



May 16, 2016

Project No. 123-93309-01

USEPA Region V
Attention: Peter Ramanauskas
Mail Code LU-9J
77 West Jackson Blvd.
Chicago, IL 60604

Maria Galanti
Division of Environmental and Remedial Response (DERR)
Ohio Environmental Protection Agency
Southeast District Office
2195 Front Street
Logan, Ohio 43138

**RE: WORK PLAN & NOTIFICATION FOR SELF-IMPLEMENTING PCB CLEANUP
FORMER SATRALLOY SITE**

Dear Sir and Ma'am:

On behalf of the Cyprus Amax Minerals Company (Cyprus Amax), Golder Associates Inc. (Golder) is submitting this Notification of a Self-Implementing Cleanup and Disposal of Polychlorinated Biphenyls (PCBs) Remediation Waste (Notification) for remediation of PCB-impacted soil and concrete at the Former Satralloy Site (the Site) in Cross Creek Township, Jefferson County, Ohio. The Satralloy Site address is 4243 County Road 74 (Gould Road), Mingo Junction, Jefferson County, Ohio (Figure 1).

The location of the self-implementing PCB cleanup is in a relatively small area of a decommissioned electrical switchyard within the larger Satralloy mill site. Soil sampling conducted in the Electrical Switchyard indicates that total PCBs exceed 50 mg/kg in a small, well-defined area.

1.0 INTRODUCTION

1.1 Background

The Site consists of approximately 333.5 acres of land and includes an abandoned ferrochromium alloy processing plant (Figure 2). The Site is located on County Road 74 in Cross Creek Township, Jefferson County, Ohio, approximately four miles southwest of Steubenville. Portions of the Site are bordered on the west, south, and east by Cross Creek, a perennial stream which discharges into the Ohio River. Access to the Site is via County Road 74.

The Site was developed in 1958 by the Vanadium Corporation of America. In 1967, the Vanadium Corporation of America merged with the Foote Mineral Company. In 1974, Foote Mineral Company sold the Site to Satralloy, Inc. Foote Mineral Company was acquired by a subsidiary of Cyprus Minerals Company in 1988, which in turn merged with Amax in 1993 to form the Cyprus Amax Minerals Company. Foote Minerals was renamed Cyprus Foote Mineral Company, was sold in 1998 to Chemetall GmbH, and again renamed to Chemetall Foote Corporation.

Operations continued at the Site under the ownership of Satralloy, Inc. from 1974 until 1982, when the electric arc furnaces were shut down. In 1982, a company named Satra Concentrates, Inc. began operating at the Site. Satra Concentrates ceased operations at the Site in 1994.

051616lkh1_satralloy pcb work plan.docx

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The Site was then sold by Jefferson County for unpaid property taxes to Ms. Catherine Glorious at a sheriff's auction. Ms. Glorious passed away in April 2001. The Site was resold at auction for unpaid property taxes to Cyprus Amax, with property transfer to Cyprus Amax by Jefferson County Sheriff's Deed on Foreclosure #247647, recorded on May 17, 2010.

A Consent Order and Preliminary Injunction (COPI) between Cyprus Amax and OEPA to perform a RI/FS for the Site was entered with the Court on November 3, 2010. Pursuant to the COPI, Cyprus Amax has been performing interim action activities at the Site.

As part of interim action in 2016, Cyprus Amax intends to remove PCB-impacted soil and concrete for off-site disposal.

1.2 PCB Removal Area

The PCB removal area is located in the Electrical Switchyard (Figure 3), where electrical transformers were formerly located. These transformers were removed by the U.S. EPA as part of a Site-wide PCB removal action in the 1990s. The PCB removal area within the Electrical Switchyard is approximately 1,150 square feet in area.

1.3 PCB Removal Scope and Objectives

The objective of this removal action is to remove PCB-impacted soil and concrete with PCB concentrations exceeding 2 mg/kg. The concrete transformer foundations have been tested and found to contain surficial PCB concentrations less than 50 mg/kg. For simplicity, all of the concrete transformer foundations will be removed and disposed off-site as non-hazardous waste. PCB-impacted soil will be segregated into two batches: one with PCB concentrations above 50 mg/kg for disposal at a TSCA facility, and one with PCB concentrations below 50 mg/kg for non-hazardous landfill disposal.

2.0 SAMPLING AND ANALYSIS

2.1 Initial Sampling

Concrete samples and soil samples were collected on September 25, 2014 in the area where the main transformers had been located ("100 Area" on Figure 4). During the sampling, additional concrete foundations were found near the edge of the Electrical Switchyard ("200 Area" on Figure 4) and were also sampled.

Concrete samples consisted of chips collected by driving by a hand-held hammer drill to a depth of approximately one-inch. Concrete chips from the 100 and 200 Areas were composited separately. The composite concrete sample from the 100 Area (PHC1) contained 0.058 ppm total PCBs. The composite concrete sample from the 200 Area (PHC2) contained 6.63 mg/kg total PCBs.

Soil samples were collected using a backhoe from several locations around the three transformer foundations in the 100 Area. One composite sample was prepared for each of the three foundations and analyzed for PCBs. The total PCBs in these three samples were 0.19 mg/kg (PHS1), 0.52 mg/kg (PHS2), and 0.45 mg/kg (PHS3).

2.2 Second Sampling

Based on detection of PCBs in initial soil samples, grab soil samples were collected from both the 100 and 200 areas in June 2015. In the 100 Area, soil samples were collected from beneath clean gravel fill (2.0-2.5 ft below ground surface [bgs]) because we believe that the gravel was placed after any spillage, and there was no visual indication of surface contamination. In the 200 Area, soil samples were collected from the top foot of soil. Total PCB concentrations for these soil samples are shown on Figure 4.

2.3 Soil Borings

To determine the full extent of PCB-impacted soils, soil samples were collected from borings in the 200 Area on August 1, 2015. The samples represented 6-inch depth intervals to a maximum depth of 4.5 feet bgs. Analytical results for these samples are shown on Figure 4. The results were sufficient to support development of a removal plan.

3.0 REMOVAL PLAN

3.1 Removal

Based on the analytical results of detailed soil sampling, two removal areas were delineated (Figure 5). Level A soils are those with total PCB concentrations above 50 mg/kg. Level B soils are those with total PCB concentrations below 50 mg/kg. Concrete transformer foundations, all of which had total PCB concentrations below 50 mg/kg, will be removed and disposed with the Level B soils. Level A and Level B soils will be excavated and stockpiled separately.

If the soils are stockpiled, they will be placed on an impermeable geomembrane and covered with the same geomembrane. Alternatively, soils may be loaded directly into shipping containers.

Soil samples collected for waste profiling will be composite samples collected from each waste container or stockpile. The composites will be of equal volume from three locations from each container or stockpile to represent the bulk characteristics of each. The representative soil samples will be analyzed as required by regulations and the off-site disposal facilities (including but not limited to analyses for hazardous waste determination).

3.2 Cleanup Verification

Following removal of PCB-impacted soils, samples for cleanup verification will be collected from the excavation areas. Verification samples will be collected in accordance with 40 CFR §761.283 and composited in accordance with §761.289. The grab soil samples from which the composites will be generated will be collected using a device that conforms to the specifications in §761.286, and will extend to a maximum depth of 7.5 cm.

The sampling grid will have sampling points 1.5 meters apart oriented to the grid axes. The grid will be oriented with one grid axis perpendicular to the crib wall that forms the western boundary of the remediation area, rather than a magnetic north orientation as described in 40 CFR §761.280. This is the orientation of the rectangular Level A cleanup area; it will simplify the grid system and meet the intent of the sample grid described in §761.280. The orientation of the wall is approximately 45° east of magnetic north. Thus, one grid axis will be oriented N45°W with the second northeast-southwest axis perpendicular to the first axis (i.e., 45° east of magnetic north).

Verification samples will be shipped to a qualified laboratory under chain-of-custody protocol for analysis for PCBs by EPA Method 8082. Based on the existing data, it is expected that all verification samples will have <1 mg/kg total PCBs. If the total PCBs in any verification sample exceeds 2 mg/kg, an additional 6 inches of soil will be removed from the area represented by the sample(s) in accordance with 40 CFR §761.283. Additional verification samples will be collected for the additional soil excavation according to the protocols presented above until all removal areas have been shown to have <2 mg/kg total PCBs.

3.3 Site Restoration

Following completion of removal and verification, the excavation areas will be backfilled with Site soils and graded for proper stormwater drainage.

4.0 CERTIFICATION

The Cyprus Amax Mineral Company, which owns the property where the removal of PCB-impacted soil will take place, and Golder Associates Inc., which will direct the soil excavation and removal on behalf of Cyprus Amax, certify in accordance with Part 40 of the Code of Federal Regulations §761.61 that documentation regarding the cleanup, sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB impacts at the cleanup site, are on file and available for USEPA inspection at the following address:

Golder Associates Inc.
1335 Dublin Road, Suite 126-D
Columbus PA 43215

5.0 CLOSING

Please contact Lee Holder if you have questions or require additional information.

Sincerely,

GOLDER ASSOCIATES INC.

CYPRUS AMAX MINERALS COMPANY



Lee K. Holder, P.E.
Golder Associates Project Manager

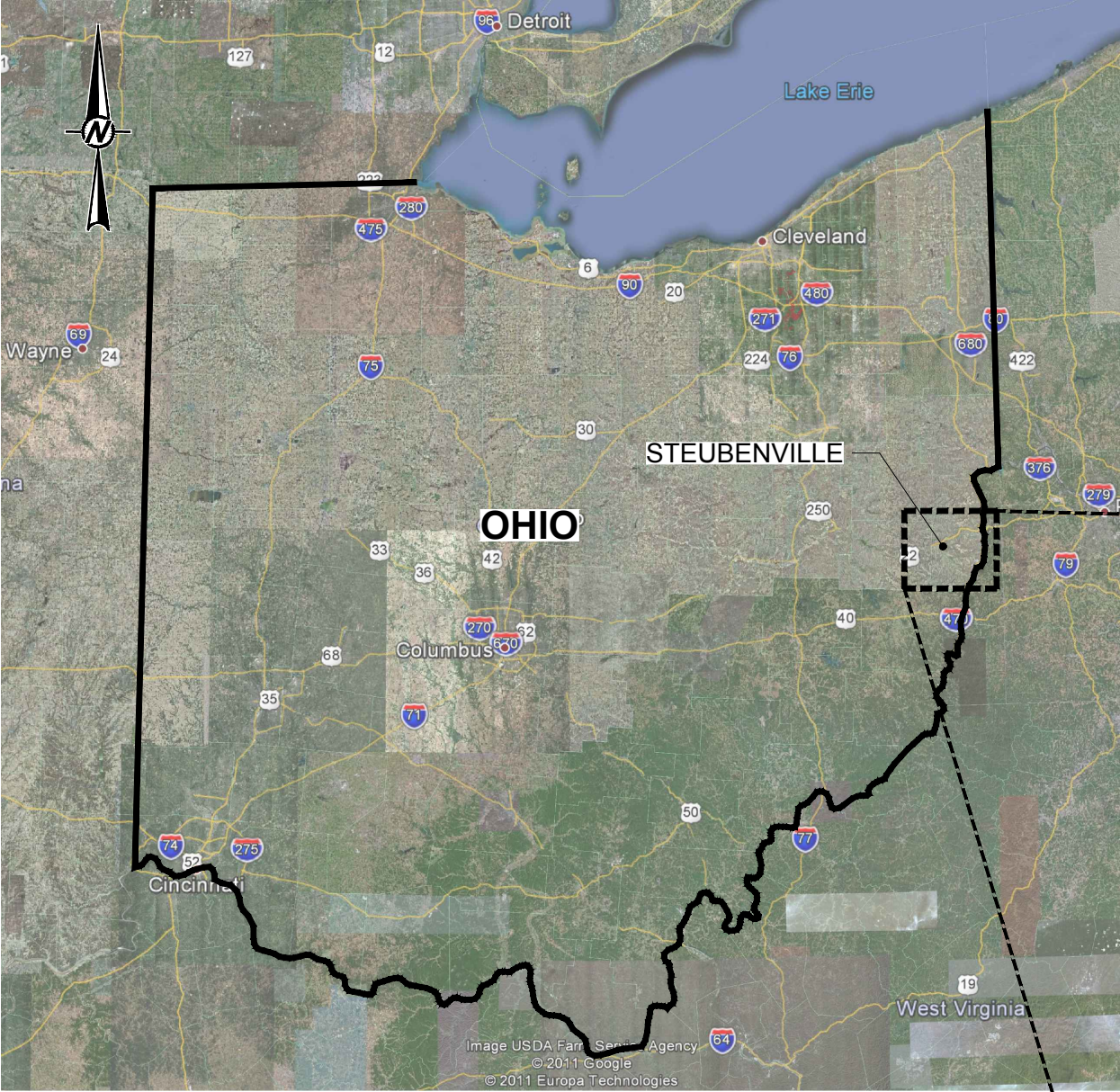


Barbara Nielsen
Cyprus Amax Project Manager

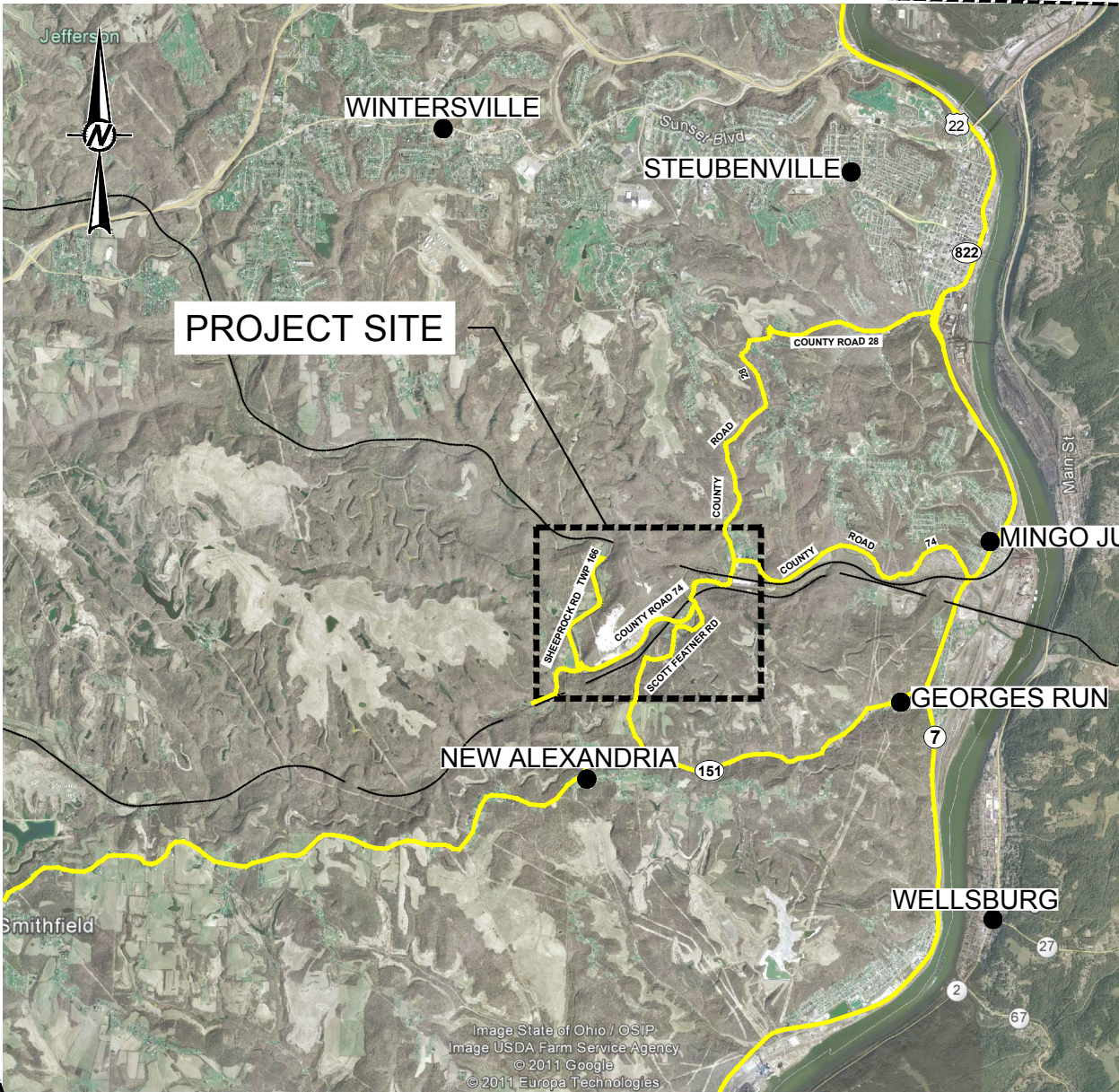
LKH/sb

Attachments:
Figures

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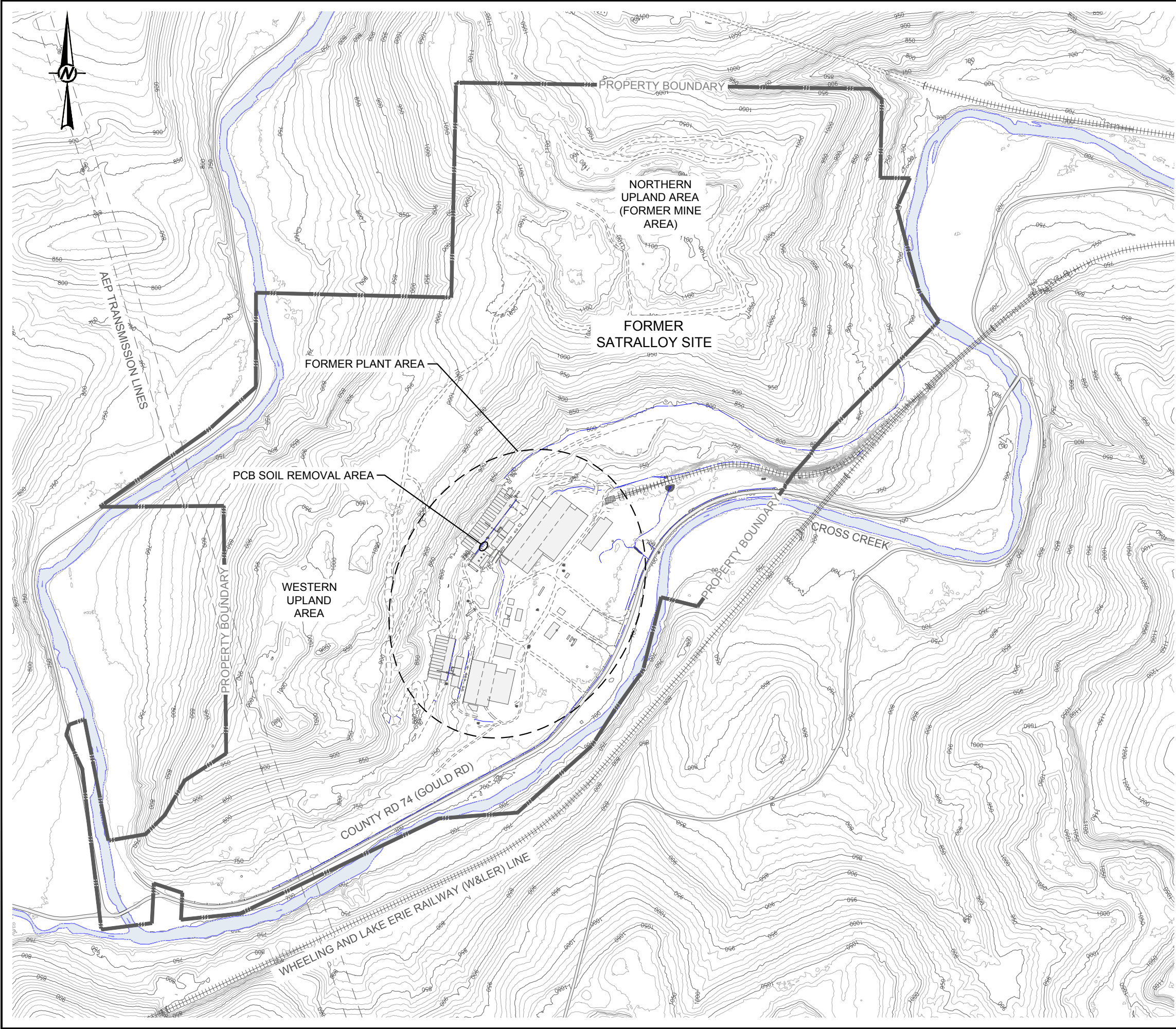
LOCATION MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

PROJECT FORMER SATRALLOY SITE SELF-IMPLEMENTING PCB CLEANUP	CLIENT FREEMPORT McMORAN, INC.		CONSULTANT REDMOND 18300 NE UNION HILL ROAD REDMOND, WA U.S.A. [+1] (425) 883-0777 www.golder.com	
	CONSULTANT Golder Associates		CONSULTANT	
TITLE FIGURE 1 PROJECT LOCATION	PROJECT NO. 1239330901		PHASE 340	
	REV. A		FIGURE 1	
REV. A		2016-03-25		ISSUED FOR REVIEW
REV.		YYYY-MM-DD		DESCRIPTION
		VMN		DESIGNED
		ML		PREPARED
		FSS		REVIEWED
		LKH		APPROVED

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NOTES:

1. BASE TOPOGRAPHY DATED 2003 PROVIDED BY JEFFERSON COUNTY, OHIO, ENGINEER'S OFFICE.
 - 1.a. HORIZONTAL DATUM: OHIO NORTH ZONE NAD 83 - STATE PLANE U.S. SURVEY FEET.
 - 1.b. VERTICAL DATUM: NAVD 88 (EST. 1991).
 - 1.c. CONTOUR INTERVAL: 2 FT.ADDITIONAL TOPOGRAPHY BASED ON FIELD OBSERVATIONS AND MEASUREMENTS.
2. PROPERTY BOUNDARY BY BONAR SURVEYING, BERGHOLZ, OHIO, DATED OCTOBER 17, 2006.

LEGEND:

- EXISTING PROPERTY BOUNDARY
- EXISTING ON-SITE ACCESS ROAD
- EXISTING COUNTY ROAD (PAVED)
- EXISTING RAILROAD
- EXISTING FENCE
- DRAINAGE DITCH
- CROSS CREEK
- EXISTING FACILITY

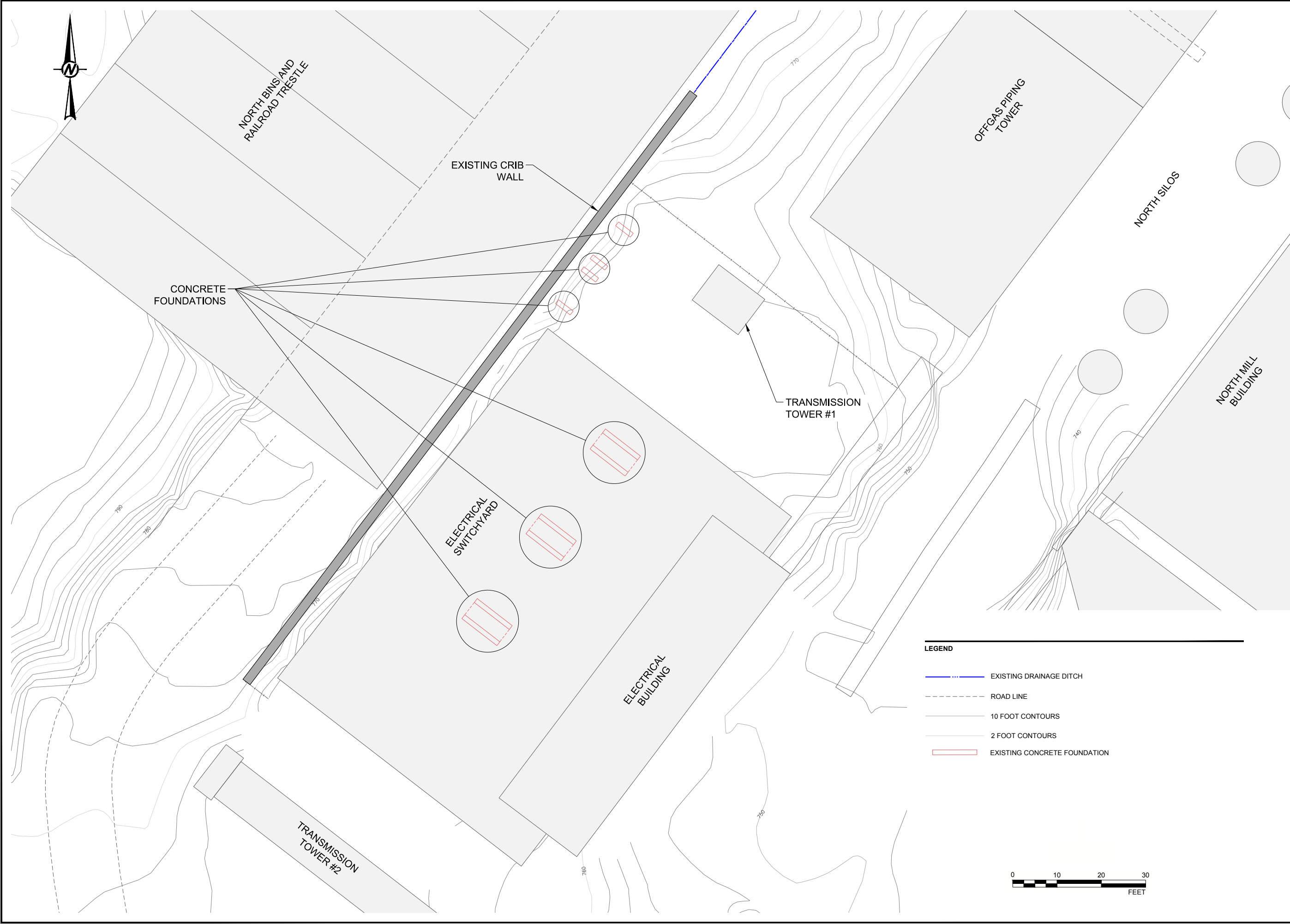


PROJECT		CLIENT		CONSULTANT	
FORMER SATRALLOY SITE		FREEPORT McMORAN, INC.		REDMOND	
SELF-IMPLEMENTING PCB CLEANUP				18300 NE UNION HILL ROAD	
				REDMOND, WA	
				U.S.A.	
				[+1] (425) 883-0777	
				www.golder.com	
TITLE		PROJECT NO.		PHASE	
FIGURE 2		1239330901		340	
SITE LAYOUT					
REV.		of		FIGURE	
A				2	
				REV.	DESCRIPTION
				A	2016-03-25
				ISSUED FOR REVIEW	
				ML	VMN
				FSS	LKH
				DESIGNED	PREPARED
				REVIEWED	APPROVED



1" = 1200' IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

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- LEGEND**
- EXISTING DRAINAGE DITCH
 - ROAD LINE
 - 10 FOOT CONTOURS
 - 2 FOOT CONTOURS
 - EXISTING CONCRETE FOUNDATION

PROJECT
FORMER SATRALLOY SITE
SELF-IMPLEMENTING PCB CLEANUP

CLIENT
FREEPOR McMORAN, INC.

TITLE
FIGURE 3
ELECTRICAL SWITCHYARD AREA

CONSULTANT

REDMOND
18300 NE UNION HILL ROAD
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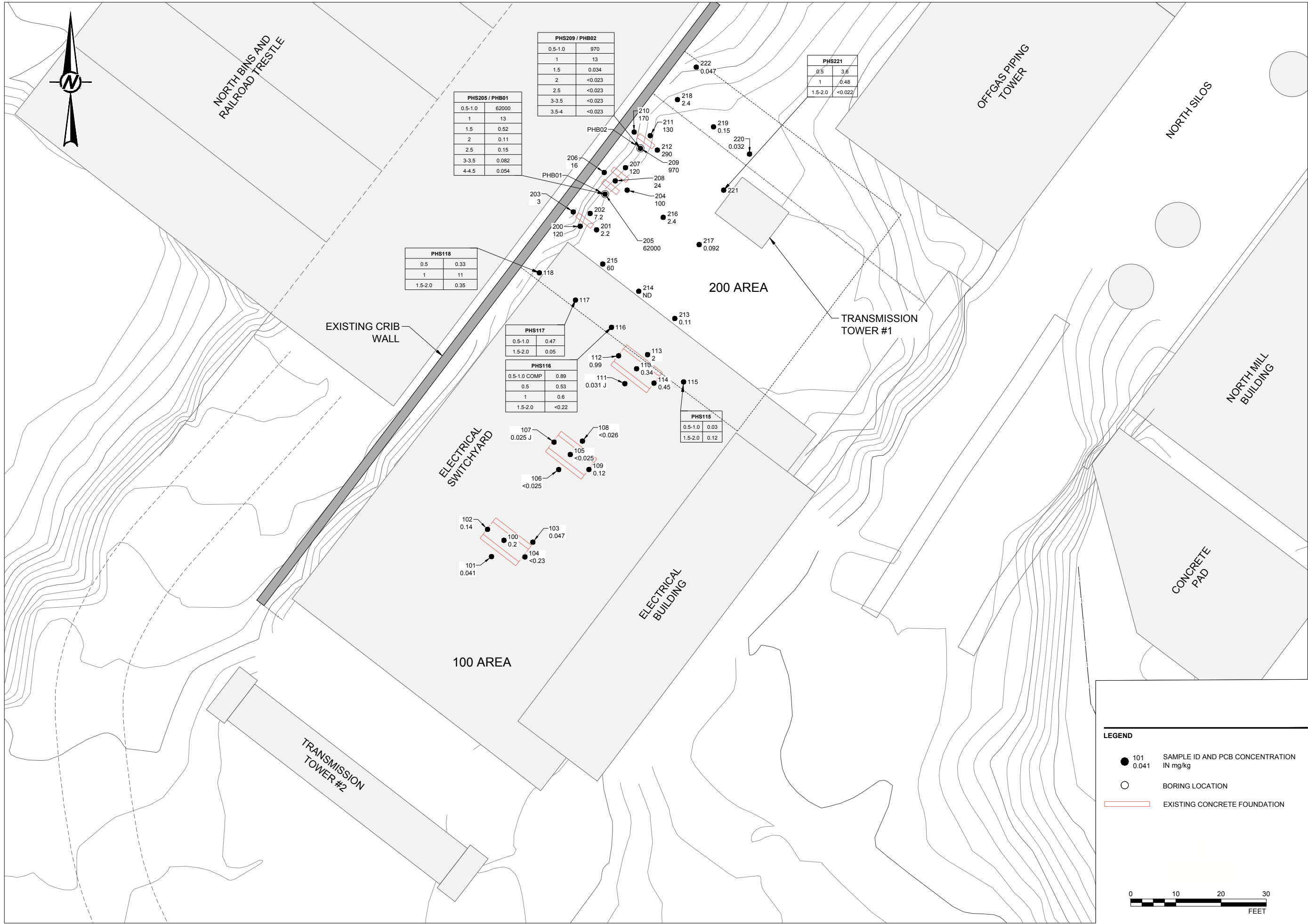
PROJECT NO.
1239330901

PHASE
340

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
A	2016-03-25	ISSUED FOR REVIEW	VMN	ML	FSS	LKH

REV. of FIGURE
A 3

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PROJECT
FORMER SATRALLOY SITE
SELF-IMPLEMENTING PCB CLEANUP

CLIENT
FREEMPORT McMORAN, INC.

TITLE
**FIGURE 4
PCB SAMPLE LOCATIONS AND
CONCENTRATIONS**

PROJECT NO.
1239330901

PHASE
340

REDMOND
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U.S.A.
[+1] (425) 883-0777
www.golder.com

CONSULTANT



REV. A

of

FIGURE 4

1 in

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

REV. A 2016-03-25

ISSUED FOR REVIEW

DESCRIPTION

DESIGNED

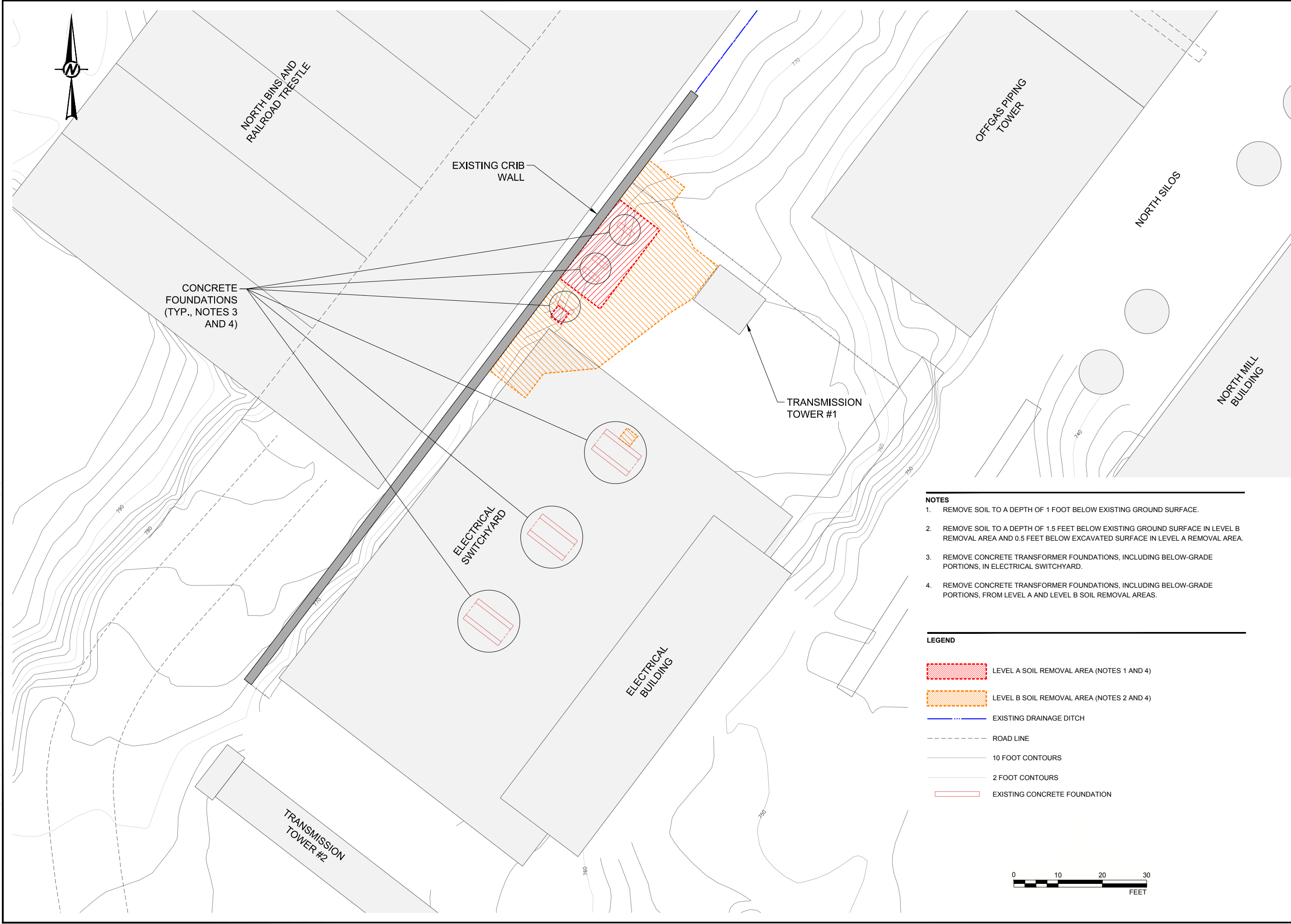
PREPARED

REVIEWED

APPROVED

VMN ML FSS LKH

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- NOTES**
1. REMOVE SOIL TO A DEPTH OF 1 FOOT BELOW EXISTING GROUND SURFACE.
 2. REMOVE SOIL TO A DEPTH OF 1.5 FEET BELOW EXISTING GROUND SURFACE IN LEVEL B REMOVAL AREA AND 0.5 FEET BELOW EXCAVATED SURFACE IN LEVEL A REMOVAL AREA.
 3. REMOVE CONCRETE TRANSFORMER FOUNDATIONS, INCLUDING BELOW-GRADE PORTIONS, IN ELECTRICAL SWITCHYARD.
 4. REMOVE CONCRETE TRANSFORMER FOUNDATIONS, INCLUDING BELOW-GRADE PORTIONS, FROM LEVEL A AND LEVEL B SOIL REMOVAL AREAS.

- LEGEND**
- LEVEL A SOIL REMOVAL AREA (NOTES 1 AND 4)
 - LEVEL B SOIL REMOVAL AREA (NOTES 2 AND 4)
 - EXISTING DRAINAGE DITCH
 - ROAD LINE
 - 10 FOOT CONTOURS
 - 2 FOOT CONTOURS
 - EXISTING CONCRETE FOUNDATION



PROJECT
FORMER SATRALLOY SITE
SELF-IMPLEMENTING PCB CLEANUP

CLIENT
FREEPOR McMORAN, INC.

TITLE
FIGURE 5
PCB SOIL REMOVAL PLAN

CONSULTANT

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18300 NE UNION HILL ROAD
REDMOND, WA
U.S.A.
[+1] (425) 883-0777
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PROJECT NO.
1239330901

PHASE
340

REV.	YYYY-MM-DD	DESCRIPTION	DESIGNED	PREPARED	REVIEWED	APPROVED
A	2016-03-25	ISSUED FOR REVIEW	ML	VMN	FSS	LKH