

CEDAR LAKE AQUATIC ECOSYSTEM RESTORATION FEASIBILITY STUDY

CEDAR LAKE, INDIANA

APPENDIX F HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW)

U.S. Army Corps of Engineers
Chicago District



July 2016

May 24, 2016

MEMORANDUM FOR FILE

SUBJECT: Limited HTRW and non-HTRW Investigation Update for the Proposed Cedar Lake Sediment Dewatering Facility Site

1. Enclosed is an updated HTRW investigation for the proposed Cedar Lake Sediment Dewatering Facility (SDF) Site. The updated investigation includes only minor editorial changes to areas of the document describing the project authority, description and nomenclature of measures, and the alternative selected for implementation to be consistent with the language modified in the main text of the feasibility report. Technical evaluations conducted as part of the initial HTRW investigation were not modified as part of this update. The previously provided recommendations are summarized below:
 - Soils excavated from the project site should be reused to the maximum extent possible.
 - The construction plans should require the proper disposal of all debris removed from the SDSF site in accordance with Local, State, and Federal laws and regulations.
 - The project should avoid routing water through Cedar Lake Marsh due to potential to encounter groundwater and surface contamination.
2. Due to the age and scope of the HTRW investigation, additional HTRW review is required during the design phase of the project to confirm the status of the properties being used for restoration activities. Questions regarding this HTRW investigation should be directed to Casey Pittman at (312) 846-5506.

original signed May 24, 2016

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Enclosure

**HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW)
AND NON-HTRW INVESTIGATION
CEDAR LAKE AQUATIC ECOSYSTEM RESTORATION PROJECT
Sediment Disposal/Dewatering Site**
Hydraulics and Environmental Engineering Section (TS-DH)
U.S. Army Corps of Engineers, Chicago District

October 2007
(Limited update May 2016)

**HTRW AND NON-HTRW INVESTIGATION
Cedar Lake Sediment Disposal/Dewatering Site**

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INTRODUCTION

The purpose of this report is to document results of the hazardous, toxic, and radioactive waste (HTRW) investigation for the Cedar Lake proposed dredged material dewatering and disposal site. This report identifies both HTRW and non-HTRW environmental issues, and presents appropriate measures to resolve these issues. The methods used in performing the investigation are described in detail. Conclusions and recommendations regarding potential impacts due to HTRW and non-HTRW issues associated with the project site are provided.

AUTHORITY

Engineer Regulation (ER) 1165-2-132, Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works projects, requires that a site investigation be conducted as early as possible to identify and evaluate potential HTRW problems. According to ER 1165-2-132, non-HTRW issues that do not comply with the federal, state, and local regulations should be discussed in the HTRW investigation along with HTRW issues. Therefore, HTRW and non-HTRW issues identified are discussed in this report.

The HTRW investigation presented in this report was conducted during the feasibility phase of the project. This report was performed at the level of detail required for a Reconnaissance Phase investigation and relies on existing information, observations made through database research, a site visit, an aerial photograph and historical document review, and informal interviews. As stated in the ER-1165-2-132, an initial assessment as appropriate for a Reconnaissance Study should be conducted as a first priority for projects with no prior HTRW consideration. If the initial assessment indicated the potential for HTRW, testing, as warranted, and analysis similar to a Feasibility Study should be conducted prior to proceeding with the project design.

No HTRW investigation can wholly eliminate uncertainty regarding the potential for HTRW associated with a project area. Performance of the HTRW investigation is intended to reduce, but not eliminate, uncertainty regarding the potential for HTRW in connection with a project area, and this practice recognizes time and cost constraints.

GUIDANCE

Supplemental guidance was provided by the Standard Practice for Environmental Assessments: Phase I Environmental Site Assessment Process (Designation: E 1527-00) prepared by the American Society for Testing of Materials (ASTM). The ASTM environmental assessment standard recommends conducting a records review, site visit, interviews, and report preparation. This HTRW report was completed using the guidelines established in ASTM E 1527-00 but not to the same level of detail described by the ASTM E 1527-00 guidance.

Hazardous, Toxic, and Radioactive Waste

The objective of ER 1165-2-132 is to outline procedures to facilitate early identification and appropriate consideration of HTRW problems. This investigation, therefore, identifies potential HTRW problems and discusses resolutions and/or provides recommendations regarding the HTRW problems identified.

Non-Hazardous, Toxic, and Radioactive Waste

According to ER 165-2-132, non-HTRW environmental issues that do not comply with federal, state, and local regulations should be discussed in the HTRW investigation along with HTRW issues. For example, solid waste is a non-HTRW issue considered, in addition to petroleum releases from Leaking Underground Storage Tanks (LUSTs), because of the potential to impose environmental hazards. Non-HTRW problems identified during the investigation are also discussed in this report, along with resolutions and/or recommendations for resolving any open issues.

LAWS AND REGULATIONS

Federal

The definition of HTRW according to ER 1165-2-132, page 1, paragraph 4(a) is as follows: “Except for dredged material and sediments beneath navigable waters proposed for dredging, for purposes of this guidance, HTRW includes any material listed as a ‘hazardous substance’ under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. 9601 et seq (CERCLA). (See 42 U.S.C. 9601(14).) Hazardous substances regulated under CERCLA include ‘hazardous wastes’ under Sec. 3001 of the Resource Conservation and Recovery Act, 42 U.S.C. 6921 et seq; ‘hazardous substances’ identified under Section 311 of the Clean Air Act, 33 U.S.C. 1321, ‘toxic pollutants’ designated under Section 307 of the Clean Water Act, 33 U.S.C. 1317, ‘hazardous air pollutants’ designated under Section 112 of the Clean Air Act, 42 U.S.C. 7412; and ‘imminently hazardous chemical substances or mixtures’ on which EPA has taken action under Section 7 of the Toxic Substance Control Act, 15 U.S.C. 2606; these do not include petroleum or natural gas unless already included in the above categories. (See 42 U.S.C. 9601(14).)”

As stated in the definition of hazardous substance in the Environmental Statutes, 1988 Edition, the term does not include petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance under the definition. Underground Storage Tanks (USTs) are federally regulated under 40 CFR Part 280, which includes technical standards and corrective action requirements for owner and operators of USTs.

State

Indiana regulates USTs and LUSTs under 329 Indiana Administrative Code Article 9, Underground Storage Tanks. The Underground Storage Tank program is responsible for assuring that all regulated underground storage tanks meet the U.S. EPA's and Indiana's requirements for release detection, spill and overflow prevention, corrosion protection, and to ensure that tanks not meeting those requirements are properly closed or upgraded. In addition, the Indiana Department of Environmental Management (IDEM) published a Risk Integrated System of Closure (RISC) User's Guide that provides a stand-alone resource for underground storage tank (UST) owners, operators, and consultants dealing solely with petroleum and regulated hazardous substance releases from LUSTs. The RISC guidance is applied to LUST sites, voluntary cleanup sites, and sites with RCRA corrective action.

PROJECT DESCRIPTION

Cedar Lake is a 781-acre, glacially formed lake located in the Town of Cedar Lake, in Lake County, Indiana (see Figure 1). The lake was once a pristine glacial lake left by Wisconsin Age glaciers with a small watershed of intermingled prairie, savanna, woodlands, and wetlands. Today, the ecosystems and habitats of the Cedar Lake watershed, shown in Figure 2, are almost completely removed, with only highly degraded and fragmented patches left. Remnants of the natural ecosystem are rare; most of these are scattered woodland plots and one large marsh south of Cedar Lake (which was historically a direct portion of Cedar Lake).

A variety of scales and types of ecosystem restoration measures are being evaluated for implementation as part of the Cedar Lake Aquatic Ecosystem Restoration project. Restoration of the physical substrate of the lake bottom (including removal of sediment from the lake) will be necessary to restore structural habitat for aquatic species; provide spawning, nursery and foraging habitat for fish, aquatic macroinvertebrates, amphibians, reptiles, waterfowl, shore birds and migratory birds; restore the native glacial lake fish community indicative to what historically occurred within the lake; and aid in restoring profundal zone (i.e. deep aquatic) habitat. A sediment dewatering and disposal site will be required to contain and dewater dredged material that will be removed as part of the recommended plan. Sediment removed from Cedar Lake would be deposited within a sediment dewatering facility (SDF) for ultimate disposal.

Preliminary design of the proposed SDF indicates that surficial soils will be excavated on the SDF site to construct the retaining dikes that will contain the dredged material (see Figure 3). Topsoil will be removed from the property and stockpiled for future use. Underlying clay soil will be excavated from the property to create the SDF by constructing a series of berms. Dewatering cells and decant structures will be constructed in the SDF to provide the required detention time for solids to settle from the dredged material and for treatment of nutrients before effluent return to Cedar Lake. The discharge location of treated effluent and the viability of the SDF site to accept dredged material are not discussed herein.

SITE DESCRIPTION

The proposed sediment dewatering facility (SDF) site is located on approximately 114 acres of agricultural property three miles northwest of Lowell, Indiana, within the Town of Cedar Lake. The SDF site lies in the west ½ of Section 3, Township 33N, Range 9W of the 2nd Principal Meridian, in West Creek Township, Lake County, Indiana, and is shown on the Lowell 7.5' USGS topographic quadrangle map. The site is bordered on the west by Parish Avenue and to the south by 155th Avenue (see Figure 4). Agricultural areas border the SDF site to the north and east. The SDF site is directly adjacent to a private residence along the southern edge at 155th Avenue. The property is actively farmed and does not contain any structures.

A large drainage ditch/stream flows through the southern quadrant of the property; two minor drainage ditches are located on the northern and eastern boundaries of the property. The drainage ditches appear to flow to the east into Cedar Lake Marsh. The large ditch in the southern quadrant appears to flow through the property and east across adjacent properties until it is ultimately discharged into Cedar Lake Marsh near the Howkinson property, which is owned by Lake County Parks. This ditch is covered in low, wet vegetation.

The adjacent properties consist of agriculture and residential use. The Cedar Lake Marsh is northeast of the SDF site; Cedar Lake is further northeast. Two railroad corridors are within the vicinity of the SDF site; the first runs north-south east of the SDF site, the second is west of the SDF site between Parrish and US 41 (See Figure 5).

GENERAL METHODS

The following sections contain information that was requested and gathered in accordance with ER 1165-2-132 for this assessment. The information was obtained from:

- Existing information review
- Database research
- Observations made during a site visit
- Historical aerial and topographic map review

This information was used to determine if construction of a sediment dewatering facility for the Cedar Lake project will have an impact on any HTRW occurrences that may exist at the SDF site, and if HTRW problems will have an impact on implementation of the proposed construction. The information gathered from the above list of sources is detailed in the following sections.

EXISTING INFORMATION REVIEW

Soil Composition

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining, and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey provides representations of the soil patterns in a particular landscape. According to the State Soil Geographic Database and the Soil Survey Geographic database, site soils are consistent with the Morley series. Site soils are expected to have a silty loam texture. Slow infiltration rates may be present due to soils layers that impede downward movement or contain moderately fine texture. The soils are moderately well drained with a layer of low hydraulic conductivity. Soils are expected to be in a wet state high in the soil profile. The water table is expected three to six feet below the ground surface. More information on soil layers can be found in the Geospatial Physical Source Addendum found in Attachment A.

Groundwater Wells

There are no known federally registered USGS monitoring or public water supply wells within 1 mile of the SDF site. Information obtained from the Indiana Department of Natural Resources (IDNR) suggests that the ground-water resource of northern Indiana can be classified as being good to excellent (see Attachment B). Exclusive of some areas in northwestern Indiana, well yields of from 200 to 2,000 gallons per minute can be expected in most areas. Approximately 500 wells are registered with the IDNR in the sections surrounding the SDF site (see Figure 6 for search area). Attachment C includes a listing of wells registered with the Indiana Department Natural Resources in the search area.

Soil and Water Quality

The soil and water quality on the SDF site are largely unknown. A history of agricultural use on the proposed SDF site indicates soils may contain residual pesticides, fungicides, rodenticides, and herbicides commonly used to maintain active crops. Fertilizer use on the SDF property suggests soils may contain excess nutrients; operation, use, and maintenance of mechanical farm equipment could lead to isolated occurrences of spilled gasoline, hydraulic fluid, and oil in the agricultural fields.

Water quality in the drainage ditches and/or swales originating or passing through the proposed SDF site is largely unknown. Because the drainage ditches accept flow from agricultural runoff during storm events, the concentrations of suspended solids and nutrients in these and adjacent waterways may be elevated during periods of flow. Nonpoint source pollution from agricultural properties can affect the water quality of surroundings waterways in the area by promoting eutrophication and increasing sediment loading; excessive nutrients in the runoff can provide a nutrient rich environment for excessive algal growth.

Historical Land Use

Chicago District Planning Branch (CELRC-PL) conducted an investigation of past land use for the environmental assessment (EA) and concluded that the site has been farmland since the 1840s. The land is currently a mix of corn and wheat fields, and has remained agricultural land since it was purchased from the Federal government between 1851 and 1853. In early plat maps, the property is listed as the “Grand Prairie” to the west of Cedar Lake and Lowell, Indiana. While records show that the property contained barns, silos, and outbuildings (i.e. “McKinney Farm”), none of the structures are within the SDF construction boundaries. Adjacent parcels have remained agricultural land; no industrial or manufacturing operations have been conducted to the present.

CELRC-PL review of county/regional records suggests that Anglo-American farmers (predominantly of Yankee background) first came to the Cedar Lake area during 1832-1835; the county was first surveyed by the Federal government in 1834. “Hoosier” emigrants (from Indiana, Kentucky, Tennessee, or Virginia) were a minority. The white settlers displaced a native population of Pottawatomie who came to northwest Indiana from Michigan in the 1760s. During 1830-1845 they occupied seasonal camps and semi-permanent villages throughout the Kankakee River basin. By 1836, most of the Pottawatomie had left Lake County after signing treaties and being “removed” to Iowa and Kansas. The Federal government surveyed Northwest Indiana between 1836 and 1850, and public lands were sold to squatters, speculators, and newly arrived farmers. During the late nineteenth and early twentieth centuries, the area became popular for tourism after the construction of the Monon Railroad connecting Cedar Lake and Chicago in 1882. The Lake remained a popular destination through the 1950s with a hotel/motel industry catering to the tourist crowd.

DATABASE SEARCH

A search of available environmental records was conducted utilizing Environmental Database Resources, Inc. (EDR) online. EDR searched federal and state databases using the minimum search distances issued in the ASTM E 1527-00 guidelines, plus a ½-mile extension. Because the site is large, the database search was extended an additional ½ mile to verify that adjacent properties with known environmental site hazards were considered during this investigation. Table 1 notes the recommended ASTM search distance for federal and state databases and the actual search distances used for the subject site.

The EDR overview map displaying the project area and the search results is given in Figure 7. The comprehensive EDR database report is provided as Attachment A.

Table 1: Minimum and Actual Search Distance for Federal and State Database Searches

Database	Approximate Minimum Search Distance (mi)	Actual Search Distances (mi)
Federal NPL Site List	1.0	1.5
Federal CERCLIS List	0.5	1.0
Federal CERCLIS NFRAP site list	Property and Adjoining Properties	1.0
Federal RCRA CORRACTS Facilities List	1.0	1.5
Federal RCRA non-CORRACTS TSD Facilities List	0.5	1.0
Federal RCRA Generators List	Property and Adjoining Properties	0.75
Federal ERNS List	Property Only	0.5
State Equivalent NPL	1.0	1.5
State Equivalent CERCLIS	0.5	1.0
State Landfill/Solid Waste Disposal Site Lists	0.5	1.0
State LUST Lists	0.5	1.0
State registered UST List	Property and Adjoining Properties	0.75

CERCLIS

The Comprehensive Environmental Response, Compensation, and Liability, Information System (CERCLIS) contains data on any potential hazardous waste site that has been reported by states, municipalities, private companies, or private persons pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The CERCLIS database indicates the stages of evaluation and remediation that have been completed for any given site. The CERCLIS database includes the National Priority List (NPL), which identifies over 1,200 sites for priority cleanup under the Superfund program, and the CERCLIS-No Further Remedial Action Planned (NFRAP) List, which includes a listing of sites that have been removed from CERCLIS, for various reasons.

The database search located no NPL, CERCLIS, or CERCLIS-NFRAP sites within the search distance.

RCRA Info

The Resource Conservation and Recovery Information System (RCRIS) lists sites which generate, transport, store, and/or dispose of hazardous waste defined by the Resource Conservation and Recovery Act (RCRA). The RCRIS database includes RCRA Corrective

Action Report (CORRACTS), which identify hazardous waste handlers with RCRA corrective action activity; RCRA treatment, storage, and disposal facilities (TSDFs), and RCRA conditionally exempt small quantity generators (CESQGs), RCRA small quantity generators (SQGs), and large quantity generators (LQGs) facilities.

The database search located no RCRA or RCRA CORRACTS sites within the search distance.

ERNS

The Emergency Response Notification System (ERNS) database lists information on reported releases of oil and hazardous substances. The database search yielded no ERNS reports on the subject property.

SHWS

The State Hazardous Waste Sites (SHWS), or State Oversight List, are the state equivalent to CERCLIS and NPL. These sites may or may not have already been listed on the federal CERCLIS list. The database search located no state hazardous waste sites within the search distance.

SWF/LF

The Indiana Department of Environmental Management (IDEM) records the states Solid Waste Facilities/Landfill sites (SWF/LF). These sites may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites. The database search located no SWF/LF sites within the search distance.

UST/LUST

The Indiana Department of Environmental Management maintains a listing of registered USTs as required under Subtitle I of the Resource Conservation and Recovery Act (RCRA). A review of the UST list, as provided by EDR, revealed no UST/LUST sites within the searched area.

SPILLS

The Indiana (IN) Spills database is a state ASTM supplemental listing that includes spills incidents reported from IDEM. A review of the IN Spills list has revealed no sites within the search area.

Orphan sites

Orphan sites given in the EDR report were reviewed and no sites were identified as possible sites of concern.

SRP

The Site Remediation Program (SRP) database lists all voluntary remediation projects administered through the pre-notice site clean-up program (1989 to 1995) and the site remediation program (1996 to present). The database search located no SRP sites within the search distance.

Others

Various other databases are searched by EDR that include additional information to supplement information provided in the above databases or contain other environmental related information that may be significant. These databases include: CERCLA consent decrees, National Priority list deletions, Nuclear Regulatory Commissions database of sites possessing radioactive materials, Superfund Liens, PCB Activity Database, Department of Defense sites, Brownfields, Toxic Chemical Release Inventory, FIFRA/TSCA tracking system, oil and gas pipelines, electric transmission lines, sensitive receptors, flood zone data, drycleaner facility lists, voluntary remediation program lists, and the national wetlands inventory.

One site is listed in the EPA Facility Index System (FINDS), a cross-linking government database. The Haystack Iron Skillet facility is noted as item 1 on Figure 7. Further investigation revealed that the FINDS report shows the Haystack Iron Skillet facility linked with Indiana's Facility Registry System (I-FRS), though no details are given regarding the nature of its presence. No violations are listed in the database and therefore the site is assumed to have limited potential to affect the SDF property. It appears, based on review of the information provided in the database search, it is unlikely that adjacent regulated sites have affected the project site.

HISTORICAL AERIAL AND TOPOGRAPHIC MAP REVIEW

Aerial photos from 1938 to present, including aerial photos available from 1958, 1965, 1973, 1987, and 1992 were reviewed. It appears, based on review of historical maps that the subject property has remained a farm from 1938 to the present. It appears that a second or third home, or a series of outbuildings, may have been constructed on the parcel between 1938 and 1958; however, these changes were not made on the SDF property itself and were constructed on the residence adjacent to the SDF property along 155th Avenue. It appears that the SDF was actively farmed with the exception of a small portion of the site to the southeast, which contains a number of rows of trees. Many of the ditches and drainage swales that are currently present on the subject property can be seen from review of historical aerial maps. These ditches appear to drain towards Cedar Lake Marsh. It appears, based on review of historical aerial photographs, that there is limited potential to encounter HTRW based on past land use practices.

Historical aerial photographs were also reviewed for the existing Cedar Lake Marsh. As discussed later in this report, an area of concern known as the Howkinson property, currently owned by the Lake County Parks Department, was reviewed (see Figure 8 for location of site in

relation to the SDF site). This property has an active history of industrial and household waste dumping. The property is encompassed by an active railroad corridor to the west and a historical railroad corridor to the east that ran north-south through Cedar Lake Marsh. The southern boundary is 155th Avenue. The historical railroad corridor was not being used in 1958, but the raised gravel bed has been actively used as an access road through the present. Dumping at the wetland fill site may have begun as early as 1958 and was occurring in 1973. By 1987, it appears the area of dumping was no longer expanding. Two automotive wrecking yards were also active in the area, one on the Howkinson property (west of the former railroad corridor), and the other directly east of the former railroad corridor. These are evidenced by the large mounds noted on the historical aerial photographs. The eastern junkyard facility was first present on the 1965 historical aerial photo; the Howkinson junk yard was first noted on the 1973 historical aerial photo. It appears that neither junk yard was active in 1992.

Results of the historical aerial photograph review are included as Attachment D.

INTERVIEWS AND TELEPHONE INVESTIGATION

Current Site Owner

CELRC-TS-DH team member conducted a telephone interview with the current property owner, John Lotton, on July 2, 2007 to identify the current and past use of both the property under investigation. Mr. Lotton stated that all surrounding land, except across the 155th Street to the south, has been farmland since Lotton has owned the subject property. Lotton's property, also known as the McKinney farm, is 96-97% agricultural except for a few acres that are used for private residence. The property has been in this configuration since it has been in Lotton's possession. An old farmhouse was removed from its foundation and sold. Lotton has no knowledge of any environmental conditions that exist at the site including any knowledge of substantial spills, dumps, off-site fill material being deposited, or USTs. Mr. Lotton does not believe that drainage tiles or underground pipes are present on the subject property.

Cedar Lake Marsh

Liz McCloskey, of the US Fish and Wildlife Service, suggested the presence of HTRW in Cedar Lake Marsh during a project meeting held at Cedar Lake in 2003, but could not provide details when contacted during this investigation. Coordination with Lake County Parks Department (Craig Zandstra) confirmed the presence of potential HTRW materials in portions of the Cedar Lake Marsh, or Howkinson, area north of 155th Avenue and east of the active railroad corridor (see Figure 8 for location of site in relation to the SDF site).

PHASE II SITE INVESTIGATIONS – HOWKISON PROPERTY

Lake County Parks and Recreation retained American Environmental Corporation (American Environmental) to conduct two-phase II subsurface investigation at the Howkinson Property in November 2001 and January 2002. The areas of concern, shown in Figure 9, include the Former Automotive Junkyard Mound Area located on the south end of the property, a Damaged Transformer Area, and a Wetland Fill Area, where waste products from a soundproofing manufacturer were dumped in the 1970s. The results of two-phase II investigations are documented in Attachments E and F and are discussed herein.

Phase II Subsurface Investigation – November 2001

American Environmental conducted a Phase II subsurface investigation at the Howkinson Property in November 2001; this report is included as Attachment E. A field investigation, consisting of advancing of sixteen soil probes shown on Figure 9, was performed on November 7, 2001.

Automotive Junkyard Mound

Six probes were advanced around the perimeter of the former automotive junkyard mound area and two probes were advanced in the junkyard mound to determine if groundwater and soils had been impacted by junkyard activities. Soil and groundwater samples were analyzed for some, or all of the following parameters: total lead, total petroleum hydrocarbons (TPH), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), asbestos, and polynuclear aromatics (PNAs). Results of constituents detected in soil and groundwater samples collected in the former automotive junkyard mound area are summarized and compared to IDEM's Risk Integrated System of Closure (RISC) default closure values in Tables 2 through 5.

Results indicate levels of PNAs and lead found in the soil samples collected in the junkyard mound area below the IDEM RISC residential default closure values (see Table 2 and 3). Total petroleum hydrocarbons and SVOCs were not detected in the soil samples. Laboratory analysis indicated detected levels of benzo(k)fluoranthene and dibenzo(a,h)anthracene below the IDEM RISC residential default closure levels (see Table 4). SVOCs and VOCs were not detected in the groundwater samples collected. Lead concentrations in the groundwater samples are above the RISC residential and industrial default closure values (see Table 5); however, the results were attributed to high sediment content in the collected water samples. A second unpreserved filtered water sample was analyzed for total lead. While this sample revealed non-detectable concentrations of lead, the reporting limit was not low enough to report concentrations at or below the RISC Tier I residential and/or industrial default closure values. Lead levels in the soil were assumed to represent natural background conditions.

Table 2: Junkyard Mound – Detected VOC and PNAs Concentrations in Soil Samples

Boring	P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8	
Sample Depth (ft)	5-6	9-10	4-5	6-7	2-3	3-4	8-9	5-6	RISC*
VOCs (µg/kg)									
Acetone	ND	110	ND	250	ND	ND	ND	ND	28,000
2-Butanone (MEK)	ND	18	ND	42	ND	ND	ND	ND	35,000
PNAs (µg/kg)									
Acenaphthene		11	130	ND	160	71	ND	ND	130,000
Phenanthrene		4.3	11	ND	ND	ND	3.2	4.9	13,000
Fluoranthene		6.9	ND	ND	ND	ND	ND	ND	880,000
Benzo (a) anthracene		11	ND	ND	4.1	5.1	6.9	5.2	5,000
Benzo (b) fluoranthene		5.7	ND	ND	ND	ND	3.9	ND	5,000
Benzo (k) fluoranthene		9.3	ND	ND	ND	ND	8.2	4.8	39,000
Benzo (a) pyrene		3.2	ND	ND	ND	ND	ND	ND	500
Dibenz (a,h) anthracene		8.5	ND	ND	ND	ND	3.1	1.9	500
Benzo (g,h,i) perylene		5	ND	ND	ND	ND	ND	ND	**
Indeno (1,2,3- cd) pyrene		3.6	ND	2.2	ND	ND	ND	ND	3,100
Pyrene		ND	59	ND	ND	ND	ND	18	570,000
Chrysene		ND	10	ND	ND	39	46	1700	25,000

ND- Not Detected

*RISC- IDEM RISC Tier I Residential Default Closure Values

**Closure Values are not established

Table 3: Junkyard Mound – Detected Lead Concentrations in Soil Samples

Boring Location	Sample Depth (ft)	Lead Concentration (mg/kg)
P-1	0-1	11.2
P-2	0-1	12.0
P-3	0-1	10.4
P-4	0-1	8.20
P-5	2-3	36.0
P-6	0-1	ND
P-7	0-1	8.79
P-8	0-2	22.2
<i>*RISC- IDEM RISC Tier I Residential Default Closure Value</i>		81

ND- Not Detected

Table 4: Junkyard Mound – Detected PNAs Concentrations in Groundwater Samples

Boring Location	P-5	P-6	RISC*
PNAs (µg/L)			
Benzo (k) fluoranthene	0.19	0.24	0.80
Dibenzo (a,h) anthracene	ND	0.11	0.12

ND- Not Detected

**RISC- IDEM RISC Tier I Residential Default Closure Value*

Table 5: Junkyard Mound – Detected Lead Concentration in Groundwater Samples

Boring Location	Lead Concentration (mg/L)
P-1	0.995
P-3	1.49
P-3*	<0.05
P-5	1.17
P-6	0.215
<i>*RISC- IDEM RISC Tier I Residential/ Industrial Default Closure Values</i>	0.015 / 0.042

**Sample filtered prior to analysis*

Damaged Transformer

Three probes were advanced near the damaged transformer to determine if the groundwater and soils were impacted by polychlorinated biphenyls (PCBs). Results of soil and groundwater sampling and analysis conducted in the damaged transformer area suggest that the area is free from PCB contamination; all soil and groundwater samples collected and analyzed contain non-detectable concentrations of PCBs.

Wetland Fill

Five probes were advanced in the area of wetland fill to determine the depths of the fill material and if the disposed soundproofing material had affected the groundwater. Groundwater samples collected were analyzed for PNAs. Two samples of the fill material were collected from the surface to determine if the material contains asbestos. Results of detected constituents found in groundwater samples collected in the wetland fill area are summarized and compared to IDEMs RISC default closure values in Table 6.

Laboratory analyses of groundwater samples indicated chrysene, dibenz(a,h)anthracene, benzo(k)fluoranthene, and benzo(b)fluoranthene concentrations above IDEM RISC residential and/or industrial default closure values. One sample of the soundproof material and one sample of a roofing shingle were obtained from the wetland fill area and analyzed for asbestos. Laboratory analysis indicated that both surface samples were non-detectable for the presence of asbestos.

Table 6: Wetland Fill – Detected PNA Concentrations in Groundwater Samples

Boring Location	P-12	P-13	P-14	P-15	P-16	RISC*
PNAs (µg/L)						
Acenaphthene	3.6	0.89	ND	4.5	4.4	460/4,200
Anthracene	ND	ND	ND	ND	0.25	43/43
Chrysene	34	0.32	ND	ND	ND	1.6/1.6
Dibenzo (a,h) anthracene	2.4	2.2	0.36	0.15	4.5	0.12/0.39
Benzo (a) anthracene	0.65	ND	ND	ND	ND	1.2/3.9
Benzo (k) fluoranthene	2	ND	ND	ND	ND	0.80/0.80
Benzo (g,h,i) perylene	0.75	ND	ND	ND	ND	**
Phenanthrene	ND	1.4	ND	ND	1.5	23/310
Benzo (a) pyrene	ND	ND	0.068	ND	ND	0.20/0.39
Benzo (b) fluoranthene	ND	ND	ND	ND	3.6	1.2/1.5

ND- None Detected

**RISC- IDEM RISC Tier I Residential / Industrial Default Closure Values*

***Closure values not established*

Conclusions

The November 2001 phase II investigation suggested that additional investigation be conducted in the wetland fill area to determine if the elevated levels of PNAs in the groundwater above the

IDEM RISC residential and industrial default closure values are isolated to the wetland fill area or if the constituents have migrated beyond the fill area.

Phase II Subsurface Investigation – January 2002

Additional site investigations were performed on the Howkinson property on December 17, 2001. The purpose of the investigation was to obtain more information regarding the impacts to adjacent areas due to the elevated levels of PNAs in the groundwater in the wetland fill area. An American Environmental geologist obtained sediment and surface water samples at locations P-12A, P-12B, P-12C, P-13A, and P-16A shown on Figure 10. Three borings were advanced 10 feet outside the fill material and two borings were advanced in the estimated down gradient direction. Soil and groundwater samples were analyzed for PNAs. Attachment F contains results of the investigation.

Laboratory analyses indicate PNA concentrations in the sediment samples were non-detect. Concentrations of PNAs detected in groundwater samples are summarized and compared to IDEMs RISC residential default closure values in Table 7. Laboratory analysis indicated concentrations of PNAs in the groundwater below the IDEM RISC residential default closure values. Results suggest that elevated levels of PNAs are isolated to the groundwater within the wetland fill area; PNAs have not migrated from the wetland fill area to the surrounding sediment or groundwater.

Table 7: Additional Studies – Detected PNA Concentrations in Groundwater Samples

Boring Location	P-12A	P-12B	P-12C	P-13A	P-16A	RISC*
PNAs (µg/L)						
Acenaphthene	0.097	ND	ND	ND	ND	460
Chrysene	0.083	ND	0.18	ND	ND	1.6
Pyrene	0.12	ND	ND	ND	ND	140

ND- None Detected

**RISC- IDEM RISC Tier I Residential/ Industrial Closure Levels*

SITE INVESTIGATION

A site investigation was conducted on Tuesday 24 July, 2007. Two team members from CERLC-TS-DH investigated the perimeter of the site and then gained access to the property by walking along the eastern border of the site. The sediment dewatering/disposal site is an active soy/corn agricultural field. Soybean crop covered the majority of the property at the time of the investigation, but corn crop residue was visible on the ground along the property boundaries. None of the vegetation appeared stressed. A small portion of the property contains a farmhouse and other structures associated with an active farm; however, this property will not be used for construction of the SDF. Farm equipment is maintained on the property adjacent to where the SDF would be constructed. Team members observed three drainage ditches that either flow through the SDF site or are a product of natural swales that exist on the property. The ditches

were clearly visible but were dry and overgrown on the day of the investigation. Fly dumping was not observed in the ditches with direct road access, but there was evidence of blowing debris from adjacent roadways accumulating along the boundaries of the property and within the drainage ditches. The site has a rolling topography; there was no evidence of drainage tiles on the site. No HTRW or non-HTRW conditions were observed during the site visit.

A site visit to the Howkinson property was performed on the same day. The Howkinson property is gated to prevent access from 155th Street. A former railroad corridor that runs along the eastern boundary of the Howkinson property was used to facilitate access to the site. The former rail bed serves as an access road into the southern portion of the wetland area. In general there is a 5-6 foot drop between the access road and the adjacent areas; the access road is lined with small trees and shrubs. There appears to be two auto yards on the southern portion of the property east and west of the access road. West of the access road appears mostly cleaned up; however, there is a considerable amount of auto parts east of the access road. This east area may still be actively used for storing junk auto parts and is not included as part of the Howkinson investigations.

There is a considerable amount of fly dumping of household appliances and commercial goods along the eastern side of the access road north of the auto yards. Further north along the access road leads to an area where considerable fill has been placed in open water wetlands. The filled in area is elevated above what appears to be the natural topography and is broad and flat. There is large amount of unidentifiable debris covering the filled area and appears to be some sort melted plastic product with an objectionable odor. The fill material has a hard crust but is fibrous and soft beneath. There was very little vegetation present in the wetland fill area and what was present was stressed. Shotgun shell casings, shot up appliances, and household and industrial waste appears in the wetland fill area as well. Results of the site visit are documented in Attachment G.

FINDINGS AND CONCLUSIONS

This HTRW investigation was performed to determine if construction of the SDF will have an impact on any HTRW occurrences that may exist in the surrounding areas, and if HTRW problems will have an impact on the implementation of the project. According to ER 1165-2-132, non-HTRW environmental issues that do not comply with federal, state, and local regulations should be discussed in the HTRW evaluation along with HTRW issues.

Existing information available for review suggests that site soils are expected to have a silty loam texture. Slow infiltration rates may be present due to soils layers that impede downward movement or contain moderately fine texture. The soils are moderately well drained with a layer of low hydraulic conductivity. Soils are expected to be in a wet state high in the soil profile. The water table is expected three to six feet below the ground surface. Information obtained from the Indiana Department of Natural Resources (IDNR) suggests that the ground-water resource of northern Indiana can be classified as being good to excellent. Approximately 500 wells are registered with the IDNR in the sections surrounding the SDF site.

The soil and water quality on the SDF site are largely unknown. A history of agricultural use on the proposed SDF site indicates soils may contain residual pesticides, fungicides, rodenticides, and herbicides commonly used to maintain active crops; only trace concentrations of any compounds would be expected to be present. Fertilizer use on the SDF property suggests soils may contain excess nutrients; operation, use, and maintenance of mechanical farm equipment could lead to isolated occurrences of spilled gasoline, hydraulic fluid, and oil in the agricultural fields. Soils excavated from the site should be reused to the maximum extent possible for construction and closure of the SDF.

Review of historical information and aerial photographs suggests that the site has been farmland since the 1840s. It appears that a second or third home, or a series of outbuildings, may have been constructed on the parcel over time; however, these changes were not made on the SDF property itself. Many of the ditches and drainage swales that are currently present on the subject property can be seen from review of historical aerial maps. These ditches appear to drain towards Cedar Lake Marsh. It appears, based on review of historical aerial photographs, that there is limited potential to encounter HTRW based on past land use practices.

Review of information obtained from the EDR database search suggests that there is one site listed in the EPA Facility Index System (FINDS) database adjacent to the property. No violations are listed for the facility in the database. In addition, the facility appears to be a restaurant; therefore, the site is assumed to have limited potential to affect the SDF property. It appears, based on review of the information provided in the database search, that there is limited potential to encounter HTRW based on activities on adjacent regulated sites.

Interviews conducted with the current property owner suggest that the property, and adjacent properties, except across the 155th Street to the south, has been farmland since in his ownership. The SDF property, also known as the McKinney farm, is 96-97% agricultural except for a few acres that are used for private residence. The current owner has no knowledge of any environmental conditions that exist at the site including any knowledge of substantial spills, dumps, off-site fill material being deposited, or USTs.

Results of the site investigation conducted on Tuesday 24 July, 2007 suggest that the SDF site is an active soy/corn agricultural field. Soybean crop covered the majority of the property at the time of the investigation and none of the vegetation appeared stressed. A small portion of the property contains a farmhouse and other structures associated with an active farm; however, this property will not be used for construction of the SDF. Farm equipment is maintained on the property adjacent to where the SDF would be constructed. Fly dumping was not observed in the drainage ditches and swales on the property, but there was evidence of blowing debris from adjacent roadways accumulating along the boundaries of the property and within the drainage ditches. No HTRW or non-HTRW conditions were observed during the site visit. Future plans should require the proper disposal of all debris removed from the SDF site in accordance with Local, State, and Federal laws and regulations.

A site visit to the Howkinson property suggests that considerable amount of auto parts remains in the junkyard east of the Howkinson property; this area may still be actively used for storing junk auto parts. There is a considerable amount of fly dumping of household appliances and

commercial goods along the eastern side of the access road north of the auto yards. Fill placed in the open water wetlands is elevated above what appears to be the natural topography. There is a large amount of unidentifiable debris covering the filled area and appears to be some sort melted plastic product with an objectionable odor. The fill material has a hard crust but is fibrous and soft beneath. There was very little vegetation present in the wetland fill area and what was present was stressed.

Review of existing information and historical aerial photographs suggest that a portion of Cedar Lake Marsh, or the Howkinson Property, may have been impacted by automotive junkyard activities, a damaged transformer, and placement of industrial waste in open water wetlands. Results of two phase II investigations suggest:

- Lead is found in the automotive junkyard area in concentrations comparable to naturally occurring background levels.
- Soils surrounding the damaged transformer have not been impacted by PCBs.
- PNAs found in the groundwater in the wetland fill area are above IDEM RISC residential and/or industrial default closure values. The contaminants appear to be isolated to the fill area and have not migrated into surrounding groundwater or impacted adjacent sediments.

No investigations have been conducted in the adjacent automotive junkyard area east of the Howkinson property. It is unclear if the wetland fill area containing elevated levels of PNAs in the groundwater will be impacted if treated effluent is discharged from the SDF through Cedar Lake Marsh. Further studies may be required to determine impacts related to treating discharged effluent through Cedar Lake Marsh if it is part of the recommended plan. The Howkinson property and Cedar Lake Marsh are located downstream and at a lower elevation from the proposed SDF location, so it is unlikely that any contaminants or material from these properties would impact the SDF construction or operation.

No HTRW investigation can wholly eliminate uncertainty regarding the potential for HTRW associated with a project area. Performance of the HTRW investigation is intended to reduce, but not eliminate, uncertainty regarding the potential for HTRW in connection with a project area. This report is not intended to address the impacts of discharging treated effluent nor the suitability of the SDF site to accept dredged material.

Figure 1: Cedar Lake Location Map

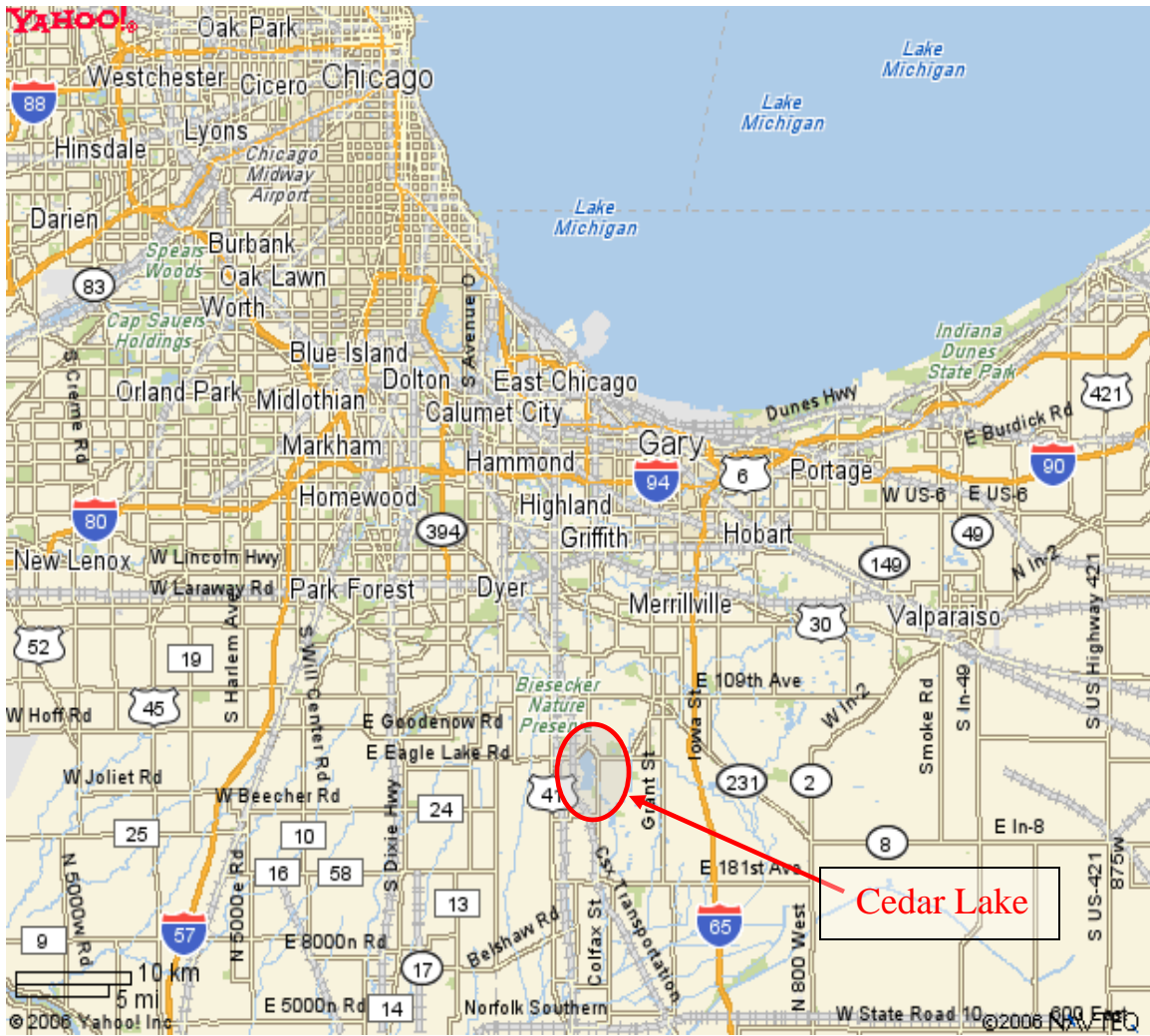
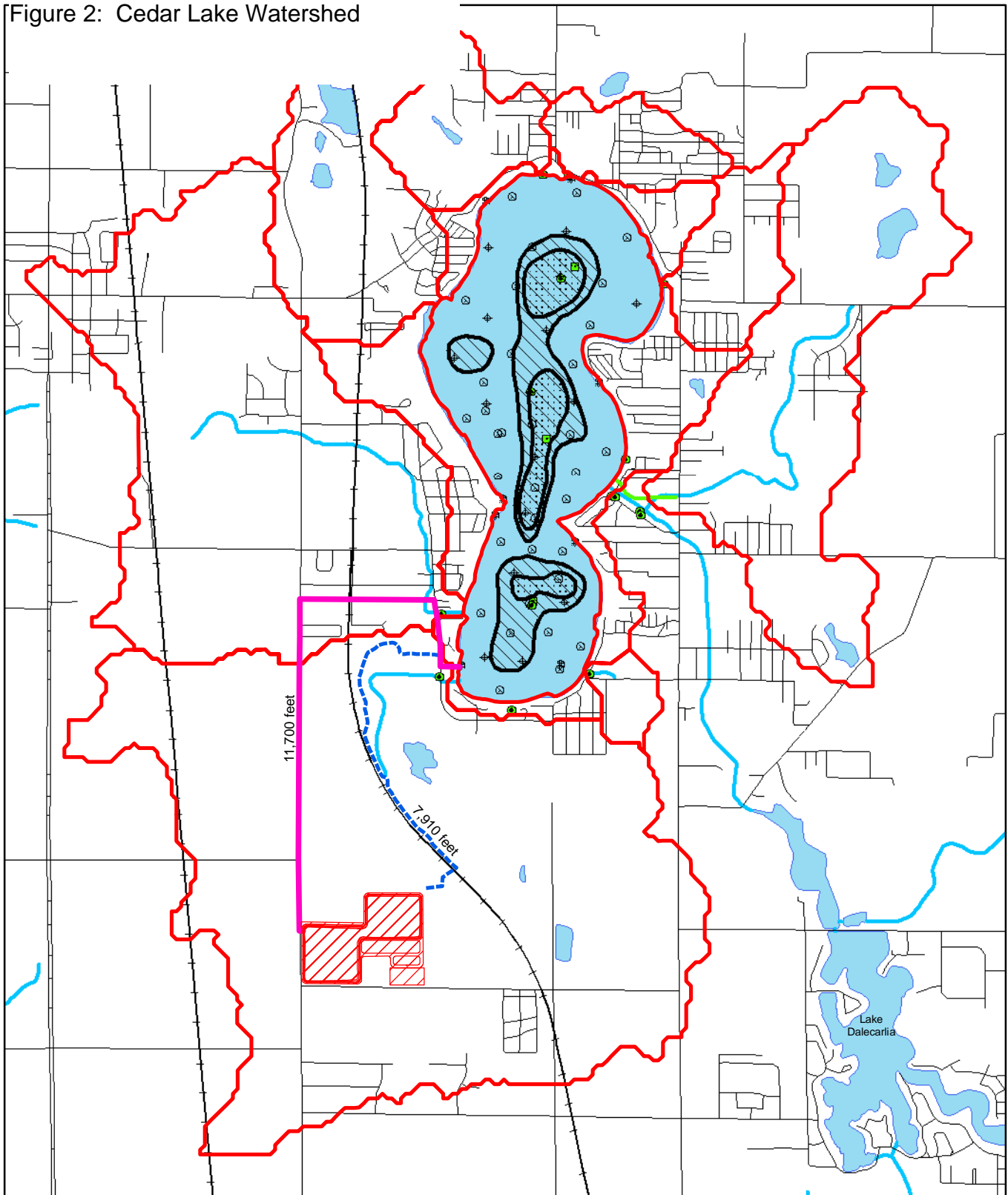
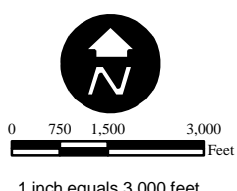


Figure 2: Cedar Lake Watershed



- Proposed Dredging Measure A.3
 D = 2.7 ft, A = 83 ac, V = 358,000 cy
- Proposed Dredging Measure A.4
 D = 1 ft, A = 224 ac, V = 362,000 cy
- Proposed SDF Location
 ~100 acres
- Proposed Haul Route
 11,700 feet
- Proposed Dredge Pipe Route
 7,900 feet
- Proposed Hogpen Ditch Reroute
 1,400 feet

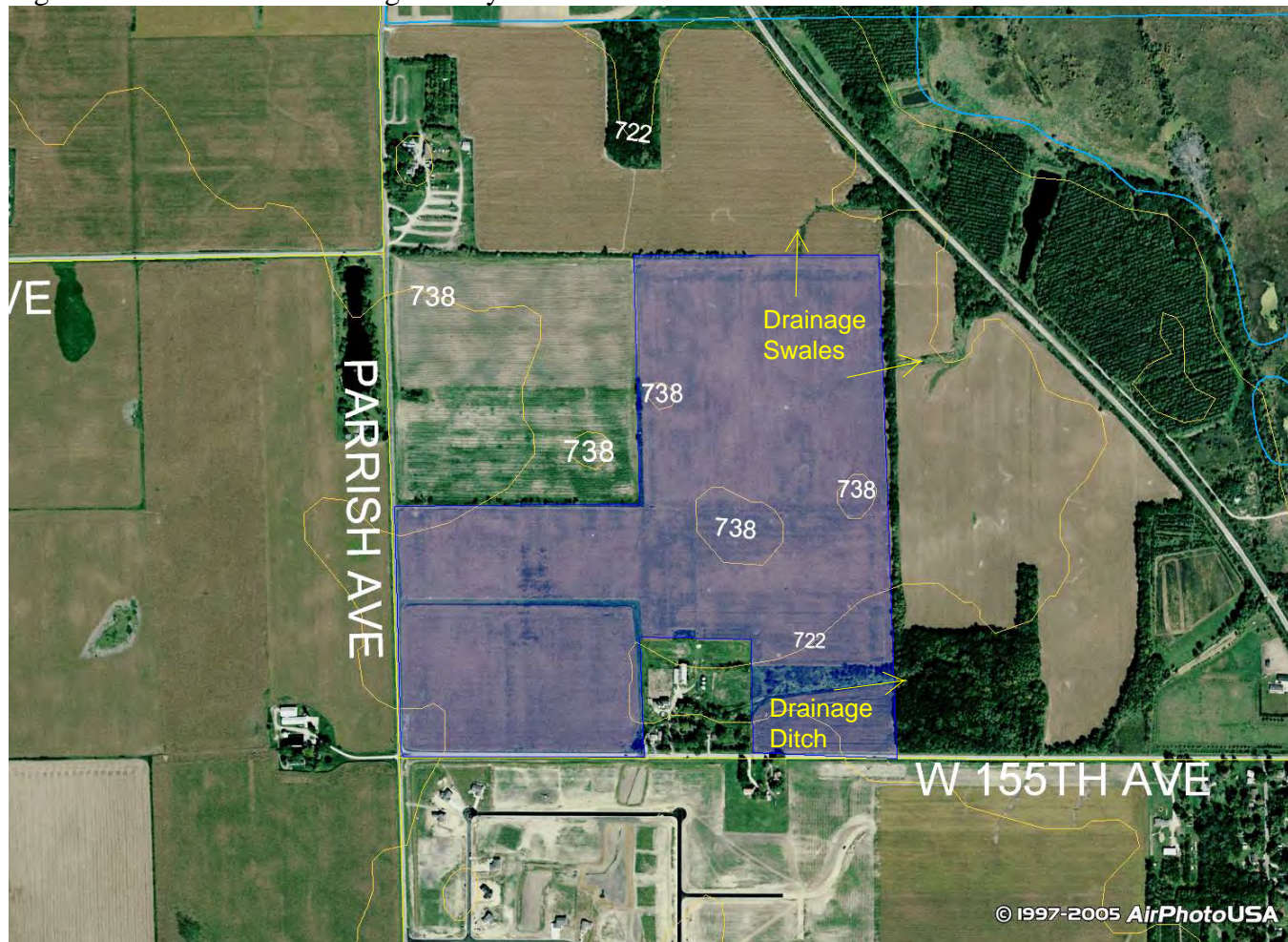
- Sandia Sediment Core Samples
- Ponar Grab Samples
- Wading Grab Samples
- WQ Sonde Measurements
- WQ Monthly Sample Locations
- Cedar Lake Subwatersheds
- Lake County Streets
- Lake County Railroads
- Lake County Streams
- Lake County Water Bodies



Sediment removal measure A.3 involves dredging material which have phosphorus concentrations >700 mg/kg to a depth of 2.7-ft having a total area of dredging equal to 83 acres and a dredged volume of 358,000 cu-yd. Sediment removal measure A.4 involves dredging material which have phosphorus concentrations >500 mg/kg to a depth of 1.0-ft having a total area of dredging equal to 224 acres and a dredged volume of 362,000 cu-yd. Bathymetric contours based on survey performed by Chicago District in May 2005. Aerial photography taken by State of Indiana in spring of 2005.

Cedar Lake Section 206 Feasibility Study Plan Formulation Appendix B	
Layout Map of Cedar Lake Watershed	
Chicago District, U.S. Army Corps of Engineers	
September 2007	Layout Map "B"

Figure 4: Sediment Dewatering Facility Site Location



Proposed SDF site is shaded in blue

Figure 5: Sediment Dewatering Facility Adjacent Properties

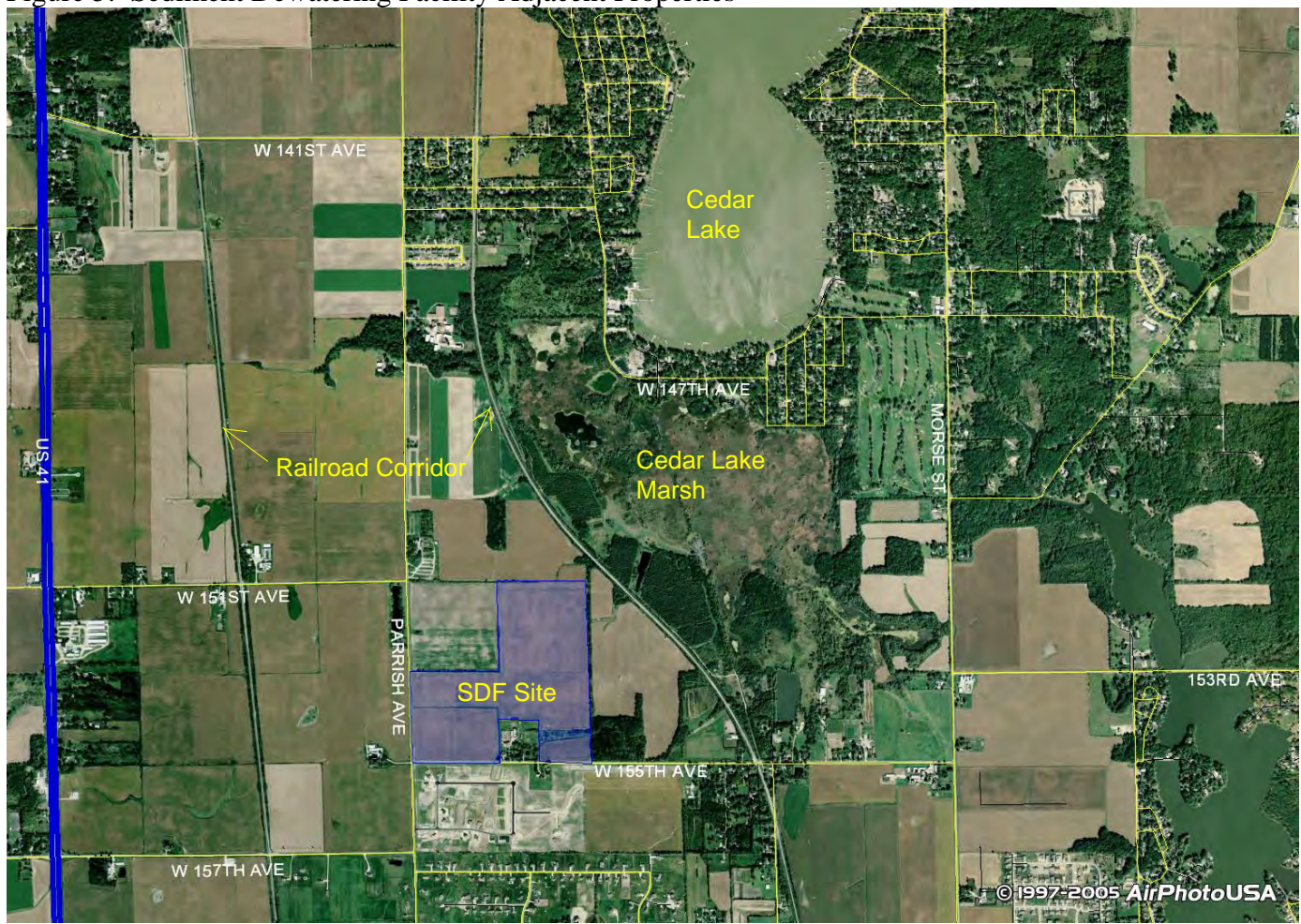


Figure 6: Adjacent Well Search Area

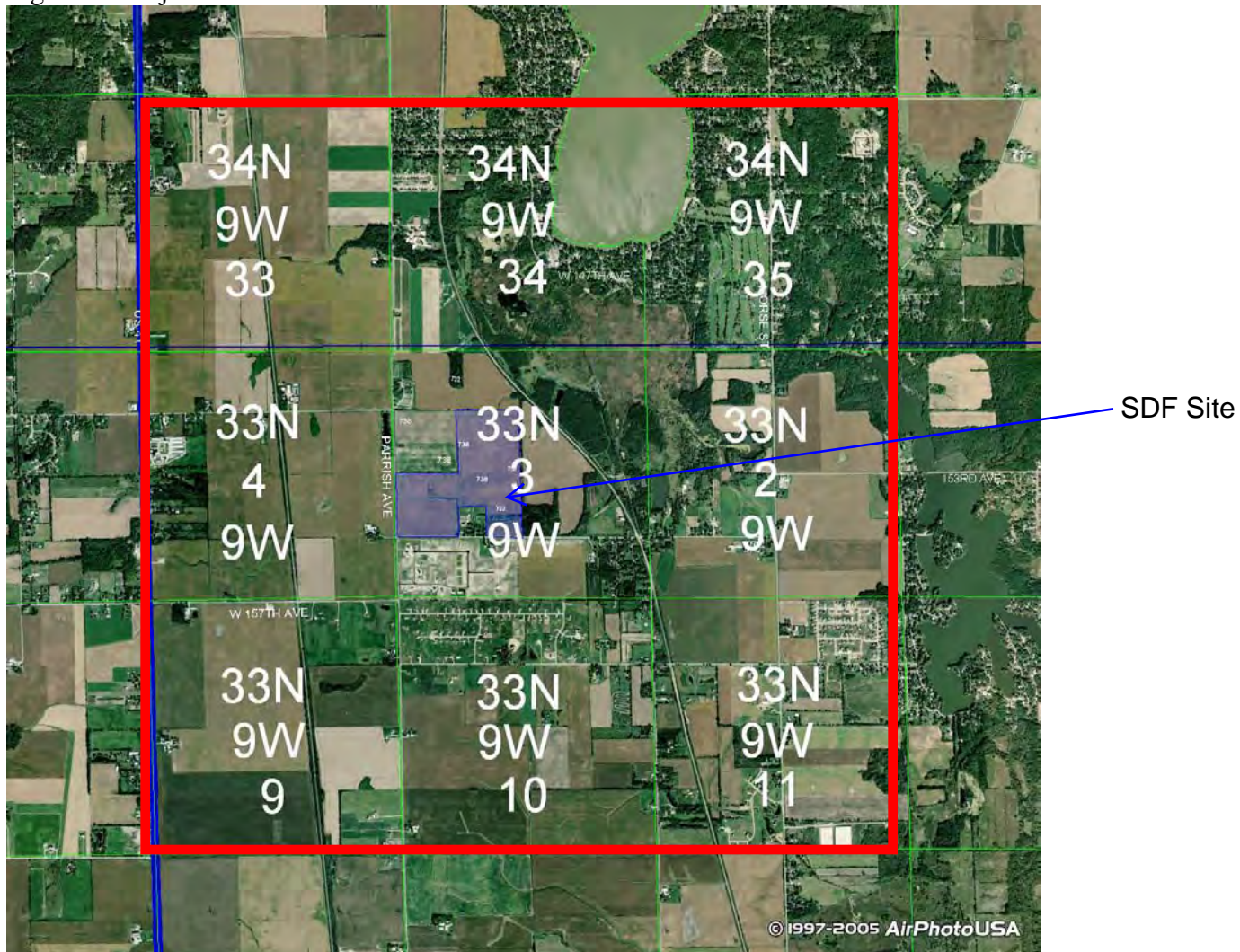


Figure 7: EDR Database Search Area

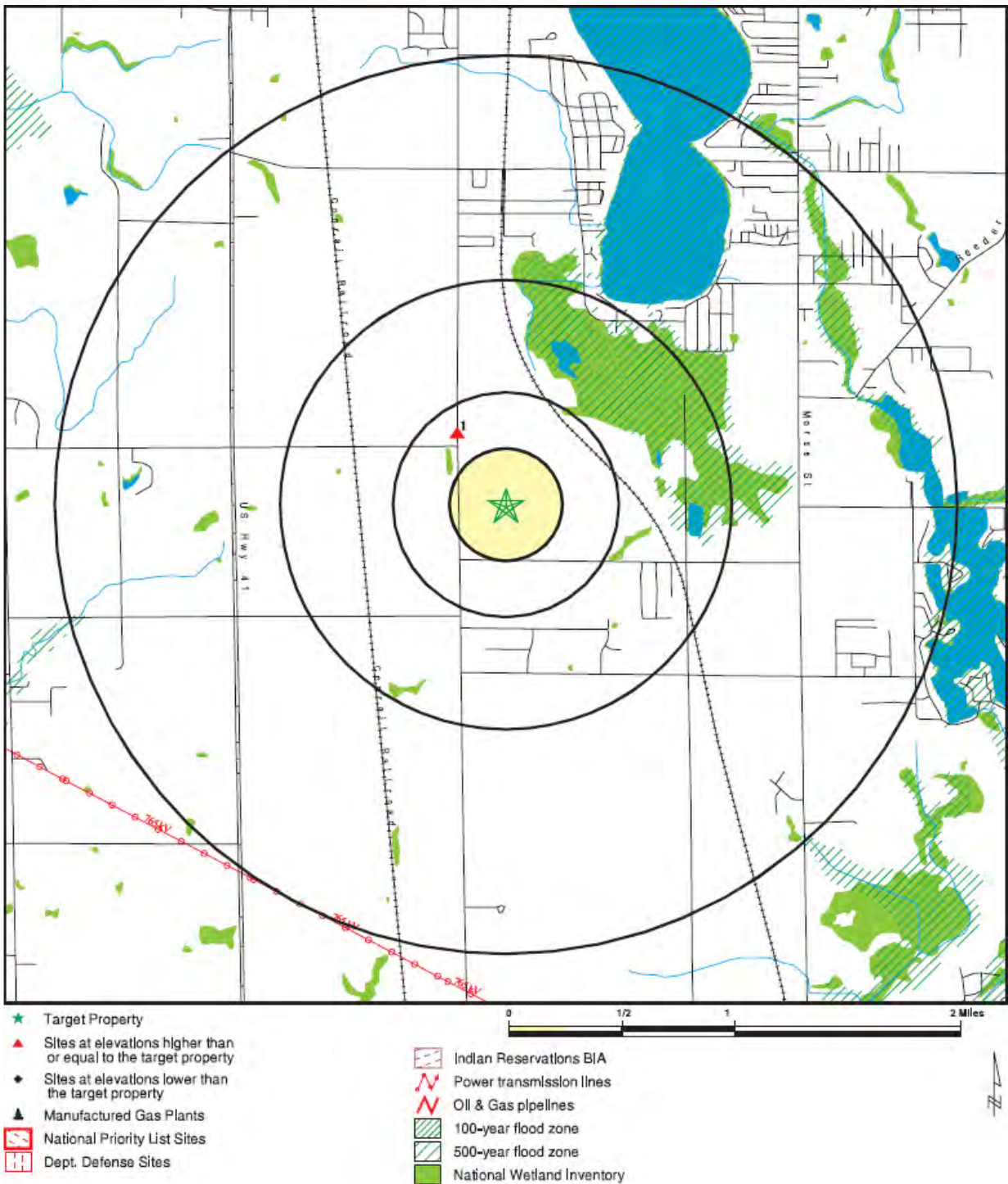


Figure 8: Howkinson Property Location

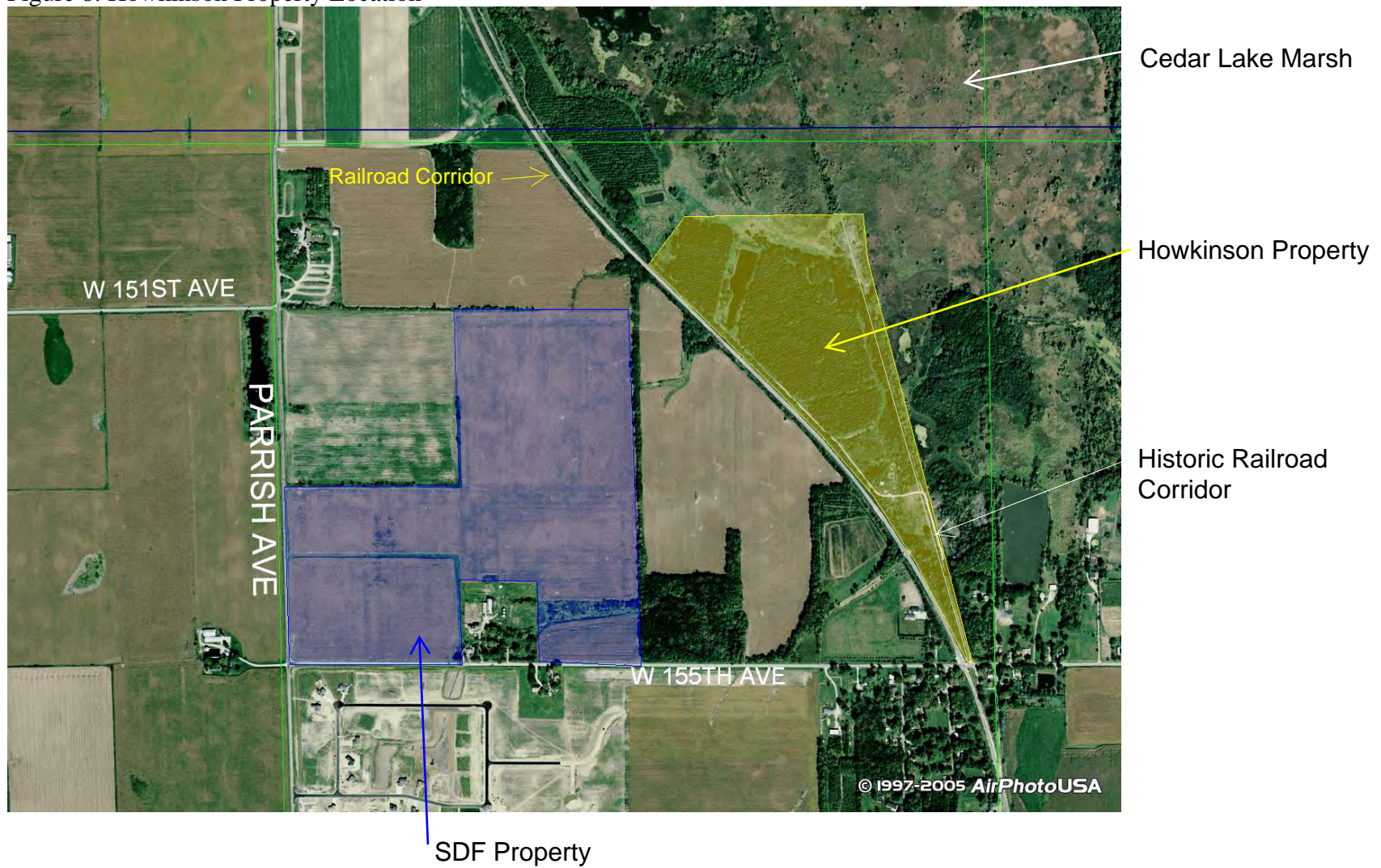


Figure 9: November 2001 Phase II Site Investigation Boring Locations

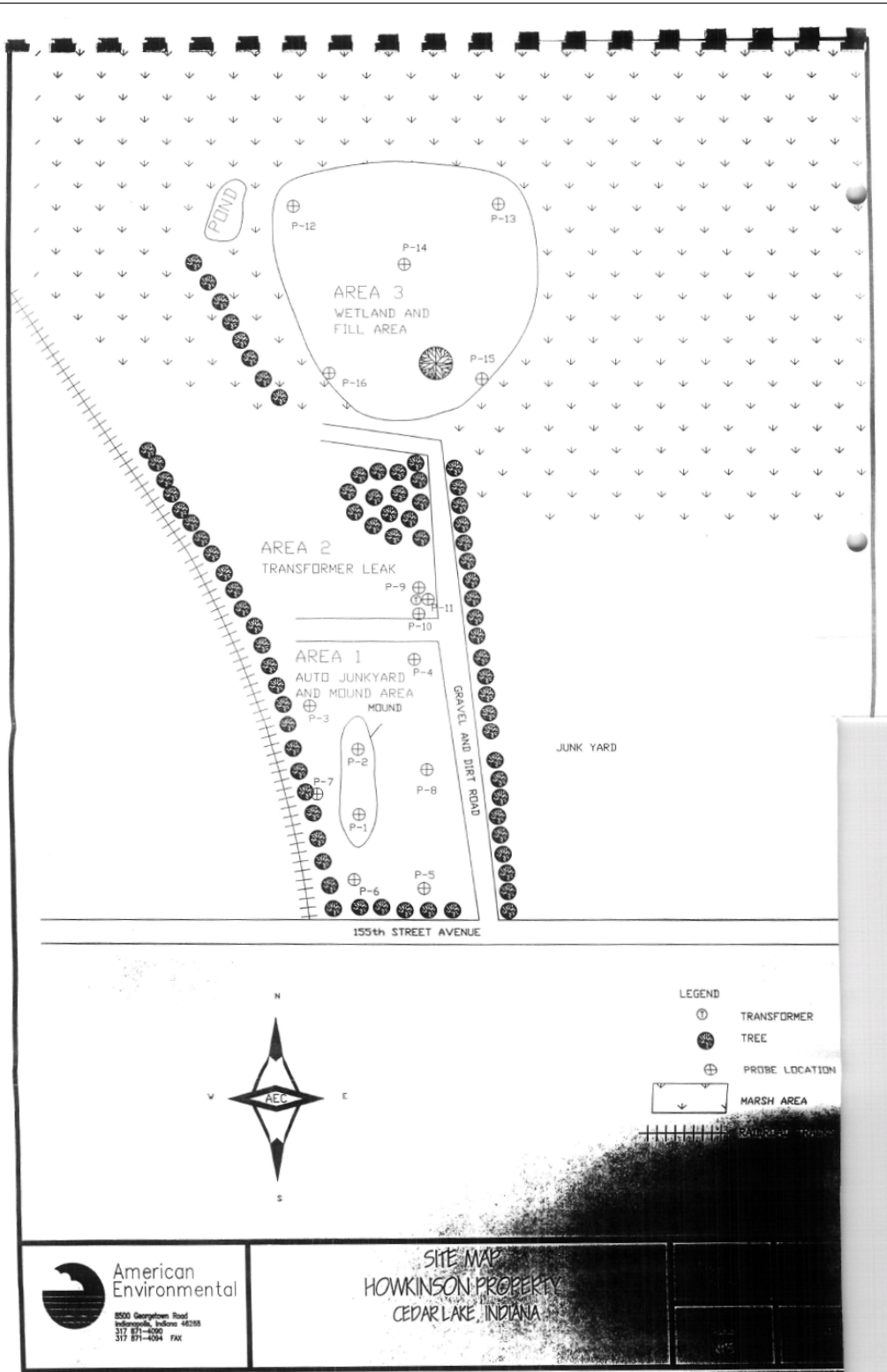
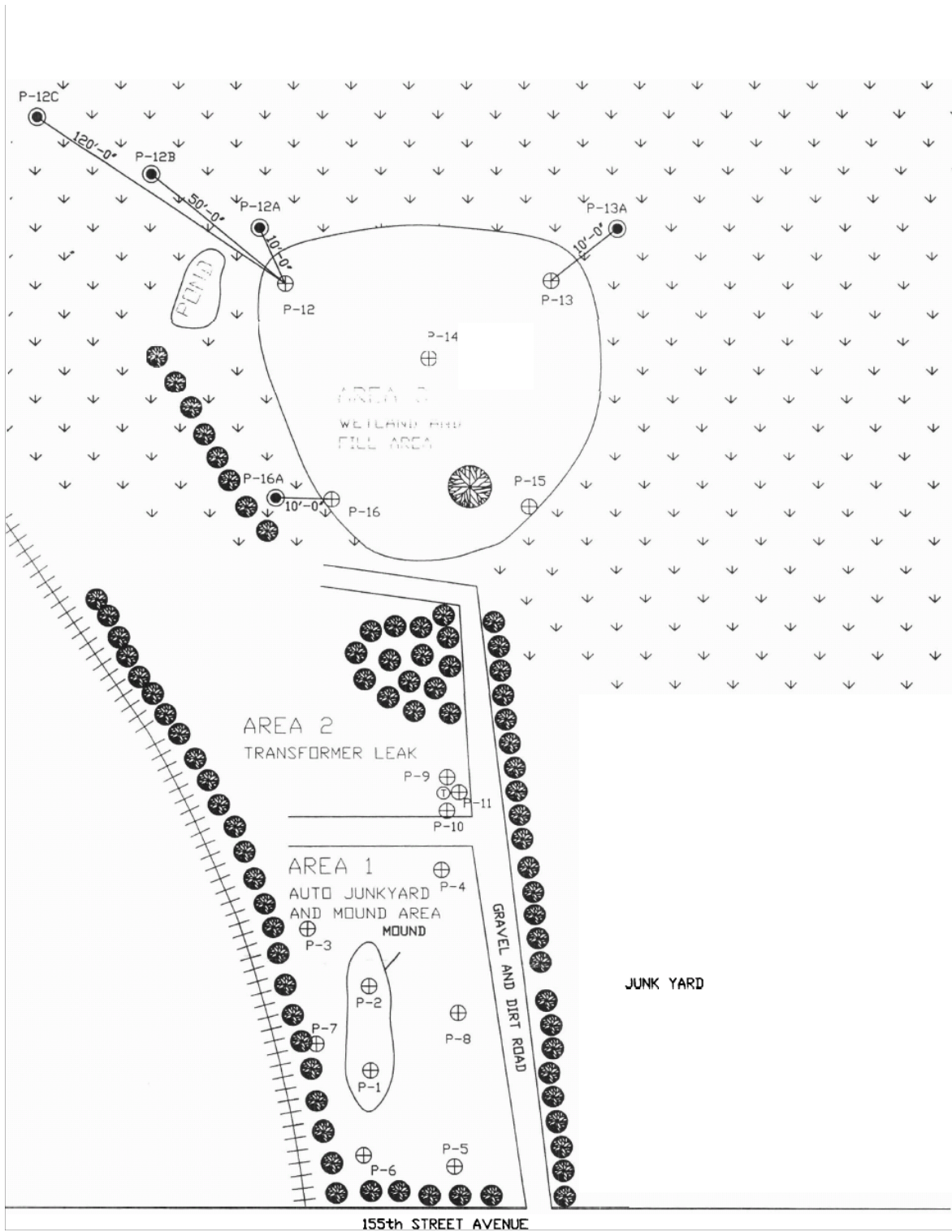


Figure 10: January 2002 Additional Phase II Investigation Boring Locations



Electronic Copies of Attachments Available Upon Request

The EDR Radius Map with GeoCheck[®]

**Cedar Lake Disposal Site
155th Ave/Parrish
Cedar Lake, IN 46303**

Inquiry Number: 1918182.1s

May 03, 2007

The Standard in Environmental Risk Information

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