



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397

BRUCE RAUNER, GOVERNOR

LISA BONNETT, DIRECTOR

(217) 524-3300

RECEIVED

April 18, 2016

APR 21 2016

Siemens Real Estate
Attn: Ms. Susan O'Connor
3850 Quadrangle Boulevard, MC-222 SRE
Orlando, Florida 32817

Re: 0890100010--Kane County
Batavia/Siemens & Furnas Controls
Site Remediation Program/Technical Reports

Dear Ms. O'Connor:

The Illinois Environmental Protection Agency (Illinois EPA) has reviewed the *Remedial Action Plan* (received March 4, 2016/Log No. 16-61628) that was submitted for the above-referenced remediation site. The *Remedial Action Plan* was prepared by Weston Solutions, Inc.

The *Remedial Action Plan* is approved.

If you have any questions regarding this *Letter* or the Site Remediation Program (SRP), please feel free to contact me at russ.irwin@illinois.gov or by telephone at (217) 524-2084.

Sincerely,

MC: Russell H. Irwin, Project Manager
Bureau of Land, Division of Remediation Management
Remedial Project Management Section

cc: Mr. Nico Pubantz; Siemens Real Estate
Ms. Jennifer Troast; Weston Solutions, Inc.
Mr. Steven Bosko; Weston Solutions, Inc.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

April 28, 2016

REPLY TO THE ATTENTION OF:

Ms. Susan O'Connor
Siemens Real Estate
3850 Quadrangle Boulevard, MC-222 SRE
Orlando, Florida 32817

LU-9J

Re: Batavia/Siemens & Furnas Controls
Remedial Action Plan – March 2016
1000 McKee Street, Batavia, Illinois
Illinois Site Remediation Program 0890100010

Dear Ms. O'Connor:

I am writing in response to Weston Solutions, Inc. April 14, 2016 email request, submitted on your behalf, in which you request U.S. EPA concurrence that the subject site and associated polychlorinated biphenyl (PCB) soil remediation conducted at the above referenced facility will be adequately addressed under the oversight of the Illinois Environmental Protection Agency's (IEPA) Site Remediation Program (SRP). In support of this request, you have indicated that the low-level PCB impacted soils discovered at the site (maximum concentration of 2.7 parts per million (ppm)) shall be remediated to meet Illinois EPA Tier I Soil Remediation Objective of 1 ppm in accordance with the Illinois EPA's SRP under 35 Illinois Administrative Code (IAC) Part 740.

Under a 1997 Memorandum of Understanding (MOU) with the Illinois EPA, the U.S. EPA recognizes the use of Tiered Approach to Corrective Action Tier I PCB Objectives for sites subject to TSCA. Specifically, Section V.A of the MOU states that U.S. EPA Region 5 does not anticipate taking any federal environmental cleanup action under TSCA at a site having met the requirements of 35 IAC Part 742 per a "No Further Remediation" letter issued by Illinois EPA pursuant to 35 IAC 731, 732, or 740. This action under Section V.A presumes all of the terms and conditions of the MOU have been met by the State and all persons conducting the subject cleanup activities.

Accordingly, based the information provided by Weston Solutions, Inc.; the IEPA SRP Program's April 18, 2016 approval of the Remedial Action Plan (RAP) for the cleanup of PCB impacted soils at the site to meet IEPA's Tier I Soil Remediation Objective of 1 ppm; and the presumption that all applicable conditions of the MOU have been met in this matter, U.S. EPA Region 5 does not anticipate pursuing any additional federal environmental cleanup action under TSCA at the above referenced site. Please note that U.S. EPA reserves the right to require additional cleanup if TSCA regulated PCB contamination is discovered on the subject property which is not addressed under this RAP. In addition, should it ever be determined that any information or statement provided to U.S. EPA in this matter was false or inaccurate, U.S. EPA reserves its right to revoke this decision and, thereby, render such decision null and void.

This letter does not relieve Siemens Real Estate from compliance with any other federal, state, or local regulation and does not preclude U.S. EPA from initiating any enforcement action, including an action seeking civil penalties for any violation of federal regulations.

If you have any questions, please contact me at ramanauskas.peter@epa.gov or by telephone at (312) 886-7890.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter Ramanauskas", written in a cursive style.

Peter Ramanauskas
Regional PCB Coordinator
Remediation and Reuse Branch
Land and Chemicals Division

cc: Russell H. Irwin, IEPA Project Manager



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397

BRUCE RAUNER, GOVERNOR

LISA BONNETT, DIRECTOR

(217) 524-3300

April 7, 2016

Siemens Real Estate
Attn Ms Susan O'Connor
3850 Quadrangle Boulevard, MC-222 SRE
Orlando, Florida 32817

Re 0890100010--Kane County
Batavia/Siemens & Furnas Controls
Site Remediation Program/Technical Reports

Dear Ms O'Connor

The Illinois Environmental Protection Agency (Illinois EPA) has reviewed the combined *Comprehensive Site Investigation Report and Remediation Objectives Report* (received December 30, 2015/Log 16-61203) that was submitted for the above-referenced remediation site

In that *Report*, Polychlorinated Biphenyls (PCBs) were detected at concentrations above the Illinois EPA cleanup objective of 1.0 mg/kg (ppm). Even though the Illinois EPA has a clean-up objective for PCBs, the Illinois EPA defers to the United States Environmental Protection Agency (US EPA) on PCB clean-ups. The Illinois EPA requires you to contact Mr. Peter Ramanauskas at US EPA, Region 5, 77 West Jackson Boulevard, Chicago, Illinois 60604, (312) 886-7890. Once the US EPA provides you with written confirmation that the PCB contamination has been adequately addressed, you must provide the Illinois EPA with a copy of the document.

If you have any questions regarding this *Letter* or the Site Remediation Program (SRP), please feel free to contact me at russ.irwin@illinois.gov or by telephone at (217) 524-2084.

Sincerely,

Russell H. Irwin by M.C.

Russell H. Irwin, Project Manager
Bureau of Land, Division of Remediation Management
Remedial Project Management Section

cc Ms. Jennifer Troast, Weston Solutions, Inc



Illinois Environmental Protection Agency

Bureau of Land • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

INSTRUCTIONS TO REQUEST REVIEW OR APPROVAL OF PLANS AND REPORTS BY THE ILLINOIS EPA UNDER THE SITE REMEDIATION PROGRAM (SRP) (FORM DRM-2)

General Information

A Remediation Applicant requesting review and evaluation of Site Remediation Program (SRP) plans and reports by the Illinois Environmental Protection Agency ("Illinois EPA") or by a Review and Evaluation Licensed Professional Engineer or Geologist ("RELPEG") must complete a DRM-2 Form for each plan or report. More than one plan or report may be submitted under cover of this form.

Please read the directions carefully and ensure that all required information is provided. When completing this form, the letters "NA" may be used, but only if the requested information is not applicable. Justification must be stated for any failure to provide applicable requested information. This fillable form may be completed online, a copy saved locally, printed and signed before it is submitted to:

Illinois Environmental Protection Agency
Bureau of Land
Remedial Project Management Section
Site Remediation Program
1021 N. Grand Avenue East
PO Box 19276
Springfield, IL 62794-9276

Hand-carried documents may be delivered during normal business hours (8:30 a.m. - 5 p.m.) to the above address.

To assist in implementing with your plans or reports, once they are approved by the Illinois EPA, you should keep a copy of every submittal and any relevant correspondence sent to the Illinois EPA.

Please fill out the applicable sections on this form. The requested information is described in the directions on the following pages.

*If a Review and Evaluation Licensed Professional Engineer or Geologist ("RELPEG") has been contracted to perform review and evaluation services, one additional copy of those plan(s) or report(s) must be included with the submittal. A RELPEG is a licensed professional engineer or geologist with whom a Remediation Applicant ("RA") has contracted to perform review and evaluation services under the direction of the Illinois EPA. The use of the RELPEG is an option available to an RA to obtain additional technical evaluation resources for a project. Additional information on how a RELPEG can be used in the SRP is provided in the regulations (35 Ill. Adm. Code 740.235).



Illinois Environmental Protection Agency

Bureau of Land • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

Site Remediation Program Form (DRM-2) (To be Submitted with all Plans and Reports)

You may complete this form online, save a copy, print, sign and mail it to the address above.

You must have Adobe Acrobat Reader 8.0 or above installed to use the features on this form.

I. Site Identification:

Site Name: Siemens & Furnas Controls

Street Address: 1000 McKee Street P.O. Box: _____

City: Batavia State: IL Zip Code: 60510 Phone: _____

Illinois Inventory ID Number: _____ IEMA Incident Number: _____

II. Remediation Applicant:

Applicant's Name: Mr./Ms. Mr. Nico Pubantz / Ms. Susan O'Connor

Company: Siemens Real Estate, a Division of Siemens Corporation

Street Address: 3850 Quadrangle Boulevard, MC-222 SRE P.O. Box: _____

City: Orlando State: FL Zip Code: 32817 Phone: 407-810-3204

Email Address: nico.pubantz@siemens.com / sue.oconnor@siemens.com

I hereby request that the Illinois EPA review and evaluate the attached project documents in accordance with the terms and conditions of the Environmental Protection Act (415 ILCS 5), implementing regulations, and the review and evaluation services agreement.

Remediation Applicant's Signature: *Nico Pubantz / Susan O'Connor* Date: 2/24/16

III. Contact Person for Remediation Applicant:

Contact's Name: Mr./Ms. Ms. Susan O'Connor, SRE -Americas EHS Officer

Company: Siemens Real Estate, a Division of Siemens Corporation

Street Address: 3850 Quadrangle Boulevard, MC-222 SRE P.O. Box: _____

City: Orlando State: FL Zip Code: 32817 Phone: 407-810-3204

Email Address: sue.oconnor@siemens.com

Contact Person for Consultant:

Contact's Name: Mr./Ms. Ms. Jennifer Troast

Company: Weston Solutions, Inc.

Street Address: 300 Plaza Circle, Suite 202 P.O. Box: _____

City: Mundelein State: IL Zip Code: 60060 Phone: 773-968-1309

Email Address: Jen.Troast@WestonSolutions.com

IV. Review & Evaluation Licensed Professional Engineer or Geologist ("RELPEG"), if applicable:

RELPEG's Name: Mr./Ms. _____

Company: _____

Street Address: _____ P.O. Box: _____

City: _____ State: _____ Zip Code: _____ Phone: _____

Email Address: _____

V. Project Documents Being Submitted:

Document Title: <u>Remedial Action Plan</u>	Date of Preparation of Plan or Report: <u>February 2016</u>
Prepared by: _____	Prepared For: <u>Siemens Real Estate</u>
<u>Type of Document Submitted:</u>	
<input type="checkbox"/> Site Investigation Report - Comprehensive <input type="checkbox"/> Site Investigation Report - Focused <input type="checkbox"/> Remediation Objectives Report - Tier 1 or 2 <input type="checkbox"/> Remediation Objectives Report - Tier 3 <input checked="" type="checkbox"/> Remedial Action Plan <input type="checkbox"/> Remedial Action Completion Report	<input type="checkbox"/> Sampling Plan <input type="checkbox"/> Health and Safety Plan <input type="checkbox"/> Community Relations Plan <input type="checkbox"/> Risk Assessment <input type="checkbox"/> Containment Fate & Transport Modeling <input type="checkbox"/> Other: _____

Document Title: _____	Date of Preparation of Plan or Report: _____
Prepared by: _____	Prepared For: _____
<u>Type of Document Submitted:</u>	
<input type="checkbox"/> Site Investigation Report - Comprehensive <input type="checkbox"/> Site Investigation Report - Focused <input type="checkbox"/> Remediation Objectives Report - Tier 1 or 2 <input type="checkbox"/> Remediation Objectives Report - Tier 3 <input type="checkbox"/> Remedial Action Plan <input type="checkbox"/> Remedial Action Completion Report	<input type="checkbox"/> Sampling Plan <input type="checkbox"/> Health and Safety Plan <input type="checkbox"/> Community Relations Plan <input type="checkbox"/> Risk Assessment <input type="checkbox"/> Containment Fate & Transport Modeling <input type="checkbox"/> Other: _____

Document Title: _____	Date of Preparation of Plan or Report: _____
Prepared by: _____	Prepared For: _____
<u>Type of Document Submitted:</u>	
<input type="checkbox"/> Site Investigation Report - Comprehensive <input type="checkbox"/> Site Investigation Report - Focused <input type="checkbox"/> Remediation Objectives Report - Tier 1 or 2 <input type="checkbox"/> Remediation Objectives Report - Tier 3 <input type="checkbox"/> Remedial Action Plan <input type="checkbox"/> Remedial Action Completion Report	<input type="checkbox"/> Sampling Plan <input type="checkbox"/> Health and Safety Plan <input type="checkbox"/> Community Relations Plan <input type="checkbox"/> Risk Assessment <input type="checkbox"/> Containment Fate & Transport Modeling <input type="checkbox"/> Other: _____

Add Another Document

Delete Last Entry

VI. Professional Engineer's or Geologist's Seal or Stamp:

I attest that all site investigations or remedial activities that are subject of this plan(s) or report(s) were performed under my direction, and this document and all attachments were prepared under my direction or reviewed by me, and to the best of my knowledge and belief, the work described in the plan and report has been designed or completed in accordance with the Illinois Environmental Protection Act (415 ILCS 5), 35 Ill. Adm. Code 740, and generally accepted engineering practices or principles of professional geology, and the information presented is accurate and complete.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 Felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Engineer's or Geologist's Name: William F. Karlovitz

Company: Weston Solutions, Inc.

Registration Number: 062-052500 Phone: 224-864-7267

License Expiration Date: 11/30/2017

Signature: *William F. Karlovitz* Date: 3/2/2016



Note: The authority of a Licensed Professional Geologist to certify documents submitted to the Illinois Environmental Protection Agency for review and evaluation pursuant to Title XVII of the Environmental Protection Act is limited to Site Investigation Reports (415 ILCS 58.7(f), as amended by P.A. 92-0735, effective July 25, 2002. A Licensed Professional Geologist cannot certify Remediation Objectives Reports, Remedial Action Plans or Remedial Action Completion Reports.

All information submitted is available to the public except when specifically designated by the Remediation Applicant to be treated confidentially as a trade secret or secret process in accordance with the Illinois Compiled Statutes, Section 7(a) of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Illinois EPA rules and guidelines. The Illinois EPA is authorized to require this information under Sections 415 ILCS 5/58 - 58.12 of the Environmental Protection Act and regulations promulgated thereunder. Disclosure of this information is required as a condition of participation in the Site Remediation Program. Failure to do so may prevent this form from being processed and could result in your plan(s) or report(s) being rejected. This form has been approved by the Forms Management Center.

**REMEDIAL ACTION PLAN
THE FORMER SIEMENS FACILITY
BATAVIA, ILLINOIS**

Prepared for:

SIEMENS REAL ESTATE
Orlando, Florida

Prepared by:

Weston Solutions, Inc.
Suite 202, 300 Plaza Circle
Mundelein, IL 60060

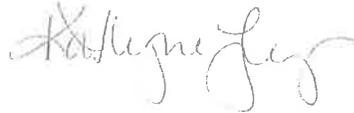
March 2016

**REMEDIAL ACTION PLAN
THE FORMER SIEMENS FACILITY
BATAVIA, ILLINOIS**

Prepared for

SIEMENS REAL ESTATE
Orlando, Florida

March 2016



Kathryne Frey
Project Scientist



Jennifer L. Troast
Senior Project Manager



Steven R. Bosko
Program Director



William F. Karlovitz, P.E.
Professional Engineer

Prepared by:

Weston Solutions, Inc.
Suite 202, 300 Plaza Circle
Mundelein, IL 60060

TABLE OF CONTENTS

Section	Page
EXECUTIVE SUMMARY	ES-1
SECTION 1 INTRODUCTION.....	1-1
1.1 PROJECT OBJECTIVES	1-1
1.2 SITE DESCRIPTION	1-1
1.3 SITE HISTORY	1-2
1.4 POST-REMEDATION USE OF PROPERTY.....	1-3
SECTION 2 RECOGNIZED ENVIRONMENTAL CONDITIONS.....	2-1
2.1 REMEDATION OBJECTIVES	2-1
2.1.1 Soil	2-1
2.1.2 Foundry Sands	2-1
2.1.3 Groundwater	2-2
2.1.4 Soil Gas.....	2-2
2.2 SPECIFIC CONTAMINANTS OF CONCERN	2-2
2.2.1 SB002 Hotspot.....	2-2
2.2.2 SB007 Hotspot.....	2-3
2.2.3 SB011 Hotspot.....	2-3
2.2.4 Foundry Sands	2-3
2.2.5 Groundwater – Deep Water-Bearing Unit	2-4
2.2.6 Soil Gas Hotspots	2-4
SECTION 3 PROPOSED REMEDIES	3-1
3.1 REMEDATION AREAS.....	3-1
3.1.1 SB002 Hotspot.....	3-1
3.1.2 SB007 Hotspot.....	3-1
3.1.3 SB011 Hotspot.....	3-2
3.1.4 Foundry Sands	3-2
3.1.5 Groundwater – Deep Water-Bearing Unit	3-2
3.1.6 Soil Gas Hotspots.....	3-3
3.2 PROPOSED REMEDIES	3-3
3.2.1 Excavation and Off-Site Disposal.....	3-3
3.2.2 Groundwater Treatment.....	3-6
3.3 CONFIRMATION SAMPLING	3-7
3.3.1 SB002 Hotspot.....	3-8
3.3.2 SB007 Hotspot.....	3-8
3.3.3 SB011 Hotspot.....	3-8
3.3.4 Foundry Sands	3-9
3.3.5 SG001	3-10
3.3.6 SG003/SG003RE.....	3-10
3.3.7 Groundwater	3-10
SECTION 4 PROJECT SCHEDULE.....	4-1

LIST OF FIGURES

- 1-1 SITE LOCATION MAP
- 1-2 SITE BASE MAP
- 1-3 HISTORIC SAMPLING INVESTIGATION AND POTENTIAL SOURCES MAP
- 1-4 2015 SITE INVESTIGATION SAMPLE LOCATIONS
- 2-1 SOIL SAMPLING EXCEEDANCE MAP – SRE-SB002 HOTSPOT
- 2-2 SOIL SAMPLING EXCEEDANCE MAP – SRE-SB007 HOTSPOT
- 2-3 SOIL SAMPLING EXCEEDANCE MAP – SRE-SB011 HOTSPOT
- 2-4 SOIL SAMPLING EXCEEDANCE MAP - FOUNDRY SANDS
- 2-5 GROUNDWATER SAMPLING EXCEEDANCE MAP
- 2-6 SOIL GAS SAMPLING EXCEEDANCE MAP
- 3-1 SOIL EXCAVATION MAP – SRE-SB002 HOTSPOT
- 3-2 SOIL EXCAVATION MAP – SRE-SB007 HOTSPOT
- 3-3 SOIL EXCAVATION MAP – SRE-SB011 HOTSPOT
- 3-4 SOIL EXCAVATION MAP AND CONFIRMATION SAMPLING LOCATIONS – FOUNDRY SANDS
- 3-5 SOIL EXCAVATION MAP – SG001 HOTSPOT
- 3-6 SOIL EXCAVATION MAP – SG003 HOTSPOT
- 3-7 PROPOSED MONITORING WELL AND INJECTION POINT LOCATION MAP
- 4-1 PROJECT SCHEDULE

EXECUTIVE SUMMARY

This report is a Remedial Action Plan (RAP) for the former Siemens Facility (former Siemens Industry, Inc.) located at 1000 McKee Street in Batavia, Illinois. The former Siemens Industry, Inc. (SI) facility (LPC No. 0890100010) was transferred to Siemens Real Estate (SRE) on 1 November 2015.

The primary objective is to obtain a Comprehensive No Further Remediation (NFR) letter to residential standards for the property including the additional information collected during the 2015 site investigation. The first step in this process was to submit a Comprehensive Site Investigation Report and Remediation Objectives Report (CSIR/ROR), with the goal of obtaining Illinois Environmental Protection Agency (IEPA) written approval. On 29 December 2015, the CSIR/ROR was submitted to the IEPA. A letter from IEPA approving the CSIR/ROR was received on 22 February 2016. The purpose of this RAP is to obtain approval of the selected remedies for the Facility.

In applying remediation objectives for the former facility property, the end use is proposed to be residential. No institutional controls or engineered barriers are proposed for the remediation of this property.

The following media requiring remediation were identified based on the comprehensive investigation sampling analytical results.

Soil

- Analytical results from soil samples indicated the presence of metals, volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) above the Tier 1 soil remediation objective for residential properties.
- The horizontal and vertical extent of constituents above Tier 1/Tier 2 soil remediation objectives has been determined through chemical analyses at Hotspot Areas SB002, SB007, and SB011.
- The proposed remedial actions for these areas are soil removal and off-site disposal to eliminate all exposure routes including ingestion and the soil component to the groundwater ingestion exposure route without the use of institutional controls or engineered barriers.

- Bottom and sidewall confirmation soil samples will be collected and analyzed for VOCs, PAHs and/or PCBs as applicable to the hotspot area.
- At the completion of removal activities, the excavation areas will be backfilled to grade with clean overburden material and/or clean sand and/or gravel material.

Fill Materials

- Four fill types were identified at the facility: brown sand, black soil and two types of foundry sand (black sand and black powder).
- Analytical results did not indicate the presence of constituents at concentrations above the most stringent Tier 1 soil remediation objectives for residential properties in the brown sand and black soil.
- Analytical results from the two black foundry sand types indicated the presence of benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene at concentrations above Tier 1 soil remediation objectives for residential properties.
- The proposed remedial actions are foundry sand removal and off-site disposal to eliminate the ingestion exposure route without the use of institutional controls or engineered barriers. Excavation will occur in three stages in order to accommodate stockpiling of the brown sand and/or black soil fill and foundry sand removal.
- Confirmation soil samples will be collected from the stockpiled soil material to determine that no PAH constituents are present above the proposed soil remediation objectives.
- Confirmation soil samples will be collected from the bottom of the excavation of the foundry sand at 100-ft intervals. If the analytical results from the confirmation sample are above the soil remediation objective, additional samples will be taken in a 25-ft grid around the location that exceeds cleanup levels to define lateral extent. Then an additional 6-inch lift of material will be removed and an additional confirmation sample will be collected and analyzed at the original confirmation hot-spot.
- At the completion of removal activities, the excavation areas will be backfilled to grade with clean overburden material backfilled and/or clean sand and/or gravel material.

Groundwater

- Analytical results indicated the presence of trichloroethene (TCE) at a concentration above the Tier 1 Class I groundwater remediation objective in MW02D.
- Three additional monitoring wells will be installed in the deep water-bearing unit to confirm that the TCE is localized at MW02D. One well will be installed up-gradient (MW05D) and two wells will be installed down-gradient (MW06D and MW07D) of the current monitoring well MW02D.

- Groundwater samples will be collected at all deep water-bearing unit monitoring wells to determine initial TCE concentrations.
- Enhanced anaerobic bioremediation has been selected as the selected remedy for the deep water-bearing unit at the facility. A fermentable carbon source and a microbial consortium will be added by injection to accelerate the natural attenuation of chlorinated solvents in the groundwater. This method of reductive chlorination was selected due to its effectiveness in treating the targeted contaminant (TCE), its persistence in the subsurface, and ease of handling.
- Groundwater monitoring is proposed at four monitoring well locations (MW02D, MW05D, MW06D and MW07D) following the addition of microbial consortium and the enhanced carbon source into the deep water-bearing unit.
- Groundwater samples will be collected approximately one month after the initial injection. If the results exceed the remediation objectives, additional sampling will be required on a monthly basis until groundwater has met the remediation objectives.
- All the deep monitoring wells at the facility will be abandoned in accordance with all local and state requirements, after IEPA approval of the Remedial Action Completion Report (RACR).

Soil Gas

- An alternative Tier 2 evaluation, J&E 4 was used to determine a site specific soil gas remediation objective to allow for unrestricted site use. Based on this Tier 2 evaluation, ethylbenzene, naphthalene, vinyl chloride and total xylenes were present at concentrations above the J&E 4 remediation values at SG001. Vinyl chloride was present at concentrations above the J&E 4 remediation values at locations SG003 and SG003RE.
- Remedial actions are fill removal and off-site disposal to eliminate the ingestion exposure route without the use of institutional controls or engineered barriers.
- Sidewall and/or confirmation soil samples will be collected and analyzed for selected VOCs at the SG001 and SG003/SG003RE hotspots. If analytical results indicate the presence of constituents in the soil, a soil gas sample will be collected at approximately 1.0 ft below the bottom excavation and analyzed for selected VOCs by EPA Method TO-15A.
- At the completion of removal activities, the excavation areas will be backfilled to grade with clean overburden material and/or clean sand and/or gravel material.

SRE intends to initiate remedial activities in Spring 2016 with a remedial action completion date of Fall 2016. At the completion of the remedial action a Remedial Action Completion Report will be submitted to the IEPA in accordance with 35 Illinois Administrative Code (IAC) Part 740.455 requesting a comprehensive residential NFR letter. A draft NFR letter is requested upon approval of this RAP.

SECTION 1 INTRODUCTION

This report is a Remedial Action Plan (RAP) for the former Siemens Facility (former Siemens Industry, Inc.) located at 1000 McKee Street in Batavia, Illinois. The former Siemens Industry, Inc. (SI) facility (LPC No. 0890100010) was transferred to Siemens Real Estate (SRE) on 1 November 2015. This Facility was also previously owned by the Furnas Electric Company which was purchased by Siemens Energy & Automation (SEA) on 26 December 1996. This RAP describes the proposed remedy to achieve the remediation objectives for the Facility in accordance with 35 Illinois Administrative Code (IAC) Part 740.450. Specifically, this report provides the proposed remedy; a detailed description of the areas to be remediated and the extent of elevated constituents; a statement of the remediation objectives; schedule; and the anticipated post-remediation uses of the property.

1.1 PROJECT OBJECTIVES

The primary objective is to obtain a residential Comprehensive No Further Remediation (NFR) letter for the property. The first step in this process was to submit a Comprehensive Site Investigation Report and Remediation Objectives Report (CSIR/ROR), with the goal of obtaining Illinois Environmental Protection Agency (IEPA) written approval. On 29 December 2015, the CSIR/ROR was submitted to the IEPA. A letter from IEPA approving the CSIR/ROR was received on 22 February 2016. The purpose of this RAP is to obtain approval of the selected remedies for the Facility. A draft NFR letter is requested upon approval of the RAP.

1.2 SITE DESCRIPTION

The facility property is approximately 8.9 acres and is generally flat. As shown on the Site Location Map, Figure 1-1, the property is surrounded on the south by light commercial and residential, on the east sides by residential neighborhoods, on the north side by school property, and on the west side by a parking lot. A Site Base Map is included as Figure 1-2. The Site Base Map meets the requirements specified in 35 IAC 740.210(a)(7)(A) through (D). Specifically, Figure 1-2 shows the adjacent property to at least 1,000 feet (ft.) in all directions. Adjacent property owners have been identified and the surrounding land uses are also identified as

provided on the Kane County Assessment Office webpage. The property currently consists of asphalt/gravel parking, gravel and green spaces.

1.3 SITE HISTORY

The facility operated a manufacturing plant, classified under Standard Industrial Classification (SIC) Number 3643 (electric lighting and wiring equipment [current carrying devices]). The plant manufactured motor controls for various clients. The manufacturing process included metal fabrication, plating, plastic molding, painting, and etching. This facility had been operating at this location since 1940. Manufacturing activities ceased in May 2000. Demolition of all existing structures was completed in 2006. Concrete slab and footings from former operations were removed from April through June 2015.

A significant amount of environmental research, investigation, and remedial action has occurred at the former Siemens facility. The property received a Comprehensive NFR Letter allowing for the development of the property for residential land use from the IEPA on 2 July 2013. Due to the proposed residential development, additional sampling was completed in 2015.

Below is a list of the significant reports generated for the facility and previously submitted to the IEPA, which were used as a basis of the 2015 site investigation and resulting CSIR/ROR submitted to the IEPA in December 2015, and received approval from the IEPA in a letter, dated 18 February 2016:

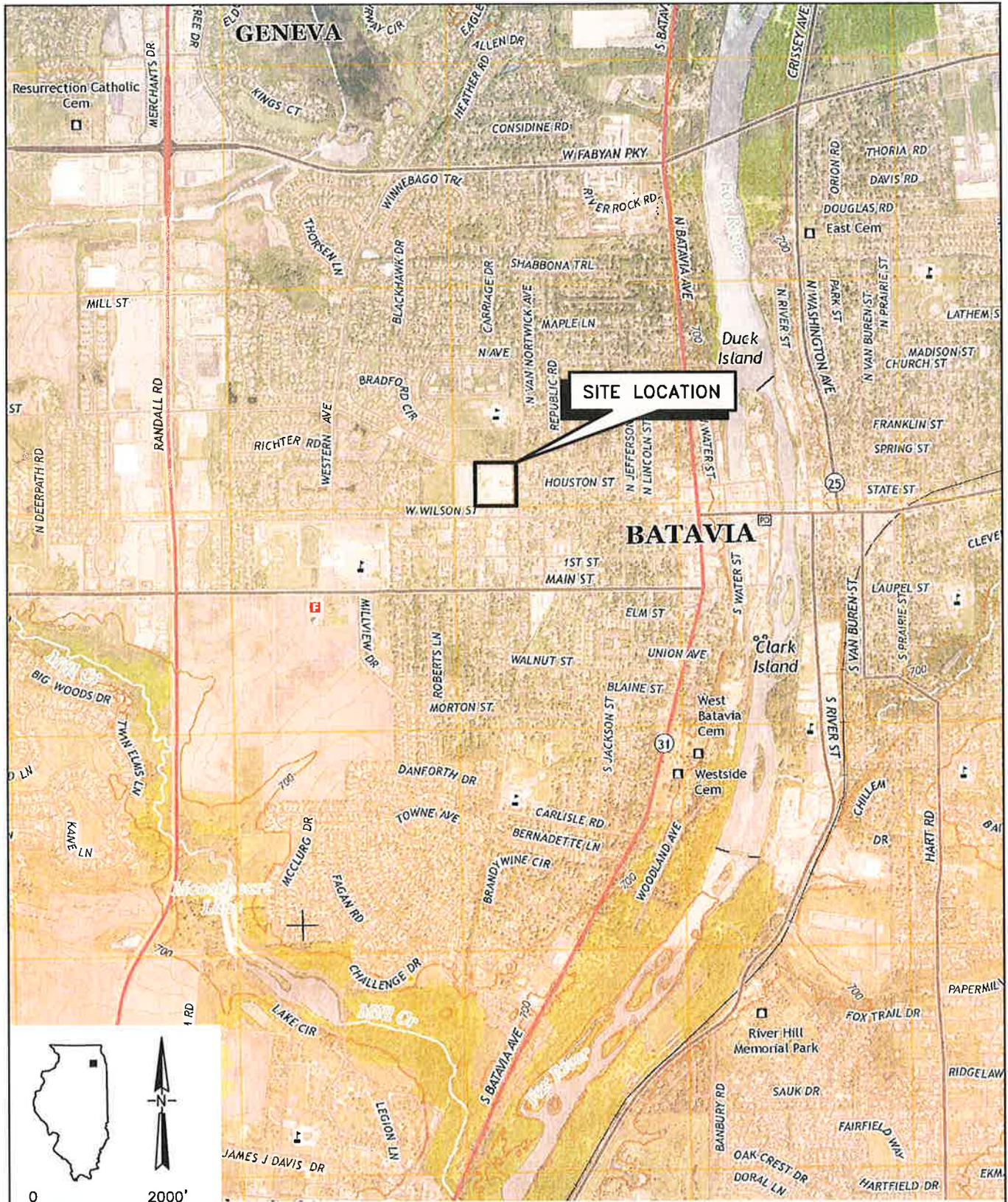
- *Closure Report for the Hazardous Waste Container Staging and Additional Area (WESTON, 1998)*
- *Focused Site Investigation Report (WESTON, 2003)*
- *Comprehensive Site Investigation, Remediation Objectives Report, and Remedial Action Plan (WESTON, 2006)*
- *Remedial Action Completion Report (WESTON, 2011)*
- *Comprehensive No Further Remediation Letter (IEPA, 2013).*

All historical recognized areas of concern and remediation areas are provided in Figure 1-3.

From 9 January through 13 November 2015, a total of 136 soil samples, including 10 duplicate samples, were collected from 64 soil boring locations. A total of five composite soil samples were collected from seven test pit locations. A total of 10 groundwater samples, including three duplicate samples, were collected from six groundwater monitoring wells, and eight soil gas samples, including one duplicate sample, were collected from six soil gas sampling locations. All 2015 site investigation sample locations are provided on Figure 1-4. A detailed discussion of the nature and extent of contamination at the facility based on the 2015 investigation is provided in Section 2.

1.4 POST-REMEDATION USE OF PROPERTY

The property is currently vacant land. Residential redevelopment is being proposed as the future land use.



SOURCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC MAPS.
AURORA NORTH, ILLINOIS QUADRANGLE.

FIGURE 1-1



300 Plaza Circle
Suite 202
Mundelein, Illinois
60060

SITE LOCATION MAP
FORMER SIEMENS FACILITY
Batavia, Kane County, Illinois

SECTION 2 RECOGNIZED ENVIRONMENTAL CONDITIONS

This section presents a brief summary of the nature and extent of elevated constituents for the areas and media of concern. For details relating to the 2015 comprehensive site investigation including figures, tables, data evaluation, calculations, boring logs, etc., refer to the previously submitted *Comprehensive Site Investigation Report and Remediation Objectives Report* (December 2015).

2.1 REMEDIATION OBJECTIVES

In applying remediation objectives for the former facility property, the end use is assumed to be residential. No institutional controls or engineered barriers are proposed for the remediation of this property.

2.1.1 Soil

The Tier 1 residential soil remediation objectives (SROs) for residential ingestion and inhalation and construction worker ingestion and inhalation provided in 35 IAC Part 742 Appendix B, Tables A and B are proposed as the direct contact remediation objective for these exposure routes. Tier 2 residential SROs for the soil component to the groundwater ingestion exposure route for Class 1 groundwater were previously approved by the IEPA for VOC constituents for this exposure route in a letter dated 19 September 2006. Based on the data collected during the 2006 investigation, the following Tier 2 soil remediation objectives were determined and approved by the IEPA:

- Trichloroethene (TCE) – 192 micrograms per kilogram (ug/kg).
- Vinyl chloride – 17 ug/kg.

2.1.2 Foundry Sands

The Tier 1 residential SROs for residential ingestion and inhalation and construction worker ingestion and inhalation provided in 35 IAC Part 742 Appendix B, Tables A and B are the proposed remediation objective for these exposure routes. A detailed discussion of a Tier 3 evaluation of the foundry sands is provided in the previously submitted CSIR/ROR (December,

2015). Based on the analytical results, no soil component to the groundwater ingestion or a groundwater ingestion exposure route is present from foundry sand.

2.1.3 Groundwater

The Tier 1 groundwater remediation objectives for Class I groundwater provided in 35 IAC Part 742, Appendix B, Table E are proposed for the deep water-bearing unit.

2.1.4 Soil Gas

A Tier 2 evaluation using Johnson and Ettinger (J&E), Equation J&E 4 provided in 25 IAC Part 742, Appendix C, Table L, was used to determine a site specific soil gas remediation objectives to allow for an unrestricted site use. The following Tier 2 soil gas remediation objectives were determined:

- Chlorobenzene – 1.7 mg/m³
- Ethylbenzene – 0.032 mg/m³
- M,p-xylene – 3.3 mg/m³
- Naphthalene – 0.0024 mg/m³
- Vinyl chloride – 0.0093 mg/m³
- Total xylenes – 3.3 mg/m³

2.2 SPECIFIC CONTAMINANTS OF CONCERN

Based on the *Comprehensive Site Investigation Report and Remediation Objectives Report* (December 2015) the following recognized areas and media of concern are present:

- Soil Hotspots – SB002, SB007 and SB011
- Foundry Sands
- Groundwater – Deep Water Bearing Unit
- Soil Gas Hotspots – SG001, SG003 and SG003RE

2.2.1 SB002 Hotspot

TCE was present at a concentration above the Tier 1 SRO for residential property for the inhalation exposure pathway in the soil sample collected at SB021 from the 0.0 to 2.0 ft. bgs interval. Benzene, tetrachloroethene (PCE), and TCE were present at concentrations above the SRO for the soil component of the groundwater ingestion pathway. Benzene was detected in the soil sample collected from SB002 from the 0.0 to 2.0 ft. bgs interval. PCE and TCE were detected in the soil samples collected from SB002 and SB021 from the 0.0 to 2.0 ft. bgs interval.

The presence of benzene, PCE, and TCE in soil indicates a potential indoor inhalation exposure route.

PAHs present at SB002 and surrounding delineation samples are associated with the black foundry sands and are discussed in Section 2.2.4. A soil sampling exceedance map for the SB002 hotspot is provided as Figure 2-1.

2.2.2 SB007 Hotspot

Aroclor 1254 was present at a concentration in the soil sample collected at SB007 from the 0.0 to 2.0 ft. bgs interval above the Tier 1 SRO for residential ingestion exposure route. A soil sampling exceedance map for the SB007 hotspot is provided as Figure 2-2.

2.2.3 SB011 Hotspot

Aroclor 1254 was present in the soil sample collected from SB011 from the 0.0 to 2.0 ft. bgs interval, Aroclor 1254 and Aroclor 1260 in the soil sample collected from SB029 from the 4.0 to 6.0 ft. bgs interval and Aroclor 1260 in the soil sample collected from SB031 from the 0.0 to 2.0 ft. bgs interval at total concentrations above the Tier 1 SRO for residential property for the ingestion exposure route. TCE and vinyl chloride were present at concentrations above the SRO for the soil component of the groundwater ingestion pathway at the SB011 hotspot. TCE was detected in the soil samples collected from the 10.0 to 12.0 ft. bgs interval -from SB011- and SB031. Vinyl chloride was detected in the soil sample collected from SB029 from the 10.0 to 12.0 ft. bgs interval. The presence of TCE and vinyl chloride in soil indicates a potential indoor inhalation exposure route.

PAHs present at SB011 and surrounding delineation samples are associated with the black foundry sands and are discussed in Section 2.2.4. A soil sampling exceedance map for the SB011 hotspot is provided as Figure 2-3.

2.2.4 Foundry Sands

Two types of black foundry sand were identified at the former facility beneath the building slabs, a black sand and black powder. Based on the analytical results from the two black foundry sands/powder types, benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene,

benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene were detected above Tier 1 SROs. A soil sampling exceedance map for the foundry sands is provided as Figure 2-4.

Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and/or indeno(1,2,3-cd)pyrene were present at concentrations above Tier 1 residential ingestion SROs in 28 soil samples and above Tier 1 SROs for the soil component of the groundwater ingestion exposure route for Class I groundwater in 20 soil samples at the sampling intervals corresponding to the foundry sands at SB002 and SB011 and surrounding delineation sample locations.

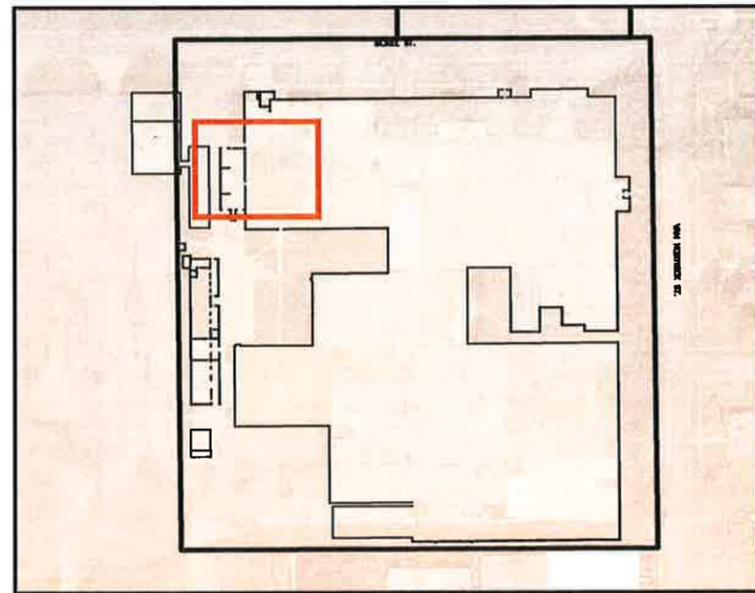
Benzo(a)pyrene was present at concentrations above the Tier 1 soil remediation objective for the construction worker ingestion pathway in black foundry sand samples SRE-SB030-000-1, SRE-SB039-000-1 and SRE-SB047-000-1 collected from the 0.0 to 2.0 ft bgs interval..

2.2.5 Groundwater – Deep Water-Bearing Unit

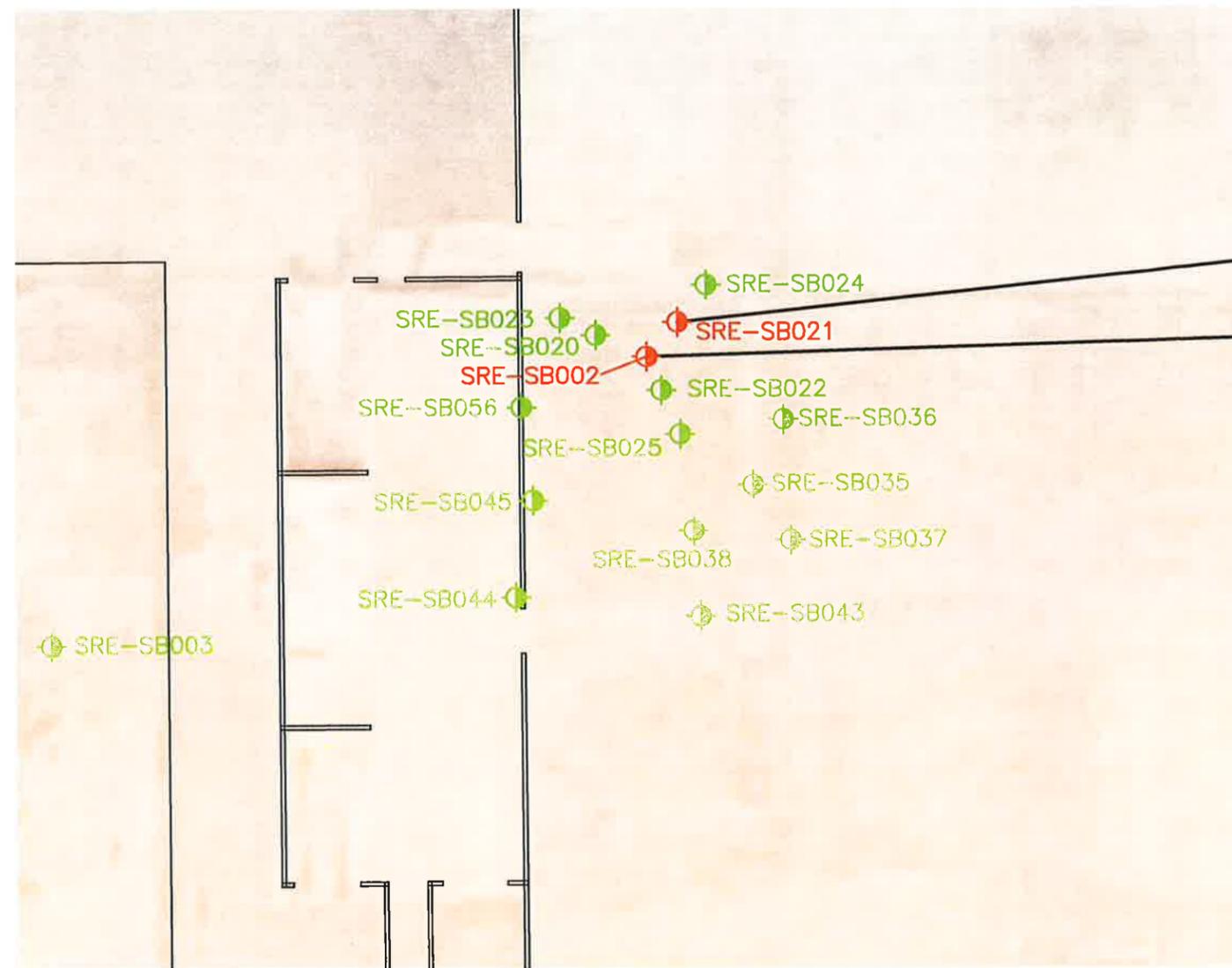
TCE was detected above the Tier 1 groundwater remediation objective for Class I groundwater in two rounds of groundwater samples SRE-MW02D-XXX-01-1 and SRE-MW02D-XXX-02-1 from monitoring well MW02D. As presented in the approved CSIR/ROR, RBCA Equation R26 was used to predict the distance TCE would travel before meeting Tier 1 groundwater remediation objectives. Inputting the maximum groundwater concentration of TCE and site-specific data on source width, source depth, hydraulic conductivity and gradient, Equation R26 predicts: that TCE detected at concentrations above groundwater remediation objectives would travel 20 ft. and remain on the facility property. A groundwater sampling exceedance map is provided as Figure 2-5.

2.2.6 Soil Gas Hotpots

Ethylbenzene, naphthalene, vinyl chloride and total xylenes were detected at concentrations above all calculated J&E remediation values at location SG001. Vinyl chloride was detected at concentrations above all calculated J&E remediation values at locations SG003 and SG003RE. A soil gas sampling exceedance map is provided as Figure 2-6.



KEY MAP



SRE-SB021 (0-2 FT BGS)
PCE 760 ug/kg (GW)
TCE 8,800 ug/kg (GW,INH)
SRE-SB021 (2-4 FT BGS)
NO CONSTITUENTS ABOVE SROs
SRE-SB021 (4-6 FT BGS)
NO CONSTITUENTS ABOVE SROs
SRE-SB021 (6-8 FT BGS)
NO CONSTITUENTS ABOVE SROs

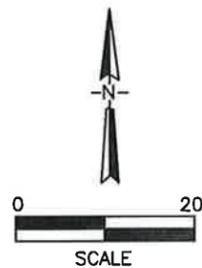
SRE-SB002 (0-2 FT BGS)
BENZENE 46 ug/kg (GW)
PCE 210 ug/kg (GW)
TCE 3,100 ug/kg (GW)
SRE-SB002 (14-6 FT BGS)
NO CONSTITUENTS ABOVE SROs

LEGEND

- SOIL SAMPLE LOCATION WITH CONSTITUENTS ABOVE TIER 1 SROs (0.0 TO 2.0 FT BGS)
- SOIL SAMPLE LOCATION WITH NO CONSTITUENTS ABOVE TIER 1 SROs
- (INH) EXCEEDS RESIDENTIAL INHALATION
- (GW) EXCEEDS MIGRATION TO CLASS I GROUNDWATER PATHWAY
- PCE TETRACHLOROETHENE
- TCE TRICHLOROETHENE

SOURCE:

- A. ESRI DIGITAL GLOBE 2013
- B. FURNAS ELECTRIC COMPANY BUILDING PLAN (NOVEMBER 1967) - PROVIDED BY SIEMENS REAL ESTATE, 2014



NOTE:

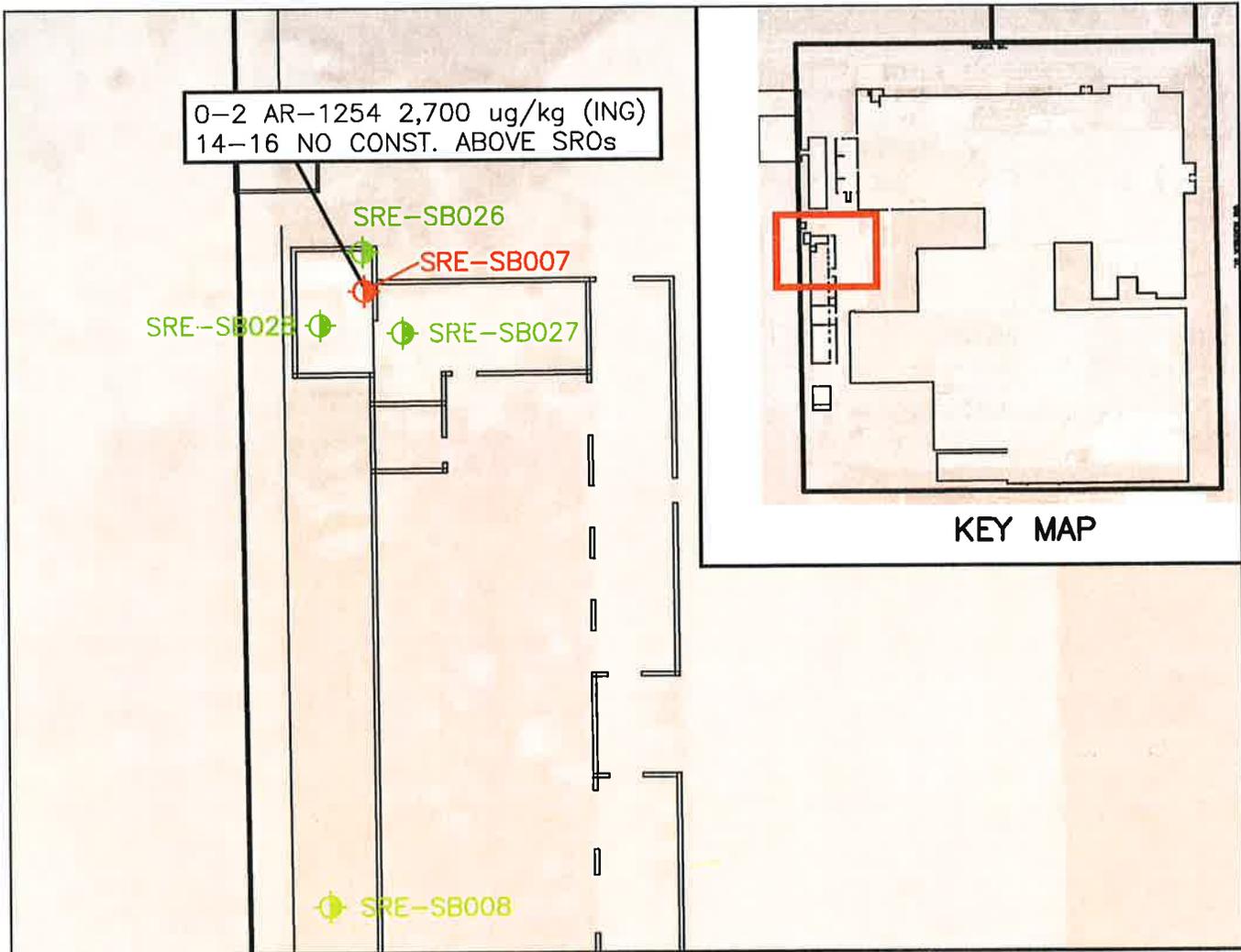
1. PAH EXCEEDANCES ASSOCIATED WITH FOUNDRY SAND SAMPLES ARE PRESENTED ON FIGURE 2-4. ONLY VOC EXCEEDANCES AT THE SB002 HOTSPOT ARE PRESENTED ON THIS FIGURE.

FIGURE 2-1



300 Plaza Circle
Suite 202
Mundelein, Illinois
60060

SOIL SAMPLING EXCEEDANCE MAP -
SRE-SB002 HOTSPOT
FORMER SIEMENS FACILITY
Batavia, Kane County, Illinois



LEGEND

-  SOIL SAMPLE LOCATION WITH CONSTITUENTS ABOVE TIER 1 SROs (0.0 TO 2.0 FT BGS)
-  SOIL SAMPLE LOCATION WITH NO CONSTITUENTS ABOVE TIER 1 SROs
- (ING) EXCEEDS RESIDENTIAL INGESTION
- AR-1254 AROCLOR 1254
- PCBs POLYCHLORINATED BIPHENYLS

NOTE:

SOIL SAMPLES FROM BORINGS SRE-SB026, SRE-SB027, AND SRE-SB028 WERE COLLECTED FROM 0.0 TO 2.0, 2.0 TO 3.0, 3.0 TO 4.0, AND 4.0 TO 5.0 FT. BGS FOR PCBs.

SOURCE:

- A. ESRI DIGITAL GLOBE 2013
- B. FURNAS ELECTRIC COMPANY BUILDING PLAN (NOVEMBER 1967)
- PROVIDED BY SIEMENS REAL ESTATE, 2014

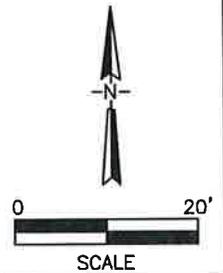
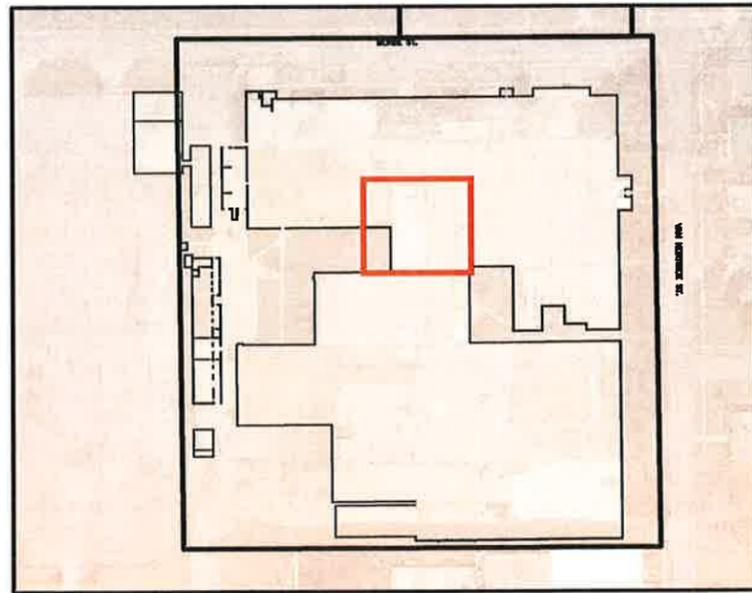


FIGURE 2-2



300 Plaza Circle
Suite 202
Mundelein, Illinois
60060

SOIL SAMPLING EXCEEDANCE MAP -
SRE-SB007 HOTSPOT
FORMER SIEMENS FACILITY
Batavia, Kane County, Illinois

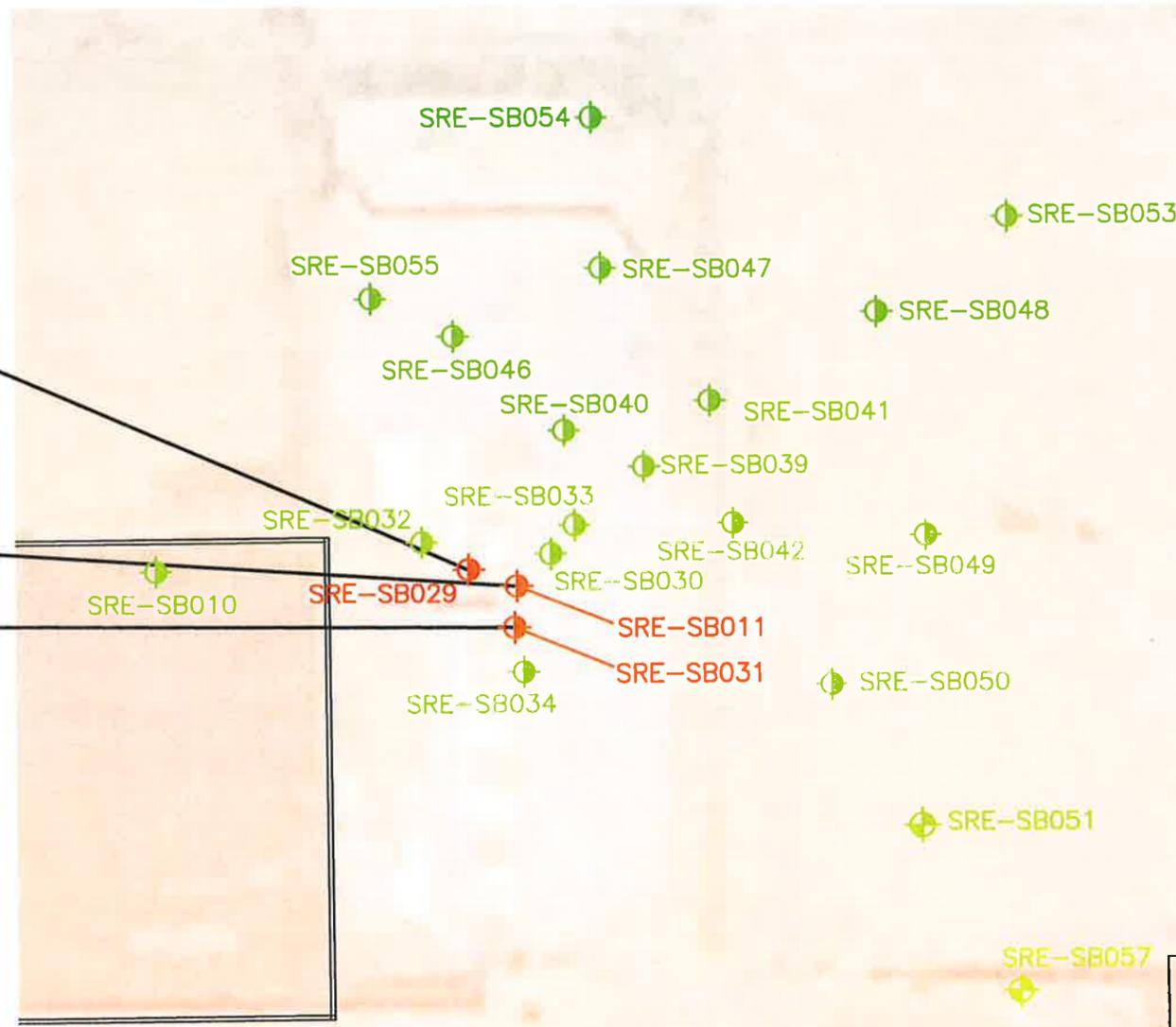


KEY MAP

SRE-SB029 (0-2 FT BGS)
NO CONSTITUENTS ABOVE SROs
SRE-SB029 (4-6 FT BGS)
AR-1254 1,500 ug/kg (ING)
AR-1260 1,200 ug/kg (ING)
SRE-SB029 (8-10 FT BGS)
NO CONSTITUENTS ABOVE SROs
SRE-SB029 (10-12 FT BGS)
VC 84 J ug/kg (GW)

SRE-SB011 (0-2 FT BGS)
AR-1254 1,500 ug/kg (ING)
SRE-SB011 (10-12 FT BGS)
TCE 160 ug/kg (GW)
SRE-SB011 (14-16 FT BGS)
NO CONSTITUENTS ABOVE SROs

SRE-SB031 (0-2 FT BGS)
AR-1260 1,300 J ug/kg (ING)
SRE-SB031 (4-6 FT BGS)
NO CONSTITUENTS ABOVE SROs
SRE-SB031 (8-10 FT BGS)
NO CONSTITUENTS ABOVE SROs
SRE-SB031 (10-12 FT BGS)
TCE 260 J/150 J ug/kg (GW)



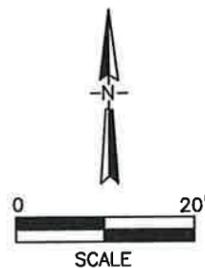
LEGEND

- SOIL SAMPLE LOCATION WITH CONSTITUENTS ABOVE TIER 1 SROs
- SOIL SAMPLE LOCATION WITH NO CONSTITUENTS ABOVE TIER 1 SROs

- (ING) EXCEEDS RESIDENTIAL INGESTION
- (GW) EXCEEDS MIGRATION TO CLASS I GROUNDWATER PATHWAY
- AR-1254 AROCLOR 1254
- AR-1260 AROCLOR 1260
- VC VINYL CHLORIDE
- TCE TRICHLOROETHENE
- PCBs POLYCHLORINATED BIPHENYLS

SOURCE:

- A. ESRI DIGITAL GLOBE 2013
- B. FURNAS ELECTRIC COMPANY BUILDING PLAN (NOVEMBER 1967)
- PROVIDED BY SIEMENS REAL ESTATE, 2014



NOTES:

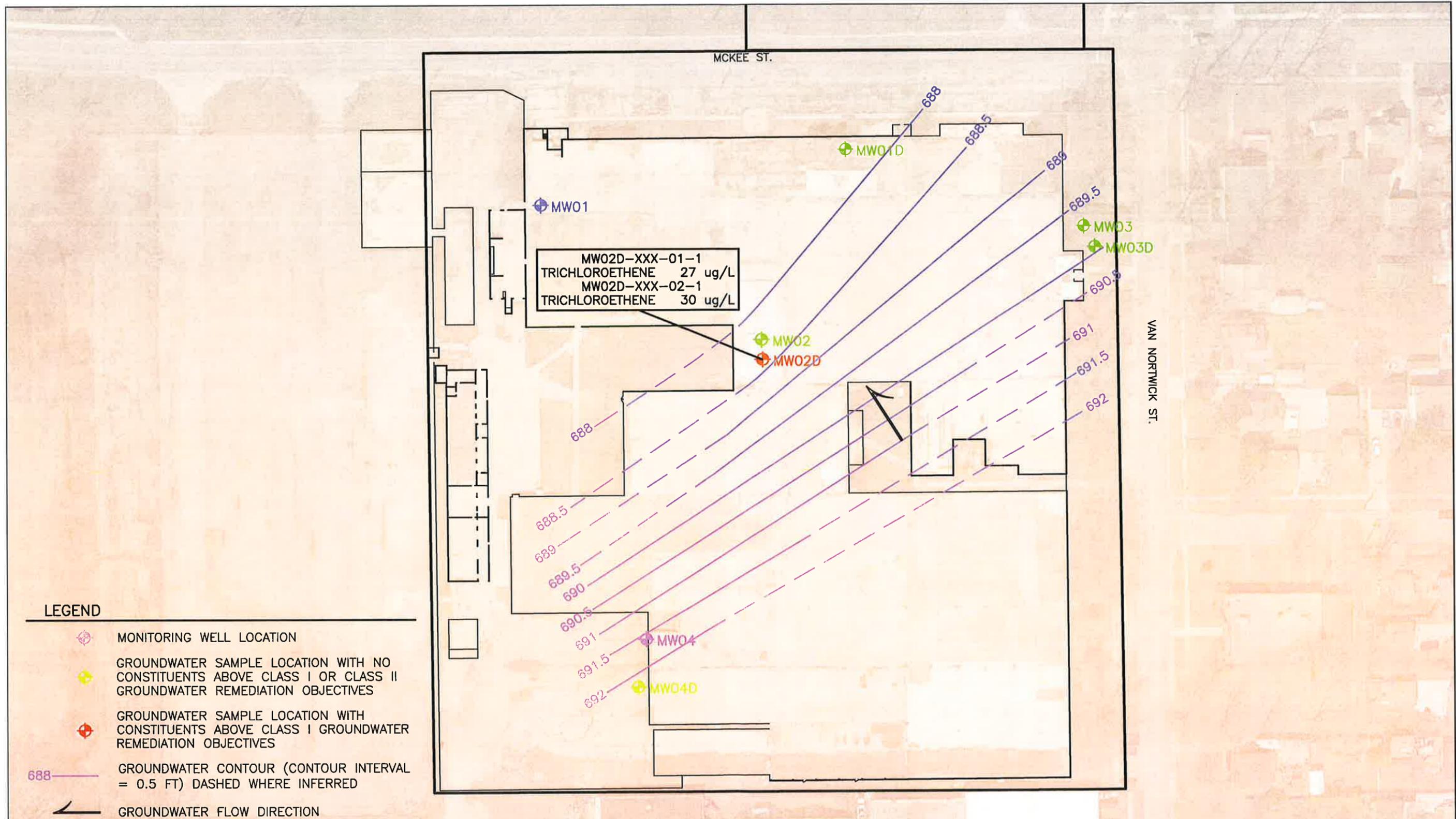
1. PAH EXCEEDANCES ASSOCIATED WITH FOUNDRY SAND SAMPLES ARE PRESENTED ON FIGURE 2-4. ONLY VOC AND PCB EXCEEDANCES AT THE SB011 HOTSPOT ARE PRESENTED ON THIS FIGURE.

FIGURE 2-3



300 Plaza Circle
Suite 202
Mundelein, Illinois
60060

SOIL SAMPLING EXCEEDANCE MAP -
SRE-SB011 HOTSPOT
FORMER SIEMENS FACILITY
Batavia, Kane County, Illinois

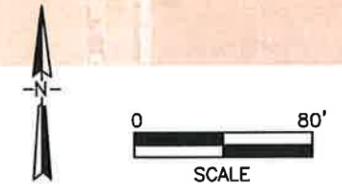


LEGEND

- MONITORING WELL LOCATION
- GROUNDWATER SAMPLE LOCATION WITH NO CONSTITUENTS ABOVE CLASS I OR CLASS II GROUNDWATER REMEDIATION OBJECTIVES
- GROUNDWATER SAMPLE LOCATION WITH CONSTITUENTS ABOVE CLASS I GROUNDWATER REMEDIATION OBJECTIVES
- 688 GROUNDWATER CONTOUR (CONTOUR INTERVAL = 0.5 FT) DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION

SOURCE:

- A. ESRI DIGITAL GLOBE 2013
- B. FURNAS ELECTRIC COMPANY BUILDING PLAN (NOVEMBER 1967) – PROVIDED BY SIEMENS REAL ESTATE, 2014

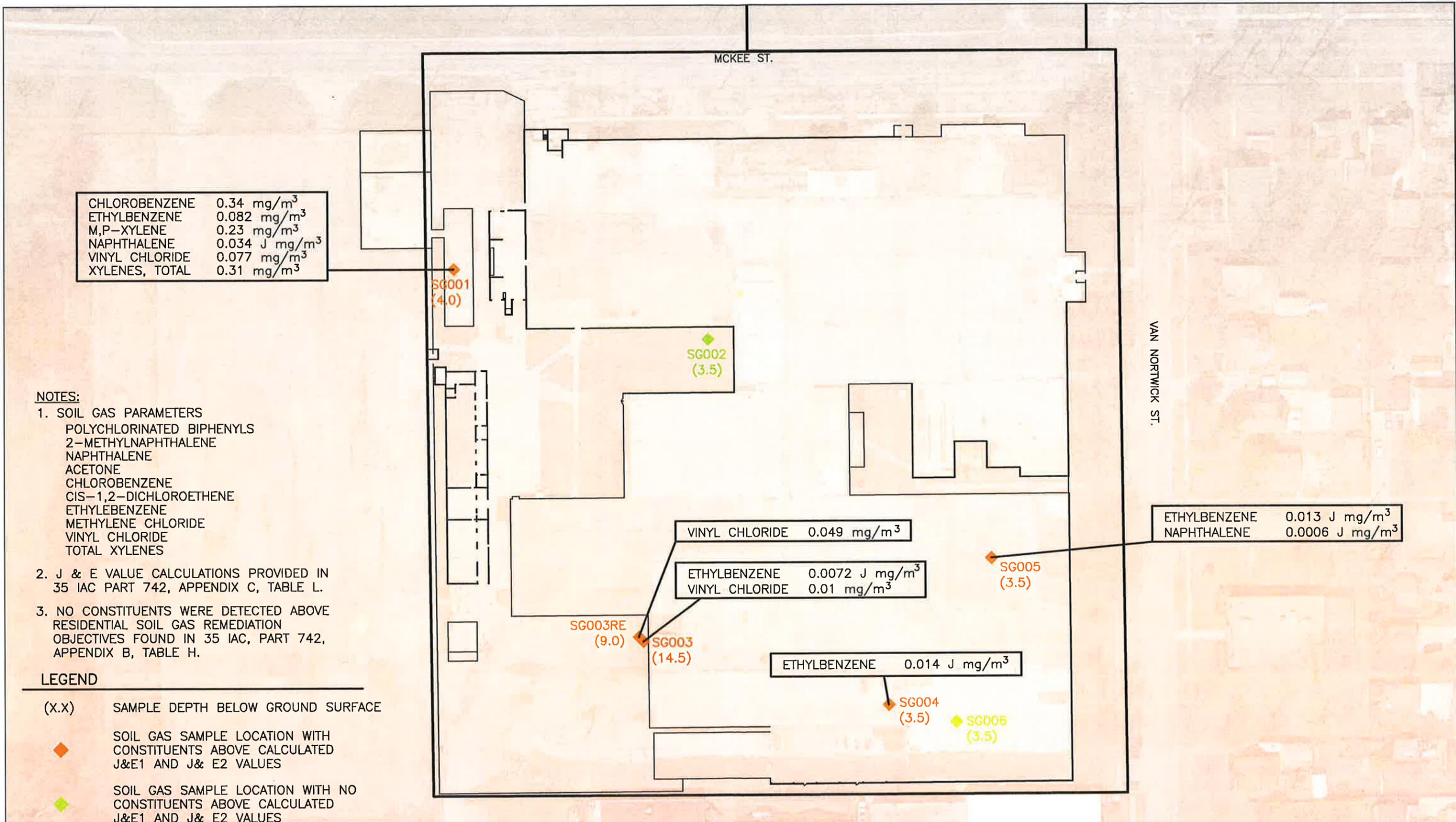


300 Plaza Circle
Suite 202
Mundelein, Illinois
60060

GROUNDWATER SAMPLING EXCEEDANCE MAP
FORMER SIEMENS FACILITY
Batavia, Kane County, Illinois

FIGURE 2-5

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NOTES:

- SOIL GAS PARAMETERS
 POLYCHLORINATED BIPHENYLS
 2-METHYLNAPHTHALENE
 NAPHTHALENE
 ACETONE
 CHLOROGENZENE
 CIS-1,2-DICHLOROETHENE
 ETHYLBENZENE
 METHYLENE CHLORIDE
 VINYL CHLORIDE
 TOTAL XYLENES
- J & E VALUE CALCULATIONS PROVIDED IN 35 IAC PART 742, APPENDIX C, TABLE L.
- NO CONSTITUENTS WERE DETECTED ABOVE RESIDENTIAL SOIL GAS REMEDIATION OBJECTIVES FOUND IN 35 IAC, PART 742, APPENDIX B, TABLE H.

LEGEND

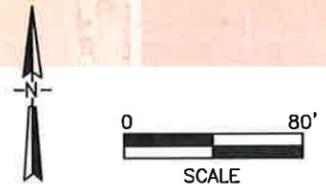
(X.X) SAMPLE DEPTH BELOW GROUND SURFACE

◆ SOIL GAS SAMPLE LOCATION WITH CONSTITUENTS ABOVE CALCULATED J&E1 AND J& E2 VALUES

◆ SOIL GAS SAMPLE LOCATION WITH NO CONSTITUENTS ABOVE CALCULATED J&E1 AND J& E2 VALUES

SOURCE:

- ESRI DIGITAL GLOBE 2013
- FURNAS ELECTRIC COMPANY BUILDING PLAN (NOVEMBER 1967) – PROVIDED BY SIEMENS REAL ESTATE, 2014



300 Plaza Circle
 Suite 202
 Mundelein, Illinois
 60060

SOIL GAS SAMPLING EXCEEDANCE MAP
 FORMER SIEMENS FACILITY
 Batavia, Kane County, Illinois

FIGURE 2-6

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SECTION 3 PROPOSED REMEDIES

3.1 REMEDIATION AREAS

Based on the *Comprehensive Site Investigation Report and Remediation Objectives Report* (WESTON, December 2015), the following recognized areas and media of concern require remedial action:

- Soil Hotspots – SB002, SB007 and SB011
- Foundry Sands
- Groundwater – Deep Water Bearing Unit
- Soil Gas Hotspots – SG001, SG003 and SG003RE

The extent of elevated constituents with proposed remedial boundaries and confirmation sample locations are provided in Figures 3-1 through 3-7.

3.1.1 SB002 Hotspot

Analytical results indicated the presence of elevated VOC constituents at soil sampling locations SB002 and SB021 from the 0.0 to 2.0 ft below ground surface (bgs) sampling intervals. The lateral extent of elevated constituents in the SB002 hotspot area has been determined by perimeter soil sampling locations SB020, SB022 and SB024. Analytical results did not indicate the presence of elevated constituents at the 14.0 to 16.0 ft sampling interval at SB002 and from 2.0 to 4.0 ft sampling interval at sampling location SB021 or the perimeter soil sampling locations. The extent of elevated constituents at the SB002 hotspot are presented on Figure 3-1.

3.1.2 SB007 Hotspot

Analytical results indicated the presence of elevated polychlorinated biphenyl (PCB) constituents (Aroclor-1254) at soil sampling location SB007 from the 0.0 to 2.0 ft bgs sampling interval. The lateral extent of elevated constituents in the SB007 hotspot area has been determined by perimeter soil sampling locations SB026, SB027 and SB028. Analytical results did not indicate the presence of elevated constituents at the 14.0 to 16.0 ft sampling interval at SB007 and from 2.0 to 3.0 ft sampling interval at the SB007 perimeter soil sampling locations. The extent of elevated constituents at the SB007 hotspot are presented on Figure 3-2.

3.1.3 SB011 Hotspot

Analytical results indicated the presence of elevated VOC and PCB constituents at soil sampling locations SB011, SB029 and SB031. The lateral extent of elevated VOC and PCB constituents has been determined by perimeter sampling locations SB030, SB032 and SB034.

PCBs (Aroclor-1254 or Aroclor-1260) were detected at SB011 from the 0.0 to 2.0 ft bgs sampling interval, from SB029 from the 4.0 to 6.0 ft bgs sampling interval and from SB031 from the 0.0 to 2.0 ft bgs sampling interval. Analytical results did not indicate the presence of PCBs from the 10.0 to 12.0 ft bgs sampling interval at SB011, 8.0 to 10.0 ft bgs sampling interval at SB029, or at the 4.0 to 6.0 ft bgs sampling interval at SB031. VOCs were detected at the 10.0 to 12.0 ft bgs sampling interval from sample locations SB011, SB029 and SB031. Analytical results did not indicate the presence of VOCs above detection limits from the 14.0 to 16.0 ft bgs sampling interval at SB011. The extent of elevated constituents at the SB0011 hotspot are presented on Figure 3-3.

3.1.4 Foundry Sands

Foundry sands were observed during the 2015 investigation in varying thicknesses and depths as presented on Figure 3.4. As presented in the CSIR/ROR (December, 2015) four types of fill materials were observed at the facility: brown sand, black soil, and two types of black sand (sand and powder). Brown sand and black soil fill types did not contain constituents of concern based on laboratory analysis. The extent of black foundry sands are presented on Figure 3-4.

3.1.5 Groundwater – Deep Water-Bearing Unit

TCE was detected above Class I groundwater remediation objectives in the deep water-bearing unit during two rounds of sampling at monitoring well MW02D. No constituents were detected above Class I groundwater remediation objectives at the cross-gradient deep water-bearing unit wells. Three additional deep water-bearing unit monitoring wells located up-gradient and down-gradient of MW02D will be installed at the facility. Additional groundwater sampling is discussed in Subsection 3.2.2.

3.1.6 Soil Gas Hotspots

3.1.6.1 SG001 Hotspot

Two soil samples were collected at SB003 at 0.0 to 2.0 ft bgs and 14.0 to 16.0 ft bgs. Analytical results indicated the presence of constituents provided in 35 IAC Part 742, Appendix A, Table J. Soil gas sample SG001 was collected at 4.0 ft bgs adjacent to soil boring SB003 as shown on Figure 3-5. Ethylbenzene, naphthalene, vinyl chloride and total xylenes were detected at concentrations above all calculated J&E remediation values at location SG001 at a depth of 4.0 ft bgs.

3.1.6.2 SG003/SG003RE Hotspot

Two soil samples were collected from SB014 at 0.0 to 2.0 ft bgs and 14.0 to 16.0 ft bgs. Analytical results indicated the presence of constituents from 35 IAC Part 742, Appendix A, Table J. Based on soil gas samples vinyl chloride was detected at concentrations above all calculated J&E remediation values at location SG003 at a depth of 14.5 ft bgs and SG003RE at a depth of 9.0 ft bgs. Sample locations are provided in Figure 3-6.

3.2 PROPOSED REMEDIES

The following proposed remedies have been selected for the following areas:

- Soil Hotspots – SB002, SB007 and SB011 – excavation and off-site disposal.
- Foundry Sands (black sands and powder) – excavation and off-site disposal.
- Groundwater – Deep Water-Bearing Unit – groundwater remediation by enhanced anaerobic bioremediation
- Soil Gas Hotspots – SG001 and SG003/SG003RE – excavation and off-site disposal.

A description of each remedy is provided in the following subsections.

3.2.1 Excavation and Off-Site Disposal

Excavation and disposal is the selected remedy for all soil removal at the facility. This includes the SB002, SB007 and SB011 Hotspots, black foundry sands, and SG001 and SG003 soil gas areas. This remedy was selected primarily because of its ease of application, limited impact, and expedience. Each area will be backfilled to grade with clean sand and/or gravel material.

In all areas, excavation and disposal activities will continue until confirmation soil samples indicate that constituents are below the proposed soil remediation objectives. However, if VOC constituents are present at any concentration in a confirmation sample, excavation activities will continue until VOC constituents are non-detect or soil gas samples are below the Tier 2 soil gas remediation objectives provided in Section 2.1.4. to eliminate the indoor inhalation exposure route.

A total of six soil samples were collected for hazardous waste characterization during the 2015 site investigation. No constituents were present at concentrations above hazardous waste criteria in six soil samples collected for waste characterization. Based on the analytical results, any soil removed from the facility will be transported to a special waste landfill for disposal. Copies of laboratory analytical results are located in the previously submitted CSIR/ROR (December 2015).

3.2.1.1 SB002

The extent of elevated constituents with proposed remedial boundaries surrounding SB002 are provided in Figure 3-1. The proposed remediation area is 180 ft² with a vertical extent of 2.5 ft bgs for an estimated in-situ volume of 16.6 cubic yards (cy) (24.9 tons) of impacted soil. Soil excavation in the SB002 hotspot area will occur in conjunction with the foundry sands excavation described in detail in Subsection 3.2.1.4. Confirmation sampling of the SB002 hotspot is discussed in Section 3.3.

3.2.1.2 SB007

The extent of elevated constituents with proposed remedial boundaries surrounding SB007 are provided in Figure 3-2. The proposed remediation area is 100 ft² with a vertical extent of 2.5 ft bgs for an estimated in-situ volume of 9.3 cy (13.95 tons) of impacted soil. Confirmation sampling of the SB007 hotspot is discussed in Section 3.3.

3.2.1.3 SB011

The extent of elevated constituents with proposed remedial boundaries surrounding SB011 are provided in Figure 3-3. The proposed PCB remediation area is 225 ft² with a vertical extent of 6.5

ft below ground surface (bgs) for an estimated in-situ volume of 54.17 cy (92.08 tons) of PCB impacted soil. Additionally, the VOC remediation area is 50 ft² with a vertical extent of 6 ft (to a total extent of 12.5 ft bgs) within the already excavated PCB remediation area for an estimated in-situ volume of 11.11 cy (18.89 tons) of VOC impacted soil. The SB011 hotspot has a total estimated in-situ volume of 65.28 cy (110.97 tons) of impacted soil. Confirmation soil sampling of the SB011 hotspot is discussed in Section 3.3.

3.2.1.4 Foundry Sands

Excavation will occur in three stages in order to accommodate stockpiling of the brown sand and/or black soil fill and foundry sand removal. The estimated volume of impacted soil per area shown on Figure 3.4 is as follows:

- Area A – 661 cy (879 tons)
- Area B – 1,333 cy (1,773 tons)
- Area C – 1,233 cy (1,640 tons)
- Area D – 728 cy (968 tons)
- Area E – 1,902 cy (2,530 tons)
- Area F – 1,252 cy (1,665 tons)
- Area G – 2,270 cy (3,019 tons)
- Area H – 474 cy (630 tons)
- Area I – 434 cy (577 tons)
- Total – 10,287 cy (13,681 tons)

Stage 1

All brown sand and/or black soil fill overburden will be removed over the foundry sand footprint. Since overburden material and foundry sands have been comingled during concrete slab removal activities, overburden will be removed by area or combination of areas and stockpiled in two pre-determined locations (comingled and non-comingled) on the property. As described in Section 3.3, confirmation soil samples will be collected from the stockpiled soil material to determine that no PAH constituents are present above the proposed soil remediation objectives.

If confirmation soil samples determine that comingled and non-comingled stockpiles have been impacted, the overburden will be transported off-site for disposal. If confirmation soil samples determine that the stockpiles have not been impacted, the overburden will be used as backfill.

Stage 2

All black foundry sand will be removed by area or combination of areas until all foundry sand has been visually removed and transported offsite for disposal. Confirmation sampling for the foundry sand areas is discussed in Section 3.3.

Stage 3

At the completion of removal activities, the excavation areas will be backfilled to grade with clean overburden backfilled material and/or clean sand and/or gravel material.

3.2.1.5 SG001

The extent of elevated constituents with proposed remedial boundaries surrounding SG001 are provided in Figure 3-5. The proposed VOC remediation area is 24 ft² with a vertical extent of 4.5 ft bgs for an estimated in-situ volume of 4.0 cy (6 tons) of VOC impacted soil. Confirmation soil sampling of the SG001 hotspot is discussed in Section 3.3.

3.2.1.6 SG003/SG003RE

The extent of elevated constituents with proposed remedial boundaries surrounding SG003 and SG003RE are provided in Figure 3-6. The proposed VOC remediation area is 100 ft² with a vertical extent of 16.5 ft bgs for an estimated in-situ volume of 61.1 cy (103.89 tons) of VOC impacted soil. Confirmation soil sampling of the SG003/SG003RE hotspot is discussed in Section 3.3.

3.2.2 Groundwater Treatment

Enhanced anaerobic bioremediation has been selected as the selected remedy for the deep water-bearing unit at the facility. A fermentable carbon source and a microbial consortium will be added by injection to accelerate the natural attenuation of chlorinated solvents in the groundwater. This method of reductive chlorination was selected due to its effectiveness in treating the targeted contaminant (TCE), its persistence in the subsurface, and ease of handling.

Prior to performing the remedy, three additional monitoring wells will be installed in the deep water-bearing unit to confirm that the TCE is localized at MW02D. One well will be installed up-gradient (MW05D) and two wells will be installed down-gradient (MW06D and MW07D) of the current monitoring well MW02D. Monitoring well installation procedures will be consistent with those presented in the previously submitted CSIR/ROR (December, 2015). Groundwater samples will be collected at all deep water-bearing unit monitoring wells prior to performing the injection to determine initial TCE concentrations. Groundwater samples will be analyzed for TCE, cis-1,2-dichloroethene (DCE), and vinyl chloride. The depth of the injection of the fermentable carbon source and a microbial consortium will be determined after the additional monitoring wells have been installed.

The estimated linear groundwater flow velocity in the deep water-bearing unit is calculated to be 0.15 feet (ft)/day or 54.7 ft/year. This groundwater flow velocity was calculated using an average hydraulic conductivity of 2.9 ft/day, the average hydraulic gradient of 0.022 ft/ft, and an estimated effective porosity of 43 percent. The distance of the proposed new monitoring wells are based on the hydraulic gradient calculated at the facility. Figure 3-7 presents the proposed injection point area and additional monitoring well locations. Proposed groundwater monitoring is discussed in detail in Subsection 3.3.7.

3.3 CONFIRMATION SAMPLING

Confirmation soil samples analyzed for PCBs and/or PAHs will be collected using clean, disposable plastic scoops per sample area. Soil for both discrete and composite samples will be placed in a dedicated disposable plastic bag, mixed, and transferred into a laboratory provided glass jars. Confirmation soil samples analyzed for VOCs will be collected using laboratory provided TerraCore kits. Confirmation soil samples will be analyzed for one or more constituents as determined by the remediation area as discussed in the subsections below. All confirmation soil samples will be analyzed for on a 24-hour TAT. If analytical results indicate the presence of constituents above the SROs, additional excavation will occur in the area until subsequent confirmation samples indicate compliance with the soil remediation objectives. All confirmation soil sample locations will be global positioning system (GPS) surveyed.

3.3.1 SB002 Hotspot

A total of five confirmation soil samples from 2.5 ft bgs is proposed for the SB002 hotspot area. A total of 4 discrete confirmation soil samples will be collected from the excavation sidewalls between 0.0 and 2.5 ft bgs. Confirmation sidewall samples will be analyzed for benzene, PCE and TCE by EPA Method 8260C. One discrete confirmation soil sample will be collected from the bottom of the excavation at a depth of 2.5 ft bgs following the removal of foundry sands present surrounding the SB002 hotspot. The bottom confirmation soil sample will be analyzed for benzene, PCE, TCE by EPA Method 8260B and benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene by EPA Method 8270D. Proposed confirmation sample locations are provided on Figure 3-1.

3.3.2 SB007 Hotspot

A total of five confirmation soil samples from 2.5 ft bgs is proposed for the SB007 hotspot area. In accordance with 40 CFR Part 761, Subpart O, Section 761.283, a 1.5 meter (5 ft) grid will be placed over the excavation bottom and sidewalls. One composite confirmation soil sample will be collected from the bottom of the excavation and four sidewall samples (one from each side). The bottom confirmation sample will consist of a five point composite sample and the four side wall confirmation samples will consist of a two point composite sample. All confirmation soil samples will be analyzed for PCB compounds by EPA Method 8082A. The proposed excavation area and confirmation sample locations are provided on Figure 3-2.

3.3.3 SB011 Hotspot

A total of six confirmation samples will be collected from the sidewalls and bottom of the excavation surrounding the SB011 hotspot. In accordance with 40 CFR Part 761, Subpart O, Section 761.283, a 1.5 meter (5-ft) grid will be placed over the excavation bottom and sidewalls to a depth of 6.5 ft bgs. A total of four, four-point composite sidewall samples and one four-point composite bottom sample will be collected and analyzed for PCB compounds by EPA Method 8082A.

Following the excavation and confirmation of removal of PCB contaminated soil surrounding the SB011 hotspot, the remaining VOC contaminated soil will be removed to a depth of 12.5 ft bgs,

or until saturated conditions are encountered. One confirmation sample will be collected from the bottom of the excavation at 12.5 ft bgs, or at a depth that saturated conditions are encountered, and analyzed for TCE and vinyl chloride by EPA Method 8260B. Proposed confirmation sample locations are provided on Figure 3-3.

3.3.4 Foundry Sands

A total of 32 foundry sand confirmation soil samples will be collected from the bottom of the excavation at 100-ft intervals. Since foundry sands will be excavated by visual confirmation of black foundry sand, the excavation depths will vary across the site.

All foundry confirmation soil samples will be analyzed for the following constituents of concern: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene by EPA Method 8270C. Proposed confirmation sample locations are provided on Figure 3-4. The approximate number of confirmation samples per excavation area is as follows:

- Area A – two bottom excavation confirmation samples.
- Area B – eight bottom excavation confirmation samples.
- Area C – two bottom excavation confirmation samples.
- Area D – one bottom excavation confirmation samples.
- Area E – three bottom excavation confirmation samples.
- Area F – three bottom excavation confirmation samples.
- Area G – six bottom excavation confirmation samples.
- Area H – two bottom excavation confirmation samples. One of the bottom excavation confirmation samples will be located in the SB002 Hotspot.
- Area I – five bottom excavation confirmation samples.

If the analytical results from the confirmation sample are above the SRO, additional samples will be taken in a 25-ft grid around the location that exceeds cleanup levels to define lateral extent. Then an additional 6-inch lift of material will be removed and an additional confirmation sample will be collected and analyzed at the original confirmation hot-spot.

3.3.5 SG001

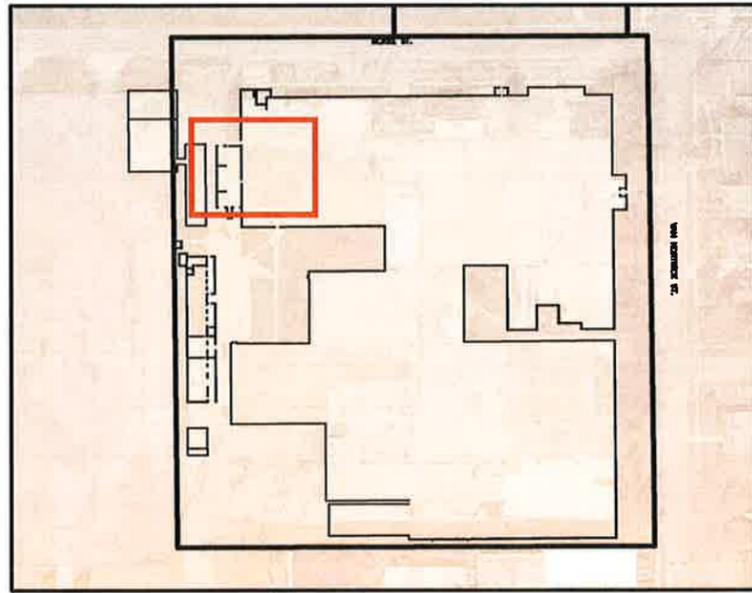
One bottom excavation confirmation soil sample from 4.5 ft bgs is proposed for the SG001 hotspot area. The confirmation sample will be collected and analyzed for Ethylbenzene, naphthalene, vinyl chloride and total xylenes by EPA Method 8260C. If analytical results indicate the presence of constituents in the soil, a soil gas sample will be collected at approximately 1.0 ft below the bottom excavation and analyzed for ethylbenzene, naphthalene, vinyl chloride and total xylenes by EPA Method TO-15A. Proposed confirmation sample locations are provided on Figure 3-5.

3.3.6 SG003/SG003RE

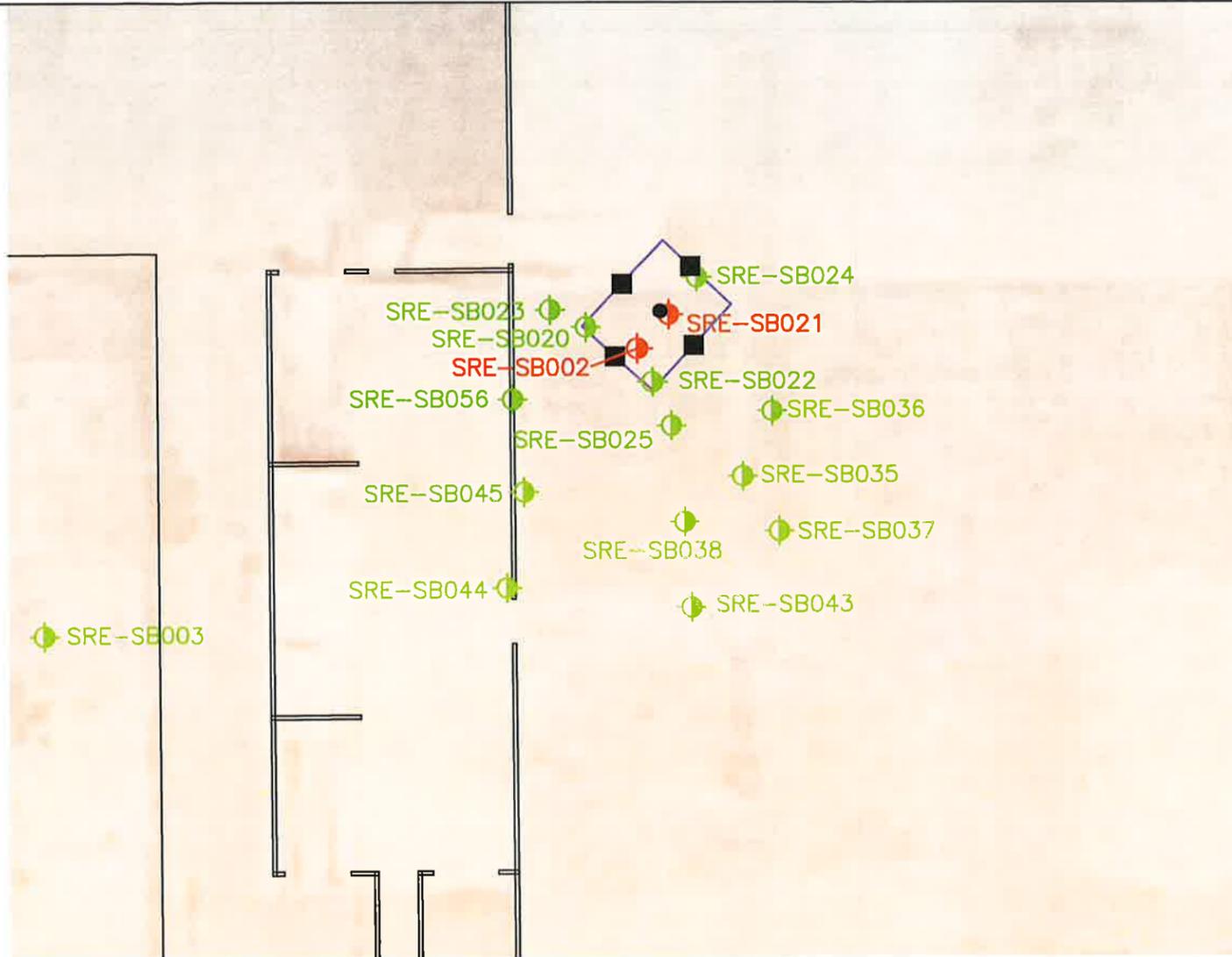
One bottom excavation confirmation soil sample and four sidewall confirmation soil samples from 16.5 ft bgs are proposed for the SG003/SG003RE hotspot area. The confirmation samples will be collected and analyzed for vinyl chloride by EPA Method 8260C. If analytical results indicate the presence of constituents in the soil, a soil gas sample will be collected at approximately 1.0 ft below the bottom excavation and analyzed for vinyl chloride by EPA Method TO-15A. Proposed confirmation sample locations are provided on Figure 3-6.

3.3.7 Groundwater

Groundwater monitoring is proposed at four monitoring well locations (MW02D, MW05D, MW06D and MW07D) following the addition of microbial consortium and the enhanced carbon source into the deep water-bearing unit. Groundwater samples will be collected approximately one month after the initial injection. Groundwater samples will be analyzed for TCE, cis-1,2-DCE and vinyl chloride on a 2-business day TAT. All the deep monitoring wells at the facility will be abandoned in accordance with all local and state requirements, if the results of the groundwater sampling is below the groundwater remediation objectives. If the results are above the remediation objectives, additional sampling will be required on a monthly basis until groundwater has met the remediation objectives discussed in Section 2 with additional injections of fermentable carbon source and a microbial consortium as a contingency.



KEY MAP



LEGEND

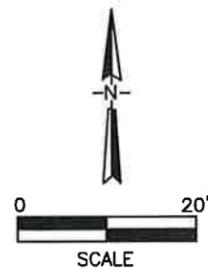
- SOIL SAMPLE LOCATION WITH CONSTITUENTS ABOVE TIER 1 SROs (0.0 TO 2.0 FT BGS)
- SOIL SAMPLE LOCATION WITH NO CONSTITUENTS ABOVE TIER 1 SROs
- 2.5 FT EXCAVATION DEPTH
- BOTTOM EXCAVATION CONFIRMATION SAMPLE LOCATION
- SIDEWALL EXCAVATION CONFIRMATION SAMPLE LOCATION

NOTES:

1. PAH EXCEEDANCES ASSOCIATED WITH FOUNDRY SAND SAMPLES ARE PRESENTED ON FIGURE 3-4. ONLY VOC EXCEEDANCES AT THE SB002 HOTSPOT ARE PRESENTED ON THIS FIGURE.
2. SIDEWALL CONFIRMATION SAMPLES WILL BE ANALYZED FOR VOCs. BOTTOM CONFIRMATION SAMPLES WILL BE ANALYZED FOR VOCs AND PAHs.
3. ESTIMATED VOLUME OF IMPACTED MATERIAL IS 16.6 CUBIC YARDS.

SOURCE:

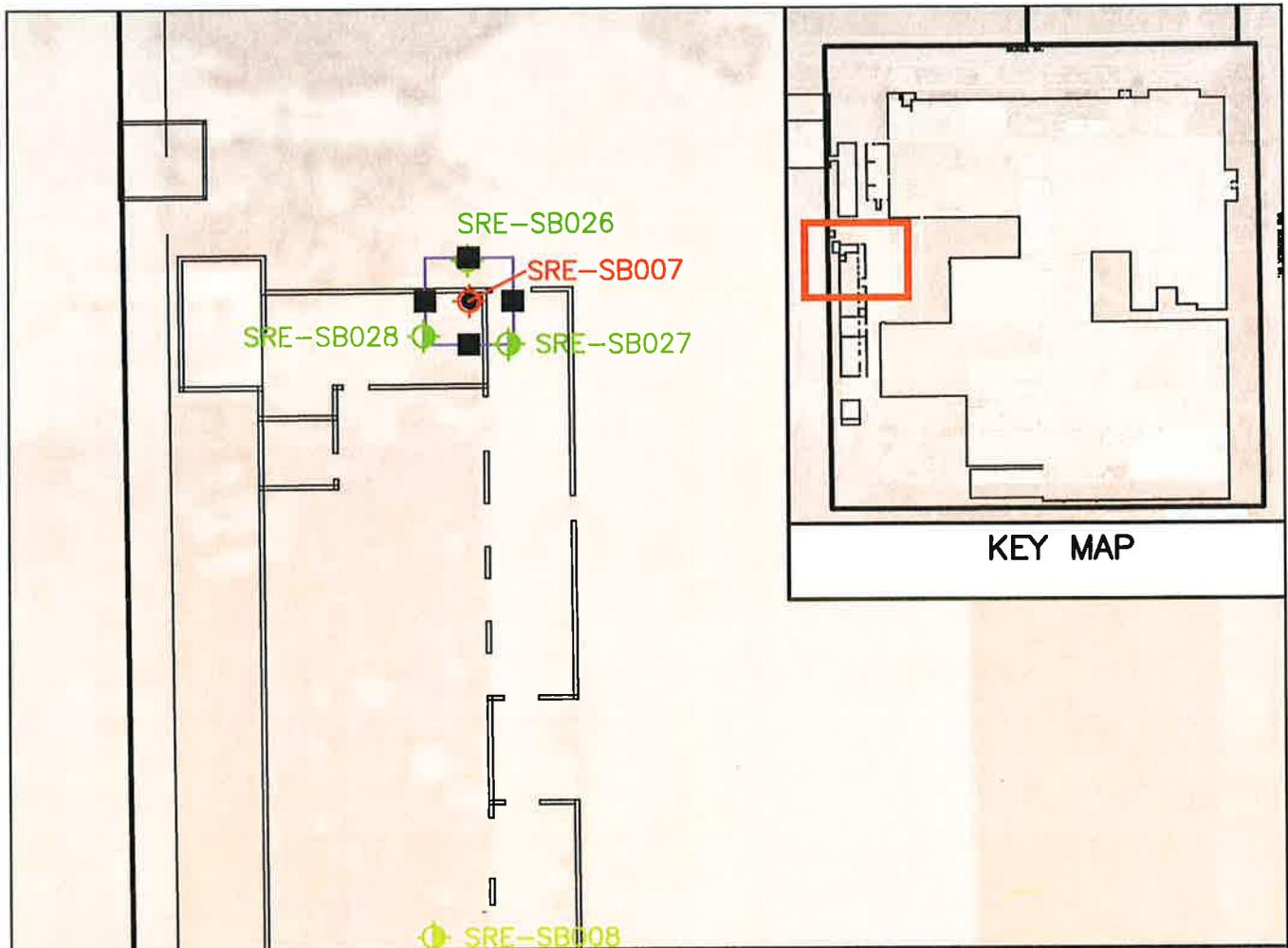
- A. ESRI DIGITAL GLOBE 2013
- B. FURNAS ELECTRIC COMPANY BUILDING PLAN (NOVEMBER 1967) - PROVIDED BY SIEMENS REAL ESTATE, 2014



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SOIL EXCAVATION MAP -
SRE-SB002 HOTSPOT
FORMER SIEMENS FACILITY
Batavia, Kane County, Illinois

FIGURE 3-1



LEGEND

-  SOIL SAMPLE LOCATION WITH CONSTITUENTS ABOVE TIER 1 SROs (0.0 TO 2.0 FT BGS)
-  SOIL SAMPLE LOCATION WITH NO CONSTITUENTS ABOVE TIER 1 SROs
-  2.5 FT EXCAVATION DEPTH
-  COMPOSITE BOTTOM EXCAVATION CONFIRMATION SAMPLE LOCATION
-  COMPOSITE SIDEWALL EXCAVATION CONFIRMATION SAMPLE LOCATION

NOTES:

1. 2 POINT COMPOSITE SAMPLES WILL BE COLLECTED FOR SIDEWALL CONFIRMATION SAMPLES. 5 POINT COMPOSITE SAMPLES WILL BE COLLECTED FOR THE BOTTOM CONFIRMATION SAMPLE. SAMPLES WILL BE ANALYZED FOR PCBs.
2. ESTIMATED VOLUME OF IMPACTED MATERIAL IS 9.3 CUBIC YARDS.

SOURCE:

- A. ESRI DIGITAL GLOBE 2013
- B. FURNAS ELECTRIC COMPANY BUILDING PLAN (NOVEMBER 1967)
- PROVIDED BY SIEMENS REAL ESTATE, 2014

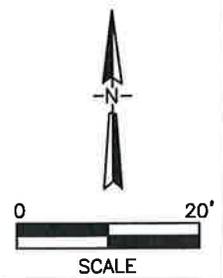
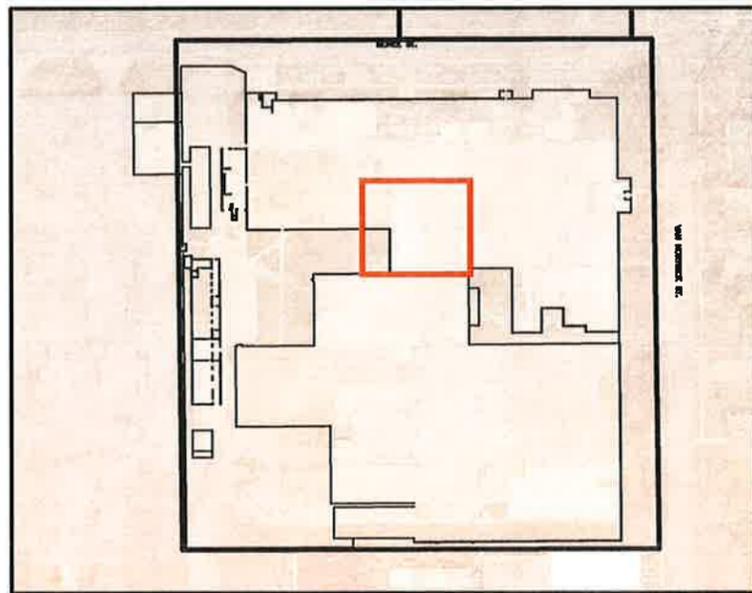


FIGURE 3-2

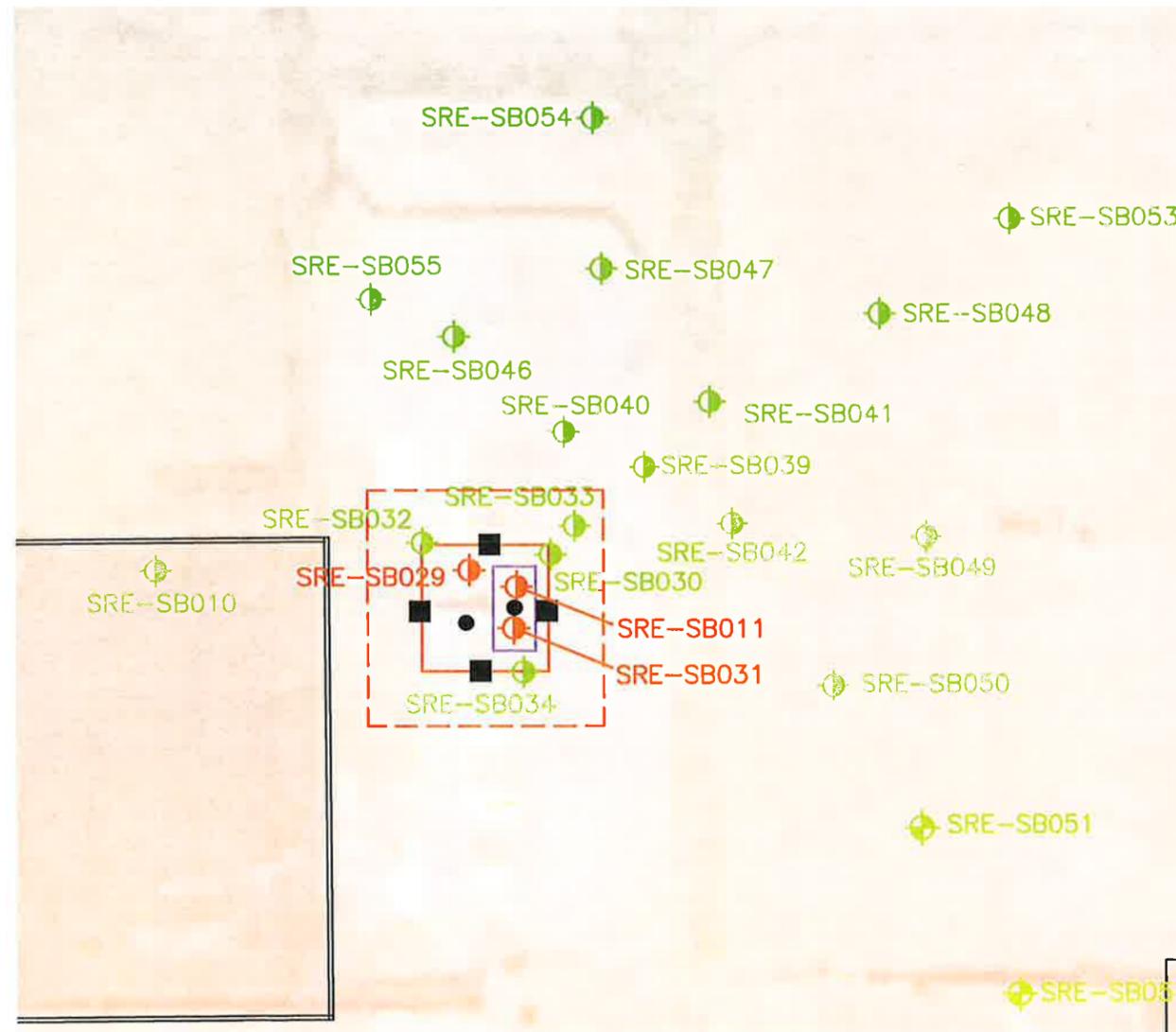


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SOIL EXCAVATION MAP -
SRE-SB007 HOTSPOT
FORMER SIEMENS FACILITY
Batavia, Kane County, Illinois



KEY MAP



LEGEND

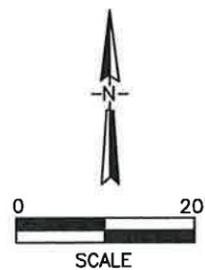
-  SOIL SAMPLE LOCATION WITH CONSTITUENTS ABOVE TIER 1 SROs
-  SOIL SAMPLE LOCATION WITH NO CONSTITUENTS ABOVE TIER 1 SROs
-  6.5 FT EXCAVATION DEPTH
-  12.5 FT EXCAVATION DEPTH
-  DISTANCE FOR 1:1 SLOPE
-  BOTTOM EXCAVATION CONFIRMATION SAMPLE LOCATION
-  SIDEWALL EXCAVATION CONFIRMATION SAMPLE LOCATION

NOTES:

1. PAH EXCEEDANCES ASSOCIATED WITH FOUNDRY SAND SAMPLES ARE PRESENTED ON FIGURE 3-4. ONLY VOC EXCEEDANCES AT THE SB011 HOTSPOT ARE PRESENTED ON THIS FIGURE.
2. CONFIRMATION SAMPLES WILL BE ANALYZED FOR PCBs OR VOCs
3. ESTIMATED VOLUME OF IMPACTED MATERIAL IS 110.97 CUBIC YARDS.

SOURCE:

- A. ESRI DIGITAL GLOBE 2013
- B. FURNAS ELECTRIC COMPANY BUILDING PLAN (NOVEMBER 1967)
- PROVIDED BY SIEMENS REAL ESTATE, 2014

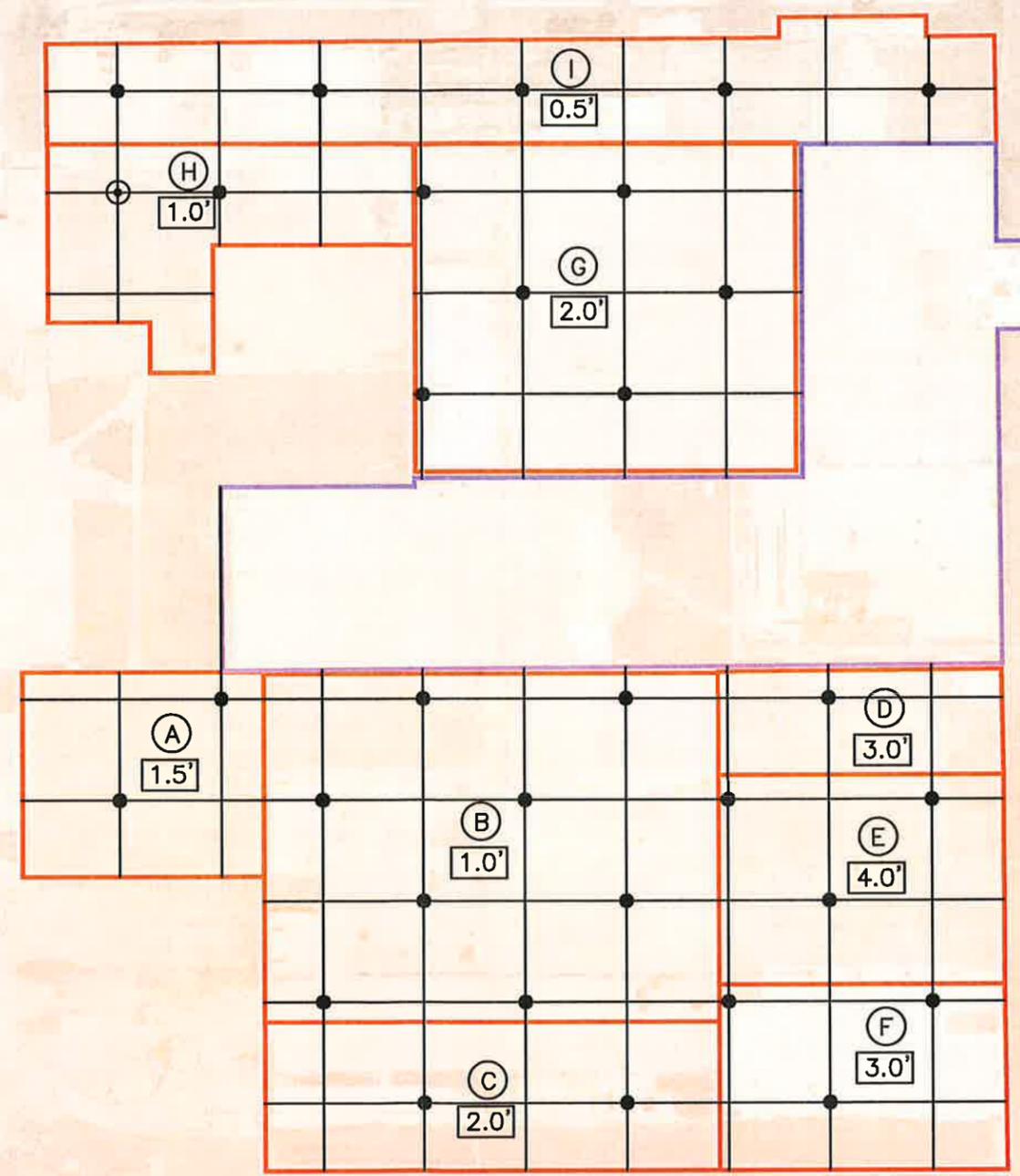


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SOIL EXCAVATION MAP -
SRE-SB011 HOTSPOT
FORMER SIEMENS FACILITY
Batavia, Kane County, Illinois

FIGURE 3-3

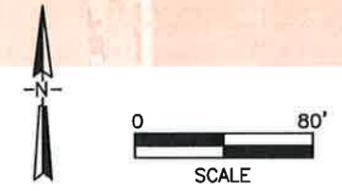
AREA	VOLUME (CY)
A	661
B	1333
C	1233
D	728
E	1902
F	1252
G	2270
H	474
I	434
TOTAL	10,287



- LEGEND**
- BLACK, SANDY MATERIAL OBSERVED
 - BLACK, SANDY MATERIAL NOT OBSERVED
 - X.X' AVERAGE DEPTH OVER THE AREA
 - BOTTOM EXCAVATION CONFIRMATION SAMPLE LOCATION
 - ⊙ CONFIRMATION SAMPLE ASSOCIATED WITH SB002 HOTSPOT

NOTE:
 ALL CONFIRMATION SAMPLES WILL BE ANALYZED FOR SELECT PAHs. THE CONFIRMATION SAMPLE ASSOCIATED WITH THE SB002 HOTSPOT WILL ALSO BE ANALYZED FOR SELECT VOCs.

SOURCE:
 A. ESRI DIGITAL GLOBE 2013
 B. FURNAS ELECTRIC COMPANY BUILDING PLAN (NOVEMBER 1967) – PROVIDED BY SIEMENS REAL ESTATE, 2014.
 C. PLANT LAYOUT (FURNAS/SIEMENS) – PROVIDED BY SIEMENS ENERGY AND AUTOMATION, 2005.

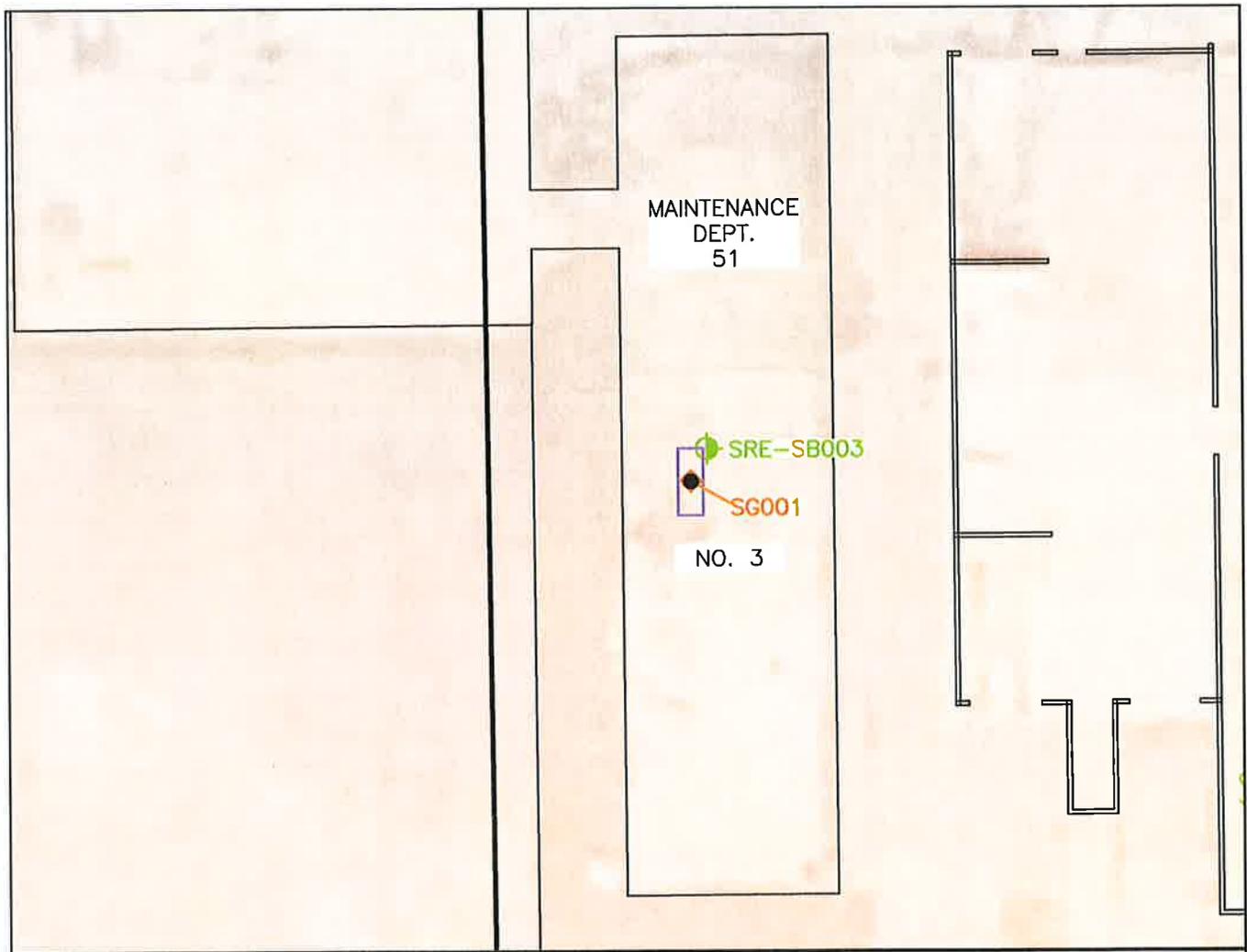


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SOIL EXCAVATION MAP AND CONFIRMATION SAMPLING LOCATIONS FOUNDRY SANDS
 FORMER SIEMENS FACILITY
 Batavia, Kane County, Illinois

FIGURE 3-4

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LEGEND

-  SOIL SAMPLE LOCATION WITH NO CONSTITUENTS ABOVE TIER 1 SROs
-  SOIL GAS SAMPLE LOCATION
-  4.5 FT EXCAVATION DEPTH
-  BOTTOM EXCAVATION CONFIRMATION SAMPLE LOCATION

NOTES:

1. CONFIRMATION SAMPLES WILL BE ANALYZED FOR VOCs.
2. ESTIMATED VOLUME OF IMPACTED MATERIAL IS 4 CUBIC YARDS.

SOURCE:

- A. ESRI DIGITAL GLOBE 2013
- B. FURNAS ELECTRIC COMPANY BUILDING PLAN (NOVEMBER 1967)
- PROVIDED BY SIEMENS REAL ESTATE, 2014

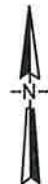
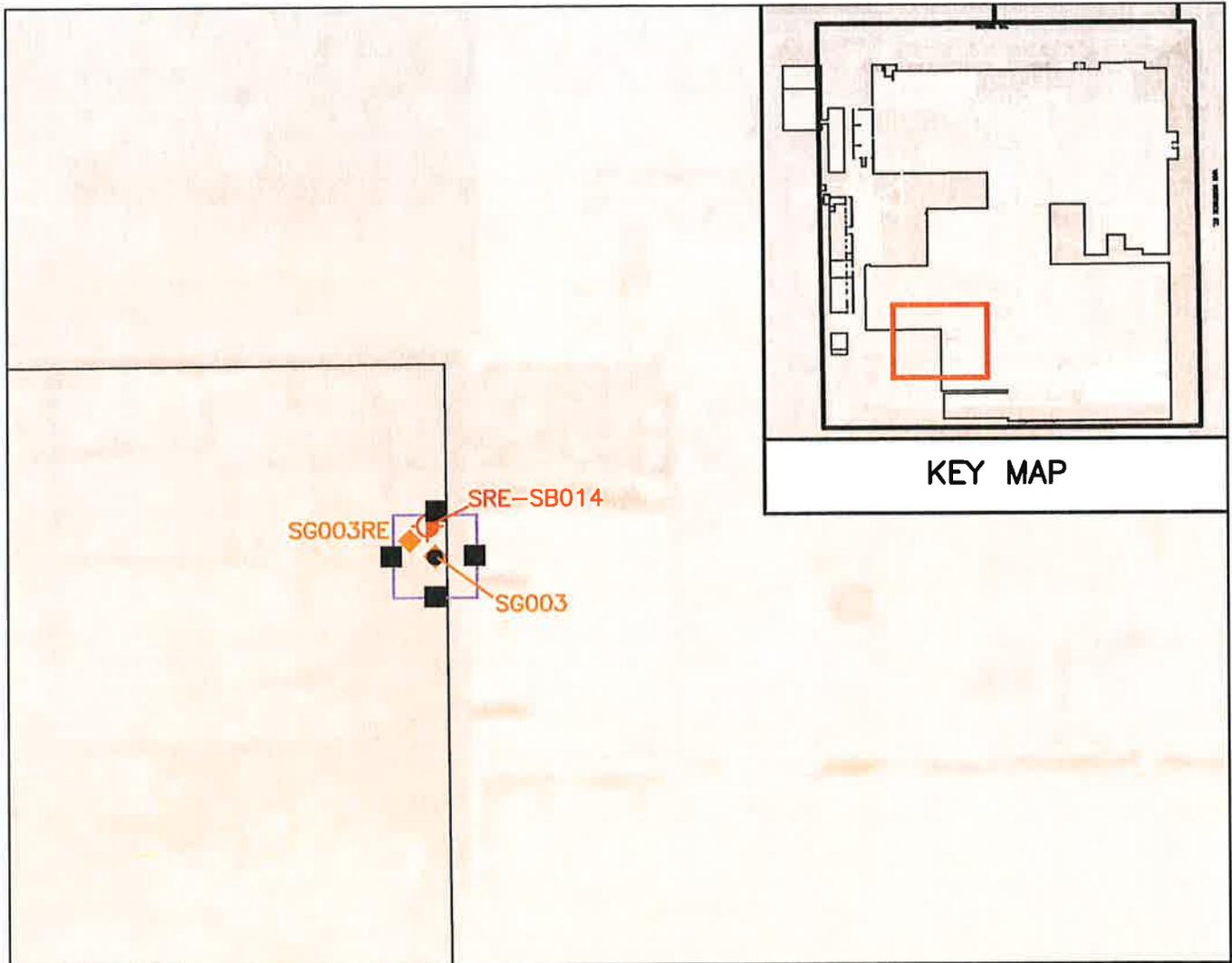


FIGURE 3-5



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SOIL EXCAVATION MAP -
SG001 HOTSPOT
FORMER SIEMENS FACILITY
Batavia, Kane County, Illinois



LEGEND

-  SOIL SAMPLE LOCATION WITH CONSTITUENTS ABOVE TIER 1 SROs (14.0 TO 16.0 FT BGS)
-  SOIL GAS SAMPLE LOCATION
-  16.5 FT EXCAVATION DEPTH
-  BOTTOM EXCAVATION CONFIRMATION SAMPLE LOCATION
-  SIDEWALL EXCAVATION CONFIRMATION SAMPLE LOCATION

NOTES:

1. CONFIRMATION SAMPLES WILL BE ANALYZED FOR VOCs.
2. ESTIMATED VOLUME OF IMPACTED MATERIAL IS 61.1 CUBIC YARDS.

SOURCE:

- A. ESRI DIGITAL GLOBE 2013
- B. FURNAS ELECTRIC COMPANY BUILDING PLAN (NOVEMBER 1967)
- PROVIDED BY SIEMENS REAL ESTATE, 2014

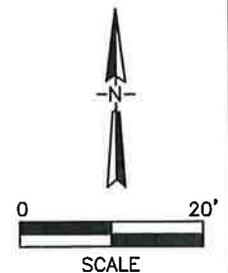
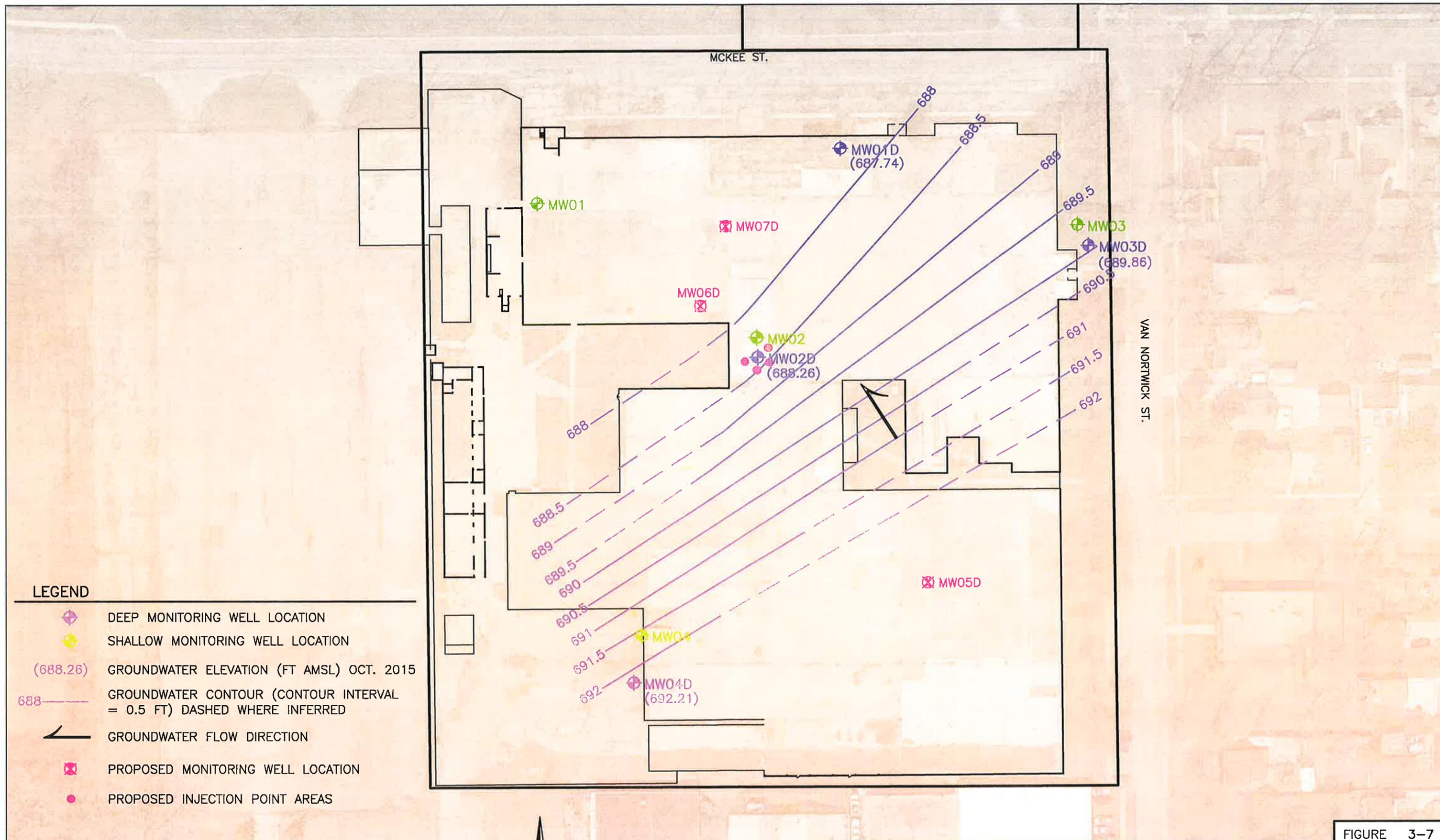


FIGURE 3-6



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SOIL EXCAVATION MAP -
SG003 HOTSPOT
FORMER SIEMENS FACILITY
Batavia, Kane County, Illinois

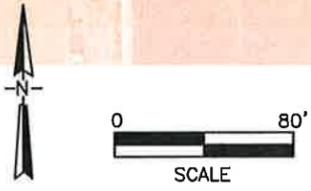


LEGEND

-  DEEP MONITORING WELL LOCATION
-  SHALLOW MONITORING WELL LOCATION
- (688.26) GROUNDWATER ELEVATION (FT AMSL) OCT. 2015
- 688 GROUNDWATER CONTOUR (CONTOUR INTERVAL = 0.5 FT) DASHED WHERE INFERRED
-  GROUNDWATER FLOW DIRECTION
-  PROPOSED MONITORING WELL LOCATION
-  PROPOSED INJECTION POINT AREAS

SOURCE:

- A. ESRI DIGITAL GLOBE 2013
- B. FURNAS ELECTRIC COMPANY BUILDING PLAN (NOVEMBER 1967) – PROVIDED BY SIEMENS REAL ESTATE, 2014



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PROPOSED MONITORING WELL AND
INJECTION POINT LOCATION MAP
FORMER SIEMENS FACILITY
Batavia, Kane County, Illinois

FIGURE 3-7

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SECTION 4 PROJECT SCHEDULE

The project schedule for the proposed remedy implementation is included as Figure 4-1. The proposed schedule includes the submission of this report, IEPA review, project bid specification preparation, bid letting, contractor selection, remedial activities, and preparation and submittal of the Remedial Action Completion Report. This schedule assumes only one sampling event is required after the groundwater remedy has been implemented and a project start date of 3 March 2016 with the submission of this report.

