Deigan & Associates, LLC
Environmental Consultants
100 S. Genesee St.
Waukegan, Illinois 60085
847.623.9356
fax 847.623.9355

Ms. Jill Groboski (LU-9J) via email March 20, 2008
Project Manager
US EPA Region V
Land and Chemicals Division
Remediation and Reuse Branch
Corrective Action Section
77 West Jackson Blvd.
Chicago, Illinois 60604-3590

Re: Description of Current Conditions (DOCC) Report
Lake Shore Foundry, Waukegan, IL. (ILR000 1110591)

Dear Ms. Groboski:

Enclosed please find the above-referenced report, prepared per our teleconference of February 12, 2008. Upon USEPA's review and concurrence with the proposed groundwater and sediment sampling plan, we will implement the sampling described in the enclosed report.

Please contact me with comments or questions.

Sincerely,
Deigan & Associates, LLC

Gary J. Deigan
Principal

cc:
Lake Shore Foundry

Description of Current Conditions Report and Work Plan

Lake Shore Foundry Co., Inc.
653 S. Market Street
Waukegan, Lake County, Illinois 60085

March 20, 2008

Submitted to:

US EPA Region V
Land and Chemicals Division
Remediation and Reuse Branch
Corrective Action Section
Mail Code LU-9J

Prepared by:

Deigan & Associates, LLC
Environmental Consultants
100 S. Genesee St.
Waukegan, IL. 60085

www.deiganassociates.com

Table of Contents

1.0 Introduction……...……1

2.0 Site Setting and Background...……...……1

2.1 Site Location and Surrounding Land Use
2.2 Site Setting

3.0 Site History ……..3

3.1 Site Operational History
3.2 Previous Environmental Investigations
3.3 Interim Measures Work Completed

4.0 Current Site Use and Site Description…….....4

5.0 Facility Investigation Work Plan…….....5

5.1 Groundwater Monitoring Wells and Sampling/Analysis
5.2 Sediment Sampling and Analysis

6.0 Risks and Potential Risks…….…….....6

6.1 Nature and Extent of Contamination
6.1.1 Soil (Surface and Subsurface)
6.1.2 Groundwater
6.1.3 Surface Water/Sediment
6.1.4 Air (Indoor and Outdoor)
6.2 Summary of Exposure Pathways
6.2.1 Human Exposure
6.2.2 Migration of Contaminated Groundwater
6.3 Summary of Potential Current Exposure
6.3.1 Human Exposure
6.3.2 Migration of Contaminated Groundwater

7.0 Proposed Steps to be Taken to Mitigate Current Exposure.....10

8.0 References……..…….…….....10

List of Figures

1 Property Location Map
2 Post-Removal Confirmation Sample Locations and Excavation Treatment Area
3 Proposed Groundwater Sample Locations
4 Proposed Sediment Sample Locations

List of Appendices

A Cross-Sections and Boring Logs
B City of Waukegan South Lakefront Groundwater Use Restriction Ordinance
C Lake County GIS Maps

1. Introduction

In accordance with the Agreed Administrative Order (AAO), the objectives of this Description of Current Conditions (DOCC) Report and the proposed Facility investigation activities are to determine whether:

1. All current human exposures to contamination at or from the Facility are under control. That is, significant or unacceptable exposures do not exist for all media known or reasonably suspected to be contaminated with hazardous wastes or hazardous constituents above risk-based levels, for which there are complete pathways between contamination and human receptors.

2. Migration of contaminated groundwater at or from the Facility is stabilized. That is, the migration of all groundwater known or reasonably suspected to be contaminated with hazardous wastes or hazardous constituents above acceptable levels is stabilized. In addition, any discharge of groundwater to surface water is either insignificant or currently acceptable according to an appropriate interim assessment. IEPA guidelines, along with standards referenced in Subsections H and I of the Order, can be used as applicable.

If determined by USEPA from the findings of the DOCC and the completed Interim Measures, final corrective measures are necessary to protect human health and the environment from all current and future unacceptable risks due to releases of hazardous waste or hazardous constituents at or from the Facility, a Final Corrective Measures Proposal will be prepared for the Facility.

2. Site Setting and Background

2.1 Site Location and Surrounding Land Use

The Site is at 653 Market Street in Waukegan, Lake County, Illinois 60085. The dimensions of the property are approximately 270 feet north-south and 135 feet east-west. The 0.77 acre Lake Shore Foundry (LSF) property contains a single corrugated metal building. The Facility is located on the western shoreline of Lake Michigan. The Elgin, Joliet, and Eastern (EJ&E) railroad borders the facility on the west and north side. Lake Michigan borders the facility on the east side and the City of Waukegan owns the property to the south of the facility as road right of way. The ground surface appears to be relatively flat with a sharp slope to Lake Michigan. The LSF facility is also approximately ½ mile from an apartment complex to the west. The LSF property and adjoining properties have a 100+ year history of heavy industrial use; however, the surrounding properties are now abandoned brownfield sites, including:

- Former Fansteel/V.R. Wesson Site
- Former Waukegan Paint & Lacquer Site
- Former Diamond Scrap Yard site

Figure 1 shows the location of this study area and surrounding sites imposed on a 2002 aerial photo.

2.2 **Site Setting**

The study area has a slight topographic mound, with the LSF production building at the highest elevation. Topography decreases slightly in all directions, and decreases sharply along the east perimeter toward Lake Michigan. According to the USGS Waukegan Quadrangle Map (dated 1988), the study area topography averages around 595 feet above MSL. Based on review of the U.S. Wetland Inventory Map (dated 1981) and the Lake County Wetland Inventory (Lake County Geographic Information System Map Printed on 3/12/2008), there are no designated wetlands present at the property. Surface water drainage at the study area is noted as being controlled by infiltration and natural runoff. Runoff appears to be radial from the building, ultimately discharging via sheet flow to Lake Michigan. According to the Flood Insurance Rate Map (dated 1987) and Mapped FEMA floodplains in Lake County (Lake County Geographic Information System , Map Printed on 3/12/2008), the study area is located within Zone X, which is classified as being outside the 100 and 500-year flood limits.

According to the Surficial Geology of the Chicago Region Map (Illinois State Geological Survey, 1970), the Property is situated in an area having entirely Pleistocene Series, Wisconsinan Stage and Woodfordian Substage deposits. The naturally occurring alluvial silty sands across the property are associated with the Carmi Member of the Equality Formation. These silty sands are largely quiet water lake sediments, well bedded and occurring along beaches. The silty clay deposits are associated with the Wadsworth Member of the Wedron Formation, and specifically the Lake Border Morainic System. The till at the property appears to be associated with the Highland Park moraine.

The bedrock at the property is noted as being Silurian Age dolomite, occurring at an elevation of approximately 500 feet above MSL. Based on an average topographic elevation of 595 feet MSL at the property, it is estimated that at least 95 feet of unconsolidated soil deposits are present above the bedrock.

To illustrate the immediate soil stratigraphy at the property, cross sections A-A' were prepared and are included in Appendix A with boring logs. Fill material was encountered across the entire property, ranging from at least 2.5 to 6.5 feet bgs. Due to the presence of large concrete slabs and rubble, actual fill thickness was not determined from several boring locations. The concrete rubble fill was placed over the years to minimize ongoing soil erosion from Lake Michigan wave action. Closer to the property building, significant amounts of brown to dark brown medium sand was observed within the fill layer, which is considered foundry sand. Several feet of the foundry sand was observed within the upper portions of the fill material, with thickness typically thicker along the east side of the building. The fill material was under moist conditions at all boring locations.

Alluvial, stratified silty sand with variable amounts of gravel was encountered across the entire property, and directly below the fill material. Sand deposits typically became more graded and coarse with depth. Saturated conditions were only directly observed within naturally occurring soils between 8 and 10.5 feet below grade.

Groundwater flow direction was not determined from the on-site studies, since monitoring wells were not installed. Based on extensive groundwater studies by Deigan Associates, LLC from the south, west and north adjoining brownfield properties, the shallow groundwater flow at the LSF property is most likely toward the east in the direction of Lake Michigan. As noted above, saturated soils were observed between 8 and 10.5 feet below grade, depending on the topography.

3. Site History

3.1 Site Operating History

Foundry operations at the property date back to approximately the 1920s. Sanborn Maps show a small Foundry operation on the property in 1924. Lake Shore Foundry started its operations on the property in 1924. Products presently produced by Lake Shore Foundry include brass, bronze & aluminum sand & permanent mold castings. The facility previously manufactured red brass and tin bronze, products which may have contained lead.

The foundry produces prototype, short run and high production non-ferrous alloys. The facility has taken measures to substantially reduce lead content in its raw material alloys. Foundry sands are generally re-used and recycled in the facility process. Foundry sand cores have been analyzed and waste profiled as a non-hazardous solid waste. They are containerized in a covered roll-off box and periodically sent to a licensed Subtitle D landfill for disposal. The plant has no process water or air discharges. Sanitary sewer discharge is sent to the local POTW operated by North Shore Sanitary District.

3.2 Previous Environmental Investigations

Previous sampling was conducted by the United States Environmental Protection Agency (USEPA) in February 2003 and in September 2004 [Booz Allen Hamilton (BAH), *Trip Report for Soil Sampling Activities, Lake Shore Foundry*, 24 November 2004]. In February 2003, the USEPA and the Illinois Environmental Protection Agency (IEPA) conducted a Compliance Sampling Inspection to determine if any site contamination had occurred which would indicate the release of lead that would render soils or other residues and characteristic hazardous waste under 40 CFR 261.24. During the CSI, six samples were collected from areas outside the facility building/structure from the ground surface. Samples were analyzed for Toxicity Characteristic leaching Procedure (TCLP) metals and several samples were found to exceed the TCLP lead regulatory limit set forth in 40 CFR 261.24.

On September 21, 2004, USEPA, IEPA, and USEPA's contractors performed sampling on LSF property to determine whether the soil was a characteristic hazardous waste based on TCLP metals. The results from ten of the twelve soil samples were above the regulatory limit for lead (BAH, 2004).

3.3 Interim Measures Work Completed

In December 2007 to January 2008, an interim measures removal was completed in accordance with a USEPA-approved Work Plan. This removal work consisted of excavation, treatment, and off-site landfill disposal of lead-impacted soil quantity of 527.94 tons. Excavated soil areas were subject to TCLP and total metals analysis to confirm removal of TCLP hazardous levels and to document remaining levels of total metals for purposes of further risk-based assessment of site conditions. One discrete location (6.1 mg/L TCLP lead at LSF-3R) exceeded the TCLP threshold of 5 mg/L. Additional TCLP step-out sampling and analysis will be conducted around LSF-3R. Active remediation at this discrete location can be implemented to eliminate this on-site exceedance area. **Figure 2** depicts the area of interim measures work completed.

Appendix IX list of metals/inorganics was also analyzed at the 15 confirmation sample locations. These results were compared to IEPA's 35 IAC Part 742 TACO Tier 1 risk-based soil remediation objectives for direct contact (ingestion and inhalation) and migration to groundwater exposure routes. An Interim Measures Completion Report was submitted to USEPA on January 24, 2008.

4. Current Site Use and Site Description

The Lake Shore Foundry Co., Inc. (LSF) continues to operate a small production facility on the property. According to Waukegan's 2007 Zoning Map, the LSF property is zoned "M-CR" for marine-commercial recreation. The LSF facility's existence and industrial use pre-dates the City's zoning designations. Properties adjoining the LSF property include the EJ&E Railroad line and vacant former industrial-zoned lots where former factories have been demolished. Surrounding properties are zoned general industrial and M-CR.

The facility typically employees less than ten (10) workers and operates on a 40-hour work week. The workers spend most of the work day indoors. The 0.77 acre property is covered with buildings, parking area, and casting sands beneath crushed aggregate covering the ground surface. There is a small area of mowed lawn. Beach access is limited by jagged, unwalkable rip-rap along the shoreline, though employees may occasionally fish or picnic near limited areas of the shore when the weather is nice.

There are no other buildings in the vicinity of the Property; the closet businesses are over 0.5 miles north on Market Street. The closest residential property, which is an apartment complex, is on the bluff ½ mile west of the facility. The southern portion of Market

Street is a dead-end street; there is a street barricade that can be closed to limit traffic on this end of Market Street. While trespassing has occurred in the past, this activity has greatly decreased since all structures on adjacent properties have been demolished. There are no public bathing beaches within a half-mile of the Facility.

5. Work Plan

5.1 Groundwater Monitoring Wells and Sampling/Analysis

To address concerns regarding potential impact to the groundwater downgradient of the LSF study area, two (2) temporary monitoring wells shall be installed and one existing upgradient (west) monitoring well will be sampled. Due to the presence of large concrete debris within the surficial fill materials, the locations of the two proposed monitoring wells will be placed where underlying native, saturated soils can be penetrated and a well can be properly constructed. Based on prior borings, Geoprobe locations LSF-SP-02 and LSF-SP-19 were selected for the two monitoring well locations. Utilizing a Geoprobe apparatus, the temporary wells will be positioned to a depth of approximately 13 to 15 feet below grade. These proposed depths are based on field observations of saturated conditions ranging from 8 to 10.5 feet below grade within the natural silty sands. The wells shall be constructed of 1-inch diameter Schedule 40 PVC materials, and having 5-foot slotted screen sections.

Subsequent to well installation, static water level and field parameter readings (i.e.,, pH, temperature, and specific conductivity) will be collected. The temporary wells shall be purged until field parameter readings stabilize. Once water levels recharge to within 90% of the original static water level readings, groundwater samples shall be collected. Samples will be analyzed for total and dissolved Appendix IX metals including lead. Subsequent to groundwater collection, both temporary monitoring wells shall be removed and the probe hole will be backfilled with bentonite chips. **Figure 3** shows the proposed groundwater sampling locations.

5.2 Sediment Sampling & Analysis

Three (3) sediment samples shall be collected to address concerns regarding potential impact of human exposure to sediments at the adjacent Lake Michigan beachfront area. Sediment samples will be collected to the northeast, east and southeast of the LSF study area which correspond to accessible areas of the downgradient east property perimeter. The sediment samples will be analyzed for total Appendix IX metals and TCLP lead. **Figure 4** illustrates the proposed sediment sample locations.

6. Risks and Potential Risks

6.1 Nature and Extent of Contamination

6.1.1 Soil (Surface and Subsurface)

In July and August 2007, an interim measure site investigation was conducted on the Facility. A site-wide grid pattern of surface and subsurface borings was developed and 20 initial plus 6 off-set soil samples were collected. Discrete soil samples were collected at every sample location in the 0- to 6-inch interval and at every two feet in depth, beginning at 6 inches below ground surface (bgs) and continuing to the above the interface of the groundwater/vadose zone. All surface (0-6" bgs) and subsurface (>6" bgs) samples were analyzed for total metals and TCLP Lead. The nature and extent of lead contamination was evaluated through the comparison to the TCLP regulatory limit of 5 mg/L set forth in 40 CFR 261.24 and to EPA Region 9 PRG of USEPA Region 9 industrial PRG of 800 mg/kg lead and the IEPA (35 IAC Part 742) residential soil remediation objective of 400 mg/kg lead. The nature and extent of total metal (i.e., antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, mercury, nickel, selenium, silver, tin, thallium, vanadium, and zinc) contamination was evaluated through comparison to IEPA (35 IAC Part 742) residential, commercial/industrial, construction worker, and migration to groundwater soil remediation objectives (SROs). Based on the results of the site investigation, an interim measure was conducted to remove, treat, and dispose of TCLP lead contaminated material. Lead TCLP exceedances were found in the 0-6" bgs interval in 5 locations: and at depth to 2.5 ft. range at two other locations (Table 1 of Interim Measures Report). Excavation sidewall and bottom samples were collected following the removal of the 5 impacted soil locations. Confirmation samples were analyzed for TCLP lead and total metals. The excavations were then backfilled and graded.

One confirmation sample, collected near the building, contained an elevated concentration of TCLP lead (Table 2 of the Interim Measures Completion Report).

The arithmetic average of lead concentrations in the 0-6" site investigation samples was below the USEPA Region 9 industrial PRG (Table 3 of the Interim Measures Report) and the arithmetic average concentration of lead in near surface soil (0 to 3 ft. bgs) was below IEPA (35 IAC Part 742) residential SRO for lead (Table 4 of the Interim Measures Report). Upon completion of the interim measures, the arithmetic average concentration of lead in surface soil, defined as 0-2 ft bgs, did not exceed the industrial PRG. The dataset used in the averaging included the 16 original investigative sample locations not impacted by the removal and the 15 post-excavation locations sampled upon completion of the soil removal (Table 2 of the Interim Measures Completion Report).

Of the other metals, arsenic and copper exceeded IEPA Tier 1 soil remediation objectives for the ingestion exposure route at several discrete sample locations (Table 3 of the Interim Measures Report). The average concentrations of arsenic and copper did not exceed Tier 1 ingestion SROs (Section 3.3 of the Interim Measure Report and Section 3.3.1 of the Interim Measures Completion Report). The copper concentration did exceed

Tier 1 construction worker ingestion soil remediation objective in three confirmation samples collected during Interim Measures (Table 2 of the Interim Measures Completion Report).

During the Interim Measures site investigation, chromium was found to exceed the Tier 1 migration to groundwater SRO at one location (Table 3 of the Interim Measures Report). Antimony, chromium, copper, mercury, nickel, silver, and zinc exceeded Tier 1 migration to groundwater SROs in several confirmation soil samples (Table 2 of the Interim Measures Completion Report).

6.1.2 Groundwater

Groundwater samples have not been collected; therefore, the nature and extent of contamination has not been determined for this medium. Groundwater sampling is proposed for the Facility, as described in Section 5.

6.1.3 Surface Water/Sediment

Surface water and sediment samples have not been collected; therefore, the nature and extent of contamination has not been determined for these media.

There are no drainage ditches or no point source discharges from the Facility to Lake Michigan. Rather, surface runoff and groundwater discharge from the Facility to the lake are the potential contaminant migration pathways. Due to the size of the Lake and the proximity of other contaminated properties, the nature and extent of contamination of the lake attributable to the Facility could not be ascertained through the collection of surface water samples. Rather, collection of sediment and dissolved groundwater samples is proposed to evaluate the contribution of possible site-related contaminants to surface water. Section 5 presents the work plan for sediment and groundwater sampling.

6.1.4 Air (Indoor and Outdoor)

No indoor or outdoor air samples have been collected. Volatile compounds are not contaminants of concern for this Facility; therefore, the nature and extent of indoor air contamination does not need to be defined for this Facility.

As contaminated soil particles may become entrained in outdoor air, the nature and extent of outdoor air contamination is defined by comparison of soil concentrations to risk-based criteria for the inhalation exposure route. None of the metals detected in soil samples collected during the Interim Measures site investigation (Table 2 of the Interim Measures Report) or the confirmation soil samples collected during the Interim Measures (Table 3 of the Interim Measures Completion Report) exceeded IEPA Tier 1 soil remediation objectives for the inhalation exposure route.

6.2 Summary of Exposure Pathways

6.2.1 Human Exposure

Soil (Surface and Subsurface)

Soil contamination has been documented on this Facility, though interim measures have been implemented to remove this contamination. All residual concentrations of metals, including lead, detected in surface and subsurface soil do not exceed industrial worker risk-based levels for the ingestion exposure route. Copper concentrations at two discrete locations exceeded construction worker risk-based levels; worker safety precautions can be implemented when performing excavation activities in these areas to prevent unacceptable risks. Areas excavated during the interim action were backfilled with clean crushed concrete aggregate fill and the area was leveled and graded, further limiting exposure to residual contamination. Thus, there is no unacceptable current human exposure to surface and subsurface soil.

Groundwater

While groundwater data has not been collected, there is no current exposure to groundwater on the Facility or downgradient of the Facility. Potable water is supplied by the City of Waukegan. The City of Waukegan has also enacted a groundwater use restriction ordinance that prohibits groundwater use within the South Lakefront Development area, including the entire Lakeshore Foundry site (See copy of City Ordinance in Appendix B).

Surface Water and Sediment

While workers may incidentally contact surface water and sediment while recreating on the shore during a summer workday, it is not known if these media are “contaminated” above appropriately protective risk-based “levels”.

Outdoor Air

Outdoor air may be contaminated by soil contaminants entrained as particulates in the ambient air. However, no contaminants were found at concentrations that exceeded risk-based levels for the inhalation exposure route. In addition, areas excavated during the interim action were backfilled with clean crushed concrete aggregate fill and the area was leveled and graded. Thus, there is no unacceptable current human exposure to outdoor air.

6.2.2 Migration of Contaminated Groundwater

Elevated TCLP lead was found at one sample location. Concentrations of several other metals exceed risk-based migration to groundwater levels. Thus, there is a potential for soils to contaminate groundwater at this Facility. In addition, Lake Michigan forms the eastern property boundary; thus, there is potential for contaminated groundwater to discharge to surface water. It is not currently known whether groundwater is

contaminated above appropriately protective levels or whether groundwater discharge would impact surface water. Groundwater sampling is proposed.

6.3 Summary of Current Exposure

6.2.1 Human Exposure

Based on the existing soil data, there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of ingestion and inhalation risk-based levels) in soil and outdoor air that can be reasonably expected under current industrial land-use conditions. Worker safety precautions will be implemented to prohibit or limit direct contact exposure to elevated copper levels in soil

Indoor air exposure is not a complete exposure pathway for this Facility because volatile compounds are not contaminants of concern.

The Property receives potable water from the City of Waukegan, and there are no potable wells on the property or downgradient of the property. Because there is no complete pathway between "contamination" in groundwater and human receptors, this exposure pathways is under control.

Analytical data is needed for sediment to make a determination on whether exposure to this media could be reasonably expected to be "significant" (i.e., potentially "unacceptable"). Due to the size of the adjacent waterbody (Lake Michigan) and the contribution from other nearby contaminated properties, surface water analytical data would not provide the information needed to conclude whether this medium has been contaminated. Rather, dissolved groundwater concentration data is needed to make a determination on whether exposure to this media could be reasonably expected to be "significant" (i.e., potentially "unacceptable").

6.2.2 Migration of Contaminated Groundwater

Analytical data is needed for groundwater to make a determination on whether groundwater is known or reasonably suspected to be "contaminated" above appropriately protective "levels"; whether "contaminated" groundwater has stabilized; and whether discharge of "contaminated" groundwater into surface water can be shown to be "currently acceptable" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented).

Additional TCLP step-out sampling and analysis will be conducted around the one residual location of elevated TCLP lead and active remediation at this discrete location can be implemented to eliminate this on-site exceedance area. Active remediation of

TCLP lead contamination and backfilling of excavated areas serve to limit leaching of residual contaminants to groundwater.

7. Proposed Steps to be Taken to Mitigate Current Exposure

Proposed steps to be taken to demonstrate current exposure is under control include:

- Implement worker safety precautions;
- Remediate small remaining area of TCLP lead;
- Collect groundwater and sediment data and compare results to risk-based levels; and
- Establish groundwater use restriction for the property. The City Ordinance in Appendix B has accomplished this restriction.

8. References

Reference documents and reports that further describe the site conditions include:

- USEPA Administrative Order on Consent, Effective November 17, 2006
- April 27, 2007 Interim Measures Work Plan and Quality Assurance Project Plan (QAPP) approved by USEPA in letter dated May 15, 2007.
- April 27, 2007 Site Health & Safety Plan
- August 31, 2007 Interim Measures Report approved by USEPA in letter dated October 26, 2007
- January 24, 2008, Interim Measures Completion Report

Figures

DOCC Report
March 20, 2008
Lake Shore Foundry
653 Market Street, Waukegan, Lake County, Illinois

Figure 1
Site Location Map
Lake Shore Foundry, Inc.
653 Market St., Waukegan, Lake County, IL. 60085

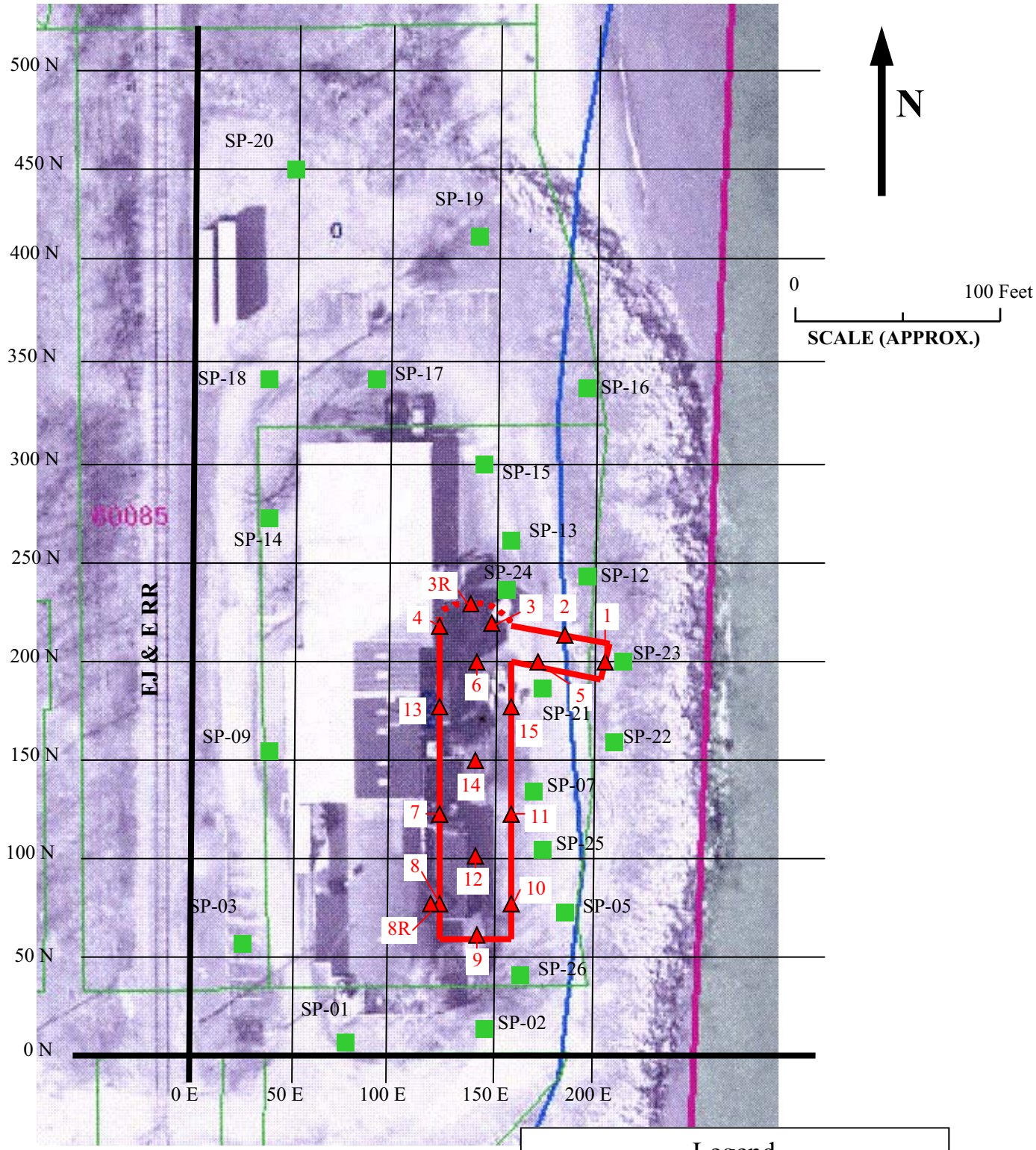
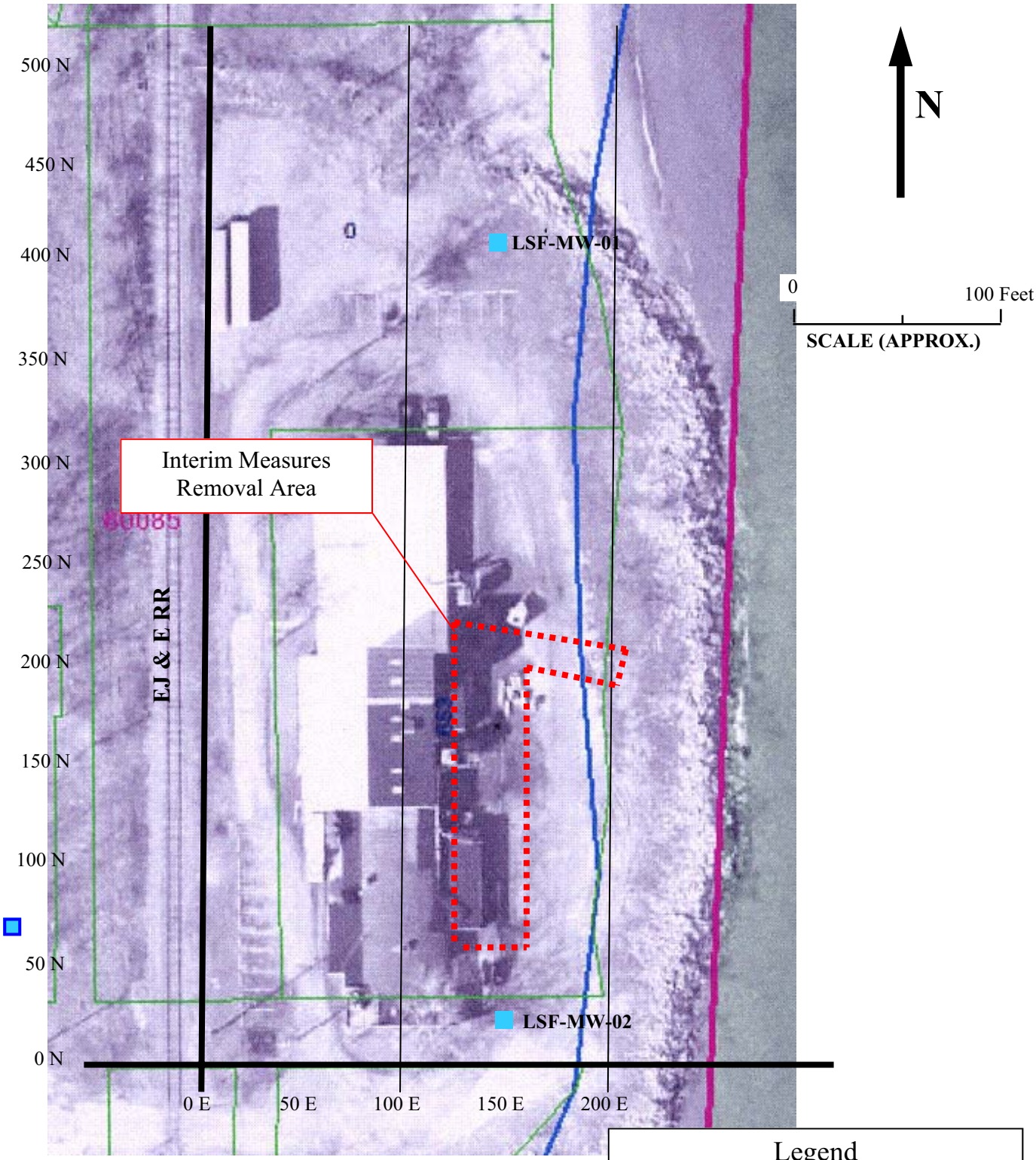


Figure 2 - Post-Removal Confirmation Sample Locations and Excavation Treatment Area
Lake Shore Foundry
Waukegan, IL

Legend

- Location < 5 mg/L for TCLP Lead
- Confirmation Sample Locations
- Approximate Lateral Extent Excavation Treatment Area

Deigan & Associates, LLC
Environmental Consultants



Legend

New Monitoring Well to be Sampled

Existing Mo***nitoring Well*** to be Sampled

Figure 3 - Proposed Groundwater Sample Locations
Lake Shore Foundry
Waukegan, IL

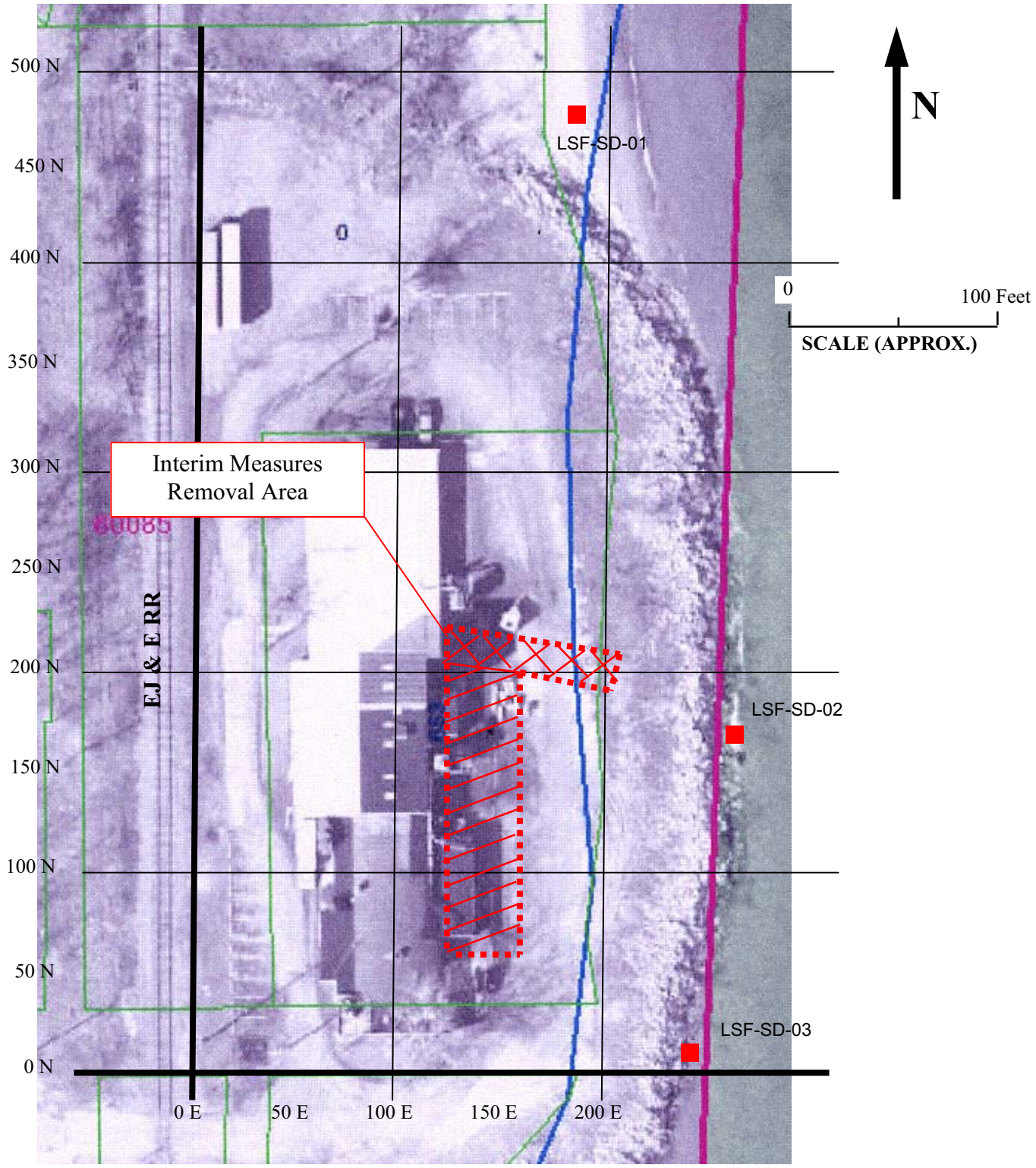


Figure 4 - Proposed Sediment Sample Locations
Lake Shore Foundry
Waukegan, IL

Legend
Sediment Sample Location (6")

Appendix A— Cross-Sections and Boring Logs

DOCC Report
March 20, 2008
Lake Shore Foundry
653 Market Street, Waukegan, Lake County, Illinois

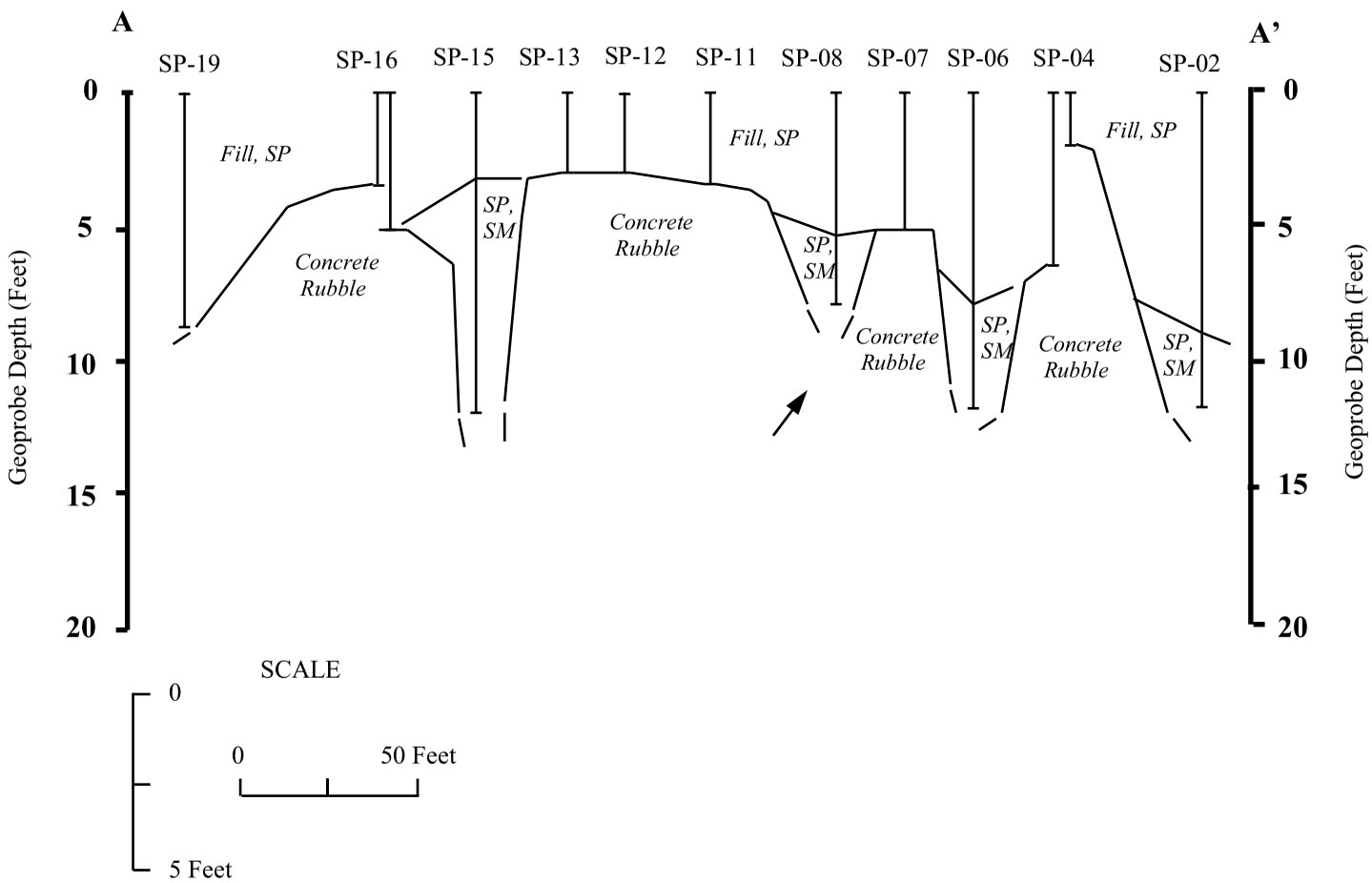


Figure A— Geologic Cross Section A-A' (Looking East)
Site Investigation Report – Lake Shore Foundry
Waukegan, IL

Deigan & Associates

BORING NUMBER LSF-GP-01

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 12 ft.	DEPTH TO WATER Approx. 9' bgs
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 12, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 75E & 0N	
COMMENTS Asphalt drive	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Asphalt pavement (2") over black and dark brown medium to fine sand, fill, loose, moist. PID = ND Recovery = 36"		SP
2					
4			As above, fill, moist. Below 4.5', light brown medium to fine sand, medium dense, moist. PID = ND Recovery = 30"		SP SP
6					
8			Brown silty coarse to fine sand, fine gravel, dense, wet to saturated. PID = ND Recovery = 33"		SM
10					
12					
14			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 4 to 5' bgs. Collected Archive Soil Sample at 6.5 to 7.5' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-02

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 12 ft.	DEPTH TO WATER Approximately 9' bgs
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 12, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 140E & 25N	
COMMENTS Asphalt Drive	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Asphalt pavement (2") over dark brown and black silty medium to fine sand, fine gravel, fill, loose, moist. PID = ND Recovery = 27"		SM
2					
4			As above, fill, brick fragments, loose, moist. PID = ND Recovery = 13"		SM
6					
8			Dark gray silty to clayey coarse to fine sand, fill, wood debris, wet, loose. Below 9', light brown medium to fine sand, occasional coarse sand, medium dense, wet to saturated.		SM
					SP
10					
12					
14			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 4 to 5' bgs. Collected Archive Soil Sample at 8 to 9' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-03

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 Inches
TOTAL DEPTH 12 ft.	DEPTH TO WATER Approximately 9' bgs.
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 12, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 25E & 60N	
COMMENTS Asphalt Drive (Pavement Missing at Probe Location)	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Black and dark brown meidum to fine sand, occasional coarse sand, fill, loose, moist. PID = ND Recovery = 31"		SP
2					
4			Light brown medium to fine sand, occasional coarse sand, fine gravel, loose, moist. PID = ND Recovery = 43"		SP
6					
8			Brown silty coarse to fine sand, fine gravel, dense, wet to saturated. PID = ND Recovery = 30"		SM
10					
12					
14			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 2 to 2.5' bgs. Collected Archive Soil Sample at 4.5 to 5.5' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
16					
18					
20					

Legend					
	Silty Clay		Gravel		Foundry Sand
	Clayey Sand		Sand		Brick

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-04

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 6.5 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 12, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 150E & 75N	

COMMENTS Foundry Sand Fill On Surface Soil. Encountered concrete rubble at three other offsets (1, 2, 2' bgs).

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Dark brown medium to fine sand, foundry sand, fill, mixed with medium to fine gravel, loose, moist. PID = ND Recovery = 18"		SP GP
2					
4			As above, fill, moist. Concrete rubble at 6.5' bgs. Refusal. PID = ND Recovery = 2"		SP
6					
8			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 1.5 to 2' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-05

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 3 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 12, 2007
DRILLER	GEOLOGIST Kerry Van Allen

LOCATION Approximate Grid Coordinate: 180E & 75N

COMMENTS Gravel Drive. Encountered concrete rubble at 3' bgs at three offset locations.

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Dark brown silty coarse to fine sand, occasional fine gravel, fill, medium dense, moist. Concrete rubble at 3' bgs. Refusal.		SM
2					
4					
6			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 1.5 to 2' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
8					
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-06

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 12 ft.	DEPTH TO WATER Approximately 9' bgs
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 12, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 140E & 100N	
COMMENTS Foundry Sand Fill On Surface Soil.	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Black and dark brown medium to fine sand, foundry sand, fill, brick fragments at 1.2 to 1.6' bgs, then black silty coarse to fine sand, fine gravel, fill, loose, moist. PID = ND Recovery = 32"		SP SM
2					
4			As above, fill, loose, moist. PID = ND Recovery = 12"		SM
6					
8			Dark brown medium to fine sand, occasional coarse sand, possible fill, moist. Below 8.5', light brown medium to fine sand, medium dense, moist. PID = ND Recovery = 18"		SP SP
10					
12					
14			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 4 to 5' bgs. Collected Archive Soil Sample at 8 to 9' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-07

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 Inches
TOTAL DEPTH 5 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 12, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 170E & 135N	

COMMENTS Gravel Drive. Encountered concrete rubble at first two offset locations (1' bgs)

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Gray and black medium to fine sand, foundry sand, metal particulate, fine gravel layers, loose, moist. PID = ND Recovery = 24"		SP GP
2					
4			As above, fill. Concrete rubble at 5' bgs.		GP SP
6			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 1.5 to 2' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
8					
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-08

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 6.5 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 12, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 145E & 155N	

COMMENTS Foundry Sand Fill On Surface Soil. Encountered very loose fill below 4', no recovery on two attempts.

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Black and dark brown medium to fine sand, foundry sand, gravel layer at 1.5' bgs, loose, moist. PID = ND Recovery = 24"		SP GP
2					
4			Fill, very loose. No recovery.		
6					
8			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 1.5 to 2' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-09

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 12 ft.	DEPTH TO WATER Approx. 10' bgs.
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 12, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 30E & 150N	
COMMENTS Grass Terrace	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Dark brown and brown silty coarse to fine sand, fill, moist. Below 2', black medium to fine sand, fill, possible cinder, moist. PID = ND Recovery = 36"		SM
2					SP
4			Dark brown and brown medium to fine sand, fill, loose, moist. Below 4.2', light brown medium to fine sand, loose, moist. PID = ND Recovery = 32"		SP SP
6					
8			As above, medium to fine sand, medium dense, wet to saturated. PID = ND Recovery = 40"		SP
10					
12					
14			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 2.5 to 3' bgs. Collected Archive Soil Sample at 5 to 6' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-10

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 3.5 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 12, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 200E & 200N	

COMMENTS Gravel Drive. Encountered concrete rubble at 3 to 3.5' bgs at two offset locations.

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Dark brown and black medium to fine sand, fill, loose, moist. Gravel layer at 1.5 to 1.8' bgs, moist. PID = ND Recovery = 32"		SP
					GP
2					
			Encountered concrete rubble at 3 to 3.5' bgs. Refusal.		
4					
			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 2 to 2.5' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
6					
8					
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-11

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 Inches
TOTAL DEPTH 3.5 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 12, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 145E & 210N	

COMMENTS Foundry Fill Sand On Surface Soil. Encountered concrete rubble at 3.5' bgs at three offset locations.

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Black and dark brown medium to fine sand, foundry sand, with gravel layers, moist. PID = ND Recovery = 36"		SP GP
2			Concrete rubble at 3 to 3.5' bgs. Refusal.		
4					
			Collected Composite Soil Sample at 0 to 6" bgs.		
			Collected Composite Soil Sample at 3 to 3.5' bgs.		
6			Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
8					
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-12

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 4 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 12, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 200E & 245N	

COMMENTS Rubble Fill Area Toward Lake. Encountered concrete rubble at 3 to 4' bgs at two offset locations.

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Dark brown and light brown silty medium to fine sand, fill, brick, moist. Concrete rubble at 3 to 4' bgs. Refusal. PID = ND Recovery = 24"		SP SM
2					
4					
6			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 1.5 to 2' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
8					
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-13

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 3 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 12, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 165E & 265N	
COMMENTS Gravel Drive.	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Gray and brown silty medium to fine sand, occasional coarse sand, fine gravel, fill, medium dense, moist. Encountered concrete rubble at 3' bgs. PID = ND Recovery = 30"		SM
2					
4			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 2.5 to 3' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
6					
8					
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-14

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 12 ft.	DEPTH TO WATER Approx. 10' bgs
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 13, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 30E & 265N	
COMMENTS Grass Terrace.	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Black and dark brown medium to fine sand, some organics, fill, moist. Below 2.2', light brown medium to fine sand, loose, moist. PID = ND Recovery = 38"		SP
2					SP
4			Brown medium to fine sand, loose, moist. PID = ND Recovery = 22"		SP
6					
8			As above. Below 9', brown silty coarse to fine sand, medium dense, wet to saturated. PID = ND Recovery = 28"		SP
					SM
10					
12					
14			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 1.5 to 2' bgs. Collected Archive Soil Sample at 4 to 5' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-15

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 Inches
TOTAL DEPTH 12 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 13, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 140E & 300N	
COMMENTS Foundry Fill Sand On Surface Soil.	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	USCS
0			Brown silty medium to fine sand, foundry sand, coarse to fine gravel layers, loose to dense, moist. PID = ND Recovery = 27"		SM GP
2					
4			Brown medium to fine sand, loose, moist. PID = ND Recovery = 14"		SP
6					
8			As above, brown medium to fine sand, moist. PID = ND Recovery = 34"		SP
10					
12					
14			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 1.5 to 2' bgs. Collected Archive Soil Sample at 4 to 5' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-16

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 3.5 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 13, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 200E & 330N	

COMMENTS Rubble Fill Area Toward Lake. Encountered concrete rubble at 3 to 5' bgs at two offset locations.

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown and gray silty coarse to fine gravel, fill, moist. PID = ND		SP
			Recovery = 12" Encountered concrete rubble at 3.5 and 5' bgs.		SM
2			Refusal.		
4					
			Collected Composite Soil Sample at 0 to 6" bgs.		
6			Collected Composite Soil Sample at 1.5 to 2' bgs.		
			Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
8					
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-17

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 12 ft.	DEPTH TO WATER Approx. 10.5' bgs
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 13, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 90E & 345N	
COMMENTS Asphalt Drive.	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Asphalt pavement (2") over black and dark brown silty coarse to fine sand, fill, loose, moist. PID = ND Recovery = 25"		SM
2					
4			Gray and brown silty clay, fill, occasional coarse to fine sand, moist.		SM
			Below 4.1', light brown medium to fine sand, loose, moist. PID = ND Recovery = 26"		SP
6					
8			As above, brown medium to fine sand, moist. Below 10.5', brown coarse to fine sand, saturated. PID = ND Recovery = 40"		SP
10					SW
12					
14			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 1.5 to 2' bgs. Collected Archive Soil Sample at 4 to 5' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-18

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 12 ft.	DEPTH TO WATER Approx. 9' bgs
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 13, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 25E & 350N	
COMMENTS Grass Terrace.	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Asphalt pavement (2") over black and dark brown medium to fine sand, fill, moist. Below 2', brown medium to fine sand, loose, moist. PID = ND Recovery = 40"		SP
2					SP
4			As above, loose, moist. PID = ND Recovery = 28"		SP
6					
8			Brown silty coarse to fine sand, medium dense, saturated. PID = ND Recovery = 22"		SM
10					
12					
14			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 1.5 to 2' bgs. Collected Archive Soil Sample at 4 to 5' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-19

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 Inches
TOTAL DEPTH 9 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 13, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 140E & 420N	

COMMENTS Grass Terrace, Toward Lake. Encountered concrete rubble at 8.8' bgs, refusal at 9' bgs.

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Brown silty coarse to fine sand, fill, occasional fine gravel, loose, moist. PID = ND Recovery = 22"		SM
2					
4			As above, fill, loose, moist. PID = ND Recovery = 14"		SM
6					
8			As above, dark brown coarse to fine sand, fill, moist. Gravel fill and concrete rubble at 8.8' bgs. PID = ND Recovery = 8"		SM
			Refusal at 9' bgs.		GP
10					
12			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 4 to 5' bgs. Collected Archive Soil Sample at 8 to 9' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
14					
16					
18					
20					

Legend					
	Silty Clay		Gravel		Foundry Sand
	Clayey Sand		Sand		Brick/Concrete

CC = Continuous Core
SS = Split Spoon
ST = Shelby Tube
AS = AugerSample
GP = Geo-Probe
HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-20

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 12 ft.	DEPTH TO WATER Approx. 9.5' bgs
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED July 13, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 50E & 450N	
COMMENTS Grass Terrace.	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Black and dark brown medium to fine sand, organics, fill, moist.		SP
			Below 0.6', brown and light brown medium to fine sand, loose, moist. PID = ND Recovery = 40"		SP
2					
4			As above, becoming light brown coarse to fine sand below 6.5', moist. PID = ND Recovery = 36"		SP
6					SW
8			Brown silty coarse to fine sand, fine gravel, moist. Below 9.2', gray coarse to fine sand, fine gravel, wet to saturated. PID = ND Recovery = 30"		SM
					SW
10					
12					
14			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 2 to 2.5' bgs. Collected Archive Soil Sample at 4.5 to 5.5' bgs. Backfilled Probe Hole w/ Soil Cuttings and Bentonite Chips.		
16					
18					
20					

Legend					
	Silty Clay		Gravel		Foundry Sand
	Clayey Sand		Sand		Brick/Concrete

CC = Continuous Core
SS = Split Spoon
ST = Shelby Tube
AS = AugerSample
GP = Geo-Probe
HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-21

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 3 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED August 10, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 175E & 175N	
COMMENTS Gravel Drive.	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Brown silty coarse to fine sand and gravel, fill, mixed with dark brown foundry sand, moist. Refusal at 3' bgs. PID = ND Recovery = 24"		SM GM
2					
4					
6			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 1.5 to 2' bgs. Backfilled Probe Hole w/ Bentonite Chips.		
8					
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-22

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 8 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED August 10, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 215E & 165N	

COMMENTS Grass Terrace Towards Lake. Encountered concrete rubble around 4' bgs, refusal at 7' bgs.

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Brown clayey to silty fine sand, occasional medium to coarse sand, fine gravel, fill, moist. PID = ND Recovery = 15"		SM SC
2					
4			As above, mostly silty sand, fill, with dark brown foundry sand at 5' bgs, wood debris, possible concrete slabs. Refusal at 7' bgs. PID = ND Recovery = 13"		SM
6					
8			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 4 to 4.5' bgs. Backfilled Probe Hole w/ Bentonite Chips.		
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-23

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 Inches
TOTAL DEPTH 3.5 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED August 10, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 225E & 200N	

COMMENTS Grass Terrace, Toward Lake. Encountered concrete rubble at 3.5' bgs, refusal at 3.5' bgs.

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Brown silty clay, occasional coarse to fine sand, fill, moist. Below 1.5', mostly gravel, fill, moist. Concrete rubble at 3.5' bgs. PID = ND Recovery = 23"		
2					
4					
			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 1 to 1.5' bgs. Backfilled Probe Hole w/ Bentonite Chips.		
6					
8					
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-24

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 3 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED August 10, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 160E & 230N	
COMMENTS Gravel Drive.	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample Type
0			Brown and black silty medium to fine sand, fill, mixed with dark brown foundry sand, moist. Encountered concrete rubble around 3' bgs. Refusal at 3' bgs. PID = ND Recovery = 35"		SM SP
2					
4			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 2.5 to 3' bgs. Backfilled Probe Hole w/ Bentonite Chips.		
6					
8					
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-25

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 3.5 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED August 10, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 175E & 110N	
COMMENTS Gravel Drive.	

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Brown to dark brown silty coarse to fine sand and gravel, fill, moist. Below 2', mostly gravel, fill, moist. PID = ND Recovery = 24"		SM GM GW
2					
4					
6			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 1 to 1.5' bgs. Backfilled Probe Hole w/ Bentonite Chips.		
8					
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates

BORING NUMBER LSF-GP-26

PROJECT Lake Shore Foundry Property	PROJECT NO.
LOCATION Waukegan, Illinois	BOREHOLE DIA. 2 inches
TOTAL DEPTH 3 ft.	DEPTH TO WATER None Observed
TOC ELEV.	DRILLING METHOD GeoProbe
COMPANY CS Drilling	DATE DRILLED August 10, 2007
DRILLER	GEOLOGIST Kerry Van Allen
LOCATION Approximate Grid Coordinate: 165E & 40N	

COMMENTS Gravel Drive. Encountered concrete rubble around 3' bgs, refusal at 3' bgs.

Depth (ft)	Well Record	Graphic Log	Description Soil Classification	Sample Int.	Sample USCS
0			Dark brown silty fine sand, fill, moist. Encountered concrete rubble around 3' bgs, refusal at 3' bgs. PID = ND Recovery = 32"		SM
2					
4			Collected Composite Soil Sample at 0 to 6" bgs. Collected Composite Soil Sample at 2 to 2.5' bgs. Backfilled Probe Hole w/ Bentonite Chips.		
6					
8					
10					
12					
14					
16					
18					
20					

Legend

Silty Clay	Gravel	Foundry Sand
Clayey Sand	Sand	Brick/Concrete

CC = Continuous Core	ST = Shelby Tube	GP = Geo-Probe
SS = Split Spoon	AS = AugerSample	HSA = Hollow-Stem Auger

Deigan & Associates, LLC
Environmental Consultants

Appendix B— City of Waukegan South Lakefront Groundwater Use Restriction Ordinance

DOCC Report
March 20, 2008
Lake Shore Foundry
653 Market Street, Waukegan, Lake County, Illinois

ORDINANCE NO. _____

AN ORDINANCE PROHIBITING THE USE OF GROUNDWATER AS A POTABLE WATER SUPPLY BY THE INSTALLATION OR USE OF POTABLE WATER SUPPLY OR BY ANY OTHER METHOD WITHIN A DESIGNATED RESTRICTED GROUNDWATER ZONE

WHEREAS, certain properties in the City of Waukegan, Illinois have been used over a period of time for commercial/industrial purposes; and

WHEREAS, because of said use, concentrations of certain chemical constituents in the groundwater beneath the City may exceed Class I groundwater quality standards for potable resource groundwater as set forth in 35 Illinois Administrative Code 620 or Tier 1 remediation objectives as set forth in 35 Illinois Administrative Code 742; and

WHEREAS, the City of Waukegan desires to limit potential threats to human health from groundwater contamination while facilitating the redevelopment and productive use of properties that are the source of said chemical constituents;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF WAUKEGAN, ILLINOIS

SECTION 1: Prohibition.

On and after the effective date of this Ordinance, no Person shall use or attempt to use as a potable water supply groundwater from within an area designated as a Restricted Groundwater Zone, within the corporate limits of the City of Waukegan, as a potable water supply, by the installation or drilling of wells or by any other method.

SECTION 2: Restricted Groundwater Zone.

The following area shall be designated a Restricted Groundwater Zone:

i) Western Boundary: a line paralleling the western boundary of the parcel of land identified by Permanent Index Number 08-28-400-044, and set a distance of 400 feet west of said western parcel boundary;

ii) Southern Boundary: the southern boundary of the Waukegan City Limits;

iii) Northern Boundary: the centerline of South Street extended; and

iv) Eastern Boundary: the Lake Michigan waterline;

all as more specifically depicted in the attached diagram.

SECTION 3: Definitions.

For purposes of this Ordinance the following definitions shall apply:

1. "Person" is any individual, partnership, co-partnership, firm, company, limited liability company, corporation, association, joint stock company, trust, estate, the City of Waukegan and any other political subdivision, or any other legal entity, or any of its or their legal representatives, agents or assigns.

2. "Potable Water" is any water used for human or domestic consumption, including, but not limited to, water used for drinking, bathing, swimming, washing dishes, preparing foods, watering lawns, or watering gardens in which produce intended for human consumption is grown.

3. "Restricted Groundwater Zone" is that areal extent of "groundwater," within the City limits, and around the "source" of a "release" of "petroleum", "pesticides" or "regulated substance," as those words are defined in the Illinois Environmental Protection Act, 415 ILCS 5/1, et seq., ("the Act"), which has been designated by the City Council by this Ordinance. That area shall extend, at a minimum, to any area within the measured and modeled extent of groundwater contamination above what would otherwise be the applicable Tier 1 groundwater remediation objectives at 35 Ill.Admin.Code 742.

SECTION 4: Penalties.

Any person violating the provisions of this Ordinance shall be subject to a fine of up to $750.00 for each violation. Each day of the continued existence or use of a prohibited well shall be considered a separate violation

SECTION 5: Repealer.

All ordinances or parts of ordinances in conflict with this Ordinance are hereby repealed insofar as they are in conflict with this Ordinance.

SECTION 6: Severability.

If any provision of this Ordinance or its application to any person or under any circumstances is adjudged invalid, such adjudication shall not affect the validity of the Ordinance as a whole or of any portion not adjudged invalid.

SECTION 7: Effective date.

This Ordinance shall be in full force and effect from and after its passage, approval and publication as required by law.

_____
MAYOR RICHARD H. HYDE

ATTEST:

_____
WAYNE MOTLEY, City Clerk

Presented and Read at a regular meeting of the Waukegan City Council on the __ day of _____, 2008.

Passed and Approved at a regular meeting of the Waukegan City Council on the _____ day of _____, 2008.

ROLL CALL:

AYES:

NAYS:

ABSENT:

ABSTAIN:

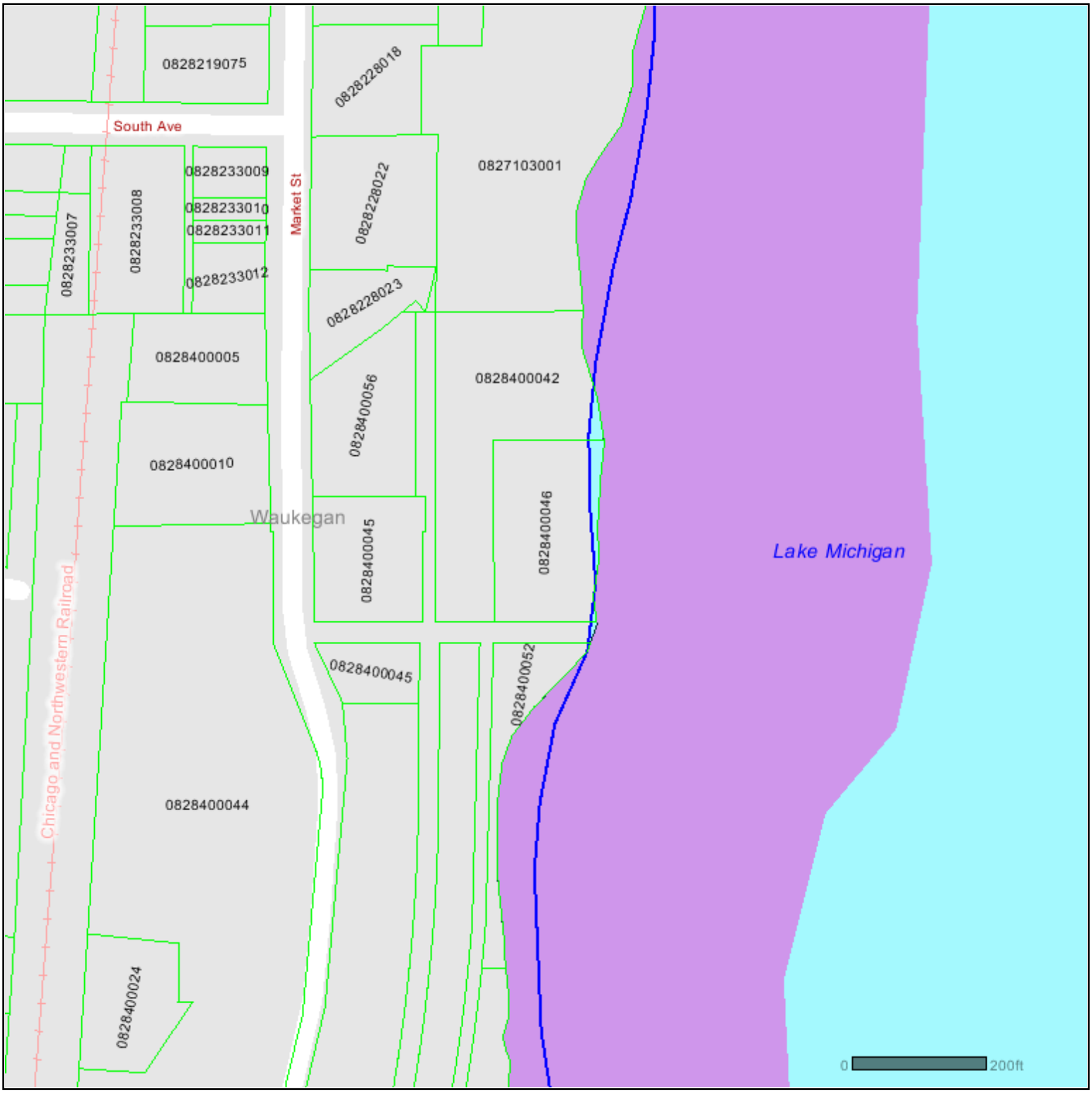
DESCRIPTION AND DESIGNATION OF A RESTRICTED GROUNDWATER ZONE, AMPSKY & ASSOCIATES, LLC, 801 S. MARKET STREET IN WAUKEGAN, ILLINOIS, FORMERLY KNOWN AS THE FANSTEEL/V.R. WESSON PROPERTY

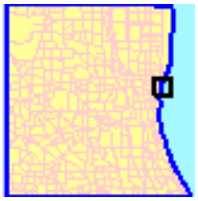
Ampsky and Associates, LLC
South Lakefront Development
Proposed Groundwater Use Restriction Area

Appendix C— Lake County GIS Maps

DOCC Report
March 20, 2008
Lake Shore Foundry
653 Market Street, Waukegan, Lake County, Illinois

Locations of Mapped FEMA Floodplains in Lake County, Illinois





LakeCounty
Geographic Information System

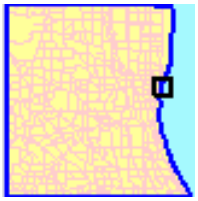
Lake County Department of
Information and Technology
18 N County St
Waukegan IL 60085

Map Printed on 3/12/2008

- Parcels
- Zone X
- Zone X - 500 Yr Flood
- SFHA - 100 Yr Flood
- Zones A, AE and AH
- Floodway
- Municipalities
- Major Roads
- Railroads
- Major Water
- Parcels

Disclaimer: Property boundaries indicated are provided as a courtesy for general locational purposes. Floodplain limits shown are approximate and should not be used to determine setbacks for structures or as a basis for purchasing property. A topographic survey is required to determine existing floodplain boundaries. This map is intended to be viewed and printed in color.

Lake County, Illinois Wetland Inventory



LakeCounty
Geographic Information System

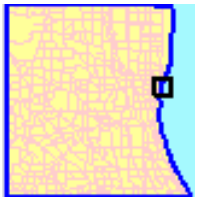
Lake County Department of
Information and Technology
18 N County St
Waukegan IL 60085

Map Printed on 3/12/2008

- Wetlands
- Municipalities
- Major Roads
- Railroads
- Major Water
- Parcels

Disclaimer: This map is for general information purposes only. A Registered Land Surveyor should be consulted to determine the precise location of property boundaries on the ground. This map does not constitute a regulatory determination and is not a base for engineering design. This map is intended to be viewed and printed in color.

Lake County, Illinois Wetland Inventory



LakeCounty
Geographic Information System

Lake County Department of
Information and Technology
18 N County St
Waukegan IL 60085

Map Printed on 3/12/2008

- Wetlands
- 2007 Aerial Photography
- Major Roads
- Railroads
- Major Water
- Parcels

Disclaimer: This map is for general information purposes only. A Registered Land Surveyor should be consulted to determine the precise location of property boundaries on the ground. This map does not constitute a regulatory determination and is not a base for engineering design. This map is intended to be viewed and printed in color.

Soil Samples

Location	# Samples	Analysis
Beach-N	5 + dup	App IX metals
Beach-S	5 +dup	App IX metals
SP-23	2 (0-6”), (6”-2’)	VOC, SVOC, App IX metals
SP-22	2 (0-6”), (6”-2’)	App IX Metals
SP-19-20	2 (0-6”), (6”-2’)	App IX Metals
SP-19-16	2 (0-6”), (6”-2’)	App IX Metals

Sediment Samples

North	1 + trip blank	VOC, SVOC, App IX metals
North	1	App IX Metals
South	2	App IX Metals

Groundwater Samples

LSFMW-01	1 + trip blank	VOC, SVOC, Total + Diss. App IX metals
LSFMW-02	1	Total + Diss. App IX Metals
LSFMW-03	1	Total + Diss. App IX Metals
LSF-MW-04	1	Total + Diss. App IX Metals
Existing South Background MW	1	Total + Diss. App IX Metals
Existing North Background	1	Provide data from past sampling

Deigan & Associates, LLC
Environmental Consultants

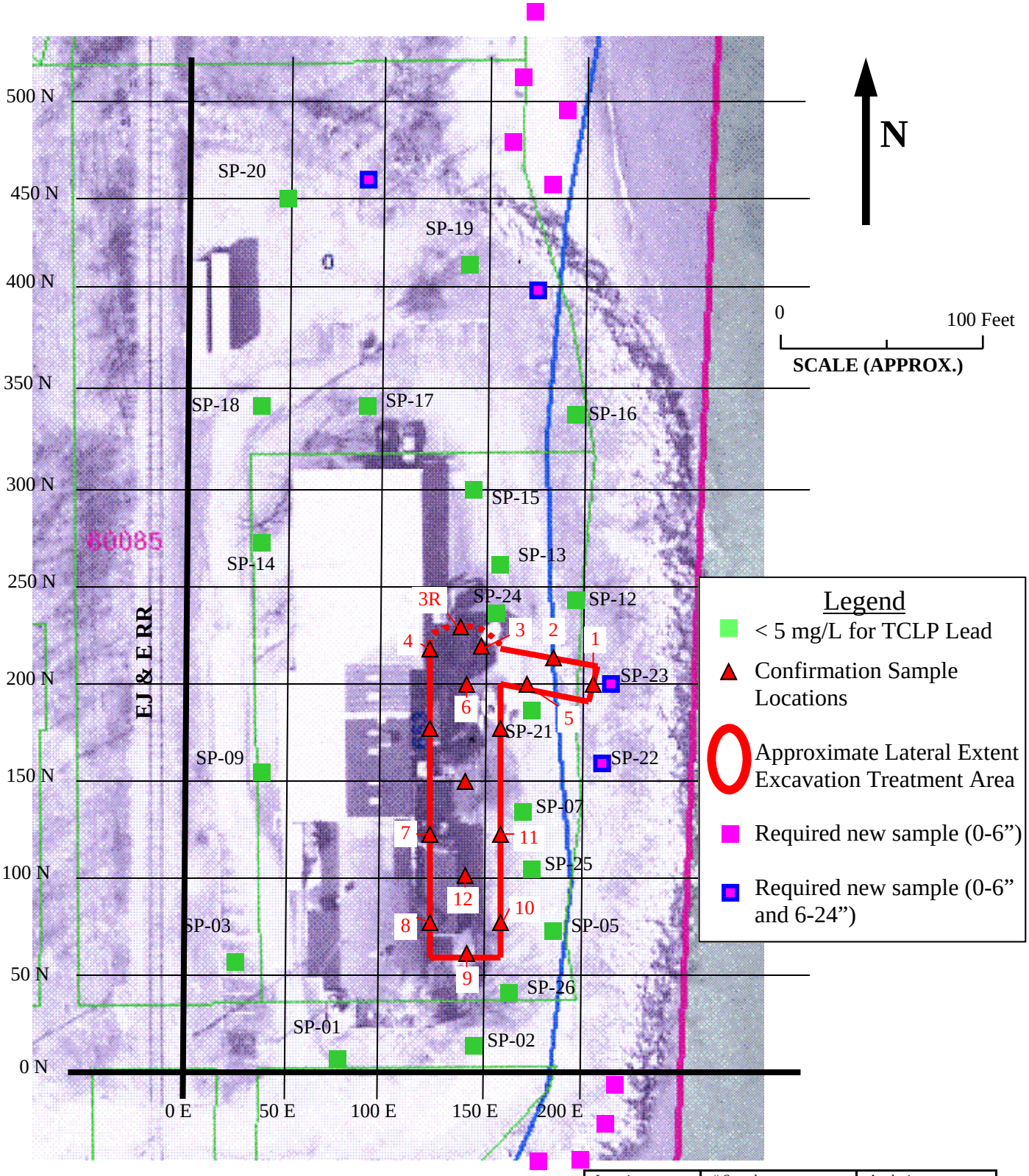
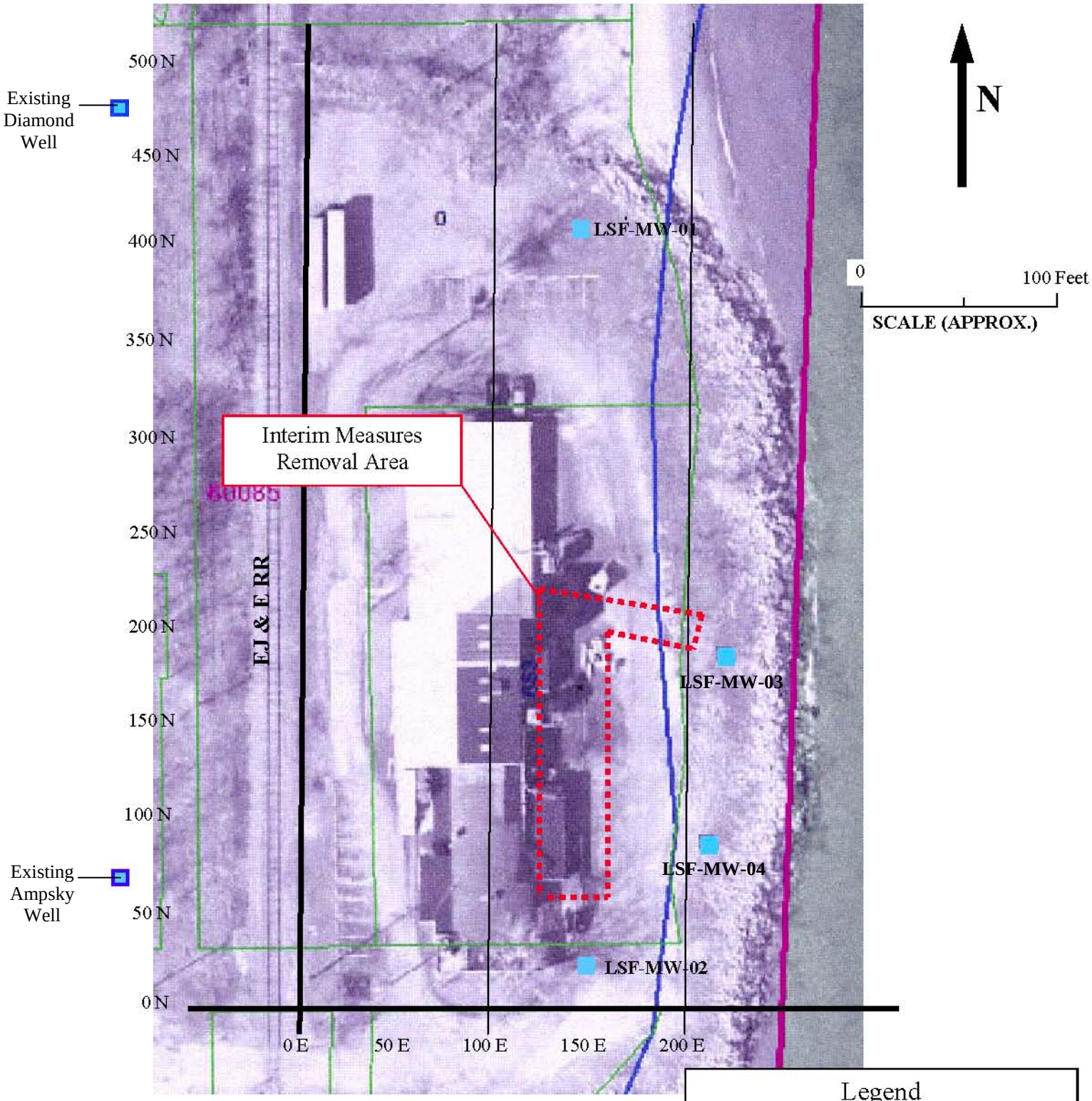


Figure 2 - Post-Removal Confirmation Sample Locations and Excavation Treatment Area
June 12, 2008 EPA Update
Lake Shore Foundry
Waukegan, IL

Location	# Samples	Analysis
Beach-N	5 + dup	App IX metals
Beach-S	5 +dup	App IX metals
SP-23	2 (0-6”), (6”-2’)	VOC, SVOC, App IX metals
SP-22	2 (0-6”), (6”-2’)	App IX Metals
SP-19-20	2 (0-6”), (6”-2’)	App IX Metals
SP-19-16	2 (0-6”), (6”-2’)	App IX Metals

LSFMW-01	1 + trip blank	VOC, SVOC, Total + Diss. App IX metals
LSFMW-02	1	Total + Diss. App IX Metals
LSFMW-03	1	Total + Diss. App IX Metals
LSF-MW-04	1	Total + Diss. App IX Metals
Existing South Background MW	1	Total + Diss. App IX Metals
Existing North Background	1	Provide data from past sampling

Deigan & Associates, LLC
Environmental Consultants



Legend
- New Monitoring Well to be Sampled
- Existing Mo*nitoring Well* to be Sampled

Figure 3– Proposed Groundwater Sample Locations
June 12, 2008 EPA Update
Lake Shore Foundry
Waukegan, IL

Deigan & Associates, LLC
Environmental Consultants

North	1 + trip blank	VOC, SVOC, App IX metals
North	1	App IX Metals
South	2	App IX Metals

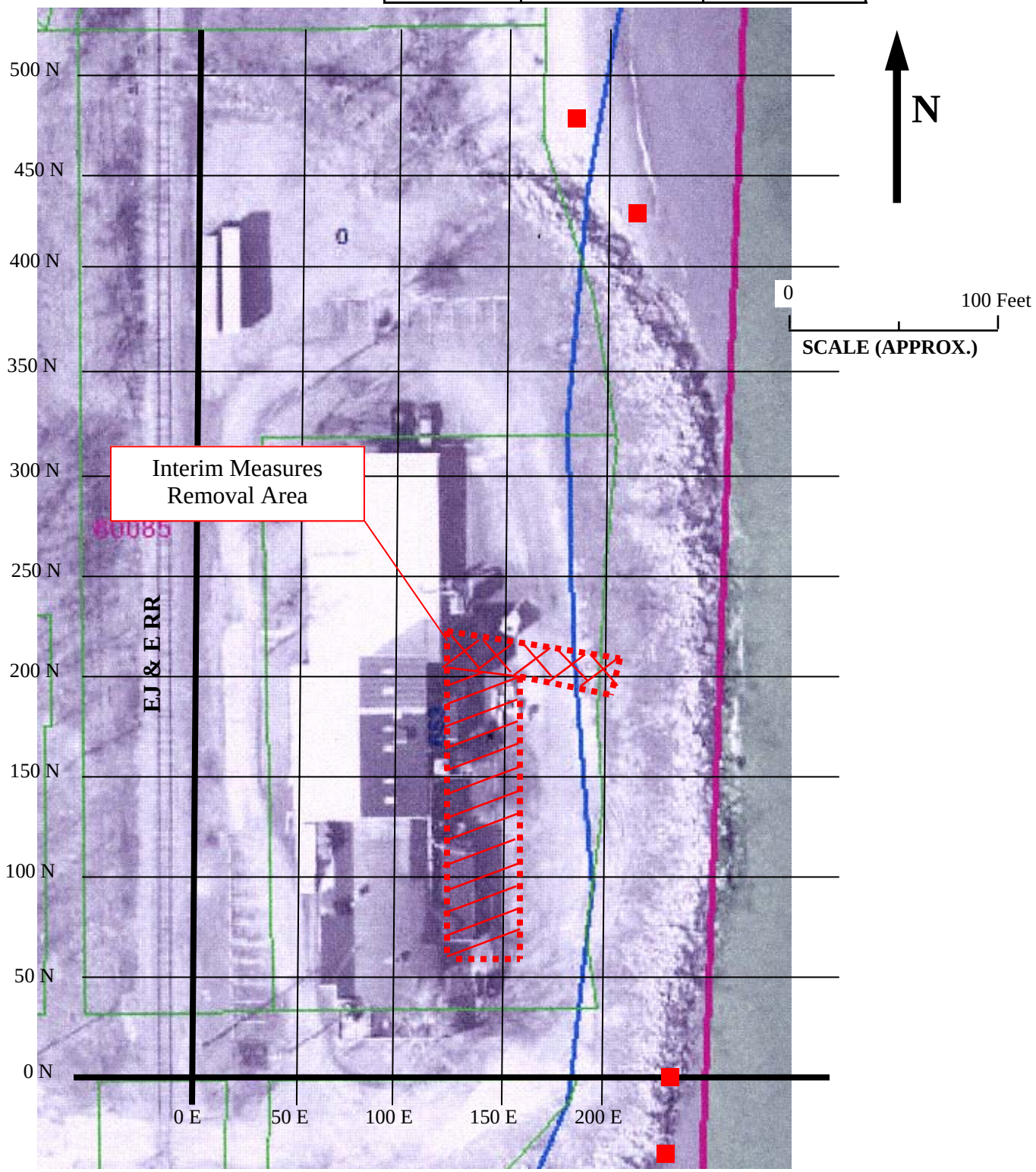


Figure 4 - Proposed Sediment Sample Locations
June 12, 2008 EPA Update
Lake Shore Foundry

Legend
■ Sediment Sample Location (6")