	1
Carbon Tetrachloride	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Chlorobenzene	0.85 "J"	ug/l	0.51	1.6	1	8260B		6/13/2012	CJR	1
Chloroethane	< 1.4	ug/l	1.4	4.5	1	8260B		6/13/2012	CJR	1
Chloroform	< 0.49	ug/l	0.49	1.5	1	8260B		6/13/2012	CJR	1
Chloromethane	< 1.9	ug/l	1.9	6.1	1	8260B		6/13/2012	CJR	1
2-Chlorotoluene	< 0.7	ug/l	0.7	2.2	1	8260B		6/13/2012	CJR	1
4-Chlorotoluene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
1,2-Dibromo-3-chloropropane	< 2.8	ug/l	2.8	8.9	1	8260B		6/13/2012	CJR	1
Dibromochloromethane	< 0.55	ug/l	0.55	1.8	1	8260B		6/13/2012	CJR	1
1,4-Dichlorobenzene	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,3-Dichlorobenzene	< 0.87	ug/l	0.87	2.8	1	8260B		6/13/2012	CJR	1
1,2-Dichlorobenzene	1.1 "J"	ug/l	0.76	2.4	1	8260B		6/13/2012	CJR	1
Dichlorodifluoromethane	< 1.8	ug/l	1.8	5.9	1	8260B		6/13/2012	CJR	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891C
Sample ID MW-N6
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
1,2-Dichloroethane	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethane	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethene	< 0.6	ug/l	0.6	1.9	1	8260B		6/13/2012	CJR	1
cis-1,2-Dichloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
trans-1,2-Dichloroethene	< 0.79	ug/l	0.79	2.5	1	8260B		6/13/2012	CJR	1
1,2-Dichloropropane	< 0.4	ug/l	0.4	1.3	1	8260B		6/13/2012	CJR	1
2,2-Dichloropropane	< 1.9	ug/l	1.9	5.9	1	8260B		6/13/2012	CJR	1
1,3-Dichloropropane	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
Di-isopropyl ether	< 0.69	ug/l	0.69	2.2	1	8260B		6/13/2012	CJR	1
EDB (1,2-Dibromoethane)	< 0.63	ug/l	0.63	2	1	8260B		6/13/2012	CJR	1
Ethylbenzene	5.7	ug/l	0.78	2.5	1	8260B		6/13/2012	CJR	1
Hexachlorobutadiene	< 2.2	ug/l	2.2	6.8	1	8260B		6/13/2012	CJR	1
Isopropylbenzene	20.1	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
p-Isopropyltoluene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
Methylene chloride	< 1.1	ug/l	1.1	3.4	1	8260B		6/13/2012	CJR	1
Methyl tert-butyl ether (MTBE)	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
Naphthalene	3.2 "J"	ug/l	2.1	6.8	1	8260B		6/13/2012	CJR	1
n-Propylbenzene	23.7	ug/l	0.59	1.9	1	8260B		6/13/2012	CJR	1
1,1,2,2-Tetrachloroethane	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,1,1,2-Tetrachloroethane	< 1	ug/l	1	3.2	1	8260B		6/13/2012	CJR	1
Tetrachloroethene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
Toluene	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,2,4-Trichlorobenzene	< 1.5	ug/l	1.5	4.6	1	8260B		6/13/2012	CJR	1
1,2,3-Trichlorobenzene	< 1.3	ug/l	1.3	4.2	1	8260B		6/13/2012	CJR	1
1,1,1-Trichloroethane	< 0.85	ug/l	0.85	2.7	1	8260B		6/13/2012	CJR	1
1,1,2-Trichloroethane	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichlorofluoromethane	< 1.7	ug/l	1.7	5.3	1	8260B		6/13/2012	CJR	1
1,2,4-Trimethylbenzene	21.5	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
1,3,5-Trimethylbenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Vinyl Chloride	< 0.18	ug/l	0.18	0.56	1	8260B		6/13/2012	CJR	1
m&p-Xylene	< 1.1	ug/l	1.1	3.5	1	8260B		6/13/2012	CJR	1
o-Xylene	< 0.8	ug/l	0.8	2.6	1	8260B		6/13/2012	CJR	1
SUR - 1,2-Dichloroethane-d4	98	REC %			1	8260B		6/13/2012	CJR	1
SUR - 4-Bromofluorobenzene	116	REC %			1	8260B		6/13/2012	CJR	1
SUR - Dibromofluoromethane	99	REC %			1	8260B		6/13/2012	CJR	1
SUR - Toluene-d8	107	REC %			1	8260B		6/13/2012	CJR	1

Lab Code 5023891D
Sample ID MW-N7
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Arsenic, Dissolved	3.8	ug/l	0.25	1	1	6020		6/13/2012	ESC	1
Barium, Dissolved	120	ug/l	1.8	10	5	6020		6/13/2012	ESC	1
Cadmium, Dissolved	< 0.16	ug/l	0.16	0.5	1	6020		6/13/2012	ESC	1
Chromium, Dissolved	1.5 "J"	ug/l	0.54	2	1	6020		6/13/2012	ESC	1
Lead, Dissolved	2.3	ug/l	0.24	1	1	6020		6/13/2012	ESC	1
Mercury, Dissolved	0.040 "J"	ug/l	0.015	0.2	1	7470A		6/13/2012	ESC	1
Selenium, Dissolved	0.81 "J"	ug/l	0.38	1	1	6020		6/13/2012	ESC	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891D
Sample ID MW-N7
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Silver, Dissolved	< 0.31	ug/l	0.31	1	1	6020		6/13/2012	ESC	1
Organic										
PAH SIM										
Acenaphthene	< 0.025	ug/l	0.025	0.082	1	M8270D	6/15/2012	6/15/2012	MDK	1
Acenaphthylene	0.051 "J"	ug/l	0.019	0.06	1	M8270D	6/15/2012	6/15/2012	MDK	1
Anthracene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)anthracene	< 0.024	ug/l	0.024	0.075	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)pyrene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(b)fluoranthene	< 0.02	ug/l	0.02	0.066	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(g,h,i)perylene	< 0.019	ug/l	0.019	0.06	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(k)fluoranthene	< 0.022	ug/l	0.022	0.072	1	M8270D	6/15/2012	6/15/2012	MDK	1
Chrysene	< 0.019	ug/l	0.019	0.059	1	M8270D	6/15/2012	6/15/2012	MDK	1
Dibenzo(a,h)anthracene	< 0.019	ug/l	0.019	0.061	1	M8270D	6/15/2012	6/15/2012	MDK	1
Fluoranthene	< 0.022	ug/l	0.022	0.069	1	M8270D	6/15/2012	6/15/2012	MDK	1
Fluorene	< 0.02	ug/l	0.02	0.064	1	M8270D	6/15/2012	6/15/2012	MDK	1
Indeno(1,2,3-cd)pyrene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
1-Methyl naphthalene	< 0.022	ug/l	0.022	0.072	1	M8270D	6/15/2012	6/15/2012	MDK	1
2-Methyl naphthalene	< 0.024	ug/l	0.024	0.078	1	M8270D	6/15/2012	6/15/2012	MDK	1
Naphthalene	< 0.021	ug/l	0.021	0.067	1	M8270D	6/15/2012	6/15/2012	MDK	1
Phenanthrene	< 0.019	ug/l	0.019	0.062	1	M8270D	6/15/2012	6/15/2012	MDK	1
Pyrene	< 0.02	ug/l	0.02	0.065	1	M8270D	6/15/2012	6/15/2012	MDK	1
VOC's										
Benzene	0.74 "J"	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
Bromobenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Bromodichloromethane	< 0.68	ug/l	0.68	2.2	1	8260B		6/13/2012	CJR	1
Bromoform	< 0.43	ug/l	0.43	1.4	1	8260B		6/13/2012	CJR	1
tert-Butylbenzene	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
sec-Butylbenzene	< 1	ug/l	1	3.3	1	8260B		6/13/2012	CJR	1
n-Butylbenzene	< 0.9	ug/l	0.9	2.9	1	8260B		6/13/2012	CJR	1
Carbon Tetrachloride	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Chlorobenzene	< 0.51	ug/l	0.51	1.6	1	8260B		6/13/2012	CJR	1
Chloroethane	< 1.4	ug/l	1.4	4.5	1	8260B		6/13/2012	CJR	1
Chloroform	< 0.49	ug/l	0.49	1.5	1	8260B		6/13/2012	CJR	1
Chloromethane	< 1.9	ug/l	1.9	6.1	1	8260B		6/13/2012	CJR	1
2-Chlorotoluene	< 0.7	ug/l	0.7	2.2	1	8260B		6/13/2012	CJR	1
4-Chlorotoluene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
1,2-Dibromo-3-chloropropane	< 2.8	ug/l	2.8	8.9	1	8260B		6/13/2012	CJR	1
Dibromochloromethane	< 0.55	ug/l	0.55	1.8	1	8260B		6/13/2012	CJR	1
1,4-Dichlorobenzene	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,3-Dichlorobenzene	< 0.87	ug/l	0.87	2.8	1	8260B		6/13/2012	CJR	1
1,2-Dichlorobenzene	< 0.76	ug/l	0.76	2.4	1	8260B		6/13/2012	CJR	1
Dichlorodifluoromethane	< 1.8	ug/l	1.8	5.9	1	8260B		6/13/2012	CJR	1
1,2-Dichloroethane	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethane	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethene	< 0.6	ug/l	0.6	1.9	1	8260B		6/13/2012	CJR	1
cis-1,2-Dichloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
trans-1,2-Dichloroethene	< 0.79	ug/l	0.79	2.5	1	8260B		6/13/2012	CJR	1
1,2-Dichloropropane	< 0.4	ug/l	0.4	1.3	1	8260B		6/13/2012	CJR	1
2,2-Dichloropropane	< 1.9	ug/l	1.9	5.9	1	8260B		6/13/2012	CJR	1
1,3-Dichloropropane	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
Di-isopropyl ether	< 0.69	ug/l	0.69	2.2	1	8260B		6/13/2012	CJR	1
EDB (1,2-Dibromoethane)	< 0.63	ug/l	0.63	2	1	8260B		6/13/2012	CJR	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891D
Sample ID MW-N7
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Ethylbenzene	< 0.78	ug/l	0.78	2.5	1	8260B		6/13/2012	CJR	1
Hexachlorobutadiene	< 2.2	ug/l	2.2	6.8	1	8260B		6/13/2012	CJR	1
Isopropylbenzene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
p-Isopropyltoluene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
Methylene chloride	< 1.1	ug/l	1.1	3.4	1	8260B		6/13/2012	CJR	1
Methyl tert-butyl ether (MTBE)	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
Naphthalene	< 2.1	ug/l	2.1	6.8	1	8260B		6/13/2012	CJR	1
n-Propylbenzene	< 0.59	ug/l	0.59	1.9	1	8260B		6/13/2012	CJR	1
1,1,2,2-Tetrachloroethane	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,1,1,2-Tetrachloroethane	< 1	ug/l	1	3.2	1	8260B		6/13/2012	CJR	1
Tetrachloroethene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
Toluene	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,2,4-Trichlorobenzene	< 1.5	ug/l	1.5	4.6	1	8260B		6/13/2012	CJR	1
1,2,3-Trichlorobenzene	< 1.3	ug/l	1.3	4.2	1	8260B		6/13/2012	CJR	1
1,1,1-Trichloroethane	< 0.85	ug/l	0.85	2.7	1	8260B		6/13/2012	CJR	1
1,1,2-Trichloroethane	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichlorofluoromethane	< 1.7	ug/l	1.7	5.3	1	8260B		6/13/2012	CJR	1
1,2,4-Trimethylbenzene	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
1,3,5-Trimethylbenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Vinyl Chloride	< 0.18	ug/l	0.18	0.56	1	8260B		6/13/2012	CJR	1
m&p-Xylene	< 1.1	ug/l	1.1	3.5	1	8260B		6/13/2012	CJR	1
o-Xylene	< 0.8	ug/l	0.8	2.6	1	8260B		6/13/2012	CJR	1
SUR - 1,2-Dichloroethane-d4	102	REC %			1	8260B		6/13/2012	CJR	1
SUR - 4-Bromofluorobenzene	113	REC %			1	8260B		6/13/2012	CJR	1
SUR - Dibromofluoromethane	98	REC %			1	8260B		6/13/2012	CJR	1
SUR - Toluene-d8	106	REC %			1	8260B		6/13/2012	CJR	1

Lab Code 5023891E
Sample ID MW-4
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Arsenic, Dissolved	2.5	ug/l	0.25	1	1	6020		6/13/2012	ESC	1
Barium, Dissolved	1800	ug/l	18	100	50	6020		6/13/2012	ESC	1
Cadmium, Dissolved	< 0.16	ug/l	0.16	0.5	1	6020		6/13/2012	ESC	1
Chromium, Dissolved	11	ug/l	0.54	2	1	6020		6/13/2012	ESC	1
Lead, Dissolved	1.6	ug/l	0.24	1	1	6020		6/13/2012	ESC	1
Mercury, Dissolved	0.020 "J"	ug/l	0.015	0.2	1	7470A		6/13/2012	ESC	1
Selenium, Dissolved	< 0.38	ug/l	0.38	1	1	6020		6/13/2012	ESC	1
Silver, Dissolved	< 0.31	ug/l	0.31	1	1	6020		6/13/2012	ESC	1
Organic										
PAH SIM										
Acenaphthene	< 2.5	ug/l	2.5	8.2	100	M8270D	6/15/2012	6/18/2012	MDK	1
Acenaphthylene	< 1.9	ug/l	1.9	6	100	M8270D	6/15/2012	6/18/2012	MDK	1
Anthracene	< 1.8	ug/l	1.8	5.8	100	M8270D	6/15/2012	6/18/2012	MDK	1
Benzo(a)anthracene	< 2.4	ug/l	2.4	7.5	100	M8270D	6/15/2012	6/18/2012	MDK	1
Benzo(a)pyrene	< 1.8	ug/l	1.8	5.8	100	M8270D	6/15/2012	6/18/2012	MDK	1
Benzo(b)fluoranthene	< 2	ug/l	2	6.6	100	M8270D	6/15/2012	6/18/2012	MDK	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891E
Sample ID MW-4
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Benzo(g,h,i)perylene	< 1.9	ug/l	1.9	6	100	M8270D	6/15/2012	6/18/2012	MDK	1
Benzo(k)fluoranthene	< 2.2	ug/l	2.2	7.2	100	M8270D	6/15/2012	6/18/2012	MDK	1
Chrysene	< 1.9	ug/l	1.9	5.9	100	M8270D	6/15/2012	6/18/2012	MDK	1
Dibenzo(a,h)anthracene	< 1.9	ug/l	1.9	6.1	100	M8270D	6/15/2012	6/18/2012	MDK	1
Fluoranthene	< 2.2	ug/l	2.2	6.9	100	M8270D	6/15/2012	6/18/2012	MDK	1
Fluorene	< 2	ug/l	2	6.4	100	M8270D	6/15/2012	6/18/2012	MDK	1
Indeno(1,2,3-cd)pyrene	< 1.8	ug/l	1.8	5.8	100	M8270D	6/15/2012	6/18/2012	MDK	1
1-Methyl naphthalene	13.3	ug/l	2.2	7.2	100	M8270D	6/15/2012	6/18/2012	MDK	1
2-Methyl naphthalene	28.9	ug/l	2.4	7.8	100	M8270D	6/15/2012	6/18/2012	MDK	1
Naphthalene	550	ug/l	2.1	6.7	100	M8270D	6/15/2012	6/18/2012	MDK	1
Phenanthrene	< 1.9	ug/l	1.9	6.2	100	M8270D	6/15/2012	6/18/2012	MDK	1
Pyrene	< 2	ug/l	2	6.5	100	M8270D	6/15/2012	6/18/2012	MDK	1
VOC's										
Benzene	152	ug/l	25	80	50	8260B		6/13/2012	CJR	1
Bromobenzene	< 37	ug/l	37	120	50	8260B		6/13/2012	CJR	1
Bromodichloromethane	< 34	ug/l	34	110	50	8260B		6/13/2012	CJR	1
Bromoform	< 21.5	ug/l	21.5	70	50	8260B		6/13/2012	CJR	1
tert-Butylbenzene	< 35.5	ug/l	35.5	115	50	8260B		6/13/2012	CJR	1
sec-Butylbenzene	< 50	ug/l	50	165	50	8260B		6/13/2012	CJR	1
n-Butylbenzene	109 "J"	ug/l	45	145	50	8260B		6/13/2012	CJR	1
Carbon Tetrachloride	< 23.5	ug/l	23.5	75	50	8260B		6/13/2012	CJR	1
Chlorobenzene	< 25.5	ug/l	25.5	80	50	8260B		6/13/2012	CJR	1
Chloroethane	1180	ug/l	70	225	50	8260B		6/13/2012	CJR	2
Chloroform	< 24.5	ug/l	24.5	75	50	8260B		6/13/2012	CJR	1
Chloromethane	< 95	ug/l	95	305	50	8260B		6/13/2012	CJR	1
2-Chlorotoluene	< 35	ug/l	35	110	50	8260B		6/13/2012	CJR	1
4-Chlorotoluene	< 22	ug/l	22	70	50	8260B		6/13/2012	CJR	1
1,2-Dibromo-3-chloropropane	< 140	ug/l	140	445	50	8260B		6/13/2012	CJR	1
Dibromochloromethane	< 27.5	ug/l	27.5	90	50	8260B		6/13/2012	CJR	1
1,4-Dichlorobenzene	< 49	ug/l	49	155	50	8260B		6/13/2012	CJR	1
1,3-Dichlorobenzene	< 43.5	ug/l	43.5	140	50	8260B		6/13/2012	CJR	1
1,2-Dichlorobenzene	< 38	ug/l	38	120	50	8260B		6/13/2012	CJR	1
Dichlorodifluoromethane	< 90	ug/l	90	295	50	8260B		6/13/2012	CJR	1
1,2-Dichloroethane	< 25	ug/l	25	80	50	8260B		6/13/2012	CJR	1
1,1-Dichloroethane	< 49	ug/l	49	155	50	8260B		6/13/2012	CJR	1
1,1-Dichloroethene	< 30	ug/l	30	95	50	8260B		6/13/2012	CJR	1
cis-1,2-Dichloroethene	< 37	ug/l	37	120	50	8260B		6/13/2012	CJR	1
trans-1,2-Dichloroethene	< 39.5	ug/l	39.5	125	50	8260B		6/13/2012	CJR	1
1,2-Dichloropropane	< 20	ug/l	20	65	50	8260B		6/13/2012	CJR	1
2,2-Dichloropropane	< 95	ug/l	95	295	50	8260B		6/13/2012	CJR	1
1,3-Dichloropropane	< 35.5	ug/l	35.5	115	50	8260B		6/13/2012	CJR	1
Di-isopropyl ether	< 34.5	ug/l	34.5	110	50	8260B		6/13/2012	CJR	1
EDB (1,2-Dibromoethane)	< 31.5	ug/l	31.5	100	50	8260B		6/13/2012	CJR	1
Ethylbenzene	312	ug/l	39	125	50	8260B		6/13/2012	CJR	1
Hexachlorobutadiene	< 110	ug/l	110	340	50	8260B		6/13/2012	CJR	1
Isopropylbenzene	< 46	ug/l	46	145	50	8260B		6/13/2012	CJR	1
p-Isopropyltoluene	< 46	ug/l	46	145	50	8260B		6/13/2012	CJR	1
Methylene chloride	< 55	ug/l	55	170	50	8260B		6/13/2012	CJR	1
Methyl tert-butyl ether (MTBE)	< 40	ug/l	40	125	50	8260B		6/13/2012	CJR	1
Naphthalene	580	ug/l	105	340	50	8260B		6/13/2012	CJR	1
n-Propylbenzene	102	ug/l	29.5	95	50	8260B		6/13/2012	CJR	1
1,1,2,2-Tetrachloroethane	< 26.5	ug/l	26.5	85	50	8260B		6/13/2012	CJR	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891E
Sample ID MW-4
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
1,1,1,2-Tetrachloroethane	< 50	ug/l	50	160	50	8260B		6/13/2012	CJR	1
Tetrachloroethene	< 22	ug/l	22	70	50	8260B		6/13/2012	CJR	1
Toluene	76 "J"	ug/l	26.5	85	50	8260B		6/13/2012	CJR	1
1,2,4-Trichlorobenzene	< 75	ug/l	75	230	50	8260B		6/13/2012	CJR	1
1,2,3-Trichlorobenzene	< 65	ug/l	65	210	50	8260B		6/13/2012	CJR	1
1,1,1-Trichloroethane	< 42.5	ug/l	42.5	135	50	8260B		6/13/2012	CJR	1
1,1,2-Trichloroethane	< 23.5	ug/l	23.5	75	50	8260B		6/13/2012	CJR	1
Trichloroethene (TCE)	< 23.5	ug/l	23.5	75	50	8260B		6/13/2012	CJR	1
Trichlorofluoromethane	< 85	ug/l	85	265	50	8260B		6/13/2012	CJR	1
1,2,4-Trimethylbenzene	660	ug/l	40	125	50	8260B		6/13/2012	CJR	1
1,3,5-Trimethylbenzene	64 "J"	ug/l	37	120	50	8260B		6/13/2012	CJR	1
Vinyl Chloride	< 9	ug/l	9	28	50	8260B		6/13/2012	CJR	1
m&p-Xylene	254	ug/l	55	175	50	8260B		6/13/2012	CJR	1
o-Xylene	< 40	ug/l	40	130	50	8260B		6/13/2012	CJR	1
SUR - 1,2-Dichloroethane-d4	106	REC %			50	8260B		6/13/2012	CJR	1
SUR - 4-Bromofluorobenzene	116	REC %			50	8260B		6/13/2012	CJR	1
SUR - Dibromofluoromethane	105	REC %			50	8260B		6/13/2012	CJR	1
SUR - Toluene-d8	106	REC %			50	8260B		6/13/2012	CJR	1

Lab Code 5023891F
Sample ID MW-N3
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Arsenic, Dissolved	14	ug/l	0.25	1	1	6020		6/13/2012	ESC	1
Barium, Dissolved	990	ug/l	7.2	40	20	6020		6/13/2012	ESC	1
Cadmium, Dissolved	< 0.16	ug/l	0.16	0.5	1	6020		6/13/2012	ESC	1
Chromium, Dissolved	2.8	ug/l	0.54	2	1	6020		6/13/2012	ESC	1
Lead, Dissolved	< 0.24	ug/l	0.24	1	1	6020		6/13/2012	ESC	1
Mercury, Dissolved	0.020 "J"	ug/l	0.015	0.2	1	7470A		6/13/2012	ESC	1
Selenium, Dissolved	< 0.38	ug/l	0.38	1	1	6020		6/13/2012	ESC	1
Silver, Dissolved	< 0.31	ug/l	0.31	1	1	6020		6/13/2012	ESC	1
Organic										
PAH SIM										
Acenaphthene	0.154	ug/l	0.025	0.082	1	M8270D	6/15/2012	6/15/2012	MDK	1
Acenaphthylene	< 0.019	ug/l	0.019	0.06	1	M8270D	6/15/2012	6/15/2012	MDK	1
Anthracene	0.076	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)anthracene	0.036 "J"	ug/l	0.024	0.075	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)pyrene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(b)fluoranthene	< 0.02	ug/l	0.02	0.066	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(g,h,i)perylene	< 0.019	ug/l	0.019	0.06	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(k)fluoranthene	< 0.022	ug/l	0.022	0.072	1	M8270D	6/15/2012	6/15/2012	MDK	1
Chrysene	0.03 "J"	ug/l	0.019	0.059	1	M8270D	6/15/2012	6/15/2012	MDK	1
Dibenzo(a,h)anthracene	< 0.019	ug/l	0.019	0.061	1	M8270D	6/15/2012	6/15/2012	MDK	1
Fluoranthene	0.084	ug/l	0.022	0.069	1	M8270D	6/15/2012	6/15/2012	MDK	1
Fluorene	0.152	ug/l	0.02	0.064	1	M8270D	6/15/2012	6/15/2012	MDK	1
Indeno(1,2,3-cd)pyrene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
1-Methyl naphthalene	0.78	ug/l	0.022	0.072	1	M8270D	6/15/2012	6/15/2012	MDK	1
2-Methyl naphthalene	0.05 "J"	ug/l	0.024	0.078	1	M8270D	6/15/2012	6/15/2012	MDK	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891F
Sample ID MW-N3
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Naphthalene	3.7	ug/l	0.021	0.067	1	M8270D	6/15/2012	6/15/2012	MDK	1
Phenanthrene	0.096	ug/l	0.019	0.062	1	M8270D	6/15/2012	6/15/2012	MDK	1
Pyrene	0.063 "J"	ug/l	0.02	0.065	1	M8270D	6/15/2012	6/15/2012	MDK	1
VOC's										
Benzene	2.76	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
Bromobenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Bromodichloromethane	< 0.68	ug/l	0.68	2.2	1	8260B		6/13/2012	CJR	1
Bromoform	< 0.43	ug/l	0.43	1.4	1	8260B		6/13/2012	CJR	1
tert-Butylbenzene	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
sec-Butylbenzene	3.5	ug/l	1	3.3	1	8260B		6/13/2012	CJR	1
n-Butylbenzene	9.3	ug/l	0.9	2.9	1	8260B		6/13/2012	CJR	1
Carbon Tetrachloride	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Chlorobenzene	2.2	ug/l	0.51	1.6	1	8260B		6/13/2012	CJR	1
Chloroethane	< 1.4	ug/l	1.4	4.5	1	8260B		6/13/2012	CJR	1
Chloroform	< 0.49	ug/l	0.49	1.5	1	8260B		6/13/2012	CJR	1
Chloromethane	< 1.9	ug/l	1.9	6.1	1	8260B		6/13/2012	CJR	1
2-Chlorotoluene	< 0.7	ug/l	0.7	2.2	1	8260B		6/13/2012	CJR	1
4-Chlorotoluene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
1,2-Dibromo-3-chloropropane	< 2.8	ug/l	2.8	8.9	1	8260B		6/13/2012	CJR	1
Dibromochloromethane	< 0.55	ug/l	0.55	1.8	1	8260B		6/13/2012	CJR	1
1,4-Dichlorobenzene	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,3-Dichlorobenzene	< 0.87	ug/l	0.87	2.8	1	8260B		6/13/2012	CJR	1
1,2-Dichlorobenzene	1.22 "J"	ug/l	0.76	2.4	1	8260B		6/13/2012	CJR	1
Dichlorodifluoromethane	< 1.8	ug/l	1.8	5.9	1	8260B		6/13/2012	CJR	1
1,2-Dichloroethane	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethane	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethene	< 0.6	ug/l	0.6	1.9	1	8260B		6/13/2012	CJR	1
cis-1,2-Dichloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
trans-1,2-Dichloroethene	< 0.79	ug/l	0.79	2.5	1	8260B		6/13/2012	CJR	1
1,2-Dichloropropane	< 0.4	ug/l	0.4	1.3	1	8260B		6/13/2012	CJR	1
2,2-Dichloropropane	< 1.9	ug/l	1.9	5.9	1	8260B		6/13/2012	CJR	1
1,3-Dichloropropane	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
Di-isopropyl ether	1.02 "J"	ug/l	0.69	2.2	1	8260B		6/13/2012	CJR	1
EDB (1,2-Dibromoethane)	< 0.63	ug/l	0.63	2	1	8260B		6/13/2012	CJR	1
Ethylbenzene	< 0.78	ug/l	0.78	2.5	1	8260B		6/13/2012	CJR	1
Hexachlorobutadiene	< 2.2	ug/l	2.2	6.8	1	8260B		6/13/2012	CJR	1
Isopropylbenzene	4.0	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
p-Isopropyltoluene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
Methylene chloride	< 1.1	ug/l	1.1	3.4	1	8260B		6/13/2012	CJR	1
Methyl tert-butyl ether (MTBE)	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
Naphthalene	5.9 "J"	ug/l	2.1	6.8	1	8260B		6/13/2012	CJR	1
n-Propylbenzene	5.0	ug/l	0.59	1.9	1	8260B		6/13/2012	CJR	1
1,1,2,2-Tetrachloroethane	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,1,1,2-Tetrachloroethane	< 1	ug/l	1	3.2	1	8260B		6/13/2012	CJR	1
Tetrachloroethene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
Toluene	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,2,4-Trichlorobenzene	< 1.5	ug/l	1.5	4.6	1	8260B		6/13/2012	CJR	1
1,2,3-Trichlorobenzene	< 1.3	ug/l	1.3	4.2	1	8260B		6/13/2012	CJR	1
1,1,1-Trichloroethane	< 0.85	ug/l	0.85	2.7	1	8260B		6/13/2012	CJR	1
1,1,2-Trichloroethane	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichlorofluoromethane	< 1.7	ug/l	1.7	5.3	1	8260B		6/13/2012	CJR	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891F
Sample ID MW-N3
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
1,2,4-Trimethylbenzene	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
1,3,5-Trimethylbenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Vinyl Chloride	< 0.18	ug/l	0.18	0.56	1	8260B		6/13/2012	CJR	1
m&p-Xylene	< 1.1	ug/l	1.1	3.5	1	8260B		6/13/2012	CJR	1
o-Xylene	< 0.8	ug/l	0.8	2.6	1	8260B		6/13/2012	CJR	1
SUR - 1,2-Dichloroethane-d4	97	REC %			1	8260B		6/13/2012	CJR	1
SUR - 4-Bromofluorobenzene	116	REC %			1	8260B		6/13/2012	CJR	1
SUR - Dibromofluoromethane	99	REC %			1	8260B		6/13/2012	CJR	1
SUR - Toluene-d8	104	REC %			1	8260B		6/13/2012	CJR	1

Lab Code 5023891G
Sample ID PZ-2
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Arsenic, Dissolved	13	ug/l	0.25	1	1	6020		6/13/2012	ESC	1
Barium, Dissolved	120	ug/l	1.8	10	5	6020		6/13/2012	ESC	1 64
Cadmium, Dissolved	< 0.16	ug/l	0.16	0.5	1	6020		6/13/2012	ESC	1
Chromium, Dissolved	1.2 "J"	ug/l	0.54	2	1	6020		6/13/2012	ESC	1
Lead, Dissolved	< 0.24	ug/l	0.24	1	1	6020		6/13/2012	ESC	1
Mercury, Dissolved	0.020 "J"	ug/l	0.015	0.2	1	7470A		6/13/2012	ESC	1
Selenium, Dissolved	3.6	ug/l	0.38	1	1	6020		6/13/2012	ESC	1
Silver, Dissolved	< 0.31	ug/l	0.31	1	1	6020		6/13/2012	ESC	1
Organic										
PAH SIM										
Acenaphthene	< 0.025	ug/l	0.025	0.082	1	M8270D	6/15/2012	6/15/2012	MDK	1
Acenaphthylene	< 0.019	ug/l	0.019	0.06	1	M8270D	6/15/2012	6/15/2012	MDK	1
Anthracene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)anthracene	< 0.024	ug/l	0.024	0.075	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)pyrene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(b)fluoranthene	< 0.02	ug/l	0.02	0.066	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(g,h,i)perylene	< 0.019	ug/l	0.019	0.06	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(k)fluoranthene	< 0.022	ug/l	0.022	0.072	1	M8270D	6/15/2012	6/15/2012	MDK	1
Chrysene	< 0.019	ug/l	0.019	0.059	1	M8270D	6/15/2012	6/15/2012	MDK	1
Dibenzo(a,h)anthracene	< 0.019	ug/l	0.019	0.061	1	M8270D	6/15/2012	6/15/2012	MDK	1
Fluoranthene	< 0.022	ug/l	0.022	0.069	1	M8270D	6/15/2012	6/15/2012	MDK	1
Fluorene	< 0.02	ug/l	0.02	0.064	1	M8270D	6/15/2012	6/15/2012	MDK	1
Indeno(1,2,3-cd)pyrene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
1-Methyl naphthalene	< 0.022	ug/l	0.022	0.072	1	M8270D	6/15/2012	6/15/2012	MDK	1
2-Methyl naphthalene	< 0.024	ug/l	0.024	0.078	1	M8270D	6/15/2012	6/15/2012	MDK	1
Naphthalene	0.1	ug/l	0.021	0.067	1	M8270D	6/15/2012	6/15/2012	MDK	1
Phenanthrene	< 0.019	ug/l	0.019	0.062	1	M8270D	6/15/2012	6/15/2012	MDK	1
Pyrene	< 0.02	ug/l	0.02	0.065	1	M8270D	6/15/2012	6/15/2012	MDK	1
VOC's										
Benzene	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
Bromobenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Bromodichloromethane	< 0.68	ug/l	0.68	2.2	1	8260B		6/13/2012	CJR	1
Bromoform	< 0.43	ug/l	0.43	1.4	1	8260B		6/13/2012	CJR	1
tert-Butylbenzene	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891G
Sample ID PZ-2
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
sec-Butylbenzene	< 1	ug/l	1	3.3	1	8260B		6/13/2012	CJR	1
n-Butylbenzene	< 0.9	ug/l	0.9	2.9	1	8260B		6/13/2012	CJR	1
Carbon Tetrachloride	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Chlorobenzene	< 0.51	ug/l	0.51	1.6	1	8260B		6/13/2012	CJR	1
Chloroethane	< 1.4	ug/l	1.4	4.5	1	8260B		6/13/2012	CJR	1
Chloroform	< 0.49	ug/l	0.49	1.5	1	8260B		6/13/2012	CJR	1
Chloromethane	< 1.9	ug/l	1.9	6.1	1	8260B		6/13/2012	CJR	1
2-Chlorotoluene	< 0.7	ug/l	0.7	2.2	1	8260B		6/13/2012	CJR	1
4-Chlorotoluene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
1,2-Dibromo-3-chloropropane	< 2.8	ug/l	2.8	8.9	1	8260B		6/13/2012	CJR	1
Dibromochloromethane	< 0.55	ug/l	0.55	1.8	1	8260B		6/13/2012	CJR	1
1,4-Dichlorobenzene	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,3-Dichlorobenzene	< 0.87	ug/l	0.87	2.8	1	8260B		6/13/2012	CJR	1
1,2-Dichlorobenzene	< 0.76	ug/l	0.76	2.4	1	8260B		6/13/2012	CJR	1
Dichlorodifluoromethane	< 1.8	ug/l	1.8	5.9	1	8260B		6/13/2012	CJR	1
1,2-Dichloroethane	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethane	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethene	< 0.6	ug/l	0.6	1.9	1	8260B		6/13/2012	CJR	1
cis-1,2-Dichloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
trans-1,2-Dichloroethene	< 0.79	ug/l	0.79	2.5	1	8260B		6/13/2012	CJR	1
1,2-Dichloropropane	< 0.4	ug/l	0.4	1.3	1	8260B		6/13/2012	CJR	1
2,2-Dichloropropane	< 1.9	ug/l	1.9	5.9	1	8260B		6/13/2012	CJR	1
1,3-Dichloropropane	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
Di-isopropyl ether	< 0.69	ug/l	0.69	2.2	1	8260B		6/13/2012	CJR	1
EDB (1,2-Dibromoethane)	< 0.63	ug/l	0.63	2	1	8260B		6/13/2012	CJR	1
Ethylbenzene	< 0.78	ug/l	0.78	2.5	1	8260B		6/13/2012	CJR	1
Hexachlorobutadiene	< 2.2	ug/l	2.2	6.8	1	8260B		6/13/2012	CJR	1
Isopropylbenzene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
p-Isopropyltoluene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
Methylene chloride	< 1.1	ug/l	1.1	3.4	1	8260B		6/13/2012	CJR	1
Methyl tert-butyl ether (MTBE)	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
Naphthalene	< 2.1	ug/l	2.1	6.8	1	8260B		6/13/2012	CJR	1
n-Propylbenzene	< 0.59	ug/l	0.59	1.9	1	8260B		6/13/2012	CJR	1
1,1,2,2-Tetrachloroethane	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,1,1,2-Tetrachloroethane	< 1	ug/l	1	3.2	1	8260B		6/13/2012	CJR	1
Tetrachloroethene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
Toluene	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,2,4-Trichlorobenzene	< 1.5	ug/l	1.5	4.6	1	8260B		6/13/2012	CJR	1
1,2,3-Trichlorobenzene	< 1.3	ug/l	1.3	4.2	1	8260B		6/13/2012	CJR	1
1,1,1-Trichloroethane	< 0.85	ug/l	0.85	2.7	1	8260B		6/13/2012	CJR	1
1,1,2-Trichloroethane	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichlorofluoromethane	< 1.7	ug/l	1.7	5.3	1	8260B		6/13/2012	CJR	1
1,2,4-Trimethylbenzene	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
1,3,5-Trimethylbenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Vinyl Chloride	< 0.18	ug/l	0.18	0.56	1	8260B		6/13/2012	CJR	1
m&p-Xylene	< 1.1	ug/l	1.1	3.5	1	8260B		6/13/2012	CJR	1
o-Xylene	< 0.8	ug/l	0.8	2.6	1	8260B		6/13/2012	CJR	1
SUR - 4-Bromofluorobenzene	118	REC %			1	8260B		6/13/2012	CJR	1
SUR - Dibromofluoromethane	99	REC %			1	8260B		6/13/2012	CJR	1
SUR - Toluene-d8	104	REC %			1	8260B		6/13/2012	CJR	1
SUR - 1,2-Dichloroethane-d4	95	REC %			1	8260B		6/13/2012	CJR	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891H
Sample ID MW-3
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Arsenic, Dissolved	3.2	ug/l	0.25	1	1	6020		6/18/2012	ESC	1
Barium, Dissolved	1100	ug/l	7.2	40	20	6020		6/18/2012	ESC	5
Cadmium, Dissolved	0.21 "J"	ug/l	0.16	0.5	1	6020		6/18/2012	ESC	1
Chromium, Dissolved	4.3	ug/l	0.54	2	1	6020		6/18/2012	ESC	1
Lead, Dissolved	2.3	ug/l	0.24	1	1	6020		6/18/2012	ESC	1
Mercury, Dissolved	0.020 "J"	ug/l	0.015	0.2	1	7470A		6/13/2012	ESC	1
Selenium, Dissolved	1.0	ug/l	0.38	1	1	6020		6/18/2012	ESC	1
Silver, Dissolved	< 0.31	ug/l	0.31	1	1	6020		6/18/2012	ESC	1
Organic										
PAH SIM										
Acenaphthene	0.314	ug/l	0.025	0.082	1	M8270D	6/15/2012	6/15/2012	MDK	1
Acenaphthylene	0.113	ug/l	0.019	0.06	1	M8270D	6/15/2012	6/15/2012	MDK	1
Anthracene	0.059	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)anthracene	< 0.024	ug/l	0.024	0.075	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)pyrene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(b)fluoranthene	< 0.02	ug/l	0.02	0.066	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(g,h,i)perylene	< 0.019	ug/l	0.019	0.06	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(k)fluoranthene	< 0.022	ug/l	0.022	0.072	1	M8270D	6/15/2012	6/15/2012	MDK	1
Chrysene	< 0.019	ug/l	0.019	0.059	1	M8270D	6/15/2012	6/15/2012	MDK	1
Dibenzo(a,h)anthracene	< 0.019	ug/l	0.019	0.061	1	M8270D	6/15/2012	6/15/2012	MDK	1
Fluoranthene	0.053 "J"	ug/l	0.022	0.069	1	M8270D	6/15/2012	6/15/2012	MDK	1
Fluorene	0.305	ug/l	0.02	0.064	1	M8270D	6/15/2012	6/15/2012	MDK	1
Indeno(1,2,3-cd)pyrene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
1-Methyl naphthalene	1.08	ug/l	0.022	0.072	1	M8270D	6/15/2012	6/15/2012	MDK	1
2-Methyl naphthalene	0.36	ug/l	0.024	0.078	1	M8270D	6/15/2012	6/15/2012	MDK	1
Naphthalene	8.2	ug/l	0.021	0.067	1	M8270D	6/15/2012	6/15/2012	MDK	1
Phenanthrene	0.225	ug/l	0.019	0.062	1	M8270D	6/15/2012	6/15/2012	MDK	1
Pyrene	0.077	ug/l	0.02	0.065	1	M8270D	6/15/2012	6/15/2012	MDK	1
VOC's										
Benzene	54	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
Bromobenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Bromodichloromethane	< 0.68	ug/l	0.68	2.2	1	8260B		6/13/2012	CJR	1
Bromoform	< 0.43	ug/l	0.43	1.4	1	8260B		6/13/2012	CJR	1
tert-Butylbenzene	1.27 "J"	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
sec-Butylbenzene	15.2	ug/l	1	3.3	1	8260B		6/13/2012	CJR	1
n-Butylbenzene	12.5	ug/l	0.9	2.9	1	8260B		6/13/2012	CJR	1
Carbon Tetrachloride	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Chlorobenzene	7.6	ug/l	0.51	1.6	1	8260B		6/13/2012	CJR	1
Chloroethane	< 1.4	ug/l	1.4	4.5	1	8260B		6/13/2012	CJR	1
Chloroform	< 0.49	ug/l	0.49	1.5	1	8260B		6/13/2012	CJR	1
Chloromethane	< 1.9	ug/l	1.9	6.1	1	8260B		6/13/2012	CJR	1
2-Chlorotoluene	< 0.7	ug/l	0.7	2.2	1	8260B		6/13/2012	CJR	1
4-Chlorotoluene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
1,2-Dibromo-3-chloropropane	< 2.8	ug/l	2.8	8.9	1	8260B		6/13/2012	CJR	1
Dibromochloromethane	< 0.55	ug/l	0.55	1.8	1	8260B		6/13/2012	CJR	1
1,4-Dichlorobenzene	3.14	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,3-Dichlorobenzene	< 0.87	ug/l	0.87	2.8	1	8260B		6/13/2012	CJR	1
1,2-Dichlorobenzene	1.63 "J"	ug/l	0.76	2.4	1	8260B		6/13/2012	CJR	1
Dichlorodifluoromethane	< 1.8	ug/l	1.8	5.9	1	8260B		6/13/2012	CJR	1

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Lab Code 5023891H
Sample ID MW-3
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
1,2-Dichloroethane	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethane	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethene	< 0.6	ug/l	0.6	1.9	1	8260B		6/13/2012	CJR	1
cis-1,2-Dichloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
trans-1,2-Dichloroethene	< 0.79	ug/l	0.79	2.5	1	8260B		6/13/2012	CJR	1
1,2-Dichloropropane	< 0.4	ug/l	0.4	1.3	1	8260B		6/13/2012	CJR	1
2,2-Dichloropropane	< 1.9	ug/l	1.9	5.9	1	8260B		6/13/2012	CJR	1
1,3-Dichloropropane	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
Di-isopropyl ether	< 0.69	ug/l	0.69	2.2	1	8260B		6/13/2012	CJR	1
EDB (1,2-Dibromoethane)	< 0.63	ug/l	0.63	2	1	8260B		6/13/2012	CJR	1
Ethylbenzene	< 0.78	ug/l	0.78	2.5	1	8260B		6/13/2012	CJR	1
Hexachlorobutadiene	< 2.2	ug/l	2.2	6.8	1	8260B		6/13/2012	CJR	1
Isopropylbenzene	22.7	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
p-Isopropyltoluene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
Methylene chloride	< 1.1	ug/l	1.1	3.4	1	8260B		6/13/2012	CJR	1
Methyl tert-butyl ether (MTBE)	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
Naphthalene	14.8	ug/l	2.1	6.8	1	8260B		6/13/2012	CJR	1
n-Propylbenzene	26	ug/l	0.59	1.9	1	8260B		6/13/2012	CJR	1
1,1,2,2-Tetrachloroethane	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,1,1,2-Tetrachloroethane	< 1	ug/l	1	3.2	1	8260B		6/13/2012	CJR	1
Tetrachloroethene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
Toluene	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,2,4-Trichlorobenzene	< 1.5	ug/l	1.5	4.6	1	8260B		6/13/2012	CJR	1
1,2,3-Trichlorobenzene	< 1.3	ug/l	1.3	4.2	1	8260B		6/13/2012	CJR	1
1,1,1-Trichloroethane	< 0.85	ug/l	0.85	2.7	1	8260B		6/13/2012	CJR	1
1,1,2-Trichloroethane	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichlorofluoromethane	< 1.7	ug/l	1.7	5.3	1	8260B		6/13/2012	CJR	1
1,2,4-Trimethylbenzene	13.7	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
1,3,5-Trimethylbenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Vinyl Chloride	< 0.18	ug/l	0.18	0.56	1	8260B		6/13/2012	CJR	1
m&p-Xylene	< 1.1	ug/l	1.1	3.5	1	8260B		6/13/2012	CJR	1
o-Xylene	< 0.8	ug/l	0.8	2.6	1	8260B		6/13/2012	CJR	1
SUR - 1,2-Dichloroethane-d4	101	REC %			1	8260B		6/13/2012	CJR	1
SUR - 4-Bromofluorobenzene	115	REC %			1	8260B		6/13/2012	CJR	1
SUR - Dibromofluoromethane	98	REC %			1	8260B		6/13/2012	CJR	1
SUR - Toluene-d8	106	REC %			1	8260B		6/13/2012	CJR	1

Lab Code 5023891I
Sample ID MW-2
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Arsenic, Dissolved	1.1	ug/l	0.25	1	1	6020		6/18/2012	ESC	1
Barium, Dissolved	1100	ug/l	7.2	40	20	6020		6/18/2012	ESC	1
Cadmium, Dissolved	0.20 "J"	ug/l	0.16	0.5	1	6020		6/18/2012	ESC	1
Chromium, Dissolved	2.3	ug/l	0.54	2	1	6020		6/18/2012	ESC	1
Lead, Dissolved	< 0.24	ug/l	0.24	1	1	6020		6/18/2012	ESC	1
Mercury, Dissolved	0.020 "J"	ug/l	0.015	0.2	1	7470A		6/13/2012	ESC	1
Selenium, Dissolved	< 0.38	ug/l	0.38	1	1	6020		6/18/2012	ESC	1

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Lab Code 5023891I
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	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Silver, Dissolved	< 0.31	ug/l	0.31	1	1	6020		6/18/2012	ESC	1
Organic										
PAH SIM										
Acenaphthene	0.63 "J"	ug/l	0.25	0.82	10	M8270D	6/15/2012	6/15/2012	MDK	1
Acenaphthylene	< 0.19	ug/l	0.19	0.6	10	M8270D	6/15/2012	6/15/2012	MDK	1
Anthracene	< 0.18	ug/l	0.18	0.58	10	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)anthracene	< 0.24	ug/l	0.24	0.75	10	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)pyrene	< 0.18	ug/l	0.18	0.58	10	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(b)fluoranthene	< 0.2	ug/l	0.2	0.66	10	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(g,h,i)perylene	< 0.19	ug/l	0.19	0.6	10	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(k)fluoranthene	< 0.22	ug/l	0.22	0.72	10	M8270D	6/15/2012	6/15/2012	MDK	1
Chrysene	< 0.19	ug/l	0.19	0.59	10	M8270D	6/15/2012	6/15/2012	MDK	1
Dibenzo(a,h)anthracene	< 0.19	ug/l	0.19	0.61	10	M8270D	6/15/2012	6/15/2012	MDK	1
Fluoranthene	< 0.22	ug/l	0.22	0.69	10	M8270D	6/15/2012	6/15/2012	MDK	1
Fluorene	0.57 "J"	ug/l	0.2	0.64	10	M8270D	6/15/2012	6/15/2012	MDK	1
Indeno(1,2,3-cd)pyrene	< 0.18	ug/l	0.18	0.58	10	M8270D	6/15/2012	6/15/2012	MDK	1
1-Methyl naphthalene	1.64	ug/l	0.22	0.72	10	M8270D	6/15/2012	6/15/2012	MDK	1
2-Methyl naphthalene	< 0.24	ug/l	0.24	0.78	10	M8270D	6/15/2012	6/15/2012	MDK	1
Naphthalene	9.3	ug/l	0.21	0.67	10	M8270D	6/15/2012	6/15/2012	MDK	1
Phenanthrene	< 0.19	ug/l	0.19	0.62	10	M8270D	6/15/2012	6/15/2012	MDK	1
Pyrene	< 0.2	ug/l	0.2	0.65	10	M8270D	6/15/2012	6/15/2012	MDK	1
VOC's										
Benzene	15.2	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
Bromobenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Bromodichloromethane	< 0.68	ug/l	0.68	2.2	1	8260B		6/13/2012	CJR	1
Bromoform	< 0.43	ug/l	0.43	1.4	1	8260B		6/13/2012	CJR	1
tert-Butylbenzene	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
sec-Butylbenzene	2.67 "J"	ug/l	1	3.3	1	8260B		6/13/2012	CJR	1
n-Butylbenzene	5.8	ug/l	0.9	2.9	1	8260B		6/13/2012	CJR	1
Carbon Tetrachloride	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Chlorobenzene	2.35	ug/l	0.51	1.6	1	8260B		6/13/2012	CJR	1
Chloroethane	< 1.4	ug/l	1.4	4.5	1	8260B		6/13/2012	CJR	1
Chloroform	< 0.49	ug/l	0.49	1.5	1	8260B		6/13/2012	CJR	1
Chloromethane	< 1.9	ug/l	1.9	6.1	1	8260B		6/13/2012	CJR	1
2-Chlorotoluene	< 0.7	ug/l	0.7	2.2	1	8260B		6/13/2012	CJR	1
4-Chlorotoluene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
1,2-Dibromo-3-chloropropane	< 2.8	ug/l	2.8	8.9	1	8260B		6/13/2012	CJR	1
Dibromochloromethane	< 0.55	ug/l	0.55	1.8	1	8260B		6/13/2012	CJR	1
1,4-Dichlorobenzene	3.8	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,3-Dichlorobenzene	< 0.87	ug/l	0.87	2.8	1	8260B		6/13/2012	CJR	1
1,2-Dichlorobenzene	< 0.76	ug/l	0.76	2.4	1	8260B		6/13/2012	CJR	1
Dichlorodifluoromethane	< 1.8	ug/l	1.8	5.9	1	8260B		6/13/2012	CJR	1
1,2-Dichloroethane	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethane	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethene	< 0.6	ug/l	0.6	1.9	1	8260B		6/13/2012	CJR	1
cis-1,2-Dichloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
trans-1,2-Dichloroethene	< 0.79	ug/l	0.79	2.5	1	8260B		6/13/2012	CJR	1
1,2-Dichloropropane	< 0.4	ug/l	0.4	1.3	1	8260B		6/13/2012	CJR	1
2,2-Dichloropropane	< 1.9	ug/l	1.9	5.9	1	8260B		6/13/2012	CJR	1
1,3-Dichloropropane	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
Di-isopropyl ether	< 0.69	ug/l	0.69	2.2	1	8260B		6/13/2012	CJR	1
EDB (1,2-Dibromoethane)	< 0.63	ug/l	0.63	2	1	8260B		6/13/2012	CJR	1

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Lab Code 5023891I
Sample ID MW-2
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Ethylbenzene	< 0.78	ug/l	0.78	2.5	1	8260B		6/13/2012	CJR	1
Hexachlorobutadiene	< 2.2	ug/l	2.2	6.8	1	8260B		6/13/2012	CJR	1
Isopropylbenzene	6.6	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
p-Isopropyltoluene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
Methylene chloride	< 1.1	ug/l	1.1	3.4	1	8260B		6/13/2012	CJR	1
Methyl tert-butyl ether (MTBE)	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
Naphthalene	15	ug/l	2.1	6.8	1	8260B		6/13/2012	CJR	1
n-Propylbenzene	10.6	ug/l	0.59	1.9	1	8260B		6/13/2012	CJR	1
1,1,2,2-Tetrachloroethane	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,1,1,2-Tetrachloroethane	< 1	ug/l	1	3.2	1	8260B		6/13/2012	CJR	1
Tetrachloroethene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
Toluene	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,2,4-Trichlorobenzene	< 1.5	ug/l	1.5	4.6	1	8260B		6/13/2012	CJR	1
1,2,3-Trichlorobenzene	< 1.3	ug/l	1.3	4.2	1	8260B		6/13/2012	CJR	1
1,1,1-Trichloroethane	< 0.85	ug/l	0.85	2.7	1	8260B		6/13/2012	CJR	1
1,1,2-Trichloroethane	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichlorofluoromethane	< 1.7	ug/l	1.7	5.3	1	8260B		6/13/2012	CJR	1
1,2,4-Trimethylbenzene	2.76	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
1,3,5-Trimethylbenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Vinyl Chloride	< 0.18	ug/l	0.18	0.56	1	8260B		6/13/2012	CJR	1
m&p-Xylene	< 1.1	ug/l	1.1	3.5	1	8260B		6/13/2012	CJR	1
o-Xylene	0.93 "J"	ug/l	0.8	2.6	1	8260B		6/13/2012	CJR	1
SUR - 1,2-Dichloroethane-d4	95	REC %			1	8260B		6/13/2012	CJR	1
SUR - 4-Bromofluorobenzene	117	REC %			1	8260B		6/13/2012	CJR	1
SUR - Dibromofluoromethane	100	REC %			1	8260B		6/13/2012	CJR	1
SUR - Toluene-d8	107	REC %			1	8260B		6/13/2012	CJR	1

Lab Code 5023891J
Sample ID MW-1
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Inorganic										
Metals										
Arsenic, Dissolved	15	ug/l	0.25	1	1	6020		6/18/2012	ESC	1
Barium, Dissolved	670	ug/l	3.6	20	10	6020		6/18/2012	ESC	5
Cadmium, Dissolved	0.17"J"	ug/l	0.16	0.5	1	6020		6/18/2012	ESC	1
Chromium, Dissolved	< 0.54	ug/l	0.54	2	1	6020		6/18/2012	ESC	1
Lead, Dissolved	< 0.24	ug/l	0.24	1	1	6020		6/18/2012	ESC	1
Mercury, Dissolved	0.020 "J"	ug/l	0.015	0.2	1	7470A		6/13/2012	ESC	1
Selenium, Dissolved	< 0.38	ug/l	0.38	1	1	6020		6/18/2012	ESC	1
Silver, Dissolved	< 0.31	ug/l	0.31	1	1	6020		6/18/2012	ESC	1
Organic										
PAH SIM										
Acenaphthene	< 0.025	ug/l	0.025	0.082	1	M8270D	6/15/2012	6/15/2012	MDK	1
Acenaphthylene	0.032 "J"	ug/l	0.019	0.06	1	M8270D	6/15/2012	6/15/2012	MDK	1
Anthracene	0.019 "J"	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)anthracene	0.035 "J"	ug/l	0.024	0.075	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(a)pyrene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(b)fluoranthene	0.026 "J"	ug/l	0.02	0.066	1	M8270D	6/15/2012	6/15/2012	MDK	1

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	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Benzo(g,h,i)perylene	< 0.019	ug/l	0.019	0.06	1	M8270D	6/15/2012	6/15/2012	MDK	1
Benzo(k)fluoranthene	< 0.022	ug/l	0.022	0.072	1	M8270D	6/15/2012	6/15/2012	MDK	1
Chrysene	0.024 "J"	ug/l	0.019	0.059	1	M8270D	6/15/2012	6/15/2012	MDK	1
Dibenzo(a,h)anthracene	< 0.019	ug/l	0.019	0.061	1	M8270D	6/15/2012	6/15/2012	MDK	1
Fluoranthene	0.046 "J"	ug/l	0.022	0.069	1	M8270D	6/15/2012	6/15/2012	MDK	1
Fluorene	< 0.02	ug/l	0.02	0.064	1	M8270D	6/15/2012	6/15/2012	MDK	1
Indeno(1,2,3-cd)pyrene	< 0.018	ug/l	0.018	0.058	1	M8270D	6/15/2012	6/15/2012	MDK	1
1-Methyl naphthalene	< 0.022	ug/l	0.022	0.072	1	M8270D	6/15/2012	6/15/2012	MDK	1
2-Methyl naphthalene	< 0.024	ug/l	0.024	0.078	1	M8270D	6/15/2012	6/15/2012	MDK	1
Naphthalene	0.043 "J"	ug/l	0.021	0.067	1	M8270D	6/15/2012	6/15/2012	MDK	1
Phenanthrene	0.023 "J"	ug/l	0.019	0.062	1	M8270D	6/15/2012	6/15/2012	MDK	1
Pyrene	0.034 "J"	ug/l	0.02	0.065	1	M8270D	6/15/2012	6/15/2012	MDK	1
VOC's										
Benzene	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
Bromobenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Bromodichloromethane	< 0.68	ug/l	0.68	2.2	1	8260B		6/13/2012	CJR	1
Bromoform	< 0.43	ug/l	0.43	1.4	1	8260B		6/13/2012	CJR	1
tert-Butylbenzene	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
sec-Butylbenzene	< 1	ug/l	1	3.3	1	8260B		6/13/2012	CJR	1
n-Butylbenzene	< 0.9	ug/l	0.9	2.9	1	8260B		6/13/2012	CJR	1
Carbon Tetrachloride	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Chlorobenzene	< 0.51	ug/l	0.51	1.6	1	8260B		6/13/2012	CJR	1
Chloroethane	< 1.4	ug/l	1.4	4.5	1	8260B		6/13/2012	CJR	1
Chloroform	< 0.49	ug/l	0.49	1.5	1	8260B		6/13/2012	CJR	1
Chloromethane	< 1.9	ug/l	1.9	6.1	1	8260B		6/13/2012	CJR	1
2-Chlorotoluene	< 0.7	ug/l	0.7	2.2	1	8260B		6/13/2012	CJR	1
4-Chlorotoluene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
1,2-Dibromo-3-chloropropane	< 2.8	ug/l	2.8	8.9	1	8260B		6/13/2012	CJR	1
Dibromochloromethane	< 0.55	ug/l	0.55	1.8	1	8260B		6/13/2012	CJR	1
1,4-Dichlorobenzene	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,3-Dichlorobenzene	< 0.87	ug/l	0.87	2.8	1	8260B		6/13/2012	CJR	1
1,2-Dichlorobenzene	< 0.76	ug/l	0.76	2.4	1	8260B		6/13/2012	CJR	1
Dichlorodifluoromethane	< 1.8	ug/l	1.8	5.9	1	8260B		6/13/2012	CJR	1
1,2-Dichloroethane	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethane	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethene	< 0.6	ug/l	0.6	1.9	1	8260B		6/13/2012	CJR	1
cis-1,2-Dichloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
trans-1,2-Dichloroethene	< 0.79	ug/l	0.79	2.5	1	8260B		6/13/2012	CJR	1
1,2-Dichloropropane	< 0.4	ug/l	0.4	1.3	1	8260B		6/13/2012	CJR	1
2,2-Dichloropropane	< 1.9	ug/l	1.9	5.9	1	8260B		6/13/2012	CJR	1
1,3-Dichloropropane	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
Di-isopropyl ether	< 0.69	ug/l	0.69	2.2	1	8260B		6/13/2012	CJR	1
EDB (1,2-Dibromoethane)	< 0.63	ug/l	0.63	2	1	8260B		6/13/2012	CJR	1
Ethylbenzene	< 0.78	ug/l	0.78	2.5	1	8260B		6/13/2012	CJR	1
Hexachlorobutadiene	< 2.2	ug/l	2.2	6.8	1	8260B		6/13/2012	CJR	1
Isopropylbenzene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
p-Isopropyltoluene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
Methylene chloride	< 1.1	ug/l	1.1	3.4	1	8260B		6/13/2012	CJR	1
Methyl tert-butyl ether (MTBE)	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
Naphthalene	< 2.1	ug/l	2.1	6.8	1	8260B		6/13/2012	CJR	1
n-Propylbenzene	< 0.59	ug/l	0.59	1.9	1	8260B		6/13/2012	CJR	1
1,1,2,2-Tetrachloroethane	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891J
Sample ID MW-1
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
1,1,1,2-Tetrachloroethane	< 1	ug/l	1	3.2	1	8260B		6/13/2012	CJR	1
Tetrachloroethene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
Toluene	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,2,4-Trichlorobenzene	< 1.5	ug/l	1.5	4.6	1	8260B		6/13/2012	CJR	1
1,2,3-Trichlorobenzene	< 1.3	ug/l	1.3	4.2	1	8260B		6/13/2012	CJR	1
1,1,1-Trichloroethane	< 0.85	ug/l	0.85	2.7	1	8260B		6/13/2012	CJR	1
1,1,2-Trichloroethane	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichlorofluoromethane	< 1.7	ug/l	1.7	5.3	1	8260B		6/13/2012	CJR	1
1,2,4-Trimethylbenzene	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
1,3,5-Trimethylbenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Vinyl Chloride	< 0.18	ug/l	0.18	0.56	1	8260B		6/13/2012	CJR	1
m&p-Xylene	< 1.1	ug/l	1.1	3.5	1	8260B		6/13/2012	CJR	1
o-Xylene	< 0.8	ug/l	0.8	2.6	1	8260B		6/13/2012	CJR	1
SUR - 1,2-Dichloroethane-d4	97	REC %			1	8260B		6/13/2012	CJR	1
SUR - Toluene-d8	105	REC %			1	8260B		6/13/2012	CJR	1
SUR - 4-Bromofluorobenzene	117	REC %			1	8260B		6/13/2012	CJR	1
SUR - Dibromofluoromethane	102	REC %			1	8260B		6/13/2012	CJR	1

Lab Code 5023891K
Sample ID DUP
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
Benzene	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
Bromobenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Bromodichloromethane	< 0.68	ug/l	0.68	2.2	1	8260B		6/13/2012	CJR	1
Bromoform	< 0.43	ug/l	0.43	1.4	1	8260B		6/13/2012	CJR	1
tert-Butylbenzene	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
sec-Butylbenzene	< 1	ug/l	1	3.3	1	8260B		6/13/2012	CJR	1
n-Butylbenzene	< 0.9	ug/l	0.9	2.9	1	8260B		6/13/2012	CJR	1
Carbon Tetrachloride	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Chlorobenzene	< 0.51	ug/l	0.51	1.6	1	8260B		6/13/2012	CJR	1
Chloroethane	< 1.4	ug/l	1.4	4.5	1	8260B		6/13/2012	CJR	1
Chloroform	< 0.49	ug/l	0.49	1.5	1	8260B		6/13/2012	CJR	1
Chloromethane	< 1.9	ug/l	1.9	6.1	1	8260B		6/13/2012	CJR	1
2-Chlorotoluene	< 0.7	ug/l	0.7	2.2	1	8260B		6/13/2012	CJR	1
4-Chlorotoluene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
1,2-Dibromo-3-chloropropane	< 2.8	ug/l	2.8	8.9	1	8260B		6/13/2012	CJR	1
Dibromochloromethane	< 0.55	ug/l	0.55	1.8	1	8260B		6/13/2012	CJR	1
1,4-Dichlorobenzene	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,3-Dichlorobenzene	< 0.87	ug/l	0.87	2.8	1	8260B		6/13/2012	CJR	1
1,2-Dichlorobenzene	< 0.76	ug/l	0.76	2.4	1	8260B		6/13/2012	CJR	1
Dichlorodifluoromethane	< 1.8	ug/l	1.8	5.9	1	8260B		6/13/2012	CJR	1
1,2-Dichloroethane	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethane	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethene	< 0.6	ug/l	0.6	1.9	1	8260B		6/13/2012	CJR	1
cis-1,2-Dichloroethene	6.2	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
trans-1,2-Dichloroethene	< 0.79	ug/l	0.79	2.5	1	8260B		6/13/2012	CJR	1
1,2-Dichloropropane	< 0.4	ug/l	0.4	1.3	1	8260B		6/13/2012	CJR	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891K
Sample ID DUP
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
2,2-Dichloropropane	< 1.9	ug/l	1.9	5.9	1	8260B		6/13/2012	CJR	1
1,3-Dichloropropane	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
Di-isopropyl ether	< 0.69	ug/l	0.69	2.2	1	8260B		6/13/2012	CJR	1
EDB (1,2-Dibromoethane)	< 0.63	ug/l	0.63	2	1	8260B		6/13/2012	CJR	1
Ethylbenzene	< 0.78	ug/l	0.78	2.5	1	8260B		6/13/2012	CJR	1
Hexachlorobutadiene	< 2.2	ug/l	2.2	6.8	1	8260B		6/13/2012	CJR	1
Isopropylbenzene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
p-Isopropyltoluene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
Methylene chloride	< 1.1	ug/l	1.1	3.4	1	8260B		6/13/2012	CJR	1
Methyl tert-butyl ether (MTBE)	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
Naphthalene	< 2.1	ug/l	2.1	6.8	1	8260B		6/13/2012	CJR	1
n-Propylbenzene	< 0.59	ug/l	0.59	1.9	1	8260B		6/13/2012	CJR	1
1,1,2,2-Tetrachloroethane	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,1,1,2-Tetrachloroethane	< 1	ug/l	1	3.2	1	8260B		6/13/2012	CJR	1
Tetrachloroethene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
Toluene	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,2,4-Trichlorobenzene	< 1.5	ug/l	1.5	4.6	1	8260B		6/13/2012	CJR	1
1,2,3-Trichlorobenzene	< 1.3	ug/l	1.3	4.2	1	8260B		6/13/2012	CJR	1
1,1,1-Trichloroethane	< 0.85	ug/l	0.85	2.7	1	8260B		6/13/2012	CJR	1
1,1,2-Trichloroethane	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichloroethene (TCE)	1.88	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichlorofluoromethane	< 1.7	ug/l	1.7	5.3	1	8260B		6/13/2012	CJR	1
1,2,4-Trimethylbenzene	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
1,3,5-Trimethylbenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Vinyl Chloride	< 0.18	ug/l	0.18	0.56	1	8260B		6/13/2012	CJR	1
m&p-Xylene	< 1.1	ug/l	1.1	3.5	1	8260B		6/13/2012	CJR	1
o-Xylene	< 0.8	ug/l	0.8	2.6	1	8260B		6/13/2012	CJR	1
SUR - 1,2-Dichloroethane-d4	100	REC %			1	8260B		6/13/2012	CJR	1
SUR - 4-Bromofluorobenzene	118	REC %			1	8260B		6/13/2012	CJR	1
SUR - Dibromofluoromethane	103	REC %			1	8260B		6/13/2012	CJR	1
SUR - Toluene-d8	106	REC %			1	8260B		6/13/2012	CJR	1

Lab Code 5023891L
Sample ID EQUIP
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
Benzene	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
Bromobenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Bromodichloromethane	3.8	ug/l	0.68	2.2	1	8260B		6/13/2012	CJR	1
Bromoform	< 0.43	ug/l	0.43	1.4	1	8260B		6/13/2012	CJR	1
tert-Butylbenzene	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
sec-Butylbenzene	< 1	ug/l	1	3.3	1	8260B		6/13/2012	CJR	1
n-Butylbenzene	< 0.9	ug/l	0.9	2.9	1	8260B		6/13/2012	CJR	1
Carbon Tetrachloride	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Chlorobenzene	< 0.51	ug/l	0.51	1.6	1	8260B		6/13/2012	CJR	1
Chloroethane	< 1.4	ug/l	1.4	4.5	1	8260B		6/13/2012	CJR	1
Chloroform	23.4	ug/l	0.49	1.5	1	8260B		6/13/2012	CJR	1
Chloromethane	< 1.9	ug/l	1.9	6.1	1	8260B		6/13/2012	CJR	1
2-Chlorotoluene	< 0.7	ug/l	0.7	2.2	1	8260B		6/13/2012	CJR	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891L
Sample ID EQUIP
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
4-Chlorotoluene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
1,2-Dibromo-3-chloropropane	< 2.8	ug/l	2.8	8.9	1	8260B		6/13/2012	CJR	1
Dibromochloromethane	< 0.55	ug/l	0.55	1.8	1	8260B		6/13/2012	CJR	1
1,4-Dichlorobenzene	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,3-Dichlorobenzene	< 0.87	ug/l	0.87	2.8	1	8260B		6/13/2012	CJR	1
1,2-Dichlorobenzene	< 0.76	ug/l	0.76	2.4	1	8260B		6/13/2012	CJR	1
Dichlorodifluoromethane	< 1.8	ug/l	1.8	5.9	1	8260B		6/13/2012	CJR	1
1,2-Dichloroethane	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethane	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethene	< 0.6	ug/l	0.6	1.9	1	8260B		6/13/2012	CJR	1
cis-1,2-Dichloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
trans-1,2-Dichloroethene	< 0.79	ug/l	0.79	2.5	1	8260B		6/13/2012	CJR	1
1,2-Dichloropropane	< 0.4	ug/l	0.4	1.3	1	8260B		6/13/2012	CJR	1
2,2-Dichloropropane	< 1.9	ug/l	1.9	5.9	1	8260B		6/13/2012	CJR	1
1,3-Dichloropropane	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
Di-isopropyl ether	< 0.69	ug/l	0.69	2.2	1	8260B		6/13/2012	CJR	1
EDB (1,2-Dibromoethane)	< 0.63	ug/l	0.63	2	1	8260B		6/13/2012	CJR	1
Ethylbenzene	< 0.78	ug/l	0.78	2.5	1	8260B		6/13/2012	CJR	1
Hexachlorobutadiene	< 2.2	ug/l	2.2	6.8	1	8260B		6/13/2012	CJR	1
Isopropylbenzene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
p-Isopropyltoluene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
Methylene chloride	< 1.1	ug/l	1.1	3.4	1	8260B		6/13/2012	CJR	1
Methyl tert-butyl ether (MTBE)	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
Naphthalene	< 2.1	ug/l	2.1	6.8	1	8260B		6/13/2012	CJR	1
n-Propylbenzene	< 0.59	ug/l	0.59	1.9	1	8260B		6/13/2012	CJR	1
1,1,2,2-Tetrachloroethane	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,1,1,2-Tetrachloroethane	< 1	ug/l	1	3.2	1	8260B		6/13/2012	CJR	1
Tetrachloroethene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
Toluene	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,2,4-Trichlorobenzene	< 1.5	ug/l	1.5	4.6	1	8260B		6/13/2012	CJR	1
1,2,3-Trichlorobenzene	< 1.3	ug/l	1.3	4.2	1	8260B		6/13/2012	CJR	1
1,1,1-Trichloroethane	< 0.85	ug/l	0.85	2.7	1	8260B		6/13/2012	CJR	1
1,1,2-Trichloroethane	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichlorocthene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichlorofluoromethane	< 1.7	ug/l	1.7	5.3	1	8260B		6/13/2012	CJR	1
1,2,4-Trimethylbenzene	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
1,3,5-Trimethylbenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Vinyl Chloride	< 0.18	ug/l	0.18	0.56	1	8260B		6/13/2012	CJR	1
m&p-Xylene	< 1.1	ug/l	1.1	3.5	1	8260B		6/13/2012	CJR	1
o-Xylene	< 0.8	ug/l	0.8	2.6	1	8260B		6/13/2012	CJR	1
SUR - 1,2-Dichloroethane-d4	98	REC %			1	8260B		6/13/2012	CJR	1
SUR - 4-Bromofluorobenzene	116	REC %			1	8260B		6/13/2012	CJR	1
SUR - Dibromofluoromethane	102	REC %			1	8260B		6/13/2012	CJR	1
SUR - Toluene-d8	106	REC %			1	8260B		6/13/2012	CJR	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891M
Sample ID TB
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
VOC's										
Benzene	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
Bromobenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
Bromodichloromethane	< 0.68	ug/l	0.68	2.2	1	8260B		6/13/2012	CJR	1
Bromoform	< 0.43	ug/l	0.43	1.4	1	8260B		6/13/2012	CJR	1
tert-Butylbenzene	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
sec-Butylbenzene	< 1	ug/l	1	3.3	1	8260B		6/13/2012	CJR	1
n-Butylbenzene	< 0.9	ug/l	0.9	2.9	1	8260B		6/13/2012	CJR	1
Carbon Tetrachloride	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Chlorobenzene	< 0.51	ug/l	0.51	1.6	1	8260B		6/13/2012	CJR	1
Chloroethane	< 1.4	ug/l	1.4	4.5	1	8260B		6/13/2012	CJR	1
Chloroform	< 0.49	ug/l	0.49	1.5	1	8260B		6/13/2012	CJR	1
Chloromethane	< 1.9	ug/l	1.9	6.1	1	8260B		6/13/2012	CJR	1
2-Chlorotoluene	< 0.7	ug/l	0.7	2.2	1	8260B		6/13/2012	CJR	1
4-Chlorotoluene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
1,2-Dibromo-3-chloropropane	< 2.8	ug/l	2.8	8.9	1	8260B		6/13/2012	CJR	1
Dibromochloromethane	< 0.55	ug/l	0.55	1.8	1	8260B		6/13/2012	CJR	1
1,4-Dichlorobenzene	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,3-Dichlorobenzene	< 0.87	ug/l	0.87	2.8	1	8260B		6/13/2012	CJR	1
1,2-Dichlorobenzene	< 0.76	ug/l	0.76	2.4	1	8260B		6/13/2012	CJR	1
Dichlorodifluoromethane	< 1.8	ug/l	1.8	5.9	1	8260B		6/13/2012	CJR	1
1,2-Dichloroethane	< 0.5	ug/l	0.5	1.6	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethane	< 0.98	ug/l	0.98	3.1	1	8260B		6/13/2012	CJR	1
1,1-Dichloroethene	< 0.6	ug/l	0.6	1.9	1	8260B		6/13/2012	CJR	1
cis-1,2-Dichloroethene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1
trans-1,2-Dichloroethene	< 0.79	ug/l	0.79	2.5	1	8260B		6/13/2012	CJR	1
1,2-Dichloropropane	< 0.4	ug/l	0.4	1.3	1	8260B		6/13/2012	CJR	1
2,2-Dichloropropane	< 1.9	ug/l	1.9	5.9	1	8260B		6/13/2012	CJR	1
1,3-Dichloropropane	< 0.71	ug/l	0.71	2.3	1	8260B		6/13/2012	CJR	1
Di-isopropyl ether	< 0.69	ug/l	0.69	2.2	1	8260B		6/13/2012	CJR	1
EDB (1,2-Dibromoethane)	< 0.63	ug/l	0.63	2	1	8260B		6/13/2012	CJR	1
Ethylbenzene	< 0.78	ug/l	0.78	2.5	1	8260B		6/13/2012	CJR	1
Hexachlorobutadiene	< 2.2	ug/l	2.2	6.8	1	8260B		6/13/2012	CJR	1
Isopropylbenzene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
p-Isopropyltoluene	< 0.92	ug/l	0.92	2.9	1	8260B		6/13/2012	CJR	1
Methylene chloride	< 1.1	ug/l	1.1	3.4	1	8260B		6/13/2012	CJR	1
Methyl tert-butyl ether (MTBE)	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
Naphthalene	< 2.1	ug/l	2.1	6.8	1	8260B		6/13/2012	CJR	1
n-Propylbenzene	< 0.59	ug/l	0.59	1.9	1	8260B		6/13/2012	CJR	1
1,1,2,2-Tetrachloroethane	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,1,1,2-Tetrachloroethane	< 1	ug/l	1	3.2	1	8260B		6/13/2012	CJR	1
Tetrachloroethene	< 0.44	ug/l	0.44	1.4	1	8260B		6/13/2012	CJR	1
Toluene	< 0.53	ug/l	0.53	1.7	1	8260B		6/13/2012	CJR	1
1,2,4-Trichlorobenzene	< 1.5	ug/l	1.5	4.6	1	8260B		6/13/2012	CJR	1
1,2,3-Trichlorobenzene	< 1.3	ug/l	1.3	4.2	1	8260B		6/13/2012	CJR	1
1,1,1-Trichloroethane	< 0.85	ug/l	0.85	2.7	1	8260B		6/13/2012	CJR	1
1,1,2-Trichloroethane	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichloroethene (TCE)	< 0.47	ug/l	0.47	1.5	1	8260B		6/13/2012	CJR	1
Trichlorofluoromethane	< 1.7	ug/l	1.7	5.3	1	8260B		6/13/2012	CJR	1
1,2,4-Trimethylbenzene	< 0.8	ug/l	0.8	2.5	1	8260B		6/13/2012	CJR	1
1,3,5-Trimethylbenzene	< 0.74	ug/l	0.74	2.4	1	8260B		6/13/2012	CJR	1

Project Name O'NEIL, CANNON, HOLLMAN, DEJON **Invoice #** E23891
Project # 7743

Lab Code 5023891M
Sample ID TB
Sample Matrix Water
Sample Date 6/8/2012

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Vinyl Chloride	< 0.18	ug/l	0.18	0.56	1	8260B		6/13/2012	CJR	1
m&p-Xylene	< 1.1	ug/l	1.1	3.5	1	8260B		6/13/2012	CJR	1
o-Xylene	< 0.8	ug/l	0.8	2.6	1	8260B		6/13/2012	CJR	1
SUR - Toluene-d8	105	REC %			1	8260B		6/13/2012	CJR	1
SUR - 1,2-Dichloroethane-d4	102	REC %			1	8260B		6/13/2012	CJR	1
SUR - 4-Bromofluorobenzene	115	REC %			1	8260B		6/13/2012	CJR	1
SUR - Dibromofluoromethane	97	REC %			1	8260B		6/13/2012	CJR	1

"J" Flag: Analyte detected between LOD and LOQ LOD Limit of Detection LOQ Limit of Quantitation

Code	*Comment*
1	Laboratory QC within limits.
2	Relative percent difference failed for laboratory spiked samples.
4	The continuing calibration standard not within established limits.
5	The QC blank not within established limits.
8	Closing calibration standard not within established limits.
64	Spike recovery failed due to matrix interference.

ESC denotes sub contract lab - Certification #998093910

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

Authorized Signature Michael J. Ricker

CHAIN OF CUSTODY RECORD

Synergy
Environmental Lab, Inc.
1990 Prospect Ct. • Appleton, WI 54914
920-830-2455 • FAX 920-733-0631

Chain # No 914
Page 1 of 2

Lab I.D. #	
Account No. :	Quote No.:
Project #:	7743
Sampler: (signature)	DWD

Sample Handling Request
Rush Analysis Date Required ____
(Rushes accepted only with prior authorization)
X Normal Turn Around

Project (Name / Location): ONE-1, Cannon, Hortman, DeTour, S.C

Reports To: Kristin Kurzka	Invoice To: Kristin Kurzka
Company S.G.A.	Company Same
Address 1300 W Canal St.	Address
City State Zip Milw, WI 53233	City State Zip
Phone 414-643-4127	Phone
FAX 414-643-4210	FAX

Lab I.D.	Sample I.D.	Collection Date	Collection Time	Comp	Grab	Filtered Y/N **	No. of Containers	Sample Type (Matrix)*	Preservation	DRO (Mod DRO Sep 95)	GRO (Mod GRO Sep 95)	IRON	LEAD	NITRATE / NITRITE	PAH (EPA 8270)	PVOC (EPA 8021)	PVOC + NAPHTHALENE	SULFATE	VOC DW (EPA 524.2)	VOC (EPA 8260)	8-RCRA METALS	PID/ FID
502389 1A	MW-N5	6/8/12	9:00A		G		5	GW	HCl HNO3						X					X	X	
B	PZ-1		9:30A												X					X	X	
C	MW-N6		10:00A												X					X	X	
D	MW-N7		10:30A												X					X	X	
E	MW-4		11:00A												X					X	X	
F	MW-N3		11:30A												X					X	X	
G	PZ-2		12:00P												X					X	X	
H	MW-3		12:30P												X					X	X	

Comments/Special Instructions (*Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge etc.)
** Only the HNO3 containers are filtered

Sample Integrity - To be completed by receiving lab.
Method of Shipment : Dunham
Temp. of Temp. Blank. ____ °C On Ice: X
Cooler seal intact upon receipt: X Yes ____ No

Relinquished By: (sign)	Time	Date	Received By: (sign)	Time	Date
David Dailey	1:50 pm	6.8.12			

Received in Laboratory By: _____ Time: _____ Date: _____

CHAIN OF CUSTODY RECORD

Synergy
Environmental Lab, Inc.
1990 Prospect Ct. • Appleton, WI 54914
920-830-2455 • FAX 920-733-0631

Chain # 8037
Page 2 of 2

Sample Handling Request
___ Rush Analysis Date Required ___
(Rushes accepted only with prior authorization)
X Normal Turn Around

Lab I.D. #
Account No. : Quote No.:
Project #: 7743
Sampler: (signature) [signature]

Project (Name / Location): O'Neil, Cannon, Hollman, DeJong, S.C.

Reports To:	Kristin Kurzka	Invoice To:	Kristin Kurzka
Company	S. Gun	Company	SAME
Address	1300 W Canal St	Address	
City State Zip	Milw, WI 53233	City State Zip	
Phone	414-643-4121	Phone	
FAX	414-643-4210	FAX	

Analysis Requested

Lab I.D.	Sample I.D.	Collection Date	Collection Time	Comp	Grab	Filtered Y/N	No. of Containers	Sample Type (Matrix)*	Preservation	DRO (Mod DRO Sep 95)	GRO (Mod GRO Sep 95)	PVOC (EPA 8021)	VOC (EPA 8260)	VOC DW (EPA 524.2)	PAH (EPA 8270)	Total Suspended Solids	Lead	Other Analysis: 8 RCRA Metals	PID/FID
502387 I	MW-2	6/8/12	1:00P		G		5	GW	HCl HNO3				X	X			X	X	
J	MW-1	"	1:30P		G		1		1				X	X			X		
K	Duplicate	6/8/12					3		HCl				X						
L	Equip Blank	"					2		1				X						
M	Trip Blank	"					1		1				X						

Comments/Special Instructions (*Specify groundwater "GW", Drinking Water "DW", Waste Water "WW", Soil "S", Air "A", Oil, Sludge etc.)
** Only the HNO3 containers are filtered

Sample Integrity - To be completed by receiving lab.
Method of Shipment : Rushed
Temp. of Temp. Blank. ___ °C On Ice: X
Cooler seal intact upon receipt: X Yes ___ No

Relinquished By: (sign)	Time	Date	Received By: (sign)	Time	Date
Daniel Dailey	1:50 pm	6-8-12			

Received in Laboratory By: [signature] Time: 10:00 Date: 6/9/12

THE SIGMA GROUP
Sustainable Ground Solutions.

March 12, 2012 Project Reference #13215

Mr. Binyoti Amungwafor
c/o Ms. Victoria Stovall
Wisconsin Dept. of Natural Resources
2300 N. Martin Luther King Jr. Drive
Milwaukee, WI 53212

RE: Soil Placement Approval Request
Former Lakefield Sand & Gravel Property
7003 West Good Hope Road, Milwaukee, Wisconsin
WDNR BRRTS No. 02-41-548828 FID No. 241377070

Dear Mr. Amungwafor:

On behalf of the Clifford H. Hendricks Revocable Trust and Good Lad, LLC, the property co-owners, Sigma Environmental Services, Inc. (Sigma) has prepared this letter to request Wisconsin Department of Natural Resources (WDNR) approval as a part of the site remedial strategy to place low level impacted soil at the former Lakefield Sand and Gravel property.

BACKGROUND

The location of the site is shown on **Figure 1.** As discussed in an April 6, 2006 report by WDNR entitled "Site Reassessment Report for Lakefield Sand and Gravel Site, 72nd & Good Hope Road, Milwaukee, Milwaukee County, Wisconsin", information suggests that in addition to quarrying, portions of the site and portions of other properties to the south, including the current 6710-6732 N. Industrial Rd., 6750 N. Industrial Rd., and 6780 N. Industrial Rd. properties, have historically been used for waste disposal.

In approximately 2003, the WDNR was tasked by the United States Environmental Protection Agency (EPA) to conduct reassessment at the site in order to collect information pertaining to potential threats to human health and the environment. As part of this investigation soil borings were a dvanced at on-site and off-site locations for the collection of soil samples. Five groundwater monitoring wells were also installed. Seven surface soil samples were collected at on-site and off-site locations. Four off-site monitoring wells located on the property to the northwest and east of the site, were also sampled. The site reassessment activities and results were documented in WDNR's April 2006 WDNR report cited above.

A supplemental investigation was conducted in 2006 which consisted of the advancement of seven soil borings and the construction of four groundwater monitoring wells and two piezometers. Soil samples were submitted for laboratory analysis, as were groundwater samples collected during sampling events conducted on October 2, and December 11, 2006. The supplemental investigation activities and results are documented in a January 30, 2007 report entitled "Phase II Environmental Site Assessment Activities, Former Lakefield Sand and Gravel Property, Milwaukee, Wisconsin", which was forwarded to the WDNR on April 30, 2007.

The soil borings and groundwater monitoring well network are shown on the attached **Figure 2**.

SUMMARY OF PREVIOUS SITE INVESTIGATION RESULTS

Physical Site Conditions

According to WDNR's April 2006 report, the EPA using historic aerial photos has previously delineated three non-contiguous zones of waste disposal on the subject site, which fall approximately within the general extent of impacts. The areas of non-soil fill generally consist of approximately five to seven feet of re-worked soil fill, underlain by roughly five to 15 feet of soil mixed with varying amounts of refuse including: glass, cardboard, plastic, paper, and metal. This material is in turn underlain by the site's native soils consisting of silt-clay mixtures and some sands.

Site Hydrogeology

The site's monitoring well network indicates groundwater is present within the noted fill material at depths between 8 and 26 feet below ground surface (bgs) and generally flows in a southwestward direction.

Analytical Results

Soil analyses performed as part of the investigations by WDNR and Sigma indicated the presence of various petroleum-related volatile organic compounds (PVOCs), chlorinated volatile organic compounds (CVOCs), semi-volatile organic compounds (SVOCs), polynuclear aromatic hydrocarbons (PAHs), metals in soil fill at the site, and in select locations, PCBs and pesticides were detected.

Analytes confirmed to exceed Wisconsin Administrative Code, Chapter NR 140 ("NR 140") Enforcement Standards (ES's) include select PVOCs and CVOCs. Lead and select PAHs have also been reported on at least two occasions at one or more sampling points at relatively low concentrations which exceeded NR 140 ES's; however, these analytes are prone to detection in the sorbed phase in groundwater samples through incorporation of particulate matter into the sample. The soil and groundwater analytical results are presented in the tables included in **Attachment A.**

CONDITIONALLY APPROVED REMEDIAL ACTION

In a letter dated February 4, 2008, the WDNR conditionally approved the proposed remedial action plan to cap the site thereby addressing the shallow soil impacts and potential risk associated with direct contact **(Attachment B).**

In order to feasibly cap the approximately 12-acre property the owners propose to place low level impacted soil over the landfill and below a 2-foot thick non-impacted soil cap. The low level impacted soils will be generated from two specific sources. The low level impacts within the proposed import soil are less than concentrations which may pose a threat to groundwater and are less than concentrations of similar contaminants current present at the site.

These sources and the soil quality are presented as follows:

Rexnord – Menomonee Valley

As part of Rexnord's on-going storm water management activities, four storm water detection basins are proposed to be constructed at the facility. The construction of these structures will require the excavation of an estimated 30,000 cubic yards of material. Located in the Menomonee Valley for over 100 years, the Rexnord property was historically filled with native soils and industrial materials (primarily foundry sands). Laboratory analysis of a representative

composite soil sample collected from the site indicate that material proposed for use as fill is impacted by low level concentrations of select RCRA metals and PAH constituents. A concentration of chloromethane was detected within the soil sample just above the laboratory method detection limit. This result is suspect as chloromethane has a high vapor pressure and is likely a lab contaminant.

The concentrations of RCRA metals and PAHs detected within the soil are less than those compounds detected at the Lakefield Sand and Gravel property. In addition, the concentrations detected are less than State standards for the risk pathway to groundwater. The analytical results are summarized and the laboratory report is included in **Attachment C.**

Former Park East Freeway – Block 1

Wangard Partners is planning for the construction of a mixed residential and commercial development at the former Park East Freeway Block 1 parcel bounded by North Jefferson Street, Easy Lyon Street, North Milwaukee Street and East Ogden Street. The proposed development will generate an estimated 38,000 tons of soil (excavated from depths ranging from 2 to 19 feet bgs – north to south) which will need to be managed off-site.

Phase 1 environmental assessment activities completed in 2000 by HNTB prior to the freeway demolition and in November 2007 by RMT for a former property owner indicate that the property between 1894 and 2003 was occupied by stables, residences, a carpenter's shop and the freeway spur.

Phase 2 site assessment activities were completed by HNTB in September 2001 and RMT in September 2004. Soil samples collected across the property were analyzed for DRO, GRO, VOCs, PAHs and RCRA metals.

The site geology includes a re-worked clay, sandy clan and fine to medium-grained sand layer ranging in thickness from 2 to 15 feet. The fill overlays layers of clay, fine to medium-grained sand and sandy silt.

The results of the soil sampling indicate the following:

- VOCs: Select VOCs were present at concentrations greater than ch NR 720 generic residual contaminant levels (RCLs) at two soil sampling locations, however, based on the 2004 RMT report; these impacted soils have been excavated and removed from the site.

- RCRA Metals: Only total chromium and lead were detected at concentrations greater than ch. NR 720 RCLs for non-industrial sites. The detected concentrations of total lead – within samples collected across the site, range from 7.1 mg/kg to 133 mg/kg.

- PAHs: Select PAHs were present within one of the soil samples collected from the site at concentrations significantly less than the WDNR Interim Guidance standards for direct contact.

The soil boring locations and soil analytical results are presented in **Attachment D.** The RMT and HNTB Phase I and Phase 2 reports are presented in **Attachment E.** Please note that the RMT report also includes information collected from Bock 124 which ***is not*** a part of the proposed development and is not included in this request for approval.

CONCLUSION

Pending approval by the WNDR, Sigma will coordinate the excavation and placement of impacted soils from each of the proposed sources on the Lakefield Sand and Gravel property. Once the site has received an estimated 2 feet of soil and an additional 2 feet of non-impacted soil will be used to cover the entire property per the WDNR approved remedial strategy.

We look forward to receiving approval to appropriately manage the Rexnord and Wangard soils while initiating implementation of the Lakefield Sand and Gravel remedial action plan. Please call me at 414-643-4127 if you have any questions. I will call you soon to set up a meeting to discuss the proposed activities.

Sincerely,

SIGMA ENVIRONMENTAL SERVICES, INC.

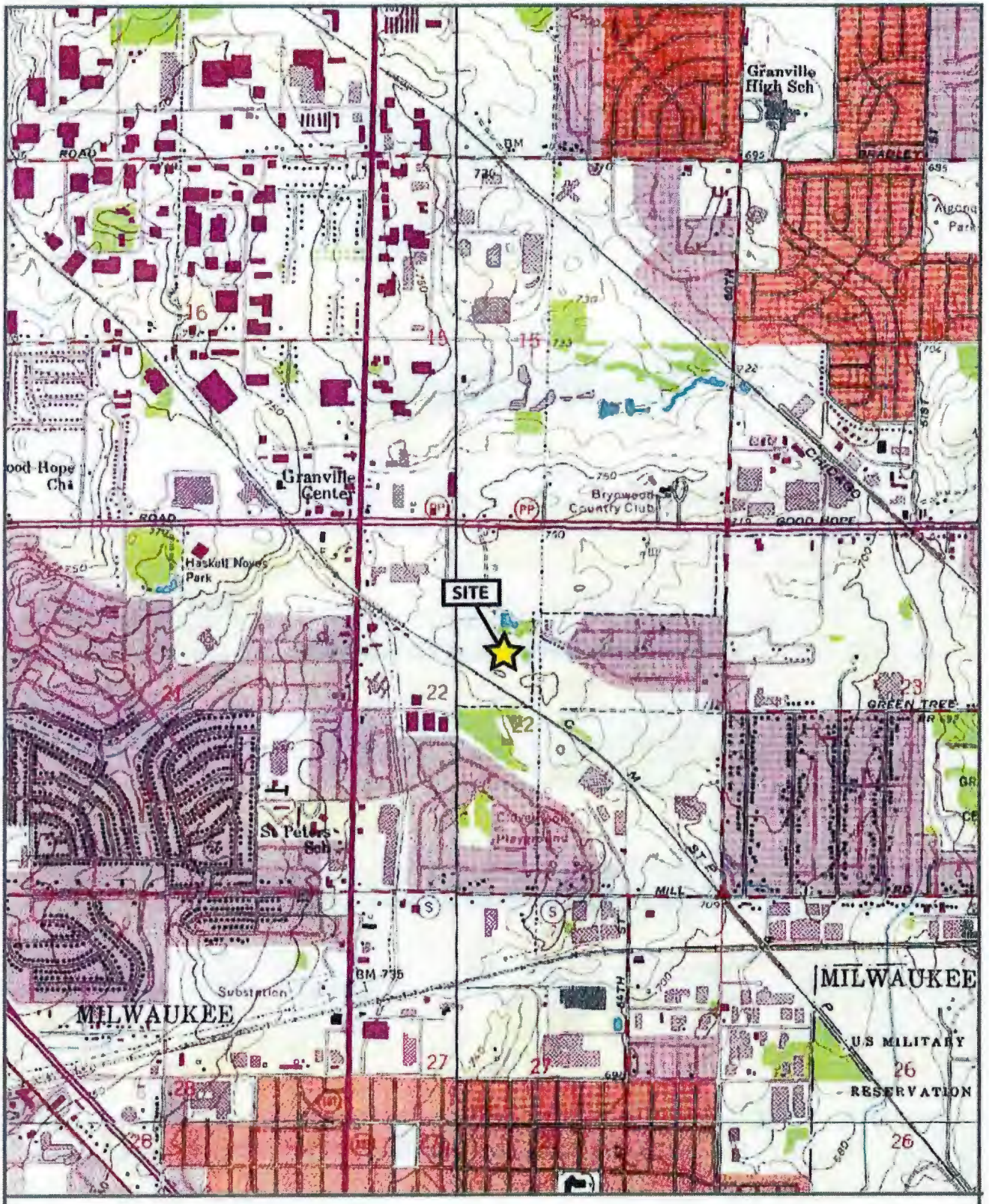
Kristin Kurzka, P.E.
Senior Engineer

cc: Mr. John Gehringer, Esq. - O'Neil, Cannon, Hollman, DeJong, S.C.

List of Attachments:

Figure 1	Site Location Map
Figure 2	Approximate Locations of Greatest Fill Impacts and Fill Depths Map
Attachment A	Soil and Groundwater Analytical Tables
Attachment B	WDNR Conditional Approval Letter
Attachment C	Laboratory Report
Attachment D	Soil Boring and Analytical Results
Attachment E	RMT and HNTB Phase 1 and Phase 2 Environmental Site Assessment Reports

Figures

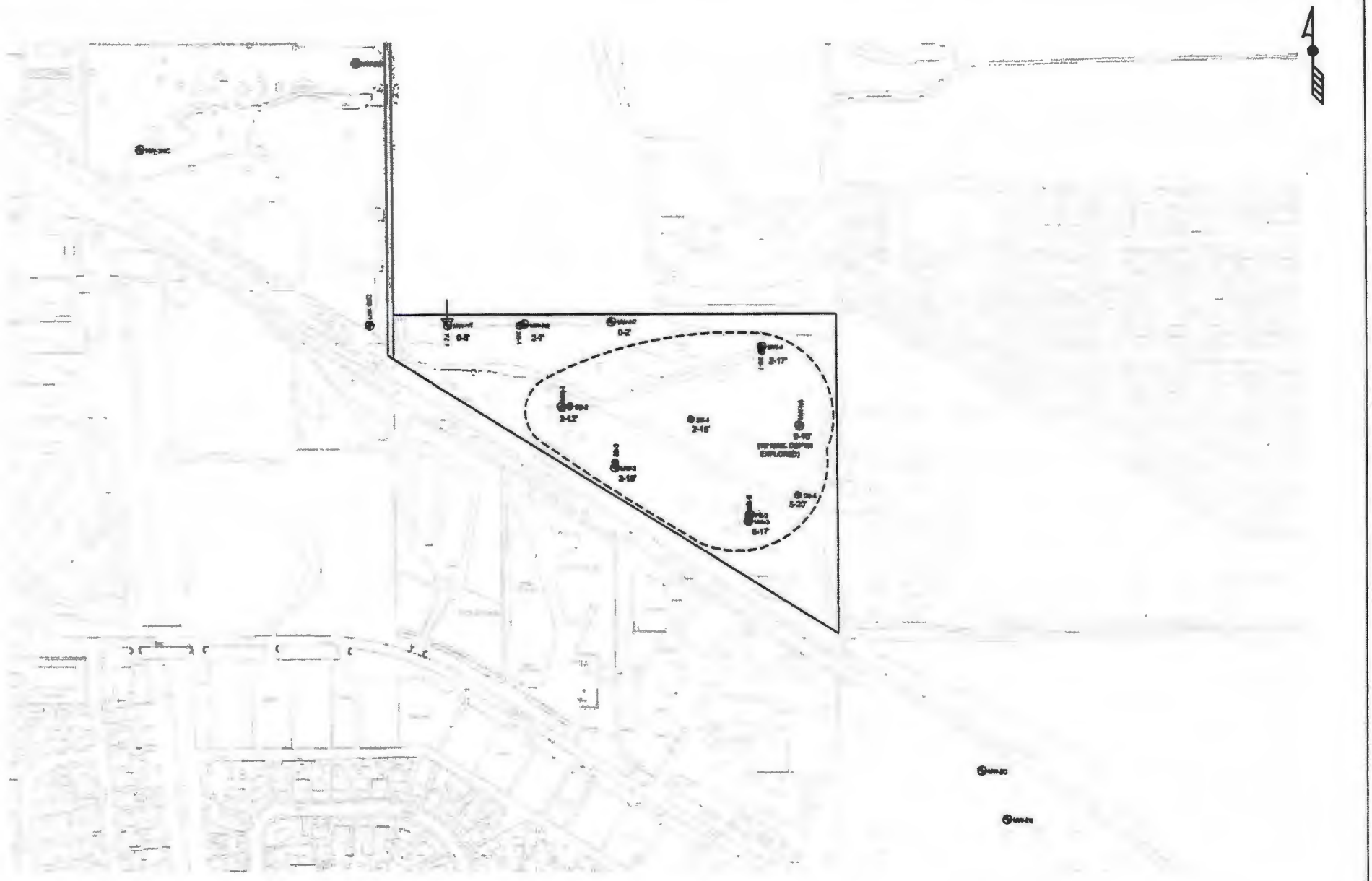


Site: Former Lakefield Sand & Gravel
Location: Part of the Southeast 1/4 of the Northwest 1/4 of Section 22, Township 8 North, Range 21 East
Project: #7743

FIGURE 1
SITE LOCATION MAP

THE SIGMA GROUP
Single Source. Sound Solutions.
www.thesigmagroup.com
1300 West Canal Street
Milwaukee, WI 53233
414-643-4200

Scale 1 : 24,000
1 inch = 2,000 feet



SIGMA ENVIRONMENTAL SERVICES INC. 1300 WEST CANAL STREET MILWAUKEE, WISCONSIN 53233 PHONE : (414) 643-4200 FAX : (414) 643-4210	SCALE - 1" = 200' (0' 100' 200' 300' 400')				NAME:	DATE:	FORMER LAKEFIELD SAND AND GRAVEL 7003 WEST GOOD HOPE ROAD - MILWAUKEE, WI APPROXIMATE LOCATION OF GREATEST FILL IMPACTS AND FILL DEPTHS MAP	DRAWING NUMBER 7743-001
	NO	DATE	REVISIONS	BY	APVD	DRAWN BY:	JEI	01-24-07		FIGURE 2
						DESIGNED BY:				
						CHECKED BY:				
						APPROVED BY:				

K:\Dwg\7743\7743-001.dwg, FIG 2, 1/24/2007 2:35:49 PM, ANSI C (17 x 22 Inches), 1:1

Attachment A

Soil and Groundwater Analytical Tables

	mg/kg	14	200	16	100	21	43	130	20	16	24	63	13	14	24	61	71
	mg/kg	50	500	16	88	17	180	460	46	160	460	4800	79	88	300	3400	3200
	mg/kg	NS	NS	0.040	0.33	0.037	1.3	0.57	0.031	0.044	0.17	0.075	0.081	0.066	0.14	0.12	0.077
	mg/kg	NS	NS	<2.3	<0.46	<0.46	<2.3	<2.3	<2.3	<2 3	<2 3	<2.3	<2.3	<2.3	<2 3	<2 3	<2.3
	mg/kg	NS	NS	<0.12	<0 12	<0.12	<0.6	<0.6	<0.12	32	<0 12	2.8	<0 12	<0 12	<0 12	9.6	0.79 "J

	Unit	NR 720	NR 746														
		RCL	Table 1	Table 2													
	µg/kg	5.5	8,500	1,100	<25	<2500	<25	<25	183	<25	34	<25	<500	<25	32	194	59	570
	µg/kg	NS	NS	NS	<25	46000	98	26.3	282	<25	460	<25	7500	<25	<25	282	<25	700
	µg/kg	NS	NS	NS	<25	<2500	<25	<25	28.9	<25	<25	<25	<500	<25	<25	<25	<25	<25
	µg/kg	NS	NS	NS	101	272000	600	142	560	<25	2900	<25	38000	<25	88	1390	<25	970
	µg/kg	NS	NS	NS	<25	<2500	<25	<25	<25	<25	<25	<25	<500	<25	<25	<25	<25	54
	µg/kg	NS	NS	NS	<25		<25	<25	155	<25	120	<25	<500	<25	50 "J"	268	<25	60 "J"
	µg/kg	NS	NS	NS	<25	<2500	<25	<25	<25	<25	<25	<25	<500	<25	<25	<25	<25	208
	µg/kg	NS	NS	NS	<25	<2500	<25	<25	<25	<25	<25	<25	<500	<25	<25	37 "J"	52	290
	µg/kg	NS	NS	NS	<25	<2500	<25	<25	<25	<25	<25	<25	<500	<25	<25	<25	<25	<25
	µg/kg	NS	NS	NS	<25	<2500	<25	<25	<25	<25	<25	<25	<500	<25	<25	<25	<25	<25
	µg/kg	2,900	4,600	NS	90	137000	370	128	360	<25	79	<25	10800	<25	79	480	36	2460
	µg/kg	NS	NS	NS	<25	26100	57	28.7 "J"	370	<25	210	<25	3600	<25	<25	177	<25	1360
	µg/kg	NS	NS	NS	<25	46000	100	29.3 "J"	420	<25	487	<25	6400	<25	<25	232	<25	310
	µg/kg	NS	2,700	NS	96	420000	1050	62600	2110	<25	5600	<25	72000	3800	11000	3150	<25	229
	µg/kg	NS	NS	NS	44	91000	238	72	360	<25	510	<25	16800	<25	29 "J"	420	<25	1010
	µg/kg	1,500	38,000	NS	<25	<2500	<25	<25	860	<25	<25	<25	<500	<25	<25	380	71	440
	µg/kg	NS	NS	NS	<25	<2500	<25	<25	47 "J"	<25	<25	<25	<500	<25	<25	<25	95	520
	µg/kg	NS	83,000	NS	360	890000	2240	630	1560	<25	2600	<25	149000	<25	270	1420	27.5	2480
	µg/kg	NS	11,000	NS	55	180000	410	110	390	<25	370	<25	14800	<25	66	141	<25	40
	µg/kg	4,100	42,000	NS	291.1 "J	428000	1112	722	1160	<75	322	<75	12650	<75	330	678	71	649

bons	Unit	uggested Generic RCLs for PAH Compounds in S															
		Groundwater Pathway	Direct Contact Non-Industrial	Direct Contact Industrial													
	µg/kg	38,000	900,000	60,000,000	<17	<3400	<17	43300	780	<17	211	<17	<850	24800	21600	817	<17	343
	µg/kg	700	18,000	360,000	<19	<3800	<19	<1900	<38	<19	<38	<19	<950	<1900	<1900	<38	<19	177 "J
	µg/kg	3,000,000	5,000,000	3,000,000,000	<11	2930 "J"	12 "J"	103000	1820	<11	869	37	766 "J"	57700	48700	1420	12 "J"	76 "J"
	µg/kg	17,000	88	3,900	15 "J"	5100 "J"	54	104000	1890	21 "J"	1340	240	1460 "J"	71500	59800	1940	70	1610
	µg/kg	360,000	88	3,900	15 "J"	6380	131	128000	2480	58	1790	860	1460	88600	72900	2760	277	2400
	µg/kg	870,000	880	39,000	<14	<2800	58	44000	758	21 "J"	556	296	<700	29300	25400	796	76	767
	µg/kg	48,000	8.8	390	<8.1	3560 "J"	80	93600	1730	33	789	558	771 "J"	65200	54100	1890	124	1400
	µg/kg	6,800,000	1,800	39,000	<8.5	1790 "J"	23 "J"	46800	716	8.5 "J"	288	145	580 "J"	32100	26600	912	41	291
	µg/kg	37,000	8,800	390,000	<20	6020 "J"	68	90500	1720	27 "J"	1530	281	1540 "J"	63200	51100	1900	120	3270
	µg/kg	38,000	8 8	390	<11	<2200	<11	12000	191	<11	98	30 "J"	<550	7540	6870	238	<11	90 "J
	µg/kg	500,000	600,000	40,000,000	22 "J"	12100	131	300000	5460	57	4490	416	4280	196000	159000	5580	147	4340
	µg/kg	100,000	600,000	40,000,000	<9.5	<1900	<9.5	69500	1190	<9.5	690	11 "J"	838 "J"	31300	28400	979	<9 5	2080
	µg/kg	680,000	88	3,900	<9.5	2030 "J"	24 "J"	53600	940	12 "J"	381	180	<475	40100	30900	1150	43	465
	µg/kg	23,000	1,100,000	70,000,000	<11	36000	34 "J"	13300	336	<11	913	13 "J"	6220	6050	5060	405	<11	518
	µg/kg	20,000	600,000	40,000,000	<12	115000	106	23800	570	<12	776	16 "J"	10700	8620	6910	880	16 "J"	<60
	µg/kg	400	20,000	110,000	166	662000	848	53600	1340	36 "J"	3530	33 "J"	98400	11100	8920	2900	24 "J"	<85
	µg/kg	1,800	18,000	390,000	9.9 "J"	10400	61	290000	5510	42	4610	170	4470	163000	133000	4720	75	1180
	µg/kg	8,700,000	500,000	30,000,000	18 "J"	9420	101	210000	3960	47	3340	369	4120	148000	118000	4070	124	3610

	Unit	US EPA PRG														
		Direct Contact Residential	Direct Contact Industrial													
	µg/kg	220	740	<0 028	17	<0 028	NA	NA	NA	<0 028	NA	<0 028	NA	NA	<0.028	NA	NA
	µg/kg	220	740	<0.014	<0 014	<0.014	NA	NA	NA	<0 014	NA	<0 014	NA	NA	<0.014	NA	NA
	µg/kg	220	740	<0.024	<0.024	<0.024	NA	NA	NA	<0 024	NA	<0 024	NA	NA	<0 024	NA	NA
	µg/kg	220	740	<0.028	<0.028	<0.028	NA	NA	NA	<0.028	NA	<0.028	NA	NA	<0 028	NA	NA
	µg/kg	220	740	<0 036	<0.036	<0.036	NA	NA	NA	<0.036	NA	<0 036	NA	NA	<0.036	NA	NA
	µg/kg	220	740	<0.0099	<0.0099	<0.0099	NA	NA	NA	<0 0099	NA	<0.0099	NA	NA	<0.0099	NA	NA
	µg/kg	220	740	<0.028	<0.028	<0 028	NA	NA	NA	<0.028	NA	<0.028	NA	NA	<0 028	NA	NA
	µg/kg	220	740	<0.028	<0 028	<0 028	NA	NA	NA	<0 028	NA	<0 028	NA	NA	<0 028	NA	NA
	µg/kg	220	740	<0.028	<0.028	<0.028	NA	NA	NA	<0 028	NA	<0 028	NA	NA	<0.028	NA	NA
	mg/kg	11	35	<0 083	NA	NA	<0 083	NA	NA	NA	<0 083	NA	NA	1.2	<0 083	NA	0.88

ı per kilogram (equivalent to parts per million)
ns per kilogram (equivalent to parts per billion)
zed NS = No Standard
etectedbetween Limit of Detection and Limit of Quantification
ı Administrative Code, Chapter NR 720 generic Residual Contaminant Level (industrial land use RCLs for RCRA metals).
ı Administrative Code, Chapter NR 746, Table 1 soil screening level: Indicators of Residual Petroleum Products in Soil Pores
ı Administrative Code, Chapter NR 746, Table 2: Protection of Human Health from Direct Contact with Contaminated Soil
ıgent generic Residual Contaminant Level for protection of groundwater (gw) or direct contact (dc) pathway for non-industrial land use from WDNR Publication RR-519-97 *"Soil Cleanup Levels for Polycyclic Aromatic ns (PAHs) Interim Guidance"* (April 1997)

µg/L	50	10	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2
µg/L	50	10	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2
µg/L	2.0	0.2	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	<0.044	0.17 "J"	<0.0
µg/L	NS	NS	0.61	0.094	<0.080	0.26	1.1	2.0	0.26	<3.2	<1.6	0.40 "J"	0.22	<0.016	<0.016	<0.016	0.21	0.39
µg/L	NS	NS	<0.012	<0.012	0.074 "J"	0.013"J"	0.35	<0.24	0.013"J"	<2.4	<1.2	<0.12	<0.012	<0.012	<0.012	<0.012	<0.012	<0.2
µg/L	3,000	600	0.65	0.085	<0.065	0.025"J"	1.0	0.57"J"	0.065	<2.6	<1.3	1.4	0.062	<0.013	<0.013	<0.013	0.045	<0.2
µg/L	NS	NS	0.63	0.049	<0.06	0.040	0.87	0.50"J"	0.019"J"	<2.4	<1.2	3.5	0.040	<0.012	0.045	<0.012	0.027 "J"	<0.2
µg/L	0.2	0.02	0.55	0.024"J"	<0.04	0.011"J"	0.92	0.22"J"	0.011"J"	<1.6	<0.8	2.7	0.019"J"	<0.008	0.035	<0.008	0.015 "J"	<0.1
µg/L	0.2	0.02	0.72	0.029	<0.045	0.018"J"	1.3	0.32"J"	0.012"J"	<1.8	<0.9	4	0.020"J"	<0.009	0.055	<0.009	0.018 "J"	<0.1
µg/L	NS	NS	0.27	0.018"J"	<0.05	<0.01	0.47	<0.2	<0.01	<2	<1	1.1	<0.01	<0.01	0.033"J"	<0.01	0.013 "J"	<0
µg/L	NS	NS	0.23	0.014"J"	<0.045	<0.009	0.45	<0.18	<0.009	<1.8	<0.9	1.9	0.010"J"	<0.009	0.017"J"	<0.009	<0.009	<0.1
µg/L	0.2	0.02	0.55	0.044	<0.055	0.027"J"	0.90	0.32"J"	<0.011	<2.2	<1.1	3.6	0.029"J"	<0.011	0.048	<0.011	0.021 "J"	<0.2
µg/L	NS	NS	0.066	<0.009	<0.045	<0.009	0.10	<0.18	<0.009	<1.8	<0.9	0.28 "J"	<0.009	<0.009	0.01"J"	<0.009	<0.009	<0.1
µg/L	400	80	2	0.23	0.074 "J"	0.073	3.0	1.3	0.050	<2.2	<1.1	8.4	0.086	<0.011	0.057	<0.011	0.11	<0.2
µg/L	400	80	0.85	0.12	<0.075	0.13	1.1	1.6	0.23	<3	<1.5	0.62	0.12	<0.015	<0.015	0.022"J"	0.32	0.50
µg/L	NS	NS	0.27	<0.015	<0.075	<0.015	0.54	<0.3	<0.015	<3	<1.5	1.2	<0.015	<0.015	0.024"J"	<0.015	<0.015	<0.
µg/L	NS	NS	0.22	<0.018	0.49	0.24	0.50	3.50	0.022"J"	21	11	1.2	1.4	<0.018	<0.018	0.042"J"	0.41	2.1
µg/L	NS	NS	0.35	0.028"J"	<0.105	0.085	0.76	5.2	0.032"J"	54	29	<0.21	0.029"J"	<0.021	0.026"J"	0.053"J"	<0.021	0.92
µg/L	40	8	0.58	0.058"J"	20	2.1	3.2	58	0.079"J"	743	516	0.64 "J"	1.2	<0.028	0.054"J"	<0.028	1.6	62
µg/L	NS	NS	2.4	0.25	0.2	0.078	3.5	1.3	0.031"J"	<2.2	<1.1	4.4	0.2	<0.011	0.020"J"	<0.011	0.31	0.44
µg/L	250	50	1.4	0.17	0.051 "J"	0.074	2.2	0.91	0.039	<2	<1	8.7	0.11	<0.01	0.052	<0.01	0.091	<0
µg/L	5.0	0.5	0.83 "J"	<0.47	29.1	6.5	30.9	57	<0.47	153	221	24.1	22	<0.47	<2.35	<0.47	11.6	17.
µg/L	NS	NS	<1.1	<1.1	<1.1	4.1	9.2	5.4	<1.1	156 "J"	68"J"	12.1	10	<1.1	<5.5	<1.1	3.6	10
µg/L	NS	NS	<0.76	<0.76	1.16 "J"	2.59	15.3	5.1	<0.76	<0.76	<38	5	4.2	<0.76	<3.8	<0.76	2.41	7.5
µg/L	NS	NS	<0.6	<0.6	<0.6	<0.6	1.49 "J"	0.67"J"	<0.6	<0.6	<30	<0.6	<0.6	<0.6	<3	<0.6	2.11	1.14
µg/L	100	10	<0.56	<0.56	7.2	3.5	4.5	10.6	<0.56	<0.56	<28	1.59 "J"	2.36	<0.56	<2.8	<0.56	0.65 "J"	1.61
µg/L	400	80	<0.54	<0.54	3.3	<0.54	<0.54	<0.54	<0.54	1590	1070	<0.54	<0.54	<0.54	<2.7	<0.54	<0.54	<0.
µg/L	600	60	<0.69	<0.69	<0.69	<0.69	0.94 "J"	3.03	<0.69	<0.69	<34.2	0.88 "J"	1.29"J"	<0.69	<3.45	<0.69	1.28 "J"	1.6
µg/L	75	15	<0.68	<0.68	3.9	3.4	2.36	3.3	<0.68	<0.68	<34	<0.68	0.83"J"	<0.68	<3.4	<0.68	0.90 "J"	1.2
µg/L	850	85	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	<0.56	73 "J"	200	<0.56	<0.56	<0.56	<2.8	<0.56	<0.56	<0.
µg/L	7.0	0.7	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<15	<0.3	<0.3	1.14	4.1"J"	<0.3	<0.3	<0
µg/L	70	7.0	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<0.68	<34	<0.68	<0.68	206	540	6.9	<0.68	<0.
µg/L	100	20	<0.95	<0.95	<0.95	<0.95	<0.95	<0.95	<0.95	<0.95	<47.5	<0.95	<0.95	7.3	22.3	<0.95	<0.95	<0.
µg/L	5.0	0.5	<0.47	<0.47	<.047	<0.47	<0.47	<0.47	<0.47	<23.5	<23.5	<0.47	<0.47	<0.47	<2.35	<0.47	<0.47	1
µg/L	NS	NS	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<0.71	<35.5	0.84 "J"	0.88"J"	<0.71	<3.55	<0.71	<0.71	0.8
µg/L	700	140	<0.38	<0.38	<0.38	<0.38	0.54 "J"	1.57	<0.38	780	640	<0.38	<0.38	<0.38	<1.9	<0.38	<0.38	13
µg/L	NS	NS	<0.99	<0.99	6.1	2.21"J"	14.8	15.7	<0.99	53 "J"	<49.5	3.3	2.83"J"	<0.99	<4.95	<0.99	2.02 "J"	25
µg/L	NS	NS	<0.81	<0.81	<0.81	<0.81	<0.81	4.6	<0.81	<0.81	<40.5	<0.81	<0.81	<0.81	<4.05	<0.81	1.38 "J"	2.4
µg/L	40	8.0	<2.2	<2.2	39	3.8"J"	8.0	83	<2.2	1010	510	<2.2	<2.2	<2.2	<11	<2.2	<2.2	8
µg/L	NS	NS	<0.61	<0.61	8.1	2.36	9.0	20.1	<0.61	111	79"J"	4.1	3.5	<0.61	<3.05	<0.61	1.0 "J"	5
µg/L	1,000	200	<0.59	<0.59	<0.59	<0.59	<0.59	0.73"J"	<0.59	330	1910	1.01 "J"	<0.59	<0.59	<2.95	<0.59	<0.59	0.6
µg/L	200	40	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.59	<25	49"J"	<0.5	<0.5	<0.5	<2.5	<0.59	<0.5	<0
µg/L	5.0	0.5	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<22	<0.44	<0.44	8.5	21.8	<0.44	<0.44	<0
µg/L	**	**	1.25 "J"	<0.39	1.12 "J"	0.44"J"	7.8	75	<0.39	960	540	0.61 "J"	<0.39	<0.39	<1.95	<0.39	24.2	6
µg/L	**	**	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	188	80"J"	<1.2	<1.2	<1.2	<6	<1.2	<1.2	5
µg/L	480	96	1.25 "J"	<1.2	1.12 "J"	0.44"J"	7.8	75	<1.2	1148	620	0.61 "J"	<1.2	<1.2	<6	<1.2	24.2	65
µg/L	0.2	0.02	<0.17	<0.17	<0.17	0.47"J"	0.42 "J"	0.49"J"	<0.17	<8.5	<8.5	0.42 "J"	<0.17	18.2	46	1.53	<0.17	<0
µg/L	10,000	1,000	<1.1	<1.1	0.58 "J"	<1.1	<1.1	6.34	<1.1	1844	1294	<1.1	<1.1	<1.1	<5.5	<1.1	<1.1	4

ns per liter (equivalent to parts per billion)

rzed NS = No Standard

n Administrative Code, Chapter NR 140 Enforcement Standard

n Administrative Code, Chapter NR 140 Preventive Action Limit

VOCs reported below laboratory detection limits

= concentration exceeds Chapter NR 140 PAL

= concentration exceeds Chapter NR 140 ES

Attachment B

WDNR Conditional Approval Letter

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary
Gloria L. McCutcheon, Regional Director

Southeast Region Headquarters
2300 N. Dr. Martin Luther King, Jr. Drive
PO Box 12436
Milwaukee, Wisconsin 53212-0436
Telephone 414-263-8500
FAX 414-263-8716
TTY 414-263-8713

February 4, 2008

Clifford HH. Hendricks, Revocable Trust and Good Lad, LLC
C/O Mr. John Gehringer, ESQ
O'Neil, Cannon, Hollman, Dejong, S.C.
111 E. Wisconsin Ave. Suite 1400
Milwaukee, WI 53202-4870

RE: Additional Groundwater Assessment Activities and, Remedial Action Plan Approval Request, Former Lakfield Sand & Gravel Property, 7003 West Good Hope Road, Milwaukee, Wisconsin

Dear Mr. Gehringer:

The Wisconsin Department of Natural Resources (WDNR), Milwaukee Service Center, Remediation and Redevelopment Program has reviewed the above referenced report. The WDNR is conditionally approving this remedial action report. The condition of approval is that there is a great need to investigate the degree and extent of waste that is found at SB-1 where other reports on this site have referred to as B-N6 in conjunction with the estimations shown on Drawing Number 7743-002, Figure 3 dated 9-06-07 by your constant SIGMA

The groundwater flow direction on this site remains an opened issue that the WDNR looks forward to resolve in future. It is possible to have different groundwater flow directions on a given site (radial flow) depending on the site setting (topography, waste mass, any other prior site features etc), surface/shallow groundwater flow and deep groundwater flow. You will be called upon through your consultant to provide other relevant information but not limited to any of the following if not previously submitted: monitoring well construction data, well screened depths, well survey data and any other information that might help resolve this issue. The Department is continuing to look at limited previous reports of this site and adjacent properties information and if possible any other method that is fair which might help resolve this issue.

If you have any questions concerning this conditional approval, please do not hesitate to call me at 414-263-8607

Sincerely,

Binyoh P. Amungwafor

CC: Ms. Kristin Kurzka, The SIGMA GROUP.
Case File

Attachment C

Laboratory Report

Rexnord Industries - Canal
Attention: Tom Frost
3001 W Canal St.
Milwaukee,WI 53208

Date Received: 09/28/2011
Date Reported: 10/5/2011
Client Project: Metals
Client Project ID: [none]
PO# 838450
Project #: [none]

Certificate of Analysis

All quality control samples and checks were within acceptance limits unless otherwise indicated.Test results pertain only to those items tested. All samples were in good condition when received by the laboratory unless otherwise noted. All LOD/LOQs are adjusted to reflect dilutions.

Analyte	Result	Units	LOD	Dilution Factor	Analyzed	Analyst	Method	Notes
SUI1069-01 Mixed Routine Soil Pile								
Date Sampled: 09/28/2011	**Sample Type:Grab**							
Metals by Inductively Coupled Plasma								
Silver	1.2	mg/kg	0.8	2	10/4/11	GGG	SW-846 6010B	QC-5, J
Arsenic	9	mg/kg	3	2	10/3/11	GGG	SW-846 6010B	J
Barium	25.5	mg/kg	0.15	2	10/3/11	GGG	SW-846 6010B	
Cadmium	0.9	mg/kg	0.2	2	10/3/11	GGG	SW-846 6010B	
Chromium	17.4	mg/kg	0.77	2	10/3/11	GGG	SW-846 6010B	
Lead	22.7	mg/kg	1.5	2	10/3/11	GGG	SW-846 6010B	
Selenium	<2.3	mg/kg	2.3	2	10/3/11	GGG	SW-846 6010B	
Mercury by Atomic Fluorescence								
Mercury	0.049	mg/kg	0.002	100	10/5/11	HTM	SW-846 7474	
Subcontracted Analysis								
				Analyzed by: Environmental Monitoring & Technologies, Inc.				
Acenaphthene	<27.1	µg/Kg	27.1	1	10/3/11		8270	
Acenaphthylene	<136	µg/Kg	136	1	10/3/11		8270	
Anthracene	138	µg/Kg	27.1	1	10/3/11		8270	
Benzo(a)Anthracene	455	µg/Kg	27.1	1	10/3/11		8270	
Benzo(a)Pyrene	445	µg/Kg	27.1	1	10/3/11		8270	
Benzo(b)Fluoranthene	480	µg/Kg	27.1	1	10/3/11		8270	
Benzo(g,h,i) Perylene	393	µg/Kg	27.1	1	10/3/11		8270	
Benzo(k)Fluoranthene	228	µg/Kg	27.1	1	10/3/11		8270	
Chrysene	461	µg/Kg	27.1	1	10/3/11		8270	
Dibenzo(a,h) Anthracene	75.9	µg/Kg	27.1	1	10/3/11		8270	
Fluoranthene	1010	µg/Kg	27.1	1	10/3/11		8270	
Fluorene	<27.1	µg/Kg	27.1	1	10/3/11		8270	
Indeno (1,2,3-cd) Pyrene	331	µg/Kg	27.1	1	10/3/11		8270	
Methyl-1-Naphthalene	<10.6	µg/Kg	10.6	1	10/3/11		8270	
Methyl-2-Naphthalene	<9.93	µg/Kg	9.93	1	10/3/11		8270	
Naphthalene	<27.1	µg/Kg	27.1	1	10/3/11		8270	
Phenanthrene	369	µg/Kg	27.1	1	10/3/11		8270	
Pyrene	892	µg/Kg	27.1	1	10/3/11		8270	
				Analyzed by: Environmental Monitoring & Technologies, Inc.				
Aroclor 1016	<0.106	mg/kg	0.106	1	10/3/11		8082	
Aroclor 1221	<0.106	mg/kg	0.106	1	10/3/11		8082	

This report was prepared and printed by:

Gary Geipel, SIA Department Manager

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MILWAUKEE
Wisconsin Dept. of Trade and Consumer Protection Certified #168 • Dept. of Natural Resources State Certified Laboratory #241249360
FDA Registered Laboratory #2134640 • USDA Soil Permit #S-76521
MILWAUKEE

Rexnord Industries - Canal
3001 W Canal St.
Milwaukee, WI 53208

Project: Metals
Project Number: [none]
Project Manager: Tom Frost

Reported:
10/05/11 16:19

Analyte	Result	Units	LOD	Dilution Factor	Analyzed	Analyst	Method	Notes
SUI1069-01 Mixed Routine Soil Pile								
Date Sampled: 09/28/2011	**Sample Type:Grab**							
				Analyzed by: Environmental Monitoring & Technologies, Inc.				
Aroclor 1232	<0.106	mg/kg	0.106	1	10/3/11		8082	
Aroclor 1242	<0.106	mg/kg	0.106	1	10/3/11		8082	
Aroclor 1248	<0.106	mg/kg	0.106	1	10/3/11		8082	
Aroclor 1254	<0.106	mg/kg	0.106	1	10/3/11		8082	
Aroclor 1260	<0.106	mg/kg	0.106	1	10/3/11		8082	
				Analyzed by: Environmental Monitoring & Technologies, Inc.				
1,1 Dichloroethene	<20.6	µg/Kg	20.6	1	10/1/11		8260	
1,1,1-Trichloroethane	<16	µg/Kg	16	1	10/1/11		8260	
1,1,2,2-Tetrachloroethane	<15.6	µg/Kg	15.6	1	10/1/11		8260	
1,1,2-Trichloroethane	<25.2	µg/Kg	25.2	1	10/1/11		8260	
1,1-Dichloroethane	<20.3	µg/Kg	20.3	1	10/1/11		8260	
1,2-Dichloroethane	<13.8	µg/Kg	13.8	1	10/1/11		8260	
1,2-Dichloropropane	<29.8	µg/Kg	29.8	1	10/1/11		8260	
Acrolein	<ND	µg/Kg	ND	1	10/1/11		8260	
Acrylonitrile	<116	µg/Kg	116	1	10/1/11		8260	
Benzene	<13.9	µg/Kg	13.9	1	10/1/11		8260	
Bromodichloromethane	<17.3	µg/Kg	17.3	1	10/1/11		8260	
Bromoform	<23.4	µg/Kg	23.4	1	10/1/11		8260	
Bromomethane	<36	µg/Kg	36	1	10/1/11		8260	
Carbon Tetrachloride	<19.1	µg/Kg	19.1	1	10/1/11		8260	
Chlorobenzene	<7.56	µg/Kg	7.56	1	10/1/11		8260	
Chloroethane	<30.2	µg/Kg	30.2	1	10/1/11		8260	
Chloroform	<10.3	µg/Kg	10.3	1	10/1/11		8260	
Chloromethane	47	µg/Kg	41.7	1	10/1/11		8260	
Cis-1,3-Dichloropropene	<13.3	µg/Kg	13.3	1	10/1/11		8260	
Dibromochloromethane	<14.4	µg/Kg	14.4	1	10/1/11		8260	
Dichloromethane	<32.3	µg/Kg	32.3	1	10/1/11		8260	
Ethylbenzene	<23.4	µg/Kg	23.4	1	10/1/11		8260	
Tetrachloroethene	<21.6	µg/Kg	21.6	1	10/1/11		8260	
Toluene	<28.4	µg/Kg	28.4	1	10/1/11		8260	
Trans-1,2-Dichloroethene	<22.3	µg/Kg	22.3	1	10/1/11		8260	
Trans-1,3-Dichloropropene	<30.3	µg/Kg	30.3	1	10/1/11		8260	
Trichloroethene	<18.9	µg/Kg	18.9	1	10/1/11		8260	
Vinyl Chloride	<8.5	µg/Kg	8.5	1	10/1/11		8260	
Xylenes - Total	<33.6	µg/Kg	33.6	1	10/1/11		8260	

QC-5 A low spike recovery was associated with this sample.

J This result is greater than our LOD (Limit of Detection) and less than our LOQ (Limit of Quantitation)

CHAIN OF CUSTODY

Client Information:

Name: TOM FROST

Company: REXNORD INDUSTRIES, LLC - FALK

Address: 3001 W CANAL ST

MILWAUKEE WI 53208

Phone: 414-937-4332

FAX:

E-Mail: tom.frost@rexnord.com

Purchase Order#: 858965

Original copies of reports are sent with an invoice. Please indicate below if you would like to be e-mailed.

X E-mail _____ RUSH (contact for availability)

Condition on Receipt

SJ Cooler	Y		N
Container OK?	Y	N/A	N
Sample(s) Leaking?	Y	N/A	N
Received Refrigerated?	Y	N/A	N

Temperature _____

SF Analytical Laboratories
2345 South 170th St.
New Berlin, WI 53151
262-754-5300
800-300-6700
FAX 262-754-5310
www.sflabs.com

WDNR Lab No. 241249360
WI DATCP Lab. No. 105-168

* Environmental Only

Analyte(s) Include expected range if applicable

	FOR LAB USE ONLY Laboratory ID Number	Sample Information: Sample Identification	Date Collected	Time Collected	Collected by (Initials)	Flow (FPC) / Time (TPC) Composite (C) or Grab (G)	Matrix Code*	Container Code*	Preservative Code*	(X) CHECK IF LAB USE ONLY	VOC	PAH	PCBs	METALS (8 RCRA)		
1		MIXED ROUTINE SOIL PILE	9/28/11	9AM	TMF	G	SL	G	METH		X					
2		"	"	"	"	"	"	G	U			X				
3		"	"	"	"	"	"	G	U				X			
4		↓	↓	↓	↓	↓	↓	P	U					X		
5																
6																
7																
8																
9																
10																

Matrix Codes

DW = Drinking Water
WW = Wastewater
W = Water (other)
SL = Soil/Solids
BS = Biosolids (sludge)
WP = Wipe
O = Oil/Fuel
P = Product
F = Food/Feed
Ph = Pharmaceuticals
M = Miscellaneous
WS = Waste

Container Codes

P = Plastic
PS = Plastic Sterile
G = Glass
GT = Glass/TFE
GA = Glass, amber
V = VOA vial

Preservative Codes

U = Unpreserved
N = HNO_3, pH<2
S = H_2SO_4, pH<2
OH = NaOH, pH>12
Other (Specify)

A printed signed copy must be enclosed with your samples.

Relinquished by:	Print Name:	Date	Time	Received by:	Print Name:
Thomas Frost	THOMAS FROST	9/28/11	1455		
Relinquished by:	Print Name:	Date	Time	Received by:	Print Name:
Relinquished by:	Print Name	Date	Time	Received by:	Print Name:

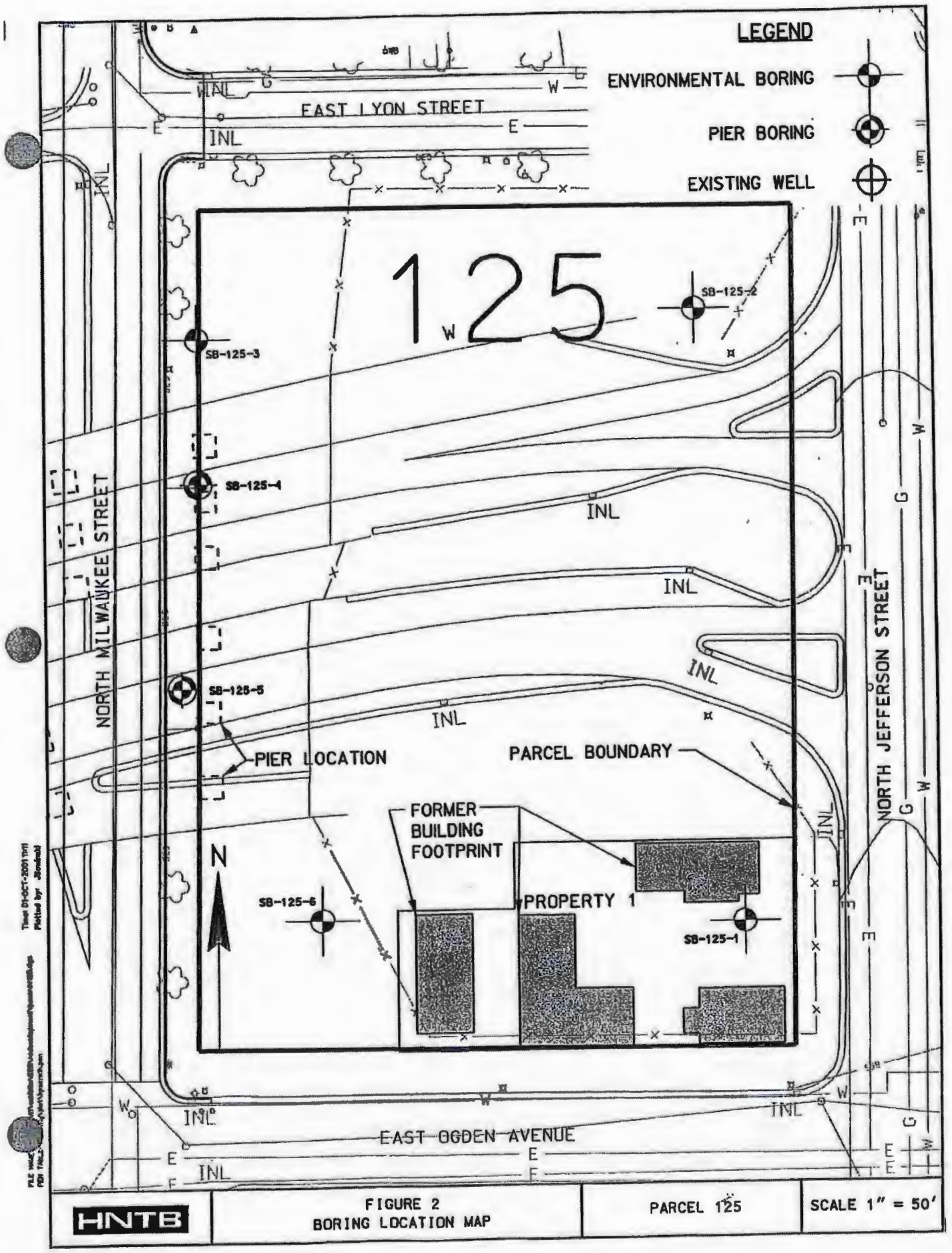
Special Instructions:

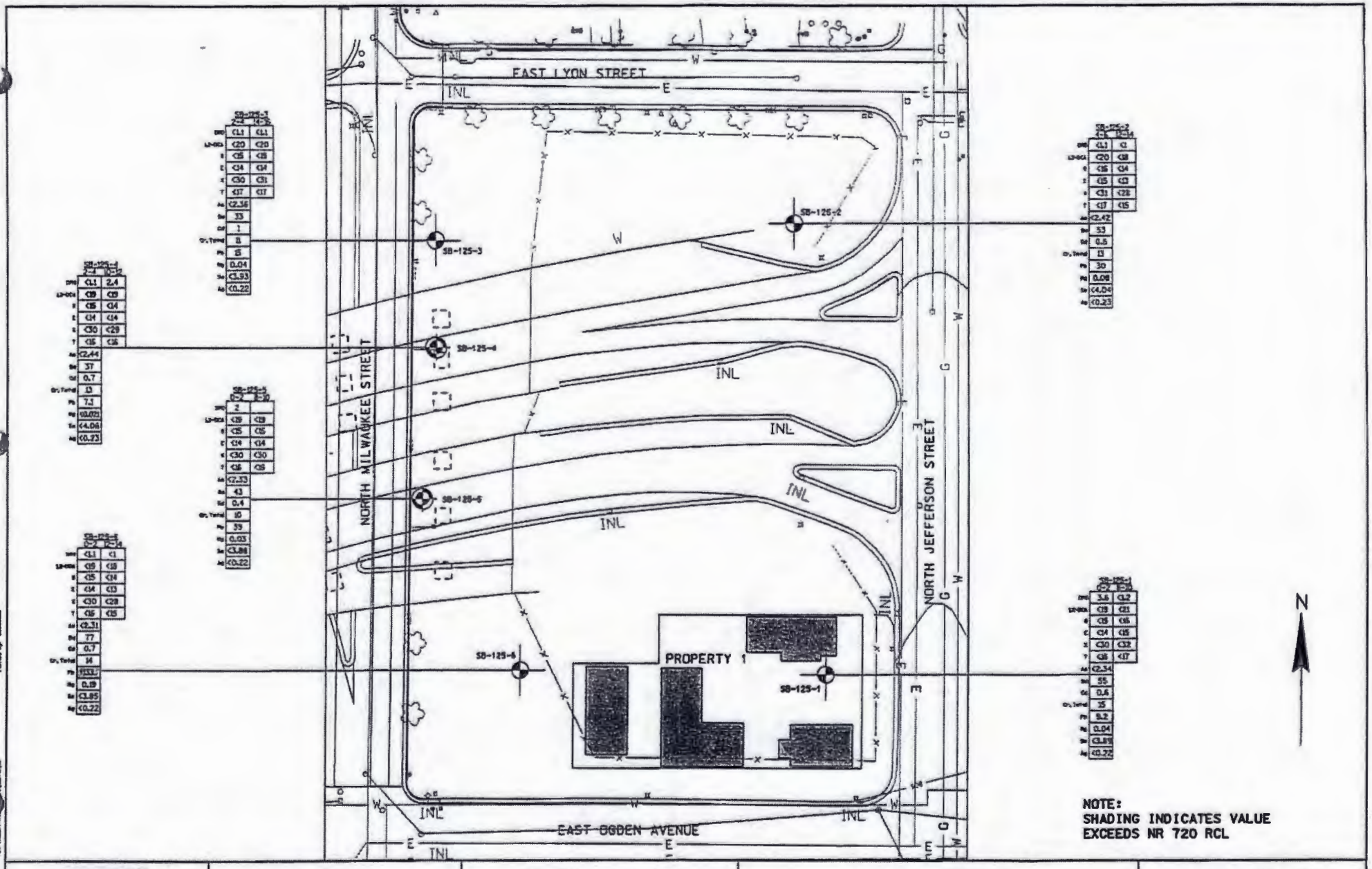
PO 858965

By completing this form, Client agrees to be bound by the Terms and Conditions, accompanying this form.

Attachment D

Soil Boring and Analytical Results


LEGEND
ENVIRONMENTAL BORING
PIER BORING
EXISTING WELL
125
SB-125-1
SB-125-2
SB-125-3
SB-125-4
SB-125-5
SB-125-6
PIER LOCATION
PARCEL BOUNDARY
FORMER BUILDING FOOTPRINT
PROPERTY 1
N
EAST LYON STREET
EAST OGDEN AVENUE
NORTH MILWAUKEE STREET
NORTH JEFFERSON STREET
INL
HNTB
FIGURE 2
BORING LOCATION MAP
PARCEL 125
SCALE 1" = 50'



HNTB	PARK EAST FREEWAY	SOIL ANALYTICAL DATA	PARCEL 125 – FIGURE 4	SCALE 1" = 50'

TABLE 2

Soil Analytical Results
Park East Freeway Phase II - Parcel 125

Sample ID		125-1A	125-1B	125-2A	125-2B	125-3A	125-3B
Date Collected		6/25/01	6/25/01	6/25/01	6/25/01	6/28/01	6/28/01
Sample Interval (ft Bgs)		0-2	8-10	4-6	12-14	2-4	14-16
Soil Matrix		Fill	Native	Fill	Native	Fill	Native
Measured Depth to Groundwater							
Analyte	Unit						
Solids, Total Percent	%	89	84	86	95	88	88
Arsenic	mg/kg	<2.34	---	<2.42	---	<2.36	---
Barium	mg/kg	55	---	53	---	33	---
Cadmium	mg/kg	0.60	---	0.60	---	1.0	---
Chromium, Total	mg/kg	15	---	13	---	11	---
Lead	mg/kg	9.2	---	30	---	15	---
Mercury	mg/kg	0.04	---	0.08	---	0.04	---
Selenium	mg/kg	<3.89		<4.04	---	<3.93	---
Silver	mg/kg	<0.22		<0.23	---	<0.22	---
Diesel Range Organics	mg/kg	3.6	<1.2	<1.1	<1	<1.1	<1.1
Total -Trimethylbenzene	ug/kg	<17	<18	<18	<16	<17	<17
1,2-Dichlorobenzene	ug/kg	<19	<20	<20	<18	<19	<19
Benzene	ug/kg	<15	<16	<16	<14	<15	<15
Ethylbenzene	ug/kg	<14	<15	<15	<13	<14	≤14
Isopropyl Ether	ug/kg	<17	<18	<17	<16	<17	<17
Isopropylbenzene	ug/kg	<18	<20	<19	<17	<19	<19
Total -xylene	ug/kg	<30	<32	<31	<28	<30	<31
n-Butylbenzene	ug/kg	<20	<21	<21	<19	<20	<20
n-Propylbenzene	ug/kg	<16	<17	<16	<15	<16	<16
Naphthalene	ug/kg	<42	<45	<44	<40	<43	<43
p-Isopropyltoluene	ug/kg	<18	<19	<18	<17	<18	<18
sec-Butylbenzene	ug/kg	<19	<20	<20	<18	<19	<19
Toluene	ug/kg	<16	<17	<17	<15	<17	<17

Notes:

1) ft Bgs = Feet below ground surface.
2) mg/kg = Milligrams per kilogram.
3) ug/kg = Micrograms per kilogram.
4) --- = Not analyzed.
5) Bold values indicate detection's of compound.
6) Bold and shaded value indicates concentration exceeding NR 720 established or suggested generic Residual Contaminant Level.

TABLE 2

Soil Analytical Results
Park East Freeway Phase II - Parcel 125

Sample ID		125-4A	125-4B	125-5A	125-5B	125-6A	125-6B
Date Collected		6/28/01	6/28/01	6/25/01	6/25/01	6/25/01	6/25/01
Sample Interval (ft Bgs)		2-4	10-12	0-2	8-10	0-2	12-14
Soil Matrix		Fill	Native	Fill	Native	Fill	Native
Measured Depth to Groundwater							
Analyte	Unit						
Solids, Total Percent	%	89	93	89	89	90	96
Arsenic	mg/kg	<2.44	—	<2.33	—	<2.31	—
Barium	mg/kg	37	—	43	—	77	—
Cadmium	mg/kg	0.70	—	0.40	—	0.70	—
Chromium, Total	mg/kg	13	—	10	—	14	—
Lead	mg/kg	7.1	—	39	—	[illegible]	—
Mercury	mg/kg	<0.021	—	0.03	—	0.10	—
Selenium	mg/kg	<4.06	—	<3.88		<3.85	—
Silver	mg/kg	<0.23	—	<0.22		<0.22	—
Diesel Range Organics	mg/kg	<1.1	2.4	2	2	<1.1	<1
Total -Trimethylbenzene	ug/kg	<17	<16	<17	<17	<17	<16
1,2-Dichlorobenzene	ug/kg	<19	<18	<19	<19	<19	<18
Benzene	ug/kg	<15	<14	<15	<15	<15	<14
Ethylbenzene	ug/kg	<14	<14	<14	<14	<14	<13
Isopropyl Ether	ug/kg	<17	<16	<17	<17	<17	<16
Isopropylbenzene	ug/kg	<18	<18	<18	<18	<18	<17
Total -xylene	ug/kg	<30	<29	<30	<30	<30	<28
n-Butylbenzene	ug/kg	<20	<19	<20	<20	<20	<19
n-Propylbenzene	ug/kg	<16	<15	<16	<16	<16	<15
Naphthalene	ug/kg	<42	<40	<42	<42	<42	<39
p-Isopropyltoluene	ug/kg	<18	<17	<18	<18	<17	<16
sec-Butylbenzene	ug/kg	<19	<18	<19	<19	<19	<18
Toluene	ug/kg	<16	<16	<16	<16	<16	<15

Notes:

1) ft Bgs = Feet below ground surface.
2) mg/kg = Milligrams per kilogram.
3) ug/kg = Micrograms per kilogram.
4) — = Not analyzed.
5) Bold values indicate detection's of compound.
6) Bold and shaded value indicates concentration exceeding NR 720 established or suggested generic Residual Contaminant Level.

TABLE 2

Soil Analytical Results
Park East Freeway Phase II - Parcel 125

Sample ID		Trip Blank	Trip Blank
Date Collected		6/25/01	6/28/01
Sample Interval (ft Bgs)			
Soil Matrix			
Measured Depth to Groundwater			
Analyte	**Unit**		
Solids, Total Percent	%	---	---
Arsenic	mg/kg	---	---
Barium	mg/kg	---	---
Cadmium	mg/kg	---	---
Chromium, Total	mg/kg	---	---
Lead	mg/kg	---	---
Mercury	mg/kg	---	---
Selenium	mg/kg	---	---
Silver	mg/kg	---	---
Diesel Range Organics	mg/kg	---	---
Total -Trimethylbenzene	ug/kg	<15	<15
1,2-Dichlorobenzene	ug/kg	<17	<17
Benzene	ug/kg	<13	<13
Ethylbenzene	ug/kg	<13	<13
Isopropyl Ether	ug/kg	<15	<15
Isopropylbenzene	ug/kg	<16	<16
Total -xylene	ug/kg	<27	<27
n-Butylbenzene	ug/kg	<18	<18
n-Propylbenzene	ug/kg	<14	<14
Naphthalene	ug/kg	<38	<38
p-Isopropyltoluene	ug/kg	<16	<16
sec-Butylbenzene	ug/kg	<17	<17
Toluene	ug/kg	<15	<15

Notes:

1) ft Bgs = Feet below ground surface.
2) mg/kg = Milligrams per kilogram.
3) ug/kg = Micrograms per kilogram.
4) --- = Not analyzed.
5) Bold values indicate detection's of compound.
6) Bold and shaded value indicates concentration exceeding NR 720 established or suggested generic Residual Contaminant Level.

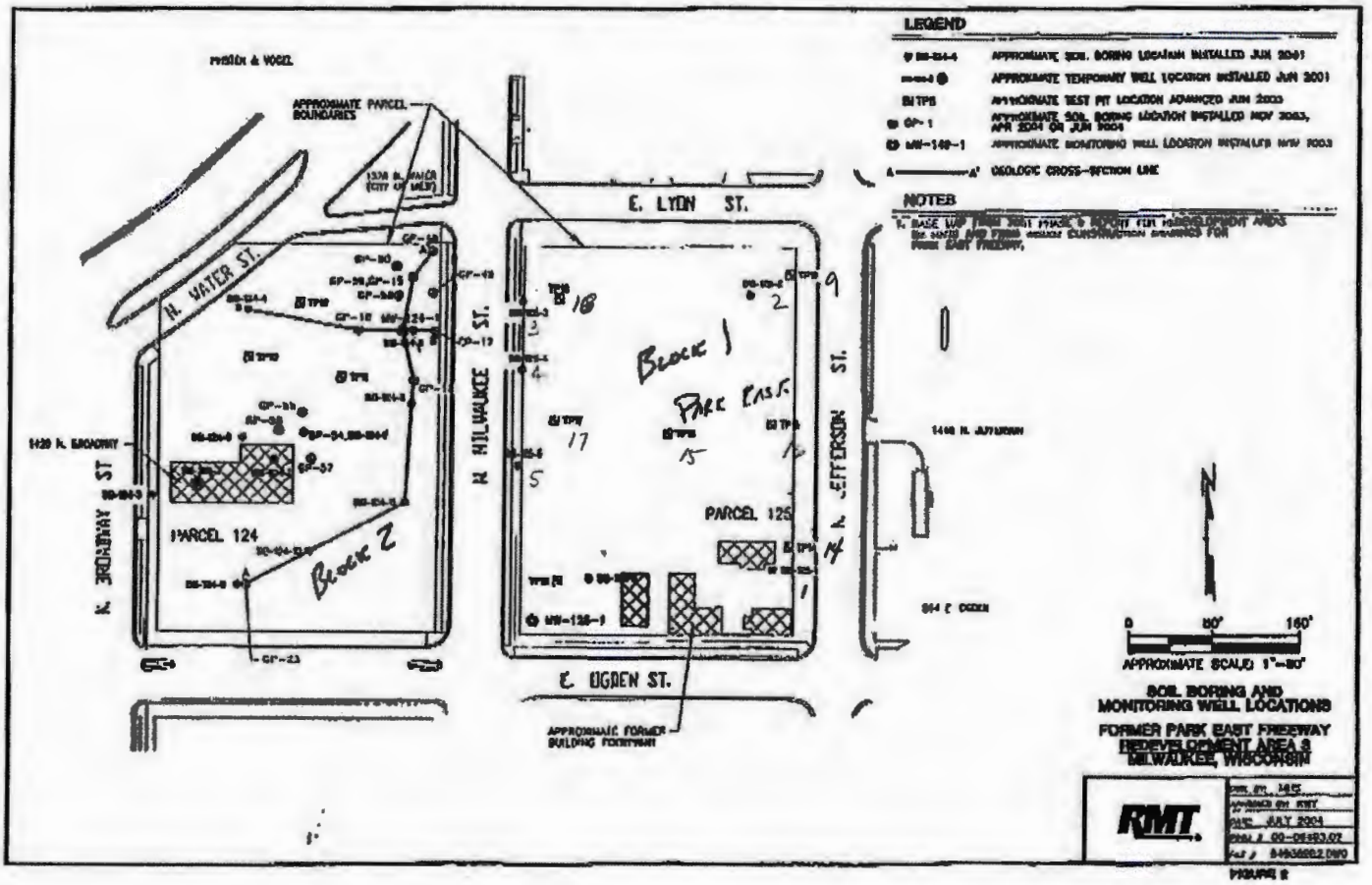

LEGEND
APPROXIMATE PARCEL BOUNDARIES
E. LYON ST.
N. WATER ST.
N. MILWAUKEE ST.
N. JEFFERSON ST.
N. BROADWAY ST
E. OGDEN ST.
PARCEL 124
PARCEL 125
Block 2
Block 1
Park East
1420 N. BROADWAY
1440 N. JEFFERSON
APPROXIMATE FORMER BUILDING FOOTPRINT
0
80'
160'
APPROXIMATE SCALE: 1"=80'
SOIL BORING AND MONITORING WELL LOCATIONS
FORMER PARK EAST FREEWAY
REDEVELOPMENT AREA 3
MILWAUKEE, WISCONSIN
RMT
DATE: JULY 2004

Table 3

Summary of Constituents Detected in Soil Samples – June 26, 2003 Sampling Event

Former Park East Freeway Redevelopment Area 3

City and County of Milwaukee, Wisconsin

	Non-Industrial RCL	TP-10 10' 6/26/03	TP-11 5' 6/26/03	TP-12 5' 6/26/03	TP-14 5' 6/26/03	TP-15 5' 6/26/03	TP-19 6' 6/26/03	TP-13 5' 6/26/03	TP-16 10' 6/26/03	TP-17 10' 6/26/03	TP-18 10' 6/26/03
Metals (mg/kg)		(Composite Sample)			(Composite Sample)			(Composite Sample)			
Arsenic	5	3.33			<2.81			<3.00			
Barium		116			51.3			42.5			
Cadmium	8	<0.648			<0.562			<0.601			
Chromium, Total	16,000	12.8			14.1			10.1			
Lead	250	132			9.34			135			
Mercury		0.0807			<0.0520			0.579			
Selenium		<3.74			<2.81			<3.00			
Silver		<3.24			<2.81			<3.00			
DRO, mg/kg	100	18.4	21.5	13.0	12.7	8.77	<5.86	13.9	10.0	10.1	31.9
GRO, mg/kg	100	<5.79	<5.79	<7.19	<5.87	<4.17	<5.86	<5.71	<5.92	<5.83	<5.74
VOCs, ug/kg											
Trimethylbenzenes	-	<50	<50	–	–	<50	51.6	<50	–	<50	–
1,3-Dichlorobenzene		<25	<25	–	–	<25	<25	<25	–	<25	–
Benzene	5.5	<25	<25	–	–	<25	90.7	<25	–	284	–
Ethylbenzene	2,900	<25	<25	–	–	<25	238	<25	–	30.2	–
Isopropyl Ether		<25	<25	–	–	<25	<25	<25	–	<25	–
Isopropylbenzene		<25	<25	–	–	<25	<25	<25	–	29.1	–
Xylenes	4,100	<25	30	–	–	<25	60.0	<25	–	44.6	–
n-Butylbenzene		<25	<25	–	–	<25	<25	<25	–	239	–
n-Propylbenzene		<25	<25	–	–	<25	<25	<25	–	<25	–
Naphthalene	400[GW]	60.2	208	–	–	<25	332	42.5	–	161	–
p-Isopropyltoluene		<25	<25	–	–	<25	<25	<25	–	36.7	–
sec-Butylbenzene		<25	<25	–	–	<25	<25	<25	–	<25	–
Toluene	1,500	<25	<25	–	–	<25	<25	<25	–	<25	–
PAHs, ug/kg											
1-Methylnaphthalene	29,000[GW]	–	–	–	–	<128	–	–	–	–	–
2-Methylnaphthalene	20,000[GW]	–	–	–	–	<128	–	–	–	–	–
Acenaphthene	36,000[GW]	–	–	–	–	<128	–	–	–	–	–
Acenaphthylene	700[GW]	–	–	–	–	<256	–	–	–	–	–
Anthracene	3,000,000[GW]	–	–	–	–	<128	–	–	–	–	–
Benzo (a) anthracene	877[DC]	–	–	–	–	79.8	–	–	–	–	–
Benzo (a) pyrene	88[DC]	–	–	–	–	72.4	–	–	–	–	–
Benzo (b) fluoranthene	877[DC]	–	–	–	–	65.8	–	–	–	–	–
Benzo (g,h,i) perylene	6,772[DC]	–	–	–	–	<128	–	–	–	–	–
Benzo (k) fluoranthene	8,772[DC]	–	–	–	–	<128	–	–	–	–	–
Chrysene	87,000[GW]	–	–	–	–	<128	–	–	–	–	–
Dibenz (a,h) anthracene	88[DC]	–	–	–	–	<64.1	–	–	–	–	–
Fluoranthene	500,000[GW]	–	–	–	–	230	–	–	–	–	–
Fluorene	100,000[GW]	–	–	–	–	<128	–	–	–	–	–
Indeno (1,2,3-cd) pyrene	877[DC]	–	–	–	–	<64.1	–	–	–	–	–
Naphthalene	400[GW]	–	–	–	–	<128	–	–	–	–	–
Phenanthrene	3,800[GW]	–	–	–	–	<128	–	–	–	–	–
Pyrene	2,346,628[DC]	–	–	–	–	206	–	–	–	–	–

Notes:

1. RCRA Metals analyzed using EPA Method 6010 except for mercury which was analyzed using EPA Method 7471
2. DRO = diesel range organic analyzed using the Wisconsin Modified Method
3. VOCs = Volatile Organic Compounds analyzed using EPA Method 8260
4. mg/kg = milligrams per liter (ppm)
5. ug/kg = micrograms per liter (ppb)
6. RCL = Residual Contaminant Level. The RCL for total arsenic in soils for Area 3 has been determined to be 5 mg/kg based on United States Geological Survey (USGS) Professional Paper 1648 which documents the background arsenic concentration in Southeastern Wisconsin soils to be approximately 5 mg/kg. An RCL for total lead is allowed by WDNR per WDNR Publication RR633, when lead is the only contaminant at the site (note also that in an April 11, 2002 letter, the WDNR approved a lead cut-off level of 250 mg/kg for soils at this site). RCLs listed above for chromium and cadmium are the NR 720.11 non-industrial table values for the direct contact pathway (the total chromium sampling result is compared to the NR 720.11 RCL table value for hexavalent chromium in this table). RCLs listed above for benzene, 1,2-dichloroethane, ethylbenzene, toluene and xylenes are the NR 720.09 table values for protection of groundwater. RCL listed for DRO is the more conservative NR 720.09 value. RCLs listed for PAHs (including naphthalene) are the more-stringent of a) the generic RCL Listed in WDNR Publication RR-519-97 for protection of groundwater and b) the direct contact RCL calculated using methodologies in WDNR Publication RR-519-97 and using the NR 720.19(5)(a) target risk of 1 x 10-6 at hazard quotient of 1. DC - non-industrial site direct contact pathway; GW - protection of groundwater.
7. Samples above were analyzed by APL, Inc. in Milwaukee, Wisconsin (WDNR Certification #241340550)
8. Detections of analytes are bolded
9. -- not analyzed.

[d] = NR 720 RCL Exceedance

Table 1

Summary of Contaminants Detected in Soil Samples During 2007 Phase II Investigation

[illegible]

[illegible], Wisconsin

	Non-Industrial RCL	Soil Boring Identification																																		
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Metals (mg/kg)																																				
Arsenic	[illegible]	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]
Barium		[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]
Cadmium	8	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]
Chromium, Total	[illegible]	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]
Lead	[illegible]	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]
Mercury		[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]
Selenium		[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]
Silver		[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]	--	[illegible]
DRO mg/kg	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
VOCs µg/kg																																				
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1,2-[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Benzene	5.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Ethylbenzene	2,900	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Isopropyl[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Isopropyl[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Xylenes	4,100	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Naphthalene	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
p-Isopropyltoluene		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Toluene	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PAHs µg/kg																																				
[illegible]	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
[illegible]	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo (a) anthracene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo (a) pyrene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo (b) fluoranthene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo (g,h,i) perylene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo (k) fluoranthene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenz (a,h) anthracene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno (1,2,3-cd) pyrene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	[illegible]	--	--	--	--	--	--	--	--	[illegible]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
1. RCRA Metals analyzed using EPA Method [illegible] except for mercury which was analyzed using EPA Method [illegible]
2. DRO = diesel range organics analyzed using the Wisconsin Modified Method
3. VOCs = Volatile Organic Compounds analyzed using EPA Method [illegible]
4. mg/kg = milligrams per kilogram (ppm)
5. µg/kg = micrograms per kilogram (ppb)
6. All samples collected by [illegible]
7. RCL = Residual Contaminant Level. [illegible]
8. Samples above were analyzed by [illegible], Wisconsin (WDNR Certification [illegible])
9. Detections of analytes are bolded.

[box] = NR 720 RCL Exceedance

[illegible]

Table 1
Summary of Constituents Detected in Soil Samples During November 2003 & April 2004 Investigations
Former Park East Freeway Redevelopment Area 3
City and County of Milwaukee, Wisconsin

	Non-Industrial RCL	GP-13 6'-8' 11/5/03	GP-16 8'-8' 11/5/03	GP-17 6'-8' 11/5/03	GP-18 8'-8' 11/5/03	GP-23 0'-6' 11/6/03	BMW-124 BMW-124-A 0'-10' 11/6/03	GP-46 8'-8' 4/23/04	GP-47 4'-6' 4/21/04	GP-48 6'-8' 4/23/04	GP-49 8'-10' 4/21/04	GP-49 0'-6' 4/21/04	GP-49 4'-8' 4/21/04	GP-49 8'-8' 4/21/04	GP-49 6'-8' 6/4/04	GP-53 8'-10' 6/4/04	GP-54 0'-6' 6/4/04	GP-54 6'-8' 6/4/04	GP-54 8'-8' 6/4/04	GP-65 0'-6' 6/4/04
Total Metals, mg/kg																				
Chromium, Total	36,000	--	--	--	--	22.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium, Hexavalent	16	--	--	--	--	<0.501	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	250	507	132	13.2	145	--	65.9	9.36	11.3	200	640	25.5 B	10.6	930	8.72	271	252	114	75.8	4.11	68.1	521
Lead XRF Field Screening Result, mg/kg		250	68	0	125	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TCLP Lead, mg/l		0.0136	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PAHs, µg/kg																						
Acenaphthene	34,000,000 DC	<166	<112	<118	<112	--	202	<108	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acenaphthylene	700,000 DC	<332	<224	<236	<224	--	<257	<216	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Anthracene	3,000,000 DC	<166	209	<118	<112	--	<128	<108	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo (a) anthracene	87 DC	<83.0	487	<59.0	<56.1	--	272	<54.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo (a) pyrene	8 DC	<8.30	570	20.3	34.7	--	385	33.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Benzo (b) fluoranthene	877 DC	<83.0	683	<59.0	<56.1	--	370	<54.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
benzo (g,h,i) perylene	8,772 DC	<166	326	<118	<112	--	348	<108	--	--	--	--	--	--	--	--	--	--	--	--	--	--
benzo (k) fluoranthene	8,772 DC	<166	293	<118	<112	--	<128	<108	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chrysene	87,000 DC	<166	301	<118	<112	--	324	<108	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenz (a,h) anthracene	800 DC	<8.30	89.3	<5.90	<5.61	--	33.5	<5.41	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluoranthene	500,000 DC	<166	1,300	<118	<112	--	907	<108	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fluorene	400,000 DC	<166	171	<118	<112	--	<176	<108	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Indeno (1,2,3-cd) pyrene	877 DC	<83.0	342	<59.0	<56.1	--	197	<54.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1-Methylnaphthalene	23,000 DC	<166	<112	<118	<112	--	<176	<108	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Methylnaphthalene	20,000 DC	<166	<112	<118	<112	--	247	<108	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	400 DC	<166	<112	<118	<112	--	<126	<108	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phenanthrene	1,800 DC	<166	906	<118	<112	--	566	<108	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pyrene	3,246,429 DC	<166	979	<118	<112	--	220	<108	--	--	--	--	--	--	--	--	--	--	--	--	--	--

	Non-Industrial RCL	GP-55 4'-8' 6/4/04	GP-55 8'-8' 6/4/04	GP-56 0'-4' 6/4/04	GP-56 4'-6' 6/4/04	GP-56 6'-8' 6/4/04	GP-56 8'-10' 6/4/04	GP-57 2'-6' 6/4/04	GP-57 4'-6' 6/4/04	GP-57 6'-8' 6/4/04	GP-57 8'-10' 6/4/04	GP-58 0'-4' 6/4/04	GP-58 4'-6' 6/4/04	GP-58 6'-8' 6/4/04	GP-58 8'-10' 6/4/04	GP-59 0'-6' 6/4/04	GP-59 8'-10' 6/4/04	GP-59 10'-12' 6/4/04	GP-60 0'-4' 6/4/04	GP-60 4'-8' 6/4/04	GP-60 6'-8' 6/4/04	GP-60 8'-10' 6/4/04
Total Lead, mg/kg	250	137	8.34	79.9	395	186	228	43.1	188	83.9	19.6	31.7	409	186	529	240	66.9	34.8	34.9	27.6	32.3	339

Notes:
1. Total chromium analyzed using EPA Method 6010; hexavalent chromium analyzed using EPA Method 7196; lead analyzed using EPA Method 7421 or 6010B
2. PAHs = polycyclic aromatic hydrocarbons analyzed using EPA Method 8310
3. mg/kg = milligrams per liter (ppm)
4. µg/kg = micrograms per liter (ppb)
5. All samples collected by RMT, Inc.
6. RCL = Residual Contaminant Level. RCLs listed above for chromium are the NR 720.13 non-industrial table values for the direct contact pathway. The RCL listed for total lead is the lead cleanup level which the WDNR assigned to the Park East project in a 6/11/02 WDNR letter to the WisDOT. RCLs listed for PAHs (including naphthalene) are the more stringent of: a) the generic RCL listed in WDNR Publication RR-519-97 for protection of groundwater, and b) the direct contact RCL calculated using methodologies in WDNR Publication RR-519-97 and using the NR 720.19(3)(a) (target risk of 1×10^{-5} or hazard quotient of 1). DC - non-industrial site direct contact pathway; GW - protection of groundwater.
7. Samples above were analyzed by Great Lakes Analytical in Oak Creek, Wisconsin (WDNR Certification #241000320) and in Buffalo Grove, Illinois (WDNR Certification #999917160)
8. Detections of analytes are bolded
9. -- not analyzed
B - total lead was detected in the lab blank that was associated with this sample at a concentration of 17 mg/kg.
[redacted] = NR 720 RCL exceedance

Attachment E

RMT and HNTB Phase 1 and Phase 2 Environmental Site Assessment Reports

RMT

• ENVIRONMENT • ENERGY • ENGINEERING

Phase I Environmental Site Assessment

Former Park East Freeway - Block 1

Property Bounded by North Jefferson Street, East Lyon Street, North Milwaukee Street, and East Ogden Street

Milwaukee, Wisconsin

November 2007

RMT

• ENVIRONMENT • ENERGY • ENGINEERING

Phase I Environmental Site Assessment

Former Park East Freeway - Block 1

Property Bounded by North Jefferson Street, East Lyon Street, North Milwaukee Street, and East Ogden Street

Milwaukee, Wisconsin

November 2007

Prepared For
RSC & Associates

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CREATING BALANCE℠

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Executive Summary

RMT, Inc. (RMT), acting at the request of RSC & Associates (RSC), conducted a Phase I Environmental Site Assessment (ESA) of Former Park East Freeway Block 1, located in Milwaukee County and bounded by North Jefferson Street to the east, East Lyon Street to the north, North Milwaukee Street to the west, and East Ogden Street to the south (subject property). RSC retained RMT to perform the Phase I ESA as part of its due diligence process. RSC is in the process of purchasing the site from Milwaukee County, the current property owner, and RSC's lender has requested that a Phase I ESA be completed. RSC has committed to closing on the property by November 30, 2007. This Phase I ESA was conducted in accordance with the American Society for Testing and Materials (ASTM) Standard E 1527-05, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (standard).

Recognized Environmental Conditions

A recognized environmental condition is defined as the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property.

This assessment has revealed no evidence of recognized environmental conditions in connection with the property.

Historical Recognized Environmental Conditions

A historical recognized environmental condition is defined as an environmental condition that, in the past, would have been considered a recognized environmental condition but may or may not be considered a recognized environmental condition currently.

This assessment has revealed no evidence of historical recognized environmental conditions in connection with the property.

Key de minimis Issues

A *de minimis* issue is defined as a condition that generally does not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

- ***de minimis Issue:*** Residual low-level diesel range organic (DRO) soil contamination in the areas of test pits TP-13 (at 5' below the ground surface [bgs]), TP-14 (at 5' bgs), TP-15 (at 5' bgs), TP-16 (at 10' bgs), and TP-18 (at 10' bgs) detected in 2003. Certain metals were also detected in composite soil samples collected from these test pits at relatively low concentrations.

Opinion of Impact: It is not clear if these soil impacts remain on the subject property or not, given that significant on-site grading has occurred since 2003. Although the DRO concentrations detected at these locations in 2003 are well below the most-stringent residual contaminant level (RCL) listed in NR 720, Wisconsin Administrative Code (generally, soils with DRO concentrations below the NR 720 RCL can remain in place with no further remediation), if these soils are excavated and transported off site, they would need to be managed as contaminated soils. RMT recommends that RSC's environmental consultant be on site during excavation for future development to field screen and to direct the proper management of any identified residual soil impacts on site.

Section 1
Introduction

RMT, acting at the request of RSC & Associates (RSC), conducted a Phase I ESA of Former Park East Freeway Block 1, located in Milwaukee County and bounded by North Jefferson Street to the east, East Lyon Street to the north, North Milwaukee Street to the west, and East Ogden Street to the south (subject property). RSC retained RMT to perform the Phase I ESA as part of its due diligence process. RSC is in the process of purchasing the subject property from Milwaukee County, the current property owner, and RSC's lender has requested that a Phase I ESA be completed. RSC has committed to closing on the property by November 30, 2007. The 2.13-acre subject property currently has no buildings on it and is undeveloped. This Phase I ESA was conducted in accordance with the ASTM Standard E 1527-05, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (standard).

Ms. Kristin Gunderson of RMT performed the site reconnaissance on November 13, 2007. During the site reconnaissance, RMT was unaccompanied. Jim Hutchens of RMT provided quality assurance for this project. The Environmental Professional's statement and the professional qualifications for the individuals participating in this project are included in Appendix A.

1.1 Purpose

The purpose of this Phase I ESA is to identify recognized environmental conditions associated with the *property* and to satisfy "all appropriate inquiry into the previous ownership and uses of the *property* consistent with good commercial or customary practice" with respect to the range of contaminants within the scope of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and petroleum products. RSC & Associates retained RMT to perform the Phase I ESA as part of its due diligence process.

The standard practice defined in ASTM 1527-05 is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide purchaser limitations of CERCLA liability.

1.2 Scope of Services

This Phase I ESA was conducted in accordance with the scope of work and the terms and conditions specified in RMT's proposal to RSC & Associates dated November 12, 2007, for a Phase I ESA (Appendix B) and, as such, meets the requirements of ASTM Standard E 1527-05, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process,*

except for the deviations and limitations discussed in Subsections 1.5, Deviations and 1.6, Limitations and Exceptions of Assessment.

1.3 Additional Services

The scope of services did not include additional services.

1.4 Significant Assumptions

RMT did not make any significant assumptions in the course of completing this Phase I ESA the proposed scope of services.

1.5 Deviations

No deletions or deviations from the ASTM E 1527-05 standard practice occurred or were requested by the User in conducting this Phase I ESA.

1.6 Limitations and Exceptions of Assessment

Limitations and exceptions to the Phase I ESA are discussed in the following subsections.

1.6.1 Limitations of Assessment

Some knee-high vegetation existed at the property on November 13, 2007, when RMT conducted the site reconnaissance.

RMT's findings and opinions are based on information that was available and obtained at the time of the assessment through site reconnaissance, standard investigatory techniques used in the industry at the time, records review, and other related activities. It is possible that other information exists or may subsequently become known that may impact or change the site after RMT's observation.

In conducting the Phase I ESA and preparing this report, RMT reviewed, interpreted, and relied upon information provided by others, including, but not limited to, RSC, HNTB Corporation, individuals, government authorities, subcontractors, and other entities. RMT did not perform an independent evaluation of the accuracy or completeness of such information, and RMT will not be responsible for any errors or omissions contained in such information.

There were no general limitations to this review resulting from physical obstructions or limiting conditions.

1.6.2 Exceptions of Assessment

ASTM Standard E1527-05 requires research until the objectives of the Phase I ESA are achieved or data failure is encountered. No specific data gaps or data failures identified during the conduct of this Phase I ESA.

1.7 Special Terms and Conditions

RSC is advised that the "Phase I" ESA conducted at the site is a LIMITED INQUIRY into a property's environmental status and can not wholly eliminate uncertainty and is not an exhaustive assessment to discover every potential source of environmental liability, if any, at the site. ***Therefore, RMT cannot under any circumstances make a statement of warranty or guarantee, express or implied, that the site is free of recognized environmental conditions, environmental impairment, or that the site is "clean" or that impairments, if any, are limited to those that were discovered while RMT was performing the Phase I ESA.*** This limiting statement is not meant to compromise the findings of this report; rather, it is meant as a statement of limitations within the ASTM Standard and intended scope of this assessment.

1.8 User Reliance

This report, along with the findings and conclusions, either in completed form, summary form or by extraction, was prepared for and intended for the sole use of RSC, and therefore, may not contain sufficient information for other purposes or parties. RSC is the only intended beneficiary of this report. The contents of this report continue to be the property of RMT and are protected by copyright. This report may not be disclosed to, used by, or relied upon by any person or entity other than RSC without the express written consent of RMT.

Authorization for disclosure to a third party or authorization for third-party reliance upon this final report will be considered by RMT upon the written request of RSC. RMT reserves the right to deny authorization for the disclosure of or reliance upon this report to third parties.

Section 2
Site Description

A description of the site and general vicinity characteristics is summarized in the following subsections.

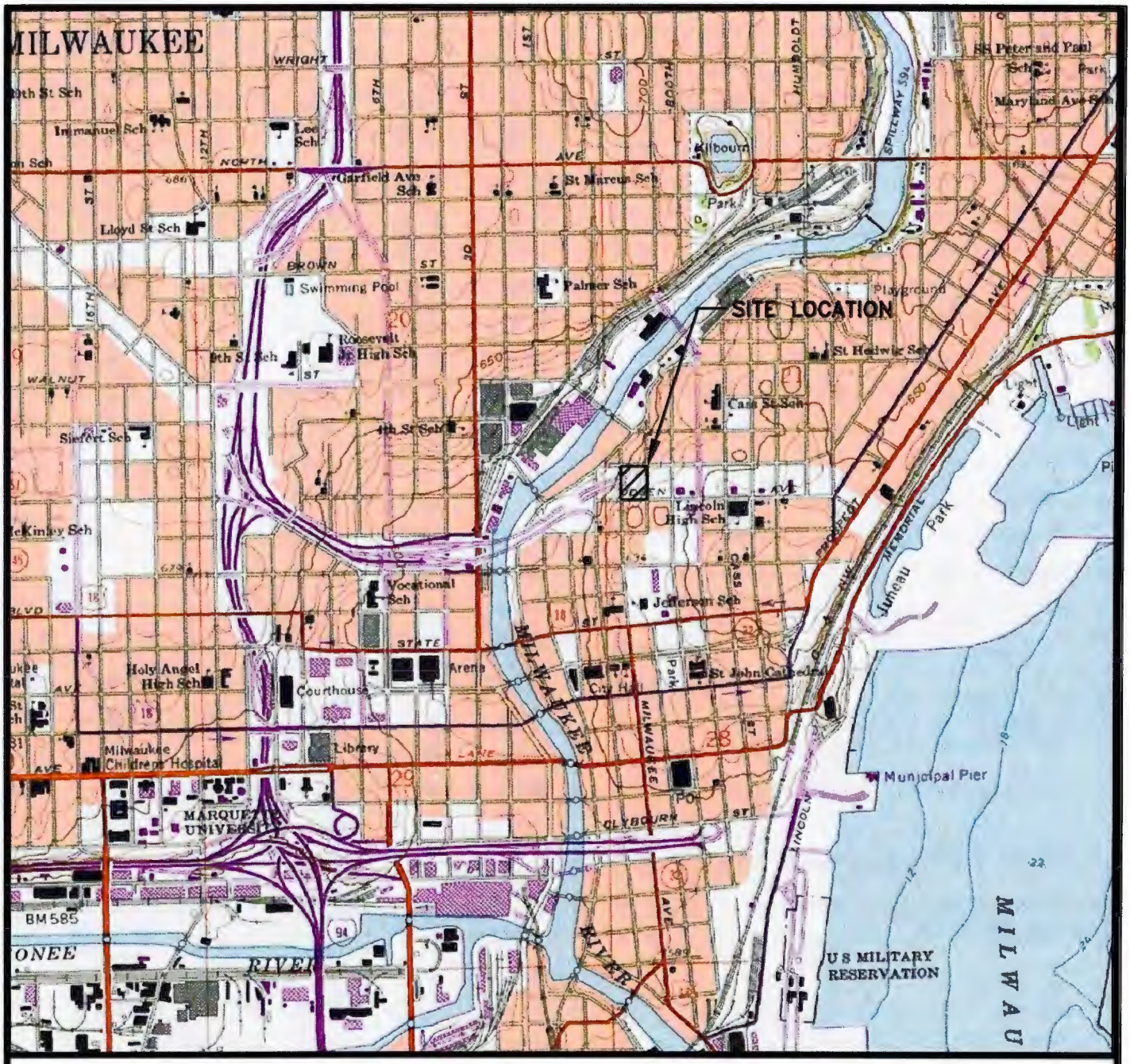
2.1 Location and Legal Description

The subject property is located in Milwaukee County, Wisconsin. Street addresses formerly associated with the site are 418 East Ogden Avenue and 1403 Jefferson Street, Milwaukee, Wisconsin 53202. The site is located just north of downtown Milwaukee, approximately 1 mile west of Lake Michigan, and approximately 1 mile east of Interstate Highway 43. The subject property is located in the southwest quarter of Section 21, Township 7 North, Range 22 East.

Figure 1 shows the location of the site. Figure 1 was developed from Milwaukee, Wisconsin, Quadrangle, United States Geological Survey (USGS) 7.5-minute quadrangle map dated 1958, photoinspected 1971 (ref. 2). Figure 2 depicts the layout of the subject property. Figure 2 was developed by RMT previously using a 2001 drawing prepared by HNTB and from Wisconsin Department of Transportation (WisDOT) construction drawings for the Park East Freeway. The map has been updated to reflect current conditions as observed during RMT's site visit.

2.2 Site and General Vicinity Characteristics

The subject property is bounded by North Jefferson Street to the east, East Lyon Street to the north, North Milwaukee Street to the west, and East Ogden Street to the south, and is located in a mixed commercial and residential area of the City of Milwaukee. The ground surface topography slopes rather significantly down to the northwest towards the Milwaukee River which is located approximately 300 feet to the northwest of the subject property. Interstate Highway 43 is approximately 1 mile to the west, and Lake Michigan is approximately 1 mile to the east, of the subject property.



STATE LOCATION

0 2000 4000

SCALE: 1"=2000'

N

SITE LOCATION MAP

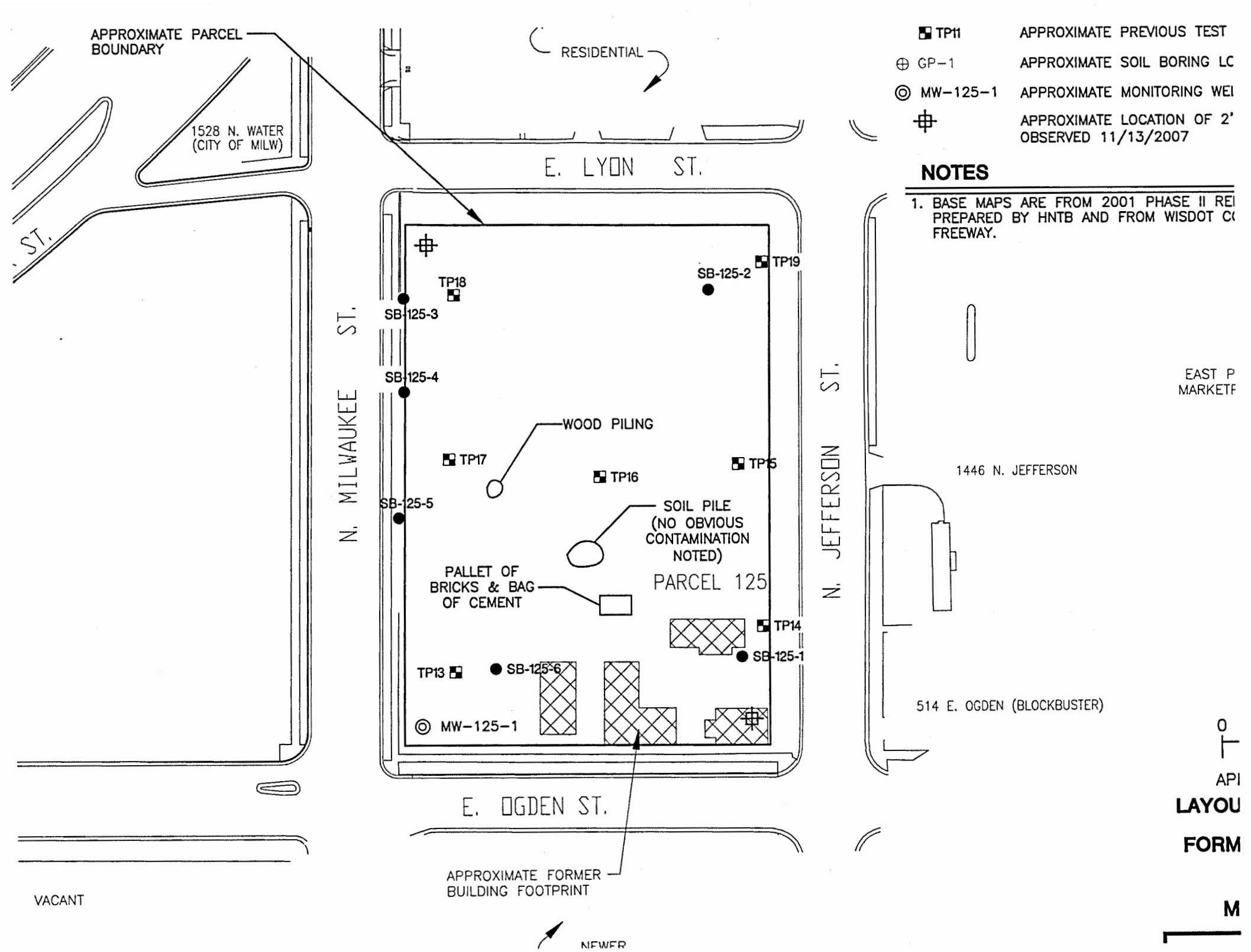
Phase 1 Environmental Site Assessment
Former Park East Freeway - Block 1
MILWAUKEE, WISCONSIN

SOURCE:BASE MAP FROM MILWAUKEE, WISCONSIN
7.5 MINUTE USGS QUADRANGLE, 1971

RMT

DWN. BY:	EJP
APPROVED BY:	KWY
DATE:	NOVEMBER 2007
PROJ. #	00-06493.04
FILE #	64930401

FIGURE 1


APPROXIMATE PARCEL BOUNDARY
RESIDENTIAL
1528 N. WATER (CITY OF MILW)
E. LYON ST.
ST.
N. MILWAUKEE ST.
N. JEFFERSON ST.
TP18
TP19
SB-125-2
SB-125-3
SB-125-4
WOOD PILING
TP17
TP16
TP15
SB-125-5
SOIL PILE (NO OBVIOUS CONTAMINATION NOTED)
PALLET OF BRICKS & BAG OF CEMENT
PARCEL 125
TP14
SB-125-1
TP13
SB-125-6
MW-125-1
E. OGDEN ST.
APPROXIMATE FORMER BUILDING FOOTPRINT
VACANT
NEWER
TP11 APPROXIMATE PREVIOUS TEST
GP-1 APPROXIMATE SOIL BORING LC
MW-125-1 APPROXIMATE MONITORING WEI
APPROXIMATE LOCATION OF 2' OBSERVED 11/13/2007
NOTES
1. BASE MAPS ARE FROM 2001 PHASE II REI PREPARED BY HNTB AND FROM WISDOT C(FREEWAY.
EAST P MARKETF
1446 N. JEFFERSON
514 E. OGDEN (BLOCKBUSTER)
0
API
LAYOU
FORM
M

2.3 Uses of the Property

A description of the known uses and site operations at the *property* is provided below:

OPERATIONS	YEARS OF OPERATION	ON-SITE STRUCTURES AND MAJOR EQUIPMENT	PROPERTY SIZE	PRIMARY PRODUCTS	PRIMARY WASTES GENERATED
Vacant	Since 2003	None	2.13 acres	[Not Applicable]	[Not Applicable]
Park East Freeway	1968 to 2003	Freeway Spur – Federal Highway Association	2.13 acres	[Not Applicable]	[Not Applicable]
Dwelling and Automobile Garage	1950 to 1951 and likely longer	Dwelling and garage	2.13 acres	[Not Applicable]	[Not Applicable – no automobile service conducted here] (ref. 3)
Carpenter's Shop	1894 to 1910 and likely longer	Carpenter's Shop building and out buildings	2.13 acres	Presumably wood	Presumably saw dust
Stable and Multiple Dwellings	1894 and likely longer	Stable and Multiple Dwellings	2.13 acres	[Not Applicable]	[Not Applicable]

2.4 Description of Structures, Roads, and Other Site Improvements on the Property

There are no buildings, structures, or other improvements on the property at this time. There are no roads or paving on the property currently. The subject property is bounded by North Jefferson Street to the east, East Lyon Street to the north, North Milwaukee Street to the west, and East Ogden Street to the south.

2.5 Current Uses of Adjoining Properties

Current uses of the properties adjoining the site are as follows:

North: Residential neighborhood

South: Newer apartments

East: East Point Marketplace, including a Pick 'n Save grocery store and Blockbuster Video store, is located just beyond North Jefferson Street, which bounds the eastern edge of the subject property.

West: The property just west of North Milwaukee Street, which bounds the western edge of the subject property, is currently undeveloped and was most-recently a parking area beneath the former Park East freeway.

Section 3
User Provided Information

RSC provided the following information about the property. A copy of the User Questionnaire, completed and signed by the client, is included in Appendix C.

3.1 Title Records

A title search was not performed as part of this Phase I ESA. RSC did not provide title records to RMT. RSC plans to purchase this property from Milwaukee County by November 30, 2007.

3.2 Information Reported by User Regarding Environmental Liens or Specialized Knowledge or Experience

According to RSC, no known environmental liens or activity and use limitations exist on the property.

3.3 Specialized Knowledge

RSC plans to close on the purchase of the subject property from Milwaukee County by November 30, 2007. RSC plans to construct two hotels on the property.

3.4 Valuation Reduction for Environmental Issues

RMT has not identified any potential value reduction of property based on information provided by RSC and obtained as part of this Phase I ESA.

3.5 Owner, Property Manager, and Occupant Information

Milwaukee County currently owns the property, and there are no occupants (or buildings) on the property.

3.6 Reason for Performing Phase I Environmental Site Assessment

RSC requested that an All Appropriate Inquiries Phase I ESA be performed for the property as required by RSC's lender prior to RSC's purchase of the property from Milwaukee County.

Section 4
Records Review

A discussion of the information obtained from the various environmental records and reports reviewed is summarized in the following subsections.

4.1 Standard State Environmental Record Sources

RMT reviewed various state and federal record sources to assess the environmental status of the subject property and properties surrounding the site. These sources list properties with identified or possible contamination, facilities that generate hazardous waste, sites with underground storage tanks (USTs), and properties involved in state and federal enforcement actions. The following information is based on information provided by Environmental Data Resources, Inc. (EDR), a computerized database service.

The database and the radii reviewed for the property conform to ASTM Standard E 1527-05 for Phase I ESAs. The database search is included in Appendix D. The subject property was not identified on any of the databases reviewed (ref. 4).

The EDR database review identified the following sites within the search radii specified. None of these are expected to have impacted the subject property.

- Ten small quantity generators of hazardous waste within ¼ mile from the subject property.
- One United States Environmental Protection Agency (USEPA) Brownfield site over ¼-mile from the subject property.
- 82 documented release sites within ½ mile of the subject property. The following sites are located in close proximity to the subject property and are hydraulically up-gradient of the subject site (groundwater flows to the northwest towards the Milwaukee River in the vicinity of the subject property [ref. 5]), and are therefore discussed further below.
    - East Point Market Place, 611 East Lyon Street – A petroleum release was reported for this property in May 1994. The WDNR issued Bureau of Remediation and Redevelopment Tracking System (BRRTS) No. 03-41-004306 to this release site. The WDNR closed the site in July 1994. Although a file review for this site was out-of-scope and therefore not conducted for this release site, indications are that the release was relatively limited and given that this release site is approximately 400 feet east of the subject property. RMT believes that the release at this site would have a low potential for impacting the subject property. This site was closed at the time that RMT conducted its subsurface investigation at the subject property in

2004, and no indications of this release impacting the subject property were identified at that time.

- Mandel Group, 514 and 534 East Ogden Street – A release of gasoline and other unknown petroleum were reported for this property in June 1993. The WDNR issued BRRTS No. 03-41-003468. The WDNR closed the site in January 1996. Although a file review for this site was out-of-scope and therefore not conducted for this release site, indications are that the release was relatively limited and given that this release site is approximately 400 feet east of the subject property. RMT believes that the release at this site would have a low potential for impacting the subject property. This site was closed at the time that RMT conducted its subsurface investigation at the subject property in 2004, and no indications of this release impacting the subject property were identified at that time.

The EDR database review also identified certain regulated activities in the vicinity of the subject property that could not be plotted on the overview map due to the lack of address information. These facilities were identified in the "Orphan Summary" of the EDR report. Based upon RMT's reconnaissance of the area and the nature of the regulated activities, these sites were judged to not represent a significant risk of environmental impairment to the subject property. Interestingly, the subject property is listed in the Orphan Summary under EDR ID S107434385.

4.2 Additional Environmental Record Sources

Additional environmental records were requested from the resources listed below.

- RMT reviewed the WDNR's Registry of Waste Disposal Sites (RR108) (ref. 6) to verify that the subject site was not listed as an unlicensed waste disposal sites.
- RMT reviewed the WDNR's List of Licensed Solid Waste Landfills (ref. 7) to verify that there were no licensed waste disposal sites on or in close proximity to the subject property.
- RMT reviewed the WDNR's List of Superfund Sites in Wisconsin (ref. 8) to verify that there were no Superfund sites on or in close proximity to the subject property.

4.3 Physical Setting Source

Information on the physical setting of the property was obtained from USGS topographic 7.5-minute quadrangle map (ref. 2) dated 1958 (photo-inspected 1971), the EDR GeoCheck® report (ref. 4), and soil boring logs for a monitoring well installed on the subject property by RMT (ref. 5).

4.3.1 Topographic Map

No buildings or other structures are shown on the USGS topographic 7.5-minute quadrangle map dated 1958, and photo-inspected in 1971 (ref. 2) as presented on Page 3-3 of this Phase I ESA report. Ground surface elevations slope to the northwest towards the Milwaukee River which is located approximately 300 feet northwest of the subject property. The former Park East Freeway is shown in this map.

4.3.2 EDR GeoCheck®

The latitude and longitude for the subject property are listed as 43° 02′ 55.2″ and 87° 54′ 23.9," respectively. The ground surface elevation is listed as 624 feet mean sea level (M.S.L.), and surrounding ground surface elevations range from 703 to 586 feet M.S.L. The dominant soil type is listed as silt loam. Twenty-four water supply wells are listed as being within a 1-mile radius of the approximate center of the subject property. One radon test is listed for the zip code in which the subject property is located, with the indoor result being <4 picocuries of radon per liter of air.

4.3.3 Well Logs

The soil boring log for the groundwater monitoring well (MW-125-1) that was installed on the subject property in November 2003 is included in Appendix E (ref. 5). This well was installed to a depth of 30 feet bgs in the southwest corner of the subject property. The well construction form for this well is also included in Appendix E. Soil types encountered in these borings are discussed below.

4.4 Historical Use Information

Copies of the reproducible, available historical documentation discussed below are presented in Appendix E.

4.4.1 Aerial Photographs

RMT obtained aerial photographs from the WisDOT. A review of the aerial photographs listed below revealed the following information regarding the subject property and the surrounding land uses.

DATE	SCALE	COMMENT
1992	1" = 833	The Park East Freeway is visible on the subject property and terminates at North Jefferson Street.
1985	1" = 750	The Park East Freeway is visible on the subject property and terminates at North Jefferson Street.
1979	1" = 833'	No buildings are present on the subject property (or the property immediately west) and the Park East Freeway is visible.
1969	1" = 750'	The property is vacant except for a long narrow building near the southwest corner extending north to south. Some mature trees are visible near the edges of the subject property.
1956	1" = 750'	Multiple buildings and mature trees are visible on the subject property. Surrounding neighborhood appears to be primarily residential.
1937	1" = 556'	Multiple buildings are visible on the subject property. Surrounding neighborhood appears to be primarily residential.

4.4.2 Historical Topographic Maps

RMT obtained historical topographic maps from EDR. A review of the historical topographic maps listed below revealed the following information regarding the subject property and the surrounding land uses.

DATE	SCALE	COMMENT
1971	1" = 2,000'	The Park East Freeway is visible on the subject property; no buildings are present on site.
1958	1" = 5,208'	No buildings or roads were readily visible on this map; however, given the scale of this map, it was difficult to see features on this map.
1958	1" = 2,000'	No buildings or roads were readily visible on this map.
1906	1" = 5,208'	The scale of this map made it very difficult to see features on this map.

4.4.3 Fire Insurance Maps

Fire insurance maps of the subject property and immediate vicinity of the subject property were reviewed for the following years, and pertinent information regarding the land use is summarized below.

DATE	SCALE	COMMENT
1968	1" = 150'	Nine buildings are shown but each has an "X" on it; a note reads "Buildings marked with an X have been demolished. New highway sight."
1951	1" = 150'	Several buildings are present on the subject property, nearly all of which designated as dwellings. One at the southern end of the property has a note that reads "Auto."
1910	1" = 150'	Several buildings are present on the subject property, nearly all of which designated as dwellings. The building that had a note that reads "Auto" in the 1951 Sanborn map now has a note designating the building as a carpenter's building.
1894	1" = 150'	The building discussed above is again designated as a carpenter's shop. Several other dwellings are present on the subject property.

4.4.4 City Directories

Several residences and apartments were identified in the city directories search conducted by EDR (ref. 11). Non-residential properties identified were: a grocery and hardware store was present in 1960 at 1500 North Jefferson Street and Milwaukee Housing Authority was present in 2006 at 1325 North Jefferson Street. No potential concerns were identified by the city directories.

4.5 Previous Reports

A Phase I report prepared by HNTB Corporation in September 2000 (ref. 9) was reviewed as part of this Phase I ESA. The one recommendation of this report was to conduct additional investigation given the historic presence of an automobile building on the subject property.

The following previous Phase II reports were reviewed as part of this Phase I ESA.

- Phase II Subsurface Investigation – Redevelopment Areas, HNTB Corporation – September 21, 2001 (ref. 3)
- WisDOT, Park East Freeway – letter to Mike Thompson of the WDNR – July 21, 2003 (ref. 10)
- Supplemental Phase II Environmental Site Investigation Report, RMT, Inc. – September 2004 (ref. 5)

A review of these reports provided, in part, the following information regarding the subject property. Portions of the following reports are included in Appendix E.

- HNTB advanced six soil borings on the subject property in 2001, and from these borings, collected the following soil samples: six total Resource Conservation and Recovery Act

(RCRA) metals; 12 diesel range organics (DRO), and 12 volatile organic compounds (VOCs). The results of this sampling were as follows:

- Metals – barium, cadmium, chromium (total) and lead were detected in all six soil samples collected at concentrations below the residual contaminant levels (RCLs) that have been established for this property (ref. 3 and 5).
- DRO was detected in four of the 12 soil samples analyzed at concentrations up to 3.6 milligrams per kilogram (mg/ks). The most stringent RCL listed in NR 720, Wisconsin Administrative Code (WAC), for DRO is 100 mg/kg.
- VOCs were not detected in the 12 soil samples collected.

- RMT directed and documented the advancement of 7 test pits on the subject property in June 2003 prior to grading activities by the WisDOT (ref. 10). This investigation revealed elevated DRO and VOC concentrations as summarized below.
  - Test Pit (TP)-13 (soil sample collected from 5' bgs) – DRO = 13.9 mg/kg; naphthalene = 42.5 micrograms per kilogram (µg/kg)
  - TP-14 (soil sample collected from 5' bgs) – DRO = 12.7 mg/kg
  - TP-15 (soil sample collected from 5' bgs) – DRO = 8.77 mg/kg
  - TP-16 (soil sample collected from 10' bgs) – DRO = 13.9 mg/kg
  - TP-17 – DRO = 10.1 mg/kg; benzene = 284 µg/kg; other petroleum-related VOCs also (see below)
  - TP-18 (soil sample collected from 10' bgs) – DRO = 31.9 mg/kg
  - TP-19 – benzene = 90 µg/kg; other petroleum-related VOCs also (see below)
  - It is unclear if the relatively low levels of DRO remain at the subject property in the areas of TP-13, TP-14, TP-15, TP-16 and TP-18 since relatively significant grading has occurred on site since 2003.
- Soils in the areas of TP-17 and TP-19 were excavated and disposed of off site by the City of Milwaukee as part of a project to regrade the subject property in 2004. Soil samples collected from the base of the finished excavations did not reveal any detections of VOCs. A soil sample for DRO was also collected from the bottom of the excavation at TP-17; DRO was not detected.
- Milwaukee County retained RMT to conduct additional investigation at the subject property in 2004 (ref. 5). RMT installed one soil boring in the southwestern portion of the subject property in November 2003, and converted this boring to groundwater monitoring well MW-125-1. Field screening with a PID did not indicate the presence of volatile contaminants here so soil samples were not collected from this boring. Groundwater samples were collected from MW-125-1 in November 2003 and in March 2004 for RCRA metals and VOCs. The only compound detected from this sampling is cadmium in

November 2003 at a concentration well below the NR 140, WAC, Preventive Action Limit (PAL). The WDNR typically does not require that additional work be done if a compound is detected below the NR 140, WAC, PAL.

- Generally, the upper 2 to at least 14 feet of soils at the site consisted of fill materials at the time of these reports (however, some grading has since been performed at the subject property). These fill materials primarily consist of clay, gravel and sand fill, but also include relatively isolated areas of brick pieces and wood. Beneath the fill materials is a grayish-colored clayey silt with varying sand contents and sea shells.

Groundwater is present at a depth of approximately 23 feet bgs in the area of MW-125-1, and flows to the northwest towards the Milwaukee River, which is located approximately 300 feet northwest of the subject property.

Section 5
Site Reconnaissance

Observations obtained during the site reconnaissance are discussed in the following subsections.

5.1 Methodology and Limiting Conditions

On November 13, 2007, Ms. Kristin Gunderson of RMT conducted a walk-through of the subject property. During the walk-through, Ms. Gunderson was unaccompanied. The purpose of the walk-through was to inspect the subject property, including the buildings on the site, for potential environmental concerns, including, but not limited to, the following issues:

- Hazardous substance and waste management activities
- Evidence of potential hazardous substance spills or releases (*e.g.*, stressed vegetation, discolored soil, etc.)
- USTs (*e.g.*, protruding fill or vent pipes)
- Equipment potentially containing polychlorinated biphenyls (PCBs)
- Potential-property or adjacent-property activities that could affect the environmental condition of the subject property

Photographs taken during the site visit are included in Appendix F.

5.2 Exterior Observations

Exterior observations are summarized in the following tables. Specific details for observed conditions are provided after the table.

CURRENT	HISTORICAL	NOT OBSERVED	OBSERVATION
		X	Stained soils or pavement
		X	Areas of stressed vegetation
		X	Stains or corrosion on exterior walls (except for water staining)
		X	Wells
X [1]			Monitoring wells (MW-125-1)
		X	Pits, ponds, lagoons, or septic systems

CURRENT	HISTORICAL	NOT OBSERVED	OBSERVATION
		X	Wastewater or other liquids (including storm water) or any discharge into a drain, ditch, underground injection system or stream
X [2]			On-site solid waste disposal, areas of unknown fill
		X	Aboveground storage tanks (ASTs)
		X	Evidence of USTs (vent pipes, fill ports, etc.)
		X	Drums
		X	Hazardous substance and petroleum product containers
		X	Unidentified substance containers
		X	Known PCB-containing equipment (transformers, electrical capacitors, or hydraulic systems with the potential to contain PCB fluids)
		X	Odors – strong, pungent, or noxious
		X	Evidence of past usage other than current usage

1. Groundwater monitoring well MW-125-1 was observed near the southwestern corner of the subject property. Two other white PVC wells were also observed on the subject property, one near the northwest corner and one near the southeast corner of the subject property (see Figure 2 and Photographs 4 and 5, respectively). Gestra Engineering, which conducted geotechnical subsurface investigation at the subject property on RSC's behalf, reports that these two are piezometers which Gestra used to determine and monitor the depth to groundwater (ref. 15). Gestra did not conduct any environmental sampling on the subject property (ref. 15).
2. A soil pile (~1 truck-load) was observed in the central portion of the subject property (see Photograph 9). No obvious contamination was noted on the outside surface of this pile. Milwaukee County believes that a utility contractor placed the soils here approximately 6 months ago, but did not know where the soils were from (ref. 13). RMT also observed a pallet of bricks and a bag of cement on the property (see Photograph 10).

Since the subject property is located within the City of Milwaukee, RMT believes that the subject property is served by City of Milwaukee sewer and water.

Section 6
Interviews

As part of the Phase I ESA, select persons were interviewed to provide insight into conditions at the *property*. The individuals interviewed are listed below followed by a summary of the interview. Information obtained during these interviews and the site questionnaire completed during the site walk-through is included in Appendix G.

6.1 Interview with Owner

RMT interviewed Mr. Steve Keith of Milwaukee County's Environmental Services group (which is part of the Department of Public Works) and Mr. Jerry Bake of Milwaukee County's Real Estate Services on November 15, 2007, to obtain additional information on the subject property (ref. 12 and 13). Mr. Baker indicated that he had heard from a third party that the soil pile that is on site was from a utility contractor, however, which contractor and where the soil came from was unknown. Mr. Baker said that this pile has been on site approximately 6 months. Mr. Baker also indicated that Gilbane Construction was staging some materials on the subject property during construction of the apartment building located immediately south; the pallet of bricks and bag of cement that RMT observed on site during our field reconnaissance was likely Gilbane's. Mr. Baker also recalled that after the Park East Freeway was demolished that the grade of the subject property was lowered, fairly significantly in some areas. It is possible that the relatively low level contamination mentioned in Section 5.5 above was removed from the site during these grading activities.

6.2 Interview with Local Government Officials

RMT interviewed Mr. Dave Misky of the City of Milwaukee to obtain additional information on the subject property (ref. 14). Mr. Misky did not provide any new information on the subject property.

Section 7
Findings, Opinions, and Conclusions

RMT has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-05 of the Former Park East Freeway Block 1 in Milwaukee, Wisconsin. Any exceptions to or deletions from this practice are described in Section 2 and Section 6 of this report. This section has been developed based on the discussion of the issues provided in Sections 4 and 6.

The findings of this assessment have been categorized into recognized environmental conditions, historical recognized environmental conditions, and *de minimis* issues. For each of these issues, RMT's opinion of impact on the property is included.

7.1 Recognized Environmental Conditions

A recognized environmental condition is defined as the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property.

This assessment has revealed no evidence of recognized environmental conditions in connection with the property.

7.2 Historical Recognized Environmental Conditions

A historical recognized environmental condition is defined as an environmental condition that, in the past, would have been considered a recognized environmental condition but may or may not be considered a recognized environmental condition currently.

This assessment has revealed no evidence of historical recognized environmental conditions in connection with the property.

7.3 *de minimis* Issues

A *de minimis* issue is defined as a condition that generally does not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

This assessment has revealed the following *de minimis* issues in connection with the property:

- ***de minimis Issue:*** Residual low-level DRO soil contamination in the areas of test pits TP-13 (at 5' bgs), TP-14 (at 5' bgs), TP-15 (at 5' bgs), TP-16 (at 10' bgs) and TP-18 (at 10' bgs) detected in 2003. Certain metals were also detected in composite soil samples collected from these Test Pits at relatively low concentrations.

Opinion of Impact: It is not clear if these soil impacts remain on the subject property or not, given that significant on-site grading has occurred since 2003. Although the DRO concentrations detected at these locations in 2003 are well below the most-stringent RCL listed in NR 720, WAC (generally, soils with DRO concentrations below the NR 720 RCL can remain in place with no further remediation), if these soils are excavated and transported off site, they would need to be managed as contaminated soils. RMT recommends that RSC's environmental consultant be on site during excavation for future development to field screen and to direct the proper management of any identified residual soil impacts on site.

Section 8
References

1. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. Designation E 1527-05
2. Milwaukee, Wisconsin Quadrangle, United States Geological Survey (USGS) 7.5-minute quadrangle map dated 1958, photo-inspected 1971
3. Phase II Subsurface Investigation – Redevelopment Areas, HNTB Corporation – September 21, 2001
4. Environmental Data Resources Radius Map with GeoCheck Report – Dated November 12, 2007
5. Supplemental Phase II Environmental Site Investigation Report, RMT, Inc. – September 2004
6. Wisconsin Department of Natural Resources (WDNR). 1999. Registry of Waste Disposal Sites (RR108). Updated on June 1999. (http://dnr.wi.gov/org/aw/rr/archives/pubs/RR108.pdf). Reviewed on November 13, 2007
7. Wisconsin Department of Natural Resources (WDNR) On-line List of Licensed Solid Waste Landfills (http://dnr.wi.gov/org/aw/wm/solid/landfill/licensed.asp). Reviewed on November 13, 2007
8. Wisconsin Department of Natural Resources (WDNR) On-Line List of Superfund Sites in Wisconsin. (http://www.dnr.state.wi.us/org/aw/rr/archives/pubs/RR005.pdf). Reviewed on November 13, 2007
9. Phase IA Environmental Site Assessment Report, HNTB Corporation – September 18, 2000
10. Wisconsin Department of Transportation (WisDOT), Park East Freeway – letter to Mike Thompson of the Wisconsin Department of Natural Resources (WDNR) – July 21, 2003
11. Environmental Data Resources, City Directory Abstract – November 14, 2007
12. Telephone Interview with Milwaukee County Department of Public Works – Environmental Services Employee, Mr. Steve Keith, November 15, 2007.
13. Telephone Interview with Milwaukee County Economic and Community Development Employee, Mr. Gerald Baker, November 15, 2007.
14. Telephone Interview with City of Milwaukee Employee, Mr. David Misky, November 15, 2007.
15. Telephone Interview with Gestra Engineering President, Mr. Masud Alam, November 21, 2007.

Appendix A
Environmental Professional's Statement and Qualifications

Environmental Professional's Statement

I declare that, to the best of my professional knowledge and belief, I meet the definition of *Environmental Professional* as defined in 321.10 of 40 CFR 312.

I have the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Ken W. Yass

Ken W. Yass, P.E., CHMM
Project Manager

Ms. Kristin Gunderson

- Bachelor of Science degree, Hydrogeology/Water Chemistry Emphasis, University of Wisconsin – Eau Claire, 1995

Experience

[See attached Resume]

Mr. Ken Yass, P.E., CHMM

- Bachelor of Science degree, Civil Engineering, University of Wisconsin - Milwaukee, 1994

Experience

[See attached Resume]

Mr. Jim Hutchens, P.E.

- Bachelor of Science degree, Mining Engineering, University of Wisconsin, Platteville, 1981

Experience

[See attached Resume]

Kristen L. Gunderson

Project Manager

Experience

Kristen has 12 years of environmental management experience. She has ISO 14001 lead auditor training and ISO 9000 internal auditor training and has been involved with systems development and training, as well as the implementation of ISO 14001 compliant systems at automotive component manufacturing, warehousing, and assembly facilities, and in the paper industry. She has also taught ISO 14001 internal auditor courses. In addition, her experience includes compliance auditing; Spill Prevention, Control, and Countermeasures (SPCC) plan development; Phase I environmental site assessments (ESAs); and project management.

Kristen is also a geologist-hydrogeologist and is experienced in geologic and hydrogeologic investigations, which has included project management, field management, soil and groundwater sampling, slug testing, downhole geophysics, report and workplan preparation, and specification development.

Prior to becoming a consultant, Kristen worked for the Wisconsin Department of Natural Resources in the Environmental Restoration and Repair Program.

Areas of Expertise

- ISO 14001 and ISO 9000 auditing and training
- ISO 14001 implementation and sustainability
- Environmental site assessments
- Geologic and hydrogeologic investigations

Key Projects

ISO 14001 Implementation. Corrugated Paper Products Facility (Wisconsin). Project Manager.

Directed and taught plant personnel how to implement and operate an ISO 14001 compliant environmental management system (EMS). Conducted a comprehensive environmental operations analysis to determine environmental impacts from plant operations, developed and set environmental performance objectives and targets, developed internal communications, and wrote procedures and work instructions.

ISO 14001 Implementation. Warehousing and Distribution Operations (multiple North America locations). Project Manager and Lead Consultant.

Managed the implementation of EMSs at 27 facilities in Canada, the U.S., and Mexico using a 10-member consulting team. The EMS was fully integrated into the existing Quality Management System (QMS) that was based on ISO 9001:2000. Also served as lead implementation consultant at five of those facilities. Directed and taught plant personnel how to implement and operate an ISO-14001 compliant EMS. Performed an environmental operations analysis to determine environmental impacts from plant operations; developed

environmental performance objectives and targets; trained plant personnel about the EMS; wrote and revised work instructions; completed internal systems and compliance auditing; and trained key contractors, suppliers, and vendors. A third-party auditor recommended facilities for ISO 14001 registration under a single certificate of registration. The client realized over $700,000 in savings in the first year of EMS operation as a result of improved waste and recycling practices and improved energy management. Provided continuing support of the EMS after ISO registration, including updating training materials, developing standardized internal auditing questions, tracking environmental tasks, and overseeing continual improvement of the system.

ISO 14001 Implementation. Automotive Plants (Indiana, Ohio, Wisconsin, and Michigan). Implementation Consultant.

Implemented an ISO 14001 EMS at six automotive component and assembly facilities (die casting, transmission machining/assembly, engine machining/assembly, stamping, paint shops, and final assembly). The EMSs were fully integrated into the existing QMSs, which were based on ISO 9001:2000. Directed and taught plant personnel how to implement and operate an ISO 14001–compliant EMS. Conducted an environmental operations analysis to determine environmental impacts from plant operations; developed environmental performance objectives and targets; trained plant personnel about the EMS; wrote and revised work instructions; completed internal systems and compliance auditing; and trained key contractors, suppliers, and vendors. A third party auditor recommended all facilities for ISO 14001 registration.

ISO 14001 Upgrade. Automotive Assembly Plant (Illinois). Project Manager.

Updated EMS documentation to reflect changes in the ISO 14001 standard, updated the environmental operations analysis to reflect operational changes at the plant, reviewed regulatory requirements, and developed and/or revised standard work instructions for environmental issues.

Phase I Environmental Site Assessment. Brownfield Property (Wisconsin). Environmental Professional.

Completed a Phase I environmental site assessment (ESA) on a vacant city-owned property slated for redevelopment. Historical use of the property included industrial and commercial operations.

SPCC Plan. Rail Yard Operations (Wisconsin). Environmental Professional.

Assisted with the update of an SPCC Plan for a large, active rail yard facility to meet the 2006 requirements of 40 CFR 112.

Emergency Response Plan and SPCC Plan. Automotive Assembly Facility (Illinois). Environmental Professional.

Assisted with the update of a combined Emergency Response and SPCC Plan for an automotive assembly plant to meet the 2006 requirements of 40 CFR 112 and modifications/additions to the facility.

Compliance Auditing. Rail Yard Operations (Wisconsin). Environmental Professional.

Served as part of audit team for a comprehensive facility audit for an active rail yard. Focus topics included storage tanks and records management compliance.

Closed Landfill Site Investigation (Wisconsin). Project Geologist.

Served as field geologist and field manager for rotosonic and Geoprobe® drilling at a closed landfill. Logged soil and bedrock cores, conducted packer sampling of groundwater in bedrock aquifer, installed monitoring wells, performed downhole geophysics, conducted slug testing and analysis, and wrote reports. Coordinated subcontractor schedules and wrote subcontractor agreements and change orders. Assisted with the risk assessment for surficial soil in a mixed residential area.

Site Investigation/Remedial Action Plan. Plating Corporation (Wisconsin). Project Geologist.

Served as field geologist for the investigation of soil and groundwater contamination at an active chrome plating facility. Directed Geoprobe® and surface soil sampling, completed soil boring logs, collected samples, and participated in negotiations with the state agency overseeing the project.

Closed Landfill Investigation (Wisconsin). Project Geologist.

Assisted with workplan and site investigation report preparation. Acted as the site safety officer for the field portion of the investigation. Activities included Geoprobe® borings to determine landfill cap thickness, test pits to define the extent of waste disposal in uncapped portions of the landfill, rotosonic borings through waste to determine the thickness of waste, and collection of soil samples in and beneath waste. Directed the installation of monitoring wells up to 355 feet deep, coordinated the schedule for sampling 15 monitoring wells and 42 potable wells, and trained city personnel to complete monitoring well, potable well, and treatment system sampling. Performed sampling of potable water in five homes with treatment systems. Coordinated subcontractor schedules and wrote subcontractor agreements and specifications.

Kristen L. Gunderson

Education and Training

B.S., Comprehensive Geology (Hydrogeology/Water Chemistry Emphasis), University of Wisconsin – Eau Claire, 1995

40-Hour Hazardous Waste Operations Training and Annual Refreshers

ISO 9001 Quality Management Systems Internal Auditor Training, 2003

ISO 14001 Environmental Management Systems Lead Auditor Training, 2000

Permit Required Confined Space Training (Entrant, Attendant, Supervisor), 1997

DOT HAZMAT Bill of Lading Training, 2004

DOT/IATA Hazardous Materials Shipping Training, 1998

CPR Training, 2007

First Aid Training, 2006

Registrations and Certifications

PECFA Consultant – Wisconsin (#247578)

Affiliations

Sigma Gamma Epsilon (National Honorary Society in the Earth Sciences)

FUEL Milwaukee (formerly Young Professionals of Milwaukee), Creative Council Member

Publications and Presentations

Gunderson, K.L. and K.M. Syverson. 1994. Ice-Marginal Lake Sediment in Eau Claire County, Wisconsin. Wisconsin Academy of Sciences, Arts, and Letters, Program for Annual Meeting. p. 12.

Gunderson, K.L. and K.M. Syverson. 1994. Ice-Marginal Lake Sediment in Eau Claire County, Wisconsin. Presented at University of Wisconsin – Eau Claire Student Research Day.

Ken W. Yass, P.E.

Project Manager

Experience

Ken is a professional civil engineer and certified hazardous materials manager with over 13 years of experience in a broad range of environmental areas. Ken has significant experience in scoping, managing and implementing environmental liability and risk reduction projects, such as Phase I environmental site assessments, subsurface soil and groundwater investigations, remediation system design and implementation, and site closure evaluation and strategies implementation. Ken also has significant experience in air quality projects, including air permit writing, emission calculations, permit negotiations, permit compliance assessments, and development of data collection and management systems. He also assists clients in developing overall environmental compliance programs through the identification and interpretation of applicable regulatory requirements. He has experience in spill prevention, control, and countermeasures (SPCC) planning, Emergency Planning and Community Right-to-Know Act (EPCRA) reporting, multi-media compliance assessments, and storm water management. He has significant experience in regulatory interpretation and negotiations with regulatory agencies. Ken previously worked in the corporate environmental department of an international chemical manufacturer. He is an organized and efficient project manager responsible for project development, contracting, financial management, planning, and coordination.

Areas of Expertise

- Project management
- Environmental liability risk reduction
- Environmental compliance
- Air pollution control
- Due diligence

Key Projects

Environmental Liability Reduction and Remediation

Environmental Site Assessments (dozens of properties). Project Engineer and Manager.

Managed and/or conducted Phase I environmental site assessments for a wide range of properties, at times conducting environmental evaluations, as well, for associated industrial operations performed on-site. Example projects include assessing seven chemical manufacturing facilities in six states, and several multiple-mile stretches of state highways in Wisconsin. Specified and implemented Phase II activities specific to the property, the client's goals, and suspected contaminants, as needed.

Site Investigations (79 properties in four states). Project Engineer and Manager.

Evaluated available release and Phase I information; identified potential contaminants and migration pathways; evaluated local and regional soil and groundwater data; and specified, bid, and coordinated and/or conducted site investigations to determine the extent of impacts. Installed over 360 soil probes and over 1,600 vertical feet of groundwater monitoring wells and piezometers. Evaluated soil and groundwater analytical data, conducted additional work, as needed, to delineate the horizontal and vertical extent of impacts, assessed potential receptors, and identified and evaluated remedial action options. Contaminants have included chlorinated solvents, petroleum, and metals.

Remediation Implementation (15 sites in Wisconsin). Project Engineer, Remediation Design Engineer and Project Manager.

Identified and evaluated remedial action options; performed pilot testing; designed engineered remediation systems; coordinated and documented systems installation; performed startup and sampling of systems; performed ongoing system operation, maintenance, and monitoring (OM&M); and prepared regulatory submittals. Pilot-tested, designed, installed, started up, and performed OM&M for a bioslurping system to recover 40,000 gallons of diesel fuel at a power plant, and for a combined air sparge/soil vapor extraction system for a 1-acre chlorinated solvents plume. Effectively implemented natural attenuation and flexible closure strategies at several sites.

Emergency Response for Fill Materials. Wisconsin Department of Transportation (Whitewater, Wisconsin). Project Manager.

Coordinated the time-critical response to manage over 2,800 cubic yards of fill materials encountered during highway bypass construction. Developed excavation management plan and negotiated approval with the WDNR. Directed and documented the removal of nonexempt wastes and the consolidation of exempt wastes into an on-site berm to be capped and incorporated into the highway construction project.

Air Quality Permitting and Modeling

"I enjoy helping the regulated community comply with environmental regulations cost-effectively while keeping business goals at the forefront."

Air Permit Services (40 facilities in eight states). Air Permit Engineer and Project Manager.

Evaluated air permitting status, documented exempt status, prepared permit application, and/or evaluated compliance with issued air permits. Completed applications for construction, operation, and indirect source air permits. Reviewed draft permits, prepared written comments, and assisted clients in negotiations with agencies. Industries have included tractor, boat, coatings,

industrial roll and friction material manufacturing, paper coating and laminating, malt processing, healthcare, airline maintenance, aluminum die-casting, oil recycling, and municipal maintenance operations.

Air Modeling (six facilities in four states). Modeling Engineer.

Performed computer modeling using TEXIN2, MOBILE4, CALINE, MOBILE5, CAL3QHC, BPIP, ISCST3, ISC-PRIME, and SCREEN3. Modeling results were used for determining hexavalent chromium depositional areas, facilitating facility expansion, evaluating facility compliance, using in indirect source permits, and determining incremental increases of pollutants at local receptors.

Environmental Compliance and Management

Environmental Compliance Auditing (23 facilities in eight states). Auditor.

Evaluated facility-wide compliance with environmental regulations, including hazardous waste management practices, EPCRA reporting, air permitting, wastewater discharges, and storage tanks at manufacturing, die-casting, municipal, and airline maintenance facilities. Also performed noise and exposure monitoring, as well as cursory health and safety evaluations.

Annual Environmental Reporting (multiple facilities in Wisconsin). Project Engineer and Manager

Prepared annual environmental reports for air emissions, hazardous waste generation, and EPCRA/SARA for numerous facilities.

Environmental Management Systems (seven facilities in Wisconsin). Project Engineer and Manager.

Prepared site-specific environmental management system manuals, filing systems, and compliance calendars.

Spill Prevention, Control, and Countermeasures (SPCC) Planning (12 facilities in Wisconsin, Illinois, Georgia, and Puerto Rico). Project Manager and/or Certifying Engineer.

Evaluated SPCC planning requirements, evaluated spill potential and migration pathways, prepared and certified site-specific SPCC plans, and assisted in SPCC plan compliance for facilities with up to 100 oil storage tanks and storing up to 3,500,000 gallons of on-site petroleum oil and animal fat.

Industrial Storm Water Discharge Permitting (11 facilities in two states). Project Engineer and Manager.

Evaluated storm water discharge permitting requirements; prepared discharge permit applications and storm water pollution prevention plans; and

conducted quarterly wet weather, semiannual dry weather, and annual compliance certification inspections. Identified, evaluated, and verified compliance with Best Management Practices.

Toxic Release Inventory and Tier II Reporting (35 facilities in 14 states). Project Engineer and Manager.

Performed threshold determinations, and documented exempt status or completed reports. Prepared over 300 TRI and Tier II reports.

Hazardous Waste Generator Compliance (Wisconsin and Ohio). Project Engineer and Manager.

Audited the facilities' overall compliance with hazardous waste generator regulations, including storage, labeling, shipping, record keeping, training, reporting, and emergency planning. Prepared contingency plans.

Wastewater Permitting, Sampling, and Reporting (Wisconsin). Project Engineer and Manager.

Prepared NPDES permit applications. Conducted the required sampling, and prepared the state and local discharge monitoring reports.

Property Redevelopment

Construction over Abandoned Landfills (four sites in Wisconsin). Project Engineer and Manager.

Coordinated investigations of landfill cover conditions, methane gas, toe of waste, and groundwater quality for the construction over ash and foundry sand landfills. Prepared requests for exemption, designed sub-grade passive methane gas venting systems and utility trench plugs, and developed specifications for methane gas alarms for inside the constructed facilities. Documented construction, and prepared construction documentation reports.

Redevelopment Evaluation. Foundry Waste Landfill (Wisconsin). Project Engineer and Manager.

Identified and evaluated the remediation and redevelopment options for former foundry waste landfill containing over 15,000 cubic yards of foundry waste with lead concentrations exceeding the TCLP-hazardous level.

Redevelopment Evaluation. Former Hospital (Wisconsin). Project Manager.

Coordinated investigations of asbestos, lead paint, PCBs, ash disposal, foundry sand fill areas, and groundwater quality to determine the environmental liabilities for converting an unused hospital into a senior care facility.

Ken W. Yass, P.E.

Education and Training

B.S., Civil Engineering with Environmental Emphasis, University of Wisconsin-Milwaukee, 1994

40-Hour OSHA Health and Safety Training and 8-Hour Refresher Courses

Registrations and Certifications

Professional Engineer, State of Wisconsin, No. 33615 (since 1999)

Professional Engineer, State of Illinois, No. 062-054391 (since 2000)

Certified Hazardous Materials Manager, Master Level, No. 8882 (since 1998)

Certified Site Assessor, No. 42419 (since 1996)

Professional Affiliations

Federation of Environmental Technologists (since 1993)

American Society of Civil Engineers (since 1992), Member Grade

Presentations

2006. TRI reporting update. Presented at CNH America LLC North American Agriculture EHS Conference. May 2006. Racine, Wisconsin.

2005. RCRA, SPCC, storm water, and DOT shipping training. Presented to CNH America LLC employees. December 2005. Racine, Wisconsin.

Yass, K., and J. Tarvin. 1999. Environmental compliance auditing. Presented at STS Consultants Technical Conference. July 1999. Milwaukee, Wisconsin.

James L. Hutchens, P.E.

Senior Project Manager

Experience

Jim has over 20 years of environmental project management experience. His responsibilities have included budgeting, scheduling, and technical quality assurance/quality control (QA/QC) review for subsurface investigations, site characterizations, feasibility studies, and remediation system designs for sites impacted with a variety of hazardous materials. He has also been involved with regulatory agency negotiation for investigation and closure requirements on hundreds of contaminated sites. Jim has developed regulatory and permitting strategies and assisted in negotiations between government agencies and industry regarding compliance, investigation, and remediation requirements

In addition, Jim has extensive experience in conducting due diligence activities associated with property transactions. Jim has provided assistance to both buyers and sellers. Assistance has included conducting Phase I Environmental Site Assessments and Phase II Subsurface Investigations, preparing Remedial Action Plans, preparing remedial cost estimates for allocating costs or developing escrow accounts, performing cost uncertainty analyses, evaluating risk management options, and providing regulatory and business strategy assistance.

Areas of Expertise

- Site characterization and remediation design
- Brownfields redevelopment
- Sediment investigation and remediation
- Merger and acquisition environmental due diligence
- Construction management

Jim has been active in brownfield redevelopment projects including assistance with grant applications, conducting initial site assessments, identifying redevelopment opportunities and negotiating site-specific closures.

Key Projects

Project Manager

- Managed the feasibility study activities for a USEPA Region 4 CERCLA Action. Activities included planning and managing performance of pilot study activities including capping, dredging and dewatering of contaminated sediments associated with the presence of mercury, dioxin, and furans in wastewater treatment solids that were present as a result of permitted discharges from a pulp and paper mill outfall.
- Soil and groundwater contamination survey projects, including investigation, design, and implementation of remedial actions.
- Remedial investigation and feasibility study for sediment contamination site in the southeast United States.

- Various Phase I/II projects for the Wisconsin Department of Transportation (WisDOT) corridor improvements or relocations throughout Wisconsin.
- Regulatory negotiation for site closure on over 150 contaminated sites in Wisconsin, Illinois, Missouri, Minnesota, Michigan, Texas, and California.
- Development of SPCC Plans for large industrial facilities.
- Property Condition Assessments on sites ranging from single-story commercial facilities to large warehouse and high-rise structures.
- Compliance auditing for air, water, and hazardous material handling for industrial facilities. Many of the audits included the development of SPCC Plans for the facilities. Coordinated paperwork for wastewater and air emission permits at facilities per applicable state and USEPA guidelines.
- Expert witness services regarding historical site usage and contaminant migration.
- Assessments, investigations, remedial action plan development, and site remediation for 50 environmental projects for a large municipality. Many of these projects included turnkey project management for brownfield restoration.
- Asbestos assessments, management plans, and operations and maintenance programs for projects such as schools, apartment buildings, airports, and industrial manufacturing facilities.
- Underground storage tank closures for industrial and retail facilities.
- Coordination of paperwork for wastewater and air emissions permits at facilities per WDNR and US EPA guidelines.
- Design, installation, and closure of over 150 soil and/or groundwater treatment systems, including soil venting, air sparging, groundwater pump and treatment, and free product recovery. All systems included electronic sensors and telemetry systems to allow operation and monitoring of flow rates, pump operations, pressure-sensitive equipment, product levels, and analytical parameters from a remote computer.
- Numerous construction projects, including mid- to high-rise buildings, parking structures, airports, roadways, and bridges. Services included concrete and asphalt mix designs, concrete testing, soil-bearing testing, structural steel inspection, asphalt testing, and roof inspections.
- Performance of duel diligence assessments including Phase I, Phase II, compliance and condition of facilities ranging from small single building operations to multi-site multi-building facilities. Some of the operations included operational paper mills, distribution and warehouse facilities,

automobile dealerships, day care and elderly care centers, hospital facilities, trucking operations, and abandoned state and federal facilities.

Education and Training

B.S., Mining Engineering, University of Wisconsin, Platteville, 1981

ASFE Fundamentals of Professional Practice, 2001

ASTM – Property Condition Assessments, 2000

ASTM – Phase I Environmental Site Assessments, 1998

Multiple university short courses and continuing education classes regarding site assessments and brownfield redevelopment

Registrations and Certifications

Professional Engineer - Wisconsin and Texas

Registered Environmental Assessor II - California

Good Armstrong and Associates - AHERA Asbestos Inspector

Affiliations

Member, National Society of Professional Engineers

National Groundwater Association

Appendix B
Special Contractual Considerations Between User and Environmental Professional

RSC & Associates

Proposal for Phase I Environmental Site Assessment at the Former Park East Freeway Block 1 Located in Milwaukee, Wisconsin

Background

The objective of this project is to perform a Phase I ESA for the former Park East Freeway Block 1 located in Milwaukee, Wisconsin, and bounded by North Jefferson Street to the east, East Lyon Street to the north, North Milwaukee Street to the west, and East Ogden Street to the south ("site") for RSC & Associates (RSC) ("Client"). The purpose of the Phase I ESA is to identify existing recognized environmental conditions as defined in *American Society for Testing and Materials (ASTM) Designation E 1527-05 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process."*

Project Information

RSC is in the process of purchasing the site from Milwaukee County, the current property owner. RSC has committed to closing on the property by November 30, 2007. The site is located in the southwest quarter of Section 21, Township 7 North, Range 22 East in Milwaukee County, in a primarily commercial area within the City of Milwaukee. There are no buildings on the site currently.

Project Team

We offer Ken Yass as the project manager for the proposed Scope of Services. Key members of the project team will include Jim Hutchens for report review and secondary project contact.

Scope of Services

The Scope of Services will, to the extent possible, conform to ASTM Standard Practice E 1527-05. Anything not specifically identified in the Scope of Services will not be performed. The Scope of Services will consist of the following tasks:

1. Review available reports (to be provided by Client) that document previous environmental investigations conducted at the site.
2. Review reasonably ascertainable standard historical sources to identify obvious uses of the site. Historical sources reviewed may include one or more of the following:
   - Aerial photographs
   - Fire insurance maps

- City directories
- Historical topographic maps

3. Review the following environmental record sources:

	MINIMUM SEARCH DISTANCE (MILES)
– Federal National Priorities List (NPL) site list	1.0
– Federal, state, and tribal Delisted NPL Site list	1.0
– Federal Comprehensive Environmental Response, Compensation, and Liability Index System (CERCLIS) list	0.5
– Federal CERCLIS No Further Remedial Action Planned (NFRAP)	0.5
– Federal Resource Conservation and Recovery Act (RCRA) Corrective Action Report (CORRACTS) facilities list	1.0
– Federal RCRA Non-CORRACTS treatment, storage, and disposal (TSD) facility list	0.5
– Federal RCRA Generators List	property and adjoining properties
– Federal institutional control/engineering control registries	property only
– Federal Emergency Response Notification System (ERNS) list	property only
– State and tribal lists of hazardous waste sites identified for investigation for remediation:	
▪ State and tribal equivalent NPL	1.0
▪ State and tribal equivalent CERCLIS	0.5
– State and tribal landfill and/or solid waste disposal site list	0.5
– State and tribal registered storage tank lists	property and adjoining properties
– State and tribal institutional control/engineering control registries	property only
– State and tribal voluntary clean-up sites	0.5
– State and tribal Brownfield sites	0.5

4. Obtain and review current United States Geological Survey (USGS) 7.5-minute topographic maps showing the areas in which the site is located.
5. Conduct a single site reconnaissance visit to each location to collect information on recognized environmental conditions in connection with the site and to visually observe the facility and structure(s) located on the property. The status of the site on the day of the reconnaissance visit will be documented through photographs of on-site facilities. RMT will perform a visual observation of adjoining properties (from a distance, without entry onto adjoining properties), but such visual observation will focus only on obvious evidence of problems. No detailed investigation of adjoining properties is included within this Scope of Services.
6. Interview a key site manager designated by the property owner and/or occupant, who possesses a good knowledge of the history and physical characteristics of the site. Interview past owners, operators, and occupants that are likely to have information regarding the potential for contamination of the property to the extent that they have been identified.
7. Contact state or local agencies, in person, by telephone, or in writing to obtain reasonably available information regarding environmental issues at the site. Some types of sources that may be useful include: Department of Health/Environmental Division, Fire Department, Planning Department, Building Permit/Inspection Department, Local/Regional Pollution Control Agency, Local/Regional Water Quality Agency, and Local Electric Utility Companies.
8. Information that is reasonably available means that the information will be provided by the source within 20 calendar days of receiving a written, telephone, or in-person request at no more than a nominal cost intended to cover the source's cost of retrieving and duplicating the information. Information that can be reviewed by a visit to the source is reasonably ascertainable if the visit is permitted by the source within 20 days of the request.
9. Identify and comment on the significance of any data gaps with regard to the ability to identify conditions indicative of releases and threatened releases.
10. Prepare a Phase I ESA report summarizing our findings and opinions with respect to the potential for environmental impairment and/or liability that may be associated with recognized environmental conditions at the site. The report will include an appendix section containing supporting documentation. The supporting documentation should facilitate the reconstruction of the assessment by an environmental professional other than the environmental professional who conducted it. Sources that were searched but revealed no findings will also be documented.

Limitations

- The Client is advised that the Scope of Services described herein is for a "Phase I" ESA, which is a LIMITED INQUIRY into a property's environmental status and is not sufficient to discover every potential source of environmental liability, if any, of the property to be evaluated. ***Therefore, RMT, cannot, under any circumstances, make a statement of warranty or guarantee, expressed or implied, that the site is free of recognized environmental conditions, environmental impairment, or that the site is "clean" or that impairments, if any, are limited to those that are discovered while we are performing the Phase I ESA.*** This limiting statement is not meant to compromise the findings of our report; rather, it is meant as a statement of limitations within the intended scope of this Phase I ESA.
- RMT's findings and opinions will be based on information that is available and obtained at the time of the assessment through site reconnaissance, standard investigatory techniques used in the industry at this time, records review, and other related activities. It is possible that other information exists or may subsequently become known that may impact or change the site after RMT's observations.
- In conducting this Phase I ESA and preparing the ESA report, RMT will review, interpret, and rely upon information provided by others, including, but not limited to, Client, individuals, government authorities, subcontractors, and other entities. RMT will not perform an independent evaluation of the accuracy or completeness of such information, and RMT will not be responsible for any errors or omissions contained in such information.
- ***RMT's Phase I report, along with the findings and conclusions contained in the report, either in completed form, summary form, or by extraction, is prepared, and intended, for the sole use of Client and therefore may not contain sufficient information for other purposes or parties. Client is the only intended beneficiary of this report.*** The contents of RMT's report will continue to be the property of RMT and are protected by copyright. RMT's report may not be disclosed to, used by, or relied upon by, any person or entity other than the Client without the express written consent of RMT.
- Authorization for disclosure to a third party or authorization for third-party reliance on a final report of any ESA will be considered by RMT upon the written request of Client. RMT reserves the right to deny authorization to allow disclosure or reliance of RMT's report to third parties.

Client's Responsibilities

- Client shall obtain the necessary authorizations to allow RMT, its agents, subcontractors, or representatives, to have access to the site and buildings thereon at reasonable times throughout performance of these services by RMT.

- Client shall furnish all reports, data, studies, plans, specifications, documents, and/or other information in its possession, custody, or control that relate to the site, its present and prior uses, or to activities at the site that may bear upon the services of RMT.
- Client shall furnish a site plan that identifies the physical boundaries of the site to be examined.
- Client shall identify and make available a site contact person familiar with the nature of the activities that are being or have been conducted at the site.
- Client shall provide RMT with the following information, which will be documented in the Phase I ESA report:
  - Environmental cleanup liens that are filed against the site
  - Activity and land use limitations that are in place on the site or that have been filed or recorded
  - Specialized knowledge or experience that is material to recognized environmental conditions in connection with the property
  - Relationship of the purchase price of the property to the fair market value of the property
  - Commonly known or reasonable ascertainable information about the property that would help the environmental professional identify conditions indicative of releases or threatened releases
  - Obvious indicators of the presence or likely presence of contamination at the property and the ability to detect contamination by appropriate investigation

Release for Pre-existing Conditions

Client **releases** RMT from liability resulting from any pre-existing environmental condition at the site that is not directly or indirectly caused by, or did not result from, in whole or in part, any act or omission of RMT, its employees, agents, representatives, or invitees or of RMT's subcontractors or their representatives, agents, employees, or invitees.

Terms and Conditions

RMT is prepared to conduct this Phase I ESA in accordance with the terms and conditions of the enclosed Agreement. This Agreement consists of the Proposal, the General Terms and Conditions, and the Work Authorization. If this Agreement is satisfactory to the Client, please sign in the required spaces on the Work Authorization. Please retain one signed copy of the Agreement for your files and return the second signed copy to RMT.

Cost Estimate and Schedule

The lump sum cost to complete the Scope of Services outlined above for the site is $3,500. We are prepared to begin work on this Phase I ESA once we receive a signed Work Authorization from you. We expect to complete the Scope of Services within two weeks of our receipt of your authorization to proceed.

Basis for Cost Estimate and Schedule

- RMT can count on the timely cooperation of local, state, and federal agencies.
- RMT will perform a visual observation of adjoining properties (from a distance, without entry onto adjoining properties), but such visual observation will focus only on obvious evidence of problems. No detailed review of adjoining properties is included within the Scope of Services.
- The property boundaries can be located with reasonable effort without the use of surveying equipment.
- RMT will provide two copies of the final Phase I ESA report to RSC.
- RMT staff that supervises or oversees the conduct of the Phase I ESA will meet or exceed qualification requirements of an Environmental Professional as outlined in ASTM E 1527-05.

Other Considerations

The following items are not included as part of a Phase I ESA conducted in accordance with ASTM Standard E1527-05:

- Asbestos-containing building materials assessment
- Radon assessment
- Lead-based paint assessment
- Regulatory compliance
- Industrial hygiene
- Ecological resources
- Indoor air quality
- Lead in drinking water assessment
- Wetlands assessment
- A chain of title search
- Cultural and historic resources
- Health and safety
- Endangered species
- Biological agents and mold assessment

No implication is intended as to the relative importance of these items, and this list of items is not intended to be all inclusive. Client may want to consider adding items to the Scope of Services for this Phase I ESA. If requested, RMT can provide an amended Scope of Services and cost estimate to include these additional items.

Essential Terms of Agreement

This Proposal and all of the terms and conditions contained within it comprise an essential part of the Agreement to perform these services. To the extent that any provisions in this Proposal are inconsistent with, or contrary to, the General Terms and Conditions, this Proposal shall be treated as an amendment that expressly revises and takes precedence over the General Terms and Conditions.

RMT

WORK AUTHORIZATION

RMT, Inc.
150 N. Patrick Boulevard, Suite 180
Brookfield, WI 53045-5854
Tel. (262) 879-1212 • Fax (262) 879-1220

Date: November 12, 2007 **Client Number:** TBD

To: Mr. Reis Kayser
RSC & Associates ("Client")
225 West Washington Street
Chicago, IL 60606

Project Name: Phase I Environmental Site Assessment

Facility Location: Milwaukee, Wisconsin

RMT Proposal Number: 91-00323.85 **RMT Project Number:** TBD

The Agreement consists of the following documents:

(a) This Work Authorization Form
(b) Proposal for Phase I Environmental Site Assessment, letter dated November 12, 2007 ("Proposal") (attached)
(c) RMT General Terms and Conditions (attached)
(d) Change orders that may be authorized at various times throughout the Project

Schedule:

Approximate Start Date: November 12, 2007
Approximate Completion Date: November 27, 2007

Basis for Payment:

Lump Sum

Summary of Scope of Services

DESCRIPTION	ALLOCATED COST
Phase I Environmental Site Assessment	$3,500
Total	**$3,500**

Project Managers:

RMT
Ken W. Yass, P.E., CHMM

RSC & Associates
Reis Kayser

This Proposal is valid until December 1, 2007.

RMT

WORK AUTHORIZATION

Proposal No: 91-00323.85

Acceptance:

Authorization for RMT to commence work included in the Proposal constitutes acceptance of this Agreement. Acceptance can be made by signing in the place provided below, by accepting or using work product within the Scope of Services, or by written or oral authorization to RMT to commence work prior to signing. Acceptance is limited to the terms stated herein, and any additional or different terms are rejected unless expressly agreed to in writing by RMT.

APPROVED AND ACCEPTED AS OF THE DATE SHOWN BELOW:

RMT, Inc.	RSC & Associates
By: Ken Yass (Signature)	By: V.P. (Signature)
Ken W. Yass, P.E., CHMM (Printed Name)	REIS KAYSER (Printed Name)
Project Manager (Title)	VICE PRESIDENT (Title)
November 12, 2007 (Date)	Nov. 12, 2007 (Date)

RMT

GENERAL TERMS AND CONDITIONS
RMT, INC.

1. SERVICES TO BE PERFORMED

1.1 Generally

The Agreement ("Agreement") consists of the documents identified in the Work Authorization. The services to be performed by RMT are set forth in the Scope of Services ("Services") as defined in the Work Authorization Form. A project for which Services are to be performed is referred to as the "Project."

Client recognizes that RMT has subsidiary and affiliate companies in various U.S. states and other countries. If Services are performed by an RMT affiliate or subsidiary, they will be performed under the terms of this agreement by RMT through the RMT affiliate in a contractor/subcontractor relationship. Invoicing may be by the RMT subsidiary or affiliate.

1.2 Estimates

Unless the Agreement provides otherwise, the estimated costs required to complete the Services to be performed are made by RMT on the basis of its experience, qualifications, and professional judgment, but are not guaranteed. If the costs appear likely to exceed the estimate, RMT will notify Client before proceeding. If Client does not object to additional costs within at least five (5) days of notification, the increased costs are approved.

1.3 Changes in the Scope of Services

If Client requests and RMT agrees to changes in the Services, RMT and Client, shall execute a written change order. Client may orally authorize changes in the Services, providing such changes are confirmed in writing.

2. TIME FOR PERFORMANCE

2.1 Generally

The schedule for performance of the Services shall be as agreed by the parties and reflected in the Agreement.

2.2 Effect of Delay

If the Services to be performed by RMT are interrupted, suspended, or delayed for any reason beyond the reasonable control of RMT, the schedule of work and date for completion shall be adjusted accordingly and RMT shall be compensated for all reasonable increased costs resulting from such interruption, suspension, or delay.

3. COMPENSATION AND PAYMENT

3.1 Method for Compensation

3.1.1 Client agrees that time is of the essence as to payment of RMT's invoices, and that timely payment is a material consideration for this Agreement.

3.1.2 Payment for Services rendered hereunder shall be on a time and expense basis in accordance with RMT's Schedule of Charges current when the Services are performed, unless otherwise specified in the Agreement. All charges are net of any applicable taxes (except income and payroll taxes). Any additional costs due to such applicable taxes shall be charged to Client.

3.1.3 Invoices will be submitted monthly by RMT, and shall be due and payable thirty (30) calendar days after the invoice date. These payment terms are subject to RMT credit approval and may be changed by RMT upon changes in Client's credit status.

3.1.4 Client shall pay an additional charge of one (1) percent per month, or the maximum percentage allowed by law, whichever is lower, of the overdue amount for any payment received by RMT more than thirty (30) calendar days from the date of the invoice, excepting any portion of the invoiced amount in dispute and resolved in favor of Client.

3.1.5 If any amount is not paid within thirty (30) calendar days after the date of the invoice, RMT shall have the right, after giving seven (7) days written notice, to suspend all Services on the project until all accounts (including charges and accrued interest) have been paid. If any overdue amount is not paid within forty-five (45) calendar days after the date of the invoice, RMT shall have the right to terminate this Agreement. Any attorney fees, court costs, collection fees, or other costs incurred in collecting any delinquent amounts shall be paid by Client.

3.2 Dispute Support Services

Client will pay RMT in accordance with RMT's then current Schedule of Charges for dispute support services for any RMT employee who appears, testifies, or performs any services in connection with any court, administrative, arbitral, or other legal proceeding arising out of work related to this Agreement. This includes work and expenses incurred responding to subpoenas and other discovery procedures related to RMT's Services whether initiated by Client, Client's adversary, or third parties. This does not apply to proceedings against RMT alleging negligence, breach of professional standards, or breach of contract by RMT, unless RMT is otherwise entitled to reimbursement under this Agreement.

4. RMT RESPONSIBILITIES

4.1 Standard of Care

4.1.1 RMT will perform the Services in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions.

MyDNR SEARCH WISCONSIN DEPARTMENT OF NATURAL RESOURCES

Help

Sample Detail

Sample/Labslip ID:	1210-267	**Sample Status:**	COMPLETE
Primary Lab:	Northern Lake Service Inc. (Waukesha)	**Primary Lab Id:**	268533760
Id #:	24607814	**Site Description:**	WYNGATE SUBDIVISION
Id Point #:		**Field #:**	
Waterbody ID #:		**Start Date/Time:**	10/08/2012 10:00
End Date/Time:		**Date Received by Lab:**	
Date Reported by Lab:	10/09/2012 00:00	**Account #:**	
Account Description:		**Program Code:**	WS
Region:	Southeast	**County:**	Ozaukee
District:		**Sample Description:**	hydrant sample tap
Sample Location:	11016 Wyngate Trace	**Report to Name:**	WYNGATE SUBDIVISION
Report to Address:		**Report to City, State, Zip:**	
Sample Collector:	A Stelsel	**Sample Source:**	Public Water Distribution System
Sample Reason:	Confirmation	**Project Code:**	
Enforcement Code:		**Sample Depth:**	
Type of Sample (QC):	Standard Sample	**Check Date:**	10/04/2012
File Batch Seq #:	207124	**Processed Batch Seq #:**	97596
Creation Date:	10/09/2012	**Creation User Id:**	LDES_APP1
Last Update Date:	10/09/2012	**Last Update User Id:**	LDES_APP1

Sample Results

DNR Parameter Code	DNR Parameter Description	Result Type	Result value	Units	LOD	LOQ	Lower Reporting Limit	Upper Reporting Limit	Comments/Analysis	Analysis ID
99192	COLIFORM TOTAL COLISURE MPN QUANTITRAY	2 Below LOD	0	NEGATIVE					Comments	7981068

Sample Routed To

Routed to Code	Description

PU	Public Water

- Analyses Performed (lab comments/method/QC ID) (1 Rows)
- Infotech Migration Data (0 Rows)

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Help

Sample Detail

Sample/Labslip ID:	1210-268	**Sample Status:**	COMPLETE
Primary Lab:	Northern Lake Service Inc. (Waukesha)	**Primary Lab Id:**	268533760
Id #:	24607814	**Site Description:**	WYNGATE SUBDIVISION
Id Point #:	2	**Field #:**	
Waterbody ID #:	AC337	**Start Date/Time:**	10/08/2012 10:20
End Date/Time:		**Date Received by Lab:**	
Date Reported by Lab:	10/09/2012 00:00	**Account #:**	
Account Description:		**Program Code:**	WS
Region:	Southeast	**County:**	Ozaukee
District:		**Sample Description:**	sample tap on well head
Sample Location:	10916 Wyngate Trace	**Report to Name:**	WYNGATE SUBDIVISION
Report to Address:		**Report to City, State, Zip:**	
Sample Collector:	A Stelsel	**Sample Source:**	Public Water Well
Sample Reason:	Triggered Source Water	**Project Code:**	
Enforcement Code:		**Sample Depth:**	
Type of Sample (QC):	Standard Sample	**Check Date:**	
File Batch Seq #:	207124	**Processed Batch Seq #:**	97596
Creation Date:	10/09/2012	**Creation User Id:**	LDES_APP1
Last Update Date:	10/09/2012	**Last Update User Id:**	LDES_APP1

Sample Results

DNR Parameter Code	DNR Parameter Description	Result Type	Result value	Units	LOD	LOQ	Lower Reporting Limit	Upper Reporting Limit	Comments/Analysis	Analysis ID
99192	COLIFORM TOTAL COLISURE MPN QUANTITRAY	2 Below LOD	0	NEGATIVE					Comments	7981070
98931	E COLI COLISURE	2 Below LOD	0	NEGATIVE					Comments	7981069

Sample Routed To

Routed to Code	Description
PU	Public Water

- Analyses Performed (lab comments/method/QC ID) (2 Rows)
- Infotech Migration Data (0 Rows)

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Sample Detail

Sample/Labslip ID:	1210-269	**Sample Status:**	COMPLETE
Primary Lab:	Northern Lake Service Inc. (Waukesha)	**Primary Lab Id:**	268533760
Id #:	24607814	**Site Description:**	WYNGATE SUBDIVISION
Id Point #:		**Field #:**	
Waterbody ID #:		**Start Date/Time:**	10/08/2012 09:45
End Date/Time:		**Date Received by Lab:**	
Date Reported by Lab:	10/09/2012 00:00	**Account #:**	
Account Description:		**Program Code:**	WS
Region:	Southeast	**County:**	Ozaukee
District:		**Sample Description:**	hydrant sample tap
Sample Location:	11134 Wyngate Trace	**Report to Name:**	WYNGATE SUBDIVISION
Report to Address:		**Report to City, State, Zip:**	
Sample Collector:	A Stelsel	**Sample Source:**	Public Water Distribution System
Sample Reason:	Repeat	**Project Code:**	
Enforcement Code:		**Sample Depth:**	
Type of Sample (QC):	Standard Sample	**Check Date:**	
File Batch Seq #:	207124	**Processed Batch Seq #:**	97596
Creation Date:	10/09/2012	**Creation User Id:**	LDES_APP1
Last Update Date:	10/09/2012	**Last Update User Id:**	LDES_APP1

Sample Results

DNR Parameter Code	DNR Parameter Description	Result Type	Result value	Units	LOD	LOQ	Lower Reporting Limit	Upper Reporting Limit	Comments/Analysis	Analysis ID
99192	COLIFORM TOTAL COLISURE MPN QUANTITRAY	2 Below LOD	0	NEGATIVE					Comments	7981071

Sample Routed To

Routed to Code	Description

PU	Public Water

- Analyses Performed (lab comments/method/QC ID) (1 Rows)
- Infotech Migration Data (0 Rows)

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Sample Detail

Sample/Labslip ID:	1210-270	**Sample Status:**	COMPLETE
Primary Lab:	Northern Lake Service Inc. (Waukesha)	**Primary Lab Id:**	268533760
Id #:	24607814	**Site Description:**	WYNGATE SUBDIVISION
Id Point #:	1	**Field #:**	
Waterbody ID #:	AZ268	**Start Date/Time:**	10/08/2012 09:30
End Date/Time:		**Date Received by Lab:**	
Date Reported by Lab:	10/09/2012 00:00	**Account #:**	
Account Description:		**Program Code:**	WS
Region:	Southeast	**County:**	Ozaukee
District:		**Sample Description:**	sample tap on piping
Sample Location:	575 Monterey Ave	**Report to Name:**	WYNGATE SUBDIVISION
Report to Address:		**Report to City, State, Zip:**	
Sample Collector:	A Stelsel	**Sample Source:**	Public Water Well
Sample Reason:	Triggered Source Water	**Project Code:**	
Enforcement Code:		**Sample Depth:**	
Type of Sample (QC):	Standard Sample	**Check Date:**	
File Batch Seq #:	207124	**Processed Batch Seq #:**	97596
Creation Date:	10/09/2012	**Creation User Id:**	LDES_APP1
Last Update Date:	10/09/2012	**Last Update User Id:**	LDES_APP1

Sample Results

DNR Parameter Code	DNR Parameter Description	Result Type	Result value	Units	LOD	LOQ	Lower Reporting Limit	Upper Reporting Limit	Comments/Analysis	Analysis ID
99192	COLIFORM TOTAL COLISURE MPN QUANTITRAY	2 Below LOD	0	NEGATIVE					Comments	7981073
98931	E COLI COLISURE	2 Below LOD	0	NEGATIVE					Comments	7981072

Sample Routed To

Routed to Code	Description
PU	Public Water

- Analyses Performed (lab comments/method/QC ID) (2 Rows)
- Infotech Migration Data (0 Rows)

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Help

Sample Detail

Sample/Labslip ID:	1210-271	**Sample Status:**	COMPLETE
Primary Lab:	Northern Lake Service Inc. (Waukesha)	**Primary Lab Id:**	268533760
Id #:	24607814	**Site Description:**	WYNGATE SUBDIVISION
Id Point #:		**Field #:**	
Waterbody ID #:		**Start Date/Time:**	10/08/2012 10:45
End Date/Time:		**Date Received by Lab:**	
Date Reported by Lab:	10/09/2012 00:00	**Account #:**	
Account Description:		**Program Code:**	WS
Region:	Southeast	**County:**	Ozaukee
District:		**Sample Description:**	Hydrant sample tap
Sample Location:	10936 Wyngate Trace	**Report to Name:**	WYNGATE SUBDIVISION
Report to Address:		**Report to City, State, Zip:**	
Sample Collector:	A Stelsel	**Sample Source:**	Public Water Distribution System
Sample Reason:	Repeat	**Project Code:**	
Enforcement Code:		**Sample Depth:**	
Type of Sample (QC):	Standard Sample	**Check Date:**	
File Batch Seq #:	207124	**Processed Batch Seq #:**	97596
Creation Date:	10/09/2012	**Creation User Id:**	LDES_APP1
Last Update Date:	10/09/2012	**Last Update User Id:**	LDES_APP1

Sample Results

DNR Parameter Code	DNR Parameter Description	Result Type	Result value	Units	LOD	LOQ	Lower Reporting Limit	Upper Reporting Limit	Comments/Analysis	Analysis ID
99192	COLIFORM TOTAL COLISURE MPN QUANTITRAY	2 Below LOD	0	NEGATIVE					Comments	7981074

Sample Routed To

Routed to Code	Description

PU	Public Water

- Analyses Performed (lab comments/method/QC ID) (1 Rows)
- Infotech Migration Data (0 Rows)

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Northern Environmental℠
Hydrologists · Engineers · Surveyors · Scientists

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(262) 241-3133
(800) 776-7140
Fax (262) 241-8222
www.northernenvironmental.com

December 21, 2004
(DNR 01-2100-2764)

Mr. Binyoti Amungwafor
Wisconsin Department of Natural Resources
Post Office Box 12436
Milwaukee, Wisconsin 53212

RE: Invoice Dispute: Environmental Services; Monitoring Well Installation and Associated Work; Lakefield Sand and Gravel Superfund Site Reassessment Project, 72nd Street and Good Hope Road Milwaukee, Wisconsin 53223; WDNR Purchase Order #NME00000205

Dear Mr. Amungwafor:

Northern Environmental Technologies, Incorporated (Northern Environmental) prepared this letter to request payment for the disputed amount of our invoice number 0502877. The Wisconsin Department of Natural Resources (WDNR) paid $8,833.13 of the $13,475.13 total invoice amount on November 1, 2004. An October 14, 2004 WDNR letter stated that they did not pay the balance of the invoiced amount ($4,642) because it was for work that was included in the request for proposal (RFP) number E-015-02 scope of work (SOW). Northern Environmental disagrees with the WDNR's position that some of the billed items were included in the SOW. The items provided and billed by Northern Environmental included work that was and **additional work that was not** specified in the RFP and SOW. Furthermore, the work completed by Northern Environmental was necessary to successfully complete the project.

We were retained to complete a scope of work described in the RFP and SOWs that included the specific items listed on the associated Bid Price Sheet. Our bid was considered responsive and apparently was the lowest bid. Our purchase order stated that the final amount of the contract would be based upon the actual work completed. Northern Environmental discussed some of the additional cost items with the WDNR as the project was progressing. The WDNR indicated that we should proceed with the work, and we completed the work with an understanding that we would be paid for our services. It is our understanding through discussions with the WDNR after the work was completed, that the WDNR assumed that our bid included certain items that were not listed on the Bid Price Sheet or stated in the RFP and SOW.

Paragraph 1.0 of the DOA Standard Terms and Conditions for Request for Bids/Proposals indicates that bids should not include alternatives to the bid specifications that may result in rejection of the bid. It has been our experience and strategy when bidding on a publicly-bid workscope, that the successful bidder only provides costs for the specific items so that the bids can be compared.

The RFP and SOW did not contain descriptions of or line-items for certain items that were necessary to complete the work. These items included the labor associated with the following services.

- Site visit to spot borehole locations with the WDNR
- Develop wells
- Well elevation survey
- Delivery of empty drums
- Borehole log and monitoring well log preparation

- Site map preparation
- Written technical report preparation
- Project management

As required in the SOW, we visited the Site with WDNR personnel to spot borehole locations before they were scheduled for installation. The WDNR did not pay for this activity although it was part of the SOW. After we were awarded the project, the WDNR requested that we develop the monitoring wells; survey the well elevations; provide and deliver additional 55-gallon drums; and provide a site map showing the well locations. Equipment and labor associated with providing these services were not requested in the SOW or included in our bid. We completed this work on verbal authorization from the WDNR and in good-faith of being paid.

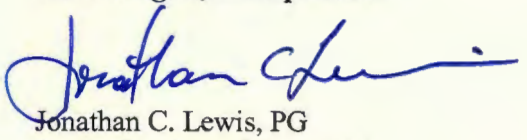
Northern Environmental's billed man-hours to complete the project were 116.25 hours. Northern Environmental uses various billing titles and rates for project work. For this project, the bid included a geologist title with a $75 per hour billing rate. While the bid did not provide other staff billing rates or titles, additional staff were needed to perform the level of effort (hours) for the project. Lower-cost staff were used when possible as a cost-savings for the WDNR, and we discounted our labor fees by $1,200 (approximately 13 percent) to adjust the project manager title labor cost down to $75 per hour and reduce the total labor hours. Administrative costs associated with the technical report were for drafting of the site drawing and word processing that were required for the report.

The RFP and SOW did not ask for equipment costs (truck, photoionization detector, bailers, rope, surge block, purge pump, water level probe, water quality instruments, and survey level and rod) or state what equipment was to be included in the cost for the given service or activity. Although the SOWs stated that the wells must be constructed and installed in accordance with Chapter NR 141, Wisconsin Administrative Code, the SOWs did not state that the bid should include the costs developing the wells.

The WDNR indicated that they were double-charged for 55-gallon drums. The cost for drums supplied for the project was not billed twice. As indicated in our technical submittal, five drums containing decontamination water and plastic sheeting generated from borehole drilling, five drums filled with well development water, and ten empty drums were supplied by us for the project. The driller and Northern Environmental each supplied ten drums (twenty total).

We believe that the additional information provided above reasons justify legitimate billed charges and request payment of the balance of our invoice: $4,642. We want to settle this payment issue with you. If this letter still does not clear things up, we would be more than willing to meet and discuss the issues with you. Please contact us if you need additional information or want to schedule a meeting.

Sincerely,
Northern Environmental Technologies, Incorporated



Jonathan C. Lewis, PG
Senior Registered Geologist

JCL/lmh

Northern Environmental℠
Hydrologists • Engineers • Surveyors • Scientists

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September 1, 2004
(DNR 01-2100-2764)

Mr. Binyoti Amungwafor
Wisconsin Department of Natural Resources
Post Office Box 12436
Milwaukee, Wisconsin 53212-0436

RE: Documentation of Environmental Work Performed at Lakefield Sand & Gravel, 72nd Street and West Good Hope Road, Milwaukee, Wisconsin; WDNR Purchase Order Number NME00000205

Dear Mr. Amungwafor:

Enclosed is documentation related to the installation of boreholes and groundwater monitoring wells at Lakefield Sand and Gravel located near 72nd and Good Hope Road, Milwaukee, Wisconsin (the Site). The Wisconsin Department of Natural Resources (WDNR) retained Northern Environmental Technologies, Incorporated (Northern Environmental) to sample, describe, and field screen soil boreholes and to install, develop, and survey groundwater monitoring wells at the Site to investigate subsurface soil and groundwater conditions.

A total of seven boreholes (N1 through N7) were completed. Five of the boreholes were completed as groundwater monitoring wells (MW-N2, MW-N3, MW-N5, MW-N6, and MW-N7) on July 15 and 16, 2004. Two of the boreholes (N1 and N4) were abandoned since the WDNR determined that they were not needed for monitoring well installation. Five 55-gallon drums containing decontamination water and plastic sheeting generated from decontamination of soil drilling and sampling equipment are stored near the east-central boundary of the Site. Borehole drill cuttings were placed on and covered with plastic adjacent to each borehole.

The monitoring wells were developed on July 21 and 22, 2004 in accordance with section NR 141.21, Wisconsin Administrative Code. Development water generated from each well was containerized in a labeled 55-gallon drum and stored next to the respective well. At least one full or partially full 55-gallon drum of development water is present next to each new well. An additional labeled empty drum was placed at each new well, and four existing wells at the city of Milwaukee and former Melody Top properties for WDNR use.

On July 28, 2004, Northern Environmental surveyed the elevation of the top of polyvinyl chloride well casing and ground surface at each of the five new wells, three existing wells (MW-1MC, MW-2MC, and MW-3MC) on the former Melody Top property, and an existing well (MW-2C) on the city of Milwaukee property. Figure 1 shows the borehole and monitoring well locations based on GPS coordinates provided by the WDNR. Well elevation and water level measurements are provided in Table 1.

Eight soil samples were selected for grain size analysis. The samples were representative of the fill and each sediment type encountered in the boreholes. The samples were submitted to Wisconsin Testing Laboratories (Menomonee Falls, Wisconsin) for grain size distribution analysis using mechanical sieve and/or hydrometer methods.

The following information is enclosed with this letter:

- A site figure showing borehole and monitoring well locations (Figure 1)
- A table summarizing monitoring well and groundwater elevation data (Table 1)
- Photocopies of field notes maintained by Northern Environmental
- Soil Boring Log Information Forms (Form 4400-122)
- Borehole Abandonment Forms (Form 3300-5B)
- Monitoring Well Construction Forms (Form 4400-113A)
- Monitoring Well Development Forms (Form 4400-113B)
- Groundwater Monitoring Well Information Form (Form 4400-89)
- Grain size analysis results

We trust this information meets your needs. Please contact us if you have any questions or comments.

Sincerely,
Northern Environmental Technologies, Incorporated

Craig T. Bobula
Hydrogeologist

Jonathan C. Lewis
Project Manager

CTB/lmh
Enclosures

c: Mike Netzer, Wisconsin Department of Natural Resources

Table 1 Monitoring Well and Groundwater Elevation Data, Lakefield Sand & Gravel, Milwaukee, Wisconsin

Well	Ground Elevation	Riser Elevation	Date	Depth to Bottom* (feet below riser)	Depth to Water** (feet below riser)	Depth to Water (feet below grade)	Water Table Elevation (feet amsl)
MW-N2	741.26	743.55	07/21/04	22.84	11.39	9.10	732.16
MW-N3	745.28	747.81	07/21/04	27.64	12.68	10.15	735.13
MW-N5	740.85	743.86	07/21/04	22.82	9.89	6.88	733.97
MW-N6	741.40	744.01	07/22/04	22.09	6.27	3.66	737.74
MW-N7	743.17	745.80	07/22/04	22.71	8.61	5.98	737.19
MW-1MC (Melody Top Property)	736.72	739.39	07/22/04	-	-	-	-
MW-2MC (Melody Top Property)	737.72	741.35	07/22/04	-	-	-	-
MW-3MC (Melody Top Property)	729.50	732.51	07/22/04	-	-	-	-
MW-2C (City of Milwaukee Property)	735.92	738.85	07/22/04	-	-	-	-

Note: All elevations referenced to feet above mean sea level (amsl)

* = depth to bottom was measured immediately following well development

** = water level was measured immediately prior to well development

Thursday, July 15, 2004

Personnel:
- CTB, JCL > Northern Environmental
- Loren Kapelka, Vince Sohre, Mike McArdle } MEK
- John Krahling, John Feeney, Ron Kroepfl, Dave Volkert } WDNR
- Eric Amadi, John Hnat, Binyati Amungwafor, Margaret Brunette } WDNR

Equip: Chevy 4x4, PID, soil logging equip.

Weather: Sunny, upper 70s to 80°

Safety: Level D

Objectives: Drill & install 5 wells, log & field screen samples for WDNR

Notes By: Craig Bolduc

750 CTB on Site. MoK here. First 5 DNR people here

800 JCL on site. Still waiting for Binyotic.

≈810 Binyotic here

820 John Hnat (WDNR) here. Look at location for upgradient well.

830 MoK start mobilizing to 1st location

900 Start N1

915 Wait for a decision to continue or terminate N1

924 Continue Sampling N1

935 MoK told to stop

945 MoK move off of boring location N1

1000 Set up on boring N2

1005 Margaret _____ (WDNR) here

1020 1st sample from N2

1127 Mike McArdle Leave to get 5' screens

204 Mike McArdle back on site

1215 Start installing MW-N2

1255 Move off MW-N2. DTW = 11' (≈9 ftbs)

150 Set up on N3 and start drilling

1508 discuss MW-N3 well placement w/ John Krahling. Explain to John that if we want to seal off the waste, we should screen from 15-25 but that the water level will likely be above the screen. If we want the

LEGEND

B-N1 — BOREHOLE LOCATION & IDENTIFICATION

MW-N2 — MONITORING WELL LOCATION & IDENTIFICATION

SCALE IN FEET

150 0 150 300

N

Northern Environmental

Hydrologists • Engineers • Surveyors • Scientists

12075 North Corporate Parkway, Suite 210, Mequon, Wisconsin 53092
Phone: 800-776-7140 Fax: 262-241-8222

WISCONSIN ▲ MICHIGAN ▲ ILLINOIS ▲ IOWA

SITE LAYOUT & BOREHOLE / MONITORING WELL LOCATIONS

LAKEFIELD SAND & GRAVEL
MILWAUKEE, WISCONSIN

DATE: 08/30/04	DRAWN BY: KAA	TASK NUMBER: 100	PROJECT NUMBER: DNR 01-2100-2764	FIGURE 1

S:\CAD\Mequon\Projects\DNR\2764\Lakefield Sand & Gravel\dwg\04_0830_1.dwg, Figure 1, 9/1/2004 2:09:46 PM

6/4/17

screen to intercept the water level, we'd probably have to screen up into the waste. John said it's a norse a piece, so we should screen 15-25. ok (Binyoti left earlier and gave authority to John Krahling)

1625 Pull off of MW-N3. Go to set up @ N-4

1755 All of WDNR except for Binyoti are gone

1802 MdK pull off of N4 to go set up for auger de-conning.

1820 Met Mike M. left. Steve Vince to finish setting up so they can decon in the morning @ 600 a.m.

1825 CTB leave site

8

6/17

Sample	Depth	IC	IA	PID	Odor
[redacted]N1-1	1-2	905	don't PID per WONR	[redacted]	none
N1-2	2½-4½	916	936	40	slight waste
N1-3	5-7	923	943	110	slight waste
N1-4	7½-9½	932	952	3	none
		Abandon boring N1 (2 bags @ bentonite)			
N2-1	1-2	1030	1050	0	none
N2-2	2½-4½	1035	1055	0	none
N2-3	5-7	1040	1100	2	none

7/19

Blows	Recov.	Pen	Desc.
9-9	4"	1.5	Silty clay, mottled 10YR 5/3 & 3/1, little sand & gravel, low to medium plasticity, moist, FILL
11-27-29	14"	–	FILL, plastic, rubber, other unidentifiable refuse, moist, black (some dry wall?)
11-7-5-6	3"	–	Fill (rubber, misc debris, mostly black
27-21	10"	–	Well graded coarse grained SAND & Gravel, grayish brown (10YR 5/2), wet, "appears" native.
8-24	6"	3.75	Silty Clay, trace little sand f. gravel & roots, yellowish brown (10YR 5/4) dry, Fill
10-18-21-26	20"	>4.5	Silty clay & Fill w/ some fine gravel to 4', 4-4½': & ~~Clayey Silt~~ Silty Clay grading down to Silt in bottom of spoon, some fine gravel, yellowish brown (10YR 5/4) dry, glacial Till.
14-[redacted]19-24-18	16"	1.25	Silty Clay w/ gravel & rock >3" to 6.7', lower 3" are Clayey Silt, no sand or gravel, light yellowish brown (10YR 6/4) moist, glaciolacustrine

MW-N2 on 8/17

10

Sample	Depth	TC	TA	PID	Odor
B2-4 N	7½-9½	1045	1105	1	none
B2-5 N	10-12	1100	1122	0	none
B2-6 N	12½-14½	1110	1133	1	none
N2-7	15-17	1130	1150	0	none
N2-8	17½-19½	1155	1215	0	none

MW-N2 Unique Well# PQ271
Well screen: 5-20' (Johnson Well
Filter Pack: 4½-20½ Red Flint
Fine Sand: 4'-4½' Red Flint
15' screen + 5' solid PVC riser +
5' long protop
1/2 55-gal. drum of water from
1 bag of chips

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Blows	Recov.	Pen	Description
21-29-17-13	16"	3.5	Silty Clay w/ 4" sand & gravel seam @ 8', yellowish brown 10YR 5/4 moist, possibly wet, TCL & WONR thinks unit is water bearing
11-34-55-a	15/16	2.50	Silty Clay to Silt, trace fine gravel, gray 10YR 6/1, moist to wet, abundant wet sand & gravel in lower 4", native Oak Creek, (should produce water)
26-50/4"	13"	-	Very saturated, SAND & GRAVEL coarsening downward, brown 10YR 5/3, wet, bg ~~boulder~~ rocks in bottom
17-20-50/4			Silty Clay, gray (10YR 5/1), no sand or gravel, Oak Creek fill
8-10-34-44/5	16"	2.25	Silty Clay, no sand or gravel, gray, 10YR 5/1, homogeneous, wet glaciolacustrine

Screen)
Sand & Gravel (.80-.120/.210) 9 bags
Sand & Gravel (35-45/225) 1/3 bag
30" piece of PVC

split spoon cleaning

Sample	Depth	TC	TA	PID	Odor
N3-1	1-2	206	224	1	none
N3-2	2½-4½	210	235	538	slight wood
N3-3	5-7	216	236	215	med. waste
N3-4	6½-9½	222	239	310	med. waste
N3-5	10-12	240	300	182	slight
N3-6	12½-14½	255	315	28	none

Blows	Recov.	Pen	Description
11-16	0"	1.0	Silty Clay, little sand, fine gravel, mottled yellowish brown (10YR5/6) & gray (10YR 5/1), Fill, moist
7-4-5-23	10"	0.5	SAA to 4' 4' to 4½': Fill (plastic, silty clay, black), moist to wet
31-17-29/2"	3"	–	Fill (glass, metal wood) black, wet, Coren said felt like pounding on wood
11-11-7-5	6"	–	Fill (sand, wood, plastic, glass, etc.), wet, black
14-17-21-27 @ 4"		–	Silty Clay, pale brown (10YR 6/3) little fine gravel, some black wood fill, MAK not sure if sluff or representative unless we go deeper. Discuss w/ Binyoti & J. Frahling ... answer go at least 2 more spoons to see what we get.
8-32-23-21	22"	2.75	Upper 7": Silty Clay low plasticity, light yellowish brown, little fine gravel, till. Next 7": Silty Sand & gravel, wet 10YR5/4 10YR 6/1, Till lower 7": Silt, some clay, trace fine gravel, till, wet

Sample	Depth	TC	TA	PID	Odor	Blows	Recov.	Pen	Description
N4-1	1-2	452	510	0	none	1-6-20	5"	-	Fill (concrete, silty clay)
N4-2	2½-4½	456	516	1	none	14-9-21-24	17"		Mostly sandy silty clay w/ little rubber, glass, dry
N4-3	5-7	501	525	1	slight waste	0-22-10-11	8"	-	Fill, mostly silty clay w/ black ex rubber, wet
N4-4	7½-9½	505	526	2	slight waste	7-7-4-4	6"	-	Fill (wood wire in tip of spoon)
N4-5	10-12	514	534	0	slight Waste	5-5-6	20	-	Obvious wood fill to 10½' with sandy silty clay, rest is Silt to Silty clay generally dark greenish gray (5GY4/1), no obvious signs of fill, wet no sand a gravel
N4-6	12½-14½	518	-	-	slight	2-2-2-6	4"		Some wood. Not sure if it's slough, but were not generating any soil cuttings which means it's very soft, which means we could still be in fill
N4-7	15-17	504	544	1	none	6-13-18-18	14"	1.25	Silty Clay w/ some fine gravel (fill) pale brown (10YR 6/3) grading down to SILT starting @ ~16'
N4-8	17½-19½	530	549	0	none	6-13-17-21	12"	-	well graded med to coarse sand a gravel, dark gray (10YR 4/1), wet, native

14 12/17

Sample	Depth	TC	TA	PID	Odor
N3-7	15-17	313	333	13	none
N3-8	17½-19½	321	340	6	none
N3-9	20-22	324	345	0	none
N3-10	23-25	335	354	0	none

MW-N3 @ 272
Screen: 15-25'
Filter Pack: 15-25'½ 6½ bags
Fine Sand: 14½'-15' 3¼ bags
5 bags bentonite 0 to 14½'

13/17 15

Blows	Rec.	Pen	Description
8-9-9-13	23"	2.75	Upper 6": Silt to Silty Clay, trace fine gravel 10YR6/4 & 10YR6/1, wet, glaciolacustrine. Next 6": Sand & gravel, some silt, upper ½" of sand is black, rest is 10YR5/2, wet, Lower 13": Silty Clay to Silt, gray, no gravel, homogeneous, glaciolacustrine, wet
6-8-14-17	24"	2.50	Silty Clay, no sand or gravel, homogeneous throughout, grayish brown (10YR5/2), glaciolacustrine, wet
8-10-12-16	23"	3.25	Same as above
11-17-20	23"	4.00	Same as above, little fine gravel and some reddish brown mottling in lower 6", till?, wet (little sand)

DTW @ 425 is: 12.2' below riser (≈10' fbg)

Sample	Depth	TC	TA	PID	Odor	Blows	Recov.	Pen	Descrip.
B4-9	20-22	538	556	0	none	8-9-13-16	20"	2.5	Silty Clay, no sand or gravel, homogeneous, gray 10YR 5/1, wet, glaciolacustrine.

530 John Krahling o Binyoti Jacobi: not to put in well

Friday July 16, 2004

Personnel: Craig Bobula (CTB) - Northern Env.
Mike Arndt, Loren Kapelka, Vince Sohre — Mek Environmental Drilling
Ron Kroepfl, John Krahling, John Feeney, Binyoti Amungwafor, Dave Kolkert, John Hnat, Eric Amadi, Margaret Brunette — WDNR
Tim Wimmer - Sigma

Equipment: Chevy 4x4, PID #4, soil logging equip.

Weather: Mostly cloudy, upper 70's, chance of afternoon showers

Objective: Finish well & borehole installation

Notes By: Craig Bobula

630. CTB on site. Mek here steam cleaning augers.

MW-N3 DTW ≈ 10 fbg

645 Ron Kroepfl waiting near N entrance

650 John Krahling here

100 John Feeney here

706 Binyoti Amungwafor here and Dave Volkert

712 John Hnat here

720 go get Mek to show them where will drill. Clear road through trees

748 Set up on flag marked by John Krahling

800 Starting drilling N-5. Tim Wimmer from Sigma here. He represents owner. Sticks around for 5 mins, then not sure where he went

0951 CTB go to next spot. M&K finishing cleaning up.

1000 M&K looks @ next location goes back to get skid loader to clear area

1028 M&K Pounding 1st spoon

1210 Start annual space seal

1240 M&K Start moving to N7

1245 WDNR (except for John Feeney & Dave Kolkett) are still out to lunch. Tell them we will wait to drill until they get back

1310 Start pounding spoons for N7

1435 WDNR Leave site

1500 M&K move off well to decon augers

1511 M&K starting to decon. augers

Mike McArdle said he is available to drill on the 1st & 2nd dates WDNR wishes to do it (July 27 & 28) Mike said to call him Monday on his cell (920-946-4208) or in the office on Tuesday, to confirm and set up.

1500 Rain starting

1520 Rain raining very hard.

Drums left on Site
2 drums of Split Spoon decon water
(1½) drums of auger decon water
(1) drum of plastic sheeting used to decon augers

1610 & Plastic sheeting loaded into drum

1620 CTB leave site. M&K still loading up.

Sample	Depth	TC	TA	PID	Odor
NS-1	1-2	805	827	0	none
NS-2	2½-4½	812	828	0	none
NS-3	5-7	814	835	0	none
NS-4	7½-9½	-	-	-	-
NS-5	10-12	835	855	0	none
NS-6	12½-14½	842	905	3- upper silt lower gravel	

Blows	Recov.	Pen	Description
7-10	12"	3.0	Silty clay, little f gravel, mottled 10YR 5/3 & 5/6, moist, could be native?
19-21-39-26	18"	3.75	Silty clay, little sand & fine gravel, traces root @ 4', low plasticity, 10YR 3/4 (dark yellowish brown), trace styrofoam, FILL, dry to moist 10YR 5/4 w/ depth
6-13-18,21	22	3.75 to 2.75 w/depth	silty clay, little subrounded gravel, low plasticity, mottled 10YR 5/1 to 10YR 5/4, homogeneous throughout, blocky, moist, glacial till
19-12-12	0	-	Outside of spoon is wet, but no recovery, could be pounding on big rock
2-5-14	14"	2.25 in clay	approx 4". Sand, med. grained, poorly graded, wet, fluvial next @ 10" Sand & Silty clay grading down to all Silty Clay, lower silty clay has no sand or gravel, wet, lacustrine, pale brown, 10YR 6/3
5-10-22-27	18"	1.5	Silt w/ some clay, no sand & gravel, some hor. layering up to 1/4" thick, 10YR 6/1, trace f. gravel, glaciolacustrine, wet lower 4" well graded coarse sand & gravel

Sample	Depth	TC	TA	PID	Odor	Blows -/-18-14-22	Recov.	Pen	
NS-7	15-17	.47	910	1	none	5-18-14-22	14"	1.75	silt to Silty clay, some f sand, trace gravel, wet, 10YR 5/1-6/1 glacio lacustrine, some hor. layering in lower 7"
NS-8	17½-19½	902	924	3	none	59-19-17	8"	1.00	silty fine sand to fine sandy silt, no gravel, 10YR 6/1-6/2 wet, glacio lacustrine

MW-NS (Unique Well# PQ273)
Well Key # 3461
Screened 5-20' (Johnson Well Screen)
Filter Pack 5-20.5' 7 bags
Fine Sand 4½'-5' ¼ bags
Bentonite: 0-4½' ___ bags
5' long Protop to 2', stickup 3'

DTW = 6 fbg @ 950

Sample	Depth	TC	TA	PID	Odor
NG-1	1-2	1032	1053	0	none
NG-2	2½-4½	1036	1055 poor sample for PID	15	slight waste
NG-3	5-7	1040	1100	200	Med waste
NG-4	7½-9½	1048	1108	6	none
NG-5	10-12	1058	1115	5	none
NG-6	12½-14½	1105	1125	40	none
NG-7	15-17	1119	1140	19	none
NG-8	15-20	1140	1200	25	none

MW-NG (PQ2?4)
Screen: 4½ - 19½
Filter Pack: 4 3/8 - 20 (9 bags)
Fine Sand: 4¼ - 4 3/8 ("a splash")
Bentonite: 0.2 - 4¼ (— bags)
DTW = 3 fbg @ 1240

Blows	Recov.	Pen	Description
8-9	8"	2.25	Silty Clay, few roots & f. grvl, 10YR 4/3 to 5/4 (brown to yellowish brown) moist, looks like native fill, low plast. FILL
5-7-9-15	18"	—	Silty Clay & Silt fill w/ some wood & plastic, glass, moist to wet, FILL
10-5-4-5	2"		Mottled Silty Clay w/ some wood, FILL, wet
3-7-15-17	22"	2.25-3.25	Silty Clay w/ some fine grvl, mottled 10YR 6/4-5/3, moist to wet, glacial till
5-9-16-18	~4"	2.00	Silty Clay, some f. grvl, low to med plasticity, mottled 10YR 5/6 & 6/1, glacial till, wet
17-50/5"	12"	3.0	SAA, wet
22-50/5"	12"	3.25	Silty Clay, some f. to m grvl, 10YR 5/1 - 4/1, wet, Oak Creek fill (most of the grvl is shale, little cs)
5-9-17-38	24	2.75-3.5	SAA, 10YR 5/1, wet, till

(11 bags)

Sample	Depth	TC	TA	PID	Odor
N7-1	1-2	1313	1333	0	none
N7-2	2½-4½	1317	1334	0	none
N7-3	5-7	1321	1352	0	none
N7-4	7½-9½	1329	1553	0	none
N7-5	10-12	1335	1354	0	none
N7-6	12½-14½	1350	1410	0	none
N7-7	15-17	1400	1421	0	none
N7-8	18-20	1416	1436	0	none

Blows	Recov.	Pen	Description
9-11	8"	3.00	Silty Clay, trace roots a fine gravel 10YR 5/4 @ 4" f. moist till
8-9-12-15	20"	2.5-3.5	SAA, 10YR 6/2 w/ some 5/6 mottles, low plast., moist till
5-5-9-14	22	2.0	SAA, trace f gravel roots more moist than above, mottled 10YR 6/1 & 5/6, glacial till or lacustrine (looks weathered)
7-10-14-15	22	2.5	Silty Clay, little f gravel, trace coarse gravel, low-med plast. 10YR 5/2, moist, till
10-16-21-43	22"	2-3.5	Silty Clay, some f gravel, 10YR 6/3 w/ little 5/6 mottles, some horizontal fracturing, homogeneous, moist, till to wet
13-50/5"	10"	1.5	SAA, moist to wet, till
5/9/18/12	18"	~0.5	Silty Clay, some f gravel (shale), trace coarse gravel, med. to high plasticity, 10YR 5/1, till, homogeneous, wet
8-9-11-13	22"	2.5-0.5	Interbedded Silt to Silty Clay, all Silt in lower 4-5", 10YR 5/1, wet no sand or gravel, glacial lacustrine, little horizontal layering

~~Sample~~ Depth PC PA PID Odor

MW-N7: Same well construction as MW-N7 (Unique Well ID.# PQ275)

DTW=

(15' Screen, 5' solid riser, +30" piece of PVC)

DTW when completed is

10 bags filter pack
splash of fine sand
1 1/2 bags of Bentonite Hole plug
4" I.D. m Piotop Pipe

Blows ~~Recov.~~ Recov. Pen Description

MW-N6

Wednesday July 21st, 2004
DWR01 - 2100 - 2764
Lakefield Sand & Gravel, 72nd & Good Hope

Personnel: Ryan McCone (RLM)
Jonathan Lewis (JCL)

Equipment: Van, pump, battery, bailers, funnel, winch, pH meter, conductivity, D.O./temp meter, DI H_2O, 2 buckets, alconox, depth-to-H_2O meter.

Objective: To develop MW-N2, MW-N3, MW-N5, MW-N6, and MW-N7
To label barrels on site.

Notes By: Ryan T. McCone 7/21/04

- onsite @ Drum Storage 9:00 am
- Buy wells/locations fill 9:20 am
- MW-N2 Start development 9:25 am
  DTW before = 11.39 ft
  DTB Before = 22.84 ft
- Calculation for gallons to purge: 4.26 x (DTB - DTW)
- MW-N2 -> One 55 gal drum full, labeled as purge water.
  -> Purge water never got fully clear
  -> Finish MW N2 @ 10:45 am

11:11 am -> Begin @ MW-N5
  H_1 = ~~22.40~~ 22.90 - 9.89 = 13.01
  Purge Vol = 4.26 x 13.01 = 55.5 gal
  Surge MW-N5 = 15 minutes (11:20-11:35 am)
  Finish MW-N5 @ 12:58 pm

1:18 pm -> Begin @ MW-N6
  H_1 =
  Purge vol =
  ~~Surge = 10 minutes (1:19~~

1:19 pm -> Stopped work on MW-N6, not enough time to complete it before 2:00 pm.
  -> Labeled MW-N7, and MW-N3

1:46 -> Left Site

Well No	DTW Before	DTW After	DTB Before	DTB After	~~Total~~ Gallons Removed	pH	Temp	Cond. mS	~~Time~~	~~Total~~ gallons ~~purged~~	DTB after Surging
MW-N2	11.39'		22.84'		4	7.3	12.6°C	0.6	9:25am	49gal	—
					3	7.2	12.1	0.70			
					5	7.2	11.8	0.70			
					5	7.3	11.3	0.70			
					5	7.2	11.3	0.80			
					5	7.2	11.4	0.80			
					5	7.2	11.2	0.70			
					5	7.3	11.1	0.70			
					5	7.3	11.1	0.70			
					5	7.3	11.2	0.70			
					5	7.3	11.2	0.70			
		11.48	~~22.84~~	22.84	5	7.3	11.2	0.70	10:15am		
~~MW-N5~~ MW-N3	9.89		22.90		5	7.1	13.2	1.4	11:11am	55.5gal	22.82
					5	7.1	10.8	1.6			
					5	7.0	10.6	1.7			
					5	7.1	10.7	1.6			
					5	7.1	10.6	1.4			
					5	7.1	10.6	1.6			
					5	7.1	10.6	1.6			
					5	7.1	10.6	1.6			
					5	7.1	10.6	1.6			
					5	7.1	10.6	1.6			
		10.09'		22.82	5	7.1	10.6	1.6	12:50		

July 22, 2004

DNR 01-2201-2764

Weather - Sun, 85°F, We 10

Personel - JJT

Equipment - Chev. 4x4, Elec. H_2O probe, Purge Pump, Surge Block, 6 x 55-gallon drums, rope, disposable bailers, H2O Quality Pers.

Safety Level - D

Objective - Develope MW6, MW7, and MW3 in that order.

Notes By - [signature]

7/22/2004 2/

Well	TIME	DTB	DTW	Purge Vol.	Dry?
MW6	1004	19.80	6.27	5 gal.	No
MW-N6	1012	—	—	5 gal.	No
	1022	—	—	5 gal.	No
	1030	—	—	5 gal.	No
	1040	—	—	5 gal.	No
	1049	—	—	5 gal	No
	1059	—	—	5 gal	No
	1110	—	—	5 gal.	No
	1121	—	—	5 gal.	No
	1130	—	—	5 gal.	No
	1136	22.09	7.74	4 gal.	No
MW7	1148	22.68	8.61	5 gal.	No
MW-N7	1210	—	—	5 gal.	Yes
	1217	—	—	2 gal.	Yes
	1230	—	—	1.5 gal.	Yes
	1245	—	—	1.0 gal.	Yes
	1256	—	—	1.0 gal.	Yes
	1310	22.71	21.29	0.5 gal	Yes

SJT

7/22/2004 3/

pH	Spec. Cond	D.O.	ORP	Temp.	Cloudy
6.9	1.50	12.3	—	14.5 C	Yes
6.8	1.90	20.3	—	12.3 C	Yes
6.8	1.90	22.0	—	12.1 C	Yes
6.9	1.90	21.5	—	12.1 C	"
6.8	1.90	21.3	—	12.3 C	"
6.9	1.80	20.0	—	11.7 C	"
6.8	1.80	17.5	—	11.8 C	"
6.9	1.80	20.0	—	11.2 C	"
6.9	1.80	21.2	—	10.9 C	"
6.9	1.80	19.5	—	10.9 C	"
6.9	1.80	19.7	—	10.9 C	less
7.3	1.40	53.5	—	10.6 C	Yes
7.3	1.40	31.5	—	10.6 C	Yes
7.3	1.40	75.4	—	12.2 C	Yes
7.3	1.40	70.3	—	15.4 C	Slight
7.3	1.40	76.4	—	18.4 C	"
7.3	1.40	64.8	—	17.2 C	"
7.3	1.40	56.5	—	13.1 C	"

1

SJT

7/22/2004 4/

Well	TIME	DTB	DTW	Purge Vol.	Dry?
~~MW3~~	1330	25.40	12.68	5 gal.	No
MW-N3	1338	–	–	5 gal.	No
–	1350	–	–	3 gal	Yes
	1410	–	–	1 gal	Yes
	1438	–	–	1 gal	Yes
	1502	27.64	27.17	0.5 gal	Yes

– left one full drum and one empty drum at each well: ~~MW3, MW5, MW6, MW7,~~ and MW-N2 MW-N3, MW-N5, MW-N6, MW-N7

JJT

7/22/2004 5/

pH	Spec. Cnd.	D.O.	ORP	Temp	Clouds
7.4	1.30	13.1	–	13.7C	Yes
7.4	1.30	14.5	–	13.8C	Yes
7.4	1.30	12.6	–	13.4C	Yes
7.4	1.30	14.3	–	13.1C	Yes
7.4	1.30	19.3	–	13.2C	Yes
7.4	1.30	13.3	–	13.0C	Yes

JJT

2 7/28/04 1/6

Personnel: CCH, FMG (NETI)

Equip: Chevy 4x4, survey gear, stakes, paint

Weather: low 80's, mostly sunny, light SW wind

Notes by: Chris Hartnett

900 Arrive on site. Try to find elevation marker on the corner of the Section. Cant find it A lot of brush and trees probably cover it.

920 Drive to 76th and Green Tree intersect and find City benchmark. It is located in grass between Green Tree and curb on southwest corner of intersection. The City informed me that its elevation is 735.85

930 Begin to survey east on Industrial Road so that we can get to wells on City of Hills public works property approximately 1 mile east of 76th/Green Tree Intersection.

1100 We get to MWN2. We will survey north across tracks to get to wells on landfill

CCH

7/28/04 2/6 3

Survey Point	B.S.	F.S.	H.I.	Elev
76th/Green Tree	1.78		737.63	735.85
TP1		9.39 2.36 5.32		730.27
TP1	8.41 6.23 4.05		736.50	730.27
TP2		5.58 3.39 1.22		733.11
TP2	8.07 5.35 2.63	~~8.07~~ ~~5.35~~ ~~2.63~~	738.46	733.11
TP3	1	6.46 3.32 0.18		735.14
TP3	13.36 12.09 10.21		747.18	735.14
MW2 Riser	1	6.85 5.87 4.81		741.35
MW2 Ground		9.46		737.72
MWN2 Riser		4.59 3.63 2.68		743.55
MWN2 Ground		5.92		741.26

CCH

7/22/2004 6/6

- surged each well (MW6, MW7, MW3) with 2" surge block for approx. 15 min. each well. Method - surge then pump; surge then pump. Tried to remove as much sediment from well as possible.

1554 - pack up equipment and left site. Will drop drum off at MW-N2 and then return to office.

JJT

7/23/2004 X/1

DNR01-2100-~~2764~~ 2764

Weather - Sun, 75°F, W @ 10

Personel - JJT

Equipment - Chev. 4x4, 4x55-gallon drums

Safety Level - D

Objective - locate and drop off purge water drums at MW-2, MW-3 MW-1, and MW2.

- have hard time locating MW-1 through MW-3, very overgrown.

- located all wells and placed drums.

JJT

4 — 7/28/04 — 3/6

Survey Point	B.S.	F.S.	H.I.	Elev
MW2	5.08 4.67 4.26		746.02	741.35
TP4		0.96		745.06
TP4	13.90 12.33 10.75		757.39	745.06
TP5		7.10 5.32 3.55		752.07
TP5	3.08 2.04 1.01		754.11	752.07
TP6		6.25 5.42 4.59		748.69
TP6	3.07 2.48		751.47	748.69
MW-N3	Riser GV	3.93 3.66 3.40		747.81 745.28
	Ground	6.19		
TP5	1.89 1.01 0.18		753.08	752.07
TP7		12.12 9.99 7.87		743.09
TP7	5.54 4.99 4.43		748.08	743.09
TP8		4.54 4.05 3.55		744.03

CCH

7/28/04 — 4/6 — 5

Survey Point	B.S.	F.S.	H.I.	Elev
TP8	4.93 4.49 3.94		748.46	744.03
MW7 N Riser		2.91 2.66 2.42		745.80
Ground		5.29		743.17
TP7	6.36 4.94 3.51		748.03	743.09
MWN6 riser		4.40 4.02 3.53		744.01
ground		6.63 7.44 6.36 5.30		741.40 742.63
TP9	5.56 5.34 5.12		747.01	741.67
MWN5 Riser		3.57 3.15 2.72		743.86
Ground		6.16		740.85
TP9	3.40 2.80 2.20		744.47	741.67
TP10		6.87 6.28 5.68		738.19
TP10	4.08		742.27	738.19
MW1 Riser		2.88		739.39
Ground		5.55		736.72

CCH

7/28/04

1

5/6

Survey Pnt	B.S.	F.S.	H.I.	Elev
MW-N5 River	0.15		744.01	743.86
TP11		9.83 8.35 6.86		735.66
TP11	6.80 5.45 4.09		741.11	735.66
TP12		6.05 5.31 4.56		735.80
T12	5.15 4.41 3.72		740.24	735.80
MW 2 (Moby well)		2.04 1.39 0.73		738.85
River Ground		4.32		735.92
TP13		8.10 7.35 6.60		732.89
TP13	5.00 3.82 2.64		736.71	732.89
TP14		5.49 4.64 3.80		732.07
TP14	5.15 4.37 3.59		736.44	732.07
MW 3 River		4.28 3.93 3.57		732.51
Ground		6.94		729.50

C&H

7/28/04

6/6

7

1600 Finish Survey. The well keys for the 3 old wells on the "Mobley" property we found inside the protective cover of MW-N5 We put the key back in MW-N5

* Note - all survey measurements with only 1 measurement (no high or low) were taken at very close range so that reading were clearly visible
- All ground surface measurements were taken with only one measurement

1610 Make sure all wells are closed. Leave site

C&H

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Lakefield Sand and Gravel	-	N1

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
Loren Kapelka M&K Environmental & Soils Drilling	7/15/2004	7/15/2004	hollow stem auger

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			Feet MSL	Feet MSL	8.5 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☒
State Plane N, E S/C/N
SE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
	Milwaukee	41	Milwaukee

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
N1-1 SS	12 4	9 9	1	FILL (silty clay), little sand and gravel, mottled brown (10YR 5/3) to very dark gray (10YR 3/1), moist					1.5					
N1-2 SS	24 14	11 27 29	2 3 4	REFUSE (plastic, rubber, drywall), mostly black, petroleum-like sheen observed, moist				40						
N1-3 SS	24 3	11 7 5 6	5 6 7					110						
N1-4 SS	24 10	27 21	8 9	SAND and GRAVEL, sand is mostly coarse grained, well graded, grayish brown (10YR 5/2), wet, glaciofluvial deposits of the Oak Creek Formation	SWG			3						
				End of boring at 9.5 feet below grade										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Craig Bohnke Firm Northern Environmental Technologies
1214 West Venture Court Mequon, Wisconsin, 53092
Tel: 262-241-3133 Fax:

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Lakefield Sand and Gravel	-	N3

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
Loren Kapelka M&K Environmental & Soils Drilling	7/15/2004	7/15/2004	hollow stem auger

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
PQ272		MW-N3	735.3 Feet MSL	745.3 Feet MSL	8.5 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☒
State Plane N, E S/C/N
SE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
	Milwaukee	41	Milwaukee

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
N3-1 SS	12 10	11 16	1–2	FILL, silty clay, little sand and fine gravel, mottled yellowish brown (10YR 5/6) and gray (10YR 5/1), moist				1	1					
N3-2 SS	24 10	7 4 5 23	3–4					538	0.5					
				REFUSE (plastic, glass, metal, wood), some sand and silty clay, black, wet at approximately 5 feet										
N3-3 SS	24 3	31 17 29/2"	5–6					215						
N3-4 SS	24 6	11 11 7 5	7–9					310						
N3-5 SS	24 4	14 17 21 27	10–12	SILTY CLAY, little fine gravel, some black wood (refuse), based on poor recovery driller not certain if recovery is sluff or representative of the sampling interval			▼	182						

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Craig Bahnke

Firm: Northern Environmental Technologies
1214 West Venture Court Mequon, Wisconsin, 53092

Tel: 262-241-3133
Fax:

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number N3 — Use only as an attachment to Form 4400-122. — Page 2 of 2

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
N3-6 SS	24 22	8 32 23 21	13	SILTY CLAY, little fine gravel, light yellowish brown (10YR 6/4), glacial till of the Oak Creek Formation	CL-ML			28	2.75					
				SILTY SAND and GRAVEL, yellowish brown (10YR 5/4) and gray (10YR6/1), wet,	SW-SM									
			14	SILT with some clay increasing in quantity with depth, trace fine gravel, light yellowish brown (10YR 6/4) and gray (10YR 6/1), wet	ML									
N3-7 SS	24 23	8 9 9 13	15					13	2.75					
			16	SAND and GRAVEL, some silt, (upper 1/2 inch of sand is black), grayish brown (10YR 5/2), wet	SWG									
			17	SILTY CLAY, some silt from 16 to 17 feet, little sand and fine gravel with some reddish brown mottling from 24.5 to 25 feet, gray (10YR 5/1) to grayish brown (10YR 5/2), homogeneous throughout, wet, glaciolacustrine deposits of the Oak Creek Formation										
N3-8 SS	24 24	6 8 14 17	18					6	2.5					
			19											
N3-9 SS	24 23	8 10 12 16	20		CL-ML			0	3.25					
			21											
			22											
N3-10 SS	24 23	7 11 17 20	23	(Sample N3-10 submitted for grain size analysis)				0	4					
			24											
			25	blind drilled										
				End of boring at 25.5 feet below grade										

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Lakefield Sand and Gravel	-	N2

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
Loren Kapelka M&K Environmental & Soils Drilling	7/15/2004	7/15/2004	hollow stem auger

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
PQ271		MW-N2	732.4 Feet MSL	741.3 Feet MSL	8.5 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☒
State Plane N, E S/C/N
SE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
	Milwaukee	41	Milwaukee

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
N2-1 SS	12 6	8 24	1	FILL, silty clay, trace to some gravel, little sand and roots, yellowish brown (10YR 5/4), dry				0	3.75					
N2-2 SS	24 20	10 18 21 26	2 3 4					0	4.5					
N2-3 SS	24 16	14 19 24 18	5 6	SILTY CLAY grading downward to SILT, some fine gravel, yellowish brown (10YR 5/4), dry, glacial till of the Oak Creek Formation	CL-ML			2	1.25					
				SILTY CLAY, some gravel	CL-ML									
N2-4 SS	24 16	21 29 17 13	7 8 9	CLAYEY SILT, no sand or gravel, light yellowish brown (10YR 6/4), moist, glaciolacustrine deposits of the Oak Creek Formation	ML			1	3.5					
				SILTY CLAY, 4 inch sand and gravel seam at 8 feet, yellowish brown (10YR 5/4), moist to wet	CL-ML									
N2-5 SS	24 15	11 34 55/4"	10 11 12	SILTY CLAY to SILT, trace fine gravel, abundant wet sand and gravel in the lower 4 inches of recovery, gray (10YR 6/1)	CL-ML			0	2.5					

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Craig Bolmlo Firm Northern Environmental Technologies
1214 West Venture Court Mequon, Wisconsin, 53092
Tel: 262-241-3133 Fax:

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State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number N2 Use only as an attachment to Form 4400-122. Page 2 of 2

Sample: Number and Type	Sample: Length Att. & Recovered (in)	Sample: Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Soil Properties: Moisture Content	Soil Properties: Liquid Limit	Soil Properties: Plasticity Index	Soil Properties: P 200	RQD/ Comments
N2-6 SS	24 13	26 50/4"	13	SAND and GRAVEL, coarsening downward with some large gravel in bottom of split spoon, brown (10YR 5/3), wet, glaciofluvial deposits of the Oak Creek Formation (sample submitted for grain size analysis)	SWG			1						
N2-7 SS	24	17 20 50/4"	14 15 16	SILTY CLAY, no sand or gravel, very homogeneous, gray (10YR 5/1), wet, glaciolacustrine deposits of the Oak Creek Formation (sample submitted for grain size analysis)	CL-ML			0						
N2-8 SS	24 16	8 10 34 44/5"	17 18 19					0	2.25					
			20	blind drilled										
				End of boring at 20.5 feet below grade										

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Lakefield Sand and Gravel	-	N4

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
Loren Kapelka M&K Environmental & Soils Drilling	7/15/2004	7/15/2004	hollow stem auger

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
			Feet MSL	Feet MSL	8.5 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☒
State Plane N, E S/C/N
SE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 E

Lat ° ' "
Long ° ' "

Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
	Milwaukee	41	Milwaukee

Sample Number and Type	Sample Length Att. & Recovered (in)	Sample Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
N4-1 SS	12 5	18 20	1–2	FILL, concrete and silty clay, moist				0						
N4-2 SS	24 14	14 19 21 24	3–4	FILL and REFUSE, mostly sandy silty clay with little rubber and glass from 2.5 to 7 feet, wood and wire observed at 9.5 feet,wood with sand and silty clay from 10 to 14.5 feet, wet at approximately 5 feet				1						
N4-3 SS	24 8	10 22 10 11	5–6–7					1						
N4-4 SS	24 6	7 7 4 4	8–9					2						
N4-5 SS	24 20	5 5 5 6	10–11–12					0						

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Craig Bolwell Firm Northern Environmental Technologies
1214 West Venture Court Mequon, Wisconsin, 53092
Tel: 262-241-3133
Fax:

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State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number N4 Use only as an attachment to Form 4400-122.

Sample: Number and Type	Sample: Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Soil Properties: Moisture Content	Soil Properties: Liquid Limit	Soil Properties: Plasticity Index	Soil Properties: P 200	RQD/ Comments
N4-6 SS	24 2	2 2 2 6	13 14											
N4-7 SS	24 14	6 13 18 18	15 16 17	SILTY CLAY, some fine gravel, grading downward to a silt starting at 16 feet, pale brown (10YR 6/3), wet, glacial till/glaciolacustrine deposits of the Oak Creek Formatiaon	CL-ML			1	1.25					
N4-8 SS	24 12	6 13 17 21	18 19	SAND and GRAVEL, well graded, dark gray (10YR 4/1), wet, glaciofluvial deposits of the Oak Creek Formation	SWG			0						
N4-9 SS	24 20	8 9 13 16	20 21 22	SILTY CLAY, no sand or gravel, gray (10YR 5/1), wet, glaciolacustrine deposits of the Oak Creek Formation	CL-ML			0	2.5					
				End of boring at 22 feet below grade										

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Lakefield Sand and Gravel	-	N5

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
Loren Kapelka M&K Environmental & Soils Drilling	7/16/2004	7/16/2004	hollow stem auger

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
PQ273		MW-N5	733.5 Feet MSL	740.9 Feet MSL	8.5 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☒
State Plane N, E S/C/N
SE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
	Milwaukee	41	Milwaukee

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
N5-1 SS	12 12	7 10	1 2	FILL, silty clay, little sand and fine gravel, trace roots and piece of styrofoam at 4 feet, mottled yellowish brown (10Y R 5/6) to dark yellowish brown (10YR 3/4), dry to moist				0	3					
N5-2 SS	24 18	19 21 39 26	3 4	(Sample N5-2 submitted for grain size analysis)				0	3.75					
N5-3 SS	24 22	6 13 18 21	5 6 7	SILTY CLAY, little subrounded gravel, mottled gray (10YR 5/1) to yellowish brown (10YR 5/4), homogeneous throughout, blocky structure, moist, glacial till of the Oak Creek Formation	CL-ML			0	3.25					
N5-4 SS	24 0	16 19 12 12	8 9	no recovery										
N5-5 SS	24 14	2 2 5 14	10 11 12	SAND, medium grained, poorly graded, wet, glaciofluvial deposits of the Oak Creek Formation SAND and SILTY CLAY grading down to all SILTY CLAY, pale brown (10YR	SP CLS			0	2.25					

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Craig Bohnke Firm Northern Environmental Technologies Tel: 262-241-3133
1214 West Venture Court Mequon, Wisconsin, 53092 Fax:

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number N5 Use only as an attachment to Form 4400-122.

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Soil Properties: Moisture Content	Soil Properties: Liquid Limit	Soil Properties: Plasticity Index	Soil Properties: P 200	RQD/ Comments
				6/3), wet, glaciolacustrine deposits of the Oak Creek Formation										
N5-6 SS	24 18	5 10 22 27	13 14	SILT, some clay, trace fine gravel, some horizontal layering up to 1/4 inch thick, gray (10YR 6/1), wet,	ML			6	1.5					
				SAND and GRAVEL, well graded	SPG									
N5-7 SS	24 14	5 18 14 22	15 16 17	SILT to SILTY CLAY, some fine shale gravel, some horizontal layering in the lower 7 inches, gray (10YR 5/1 to 6/1), wet	CL-ML			1	1.75					
N5-8 SS	24 18	5 9 19 17	18 19	SILTY FINE SAND to FINE SANDY SILT, no gravel, gray (10YR 6/1) to light brownish gray (10YR 6/2), wet (Sample N5-8 submitted for grain size analysis)	MLS			0	1					
			20	blind drilled										
				End of boring at 20.5 feet below grade										

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Lakefield Sand and Gravel	-	N6

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
Loren Kapelka M&K Environmental & Soils Drilling	7/16/2004	7/16/2004	hollow stem auger

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
PQ274		MW-N6	737.6 Feet MSL	741.4 Feet MSL	8.5 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☒
State Plane N, E S/C/N
SE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 E
Lat ___ ° ___ ' ___ "
Long ___ ° ___ ' ___ "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
	Milwaukee	41	Milwaukee

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
N6-1 SS	12 8	8 9	1–2	FILL, silty clay and silt with few roots and fine gravel to 2 feet, brown (10YR 4/3) to yellowish brown (10YR 5/4), moist				0	1.25					
N6-2 SS	24 18	5 7 9 15	3–4	REFUSE, silt and silty clay with some wood, glass, and plastic, wet at approximately 6 feet				15						
N6-3 SS	24 12	10 5 4 5	5–7					200						
N6-4 SS	24 22	3 7 15 17	8–9	SILTY CLAY, some fine gravel, mottled light yellowish brown (10YR 6/4) to brown (10YR 5/3) to 10 feet, mottled yellowish brown (10YR 5/6) to gray (10YR 6/1) from 10 to 15 feet, gray (10YR 5/1) to dark gray				6	3					
N6-5 SS	24 24	5 9 16 18	10–12	(10YR 4/1) with depth, wet, glacial till of the Oak Creek Formation (sample N6-5 submitted for grain size analysis)	CL-ML			5	2					

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm	Tel:
Craig Bolwerk	Northern Environmental Technologies 1214 West Venture Court Mequon, Wisconsin, 53092	262-241-3133 Fax:

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number N6 Use only as an attachment to Form 4400-122.

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Soil Properties: Moisture Content	Soil Properties: Liquid Limit	Soil Properties: Plasticity Index	Soil Properties: P 200	RQD/ Comments
N6-6 SS	24 12	17 50/5"	13 14					40	3					
N6-7 SS	24 12	22 50/5"	15 16 17		CL-ML			19	3.25					
N6-8 SS	24 24	5 9 17 38	18 19 20	End of boring at 20 feet below grade				25	3					

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION

Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
Lakefield Sand and Gravel	-	N7

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
Loren Kapelka M&K Environmental & Soils Drilling	7/16/2004	7/16/2004	hollow stem auger

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
PQ275		MW-N7	737.2 Feet MSL	743.2 Feet MSL	8.5 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☒
State Plane N, E S/C/N
SE 1/4 of NW 1/4 of Section 22, T 8 N, R 21 E
Lat ° ' "
Long ° ' "
Local Grid Location ☐ N ☐ E Feet ☐ S Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
	Milwaukee	41	Milwaukee

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
N7-1 SS	12 8	9 11	1	FILL, silty clay, trace roots and fine gravel, yellowish brown (10YR 5/4) and dark gray (10Y R4/1), moist (sample N7-1 submitted for grain size analysis)				0	3					
N7-2 SS	24 20	8 9 12 15	2 3 4	SILTY CLAY, trace roots and fine gravel to 7.5 feet, little fine gravel and trace coarse gravel from 7.5 to 14.5 feet, most of the gravel at depth is shale (some limestone), yellowish brown (10YR 5/6) to gray (10YR 5/1), some horizontal bedding/fracturing from 10 to 12 feet, moist to wet, glacial till of the Oak Creek Formation				0	3					
N7-3 SS	24 22	5 5 9 14	5 6 7		CL-ML			0	2					
N7-4 SS	24 22	7 10 14 15	8 9	(sample N7-4 submitted for grain size analysis)				0	2.5					
N7-5 SS	24 22	10 16 21 23	10 11 12					0	2.75					

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Craig Bohols Firm Northern Environmental Technologies Tel: 262-241-3133
1214 West Venture Court Mequon, Wisconsin, 53092 Fax:

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number N7 Use only as an attachment to Form 4400-122.

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
N7-6 SS	24 10	13 50/5"	13					0	1.5					
			14											
N7-7 SS	24 18	5 9 18 12	15		CL-ML			0	0.5					
			16											
			17											
N7-8 SS	24 22	8 9 11 13	18	interbedded SILT and SILTY CLAY changing to all SILT at 19.5 feet, gray (10YR 5/1), little horizontal layering, wet, glaciolacustrine deposits of the Oak Creek Formation	ML			0	1.75					
			19											
			20	End of borehole at 20 feet below grade										

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
Form 3300-5B Rev. 4-97

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

(1) GENERAL INFORMATION

Well/Drillhole/Borehole Location: N-central City of Milw. Property
County: Milwaukee

SE 1/4 of NW 1/4 of Sec. 22 ; T. 8 N; R. 21 ☒ E ☐ W
(If Applicable) Gov't Lot ____ Grid Number ____

Grid Location ____ ft. ☐ N. ☐ S., ____ ft. ☐ E. ☐ W.

Civil Town Name

Street Address of Well

City, Village: Milwaukee

(2) FACILITY NAME Lakefield Sand and Gravel

Original Well Owner (If Known)

Present Well Owner

Street or Route

City, State, Zip Code

Facility Well No. and/or Name (If Applicable): N-1
WI Unique Well No.

Reason For Abandonment: borehole not needed for well installation

Date of Abandonment: 7/15/04

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On (Date) ____

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? ☐ Yes ☒ No

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify) ____

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) ____ (From ground surface)
Casing Diameter (in.) ____
Casing Depth (ft.) ____

Lower Drillhole Diameter (in.) 8.3

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown
If Yes, To What Depth? ____ Feet

(4) Depth to Water (Feet) 8.5

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☒ Yes	☐ No	

If No, Explain ____

Was Casing Cut Off Below Surface?	☐ Yes	☐ No
Did Sealing Material Rise to Surface?	☒ Yes	☐ No
Did Material Settle After 24 Hours?	☐ Yes	☒ No
If Yes, Was Hole Retopped?	☐ Yes	☐ No

(5) Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☐ Conductor Pipe - Pumped
☐ Dump Bailer ☒ Other (Explain) Gravity poured

(6) Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Pellets
☐ Granular Bentonite
☐ Bentonite-Cement Grout

(7)

Sealing Material Used	From (Ft.)	To (Ft.)	Sacks Sealant	Mix Ratio or Mud Weight
borehole cuttings and 2 bags of 3/8 inch chips (Holeplug)	Surface	9.5	2	

(8) Comments ____

(9) Name of Person or Firm Doing Sealing Work: M & K Environmental Drilling
Signature of Person Doing Work: Craig Bohula for M&K Drilling
Date Signed: 8-10-04
Street or Route: 930 West Silver Beach Road
Telephone Number: 800-227-4158
City, State, Zip Code: Belgium, WI 53004

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected	District/County
Reviewer/Inspector	☐ Complying Work ☐ Noncomplying Work
Follow-up Necessary	

DNR/COUNTY

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT
Form 3300-5B Rev. 4-97

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

(1) GENERAL INFORMATION

Well/Drillhole/Borehole Location: central Landfill N of RR
County: Milwaukee

SE 1/4 of NW 1/4 of Sec. 22 ; T. 8 N; R. 21 ☒ E ☐ W

(If Applicable) _____ Gov't Lot _____ Grid Number

Grid Location _____ ft. ☐ N. ☐ S., _____ ft. ☐ E. ☐ W.

Civil Town Name

Street Address of Well

City, Village: Milwaukee

(2) FACILITY NAME Lakefield Sand and Gravel

Original Well Owner (If Known)

Present Well Owner

Street or Route

City, State, Zip Code ,

Facility Well No. and/or Name (If Applicable): N-4

WI Unique Well No.

Reason For Abandonment: borehole not needed for well installation

Date of Abandonment: 7/15/04

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On (Date) _____

☐ Monitoring Well
☐ Water Well
☐ Drillhole
☒ Borehole

Construction Report Available? ☐ Yes ☒ No

Construction Type:
☒ Drilled ☐ Driven (Sandpoint) ☐ Dug
☐ Other (Specify) _____

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) _____ (From ground surface)
Casing Diameter (in.) _____
Casing Depth (ft.) _____

Lower Drillhole Diameter (in.) 8.3

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown
If Yes, To What Depth? _____ Feet

(4) Depth to Water (Feet) 6.0

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☐ No	☒ Not Applicable
Casing Left in Place?	☒ Yes	☐ No	

If No, Explain _____

Was Casing Cut Off Below Surface?	☐ Yes	☐ No
Did Sealing Material Rise to Surface?	☒ Yes	☐ No
Did Material Settle After 24 Hours?	☐ Yes	☒ No
If Yes, Was Hole Retopped?	☐ Yes	☐ No

(5) Required Method of Placing Sealing Material
☐ Conductor Pipe - Gravity ☐ Conductor Pipe - Pumped
☐ Dump Bailer ☒ Other (Explain) Gravity poured

(6) Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry
☐ Bentonite-Sand Slurry
☒ Chipped Bentonite

For monitoring wells and monitoring well boreholes only
☐ Bentonite Pellets
☐ Granular Bentonite
☐ Bentonite-Cement Grout

(7)

Sealing Material Used	From (Ft.)	To (Ft.)	Sacks Sealant	Mix Ratio or Mud Weight
borehole cuttings and 3/8 inch chips (Holeplug)	Surface	22.0		

(8) Comments _____

(9) Name of Person or Firm Doing Sealing Work: M & K Environmental Drilling

Signature of Person Doing Work: Craig Behnke for M&K Drilling
Date Signed: 8-10-04

Street or Route: 930 West Silver Beach Road
Telephone Number: 800-227-4158

City, State, Zip Code: Belgium, WI 53004

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected	District/County
Reviewer/Inspector	☐ Complying Work ☐ Noncomplying Work
Follow-up Necessary	

DNR/COUNTY

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Lakefield Sand and Gravel	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW-N2
Facility License, Permit or Monitoring No.: -	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: PQ271 / DNR Well Number:
Facility ID:	St. Plane ____ ft. N, ____ ft. E. S/C/N	Date Well Installed: 07/15/2004
Type of Well: Well Code 11/mw	Section Location of Waste/Source: SE 1/4 of NW 1/4 of Sec. 22, T. 8 N, R. 21 ☒ E ☐ W	Well Installed By: (Person's Name and Firm): Loren Kapelka / M&K Environmental & Soils Drilling
Distance from Waste/Source ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number:

A. Protective pipe, top elevation ____ ft. MSL

B. Well casing, top elevation 743.55 ft. MSL

C. Land surface elevation 741.3 ft. MSL

D. Surface seal, bottom 737.3 ft. MSL or 4.0 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☒ SW ☒ SP ☐
SM ☐ SC ☐ ML ☒ MH ☐ CL ☒ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
____ Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe ____

17. Source of water (attach analysis, if required):
____

E. Bentonite seal, top 741.1 ft. MSL or 0.2 ft.

F. Fine sand, top 737.3 ft. MSL or 4.0 ft.

G. Filter pack, top 736.8 ft. MSL or 4.5 ft.

H. Screen joint, top 736.3 ft. MSL or 5.0 ft.

I. Well bottom 721.3 ft. MSL or 20.0 ft.

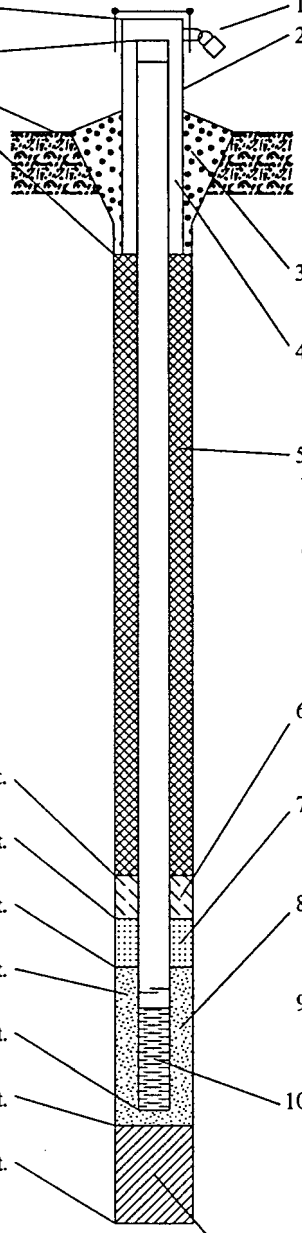
J. Filter pack, bottom 720.8 ft. MSL or 20.5 ft.

K. Borehole, bottom 720.8 ft. MSL or 20.5 ft.

L. Borehole, diameter 8.5 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.06 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 5.0 ft.
c. Material: Steel ☒ 04
____ Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____
3. Surface seal: Bentonite ☒ 30
Concrete ☐ 01
____ Other ☐
4. Material between well casing and protective pipe:
Bentonite ☒ 30
____ Other ☐
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight . . . Bentonite slurry ☐ 31
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 50
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☐ 02
Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. ____ Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. 1/3 bag Red Flint Sand & Gravel (35-45/225)
b. Volume added ____ ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. 9 bags Red Flint Sand & Gravel (.80-120/210)
b. Volume added ____ ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
____ Other ☐
10. Screen material: PVC
a. Screen Type: Factory cut ☒ 11
Continuous slot ☐ 01
____ Other ☐
b. Manufacturer Johnson Well Screens
c. Slot size: 0.010 in.
d. Slotted length: 15.0 ft.
11. Backfill material (below filter pack): None ☒ 14
____ Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Craig Bohm | Firm: Northern Environmental Technologies, 1214 West Venture Court Mequon, Wisconsin, 53092 | Tel: 262-241-3133 | Fax:

Please complete both forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Lakefield Sand and Gravel	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW-N3
Facility License, Permit or Monitoring No.: -	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: PQ272 / DNR Well Number:
Facility ID	St. Plane ____ ft. N, ____ ft. E. S/C/N	Date Well Installed: 07/15/2004
Type of Well: Well Code 12/pz	Section Location of Waste/Source: SE 1/4 of NW 1/4 of Sec. 22, T. 8 N, R. 21 ☒ E ☐ W	Well Installed By: (Person's Name and Firm): Loren Kapelka / M&K Environmental & Soils Drilling
Distance from Waste/Source ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number

A. Protective pipe, top elevation ____ ft. MSL

B. Well casing, top elevation 747.81 ft. MSL

C. Land surface elevation 745.3 ft. MSL

D. Surface seal, bottom 730.8 ft. MSL or 14.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☒ SW ☒ SP ☐
SM ☐ SC ☐ ML ☒ MH ☐ CL ☒ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50 / Hollow Stem Auger ☒ 41 / Other ☐ __

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ____

17. Source of water (attach analysis, if required):

E. Bentonite seal, top 745.1 ft. MSL or 0.2 ft.

F. Fine sand, top 730.8 ft. MSL or 14.5 ft.

G. Filter pack, top 730.3 ft. MSL or 15.0 ft.

H. Screen joint, top 730.3 ft. MSL or 15.0 ft.

I. Well bottom 720.3 ft. MSL or 25.0 ft.

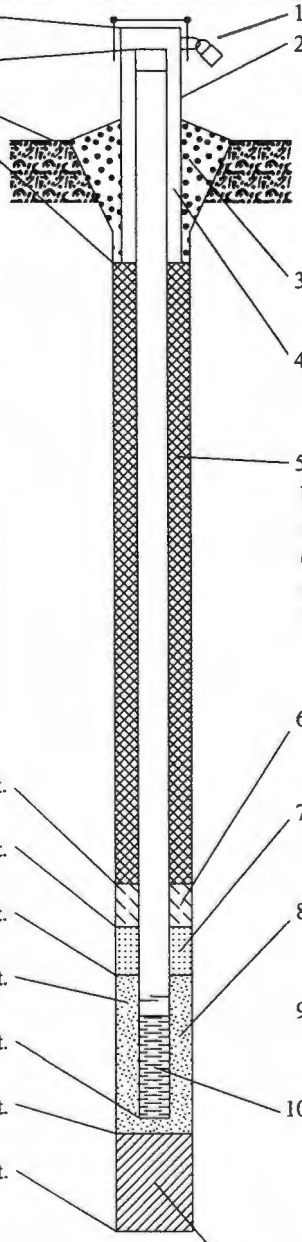
J. Filter pack, bottom 719.8 ft. MSL or 25.5 ft.

K. Borehole, bottom 719.8 ft. MSL or 25.5 ft.

L. Borehole, diameter 8.5 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.06 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 5.0 ft.
c. Material: Steel ☒ 04 / Other ☐ __
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____

3. Surface seal: Bentonite ☒ 30 / Concrete ☐ 01 / Other ☐ __

4. Material between well casing and protective pipe: Bentonite ☒ 30 / Other ☐ __

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight . . . Bentonite slurry ☐ 31
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 50
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. ____ Other ☐ __

7. Fine sand material: Manufacturer, product name & mesh size
a. 3/4 bag Red Flint Sand & Gravel (35-45/225)
b. Volume added ____ ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. 6 bags Red Flint Sand & Gravel (.80-120/210)
b. Volume added ____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / Other ☐ __

10. Screen material: PVC
a. Screen Type: Factory cut ☒ 11 / Continuous slot ☐ 01 / Other ☐ __
b. Manufacturer Johnson Well Screens
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.

11. Backfill material (below filter pack): None ☒ 14 / Other ☐ __

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Craig Bolduc

Firm: Northern Environmental Technologies, 1214 West Venture Court Mequon, Wisconsin, 53092 Tel: 262-241-3133 Fax:

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Lakefield Sand and Gravel	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW-N5
Facility License, Permit or Monitoring No.: -	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: PQ273 / DNR Well Number:
Facility ID:	St. Plane ____ ft. N, ____ ft. E. S/C/N	Date Well Installed: 07/16/2004
Type of Well: Well Code 11/mw	Section Location of Waste/Source: SE 1/4 of NW 1/4 of Sec. 22, T. 8 N, R. 21 ☒ E ☐ W	Well Installed By: (Person's Name and Firm): Loren Kapelka / M&K Environmental & Soils Drilling
Distance from Waste/Source ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number:

A. Protective pipe, top elevation ____ ft. MSL

B. Well casing, top elevation 743.86 ft. MSL

C. Land surface elevation 740.9 ft. MSL

D. Surface seal, bottom 736.4 ft. MSL or 4.5 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☒ SW ☒ SP ☒
SM ☐ SC ☐ ML ☒ MH ☐ CL ☒ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50 / Hollow Stem Auger ☒ 41 / ____ Other ☐ __

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ____

17. Source of water (attach analysis, if required):

E. Bentonite seal, top 740.7 ft. MSL or 0.2 ft.

F. Fine sand, top 736.4 ft. MSL or 4.5 ft.

G. Filter pack, top 735.9 ft. MSL or 5.0 ft.

H. Screen joint, top 735.9 ft. MSL or 5.0 ft.

I. Well bottom 720.9 ft. MSL or 20.0 ft.

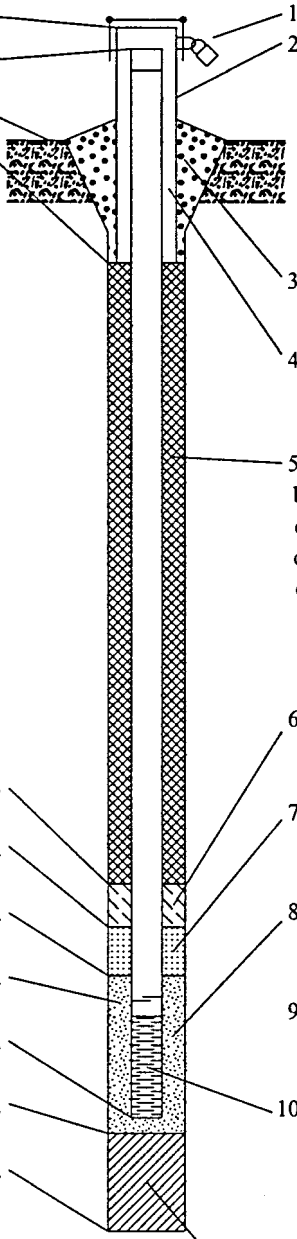
J. Filter pack, bottom 720.4 ft. MSL or 20.5 ft.

K. Borehole, bottom 720.4 ft. MSL or 20.5 ft.

L. Borehole, diameter 8.5 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.06 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 5.0 ft.
c. Material: Steel ☒ 04 / ____ Other ☐ __
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____

3. Surface seal: Bentonite ☒ 30 / Concrete ☐ 01 / ____ Other ☐ __

4. Material between well casing and protective pipe: Bentonite ☒ 30 / ____ Other ☐ __

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight . . . Bentonite slurry ☐ 31
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 50
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. ____ Other ☐ __

7. Fine sand material: Manufacturer, product name & mesh size
a. 1/4 bag Red Flint Sand & Gravel (35-45/225)
b. Volume added ____ ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. 7 bags Red Flint Sand & Gravel (.80-120/210)
b. Volume added ____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / ____ Other ☐ __

10. Screen material: PVC
a. Screen Type: Factory cut ☒ 11 / Continuous slot ☐ 01 / ____ Other ☐ __
b. Manufacturer Johnson Well Screens
c. Slot size: 0.010 in.
d. Slotted length: 15.0 ft.

11. Backfill material (below filter pack): None ☒ 14 / ____ Other ☐ __

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Craig Bobul | Firm: Northern Environmental Technologies, 1214 West Venture Court Mequon, Wisconsin, 53092 | Tel: 262-241-3133 | Fax:

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION

Form 4400-113A Rev. 7-98

Facility/Project Name: Lakefield Sand and Gravel	Local Grid Location of Well: ____ ft. ☐N. ☐S. ____ ft. ☐E. ☐W.	Well Name: MW-N6
Facility License, Permit or Monitoring No.: -	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: PQ274 / DNR Well Number:
Facility ID	St. Plane ____ ft. N, ____ ft. E. S/C/N	Date Well Installed: 07/16/2004
Type of Well: Well Code 11/mw	Section Location of Waste/Source: SE 1/4 of NW 1/4 of Sec. 22, T. 8 N, R. 21 ☒E ☐W	Well Installed By: (Person's Name and Firm): Loren Kapelka; M&K Environmental & Soils Drilling
Distance from Waste/Source ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number:

A. Protective pipe, top elevation ____ ft. MSL

B. Well casing, top elevation 744.01 ft. MSL

C. Land surface elevation 741.4 ft. MSL

D. Surface seal, bottom 737.1 ft. MSL or 4.3 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☒ MH ☐ CL ☒ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

14. Drilling method used: Rotary ☐ 50 / Hollow Stem Auger ☒ 41 / ____ Other ☐ __

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No

Describe ____

17. Source of water (attach analysis, if required):

E. Bentonite seal, top 741.2 ft. MSL or 0.2 ft.

F. Fine sand, top 737.2 ft. MSL or 4.3 ft.

G. Filter pack, top 737.0 ft. MSL or 4.4 ft.

H. Screen joint, top 736.9 ft. MSL or 4.5 ft.

I. Well bottom 721.9 ft. MSL or 19.5 ft.

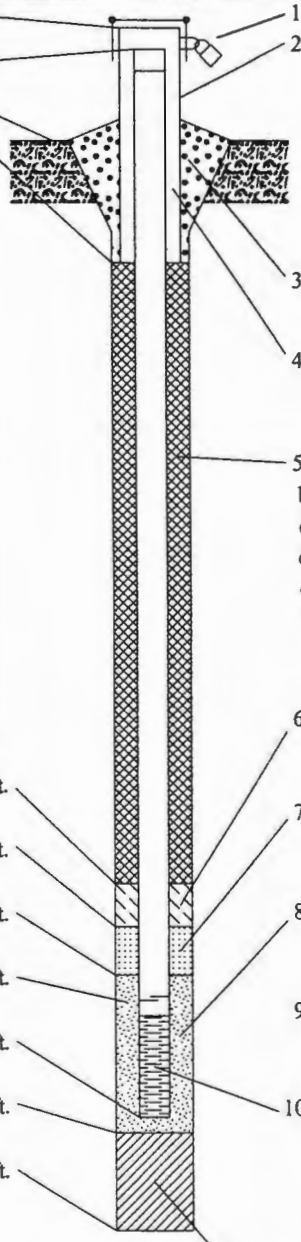
J. Filter pack, bottom 721.4 ft. MSL or 20.0 ft.

K. Borehole, bottom 721.4 ft. MSL or 20.0 ft.

L. Borehole, diameter 8.5 in.

M. O.D. well casing 2.37 in.

N. I.D. well casing 2.06 in.



1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 5.0 ft.
c. Material: Steel ☒ 04 / ____ Other ☐ __
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____

3. Surface seal: Bentonite ☒ 30 / Concrete ☐ 01 / ____ Other ☐ __

4. Material between well casing and protective pipe: Bentonite ☒ 30 / ____ Other ☐ __

5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight . . . Bentonite slurry ☐ 31
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 50
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08

6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. ____ Other ☐ __

7. Fine sand material: Manufacturer, product name & mesh size
a. Red Flint Sand & Gravel (35-45/225)
b. Volume added ____ ft^3

8. Filter pack material: Manufacturer, product name & mesh size
a. 9 bags Red Flint Sand & Gravel (.80-120/210)
b. Volume added ____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / ____ Other ☐ __

10. Screen material: PVC
a. Screen Type: Factory cut ☒ 11 / Continuous slot ☐ 01 / ____ Other ☐ __
b. Manufacturer Johnson Well Screens
c. Slot size: 0.010 in.
d. Slotted length: 15.0 ft.

11. Backfill material (below filter pack): None ☒ 14 / ____ Other ☐ __

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Craig Bobuck

Firm: Northern Environmental Technologies, 1214 West Venture Court Mequon, Wisconsin, 53092

Tel: 262-241-3133 Fax:

Please complete both forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: Lakefield Sand and Gravel	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW-N7
Facility License, Permit or Monitoring No.: -	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No.: PQ275 / DNR Well Number:
Facility ID	St. Plane ____ ft. N, ____ ft. E. S/C/N	Date Well Installed: 07/16/2004
Type of Well: Well Code 11/mw	Section Location of Waste/Source: SE 1/4 of NW 1/4 of Sec. 22, T. 8 N, R. 21 ☒ E ☐ W	Well Installed By: (Person's Name and Firm): Loren Kapelka / M&K Environmental & Soils Drilling
Distance from Waste/Source ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number

A. Protective pipe, top elevation ____ ft. MSL
B. Well casing, top elevation 745.80 ft. MSL
C. Land surface elevation 743.2 ft. MSL
D. Surface seal, bottom 738.9 ft. MSL or 4.3 ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☒ MH ☐ CL ☒ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

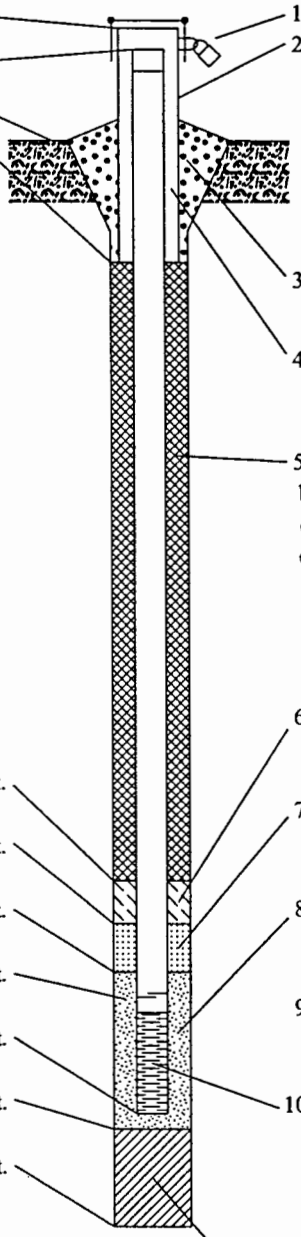
14. Drilling method used: Rotary ☐ 50 / Hollow Stem Auger ☒ 41 / ____ Other ☐ __

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe ____

17. Source of water (attach analysis, if required):
____

E. Bentonite seal, top 743.0 ft. MSL or 0.2 ft.
F. Fine sand, top 738.9 ft. MSL or 4.3 ft.
G. Filter pack, top 738.8 ft. MSL or 4.4 ft.
H. Screen joint, top 738.7 ft. MSL or 4.5 ft.
I. Well bottom 723.7 ft. MSL or 19.5 ft.
J. Filter pack, bottom 723.2 ft. MSL or 20.0 ft.
K. Borehole, bottom 723.2 ft. MSL or 20.0 ft.
L. Borehole, diameter 8.5 in.
M. O.D. well casing 2.37 in.
N. I.D. well casing 2.06 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 5.0 ft.
c. Material: Steel ☒ 04 / ____ Other ☐ __
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____
3. Surface seal: Bentonite ☒ 30 / Concrete ☐ 01 / ____ Other ☐ __
4. Material between well casing and protective pipe: Bentonite ☒ 30 / ____ Other ☐ __
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. ____Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ____Lbs/gal mud weight . . . Bentonite slurry ☐ 31
d. ____% Bentonite . . . Bentonite-cement grout ☐ 50
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. ____ Other ☐ __
7. Fine sand material: Manufacturer, product name & mesh size
a. Red Flint Sand & Gravel (35-45/225)
b. Volume added ____ ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. 9 bags Red Flint Sand & Gravel (.80-120/210)
b. Volume added ____ ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23 / Flush threaded PVC schedule 80 ☐ 24 / ____ Other ☐ __
10. Screen material: PVC
a. Screen Type: Factory cut ☒ 11 / Continuous slot ☐ 01 / ____ Other ☐ __
b. Manufacturer Johnson Well Screens
c. Slot size: 0.010 in.
d. Slotted length: 15.0 ft.
11. Backfill material (below filter pack): None ☒ 14 / ____ Other ☐ __

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Craig Bolwerk | Firm: Northern Environmental Technologies, 1214 West Venture Court Mequon, Wisconsin, 53092 | Tel: 262-241-3133 | Fax:

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	County	Well Name
Lakefield Sand and Gravel	Milwaukee	MW-N2
Facility License, Permit or Monitoring Number	**County Code**	**Wis. Unique Well Number**	**DNR Well Number**
-	41	PQ271	

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method:

surged with bailer and bailed	☐	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☒	62
surged with block, bailed, and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
other _____	☐	

3. Time spent developing well: 80 min.

4. Depth of well (from top of well casing): 22.9 ft.

5. Inside diameter of well: 2.06 in.

6. Volume of water in filter pack and well casing: 5.0 gal.

7. Volume of water removed from well: 55.0 gal.

8. Volume of water added (if any): gal.

9. Source of water added _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

		Before Development	After Development
11. Depth to Water (from top of well casing)	a.	11.39 ft.	11.48 ft.
Date	b.	7/21/2004	7/21/2004
Time	c.	09:25 ☒ a.m. ☐ p.m.	10:45 ☒ a.m. ☐ p.m.
12. Sediment in well bottom		0.1 inches	0.0 inches
13. Water clarity		Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 20 Turbid ☐ 25 (Describe) cloudy

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

16. Well developed by: Person's Name and Firm
Ryan McCone
Northern Environmental

17. Additional comments on development:

Facility Address or Owner/Responsible Party Address

Name: Binyoti Amungwafor

Firm: WDNR

Street: PO Box 12436

City/State/Zip: Milwaukee, WI 53212-0436

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: _____

Print Name: Ryan L McCone

Firm: Northern Environmental Technologies

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	County	Well Name
Lakefield Sand and Gravel	Milwaukee	MW-N3

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
-	41	PQ272	

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method:

surged with bailer and bailed	☐	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☒	62
surged with block, bailed, and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
other _____	☐	__

3. Time spent developing well 92 min.

4. Depth of well (from top of well casing) 27.6 ft.

5. Inside diameter of well 2.06 in.

6. Volume of water in filter pack and well casing 5.0 gal.

7. Volume of water removed from well 15.5 gal.

8. Volume of water added (if any) gal.

9. Source of water added _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

		Before Development	After Development
11. Depth to Water (from top of well casing)	a.	12.68 ft.	27.17 ft.
Date	b.	7/22/2004	7/22/2004
Time	c.	01:30 ☒ p.m. ☐ a.m.	03:02 ☒ p.m. ☐ a.m.
12. Sediment in well bottom		2.2 inches	0.0 inches
13. Water clarity		Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 20 Turbid ☐ 25 (Describe) cloudy

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

16. Well developed by: Person's Name and Firm
John Timm
Northern Environmental

17. Additional comments on development:

Facility Address or Owner/Responsible Party Address

Name: Binyoti Amungwafor

Firm: WDNR

Street: PO Box 12436

City/State/Zip: Milwaukee, WI 53212-0436

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John Timm

Print Name: JOHN TIMM

Firm: Northern Environmental Technologies

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	County	Well Name
Lakefield Sand and Gravel	Milwaukee	MW-N5

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
-	41	PQ273	

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method:

surged with bailer and bailed	☐	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☒	62
surged with block, bailed, and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
other _____	☐	

3. Time spent developing well 107 min.

4. Depth of well (from top of well casing) 22.8 ft.

5. Inside diameter of well 2.06 in.

6. Volume of water in filter pack and well casing 5.5 gal.

7. Volume of water removed from well 55.0 gal.

8. Volume of water added (if any) gal.

9. Source of water added _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

		Before Development	After Development
11. Depth to Water (from top of well casing)	a.	9.89 ft.	10.09 ft.
Date	b.	7/21/2004	7/21/2004
Time	c.	11:11 ☒ a.m. ☐ p.m.	12:58 ☒ a.m. ☐ p.m.
12. Sediment in well bottom		inches	0.0 inches
13. Water clarity		Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 20 Turbid ☐ 25 (Describe) cloudy
14. Total suspended solids		mg/l	mg/l
15. COD		mg/l	mg/l

Fill in if drilling fluids were used and well is at solid waste facility:

16. Well developed by: Person's Name and Firm
Ryan McCone
Northern Environmental

17. Additional comments on development:

Facility Address or Owner/Responsible Party Address

Name: Binyoti Amungwafor

Firm: WDNR

Street: PO Box 12436

City/State/Zip: Milwaukee, WI 53212-0436

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: _____

Print Name: Ryan L McCone

Firm: Northern Environmental Technologies

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	County	Well Name
Lakefield Sand and Gravel	Milwaukee	MW-N6

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
-	41	PQ274	

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method:

surged with bailer and bailed	☐	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☒	62
surged with block, bailed, and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
other _____	☐	__

3. Time spent developing well 92 min.

4. Depth of well (from top of well casing) 22.1 ft.

5. Inside diameter of well 2.06 in.

6. Volume of water in filter pack and well casing 5.0 gal.

7. Volume of water removed from well 55.0 gal.

8. Volume of water added (if any) gal.

9. Source of water added _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

		Before Development	After Development
11. Depth to Water (from top of well casing)	a.	6.27 ft.	7.74 ft.
Date	b.	7/22/2004	7/22/2004
Time	c.	10:04 ☒ a.m. ☐ p.m.	11:36 ☒ a.m. ☐ p.m.
12. Sediment in well bottom		2.3 inches	0.0 inches
13. Water clarity		Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 20 Turbid ☐ 25 (Describe) cloudy

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

16. Well developed by: Person's Name and Firm
John Timm
Northern Environmental

17. Additional comments on development:

Facility Address or Owner/Responsible Party Address

Name: Binyoti Amungwafor

Firm: WDNR

Street: PO Box 12436

City/State/Zip: Milwaukee, WI 53212-0436

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John Timm

Print Name: JOHN TIMM

Firm: Northern Environmental Technologies

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☐ Other ☐

Facility/Project Name	County	Well Name
Lakefield Sand and Gravel	Milwaukee	MW-N7

Facility License, Permit or Monitoring Number	County Code	Wis. Unique Well Number	DNR Well Number
-	41	PQ275	

1. Can this well be purged dry? ☒ Yes ☐ No

2. Well development method:

surged with bailer and bailed	☐	41
surged with bailer and pumped	☐	61
surged with block and bailed	☐	42
surged with block and pumped	☒	62
surged with block, bailed, and pumped	☐	70
compressed air	☐	20
bailed only	☐	10
pumped only	☐	51
pumped slowly	☐	50
other _____	☐	

3. Time spent developing well 82 min.

4. Depth of well (from top of well casing) 22.7 ft.

5. Inside diameter of well 2.06 in.

6. Volume of water in filter pack and well casing 5.0 gal.

7. Volume of water removed from well 16.0 gal.

8. Volume of water added (if any) gal.

9. Source of water added _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

		Before Development	After Development
11. Depth to Water (from top of well casing)	a.	8.61 ft.	21.29 ft.
Date	b.	7/22/2004	7/22/2004
Time	c.	11:48 ☒ a.m. ☐ p.m.	01:10 ☐ a.m. ☒ p.m.
12. Sediment in well bottom		0.0 inches	0.0 inches
13. Water clarity		Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☐ 20 Turbid ☐ 25 (Describe) cloudy

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	mg/l	mg/l
15. COD	mg/l	mg/l

16. Well developed by: Person's Name and Firm
John Timm
Northern Environmental

17. Additional comments on development:

Facility Address or Owner/Responsible Party Address

Name: Binyoti Amungwafor

Firm: WDNR

Street: PO Box 12436

City/State/Zip: Milwaukee, WI 53212-0436

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: John Timm

Print Name: JOHN TIMM

Firm: Northern Environmental Technologies

NOTE: See instructions for more information including a list of county codes and well type codes.

State of Wisconsin
Department of Natural Resources

GROUNDWATER MONITORING WELL INFORMATION FORM

Chapter 281 and 289, Wis. Stats.
Form 4400-89
Rev. 7-98

Facility Name	Facility ID Number	License, Permit or Monitoring No.	Date	Completed By (Name and Firm)
Lakefield Sand & Gravel			8-17-04	Craig Bobula (Hydrogeologist), Northern Environmental

WI Unique Well No	Well Name	DNR Well ID Number	Well Location	Dir. (N/E)	Dir. (S/W)	Date Established	Well Casing Diam.	Well Casing Type	Elevations Top of Well Casing	Elevations Ground Surface	Reference MSL (√)	Reference Site Datum (√)	Depths of well casing from top: Screen Top	Initial Groundwater	Well Depth	Screen Length	Well Type	Well Status	Enf. Stds.	Grad-ient	Distance to Waste
PQ 271	MW-N2		see below			7/15/04	2"	PVC	743.55	741.26	✓		7.59	11.39	22.84	15	11/mw	A			
PQ 272	MW-N3		see below			7/15/04	2"	PVC	747.81	745.28	✓		17.39	12.68	27.64	10	12/pz	A			
PQ 273	MW-N5		see below			7/16/04	2"	PVC	743.86	740.85	✓		7.57	9.89	22.82	15	11/mw	A			
PQ 274	MW-N6		see below			7/16/04	2"	PVC	744.01	741.40	✓		6.84	6.27	22.09	15	11/mw	A			
PQ 275	MW-N7		see below			7/16/04	2"	PVC	745.80	743.17	✓		7.46	8.61	22.71	15	11/mw	A			
	MW-N2		978,656.88	9	7	7638 N															
			2,241,328.	8	9	0761 E															
	MW-N3		979,836.30	9	0	551 N															
			2,240,706	7	6	1811 E															
	MW-N5		980,122.	0	4	7244 N															
			2,239,644.	7	7	3622 E															
	MW-N6		980,120.	9	3	17585 N															
			2,239,866.	1	6	7979 E															
	MW-N7		980,127.7	9	1	9948 N															
			2,240,139.	6	4	56693 E															

Location Coordinates Are:

☐ State Plane Coordinate ☐ Local Grid System
☐ Northern
☐ Central
☐ Southern

Grid Origin Location: (Check if estimated: ☐)

Lat. ____ ° ____ ' ____ " Long. ____ ° ____ ' ____ " or

St. Plane ____ ft. N. ____ ft. E. S/C/N Zone

Remarks:

Completion of this form is mandatory under s. NR 507.14 and NR 110.25 Wis. Adm. Code. Failure to file this form may result in forfeiture of not less than $10 nor more than $5,000 for each day of violation. Personally identifiable information provided is intended to be

TRANSMITTAL

Wisconsin Testing Laboratories, LLC
W140 N5886 Lilly Road
Menomonee Falls, Wisconsin 53051
262-252-3300 Fax 262-252-5373

Geotechnical Investigations
Testing & Inspection of
Soil, Rock, Aggregates,
Concrete, Asphalt,
Mortar and Grout

DNR2764
DATA

Date: 8/19/04	Job No.: 0043-04-001
RE: DNR 01-2100-2764.100	

TO: **Jonathan C. Lewis, PG**
Northern Environmental
12075 North Corporate Parkway, Suite 210
Mequon, Wisconsin 53092

FOR:
- ☑ Your Use
- ☐ Approval
- ☐ Information
- ☐ Review and Comment
- ☐ _____

VIA:
- ☑ Mail
- ☐ Parcel Service
- ☑ Fax
- ☐ Courier
- ☐ _____

WE ARE SENDING YOU:

Copies	Description
1	Grain Size Analysis Test Results (8 pages)

REMARKS:

If you have any questions, please call.

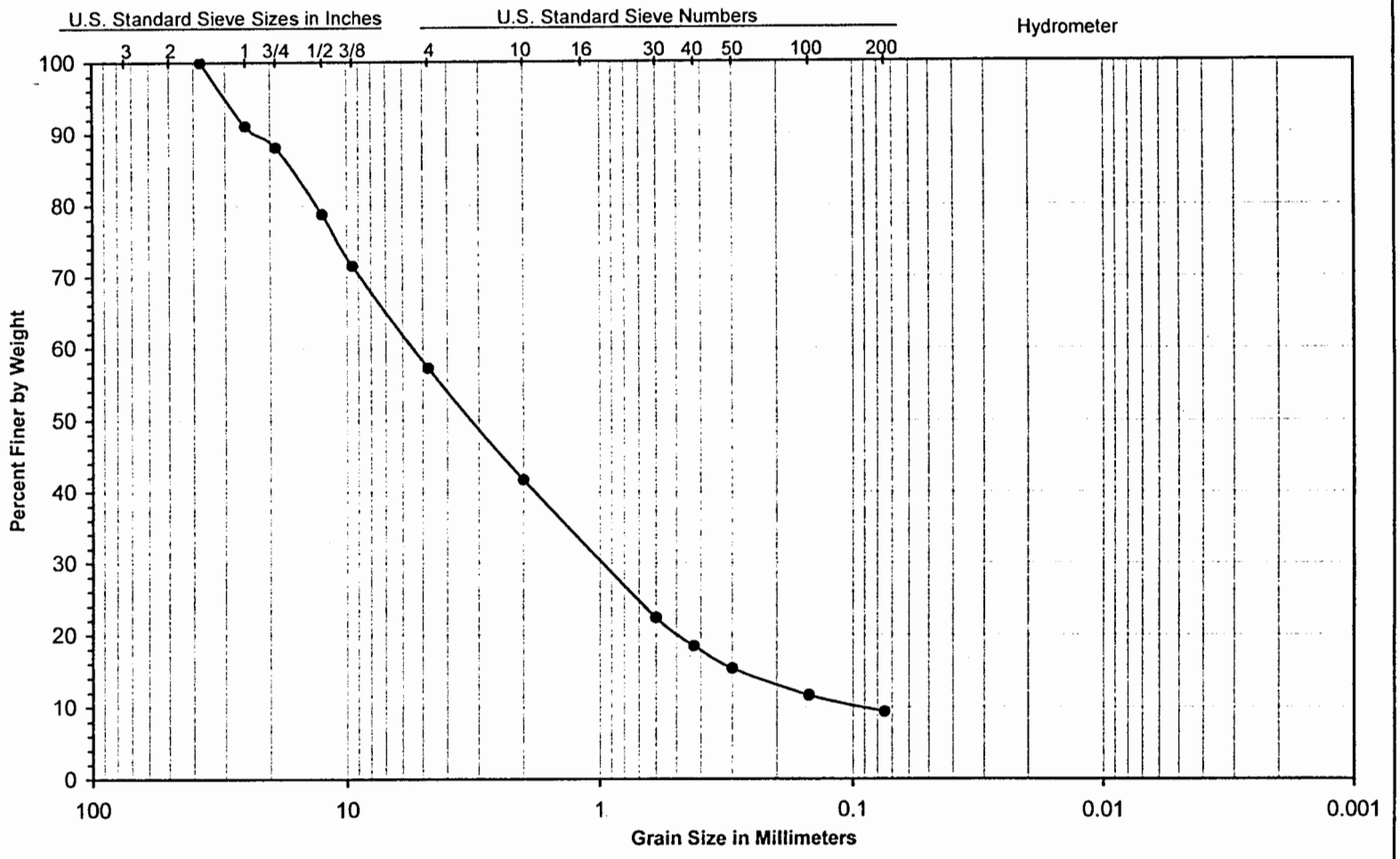
Thanks,

COPY TO: File

SIGNED:
Jeffrey G. Smith, P.E.
Member and Principal Engineer

GRAIN SIZE ANALYSIS

Wisconsin Testing Laboratories LLC



SIEVE SIZE	PERCENT PASSING
150 mm (6")	-
125 mm (5")	-
100 mm (4")	-
90 mm (3½")	-
75 mm (3")	-
63 mm (2½")	-
50 mm (2")	-
37.5 mm (1½")	100.0
25.0 mm (1")	91.2
19.0 mm (3/4")	88.2
12.5 mm (1/2")	78.8
9.5 mm (3/8")	71.6
4.75 mm (# 4)	57.2
2.36 mm (# 8)	-
2.00 mm (# 10)	41.8
1.18 mm (# 16)	-
600 µm (# 30)	22.4
425 µm (# 40)	18.5
300 µm (# 50)	15.4
180 µm (# 80)	-
150 µm (# 100)	11.7
75 µm (# 200)	9.4

UNIFIED	GRAVEL	SAND		SILT AND CLAY
AASHTO	GRAVEL		SAND	SILT AND CLAY

SAMPLE ID	w (%)	LL	PL	γ_{dry} (pcf)	k (cm./sec.)	CLASSIFICATION
N2-6, 12.5'-14.5'						Well-Graded Sand with silt/clay and gravel (SW-SM / SW-SC)

DNR 01-2100-2764.100
Milwaukee, Wisconsin

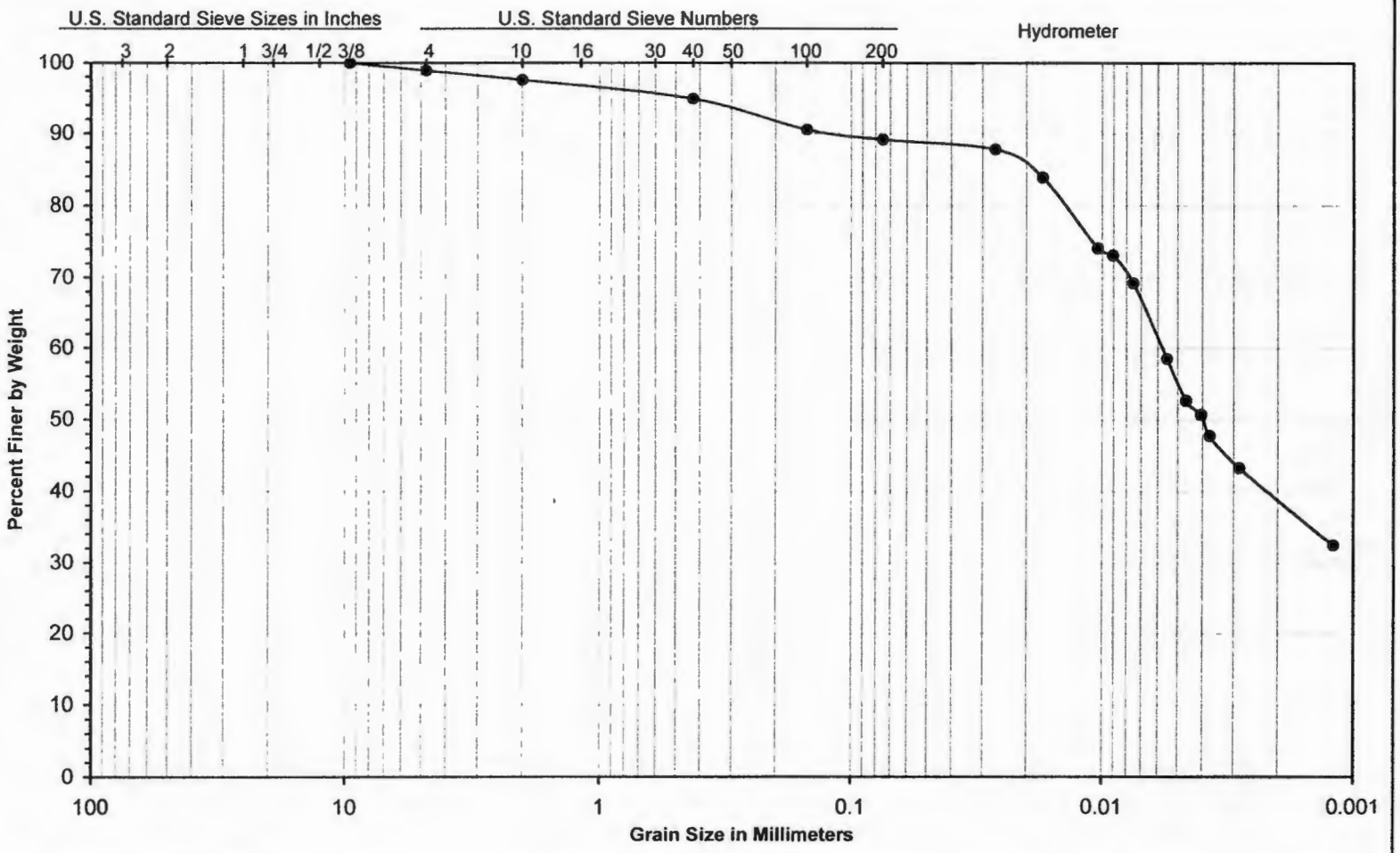
For Northern Environmental

WTL 0043-04-001

August 13, 2004

GRAIN SIZE ANALYSIS

Wisconsin Testing Laboratories LLC



SIEVE SIZE	PERCENT PASSING
150 mm (6")	-
125 mm (5")	-
100 mm (4")	-
90 mm (3½")	-
75 mm (3")	-
63 mm (2½")	-
50 mm (2")	-
37.5 mm (1½")	-
25.0 mm (1")	-
19.0 mm (3/4")	-
12.5 mm (1/2")	-
9.5 mm (3/8")	100.0
4.75 mm (# 4)	98.9
2.36 mm (# 8)	-
2.00 mm (# 10)	97.6
1.18 mm (# 16)	-
600 µm (# 30)	-
425 µm (# 40)	94.9
300 µm (# 50)	-
180 µm (# 80)	-
150 µm (# 100)	90.6
75 µm (# 200)	89.2

UNIFIED	GRAVEL	SAND		SILT AND CLAY
AASHTO	GRAVEL		SAND	SILT AND CLAY

SAMPLE ID	w (%)	LL	PL	γ_{dry} (pcf)	k (cm./sec.)	CLASSIFICATION
N2-7, 15'-17'						Silt/Clay (ML/MH/CL/CH/CL-ML)

DNR 01-2100-2764.100
Milwaukee, Wisconsin

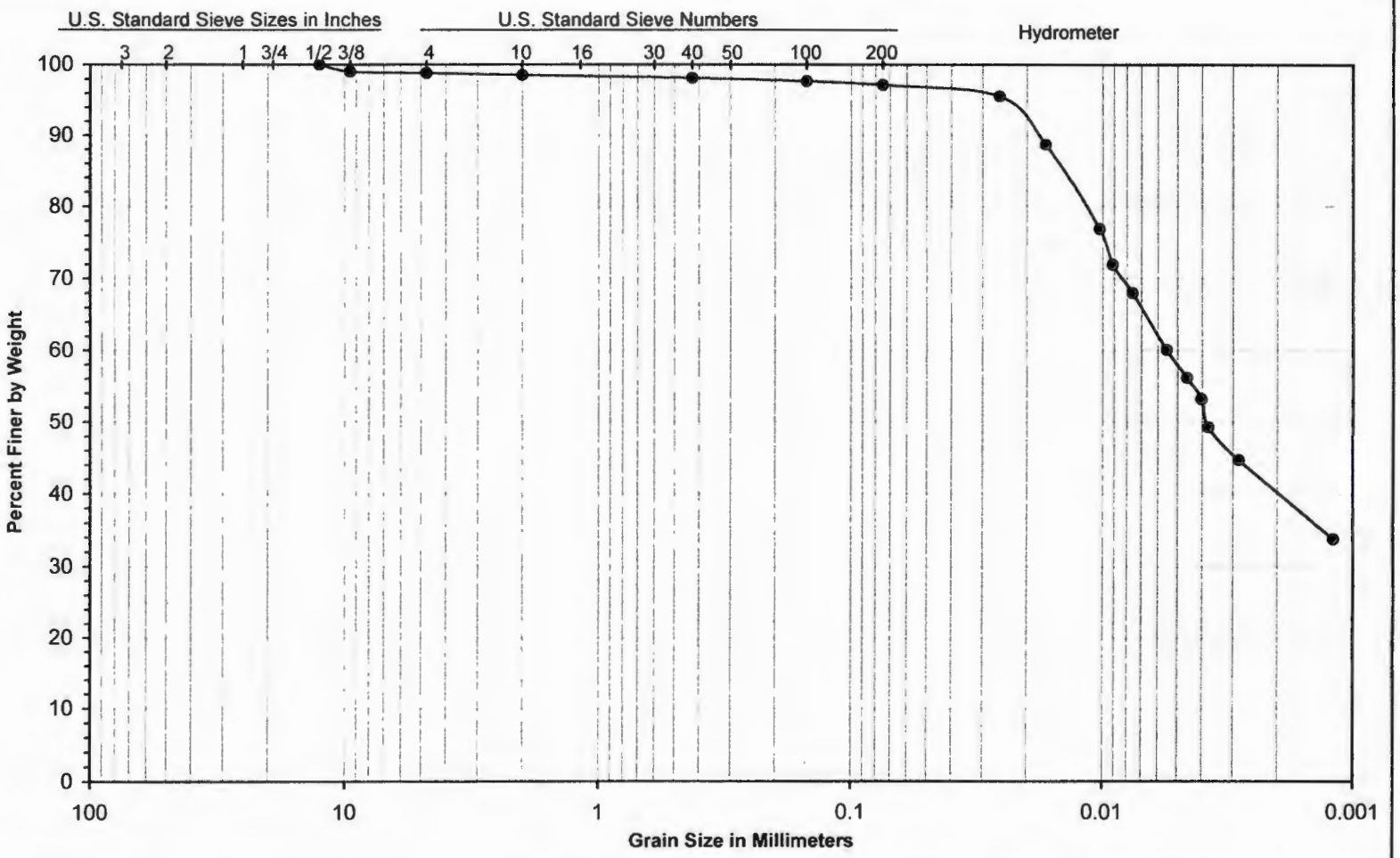
For Northern Environmental

WTL 0043-04-001

August 17, 2004

GRAIN SIZE ANALYSIS

Wisconsin Testing Laboratories LLC



SIEVE SIZE	PERCENT PASSING
150 mm (6")	-
125 mm (5")	-
100 mm (4")	-
90 mm (3½")	-
75 mm (3")	-
63 mm (2½")	-
50 mm (2")	-
37.5 mm (1½")	-
25.0 mm (1")	-
19.0 mm (3/4")	-
12.5 mm (1/2")	100.0
9.5 mm (3/8")	99.0
4.75 mm (# 4)	98.8
2.36 mm (# 8)	-
2.00 mm (# 10)	98.6
1.18 mm (# 16)	-
600 µm (# 30)	-
425 µm (# 40)	98.1
300 µm (# 50)	-
180 µm (# 80)	-
150 µm (# 100)	97.7
75 µm (# 200)	97.2

UNIFIED	GRAVEL	SAND		SILT AND CLAY
AASHTO	GRAVEL		SAND	SILT AND CLAY

SAMPLE ID	w (%)	LL	PL	γ_{dry} (pcf)	k (cm./sec.)	CLASSIFICATION
N3-10, 23'-25'						Silt/Clay (ML/MH/CL/CH/CL-ML)

DNR 01-2100-2764.100
Milwaukee, Wisconsin

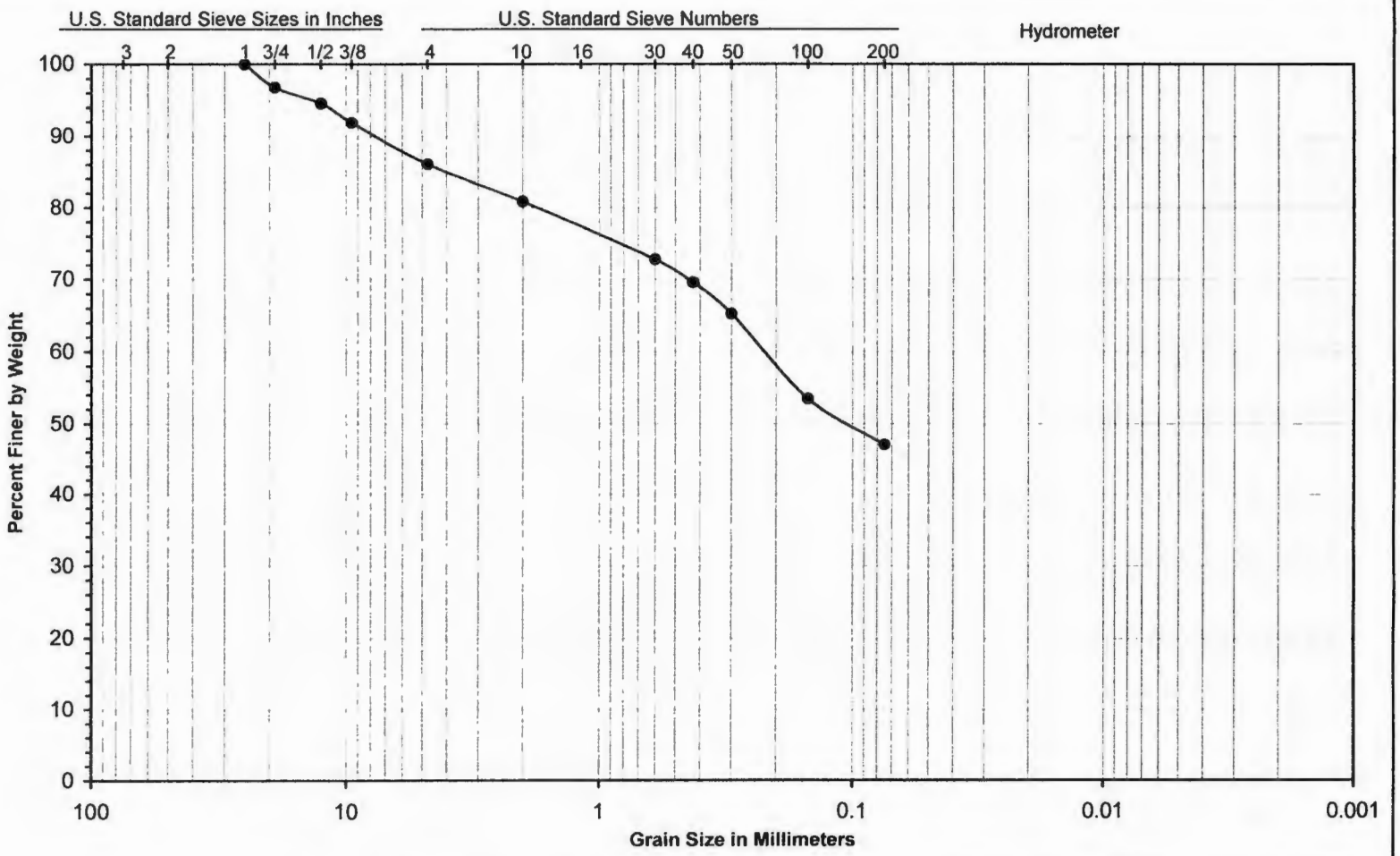
For Northern Environmental

WTL 0043-04-001

August 17, 2004

GRAIN SIZE ANALYSIS

Wisconsin Testing Laboratories LLC



SIEVE SIZE	PERCENT PASSING
150 mm (6")	-
125 mm (5")	-
100 mm (4")	-
90 mm (3½")	-
75 mm (3")	-
63 mm (2½")	-
50 mm (2")	-
37.5 mm (1½")	-
25.0 mm (1")	100.0
19.0 mm (3/4")	96.8
12.5 mm (1/2")	94.6
9.5 mm (3/8")	91.9
4.75 mm (# 4)	86.1
2.36 mm (# 8)	-
2.00 mm (# 10)	80.9
1.18 mm (# 16)	-
600 µm (# 30)	72.8
425 µm (# 40)	69.6
300 µm (# 50)	65.2
180 µm (# 80)	-
150 µm (# 100)	53.5
75 µm (# 200)	47.1

UNIFIED	GRAVEL	SAND		SILT AND CLAY
AASHTO	GRAVEL		SAND	SILT AND CLAY

SAMPLE ID	w (%)	LL	PL	γ_{dry} (pcf)	k (cm./sec.)	CLASSIFICATION
N5-2, 2.5'-4.5'						Silty/Clayey Sand (SM / SC-SM / SC)

DNR 01-2100-2764.100
Milwaukee, Wisconsin

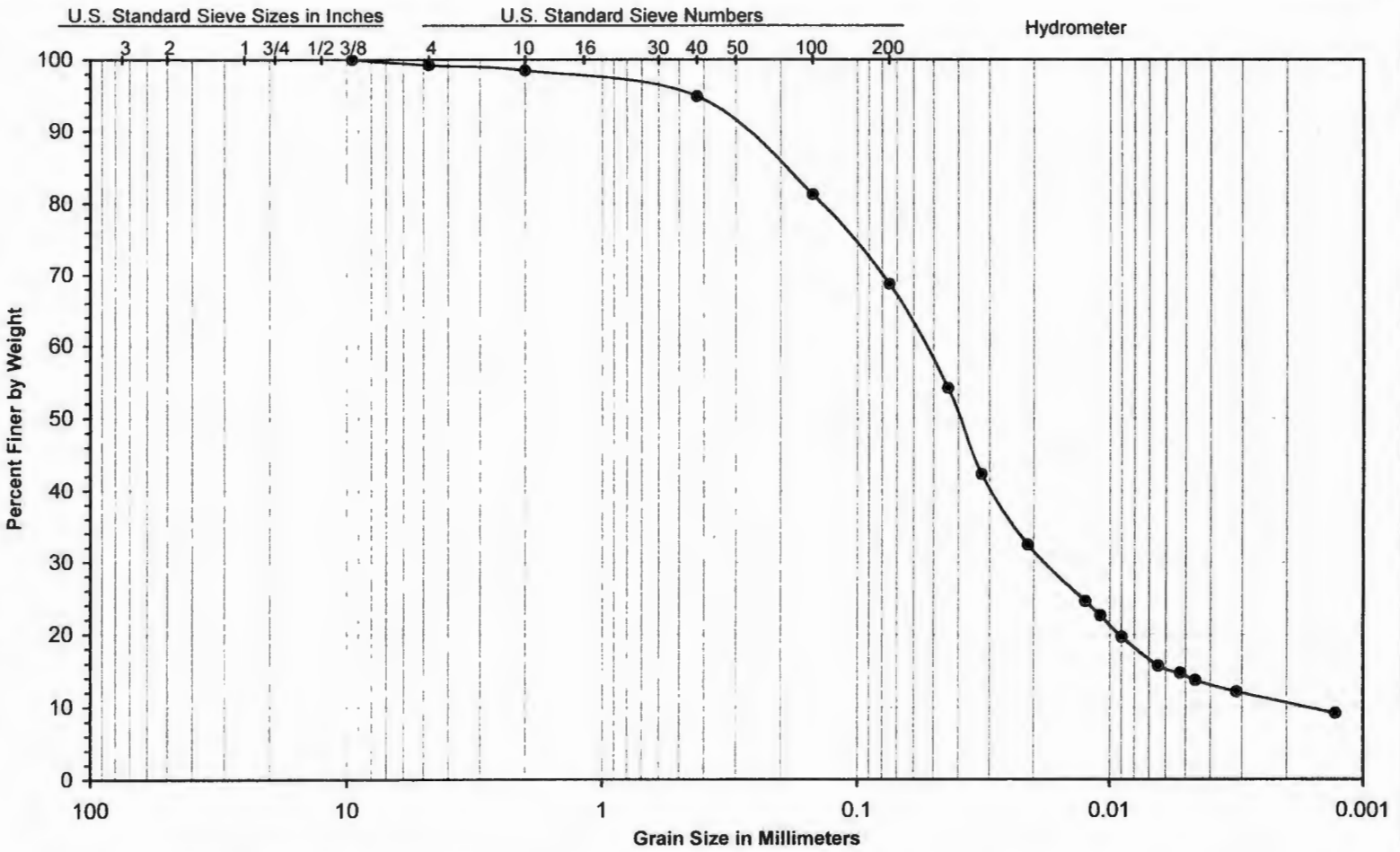
For Northern Environmental

WTL 0043-04-001

August 13, 2004

GRAIN SIZE ANALYSIS

Wisconsin Testing Laboratories LLC



SIEVE SIZE	PERCENT PASSING
150 mm (6")	-
125 mm (5")	-
100 mm (4")	-
90 mm (3½")	-
75 mm (3")	-
63 mm (2½")	-
50 mm (2")	-
37.5 mm (1½")	-
25.0 mm (1")	-
19.0 mm (3/4")	-
12.5 mm (1/2")	-
9.5 mm (3/8")	100.0
4.75 mm (# 4)	99.2
2.36 mm (# 8)	-
2.00 mm (# 10)	98.5
1.18 mm (# 16)	-
600 µm (# 30)	-
425 µm (# 40)	94.9
300 µm (# 50)	-
180 µm (# 80)	-
150 µm (# 100)	81.2
75 µm (# 200)	68.7

UNIFIED	GRAVEL	SAND		SILT AND CLAY
AASHTO	GRAVEL		SAND	SILT AND CLAY

SAMPLE ID	w (%)	LL	PL	γ_{dry} (pcf)	k (cm./sec.)	CLASSIFICATION
N5-8, 17.5'-19.5'						Sandy Silt/Clay (ML/MH/CL/CH/CL-ML)

DNR 01-2100-2764.100
Milwaukee, Wisconsin

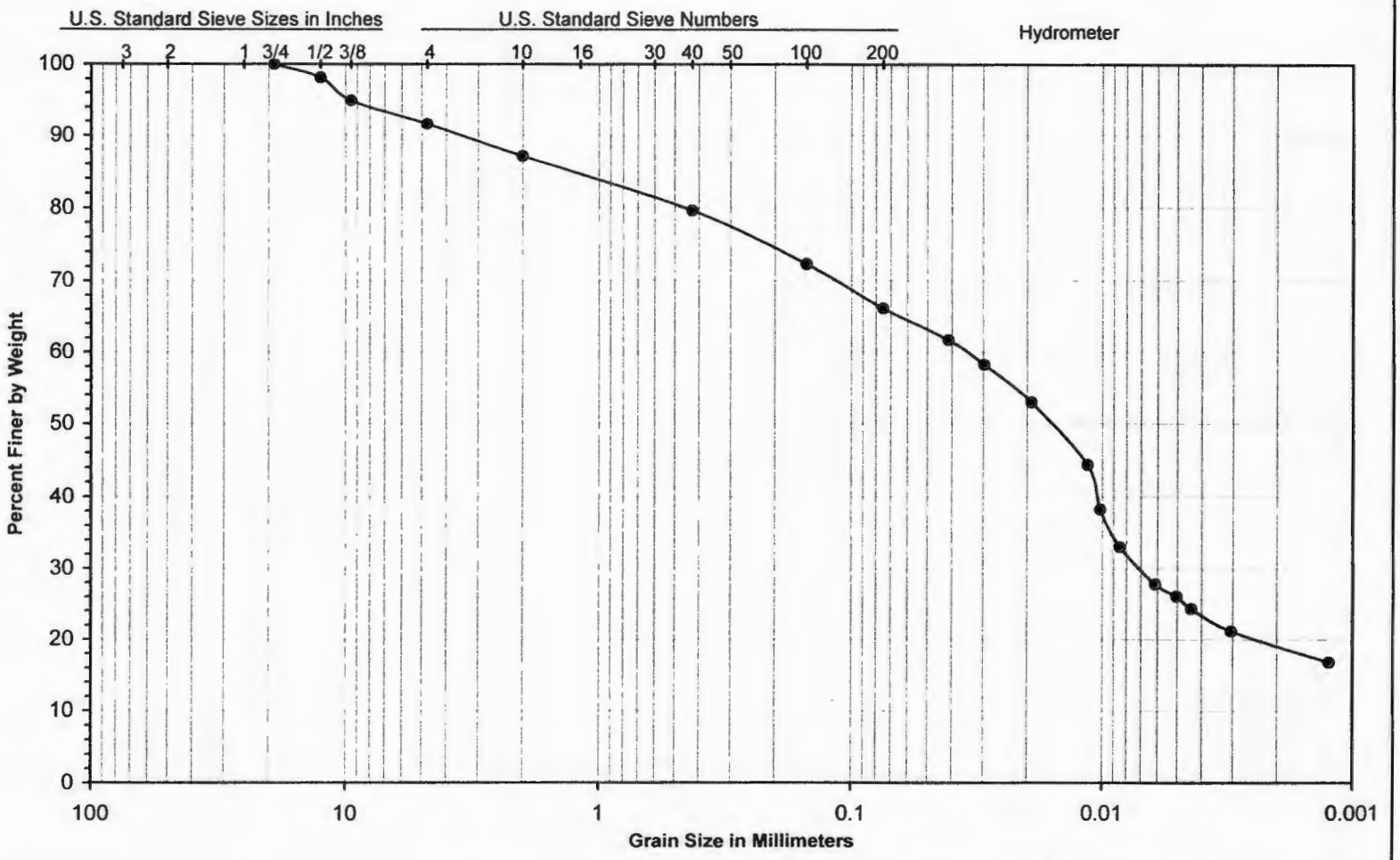
For Northern Environmental

WTL 0043-04-001

August 17, 2004

GRAIN SIZE ANALYSIS

Wisconsin Testing Laboratories LLC



SIEVE SIZE	PERCENT PASSING
150 mm (6")	-
125 mm (5")	-
100 mm (4")	-
90 mm (3½")	-
75 mm (3")	-
63 mm (2½")	-
50 mm (2")	-
37.5 mm (1½")	-
25.0 mm (1")	-
19.0 mm (3/4")	100.0
12.5 mm (1/2")	98.1
9.5 mm (3/8")	94.9
4.75 mm (# 4)	91.6
2.36 mm (# 8)	-
2.00 mm (# 10)	87.1
1.18 mm (# 16)	-
600 µm (# 30)	-
425 µm (# 40)	79.6
300 µm (# 50)	-
180 µm (# 80)	-
150 µm (# 100)	72.3
75 µm (# 200)	66.1

UNIFIED	GRAVEL	SAND	SILT AND CLAY	
AASHTO	GRAVEL	SAND	SILT AND CLAY	

SAMPLE ID	w (%)	LL	PL	γ_{dry} (pcf)	k (cm./sec.)	CLASSIFICATION
N6-5, 10'-12'						Sandy Silt/Clay (ML/MH/CL/CH/CL-ML)

DNR 01-2100-2764.100
Milwaukee, Wisconsin

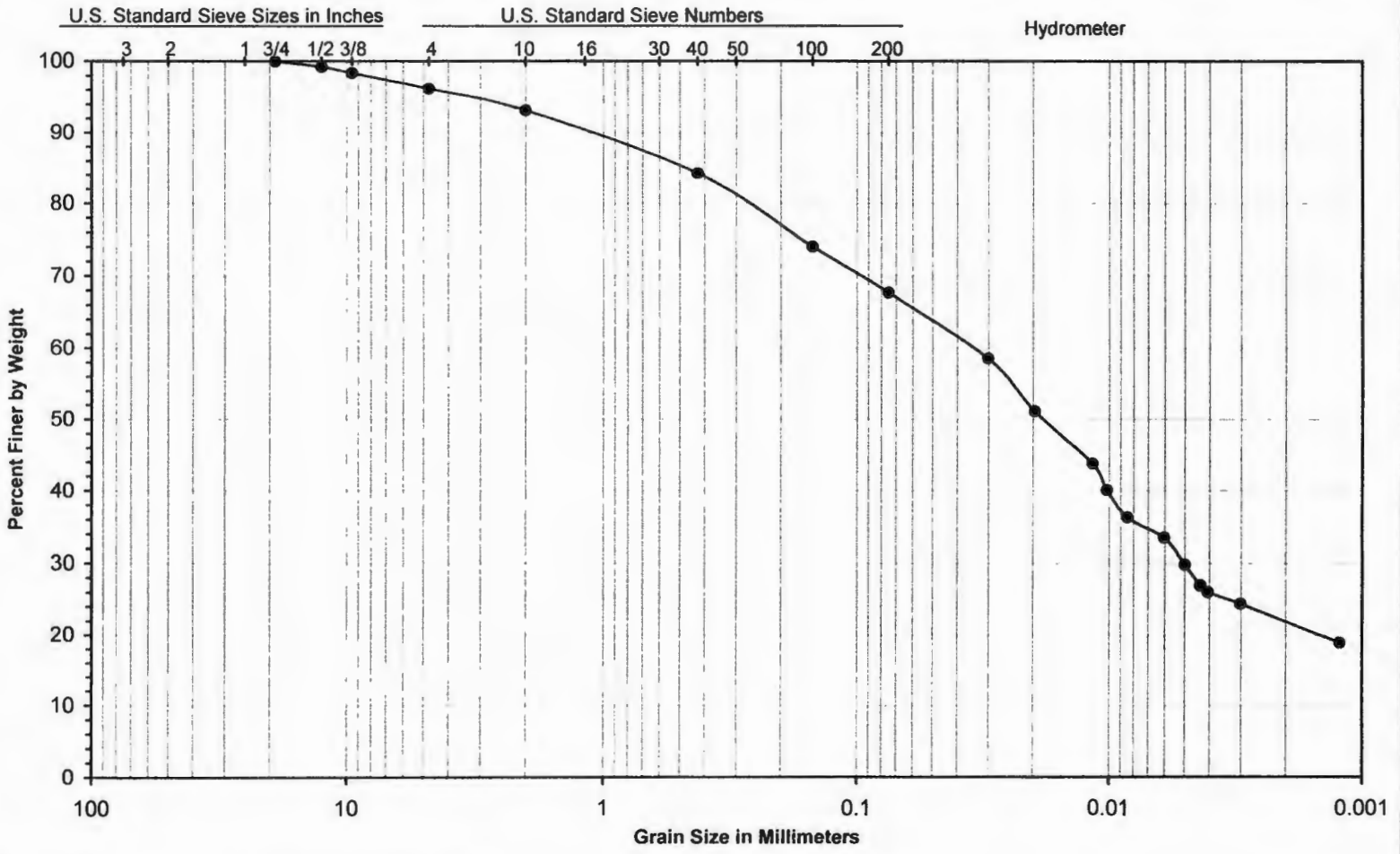
For Northern Environmental

WTL 0043-04-001

August 17, 2004

GRAIN SIZE ANALYSIS

Wisconsin Testing Laboratories LLC



SIEVE SIZE	PERCENT PASSING
150 mm (6")	-
125 mm (5")	-
100 mm (4")	-
90 mm (3½")	-
75 mm (3")	-
63 mm (2½")	-
50 mm (2")	-
37.5 mm (1½")	-
25.0 mm (1")	-
19.0 mm (3/4")	100.0
12.5 mm (1/2")	99.2
9.5 mm (3/8")	98.4
4.75 mm (# 4)	96.2
2.36 mm (# 8)	-
2.00 mm (# 10)	93.2
1.18 mm (# 16)	-
600 µm (# 30)	-
425 µm (# 40)	84.2
300 µm (# 50)	-
180 µm (# 80)	-
150 µm (# 100)	74.0
75 µm (# 200)	67.7

UNIFIED	GRAVEL	SAND		SILT AND CLAY
AASHTO	GRAVEL	SAND		SILT AND CLAY

SAMPLE ID	w (%)	LL	PL	γ_{dry} (pcf)	k (cm./sec.)	CLASSIFICATION
N7-1, 1'-2'						Sandy Silt/Clay (ML/MH/CL/CH/CL-ML)

DNR 01-2100-2764.100
Milwaukee, Wisconsin

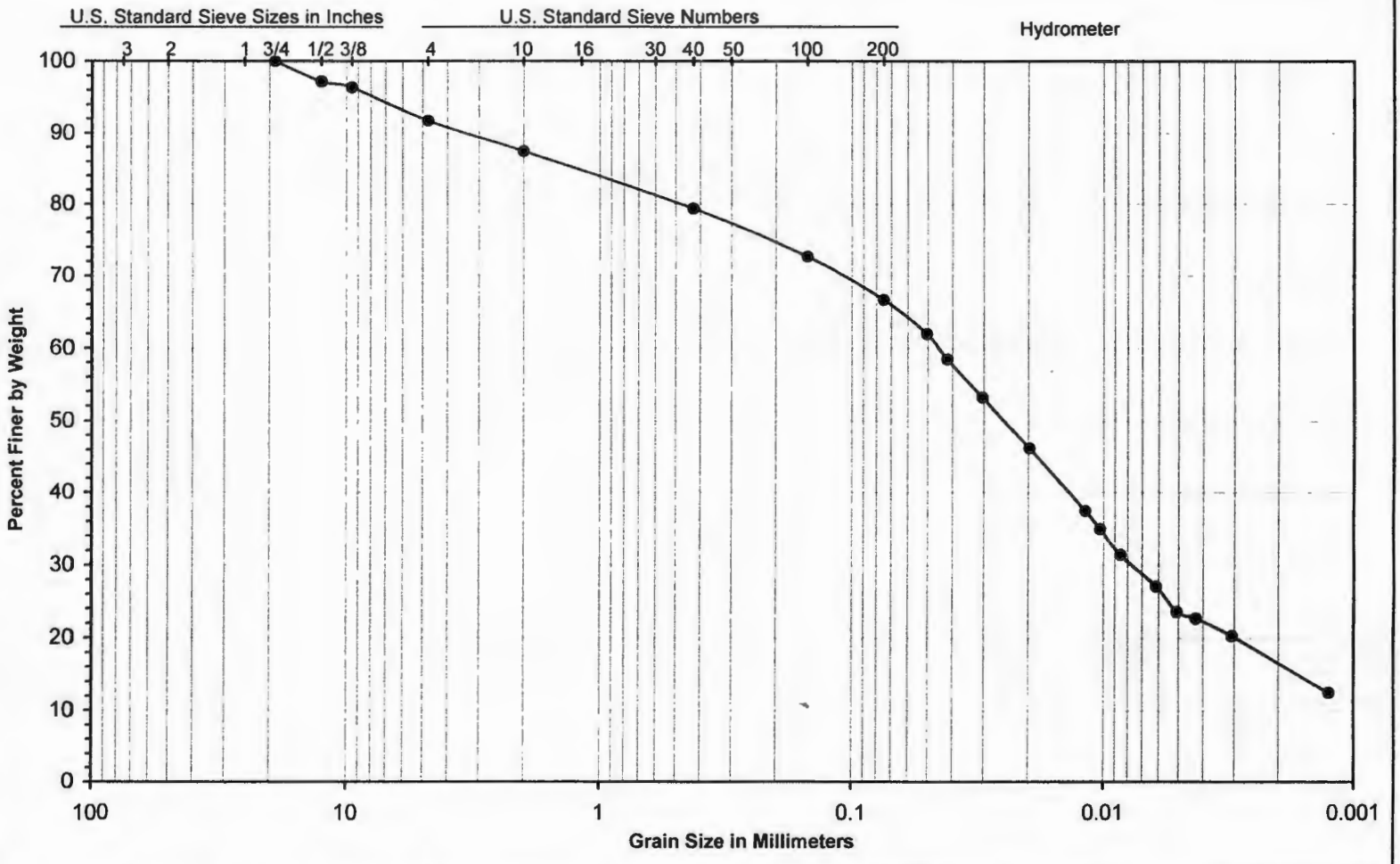
For Northern Environmental

WTL 0043-04-001

August 17, 2004

GRAIN SIZE ANALYSIS

Wisconsin Testing Laboratories LLC



SIEVE SIZE	PERCENT PASSING
150 mm (6")	-
125 mm (5")	-
100 mm (4")	-
90 mm (3½")	-
75 mm (3")	-
63 mm (2½")	-
50 mm (2")	-
37.5 mm (1½")	-
25.0 mm (1")	-
19.0 mm (3/4")	100.0
12.5 mm (1/2")	97.2
9.5 mm (3/8")	96.4
4.75 mm (# 4)	91.7
2.36 mm (# 8)	-
2.00 mm (# 10)	87.5
1.18 mm (# 16)	-
600 µm (# 30)	-
425 µm (# 40)	79.3
300 µm (# 50)	-
180 µm (# 80)	-
150 µm (# 100)	72.6
75 µm (# 200)	66.6

UNIFIED	GRAVEL	SAND	SILT AND CLAY	
AASHTO	GRAVEL	SAND	SILT AND CLAY	

SAMPLE ID	w (%)	LL	PL	γ_{dry} (pcf)	k (cm./sec.)	CLASSIFICATION
N7-4, 7.5'-9.5'						Sandy Silt/Clay (ML/MH/CL/CH/CL-ML)

DNR 01-2100-2764.100
Milwaukee, Wisconsin

For Northern Environmental

WTL 0043-04-001

August 17, 2004

TS-PIC-20405601S
February 2004

AERIAL PHOTOGRAPHIC ANALYSIS OF LAKEFIELD SAND AND GRAVEL DISPOSAL SITE

Milwaukee, Wisconsin

by

W. M. Mack
Environmental Services
Lockheed Martin Services
Las Vegas, Nevada 89119

Contract No. 68-D-00-267

Work Assignment Manager

J. L. Bozik
Landscape Ecology Branch
Environmental Sciences Division
Las Vegas, Nevada 89193-3478

ENVIRONMENTAL SCIENCES DIVISION
NATIONAL EXPOSURE RESEARCH LABORATORY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
LAS VEGAS, NEVADA 89193-3478

NOTICE

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ABSTRACT

This report presents the results of an aerial photographic analysis of the Lakefield Sand and Gravel Disposal site, Milwaukee, Wisconsin. Historical aerial photographs spanning the period from 1941 through 1992 were reviewed in this analysis. Nine selected dates of photographs are included in this report. The aerial photographic analysis was requested by the Region 5 Office of the U.S. Environmental Protection Agency (EPA) to support the development of field sampling strategies and to document observable past patterns of waste disposal activity and conditions under their CERCLA program.

In 1941 the site was occupied by a farmstead and cropland. By 1950 the area surrounding the farmstead contained areas of disturbed and scarred ground indicative of earthmoving activity from probable soil borrow operations. By 1954 large excavation pits and a conveyor of a sand and gravel operation were observed on the site. By 1956 possible open dump areas were also visible on the site and the sand and gravel operation was no longer in operation as evidenced by the removal of the conveyor equipment. By 1960 the site had been partially filled and two areas of debris were visible. By 1963 the site appeared to have been graded and leveled. Analysis of the 1969 photograph revealed continued filling activity on the site, although no waste disposal operations could be identified. Deposits of fill were still evident in 1976. By 1979 a junkyard was established in the southwest portion of the site and several large commercial buildings had been constructed adjacent to the south perimeter of the site. Fences, parking lots, and possible open storage yards associated with these adjacent commercial facilities had encroached on the south border of the site between 1979 and 1992.

The EPA Environmental Sciences Division, Landscape Ecology Branch in Las Vegas, Nevada, prepared this report for the EPA Region 5 Superfund Division in Chicago, Illinois, and the EPA Office of Emergency and Remedial Response in Washington, D.C.

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FIGURES

INTRODUCTION

This report presents the result of an aerial photographic analysis of the Lakefield Sand and Gravel Disposal site, Milwaukee, Wisconsin. Historical aerial photographs spanning the period from 1941 through 1992 were reviewed in this analysis. Nine selected dates of photographs are included in this report. The aerial photographic analysis was requested by the Region 3 Office of the U.S. Environmental Protection Agency (EPA) to support the development of field sampling strategies and to document observable past patterns of waste disposal activity and conditions under their CERCLA program.

Findings from this analysis indicate that the site was occupied by a farmstead and cropland in 1941. By 1950 the area surrounding the farmstead contained areas of disturbed and scarred ground indicative of earthmoving activity from probable soil borrow operations. By 1954 large excavation pits and a conveyor of a sand and gravel operation were observed on the site. By 1956 possible open dump areas were also visible on the site and the sand and gravel operation was no longer in operation as evidenced by the removal of the conveyor equipment. By 1960 the site had been partially filled and two areas of debris were visible. By 1963 the site appeared to have been graded and leveled. Analysis of the 1969 photograph revealed continued filling activity on the site, although no waste disposal operations could be identified. Deposits of fill were still evident in 1976. By 1979 a junkyard was established in the southwest portion of the site and several large commercial buildings had been constructed adjacent to the south perimeter of the site. Fences, parking lots, and possible open storage yards associated with these adjacent commercial facilities had encroached on the south border of the site between 1979 and 1992.

A Glossary, defining features or conditions identified in this report, follows the Photographic Analysis section. Sources for all maps, aerial photographs, and collateral data used in the production of this report are listed in the References section. A list of all aerial photographs that were

identified and evaluated for potential application to this study can be obtained by contacting the EPA Work Assignment Manager. Historical aerial photographs used in the analysis of this site have been digitally scanned and printed for use in this report. A transparent overlay with interpretative data is affixed to each of the digital prints. See the Methodology section for a discussion of the scanning and printing procedures.

The EPA Environmental Sciences Division, Landscape Ecology Branch in Las Vegas, Nevada, prepared this report for the EPA Region 5 Superfund Division in Chicago, Illinois, and the EPA Office of Emergency and Remedial Response in Washington, D.C.

Figure 1. Study area location map, Wisconsin (USGS, 1972). Approximate scale 1:2,500,000.

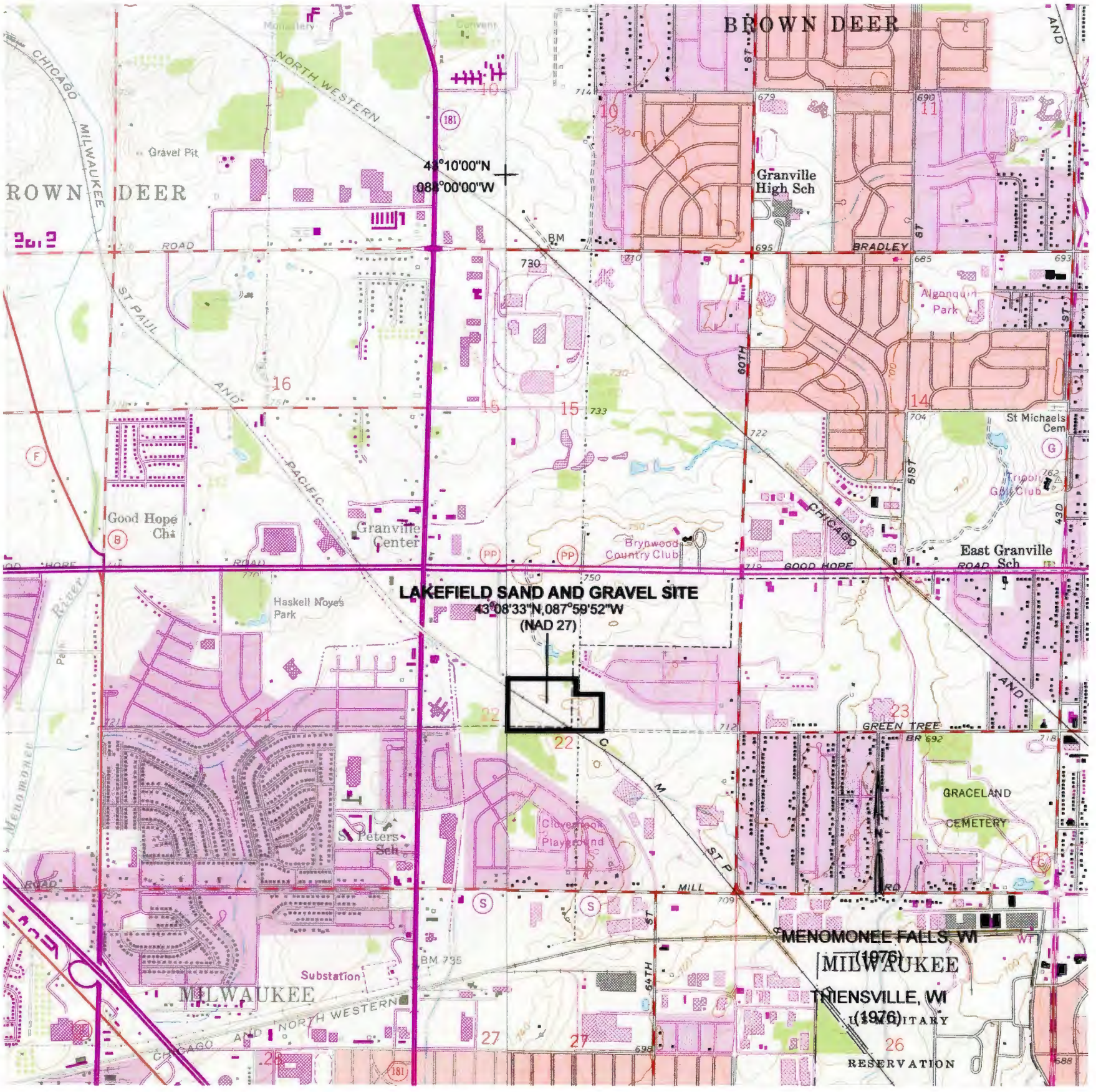


Figure 2. Local study area location map, Menomonee Falls, Wisconsin (USGS, 1976) and Thiensville, Wisconsin (USGS, 1976). Approximate scale 1:24,000.

METHODOLOGY

This report was prepared using a standard methodology that includes the following steps:

- data identification and acquisition,
- photographic analysis and interpretation, and
- graphics and text preparation.

These steps are described below. Subsections also address details related to specific kinds of analyses that may be required to identify environmental features such as surface drainage and wetlands. All operational steps and processes used to perform this work (including data identification and acquisition, photographic analysis and interpretation, and graphics and text preparation) adhere to strict QA/QC guidelines and standard operating procedures (SOPs). These guidelines and procedures are documented in the Master Quality Assurance Project Plan (QAPP) prepared for Remote Sensing Support Services Contract No. 68-D-00-267 (LMS, 2003).

Data identification and acquisition included a search of government and commercial sources of historical aerial film for the study area. Photographs with optimal spatial and temporal resolution and image quality were identified for acquisition. In addition, U.S. Geological Survey (USGS) topographic maps were obtained to show the study area location and to provide geographic and topographic context.

To conduct this analysis, the analyst examined diapositives (transparencies) of historical aerial photographs showing the study area. Diapositives are most often used for analysis instead of prints because the diapositives have superior photographic resolution. They show minute details of significant environmental features that may not be discernible on a paper print.

A photographic analyst uses a stereoscope to view adjacent, overlapping pairs of diapositives on a backlit light table. In most cases, the stereoscope

is capable of various magnifications up to 60 power. Stereoscopic viewing involves using the principle of parallax (observing a feature from slightly different positions) to observe a three-dimensional representation of the area of interest. The stereoscope enhances the photo interpretation process by allowing the analyst to observe vertical as well as horizontal spatial relationships of natural and cultural features.

The process of photographic analysis involves the visual examination and comparison of many components of the photographic image. These components include shadow, tone, color, texture, shape, size, pattern, and landscape context of individual elements of a photograph. The photo analyst identifies objects, features, and "signatures" associated with specific environmental conditions or events. The term "signature" refers to a combination of components or characteristics that indicate a specific object, condition, or pattern of environmental significance. The academic and professional training, photo interpretation experience gained through repetitive observations of similar features or activities, and deductive logic of the analyst as well as background information from collateral sources (e.g., site maps, geologic reports, soil surveys) are critical factors employed in the photographic analysis.

The analyst records the results of the analysis by using a standard set of annotations and terminology to identify objects and features observed on the diapositives. Significant findings are annotated on overlays attached to the photographic or computer-reproduced prints in the report and discussed in the accompanying text. Annotations that are self-explanatory may not be discussed in the text. The annotations are defined in the legend that accompanies each print and in the text when first used.

Objects and features are identified in the graphics and text according to the analyst's degree of confidence in the evidence. A distinction is made between certain, probable, and possible identifications. When the analyst believes the identification is unmistakable (certain), no qualifier is used. Probable is used when a limited number of discernible characteristics allow the analyst to be reasonably sure of a particular identification. Possible is used when only a few characteristics are discernible, and the analyst can only infer an identification.

The prints in this report have been reproduced, either by photographic or computer methods, from the original film. Reproductions are made from the original film and may be either contact (the same size) prints or enlargements, depending on the scale of the original film. Any computer-produced prints used in this report are generated from scans of the film at approximately 1,300 dots per inch (dpi) and printed at 720 dpi. Although the reproductions allow effective display of the interpretive annotations, they may have less photographic resolution than the original film. Therefore, some of the objects and features identified in the original image and described in the text may not be as clearly discernible on the prints in this report.

Study area boundaries shown in this report were determined from aerial photographs or collateral data and do not necessarily denote legal property lines or ownership.

Surface Drainage

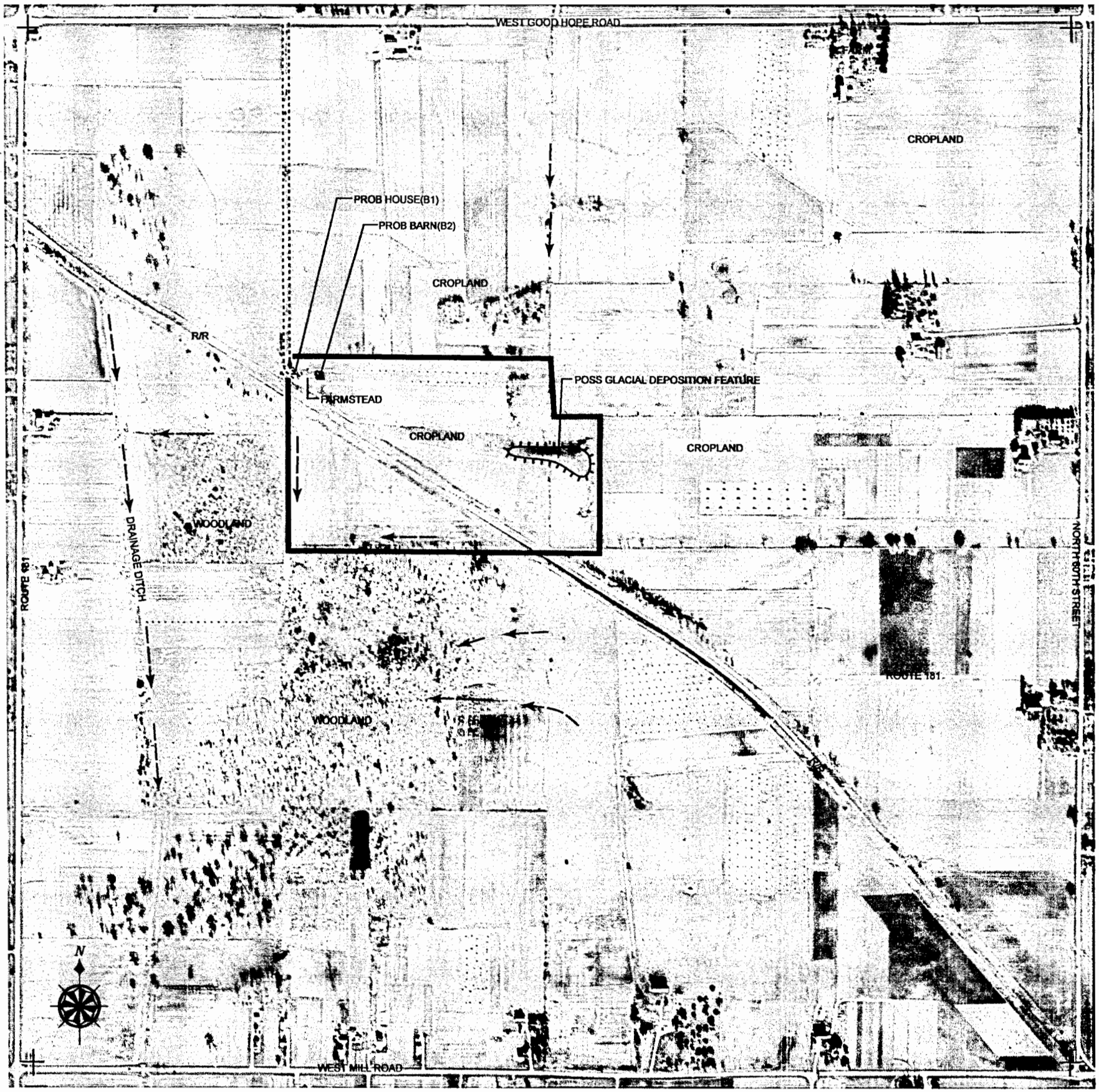
The surface drainage analysis produced for this report identifies the direction and potential path that a liquid spill or surface runoff would follow based on the topography of the terrain and the presence of discernible obstacles to surface flow. The analyst determines the direction of surface drainage by stereoscopic analysis of the aerial photographs and by examining USGS topographic maps. Site-specific surface drainage patterns are annotated on the map or photo overlay. Where the direction of subtle drainage cannot be determined, an indeterminate drainage line symbol is used. Regional surface flow is ascertained from the USGS topographic maps.

PHOTOGRAPHIC ANALYSIS

The Lakefield Sand And Gravel Disposal site is located north of Milwaukee near the community of Brown Deer near the center of Section 22, Range 21 East, Township 8 North. The annotated boundary shows the largest extent of the site as observed on a 1956 photograph, an area of approximately 11 hectares (27 acres). The elevation of the site is approximately 750 feet above sea level. State Route PP also known as West Good Hope Road is to the north of the site, 60th Street is to the east, Mill Road is to the south and State Route 181 is to the west. The terrain is gently rolling and surface run-off generally flows to the southwest into tributaries of the Little Menomonee River and eventually reaches Lake Michigan.

OCTOBER 25, 1941 (FIGURE 3)

The site is occupied by a farmstead and cropland. Adjacent cropland is observed to the north and west of the site. Woodlands lie to the south and west of the site. A probable house (B1) and probable barn (B2) are visible in the northwest portion of this site. The site is divided by a railroad that trends northwest to southeast. An elongated, irregular-shaped possible glacial deposition feature is observed on the eastern side of the site.



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BS	BARE SOIL
CA	CLEARED AREA
COM	COMMERCIAL
CR	CRATES
DB	DEBRIS
DG	DISTURBED GROUND
EX	EXCAVATION
FA	FILL AREA
FL	FILL
GS	GROUND SCAR
IM	IMPOUNDMENT
LT	LIGHT-TONED
MM	MOUNDED MATERIAL
OS	OPEN STORAGE YARD
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
ST	STAIN
SW	SOLID WASTE
TR	TRENCH
VEH	VEHICLE

Figure 3. Lakefield Sand and Gravel Disposal site, October 25, 1941. Approximate scale 1:7,260.

SEPTEMBER 6, 1950 (FIGURE 4)

The farmstead remains visible. A vehicle access trail connects the northwest corner of the site to West Good Hope Road to the north. Although cultivation does not appear to have been abandoned at the site since 1941, areas of disturbed ground (DG) and ground scars (GS) have been created. The larger of these is in the western portion of the site, south of the railroad; the smaller area is on the eastern portion of the site adjacent to the elongated, irregular-shaped possible glacial deposition feature. These areas of disturbed ground and ground scars reveal earthmoving activity typically associated with a soil borrowing. The possible glacial deposition feature on the eastern side of the site could be composed of glacial till, a probable source of sand and gravel. A trail is now discerned trending south from the farmstead across the railroad. A shed (SH) can be discerned south of the railroad. There are no visible signs of open dumping or waste disposal activity within the site.

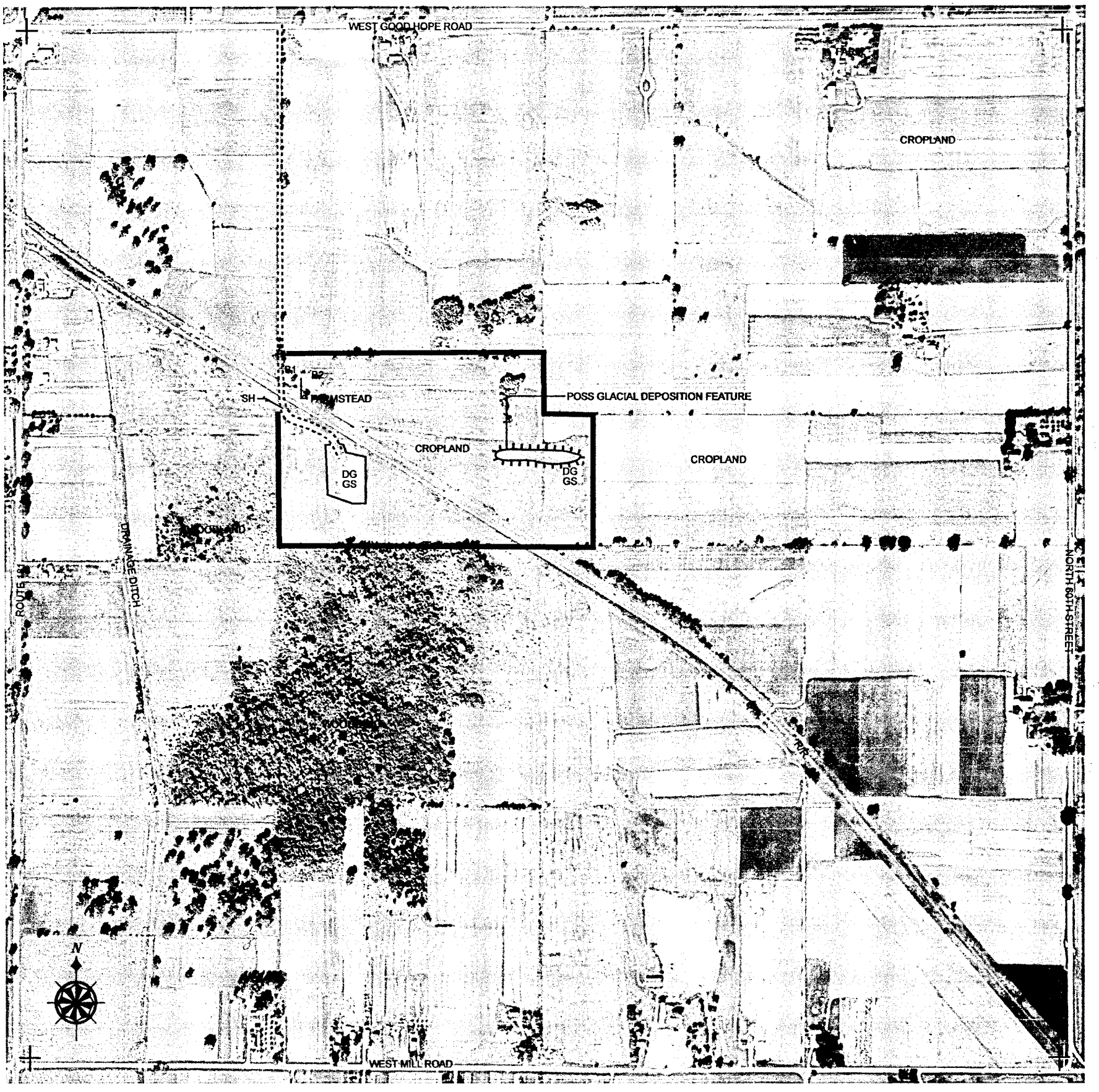

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Figure 4. Lakefield Sand and Gravel Disposal site, September 6, 1950. Approximate scale 1:7,260.

APRIL 12, 1954 (FIGURE 5)

Extensive and widespread ground scars from excavation and earthmoving activity are now observed on the north side of the railroad. The areal extent of the ground scars indicates that the cultivation at the former farmstead has ceased, although buildings B1 and B2 of the former farmstead are still present.

The site is now an operational sand and gravel facility with vehicle access from the north via West Good Hope Road and from the east via West Green Tree Road. There are two active excavation pits (EX-1 and EX-2) on the north side of the railroad that appear to have been excavated from different directions and do not appear to be joined. Both pits have exposed light-toned bare soil (BS) as a result of the removal of ground cover vegetation. The large pit (EX-1) contains accumulations of light-toned mounded material (LTMM), likely soil, sand, or gravel. No vehicles, earthmoving equipment, or sand and gravel sorters are discerned in excavated pit EX-1. The smaller pit (EX-2) contains a conveyor and light-toned stockpiles of probable sand or gravel. The elongated, possible glacial deposition feature noted on the eastern portion of the site has been extensively excavated. The light-toned area of disturbed ground and ground scars noted in 1950 have revegetated. No perimeter fence, vehicles, or earthmoving trucks are discerned at the site. The portion of the site south of the railroad does not appear significantly changed since 1950. The shed south of the railroad is still visible but the disturbed ground and ground scars noted in this area in 1950 now appear revegetated. Scattered accumulations of probable debris (DB) are noted south of the railroad.

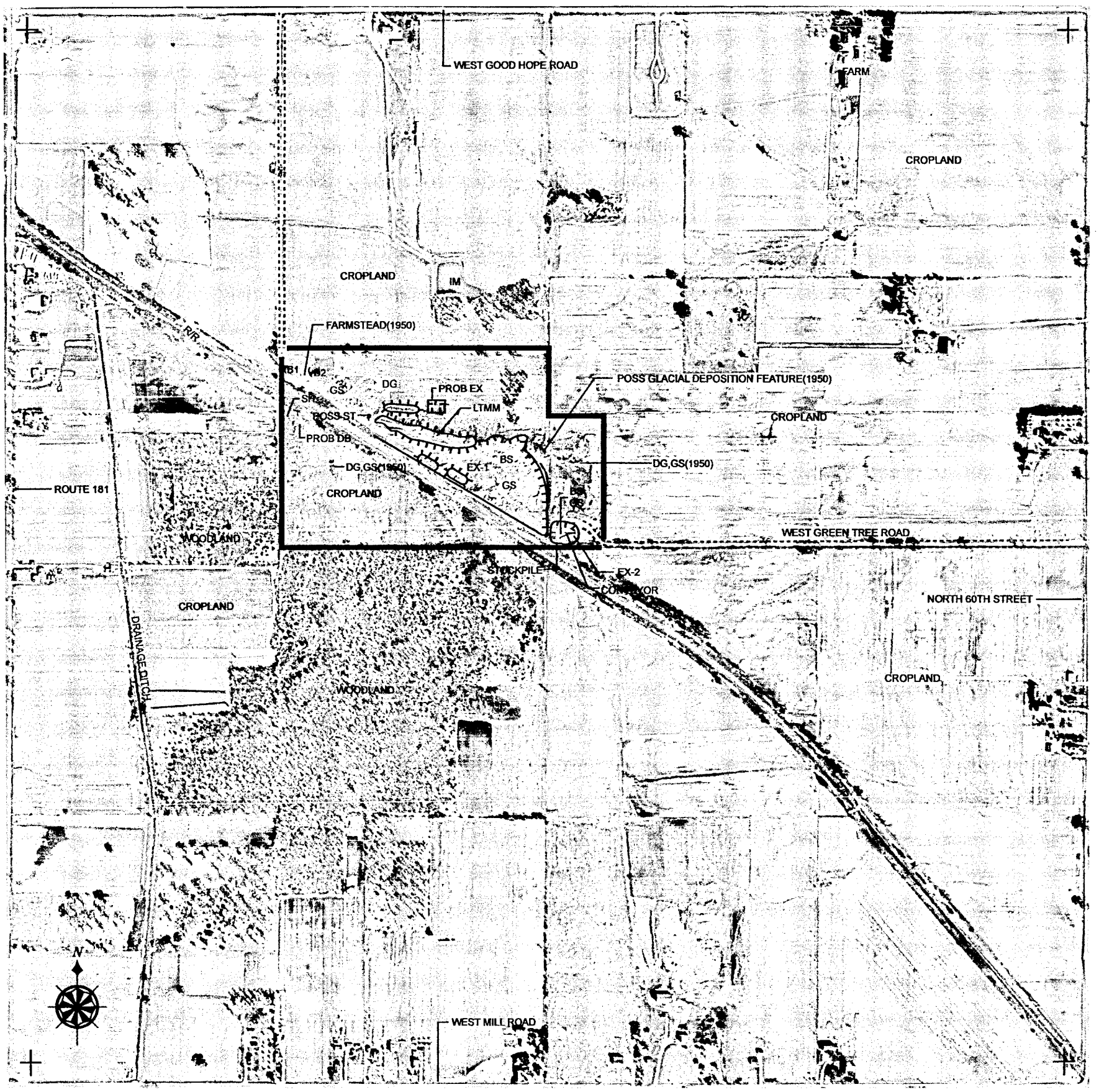

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Figure 5. Lakefield Sand and Gravel Disposal site, April 12, 1954. Approximate scale 1:7,150.

JUNE 10, 1956 (FIGURE 6)

The earthmoving activity associated with the sand and gravel facility has created extensive and widespread ground scars and exposed soil north of the railroad. The annotated area has been photographically enlarged allowing detailed features to be better observed at the site.

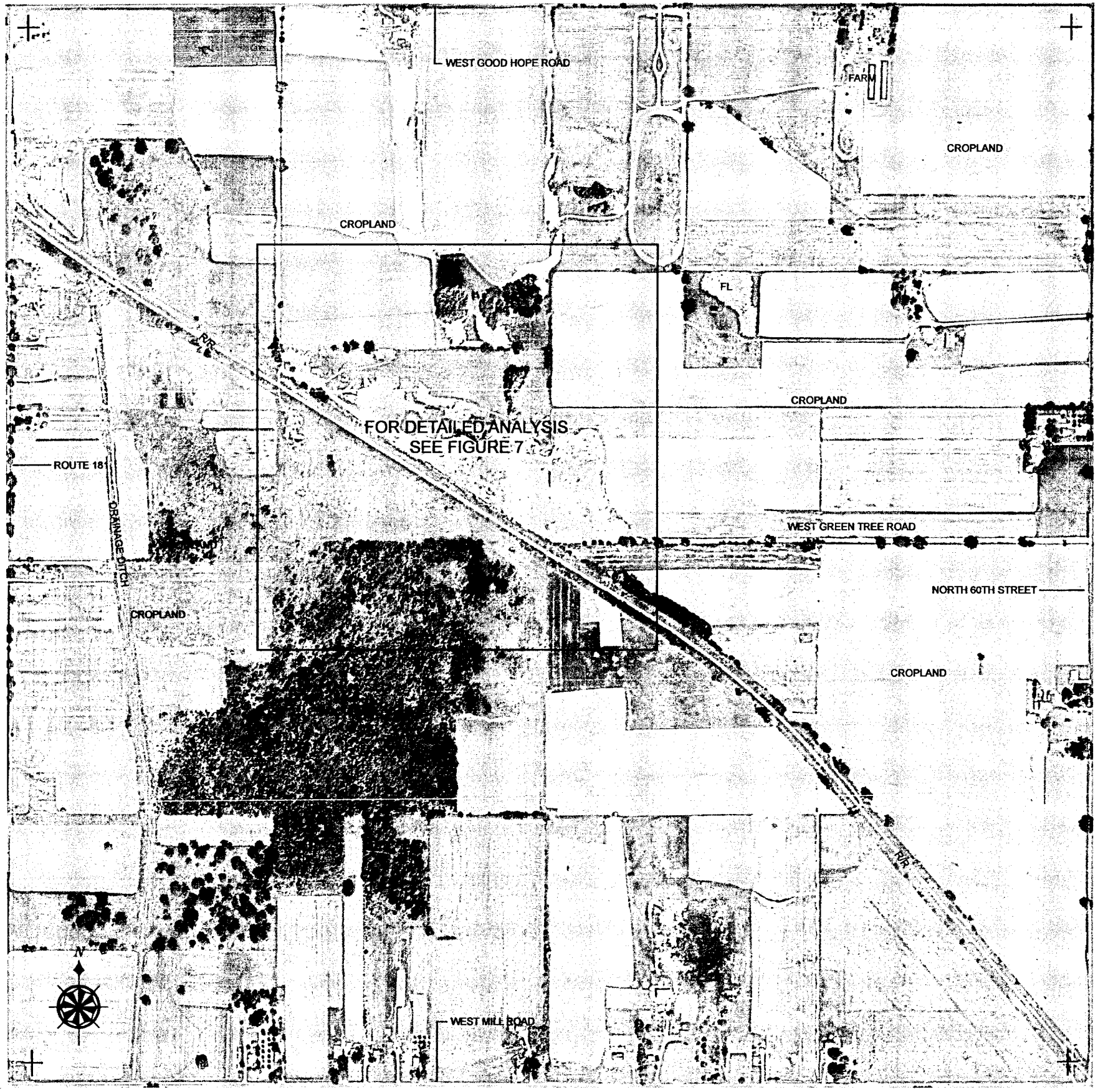

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Figure 6. Lakefield Sand and Gravel Disposal site, June 10, 1956. Approximate scale 1:7,150.

JUNE 10, 1956 (FIGURE 7)

New trails are now observed across the length of the site. Continued excavation has subsumed the two separate pits (EX-1 and EX-2) described in 1954 so that they are no longer distinct. Their prior locations are annotated for reference purposes. Despite the widespread earthmoving activity buildings B1 and B2 from the former farmstead are still observed. The site may remain a soil borrow pit but the absence of the conveyor, noted in 1954, suggest sand and gravel sorting operations have ceased at the site. The deeper portion of an excavated area, in the central portion of the site, contains standing liquid (SL) probably resulting from surface run-off. Other dark-toned features, possible ground stains (ST), are also noted. There are no discernible berms to manage or retain drainage within the site.

Since 1954 large accumulations of irregular-textured material that contain possible solid waste (SW) or possible debris have been deposited. No 55-gallon drums could be discerned within the site. Deposits of possible fill (FL) or debris are observed on the side south of the railroad.

Light-toned areas of bare soil are noted north of the site and do not appear to be related to activity on the site.

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Figure 7. Lakefield Sand and Gravel Disposal site, June 10, 1956. Approximate scale 1:2,550.

JULY 29, 1963 (FIGURE 8)

The July 7, 1960 photo coverage was reviewed but did not provide for stereoscopic analysis. It is not included in the report due to poor image quality and the absence of significant changes compared with the 1963 photo coverage.

There were no discernible vehicles or equipment on the site in 1960. The entire site, both to the north and to the south of the railroad, was in the process of being filled. Two areas of probable debris were observed. No accumulations of standing liquid, as noted in 1956, were observed.

By 1963 the entire site, both to the north and south of the railroad, is a fill area (FA) that has been filled, graded, and leveled. Buildings B1 and B2, the former farmstead and shed, have been dismantled. The earthmoving and filling have raised the ground level and generated a wide area of light-toned ground scars and disturbed ground. Darker patterns of vegetation are observed in the southeastern portion of the site indicating the area may have been reseeded. No exposed solid waste, debris, or drums are discerned.

A large cleared area (CA) is visible northwest of the site and appears to be undergoing leveling and grading prior to building activity. A circus tent has been constructed on former cropland northwest of the site.

A residential subdivision has been partially completed to the east of the site. Both construction activity and earthmoving activity, including soil borrow excavations and piles, are visible in this area. No waste disposal or dumping is visible in this construction area.

Additional areas of earthmoving activity including grading and filling are visible south and southwest of the site that have encroached on former woodland. These areas appear to be construction zones and are not associated with waste disposal.

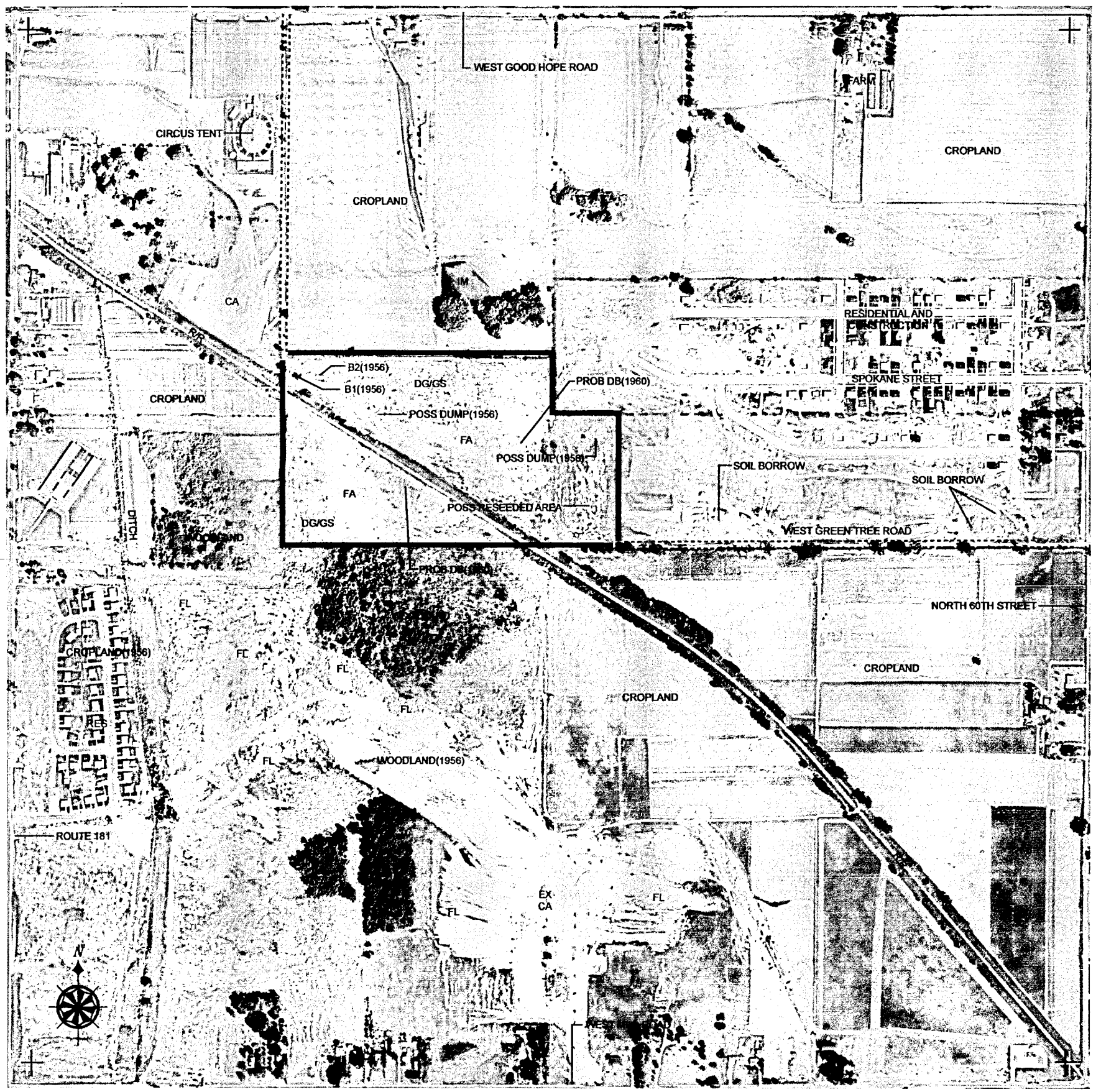

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Figure 8. Lakefield Sand and Gravel Disposal site, July 29, 1963. Approximate scale 1:7,150.

JUNE 13, 1969 (FIGURE 9)

Evidently the decline of traffic into the site from the north has allowed the northern portion of the site to become revegetated. An access road into the site from the west is observed and probable fill has been deposited in the southwest portion of the site. West Green Tree Road has not been paved or extended across the railroad and along the southern perimeter of the site. Probable fill is also observed on the east side of the site.

The construction activity on the residential subdivision to the east of the site, noted in 1963, appears to have been completed; however, the area along the south side of this residential subdivision remains undeveloped. This area remains accessible via West Green Tree Road and contains areas of ground scars, vehicle tracks, and patches of disturbed ground.

The woodland south of the site has been cleared and construction of a residential subdivision is visible. The area south of the site that has not been used for this new construction contains ground scars, disturbed ground, and vehicle tracks. Ongoing filling activity is visible southeast of the site.

Additional earthmoving, filling, and construction activity is evident west and northwest of the site. No waste disposal or dumping is visible in this construction area.

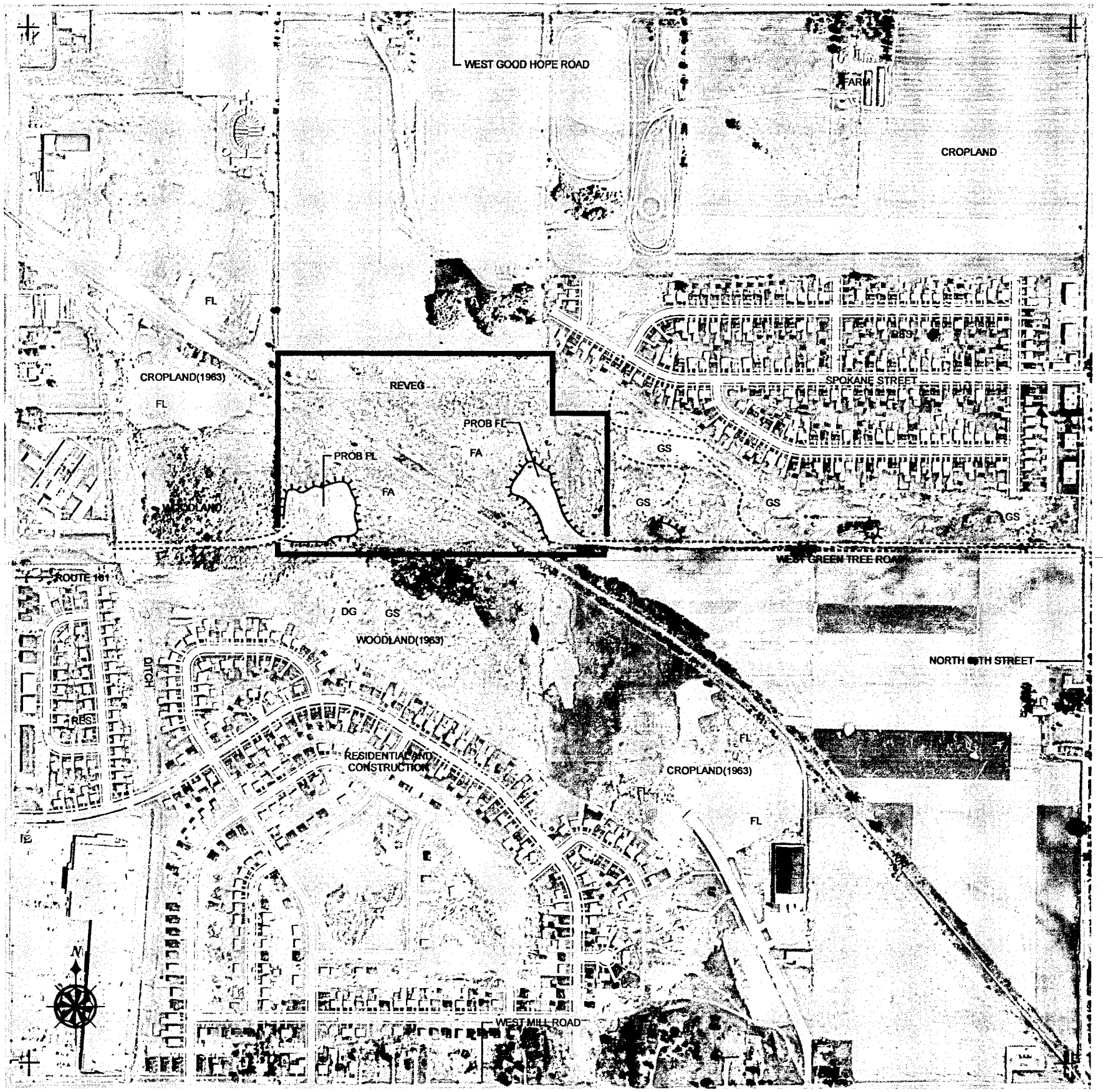

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Figure 9. Lakefield Sand and Gravel Disposal site, June 13, 1969. Approximate scale 1:7,150.

MARCH 19, 1976 (FIGURE 10)

Most of the site now appears revegetated. A small deposit of fill is observed in the south portion of the site. The trail network on the site provides access between West Green Tree Road from the east and West Good Hope Road to the north.

The earthmoving and construction activity appear to have ceased to the west and northwest of the site. A level and graded pad has been constructed adjacent to the west perimeter of the site. Two terrain depressions, one to the north and one to the south of this pad, are observed to contain liquid (SL), probable surface runoff. No waste disposal or dumping is visible in this area.

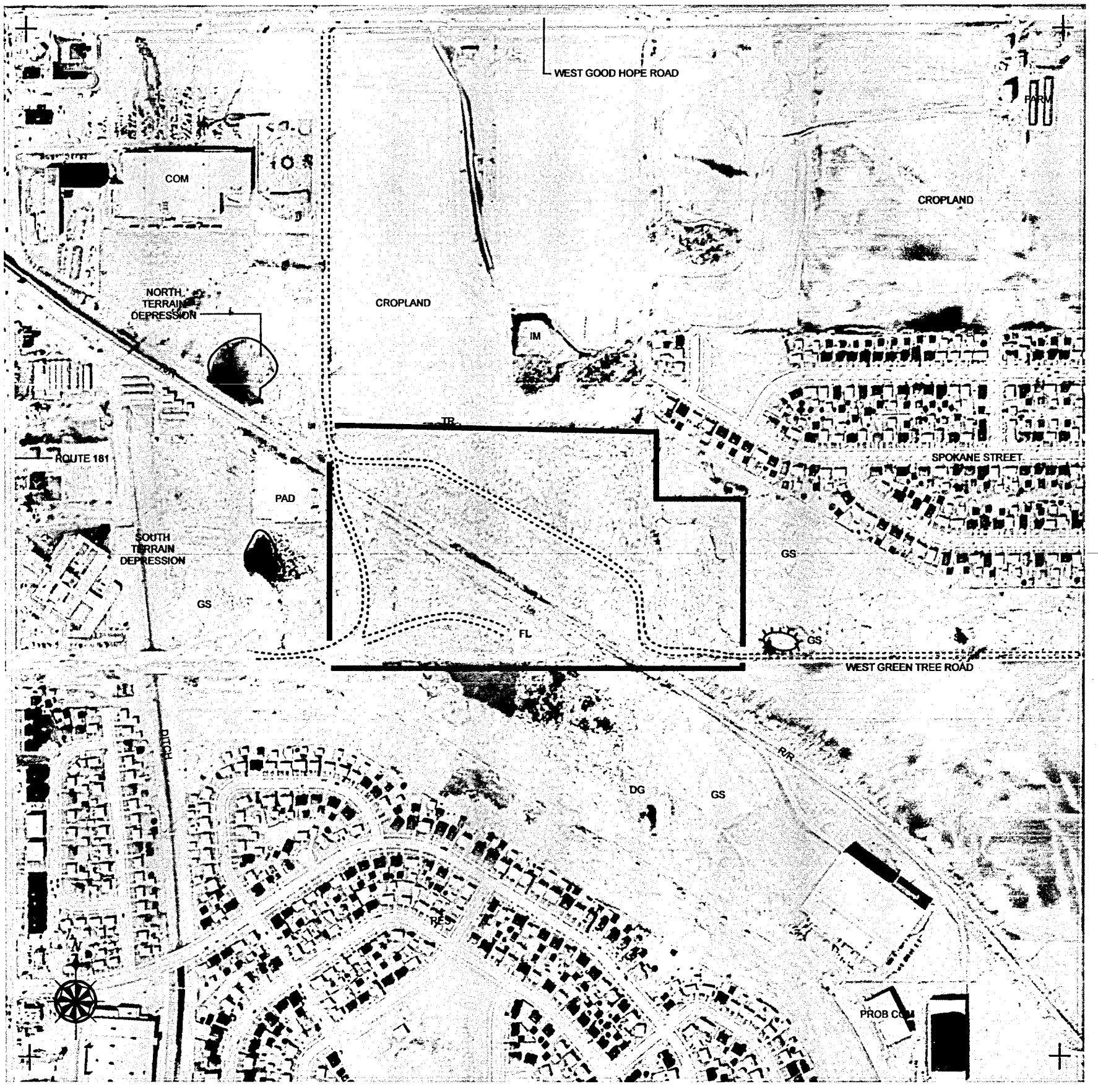

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Figure 10. Lakefield Sand and Gravel Disposal site, March 19, 1976. Approximate scale 1:5,760.

SEPTEMBER 22, 1979 (FIGURE 11)

Since 1976 the northern portion of the site has become revegetated evidently indicating a decline in filling activity. An automobile junkyard with a new building (B3) has been established on the southwestern portion of the site. This junkyard is accessed via West Green Tree Road from the west of the site. No waste disposal activity is visible in this area.

Two large commercial buildings (B4 and B5) have been constructed adjacent to the southern perimeter of the site. Vehicle tracks, fences, probable parking areas, fill areas, and possible open storage yards (OS) associated with these adjacent commercial facilities are noted along the southern perimeter of the site.

A deposit of fill or soil has remained visible in the undeveloped area to the east of the site. Vehicle tracks are visible around this feature and suggest potential opportunity dumping of fill.

Filling activity is evident west of the site where the light-toned fill area has been filled and leveled. The terrain depression noted in this area in 1976 has been filled.

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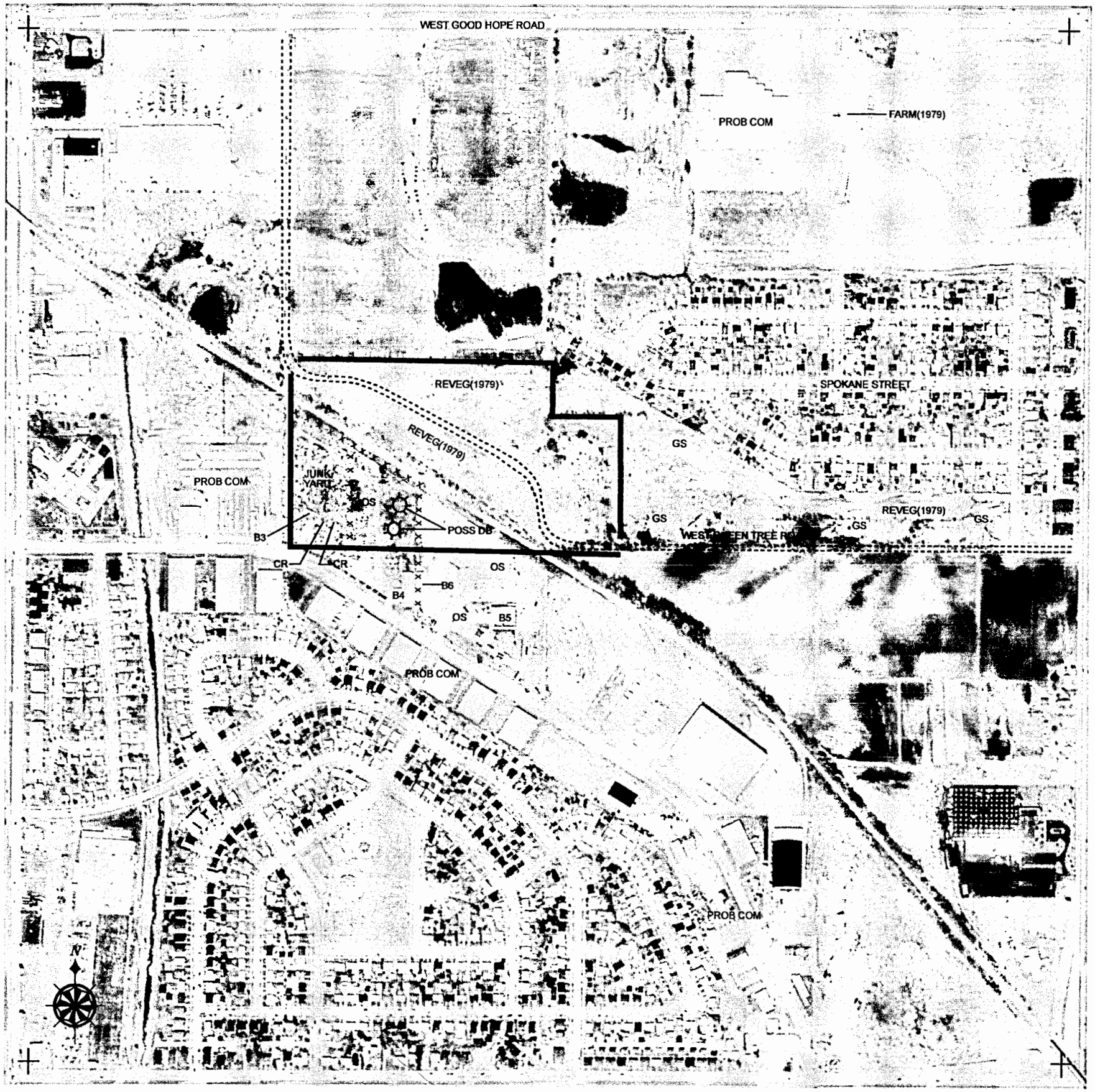
Figure 11. Lakefield Sand and Gravel Disposal site, September 22, 1979. Approximate scale 1:7,150.

APRIL 12, 1992 (FIGURE 12)

The vegetation cover on the northern portion of the site has been disturbed since 1979 suggesting additional earthmoving activity has occurred in this area.

The portion of the site south of the railroad continues to be developed commercially. The junkyard with building B3 remains in the southwest portion of the site and contains automobile bodies (not annotated) and crates (CR). A commercial facility with building B4 is east of the junkyard and has created a large open storage yard with poor housekeeping containing supplies, containers, and possible piles of salvaged metal (none annotated) and debris. A commercial facility with buildings B5 and B6 further east has established a large open storage yard with good housekeeping.

The undeveloped area to the east of the site and along the south side of the residential subdivision has also undergone renewed earthmoving activity evidence by the removal of vegetation cover and widespread ground scars.



INTERPRETATION CODE

———	SITE BOUNDARY
x x x x x x	FENCE
= = = = =	VEHICLE ACCESS
– – – –	TRAIL
	EXCAVATION/PIT (EXTENSIVE)
	MOUNDED MATERIAL (EXTENSIVE)
B	BUILDING
BS	BARE SOIL
CA	CLEARED AREA
COM	COMMERCIAL
CR	CRATES
DB	DEBRIS
DG	DISTURBED GROUND
EX	EXCAVATION
FA	FILL AREA
FL	FILL
GS	GROUND SCAR
IM	IMPOUNDMENT
LT	LIGHT-TONED
MM	MOUNDED MATERIAL
OS	OPEN STORAGE YARD
R/R	RAILROAD
SH	SHED
SL	STANDING LIQUID
ST	STAIN
SW	SOLID WASTE
TR	TRENCH
VEH	VEHICLE

Figure 12. Lakefield Sand and Gravel Disposal site, April 12, 1992. Approximate scale 1:7,150.

GLOSSARY

Access Road - A paved or unpaved route of vehicular access.

Auto Junkyard - A yard for the collection, storage, and resale of junked vehicles and parts of vehicles.

Borrow Pit - An excavated area where soil, sand, or gravel has been dug up for use elsewhere.

Building (B) - A relatively permanent, essentially boxlike construction having a roof.

Cleared Area (CA) - An area from which man has removed trees, shrubs, or other natural vegetative cover.

Dark- (DT), Medium- (MT), or Light-Toned (LT) - Tones of features in question are compared with the darkest and lightest tones of gray (if using B&W photography) on the print.

Debris (DB) - The remains of anything that can be identified as being broken down, destroyed, demolished, or dismantled.

Disturbed Ground (DG) - A rough area where the ground surface has been dug up or overturned.

Excavation Area (EX) - An area where earth or other material is being removed in order to alter the ground level (e.g., building construction).

Fill (FL) - Earth, stones, or other material that is used to build up the level of an area of ground.

Fill Area (FA) - An area where material is being deposited to fill a depression; or area where materials have been added, altering the elevation of the ground surface.

Graded Area - An area where the surface of the ground has been leveled or altered by a vehicle pulling or pushing a wide blade.

Ground Scar (GS) - An area of bare soil, apparently the result of human activity.

Impoundment (IM) - A liquid containment area that appears to be related to activity on a site but does not appear to be used for waste storage, disposal and/or treatment.

Mounded Material (MM) - Piles of raw or waste materials on or in the vicinity of the site.

Open Storage Yard (OS) - An area of open-air (outdoor) storage of containerized, raw or waste materials, within industrial or manufacturing sites.

Standing Liquid (SL) - A small, shallow, temporary collection of liquid, not necessarily waste. Not to include liquid contained in impoundments, trenches, pits, etc.

Solid Waste (SW) - Any garbage, refuse, or sludge from a waste treatment, water supply treatment plant, or air pollution control facility, and other discarded material, including solid or semi-solid material resulting from industrial, commercial, mining, and agricultural operations, and from community activities; does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges.

Trench (TR) - A long, narrow excavation unrelated to drainage.

REFERENCES

MAPS

Source[a]	Figure	Name	Scale	Date
USGS	1	United States	1:2,500,000	1972
USGS	2	Menomonee Falls, WI	1:24,000	1976
USGS	2	Thiensville, WI	1:24,000	1976

COLLATERAL INFORMATION

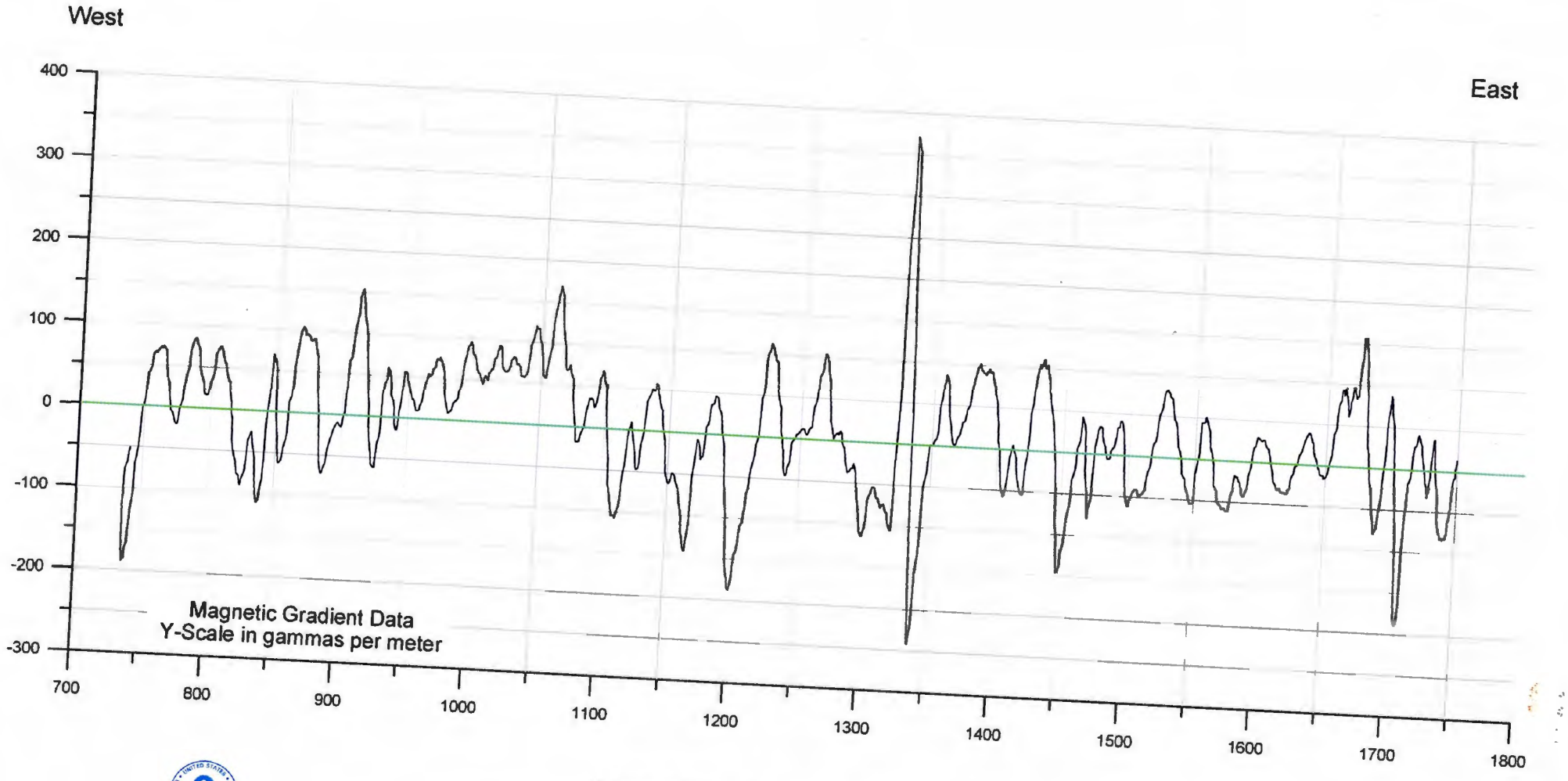
EPA. 2003. Collateral data and site map supplied by EPA Region 5 as attachment to Remote Sensing Services Request Form.

LMS (Lockheed Martin Services). 2003. Master Quality Assurance Project Plan. Prepared for EPA Environmental Sciences Division. Contract 68-D-00-267. Las Vegas, Nevada.

AERIAL PHOTOGRAPHS

Photo source[a]	Figure[b]	Date of acquisition	Original scale	Film type[c]	Mission I.D.	Source frame #	EPIC ID #
KVT	3	10-25-41	1:20,000	B&W	WX1G	68,69	88875,88876
KVT	4	09-06-50	1:20,000	B&W	WX1G	51,52	88877,88878
USGS	5	04-12-54	1:17,000	B&W	VDG	104,105	88353,88354
USDA	6,7	06-10-56	1:20,000	B&W	WX	120,121	88343,88344
KVT	-	07-27-60	1:20,000	B&W	-	64,65	88877,88878
USDA	8	07-29-63	1:20,000	B&W	WX	116,117	88345,88346
USDA	9	06-13-69	1:20,000	B&W	WX	32,33	88347,88348
USGS	10	03-19-76	1:36,300	B&W	VEDC	133,134	26217,26218
USDA	11	09-22-79	1:40,000	B&W	55079	86,87	88349,88350
USDA	12	04-12-92	1:40,000	B&W	NAPP	134,133	88351,88352

[a]KVT King Visual Technology, Hyattsville, Maryland
USDA U.S. Department of Agriculture, Salt Lake City, Utah
USGS U.S. Department of Interior, U.S. Geological Survey, Washington, D.C.
[b]Photographs listed with no figure number were analyzed but not placed in this report because no significant features or changes had occurred since the previous photographs
[c]B&W Black-and-white



Line Along Access Road

Lakefield Sand & Gravel Site - Milwaukee, WI - April 15, 2004