

Former Al Tech Specialty Steel Corporation Site

TOWN OF COLONIE, ALBANY COUNTY, NEW YORK

Final Engineering Report

Operable Unit Number 03: On-Site Structures

Contract No. D011842

Registry Site Number: 401003

Prepared for:

New York State Department of Environmental Conservation
Division of Environmental Remediation

12th Floor, 625 Broadway
Albany, NY 12233-7017

Prepared by:

AECOM USA, Inc.
50 Lakefront Blvd., Suite 111
Buffalo, NY 14202
(716) 856-5636

DECEMBER 23

CERTIFICATIONS

I, Carsten H. Floess, am currently a registered professional engineer licensed by the State of New York, and I certify that the Remedial Design was implemented and that all construction activities were completed in substantial conformance with the Department-approved Remedial Design.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the Remedial Design and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established for the remedy.

I certify that all documents generated in support of this report have been submitted in accordance with the DER's electronic submission protocols and have been accepted by the Department.

I certify that all data generated in support of this report have been submitted in accordance with the Department's electronic data deliverable and have been accepted by the Department.

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Carsten H. Floess, of AECOM U.S.A. Inc., 40 British American Boulevard, Latham, New York, 12110, am certifying as Owner's Designated Site Representative to sign this certification for the site.



061261

December 7, 2023

NYS Professional Engineer #

Date

Signature

TABLE OF CONTENTS

1.0 BACKGROUND AND SITE DESCRIPTION.....	1-1
1.1 Site Description	1-2
1.1.1 Investigation and Remedial History	1-6
1.2 Previous Investigations Summary	1-7
2.0 SUMMARY OF SITE REMEDY	2-1
2.1 Remedial Action Objectives	2-1
2.1.1 Groundwater RAOs	2-1
2.1.2 Soil RAOs.....	2-1
2.1.3 Surface Water RAOs	2-2
2.2 Description of Selected Remedy	2-2
3.0 INTERIM REMEDIAL MEASURES, OPERABLE UNITS AND REMEDIAL CONTRACTS.....	3-1
3.1 Interim Remedial Measures	3-1
3.2 Enforcement Status.....	3-4
3.3 Operable Units	3-5
3.4 Remedial Contracts.....	3-6
3.5 Project Bidding Information and Award	3-6
4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED	4-1
4.1 Governing Documents.....	4-1
4.1.1 Contract Documents.....	4-1
4.1.2 Project Schedule	4-2
4.1.3 Health and Safety Plan (HASP).....	4-2
4.1.4 Quality Assurance Project Plan (QAPP).....	4-4

4.1.5	Work Plan.....	4-4
4.1.6	Stormwater Pollution Prevention Plan	4-5
4.1.7	Contractor's Transportation Plan.....	4-6
4.1.8	Community Air Monitoring Program (CAMP).....	4-6
4.1.9	Community Participation Plan.....	4-7
4.1.10	Submittals.....	4-7
4.2	Remedial Program Elements	4-8
4.2.1	Contractors and Consultants	4-8
4.2.2	Site Preparation/Mobilization.....	4-10
4.2.2.1	Utility Clearance and Permits.....	4-11
4.2.3	General Site Controls	4-11
4.2.3.1	Site Security	4-11
4.2.3.2	Erosion and Sediment Control	4-12
4.2.3.3	Equipment and Personal Decontamination	4-13
4.2.3.4	Stockpiling.....	4-14
4.2.3.5	Asbestos Removal/Monitoring	4-14
4.2.3.6	Lead-Based Paint Removal	4-15
4.2.3.7	Truck Wash/Egress Housekeeping.....	4-16
4.2.4	Nuisance Controls	4-16
4.2.4.1	Vibration, Crack and Noise	4-16
4.2.4.2	Dust and VOCs	4-17
4.2.4.3	Odor	4-17
4.2.4.4	Responding to Complaints	4-17
4.2.5	Pre-Construction Photography	4-18

4.2.6	Survey	4-18
4.2.7	CAMP Results	4-18
4.2.8	Reporting.....	4-20
4.2.8.1	Daily Inspection Reports	4-20
4.2.8.2	Contractor's Applications for Payment (CAP)	4-21
4.2.9	Meetings.....	4-22
4.3	Building Demolition and Contaminated Material Removal.....	4-23
4.3.1	Structural Integrity Evaluation.....	4-25
4.3.2	Hazardous Materials Characterization.....	4-25
4.3.3	Asbestos Abatement	4-26
4.3.4	Radiological Monitoring and Removals	4-28
4.3.4.1	Personnel Monitoring	4-29
4.3.4.2	Radiological Waste Excavation.....	4-30
4.3.4.3	Radiological Waste Transport Monitoring	4-31
4.3.4.4	Radiological Contamination Surveys.....	4-31
4.3.4.5	Routine Radiological Contamination Survey	4-32
4.3.4.6	Scoping and Remediation Radiological Support Surveys ..	4-33
4.3.4.7	Post Remediation Radiological Surveys	4-34
4.3.4.8	TENORM Air Monitoring	4-35
4.3.4.9	Radiological Violation.....	4-35
4.3.5	Hazardous Material Identification and Removal	4-35
4.3.5.1	Lead-Based Paint Removal	4-37
4.3.6	Structure Demolition (Typical)	4-38
4.3.7	Building Slab/Machine Pits/Vaults Decontamination	4-38

4.3.8	Building 27 Demolition.....	4-39
4.3.9	Building 36 Demolition.....	4-39
4.3.9.1	Building 36: Hazardous Waste Treatment/ Removal.....	4-39
4.3.10	Buildings 22/23/14 Parquet Flooring Removal	4-41
4.3.11	Building 27 Arc Furnace Dust Handling and Removal.....	4-41
4.3.12	Pit/Slab Cleaning.....	4-42
4.3.13	Remedial Performance Documentation Sampling.....	4-42
4.3.14	Green and Sustainable Remediation.....	4-43
4.4	Waste Disposal	4-44
4.4.1	Waste Profiles for Disposal Facility Acceptance.....	4-44
4.4.2	Disposal of Non-Hazardous Waste.....	4-46
4.4.3	Disposal of Hazardous Debris	4-46
4.4.4	Disposal of Radiologic Waste (TENORM)	4-46
4.4.5	Disposal of ACM Non-Hazardous.....	4-47
4.4.6	Disposal of ACM Hazardous	4-47
4.4.7	Recycling of Salvageable Steel	4-47
4.4.8	Disposal of Universal Wastes.....	4-47
4.4.9	Waste Disposal Quantities	4-49
4.5	Imported Backfill.....	4-50
4.6	Dewatering/Contact Water Treatment, Handling and Disposal	4-50
4.7	Contamination Remaining at the Site.....	4-52
4.8	Soil Cover [or CAP] System	4-52
4.9	Site Restoration.....	4-52
4.9.1	Sanitary Sewer Abandonment.....	4-52

4.9.2	Storm Sewer Repair and Maintenance.....	4-53
4.9.3	Hydroseeding	4-53
4.9.4	Fencing.....	4-53
4.9.5	Monitoring Well Installations.....	4-53
4.9.6	Security Incidents	4-53
4.10	Engineering Controls.....	4-54
4.11	Institutional Controls.....	4-54
4.12	Deviations from the Scope of Work.....	4-54
4.12.1	Requests for Information	4-54
4.12.2	Field Orders.....	4-57
4.12.3	Field Clarification Memoranda	4-59
4.12.4	Proposed Change Orders.....	4-59
4.12.5	Change Orders	4-61
4.12.6	Issues and Concerns.....	4-61
5.0	COST SUMMARY.....	5-1
6.0	REFERENCES.....	6-1

LIST OF TABLES

Table 4-1	Contractor Applications for Payment (CAPs)
Table 4-2	Buildings Demolished During OU-3 Remedial Effort
Table 4-3	Regulatory Dose Limits
Table 4-4	Summary of Remaining Contamination of Pits
Table 4-5	Waste Disposal Locations
Table 4-6	Total Weight of Waste Disposed, by Type

LIST OF FIGURES

Figure 1	Site Location
Figure 2	Site Plan
Figure 3	Former Plant Layout
Figure 4	Sanitary Sewer Closure Record
Figure 5	Sanitary Sewer Decommission Detail

LIST OF APPENDICES

APPENDIX A	– Survey Map and Control Monuments
APPENDIX B	– Contract Documents
APPENDIX C	– Proposed Change Orders
APPENDIX D	– Requests for Information
APPENDIX E	– Submittals
APPENDIX F	– Laboratory Analytical Data
APPENDIX G	– CAMP Data
APPENDIX H	– Daily Inspection Reports
APPENDIX I	– Red-line and As-Built Drawings
APPENDIX J	– Substantial Completion Letter
APPENDIX K	– Contractor's Applications for Payment
APPENDIX L	– Meeting Minutes
APPENDIX M	– Asbestos Abatement Documentation
APPENDIX N	– Waste Profiles
APPENDIX O	– Weight Tickets and Manifests
APPENDIX P	– Radiological Monitoring Documentation
APPENDIX Q	– Remaining Contamination Reports

APPENDIX R – Field Orders

APPENDIX S – Field Clarification Memoranda

APPENDIX T – Change Orders

LIST OF ACRONYMS AND ABBREVIATIONS

Acronym	Definition
ACM	Asbestos Containing Material
AECOM	AECOM USA, Inc.
ALARA	as low as reasonably achievable
ALI	Annual Limits on Intake
AOC	Area of Concern
API OWS	American Petroleum Institute Oil/Water Separator
AST	Aboveground Storage Tank
C&D	Construction and Demolition
CAMP	Community Air Monitoring Plan/Program
CAP	Contractor's Application for Payment
CCR	Construction Completion Report
CFCs	Chlorofluorocarbons
CFR	Code of Federal Regulations
CO	Change Order
COC	Contaminant of Concern
DAC	Derived Air Concentration
DER	Division of Environmental Remediation
DIR	Daily Inspection Report
DRO	diesel range organics
DUSR	Data usability summary report
EAF	Electric-arc furnace
EC	Engineering control
ESC	Environmental Strategies Corporation
ESG	The Environmental Services Group (NY), Inc.
EZ	exclusion zone
FER	Final Engineering Report
FO	Field Order
ft	feet
GM	Geiger-Mueller
GRO	gasoline range organics
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEPA	High Efficiency Particulate Air
IC	Institutional control
IRM	Interim Remedial Measure
LBP	lead-based paint
Lion	Lion Construction Supply and Services
L.L.C	Limited Liability Corporation
LNAPL	light, non-aqueous phase liquid
Lozier	Lozier Environmental Consulting, Inc.

m ³	cubic meter
MACTEC	MACTEC Engineering and Consulting, P.C.
MBE	Minority-owned Business Enterprise
MDL	Method Detection Limit
mg	milligram
MPA	Main Plant Area
mrem	millirem
NAVD 88	North American Vertical Datum 88
NORM	Naturally Occurring Radioactive Material
NPE	Negative Pressure Enclosure
NY	New York
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Dept. of Environmental Conservation
NYSDOH	New York State Dept. of Health
NYSDOL	New York State Dept. of Labor
OU	Operable Unit
OSHA	Occupational Safety and Health Administration
P.C.	Professional Corporation
PCB	Polychlorinated biphenyl
PCO	Proposed Change Order
PDI	Pre-design Investigation
PE	Professional Engineer
PID	Photoionization Detector
PM-10	10 microns or less
POTW	Publicly Owned Treatment Works
PPE	personal protective equipment
ppm	parts per million
PRP	Potentially Responsible Party
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RAO	Remedial Action Objective
RCRA	Research Conservation and Recovery Act
RFI	Request for Information
ROD	Record of Decision
RPP	Radiation Protection Program
RSO	Radiations Safety Officer
SCO	Site Cleanup Objective
Site	Former Al Tech Specialty Steel Site
SMSA	Scrap Metal Storage Area
SPDES	State Pollutant Discharge Elimination System
SVOC	Semivolatile organic compound
SWPPP	Stormwater Pollution Prevention Plan
T&D	Transportation and Disposal
TCLP	Toxicity Characteristic Leaching Procedure

TEDE	Total Effective Dose Equivalent
TENORM	Technologically Enhanced Naturally Occurring Radioactive Material
TSCA	Toxic Substances Control Act
TSDf	treatment, storage, and disposal facility
TSS	Total Suspended Solids
μCi/ml	micro-Curies per milliliter
μR/hr	micro-Roentgens per hour
μg/m ³	micrograms per cubic meter
UC	unit cost
URS	URS Corporation – New York
USEPA	United States Environmental Protection Agency
VOC	Volatile organic compound
WA	Work Assignment
WBE	Women-owned Business Enterprise
WMA	Waste Management Area
WPCP	Water Pollution Control Plant

FINAL ENGINEERING REPORT – OPERABLE UNIT NUMBER 03: ON-SITE STRUCTURES

1.0 BACKGROUND AND SITE DESCRIPTION

This Final Engineering Report (FER) for Operable Unit Number 03 (On-Site Structures) has been prepared by AECOM USA, Inc. (AECOM) for the New York State Department of Environmental Conservation (NYSDEC) under Contract D009803 - Work Assignment No. D009803-22. This FER has been prepared to document the implementation of the Remedial Design for Operable Unit Number 03 at the Site.

In 2015, the NYSDEC listed the Site as Class 2 in the Registry of Inactive Hazardous Waste Disposal sites. The Site is [comprised of](#) five parcels [located in the](#) Town of Colonie, Albany County, New York (Figure 1 and Appendix A). The overall Site is 113 acres and consists of the AI Tech Main Plant Area (MPA), which spans the area between Lincoln Ave and Spring Street Road; and the incontiguous AI Tech Waste Management Area (WMA) which is situated on a hillside along the north side Spring Street Road (Tax parcel 44.1-1-2.1 [32.97 acres]) – see Figure 2. The Site boundary is more completely described in Appendix A (Boundary Modification Report (NYSDEC, December 2015)). The WMA was not part of the OU3 remedial construction documented in this report. The OU3 Site Area (henceforth the “Site”) consists of two parcels: 44.01-7.1 (19.4 acres) and 44.01-7.2 (38.3 acres): both on Albany County Tax Map # 44.01 (Appendix A).

The Site is bounded by Spring Street Road to the north, open wooded/vegetated land and the Albany Rural Cemetery to the south, Lincoln Avenue and a railroad track to the east, and the Albany Rural Cemetery and open wooded/vegetated land to the west

(see Figure 3). The general area around the site contains a mix of residential, industrial and commercial properties. Other former industrial scale facilities are also located in the immediate vicinity including the former Delaware and Hudson Rail Yard and the former Adirondack Steel and Casting Corporation. Construction of a housing development to the west of the WMA was initiated in 2001.

The boundaries of the Site are provided as Tax Maps from Albany County records and NYSDEC's Boundary Modification Report (Appendix A). A Metes and Bounds Survey was not part of AECOM's scope and will be completed at a later date. The Remedial Design was completed using project survey control established during the Pre-Design Investigation by AECOM as part of WA#53, Contract D007622 (Appendix A) The horizontal datum is the North American Datum of 1983, New York State Plane East Zone 3101. The vertical datum is the North American Vertical Datum of 1988 (NAVD88).

1.1 Site Description

The Site was a former steel mill where various melting, forging, and finishing processes were conducted. The properties were utilized primarily for activities associated with the production of stainless steel. The Site was active from approximately 1910 until 1999. At the time of the Remedial Action the MPA consisted of large, empty and unused buildings, roadways, concrete foundation slabs and former industrial waste disposal areas. The Kromma Kill flows along significant lengths of the north and the east sides of the MPA. The Hudson River is approximately one mile east of the MPA. Chain-link fencing was installed around the entire MPA while the plant was in operation and remains in place. The fencing was reestablished by NYSDEC as part of the remedial construction. The Site consisted of approximately 44 abandoned buildings and footprints located across the MPA. Figure 2 presents an overall Site Plan and former layout of the facility and key features.

The abandoned facility buildings contained offices, manufacturing, and storage areas. At the onset of this project, 14 of the buildings had been razed through prior NYSDEC remedial contract. The remaining structures, including the parquet floors, had deteriorated over time due to exposure to the elements and vandalism, and existed in

poor physical state. Subsurface pits and basements had also been left exposed to the elements, and most of them had collected rain and groundwater.

The Site is mostly flat and is situated on layers of fill, alluvial sediments, clay till and bedrock (Snake Hill Shale). Bedrock is found between 1 to 42 feet below ground surface (bgs). There are two groundwater bearing zones, overburden and bedrock. The first continuous water-bearing zone can be as shallow as 5 feet bgs but typically is about 10 to 15 feet bgs. Flow direction in both zones is to the east.

Potential polluting activities from the manufacture of stainless steel included onsite disposal of coal ash from early furnaces, storage and distribution of fuel oil, storage and use of various acids for pickling of steel products, on-site use of polychlorinated biphenyl (PCB)-containing electrical equipment such as transformers and capacitors, and generation of chromium-containing electric arc furnace dust. To a lesser extent, in facility support activities such as equipment and vehicle maintenance as well as general facility maintenance there were paints, thinners, solvents, lubricants and other chemicals used. Asbestos containing material (ACM) and Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) were also present in the buildings and pits. TENORM waste was primarily associated with refractory brick used in the former electric arc furnaces and annealing ovens. In addition, galbestos siding was present on the former structures and was found in scattered debris piles throughout the remediation area. The galbestos contained ACM and portions also contained PCBs.

The Site was divided into “Regions” early in the remedial history to organize and address the various Solid Waste Management Units, Areas of Concern (AOCs), and Corrective Action Management Units (McLaren Hart, 1991). The Regions included the Scrap Metal Storage Area (SMSA) Region, the Extrusion Region, the Melt Shop Region (i.e., northwest portion of the MPA), and the Rolling Mill Region. The description of the Site by Region has carried through subsequent investigations to manage the copious amount of data that was produced, as well as to present the data graphically. These regions are described below and shown in Figure 3.

Scrap Metal Storage Area Region

The Scrap Metal Storage Area (SMSA) is located in the south and southwest portion of the Site and is not included as part of OU-3. This Region was used to store scrap metal before it was transported by rail to the melt shop for processing. There are no buildings (current or historic) located in this Region. A right-of-way for an active power line crosses this Region. Materials stored in this area included grinding dust, bar turnings, cut-offs, and off-spec products (McLaren Hart, 1991). The South Lagoon, a small, 0.01-acre, clay-lined lagoon that served as a collection point and provided some flow equalization for two oil skimming pumps and an oil collection tank, was located in the southeastern portion of the SMSA. An Interim Remedial Measure (IRM) was conducted in 2011 to remove PCB-contaminated materials from the South Lagoon. Waste materials generated during the IRM were disposed of at appropriate off-site waste disposal facilities.

Extrusion Region

The Extrusion Region is located in the eastern-central portion of the Site and includes the extrusion building, the pickle house, and the wastewater treatment area. The extrusion complex provided all necessary hot and cold finishing processes necessary to manufacture and ship extruded product. The extrusion process produced seamless tubing and complex, often irregular, bar shapes. Billet was heated using an induction heating process until it achieved a plastic-like state. The hot metal was then forced through a die and an elongated form of extruded product was produced. Cold finishing took place in the pickle house on the north side of the extrusion building and included the removal of impurities on metal surfaces using strong acids such as hydrochloric and sulfuric acid. A wastewater treatment plant, constructed to the north of the pickle house in 1972 to manage site-wide process wastewater, treated waste acids, spent pickle liquor, pickle rinse water, and landfill leachate by means of chrome reduction, neutralization, and clarification (through sedimentation).

Melt Shop Region

The Melt Shop Region, located in the northwest portion of the Site, consists of the former electric arc furnace (EAF) baghouse, melt shop, and caster buildings. These

structures were demolished between 2001 and 2003. Processes conducted in this Region include melting scrap metal and forming ingots and billets. The melting process generated a fine dust which contained metal particulates. This dust was allowed to disperse in and around the Melt Shop from 1951 to 1970 at which time a baghouse and dust collection system was constructed. Subsequent to collection in the baghouse, the dust was placed in containers for eventual disposal. When cleaning was impractical, the collection bags were periodically disposed of either through on-site incineration in the EAF, landfilled at the WMA or disposed of at an off-site hazardous waste disposal facility. However, residual dust was observed on building components and the soil base floor at the time of the RCRA Facility Assessment (McLaren Hart, 1991). A transformer pad and equipment that produced electricity for the melting process was also located in this Region. The Melt Shop and Castor Building were demolished between February 2001 and September 2003. Waste materials were disposed of at appropriate off-site waste disposal facilities (Realco, Inc., March 2004). The building slabs and various fuel tanks and electrical equipment were still present prior to remedial construction.

Rolling Mill Region

The Rolling Mill Region, located in the northeast portion of the Site, is the oldest part of the facility and is where steel manufacturing began in the early 1900's. The majority of the Site buildings were located in this Region. Operations conducted in this region included rolling metals in various mills, bar turning, pressing metals in various forges, etching, grinding, annealing, and vacuum arc remelting. Laboratory services were also located in this Region. At one time, a portion of this Region was used for coal storage, as well as a place to dispose process waste as fill. Reportedly, uranium was processed in this Region; however, the exact locations are unknown. These services and manufacturing processes involved the storage, accumulation, and transportation various oils, metals, and likely industrial chemicals such as degreasers (halogenated organics). A large pit is situated within Building 9 which was referred to as the Rolling Mill Pit. This pit was used to collect mill scale, process cooling water, and lubricating oils. Accumulated liquids in the pit were pumped to the Hydromation Plant (i.e., former Buildings 7 and 8). Process operations that directed flow to the pit were idled in 1994. Environmental Strategies Corporation (ESC) reported as part of the RFI that water was observed to be

infiltrating from beneath the access steps along the east wall of the pit and flow of approximately 10 gallons per minute was also observed to be entering the west wall of a pit sump. ESC also reported that groundwater can enter the sump pit and pit. The pit was measured to be approximately 12 feet deep and was entirely submerged under water.

1.1.1 Investigation and Remedial History

While the facility was operating, several areas were targeted for remedial actions under the Resource Conservation and Recovery Act (RCRA) program. An extensive RCRA Facility Investigation was performed throughout the 1990's and early 2000s. The RCRA Facility Investigation identified various AOCs at the facility. AOCs that were identified and are being, or have been, addressed under the State Superfund program after AI Tech filed for bankruptcy, include soil removal in the South Lagoon, remediation of transformer areas, and an in-situ treatment of contaminated soil in the MW-27 Chlorobenzene area.

The following documents were generated as a result of the various past investigations completed at the Site:

- RCRA Facility Investigation Description of Current Conditions – McLaren/Hart, 1991
- RCRA Facilities Assessment - McLaren/Hart, 1992
- Phase I RCRA Facility Investigation – Environmental Strategies Corporation (ESC), 1995
- Phase II RCRA Facility Investigation Report – ESC, 1998
- Realco, Inc. Construction Certification Report. Decontamination and demolition of Melt Shop/Baghouse/Castor Building - 2004
- Transformer Surface Soil Sampling and Analysis Report – MACTEC Engineering and Consulting, P.C. (MACTEC), 2007
- Focused Remedial Investigation Report - MACTEC, 2009
- Phase II Focused Remedial Investigation Report - MACTEC, 2012
- Data Gap Analysis Report - MACTEC, 2013
- Waste Acid Pit Direct Push Investigation - MACTEC, 2014a

- Chlorobenzene Investigation Report - MACTEC, 2014b
- Previous Activities Summary Report – MACTEC, 2014c
- Galbestos Investigation Report – MACTEC, 2015a
- Main Plant Area Investigation Report – MACTEC, 2015b
- Remedial Investigation Report – MPA – AL Tech Specialty Steel Site - MACTEC, 2017
- Waste Characterization Summary Report – URS, 2020

1.2 Previous Investigations Summary

Previous investigations indicated that Site-related contaminants were released into the environment at the Site. Contaminants of concern (COCs) at the Site generally are related to metal fabrication processes. Metals (chromium, lead, nickel, and copper), PCBs, and fuels have been identified in Site media. Other organic compounds are present at a lesser frequency. Source areas identified at the Site included: site-wide soil with fill/debris; PCB hot spots; Contaminated Building Materials; and Building Perimeter Soils (MACTEC Remedial Investigation Report, November 2017). Site-wide soils are contaminated with metals and PCBs at concentrations exceeding the NYSDEC Residential, Commercial, and Industrial soil cleanup objectives (SCOs). Contaminants are primarily associated with fill material, which is located throughout the MPA at depths of up to 10 feet bgs and include debris materials (e.g., brick, slag, ash). Concentrations of COCs are found at lower concentrations in the native soil underlying the fill. The volume of site-wide fill/debris materials was estimated to be 320,000 cubic yards (MACTEC, 2017).

PCB hot spots were evaluated within the SMSA Region and in the vicinity of former transformers. In transformer areas, PCBs were detected at concentrations exceeding the Industrial SCO. Impacts to soil in these areas are predominantly in surface soil, with concentrations decreasing with depth and the majority of Industrial SCO exceedances in samples collected from 0 to 0.2 feet bgs, which is consistent with surface spills or leaks from former transformers. The volume of soils identified within these hot spots that have concentrations of PCBs exceeding the industrial SCO is estimated to be 4,300 cubic yards; soil with PCBs exceeding the TSCA threshold of 50 mg/kg is estimated to be 1,400

cubic yards. The evaluation of building perimeter soils suggests that PCBs detected in these areas are associated with deteriorating Galbestos building materials. PCB concentrations generally decrease with depth indicating surficial deposition, likely from weathering processes. Estimated volumes of building perimeter soil with PCB concentrations exceeding the Industrial SCO and the TSCA threshold of 50 mg/kg are 240 and 140 cubic yards respectively (MACTEC, 2017).

Light, non-aqueous phase liquid (LNAPL) is present in groundwater in isolated areas in the SMSA Region, the Extrusion Region, and along Lincoln Avenue near the Kromma Kill in the Rolling Mill Region. Larger areas of LNAPL associated with the fuel distribution line are located in the Rolling Mill Region. LNAPL in the vicinity of the underground fuel distribution line is indicative of leaks in the line. The areas of LNAPL that are not proximal to the fuel line may be indicative of what remains from formerly larger LNAPL areas that have partially attenuated or may be due to other leaks/spills from trucks or machinery in parking lots or roadways at the Site. It is possible that LNAPL may exist under Site buildings that were not investigated (MACTEC, 2017).

Contaminated building materials were found in most of the buildings on-site. Regulated ACMs were present in various building materials within 25 of 30 MPA buildings. In addition, PCB-containing caulking was present in 14 buildings. Samples of building floors showed concrete and soil concentrations exceeding the Residential, Commercial, and Industrial SCOs. Samples of concrete slabs exceed the TSCA threshold for PCBs of 50 mg/kg at a few locations (MACTEC, 2017).

MACTEC reported that COCs at OU-03 include PCBs and ACMs used during the construction of the on-site structures. MACTEC completed a two-phased hazardous building materials survey for ACM and PCBs, which included a limited asbestos survey conducted in 2014 and a supplemental asbestos survey conducted in 2016. In addition to the asbestos survey, additional data related to the presence of asbestos and PCBs in corrugated siding and roofing materials (Galbestos) were collected in July 2015. MACTEC identified ACM in samples from 24 of the 30 buildings inspected and identified various materials within the buildings as Regulated ACM (i.e., greater than or equal to one percent asbestos). Regulated ACM is ACM that could release fibers to air and is

therefore subject to air emissions regulation. Additionally, caulk was collected from 20 buildings and analyzed for PCBs and asbestos. Of the 25 samples collected, 14 contained PCBs with total PCB results ranging from 1.4 to 42.2 ppm. One sample (Building 27 window caulking) contained PCBs at a concentration greater than 50 ppm. Galbestos roofing and siding samples were collected for the analysis of PCBs from 13 buildings. Twenty-seven of the 28 samples collected contained PCBs, with three results exceeding 50 ppm. Twenty-six of the 28 samples contained asbestos at concentrations greater than 1%. In addition to identifying Contaminated Building Materials (CBMs) in the buildings, MACTEC conducted a Demolition Assessment and Cost Estimate for the on-site buildings.

MACTEC reported that an extensive Storm Water Collection System is present at the Site. The exact layout and flow paths of the Storm Water Collection System are not well defined. A dye tracer test conducted at the Site identified connectivity between some of the manholes on-site, including some located close to structures that require abatement. However, it is not known whether open pits filled with water observed on-site are also connected to this system. The Storm Water Collection System ultimately discharges to the Kromma Kill through the American Petroleum Institute Oil/Water Separator (API OWS).

URS (now AECOM) prepared a Waste Characterization Summary Report in 2020 to characterize and document remaining waste types and matrices associated with the on-site structures, and to summarize field activities and analytical results associated with the Pre-Design Investigation (PDI). The PDI field activities were completed during April through November 2019 at the Site and the report was finalized in May 2020 (URS, May 2020).

In addition to the previous investigations conducted at the Site, long-term groundwater monitoring is ongoing. Long-term monitoring has been conducted at the MPA since 2000, including groundwater sampling from 42 monitoring wells in accordance with an Interim Site Management Plan (MACTEC, 2016a).

2.0 SUMMARY OF SITE REMEDY

2.1 Remedial Action Objectives

The goal of the remedial program for OU3 was to eliminate or mitigate significant threats to public health and the environment.

Based on the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) were identified for OU2 and OU3 at this Site, as provided in the March 2018 ROD. Section 3.0 provides additional background information on the OUs.

2.1.1 Groundwater RAOs

RAOs for Public Health Protection

- Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards.

RAOs for Environmental Protection

- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

2.1.2 Soil RAOs

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota due to ingestion/direct contact with contaminated soil that would cause toxicity or bioaccumulation through the terrestrial food chain.

2.1.3 Surface Water RAOs

RAOs for Public Health Protection

- Prevent ingestion of contaminated water.
- Prevent contact or inhalation of contaminants from impacted water bodies.
- Prevent surface water contamination that may result in fish advisories.

RAOs for Environmental Protection

- Restore surface water to ambient water quality standards for each contaminant of concern.
- Prevent impacts to biota due to ingestion/direct contact with contaminated surface water that would cause toxicity or bioaccumulation through the marine or aquatic food chain.

2.2 **Description of Selected Remedy**

The site was remediated in accordance with the remedy selected by the NYSDEC in the ROD dated March 2018 for Operable Unit Number 03: On-Site Structures.

The factors considered during the selection of the remedy are those listed in 6 New York Codes, Rules and Regulations (NYCRR) 375-1.8. The following are the components of the selected remedy for OU3:

1. Removal and offsite disposal of Bulk PCB-containing Galbestos pieces from the ground surface.
2. Removal and offsite disposal of sheet metal coated with Galbestos from structural frames.
3. Removal and offsite disposal of additional various other hazardous building materials, including asbestos and PCB-containing window caulk.
4. Excavation and offsite disposal of soil adjacent to the on-site structures that is contaminated with greater than 50 parts per million (ppm) of PCBs.
5. Collection, bagging, and offsite disposal of Galbestos that has already deteriorated and fallen to the ground.

6. Abatement of ACM in accordance with applicable New York State Department of Labor (NYSDOL) Regulations
7. Demolition and disposal of all on-site buildings and associated building material and equipment.

3.0 INTERIM REMEDIAL MEASURES, OPERABLE UNITS AND REMEDIAL CONTRACTS

3.1 Interim Remedial Measures

Several IRMs have been performed at the Site. The March 2018 ROD provides a comprehensive summary of IRMs in each of the four Operable Units (OUs). In summary, the following IRMs have been performed for the various OUs at the Site as presented in the March 2018 ROD:

- *Operable Unit 01B - Petroleum Cutoff Wall: In addition to a petroleum recovery system, a cut-off wall was installed along the east edge of the property to prevent oil spilled from a leaky distribution network from entering the Kromma Kill. A membrane cutoff wall and light, nonaqueous phase liquid (LNAPL) recovery wells were installed in 2002. That system prevents additional petroleum LNAPL on the MPA from migrating to the Kromma Kill. Monitoring wells and recovery wells are routinely monitored and purged to remove LNAPL from the property. The construction of this IRM is detailed "LNAPL Cutoff/Collection Trench construction completion report, April 2001."*
- *Operable Unit 01C – PCB-containing transformers removal – In 2005 to 2006 seven transformers containing varying concentrations of PCB dielectric fluid were removed from the site. Through completion of this IRM, approximately 2000 gallons of PCBs were prevented from reaching the environment.*
- *Operable Unit 01D - Miscellaneous Waste Removal: In 2008 various small containers of waste left at the site were collected and disposed of off-site at a permitted facility. Types of waste included laboratory chemicals, bulk acids, compressed gas cylinders, and varieties of lubricating and fuel oils. In 2015, additional tanks were identified that contained various petroleum products, lubricants, acids, and contaminated water. The tanks were pumped out and the fluids reclaimed or disposed of off-site.*
- *Operable Unit 01E – South Lagoon Remediation: In 2011, 250 cubic yards of soil from a small (15' x 20' x 10') , bottomless oil/water separator were excavated and removed from the MPA due to high concentrations of PCBs. The area was backfilled with clean material to match surrounding grades. The remaining soils meet commercial soil clean up objectives and the imported fill complies with 6 NYCRR Part 375 requirements. Additional details of this IRM are contained in the "Excavation and Disposal of PCB Contaminated Soils in the South Lagoon Area, December 2011" construction completion report.*
- *Operable Unit 01G – Removal and disposal of PCB contaminated sediments/soil and the API oil/water Separator: A large oil/water separator*

was used for a short time to treat on-site storm water prior to discharge to the Kromma Kill. The storm water system collected very little oil and the separator was determined to be unnecessary. In 2017, the oil/water separator was cleaned and permanently removed from service. Water was pumped from all four bays and remaining sediment was removed and properly disposed of off-site. A construction completion report is not yet available for this IRM.

- Operable Unit 01H – Spent pickling liquors (spent acids containing heavy metal impurities) were pumped into waste acid pits located outside the Pickle Room. The waste acid pits were comprised of two 8' x 15' x 15' deep sections constructed of acid brick and bituminous-coated concrete walls 24" thick with a usable capacity of 18,000 gallons. The pits were operated from 1951 through 1992. The concentrated acid caused a breakdown of the alkaline concrete mixture and absent of periodic preventative maintenance, resulted in a heavy metal-containing acid release to the environment. Additionally, acids spilled in the Pickle House were directed to the waste acid pits. Waste from the pits discharged into the wastewater treatment plant.*

Throughout the IRM, 37.5 million gallons of groundwater was pumped from a one half-acre area adjacent to the Pickle House and piped to the on-site a treatment plant. Pumping was discontinued in 2003 and the IRM was terminated in November of 2004 after evaluation of groundwater monitoring data indicated that metals contamination in this portion of the site had been addressed.

- Operable Unit 01I – Tank and Vault Product Removal: Contents of subsurface vaults and various tanks were emptied and then cleaned. The liquid wastes were transferred to DOT-approved containers, transported off-site and disposed of at permitted facilities. The wastes were primarily composed of:*
 - Approximately 8,000 gallons of oily fluids (petroleum and hydraulic) were recovered;*
 - Approximately 4,000 gallons of PCB-contaminated liquid and sludge; and*
 - 250 gallons of metal-contaminated hydrochloric acid.*

The removal actions are detailed in a letter completion report dated November 2015.

- Operable Unit 02B - The IRM work involved removing waste from the north face of the landfill, stabilizing the slope, and routing leachate to the wastewater treatment plant. From 2000 to 2003, a stainless steel metal reclamation project was completed to remove valuable metals from the waste mass and to consolidate the remaining waste materials into a 12-acre area. From 2003 to 2004 the 12-acre landfill was closed with an impermeable, Department-approved cap. The cap consists of the following components:*

- 6-inch Intermediate Cover Layer;
- Geosynthetic Separation Fabric Layer (non- Electric-arc furnace [EAF] dust disposal area);
- Geosynthetic Clay Liner (Installed in area of EAF dust disposal);
- 60 mil Textured LDPE Geomembrane Layer;
- Double-sided Geocomposite Drainage Layer;
- 12-inch Barrier Protection Layer; and,
- Topsoil Layer.

The existing leachate collection system at the time of the IRM was modified to collect leachate from the down gradient portion of the landfill adjacent to the unnamed tributary and transport it to an on-site leachate storage facility for future treatment.

The cap was constructed to prevent contact between humans and biota to the waste as well as to prevent the waste from migrating off the site through erosion and airborne migration. Additionally, the cap prevents precipitation from seeping into the waste mass, percolating through the waste and mobilizing contaminants to site groundwater. It also reduces the quantity of leachate that is generated and requires treatment.

A construction completion report (CCR) detailing landfill construction was approved in August 2004. Eroded banks of the Kromma Kill were also restored. Currently, upgradient and down gradient monitoring wells are routinely sampled every fifteen months (five quarter monitoring) and leachate continues to be collected, stored and trucked off-site for treatment and disposal. Landfill inspections are performed annually to ensure the integrity of the cap, conditions of on-site vegetation and soil to prevent erosion, status of the on-site fencing, and document any signs of vandalism.

- *Operable Unit 03A – Decontamination and Demolition of Melt Shop/Baghouse/Castor Building Two electric arc furnaces were housed in the Melt Shop and were the source of all hexavalent chromium at the site. Dust generated during the melting process was collected in the bag house, one component of the air pollution control system. An IRM was performed to address these sources of hexavalent chromium. The components of the IRM included:*
 - *Remove and dispose of the EAF dust and filter bags from the bag house;*
 - *Drain and dispose of PCB oils from the transformers located at the melt shop and the main substation:*
 - *Survey and remove all asbestos containing materials in the melt shop;*

- Vacuum clean the inside structural parts of the melt shop and the baghouse compartments; and
- Demolish the melt shop, the baghouse and the caster building.

A significant amount of various hazardous wastes was removed from the site as part of this IRM. These wastes included:

- 26.42 tons of EAF dust bags from the baghouse;
- 37.71 tons of EAF dust from the baghouse;
- 62.37 tons of dust vacuumed from the melt shop as EAF dust;
- asbestos containing materials (880 linear feet of pipe insulation, 3,275 square feet of floor tile, 650 square feet of mastic under floor tile, 37 insulated elbows, 12 insulated valves, 6 transite arm shields, several fire suits and fire gloves);
- 16,235 gallons of PCB oil from 12 transformers;
- two transformer carcasses from the melt shop;
- 4,116 gallons of transformer oil containing more than 500 ppm PCBs and a transformer carcass weighing 6,825 pounds;
- 30 gallons of liquid chemicals and 33 pounds of solid chemicals from the melt shop laboratory;
- 23 drums (6,755 pounds) of calcium carbide and calcium silicide as hazardous materials;
- 10,000 tons (estimated) of steel scrap;
- 360 tons of baled galbestos siding and roofing materials; and
- 410 tons of demolition debris as non-friable asbestos containing materials

A total of five buildings were demolished during the IRM including the melt shop and associated laboratory, baghouse, castor building and the water system building.

3.2 Enforcement Status

Potentially Responsible Parties (PRPs) as listed in the Enforcement Status Section of the March 2018 ROD are shown below.

- *AL Tech initially entered into a comprehensive Order on Consent (Index No. R4-1 467-9302) with the Department effective August 4, 1995. The Order established a prioritization schedule for implementing environmental remediation and construction activities at both facilities, and required the establishment of an Environmental Trust Fund (trust*

fund) to finance these activities. On December 31, 1997, AL Tech filed a petition for reorganization under Title 11, Chapter 11 of the U.S. Bankruptcy Code. The trust fund was established on March 29, 1999. On July 30, 1999, the Bankruptcy Court approved a plan of reorganization (the plan) which organized RealCo to take title to certain real and personal property owned by AL Tech, and to undertake as its primary activity the environmental remediation required at the Watervliet and Dunkirk facilities.

- On September 9, 1999 the Department entered into an Order on Consent with RealCo (Index No. A9-0393-9907) to conduct remedial activities at the site. RealCo was allowed to withdraw from the trust fund up to \$2,500,000 over a period of five years for the cost of implementing the remedial, compliance and closure activities at both facilities. The five-year period expired on October 27, 2004. The order also stated that in the event the funds in the trust fund are insufficient to perform all of the activities required, the Department will seek to obtain funding from other State funds in an amount necessary to complete all actions the Department deems necessary.
- Since 1999, various responsible parties (RealCo - \$1,000,000; Allegheny Steel - \$2,800,000; ALTX - \$1,000,000; Dunkirk Specialty Steel - \$1,000,000; and GATX - \$8,650,000) contributed \$13,650,000 into the trust fund. An additional \$2,035,000 was deposited from the sale of RealCo assets and scrap metals. At the time that responsibility for investigation and remediation transferred from the RCRA program to the State Superfund program \$15,685,000 had been spent from the trust fund with a balance \$1,018,000. The balance remaining in the trust fund was transferred to the New York State General Fund in May 2016 recognizing that the final site remedy would need to be funded by the Superfund program.

3.3 Operable Units

The site is divided into four operable units. An operable unit represents a portion of a remedial program for a site that for technical or administrative reasons can be addressed separately to investigate, eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination.

- Operable Unit 1 (OU-01) includes the entire MPA and the non-landfill portion of the WMA.

- Operable Unit 2 (OU-02) includes the 12-acre hazardous waste landfill and supporting infrastructure (roads and leachate collection building) located in the WMA.
- Operable Unit 3 (OU-03) includes the On-Site Structures
- Operable Unit 4 (OU-04) includes the Kromma Kill and downstream of Site.

The remedial activities detailed in this Final Engineering Report pertain to only OU-3, unless otherwise noted.

3.4 Remedial Contracts

In March 2019, URS (now AECOM) was issued Work Assignment (WA) No. 53 under Standby Engineering Services Contract No. D007622, to design a remediation to address contamination at the Site (Operable Unit 3) in accordance with the March 2018 ROD. The Technical Specifications and Contract Drawings (Contract Documents) developed for the remedial design detailed the size and scope of the site remediation. The Contract Documents, including Addenda, are provided in Appendix B.

[Following the NYSDEC's approval of the Remedial Design, AECOM was issued WA No. 22 under Standby Engineering Services Contract No. D009803 in July 2020 to provide engineering services, asbestos monitoring and construction oversight during remedial construction.](#)

3.5 Project Bidding Information and Award

The Contract Documents were issued for competitive public bidding by NYSDEC on August 6, 2020. The public advertisement announcing the availability of Contract Documents for the public to bid on the remedial action project was published in newspapers in the local area and the *Capital District News*. The advertisement was also published in the New York State Contract Reporter, August 2020 issue. A mandatory pre-bid meeting was held by NYSDEC and AECOM at the project site on August 18, 2020, and September 9, 2020. Potential bidders that attended were required to sign an attendance sheet to document their presence at the mandatory meeting. At the meeting, NYSDEC and AECOM discussed the requirements for bidding on the project, technical requirements of the Contract Documents, and the administrative protocol required to

support and document performance of the work. Potential bidders were given the opportunity to ask questions and walk the site to view existing conditions.

Following the pre-bid meeting, four addenda (Addendum Nos. 1 - 4) to the Contract Documents were issued in August and September 2020. The contents of Addendum Nos. 1-4 included pre-bid meeting minutes, a site walkover attendance list, a plan holders list, the pre- and post-bid meeting questions and answers, and prevailing wage rates. Received bids were opened and read aloud at the NYDEC offices in Albany on October 13, 2020, at 1:00 PM. The Environmental Services Group (NY), Inc. (ESG) of Tonawanda, NY was awarded Contract D011842 in the amount of \$14,497,477.00 on February 26, 2021. A Notice to Proceed letter was issued by NYSDEC to ESG on March 3, 2021.

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

Work completed at the Site was conducted in accordance with the NYSDEC-approved Contract Documents and Addenda, Contract No. D011842, dated August and September 2020. Deviations from the Contract Documents, comprised of proposed change orders (PCO) and requests for information (RFI), are discussed in Section 4.12 below and included in Appendices C and D.

The construction work took place within two operational areas based upon historical site operations, which are the Rolling Mill Region and the Extrusion Region (Figure 3). The limits of work were confined to these two regions of the MPA. The Rolling Mill Region, located in the northeast portion of the Site, was the oldest part of the facility and is where steel manufacturing began in the early 1900's. The majority of the Site buildings were located in this region. Work in this area consisted of asbestos and lead abatement, demolition, removal of TENORM materials, waste segregation, decontamination, salvage of non-contaminated masonry materials and structural steel, and transport and disposal of above-grade structures and plant equipment.

The Extrusion Region is located in the eastern-central portion of the Site and included the extrusion building, the pickle house, and the wastewater treatment area (Figure 3). Work in this area consisted of asbestos and lead abatement, demolition, waste segregation, decontamination, salvage and recycling of non-contaminated structural steel, removal of above ground storage tanks (ASTs) associated with the waste-water treatment and pickling operations, removal of brick lining within the extrusion pits and waste acid pits, removal of debris and sludges contained within the pickling pits and sumps, stabilization of sludges with Portland cement, and transport and disposal of above-grade structures and remaining plant equipment.

4.1 Governing Documents

4.1.1 Contract Documents

The Contract Documents provided the Remedial Design for OU-03 (On-Site Structures) and are included in Appendix B.

4.1.2 Project Schedule

The length of remediation, set forth in Section VI, Article 6 of the Contract Documents, from Notice to Proceed (March 3, 2021) to Substantial Completion (May 31, 2023) was established as 567 calendar days including two 90-day winter shutdown periods, with an additional 30 days to Final Completion (June 30, 2023), for a total of 597 calendar days. ESG requested to continue working through the winter of 2021/2022 to accelerate work progress with approval from the Department. ESG ceased operations for a winter shutdown between January 6, 2023, and March 15, 2023. Change Orders (COs); added 237 days to the Contract for a total of 834 days. COs are discussed below in Section 4.12.5. AECOM and NYSDEC performed a substantial completion inspection on May 31, 2023, and a final completion inspection on June 30, 2023. The substantial completion certificate was a separate deliverable and is included in Appendix J.

ESG submitted an initial overall Progress Schedule to inform the project team of estimated durations and milestones for major work elements, and provided details regarding priority, sequencing, and interdependence of activities. When necessary, more detailed Progress Schedules were provided for narrower timelines which were used to track Contractor progress at individual structures and sub-grade pits and vaults. The Contract Documents required ESG to provide regular progress schedule updates to evaluate the progress and performance of their work. Project schedules and updates were provided as submittals, and are included in Appendix E.

4.1.3 Health and Safety Plan (HASP)

All work was in full compliance with governmental health and safety requirements, including Site and worker safety requirements mandated by the federal Occupational Safety and Health Administration (OSHA). AECOM's oversight work was conducted under the guidance of a site-specific Health and Safety Plan (HASP). ESG performed their work under the guidance of their own site-specific HASP.

On October 27, 2020, ESG issued a HASP to AECOM for review as a part of their submittal package requirement of the Contract Documents. On November 3, 2020, AECOM reviewed the HASP and verified that the Contractor had a site-specific plan and

that the components were in compliance with the Contract Document requirements. ESG provided AECOM with copies of medical surveillance examinations and 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) and refresher training certifications for the individual ESG and subcontracted personnel working near or within exclusion zones.

NYSDEC and AECOM provided copies of annual health and HAZWOPER refresher training certifications for their respective personnel to ESG for on-site recordkeeping purposes. The HASP submittal milestones and the plan revisions are provided in the project submittal log (see Appendix E).

ESG's HASP provided detailed decontamination procedures for project personnel and equipment, including construction equipment, entering and exiting the exclusion zones. The HASP detailed the use of portable boot wash stations, provided guidelines for the disposal of used personal protective equipment (PPE), contained descriptions of the equipment required and the proposed location of the decontamination station, and identified the requirements covering the movement of equipment between contaminated and non-contaminated work zones.

ESG provided an Emergency Response and Contingency Plan as a part of their HASP. The plan included the chain-of-command and communication and evacuation procedures to be followed in the event of an emergency at the site; the locations of first aid equipment; and standard operating procedures and specific procedures to be followed in the event of an accident. A pre-designated route to a nearby medical facility was established, and a road map documenting the route was posted in the Contractor's site operations office.

ESG compiled a comprehensive list of emergency contact information, including the names and telephone numbers of the responsible personnel involved with the site's OU-3 remedial activities.

The list was distributed to the City of Watervliet Police, Fire, and Engineering offices; NYSDEC; AECOM; and the Albany County Office of Emergency Management. This list was periodically reviewed for accuracy during regularly scheduled progress

meetings at the site and was redistributed to the responsible personnel whenever revisions were made.

4.1.4 Quality Assurance Project Plan (QAPP)

The QAPP was prepared by ESG and provided as a submittal. The QAPP managed performance of the work through designed and documented QA/QC methodologies applied in the field and in the laboratory. The QAPP provided a detailed description of the observation and testing activities that were used to monitor construction quality and confirm that construction was in conformance with the Contract Documents.

ESG submitted a QAPP to AECOM on October 27, 2020. This submittal was part of ESG's Work Plan, which was included with their submittal package following Notice of Apparent Low Bid. AECOM rejected the QAPP on November 3, 2020, and ESG re-submitted the plan on January 21, 2021. The resubmitted QAPP was reviewed and accepted by AECOM on February 4, 2021.

The firms selected by ESG for analytical waste characterization services included Paradigm Environmental Services, Inc. (Rochester, New York), Eurofins Buffalo (Amherst, New York), and Adirondack Environmental Services, Inc. (Albany, New York). Paradigm Environmental Services, Inc. also provided asbestos analysis. Additional discussion on the project analytical data is presented in Section 4.3.

4.1.5 Work Plan

ESG prepared a Work Plan outlining the procedures implemented in order to execute the work in accordance with the Contract Documents, including Work Plan Addenda for the demolition of Buildings 20, 27, 30, 31 and 36. The Work Plan outlined the means and methods for completing the major and minor work items to be performed. The major elements of ESG's Work Plan included the following:

- Site mobilization and demobilization;
- Site Security;
- Erosion and Sediment Control;
- Clearing and Grubbing;
- Equipment and Personnel Decontamination Water Management;

- Winter Shutdown;
- Excavation and Staging of Non-hazardous Soil from Pits for Off-site Disposal;
- En-Situ Treatment of Impacted Materials from Extrusion Pits;
- Excavation and Staging of Hazardous Soils from Pits;
- Backfill and Compaction;
- Excavation Slope Management;
- On-Site Material Storage;
- Decontamination Procedures;
- Borrow Materials;
- Transportation and Off-site Disposal;
- Pest Control Program;
- Lead Based Paint;
- PCB-Containing Caulking Sealant;
- Nuisance Controls and Management Program;
- Site Restoration;
- Survey;
- Documentation Sampling and Laboratory Analysis; and
- Underground Storage Tank Removal.

AECOM reviewed the Work Plans and all other submittals prepared by ESG for the project.

4.1.6 Stormwater Pollution Prevention Plan

The erosion and sediment controls for all remedial construction were performed in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control and the site-specific Storm Water Pollution Prevention Plan (SWPPP). Pursuant to the requirements of the Contract Documents Supplementary Specifications, Section XI – Division 1, Section 01 57 23 – Storm Water Pollution Management, ESG submitted a SWPPP on October 27, 2020. AECOM rejected the SWPPP on November 6, 2020, and ESG re-submitted the plan on January 21, 2021. The resubmitted SWPPP was reviewed and accepted by AECOM on February 4, 2021.

The plan included a description of practices and temporary measures to prevent erosion on the site, including the use of drainage control structures, silt fencing, straw bales, and silt socks. The SWPPP also included procedures for inspection, maintenance, and repair of temporary controls.

The project SWPPP submittal milestones and plan revisions are included in the project submittal log (see Appendix E). SWPPP Reports were submitted in regular intervals and are included in Appendix E.

4.1.7 Contractor's Transportation Plan

The Contractor prepared an addendum to the Work Plan, which included a Transportation Plan that described its proposed procedures for handling, transport of excavated and demolished materials for off-site disposal/ treatment. The plan also included a list of disposal facilities and permits for transporters.

Per the requirements of Supplementary Specifications Section XI, Division 1, Specification 01 55 26 of the Contract Documents, ESG submitted a project-specific Transportation Plan and an addendum to the Work Plan. The Transportation Plan contained proposed vehicle decontamination procedures, truck-weighting requirements, handling procedures for hazardous and non-hazardous wastes, haul routes and instructions, information on alternative disposal facilities and transporters, and vehicle-loading procedures.

The Transportation Plan was submitted to AECOM by ESG on October 26, 2021, and was approved as noted by AECOM on the same day. The Transportation Plan submittal milestones are provided in Appendix E.

4.1.8 Community Air Monitoring Program (CAMP)

ESG implemented a Community Air Monitoring Plan (CAMP) for this project. Air monitoring was conducted in accordance with the Standard Specifications, Section X – Section 00003 – ‘Minimum Requirements for Health and Safety’ of the Contract Documents and New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan. ESG's Site Safety Officer executed the CAMP setup and removal on a daily basis. Components of the CAMP included monitoring of airborne particulates and

volatile organic compounds (VOCs) at one upwind and three downwind locations. The Contractor prepared weekly summaries of CAMP data which were submitted to NYSDEC and NYSDOH on a weekly basis. The Contractor also provided raw CAMP data on a monthly basis. The CAMP was included as part of the Work Plan.

AECOM's subcontractor, Lozier Environmental, Inc. (women-owned business enterprise -WBE) provided air monitoring services during all phases of the asbestos work under the supervision of AECOM's Asbestos Project Monitor. CAMP monitors were equipped with continuous data-logging and time-weighted average readings at 15-minute intervals. Each CAMP unit had audible alarms and were checked routinely throughout the course of each workday. As necessary, CAMP monitors were suspended due to heavy rainfall events. AECOM's site representative verified upwind/downwind CAMP monitor placements and data summaries.

4.1.9 Community Participation Plan

A Community Participation Plan was not required for the completion of the work. However, ESG regularly reached out to the nearby community residents with updates on site activities and to address concerns. There were a few minor concerns from nearby residents related to potential dust generation throughout the construction period. ESG and AECOM personnel immediately addressed their concerns. Additional details are described in Section 4.2.4.4.

4.1.10 Submittals

The Contract Documents require that ESG prepare submittals to provide information, documentation, material selection, and planning for the work. All submittals were reviewed and responded to by AECOM. AECOM maintained a submittal register over the course of the project; this submittal register was updated regularly and presented to NYSDEC and ESG during each project progress meeting. The submittal register and all approved submittals are included in Appendix E.

4.2 Remedial Program Elements

4.2.1 Contractors and Consultants

- AECOM – Engineer of Record and Certifying Engineer (Carsten H. Floess, P.E.). AECOM prepared Contract Documents, led project progress meetings, reviewed submittals, Requests for Information (RFIs), Proposed Change Orders (PCOs), and Contractor's Applications for Payment (CAPs), and provided radiological and asbestos monitoring and construction oversight. Additionally, AECOM employed the following subcontractors:
 - Lozier Environmental Consulting, Inc. (Lozier – Women-owned Business Enterprise (WBE)) - Lozier conducted upwind, downwind, and work-in-place asbestos air monitoring. In addition, Lozier collected asbestos final clearance samples. Asbestos air samples were analyzed at KAM Consultants, Corp. in Queens, New York.
 - ALS Group U.S.A., Corp. – Laboratory Services
- ESG – Prime Contractor responsible for the overall completion of the work including asbestos abatement, galbestos abatement, building demolition, excavation and cleaning of pits, contaminated waste loading, transportation and disposal of waste materials, dewatering and contact water treatment - both discharged to the Kromma Kill for a portion and transportation and treatment at the Schenectady waste water treatment plant for a portion, backfilling, grading and site restoration. ESG utilized several Subcontractors throughout the project. These Subcontractors are identified below. Subcontractors certified in New York State as Minority-owned Business Enterprise (MBE) or WBE are identified accordingly.
 - Waste Management Intellectual Property Holdings, L.L.C. (Bergen, NY) – Non-Hazardous Waste Disposal Facility
 - Riccelli Trucking, Inc. (Rush, NY) – Non-Hazardous Waste Hauling
 - US Ecology Wayne Disposal, Inc. (Livonia, MI) – Hazardous Waste Disposal Facility

- Page Trucking, Inc. (Weedsport, NY) – Hazardous Waste Hauling
- Mallare Enterprises, Inc. (Amherst, NY) – Equipment Moves
- Gayron de Bruin Land Surveying and Engineering, P.C. (WBE) (Melville, NY) – Survey; Aerial Photography and Videography
- AMD Environmental Consultants, Inc. (Tonawanda, NY) – Asbestos Project Design
- Vali-Data of WNY, L.L.C. (WBE) (Fulton, NY) – Data Validation
- 3rd Rock, L.L.C. (WBE) (East Aurora, NY) – Geotechnical Testing
- J.R.N. Construction, LLC. (WBE) (Albany, NY) – Backfill Supply
- MS Unlimited. Inc. (WBE) (East Syracuse, NY) – Construction Supply
- M.J. Engineering and Land Surveying, P.C. (Clifton Park, NY) – Aerial Photography, Surveying
- Atlantic Testing Laboratories, Ltd. (Clifton Park, NY) – Pre-Construction Condition Survey
- B&T Construction Logistics, Inc. (Poughkeepsie, NY) – Construction Supply
- Metro Metals Recycling, L.L.C. (Watervliet, NY) – Metal Scrapping
- Sims Limited (Frankfort, NY) – Metal Scrapping
- SM Gallivan, L.L.C. (Watervliet, NY) – Scrap Metal Trucking
- Waste Management Intellectual Property Holdings, L.L.C. (Wellsboro, PA) – TENORM Disposal
- Waste Management Intellectual Property Holdings, L.L.C. (Waynesburg, OH) – TENORM Disposal
- Goulet Trucking, Inc. (South Deerfield, MA) – TENORM Trucking
- GFS Transport, L.L.C. (Millport, PA) – TENORM Trucking

- Lion Construction & Supply Services, L.L.C. (East Syracuse, NY) – Asbestos Abatement
- Rommel Fence, L.L.C. (WBE) – Fence Repair
- Veolia Environmental Services (Flanders, NJ) – Hazardous Waste and Hazardous Oil Transportation and Disposal
- Blue Diamond Freight Services, L.L.C. (Twinsburg, OH) – Water Trucking
- West Central Environmental Corporation (Watervliet, NY) – Water Trucking

4.2.2 Site Preparation/Mobilization

A pre-construction meeting was held with NYSDEC, AECOM, ESG and their subcontractors on March 15, 2021. Documentation of agency approvals required by the RD is included in Appendix E. Other non-agency permits relating to the remediation project are provided in Appendix E.

All SEQRA requirements and all substantive compliance requirements for attainment of applicable natural resource or other permits were achieved during this Remedial Action. A list of permits is included in Section 4.2.2.1. A NYSDEC-approved project sign was erected at the project entrance and remained in place during all phases of the Remedial Action.

ESG mobilized to the former Al-Tech Specialty Steel Site in Watervliet NY, on March 31, 2021. ESG mobilized equipment including hydraulic excavators, loaders, skid-steer, water trucks, dust control equipment, fire protection supplies, personnel decontamination trailers, poly tanks and other equipment necessary to initiate the work. ESG collected soil samples in the Support Zone beneath the Decontamination Pad and office trailers for baseline soil characterization.

ESG established an operations and equipment staging area at the southern end of the Site. Development of the operations/support zone area included installation of

geotextile and crushed stone to serve as a parking area for Site personnel and to provide a base for office trailers.

4.2.2.1 Utility Clearance and Permits

All utility disconnects were performed in accordance with the Contract Documents. Prior to commencing work, ESG contacted Dig Safe of New York to identify and mark out all utilities up to the Site. The primary sanitary sewer line was cut and capped by ESG at the Site boundary to isolate the Site sewers from the municipal sanitary sewer system, in accordance with Town of Colonie requirements. Details of the sewer closeout is included in Section 4.9.1.

A list of permits is provided below:

- Town of Colonie Hydrant Permit
- Town of Colonie Building Demolition Permits
- NYSDOL Asbestos Abatement Permit
- State Pollutant Discharge Elimination System (SPDES) Permit
- Town of Colonie Sewer Closeout Permit

Natural gas and electrical utilities were closed out by the utility owner – National Grid.

4.2.3 General Site Controls

4.2.3.1 Site Security

The Site was surrounded by an existing chain-link fence with a locking gate at the Site entrance. Fences and gates were inspected regularly. ESG repaired several small sections of perimeter fencing as part of their mobilization and site security in accordance with the Contract Documents. ESG employed on-site security during non-working hours overnight and on weekends. Security logs were maintained documenting any site visitors, trespassers, and any security incidents.

ESG required all employees, visitors, and subcontractors to sign in and out every time they entered and departed the Site. No unauthorized personnel were allowed to enter the exclusion zone under any circumstances.

Signs were posted on the outside perimeter fence (e.g., Danger Construction Area, Hard Hat Required, Construction Entrance, Visitors Must Sign In, Regulated Asbestos Area, etc.). Signs were easily visible from offsite public locations throughout the duration of the project.

4.2.3.2 Erosion and Sediment Control

Erosion and sedimentation controls were installed and maintained as necessary to provide adequate protection to surrounding areas during the Work. Erosion and sediment control techniques included, but were not limited to, grassing, mulching with hydroseed, geotextiles, stone, temporary berms, silt fences, silt socks, barriers, and diversions channels.

These methods ensured that erosion and sediment pollution were either eliminated or maintained within acceptable limits as established by the project guidelines. Temporary erosion control devices were installed to prevent and contain siltation within the work limits until more permanent measures were established.

The area at the south end of Building 14 had persistent stormwater and meltwater issues throughout much of the construction duration. There were catch basins choked with sediment, which prevented stormwater flow into the system. This resulted in occasional ponding and nuisance sedimentation in that area. ESG constructed diversion trenching and pumping systems to transfer storm flow to mitigate the ponding. During the summer of 2022, NYSDEC issued a callout contract to Precision Environmental to vacuum the sediment in the affected catch basins, further mitigating the stormwater ponding.

Elsewhere around the Construction Area, the Site offered some natural attenuation due to low slopes and a limited tributary area along the north and east sides (the Kromma Kill) which generally minimized the potential impact of run-off. The installation of temporary silt fence/socks, filter fabric at catch basins, and diversion berms mitigated storm water run-off from the work area. The locations of the diversions were based upon the field location of obvious depressions and water flow zone.

Silt fence/socks were installed down gradient of the work area and maintained throughout the entire project or until more permanent controls were installed or established. The silt fence installed was an assembled unit consisting of geotextile attached to 2" by 2" wooden drivable posts or 8" diameter silt socks staked to ground. The geotextile contained sufficient ultraviolet ray inhibitors and stabilizers to provide a minimum 2-year service life for outdoor exposure. A net backing consisting of an industrial polypropylene mesh reinforced the geotextile. Sharpened hardwood posts approximately 2" square was embedded a minimum of 12" into the soil to support the fence. The lower section of the fence was entrenched into the earth as the fence was installed and backfilled on each side to pin the geotextile in place.

Routinely, the silt sock/fence was checked for rips or tears, broken posts or unearthing. Specifically, after inclement weather such as heavy rain, significant snowmelt, or high winds laborers walked the silt sock and perimeter fence and provided the necessary repairs or complete replacement. Repairs included the replacement of broken posts, reattachment of fabric to posts, burial of fabric into the ground and complete replacement of sections of fence determined beyond repair. Certain areas were reinforced with hay bales or other means such as soil berms or temporary diversion berms on an as needed basis. Silt and sand build up along fences was removed and transported to other areas on the site where it was contained.

SWPPP inspections were conducted throughout the duration of the project on a weekly basis and after rain events. Non-critical repairs were completed within 7 calendar days after reporting. Repairs were addressed within 48 hours of being reported.

4.2.3.3 Equipment and Personal Decontamination

Water utilized for decontamination of equipment was supplied by potable water from the on-site hydrant. Portable decontamination stations to decontaminate heavy equipment or parts of heavy equipment (e.g., excavator bucket) were established at a specific work area during the project. A permanent decontamination station was set up at the exit of the site to decontaminate waste hauling vehicles that were transporting contaminated soils from the site to offsite disposal facilities. Vehicles and equipment that were inside the exclusion zones were visually inspected by the AECOM's onsite

representative prior to leaving the site. Water generated by equipment/vehicle decontamination activities was collected from sumps and processed through a water treatment system prior to being stored in the onsite frac tanks.

Water used for personnel decontamination was potable water supplied from onsite municipal source. Potable water was stored onsite in small poly tanks and readily available in designated areas where personnel decontamination occurred. Each local personnel decontamination area had drums for storing used PPE, tubs for washing and rinsing boots, and PPE. Water resulting from personnel decontamination activities was collected, treated on site, and properly discharged or transported offsite for disposal. Efforts were made to minimize and/or eliminate personal contact with the waste.

4.2.3.4 Stockpiling

Demolition materials requiring waste characterization for disposal were segregated into stockpiles for sampling. The stockpiles were maintained until they could be characterized and segregated for transport and disposal.

4.2.3.5 Asbestos Removal/Monitoring

Prior to and throughout demolition of the buildings, ACM was abated, removed and disposed in accordance with applicable regulations (i.e., United States Environmental Protection Agency [USEPA], OSHA, NYSDOL, etc.). For the purposes of this report, ACM refers to any material containing greater than one percent (1%) of asbestos as defined by 12 NYCRR Part 56-2.1(p).

The location and estimated quantities of ACM to be removed from each building at this facility are summarized in the Contract Documents (Drawings AA-001 through AA-011). Actual quantities were determined to be very close to the estimated quantities and are shown on the Record Drawings.

Controls for ACM removal consisted of a combination of methods governed by OSHA, NYSDOL and USEPA regulations, and NYSDOL variance File No. 21-0284 (Facility Wide Abatement of ACM), and two amendments. These methods include, but were not limited to, the following:

- Isolation of each abatement area by using double layers of 6 mil fire retardant plastic sheeting.
- Negative Pressure Enclosure (NPE) systems for each abatement area that are capable of at least two (2) air changes per hour and a minimum of -0.02 column inches of water pressure differential, relative to outside pressure.
- Personal and waste decontamination enclosures for each abatement area per 12 NYCRR Part 56-7.5; and subsequent decontamination of personnel and equipment prior to leaving each work area.
- Background, work in progress and clearance air sampling per 12 NYCRR Parts 56-4 and 56-9.2; and reporting of results.

Asbestos monitoring consisted of continuous oversight by AECOM's Asbestos Project Monitor and daily air monitoring/sampling by AECOM's subcontractor, Lozier. Air samples included background, work in progress, and final clearance. Asbestos air samples were analyzed by AECOM's subcontractor laboratories, KAM Consultants, Inc. and Paradigm Environmental. Asbestos analytical data are included in Appendix F. Details of asbestos abatement are provided in Section 4.3.3.

4.2.3.6 Lead-Based Paint Removal

In addition to the ACM removal discussed in Section 4.2.3.5, loose lead-based paint (LBP) was removed prior to the demolition of buildings identified with LBP. Paint with lead concentrations that exceeded the hazardous waste criteria for lead per USEPA regulation 40 CFR Part 261, Subpart C (5 milligrams per liter [mg/L]) via Toxicity Characteristic Leaching Procedure (TCLP) analyses were managed as hazardous lead waste for lead. Table 3-6 of the Waste Characterization Summary Report shows that Buildings 14 and 36 contain LBP with lead concentrations exceeding their hazardous waste criteria.

Controls for LPB removal were in accordance with OSHA regulation 29 CFR 1926.62 (lead in construction). These controls included, but were not limited to, the following:

- Donning respirators and protective clothing where warranted.

- Shoveling, wet sweeping.
- Using High Efficiency Particulate Air (HEPA) filtered vacuums.
- Posting warning signs.

4.2.3.7 Truck Wash/Egress Housekeeping

ESG constructed a decontamination pad at the exit of the exclusion zone. The decontamination pad was sized to accommodate the largest vehicles that were hauling waste from the Site. Temporary decontamination pads were established at specific work areas during the project as necessary to decontaminate equipment and vehicles that were being demobilized by ESG and their Subcontractors. ESG pressure washed equipment and vehicles at the decontamination pads. All rinse water generated by decontamination activities was collected in a sump installed at the decontamination pad and transferred to the water treatment system. Mud and debris collected during decontamination operations were scraped and transferred to the non-hazardous soil stockpiles prior to being disposed of off-site.

4.2.4 Nuisance Controls

4.2.4.1 Vibration, Crack and Noise

ESG turned off equipment when not in use to reduce idling. All construction equipment was outfitted with mufflers to minimize noise and inspected with all routine machine inspections.

Noise dosimeters were used to monitor sound levels at the perimeter of the site, especially during concrete/brick processing. There were no public complaints or any other indications that noise/vibration were a concern off site.

Crack monitoring was performed along the Kromma Kill adjacent to Building 29 during demolition of this structure. In addition, visual observations were made by AECOM around the headwall of the Kromma Kill near Building 20, where it traversed Spring Street Road. No movement was noted at the time. Prisms were placed on the concrete headwalls of the Kromma Kill to monitor for movement. MJ Engineering surveyed the

position of the prisms on a daily basis during demolition of Building 29. No movement was measured in any of the prisms.

4.2.4.2 Dust and VOCs

Perimeter dust monitors and VOC monitors were placed at one upwind location and three downwind locations during intrusive activities. Work was stopped, and AECOM was notified whenever the 15-minute average readings at any of the downwind monitoring stations exceeded the following Action Levels:

- VOC readings of 5 ppm above background levels, or
- Total particulates readings of 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) above background levels.

CAMP results are discussed below in 4.2.7.

ESG utilized the following best management practices to reduce the levels of airborne dust from the Project:

- On-site water trucks were used throughout the duration of the work to wet site roads and work areas, during building demolition.
- Speed of vehicles on site was limited.
- Water was sprayed on buildings during demolition to minimize dust generation.
- Excavation/loading speeds were controlled to minimize the amount of dust generated.

4.2.4.3 Odor

Continuous monitoring was implemented in accordance with the HASP and Community Air Monitoring Plan to detect any nuisance odors. There were no odor nuisance issues reported.

4.2.4.4 Responding to Complaints

ESG promptly responded to complaints that were received from nearby residents. The complaints were primarily due to dust; however, CAMP data did not substantiate dust generation from the site. ESG communicated with the residents and modified construction sequencing to align with more favorable wind direction (away from

residents). In addition, ESG agreed to power wash the exteriors of select houses on nearby Spring Street Road and Grenada Terrance, at the request of the homeowners. ESG completed power washing prior to demobilization.

4.2.5 Pre-Construction Photography

Prior to the commencement of work, ESG completed pre-construction photography at the Site and of Spring Street Road and Lincoln Avenue. Based upon the pre- and post-construction photography, there were no detrimental impacts to the surrounding area and municipal infrastructure.

4.2.6 Survey

Gayron de Bruin completed intermediate and post-construction surveying for ESG during the completion of the Work. Site survey control was established during the Remedial Design by AECOM. MJ Engineering performed survey of the prisms associated with crack monitoring of the headwalls of along the Kromma Kill adjacent to Building 29.

4.2.7 CAMP Results

ESG implemented a CAMP for the duration of intrusive work at the site for this project. Components of the CAMP included monitoring of airborne particulates using dust monitors and VOCs using photoionization detectors (PIDs) at one upwind and three downwind locations. One additional PID was utilized within the exclusion zone to monitor working zone conditions.

ESG prepared weekly summaries of CAMP data which were submitted to NYSDEC and NYSDOH on a weekly basis. ESG also provided raw CAMP data on a monthly basis. Copies of ESG's weekly CAMP air monitoring reports are included in Appendix G. Occasional spike exceedances of particulate criteria were encountered during construction; however, no exceedances of VOCs were detected. When particulates were detected in exceedance of action levels, ESG implemented the procedures required as described in their CAMP, including implementing additional dust suppression measures and/or stopping work until the concentrations decreased to values where work was allowed to continue.

Listed below are the CAMP exceedances, the causes, and any necessary corrective measures implemented by ESG. The notification level and action level 15-minute averages are 0.1 mg/m³ and 0.15 mg/m³ respectively.

- 6/21/21 – One Action Level exceedance upwind due to street sweeper on side street (PM-10 reading of 0.156 mg/m³). No VOC exceedances.
- 7/26/21 – Three separate action level exceedances downwind due to excessive heavy truck traffic on Lincoln Ave - Monitor position adjusted (PM-10 readings of 0.254, 0.204, and 0.261 mg/m³). No VOC exceedances.
- 5/31/2022 – One action level exceedance downwind due to equipment malfunction (PM-10 reading of 0.228 mg/m³). No VOC exceedances.
- 6/6/2022 – One notification level exceedance downwind due to equipment malfunction (PM-10 reading of 0.116 mg/m³). No VOC exceedances.
- 7/8/2022 – One notification level exceedance due to work activity within 5 feet of monitor area during pad cleaning (PM-10 reading of 0.114 mg/m³). Monitor was relocated. No VOC exceedances.
- 8/12/2022 – One notification level exceedance due to wind gusts of 24 mph (PM-10 reading of 0.102 mg/m³). No VOC exceedances.
- 8/15/22-8/19/22 – Five notification level exceedances upwind due to street sweeper on side street (PM-10 readings ranging from 0.115-0.124 mg/m³). No VOC exceedances.
- 8/22/22-8/24/22 – Three notification level exceedances downwind due to Vac truck offloading to tank next to air monitor (PM-10 readings ranging from 0.109-0.116 mg/m³). No VOC exceedances.
- 9/12/2022 – One notification level exceedance downwind due to heavy truck traffic on haul road (PM-10 reading of 0.138 mg/m³). Additional dust suppression was deployed. No VOC exceedances.

- 11/29/2022 – One notification level exceedance downwind due to concrete processing in progress (PM-10 reading of 0.136 mg/m³). No VOC exceedances.
- 3/31/2023 – One notification level exceedance downwind due to work being performed by National Grid in the vicinity of air monitor (PM-10 reading of 0.141 mg/m³).

4.2.8 Reporting

All daily reports are included in electronic format in Appendix H. The digital photo log required by the RD is included in electronic format in Appendix H. Construction operations and work completed are summarized in the daily inspection reports. Significant operational/construction details are incorporated into this FER throughout Section 4.0. However, due to the duration of the construction (487 daily inspection reports), not every aspect of construction operations is incorporated into Section 4.0 of the FER. The reader can refer to Appendix H for a day-by-day summary of construction operations.

4.2.8.1 *Daily Inspection Reports*

AECOM's on-site staff produced daily inspection reports (DIRs) for the duration of the project. The DIRs summarized the following:

- the work performed each day by ESG and their Subcontractors.
- health and safety observations
- personnel and equipment on site and hours logged
- work progress
- asbestos monitoring results
- material import and export information
- important communications among NYSDEC, AECOM, and ESG
- issues encountered during the work
- nuisance controls
- green and sustainable remedial tracking

The DIRs also included figures and photographs to supplement the daily summaries.

ESG maintained red-line drawings in their construction trailer to document the as-built conditions including abatement and demolition quantities and areas, site restoration, sewer closeouts, topography, pit remediation/progress, and condition of the drainage system. ESG prepared electronic As-Built Record Drawings (Appendix I) based upon the as-built drawings. AECOM also included figures, photographs, videos in the DIR to document construction operations and progress of other work elements. Drone footage completed during portions of the construction by a callout contractor (Precision) was uploaded to MJ Engineering's MJ4D proprietary software and internet-based web link for NYSDEC access.

4.2.8.2 Contractor's Applications for Payment (CAP)

ESG submitted fifteen CAPs during the Contract period, including a final release of retention in accordance with the Contract Documents. AECOM evaluated the accuracy of each CAP for quantities and percentage of completion of individual contract bid items in accordance with the Contract Documents. After the CAP was accepted and recommended for payment by AECOM, each CAP was submitted to NYSDEC for processing. Copies of the AECOM-reviewed CAPs submitted to NYSDEC for approval are provided in Appendix K. A summary of the CAPs is provided below in Table 4-1.

Table 4-1 Contractor Applications for Payment (CAPs)

CAP No.	Date Submitted to NYSDEC	Amount
1	6/4/2021	\$426,075.00
2	7/1/2021	\$456,570.00
3	9/23/2021	\$931,238.79
4	12/6/2021	\$620,317.24
5	3/3/2022	\$227,952.73
6	3/29/2022	\$1,501,808.41
7	5/23/2022	\$648,905.34
8	7/18/2022	\$1,920,908.16
9	9/26/2022	\$1,116,478.48
10	11/21/2022	\$1,142,178.54
11	1/25/2023	\$1,096,047.39
12	3/29/2023	\$2,038,151.08

CAP No.	Date Submitted to NYSDEC	Amount
13	6/30/2023	\$748,741.89
14	8/10/2023	\$2,077,549.76
15	Pending	\$786,995.94
Total		\$15,739,918.75

¹Total payment includes all change orders.

Certified Payrolls

Work performed under this Contract required that the Contractor and its subcontractors pay at least the prevailing wage and pay or provide the prevailing supplements, including premium rates for overtime pay, as issued by the New York State Department of Labor.

ESG submitted certified payrolls in conformance with prevailing wage rates published in the Contract Documents (and updated annually to AECOM) with each CAP. Current wage rates were included in the Contract Documents under Section XIII. AECOM verified that the proper wage rate for individual ESG employees, and the employees of subcontractors working on the project, was accurate approving each CAP.

The Contractor's certified payroll data was included with each CAP and can be found in Appendix K.

4.2.9 Meetings

A Pre-Construction Conference was held between ESG and their subcontractors, AECOM, and NYSDEC on Monday, March 15, 2021. Meeting minutes from the Pre-Construction Conference are included in Appendix L.

AECOM scheduled and administered construction progress meetings on a bi-weekly basis up until October 20, 2021, and then increased the frequency of the meetings to weekly for the duration of construction. The purpose of these meetings was to review schedule, construction project status including prior minutes, submittals, RFIs, field orders, field clarification memorandums, PCOs, CAPs, raise significant questions including staffing issues, establish new guidelines such as additional Work Plan Addendums, introduce new aspects to the project or discuss other items that affected the progress of work. All progress meetings were attended by AECOM and Lozier, NYSDEC,

and ESG and periodically, their subcontractors. Prior to each progress meeting, a two-week look ahead and past two-week progress was provided to AECOM by ESG, and a meeting agenda was prepared and distributed by AECOM. Following each meeting, AECOM prepared meeting minutes documenting all significant proceedings and decisions. AECOM distributed the meeting minutes to each participant at the meeting and to all parties affected by any decisions made at the meeting.

4.3 Building Demolition and Contaminated Material Removal

The buildings that were demolished during this work are listed in the Table 4-2 below.

Table 4-2
Buildings Demolished During OU-3 Remedial Effort

Building #	Building Name
5	Electrical
6	Electrical
7	Hydromation Plant
8	Pump House
9	Rolling Mills
10	Billet Grinding
11	Roll Turning
12	Bar Finishing
13	Former Water Systems
14	Bar Turning
15	Former Quonset
16	Former Substation #2
17	Annealing
18	Pump House
19	Gas Meter
20	Administration
21	Vacuum Arc Remelting Annex
22	Vacuum Arc Remelting
23	Consutrode
24	Dispensary/ Chem Lab
26	Acid Storage
27	Grinding
28	Forge Press
29	Office
30	Storage
31	Tech Services

Building #	Building Name
32	Transportation
33	House-South
34	Acid Neutralizing
35	Mechanical
36	Pickle House
	Transformer Pads and Associated Duct Banks/Vaults

Aspects of the site building/structure demolition activities are summarized below.

A spray nozzle and pump system were used to suppress fugitive dust; however, water usage was minimized to prevent overly wet conditions, avoid ponding and runoff, and conserve water. Water for dust suppression was obtained from the on-Site water source. Dust monitoring was implemented via the CAMP, included in Appendix E, along with the Site-specific HASP.

Demolition work commenced at the southwest side of the property. All the buildings were taken down to their concrete floor slabs, or underlying machine pits, utilizing extended long-reach excavators and PC300 series excavators equipped with shears, grapples, and thumb buckets. Galbestos siding and roofing materials were typically removed first, and then work proceeded from the top of each the structure downward, working bay by bay through each building. The PC300 operator, working under the direct supervision of ESG's on-Site superintendent, first sheared the roof trusses attached to the main structure. The operator then sheared the roof truss on the opposite end of the building and lowered the removed beam to the ground. Roofing was removed along with the truss sections. Any galbestos roofing that could not be reached for removal prior to demolition, was removed for disposal as ACM. Horizontal beams were then removed via shears followed by the vertical columns which were bent over and sheared at the bottom. Bolts attaching the structural steel columns to the concrete slab were removed prior to column demolition using torch cutting techniques. Buildings containing intermediate platforms suspended from the main structural framework required a controlled free fall of these platforms as the demolition progressed. All debris generated from demolition activities was directed onto the building slab for segregation, size reduction, decontamination, and load out. Building materials were segregated and sorted by type, and all recyclables were decontaminated prior to disposal. ESG continued this

process until all of the buildings were demolished down to the concrete slabs, and/or pits. Demolition Progressed along the rear (south) of the property starting at Building 14 and heading north towards Spring Street Road, and then eastward and southward. This allowed for the front buildings along Lincoln Avenue to be utilized as a buffer zone, as well as a wind/view block.

All building materials were characterized for disposal or recycling. Every truck load of material removed from the Site was weighed using the certified on-site truck scale, prior to off-site transport and disposal.

All ancillary process equipment (i.e., furnaces, cranes and rails, interior buildings, motor control centers, compressors, electrical converters, process piping) were drained of oils, cleaned, and visually inspected by AECOM prior to being salvaged/recycled.

Details on this demolition work are presented in the Daily Inspection Reports (Appendix H), Asbestos Abatement Documents (Appendix M) and Record Documents (Appendix I). Waste handling is discussed in Section 4.4.

It should be noted that Buildings 27 and 36 had special conditions that required additional measures for demolition (i.e., arc furnace dust removal in Building 27, waste acid pits in Building 36, etc.). These conditions, and subsequent measures, are discussed in Sections 4.3.5, 4.3.8 and 4.3.9.

4.3.1 Structural Integrity Evaluation

Prior to building demolition, ESG performed an engineering survey of each structure to determine its condition and whether there was a possibility of collapse, in accordance with 29 CFR 1926 Subpart T. The existing structures were comprised of steel trusses, I-beams and columns, and concrete. No additional supports were deemed necessary prior to demolition.

4.3.2 Hazardous Materials Characterization

Characterization of hazardous materials was conducted through the use of sampling, analysis, and historical knowledge, as outlined in the Sampling and Analysis Plan. Prior to the start of demolition, ESG identified hazardous materials in each building, including light ballasts, fluorescent light fixtures, mercury/sodium vapor lights, capacitors,

thermostats, plant equipment, electric arc furnace dust (K061), LBP, ACM, relic transformers and oil, ASTs, tires, and miscellaneous debris. Once identified, these wastes were segregated, removed and packaged for disposal separately from other non-hazardous building debris. These wastes were profiled according to treatment, storage, and disposal facility (TSDF) requirements and appropriate manifests were prepared for each load. Analytica data from the site sampling, and subsequent data usability summary reports (DUSRs) are presented in Appendix F.

The removed lighting materials were characterized using process knowledge and sampling and analysis to determine proper disposal requirements. These materials were removed in conjunction with the demolition process, staged, and transported for disposal to American Recyclers Company. ESG was solely responsible for ensuring that waste was disposed of in compliance with New York State regulations (e.g., 6 NYCRR Parts 360 and 380).

4.3.3 Asbestos Abatement

On April 23, 2021, at least 10 business days prior to beginning of abatement activities, the NYSDOL and USEPA were notified in writing. These notices included identifying the quantities of ACM to be removed. A copy of the NYSDOL Asbestos Project Notification is included in Appendix M.

All asbestos abatement work at the Site was completed by ESG or their Subcontractor, Lion Construction Supply and Services (Lion). All personnel working at the Site had completed 40-hour HAZWOPER with 8-hour refresher training, OSHA 10-hour construction safety, and NYSDOH Asbestos supervisor and Worker Handler training. Training certificates were maintained on Site in the office trailer with the Health and Safety Officer. Asbestos monitoring consisted of continuous oversight by AECOM's Asbestos Project Monitor.

PPE utilized during asbestos abatement included hard hats, level 3 work gloves, steel toe boots, safety glasses or goggles, and half-face (or full face) air purifying respirators (i.e., NORTH 770 Series, etc.) with HEPA filters (P100). Hearing protection and Tyvek coveralls were also used, as necessary.

Equipment utilized for asbestos abatement work included remote decontamination units, airless sprayers, personal air sampling pumps, manometers, fit-test equipment, HEPA vacuums, spud bars, 6 mil Fire retardant poly sheeting, glove bags, and miscellaneous hand tools.

A Large Project Personal Decontamination System, sized for the number of full shift workers, was placed within the regulated work area(s). All material and equipment decontamination areas were located within the regulated abatement work area. An equipment decontamination area was cordoned off within the worksite for cleaning of heavy equipment, i.e., backhoes, excavators, loaders, etc. The ground surface in this decontamination area was banked on the sides to confine the contaminated wastewater.

A typical work area was abated per USEPA, OSHA and NYSDOL regulations via the following procedures:

1. Background air sampling performed by Lozier for small and large asbestos projects (>10 ft² /25 linear feet of ACM per work area).
2. ESG, or Lion, constructed the decontamination enclosures per 12 NYCRR Part 56-7.5. For OSHA Class I work, Lozier conducted work in progress air sampling.
3. The enclosure for the work area was erected per OSHA regulation 29 CFR Part 1926.1101 and 12 NYCRR Part 56-7.11, which consisted of the following:
 - Installing critical/isolation barriers at every opening using double layers of 6 mil fire retardant plastic sheeting.
 - Plasticizing floors, wall and ceilings not subject to ACM abatement.
 - Installing NPE system where warranted.

For OSHA Class I work, Lozier conducted work in progress air sampling.

4. Removal of ACM per 40 CFR Part 61.145 (USEPA), 29 CFR Part 1926.1101 (OSHA) and 12 NYCRR Part 56-8. Lozier conducted work in progress air sampling during this step.
5. Final cleaning and clearance per 12 NYCRR Part 56-9. Final cleaning was verified by AECOM's asbestos project monitor prior to final clearance air sampling performed by Lozier.

6. Dismantling of the above-mentioned enclosures/decontaminations chambers upon receipt of satisfactory air clearance sample results.

ACM waste generated during these activities was handled per 40 CFR Part 61.150, 29 CFR Part 1926.1101 and 12 NYCRR Part 56-10. Details on the waste handling are discussed in Section 4.4.

However, it should be noted that the aforementioned procedures at each area were spread out over several months; beginning in May 2021, with most of the clearance air samples (finals) collected between summer of 2022 and June 2023.

Atypical work areas were encountered during this work. They include, but were not limited to, the following:

- ACM debris on the ground (i.e., transite, galbestos, etc.).
- Situations that required mechanical removal of ACM with heavy equipment.
- Structural deficiencies (i.e., truss cords and webs removed indiscriminately, etc.)
- Buildings with questionable structural integrity.
- Massive work areas (i.e., 0.25 miles long).

For these instances, the NYSDOL granted a variance from their regulations for facility wide abatement of ACM (21-0284, dated April 13, 2021), with subsequent amendments dated November 10, 2021, and December 21, 2021, which were followed by all parties involved. This variance, and subsequent amendments, are included in Appendix E.

Site logs documenting the daily asbestos activities (i.e., air sampling locations, etc.) are in Appendices H and M. Air sampling analytical data are located in Appendix F. ACM waste profiles and documentation (i.e., manifests, etc.) are located in Appendices N and O. Company asbestos licenses, personal asbestos certificates and asbestos laboratory licenses from all parties involved during this work are included in Appendix E.

4.3.4 Radiological Monitoring and Removals

An AECOM Health Physicist supervised all work associated with TENORM remediation as described below.

4.3.4.1 Personnel Monitoring

External dosimetry was utilized to monitor personnel exposure to ionizing radiation during Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) operations. AECOM, ESG and their respective subcontractors assigned one dosimeter for whole body external monitoring while onsite consistent with the requirements of Subpart F of 10 CFR 20. Dosimeters were analyzed by a third-party vendor in accordance with applicable procedures.

Following work in restricted areas, the Radiations Safety Officer (RSO) scanned the body surfaces of individuals exiting the Exclusion Zone (EZ) (also known as frisking) using a Ludlum Model 12 rate meter with a Model 44-9 Geiger-Mueller (GM) detector to check for potential radioactive contamination. If detectable radiation was observed, workers were required to report contamination on the body or personal clothing to the RSO. There were no reports of contamination made during the work; radioactive contamination was confined to the EZ at all times during TENORM operations. This is attributed to the effective use of PPE and the execution of engineering and administrative controls.

During site operations, radiation exposures were minimal. No individual worker received more than 100 milli-roentgen equivalent man (mrem) Total Effective Dose Equivalent (TEDE) per calendar year. Dosimetry results were reviewed quarterly by the RSO during the work and again after the work was complete. The results are reviewed in order to verify that all personnel were adequately monitored, personal readings did not exceed the TEDE threshold, and that site activities were performed in accordance with the ALARA (as low as reasonably achievable) philosophy.

Internal and external exposure limits for employees, visitors and contractors was consistent with those established by in 10 CFR 20 and Table 4-3. Personnel doses were recorded and applied to annual limits as required by 10 CFR 20. Due to the nature of the site and the short duration of the project, personnel were considered “members of the public” and limited to the dose limits in Table 4-3. The largest personal dose was 18 mrem in 14 months of dosimetry and can be viewed in Appendix P.

Table 4-3: Regulatory Dose Limits

	Member of the Public (mrem per calendar year)
Effective Dose Limit	100
Effective Dose Limit to embryo/fetus of declared pregnant worker	100
Equivalent Dose Limits <ul style="list-style-type: none">▪ Lens of an eye▪ Skin▪ Hands & Feet	Not Applicable

4.3.4.2 Radiological Waste Excavation

Excavation and removal of the TENORM waste piles was initiated at the Site on December 3, 2021. The furnace brick waste materials were excavated using conventional construction equipment (e.g., excavator, backhoe, loader). To reduce the potential for migration of TENORM due to wind and rainfall, temporary stockpiles were covered with polyethylene sheeting that was anchored during non-working hours. To minimize the potential for migration of TENORM via airborne particulates and fugitive dust particles, water was applied to the soils in the TENORM excavation areas, excavated material stockpiles, access roads and work areas.

During TENORM excavation and removal activities, fugitive dust emissions were monitored in accordance with standard air sampling practices. Low volume air particulate samplers were placed in the work area where the operated for a minimum of 8 hours per day. Particulate filters were removed from the air samplers and counted on a Ludlum 2929 with a 44-10-1 scintillation detector. Air particulate sampling was terminated by the RSO after one continuous week of loading as no airborne alpha or beta radiation was detected above natural background levels. The RSO reviewed the air sampling results and terminated air sampling in accordance with the Radiation Protection Plan (RPP). All

air sample analysis results are provided in Appendix F. Excavation of the TENORM brick piles was completed on July 26, 2022. All TENORM shipping manifests are provided in Appendix O.

4.3.4.3 Radiological Waste Transport Monitoring

Prior to leaving the Site, each truck and loaded trailer were screened using a Ludlum Model 19 gamma exposure rate meter. A release criterion of 65 μR per hour ($\mu\text{R}/\text{hr}$), averaged from 11 locations alongside the waste transport truck cab (1 location) and trailer (10 locations), was established in consultation with the RSO at project start-up. Radiological screening of truck cabs and trailers occurred from December 3, 2021, through July 26, 2022, and was suspended when all the visible TENORM waste had been removed from the site.

Field documentation surveys collected from each outgoing waste transport vehicle is provided in Appendix P.

4.3.4.4 Radiological Contamination Surveys

Equipment, components, and surfaces were surveyed for removable and total (removable plus fixed) alpha/beta contamination. Where removable contamination was identified above minimum detectable levels, surfaces were decontaminated until levels dropped below detectable levels. Minimally aggressive mechanical means such as wiping or gentle scraping were employed to achieve decontamination. Wetting contaminated areas first with a light water spray eliminated the potential for creating airborne particles of NORM/TENORM.

Survey records were maintained in a clear and legible format. A diagram of each surveyed area was used for recording survey results. The diagram was supplemented by or replaced by a detailed list of items surveyed. Each survey record included, as appropriate to the measurement and the situation:

- A diagram of the area or a list of items and equipment surveyed;
- Specific location on the survey diagram where measurements were taken;
- Ambient radiation levels with appropriate units;

- Contamination levels with appropriate units;
- Make and model of instruments used;
- Background instrument readings; and
- Name of person making evaluation and recording the results and date.

Survey records shall be retained as required by 10 CFR Part 20.2103.

4.3.4.5 Routine Radiological Contamination Survey

Radiological surveys were performed to evaluate external exposure to personnel, surface contamination levels, and radioactive effluents from the facility. Monitoring of the radiological conditions on the Site and surrounding area was also performed to ensure TENORM was not affecting exposure rates beyond the boundaries of the Site.

Surveys were regularly scheduled and conducted by the RSO. The frequency of the surveys was determined as discussed below. Whenever the radiological work was such that contamination could occur between surveys, the RSO conducted more frequent surveys.

The frequency of routine surveys depended on the nature, quantity, and use of radioactive materials, as well as the specific protective facilities, equipment, and procedures that are designed to protect the workers from external and internal exposure. Active restricted area work locations were surveyed at least monthly with intervals between surveys not exceeding 45 days. Routine surveys were performed by the RSO as part of the Radiation Protection Program (RPP) or as part of routine radiological assessment during work activities.

Routine surveys included areas of highest personnel traffic and included:

- AECOM Office Trailer
- ESG Office Trailer
- ESG Dressout Trailer
- ESG Break Trailer
- Site Boundary

All routine surveys can be viewed in Appendix P.

On January 27, 2022, a truck containing TENORM was allowed to leave the site without undergoing a dose survey. The truck was ordered to return to the site. Upon return to and scanning at the site, the shipment dose was deemed safe to the public and the truck was released. A Notice of Deficiency was prepared by AECOM and provided to NYSDEC. The Notice of Deficiency is included in the Daily Inspection Report for January 27, 2022, included in Appendix H.

4.3.4.6 Scoping and Remediation Radiological Support Surveys

Additional radiation surveys were conducted throughout the project site to determine if areas not previously identified were also impacted by the presence of TENORM. Areas surveyed included the buildings containing visible waste, to slag piles to the southwest of the site, to materials uncovered during demolition activities.

Radiation surveys conducted inside Buildings 30, 31 and 32 indicated that the buildings were likely used for the manufacture materials using TENORM. Surveys conducted on both inside and outside the building showed many locations of gamma radiation above background levels. Inside Buildings 30 and 31 there were approximately 20 locations of elevated radioactivity. These locations ranged from between 24 $\mu\text{R/hr}$ up to 400 $\mu\text{R/hr}$ (background radiation averaged approximately 8R/hr). Outside of these buildings on the eastern most Site road, more than 100 discreet locations of elevated radiation were detected. The gamma radiation exposure rates at these locations ranged from 24 $\mu\text{R/hr}$ up to 600 $\mu\text{R/hr}$.

The elevated gamma readings were identified by a laboratory as TENORM. None of the TENORM discovered on the eastern portion of the site (in and around Building 30) was expected. Contaminated materials were decontaminated using non-hazardous cleaners and abrasive pads and, when necessary, contaminated concrete was decontaminated by scabbling. Scabbling is a technique used to remove a thin layer from a concrete surface.

All of the locations remediated were at least three times the site background. The RPP does suggest materials for removal to be more than twice the background levels. It is possible that there are additional locations where radiation levels are more than twice the background level. Therefore, more locations could be discovered during future activities at the Site.

4.3.4.7 Post Remediation Radiological Surveys

Fire brick was removed in its entirety by the end of June 2022. Following excavation, the excavation/removal areas were surveyed to confirm that no materials containing radiation levels greater than two times background were present. Survey records demonstrating radiation levels below the remediation goals described in the RPP are provided in Appendix P.

The TENORM bricks present on the ground surface were removed from the areas using standard construction equipment. In several buildings, TENORM bricks were also present below the ground surface. While the original project scope did not include excavation of materials that were below the ground surface, NYSDEC approved a revised scope to allow subsurface materials to be removed. The revised scope allowed all TENORM brick to be removed during this initial demolition and remediation effort. Waste bricks were shipped in trucks to appropriate disposal facilities. Due to limited space, a waste brick stockpile and loading area was established at the top of the slope along the northeastern side of Building 9. To protect the ground surface in this area from potential cross-contamination, plastic sheeting was placed underneath waste containers and extended 5 feet beyond each side of the container.

The fixed contamination in Buildings 30 and 31 was removed by scabbling. Scabbling is a technique used to roughen up surfaces or reduce concrete levels by removing a thin layer from the top. Scabbling activities used high-efficiency particulate air (HEPA) filtered vacuuming, and local HEPA filtered ventilation under the direction and coverage of the RSO. Of the approximately 20 locations of contamination inside the buildings, all but one of the spots were decontaminated to below the twice background. The one remaining location was reduced from 400 $\mu\text{R/hr}$ to 200 $\mu\text{R/hr}$ and the spot was

covered with a steel plate (Appendix P). The location was marked in fluorescent paint for identification.

4.3.4.8 *TENORM Air Monitoring*

Integrated particulate air samples were collected as needed at each of the work zones during remedial activities and analyzed on site for comparison against the TENORM Action Level described in the RPP. Integrated 8-hour particulate samples were collected using low volume Mini-Vol TAS air samplers deployed at each area. Following collection of the air filter samples and a 24-hour radon decay period, samples were analysis using a Ludlum Model 2929 Dual Channel alpha/beta sample counter. Results of these analyses were documented and maintained as part of the site-specific air monitoring database.

An action limit of 3E-12 micro-Curies per milliliter ($\mu\text{Ci/ml}$) was developed for use during operations. 3E-12 $\mu\text{Ci/ml}$ is the derived air concentration (DAC) value for thorium-230 from 10 CFR Part 20, Appendix B - *Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage*. The thoium-230 value was used because it is the most limiting value of the radionuclides in the natural uranium decay chain. The results of the integrated particulate sampling and analysis are summarized in Appendix F.

4.3.4.9 *Radiological Violation*

On January 27, 2022, a truck containing TENORM was allowed to leave the site without undergoing a dose survey. The truck was ordered to return to the site. Upon return to and scanning at the site, the shipment dose was deemed safe to the public and the truck was released. A Notice of Deficiency was prepared by AECOM and provided to NYSDEC. It is included in Appendix P.

4.3.5 Hazardous Material Identification and Removal

Prior to demolition, ESG evaluated the conditions of the building to determine access to areas containing hazardous materials. Upon receiving clearance to access these areas, ESG visually inspected and identified the presence of potentially hazardous

materials and marked them for removal prior to demolition. Material marked to be removed included:

- Mercury-containing thermostats
- PCB-containing caulk and paint
- PCB-containing capacitors and light ballasts
- Mercury-containing light fixtures
- Mercury/sodium vapor lights
- ACM materials
- EAF dust
- TENORM – primarily refractory brick
- Hazardous wastes (K061, D008, Toxic Substances Control Act [TSCA], etc.)

Certain areas (e.g., Building 27 due to structural instability) containing hazardous materials were not accessible for manual removal and were therefore mechanically demolished along with the associated building. In these areas, hazardous materials were then segregated from non-hazardous materials after demolition, where possible, and placed in the appropriate stockpiles for loading onto trucks for off-site disposal. All hazardous materials that were removed were placed in DOT-approved disposal containers and manifested for legal disposal or recycling.

Fluorescent light tubes were removed from the overhead fixtures by hand and placed into appropriate shipping containers. After the light tubes had been removed from the fixtures, the ballast labels were checked and any ballast that did not specifically state that it is “PCB Free” was removed and disposed of as PCB bulk product waste in accordance with 40 CFR 761.62.

Mercury-containing switches were carefully removed using hand tools so as not to rupture the mercury vial. If the vial could not be easily removed, the entire fixture was removed. The mercury vials and/or switches were wrapped in cushioning material and placed in containers for disposal.

All loose paint was removed from the steel members prior to recycling. Paint waste generated during the demolition and washing of steel members was collected and containerized for characterization and disposal. Washing of steel members took place over the existing concrete pads, which were surrounded by silt socks. All paint waste was then scraped from the concrete and placed into shipping containers (roll offs, drums, cubic yard boxes) for disposal. The concrete received a final wash, and all wash water was collected and treated at the temporary wastewater treatment system. Steel members suspected of containing PCBs were sampled and characterized for disposal at an off-site permitted facility.

4.3.5.1 Lead-Based Paint Removal

As part of the aforementioned hazardous material identification and removal effort, loose LBP that was deemed hazardous was removed from Building 14 between August 3 and 10, 2021 following the controls cited in Section 4.2.3.6. It should also be noted that the LBP in Building 36 was also deemed hazardous; however, this paint also contained PCBs and therefore was handled as such.

The LBP in Building 14 was removed and disposed per USEPA, OSHA and NYSDEC regulations via the following procedures:

1. Preparing rooms from August 3 to 4, 2021.
2. Removing/ containerizing loose LBP in 55-gallon drums between August 5 and 9, 2021.
3. Submitting a waste profile for the six (6) drums of LBP that was generated during the removal on August 10, 2021 (13514617).
4. Prior to transporting the drums of LBP off site for disposal, a representative sample of the contents was collected on December 8, 2021 for waste handling; waste profile #3514617. It should be noted that on December 7, 2021, samples of paint chips from the steel beams at Building 36 were also submitted for waste characterization analyses. Based on the analytical results, they were managed as PCB waste.
5. Between February 17 and March 16, 2022, 28 truckloads of LBP, mixed with non-friable ACM Construction and Demolition (C&D) debris, were transported off site

to Seneca Meadows Landfill for disposal. Details on the waste handling are discussed in Section 4.4

Site logs documenting the LBP removal/disposal activities are in Appendix H. LBP waste documentation (i.e., manifests, etc.) is located in Appendix O

4.3.6 Structure Demolition (Typical)

An overview of the typical building demolition work at the site is itemized as follows:

- Collection, treatment, and analysis of contact water from demolition, steel/metals decontamination procedures, and engineering controls for airborne particulates throughout demolition;
- Personal and perimeter air monitoring/sampling for airborne asbestos fibers throughout demolition and abatement;
- Cleanup of ACM debris on the building concrete slabs and around the former site buildings;
- Dismantling, decontamination, and off-site disposal of structural steel (via metal recycling);
- Cleaning and dewatering of pits, chambers, and trenches; and
- Demolition, dismantling, and disposal (via metal recycling or disposal facility) of any tanks, and/or process piping at the site.

4.3.7 Building Slab/Machine Pits/Vaults Decontamination

The concrete building slabs were decontaminated utilizing wet decontamination techniques to minimize the creation of dust and prevent exposure to hazardous materials and ACM. The slabs were washed utilizing water from the on-site hydrant, appropriate surfactants, and the water was collected in each building's basement and/or pits prior to being pumped to the on-site temporary water treatment system for treatment and discharge. The transformer pad at Building 17 required extensive cleaning in July 2022, including the removal of PCB oil and the associated concrete pad.

4.3.8 Building 27 Demolition

The existing brick debris pile along the western outside perimeter of the building was removed and disposed of as non-hazardous non-friable ACM waste. Poly sheeting was placed along the perimeter wall and the exterior windows were removed and wrapped for disposal. New poly sheeting was then placed along the perimeter wall and the loose brick façade was demolished.

Due to the damaged column, the south bay was also removed. All brick that landed outside of the building was cleaned up and loaded out for disposal. All brick that fell inside the building was loaded out and disposed of with the Friable ACM debris. A portion of the unsupported roof system was then removed and once the roofing system was removed the building was ready for abatement.

The interior friable ACM debris and brick was cleaned up and direct loaded into a double lined open top container and disposed of per the approved variance. The remaining ACM abatement was then completed.

Once proper clearances were received, the remaining building was then demolished per the approved demolition plan included in Appendix E.

4.3.9 Building 36 Demolition

4.3.9.1 Building 36: Hazardous Waste Treatment/ Removal

This section discusses the specialized hazardous waste treatment/ removal during the demolition of Building 36. Site logs documenting the treatment/removal/disposal activities are in Appendix F. Waste documentation (i.e., manifests, etc.) is located in Appendix O.

Steel Trusses Coated with LBP and PCB Paint

On December 7, 2021, ESG collected paint chips from the steel beams at Building 36 for PCBs (total and TCLP) and TCLP metals analyses. The concentrations of lead were deemed hazardous. However, total PCB concentrations in one of the samples exceeded the 50 ppm threshold for hazardous waste; therefore, the paint was managed as PCB waste. Lab results are presented in Appendix F.

Starting July 27, 2022, the steel trusses and beams coated with PCB containing paint were resized to allow for transport off site to the Michigan Disposal Waste Treatment Belleville, MI; under waste code RQ, UN3077. The steel load out began August 11, 2022, with the last load leaving the site on October 31, 2022.

Waste Acid Pits

Between April 1, 2022, and September 21, 2022, the metals in the waste acid pits of Building 36 were stabilized via the following procedures:

1. All brick, debris and silt within the pits was consolidated into the existing Brick/Silt pile for treatment.
2. The existing cinder block pile was staged in a separate pile for loadout with the treated Brick/Silt pile.
3. The concrete cap was removed to inspect the vault contents.
4. Excavated soils were consolidated into the existing Brick/Silt pile for treatment.
5. The Brick/Silt pile was crushed and mixed with the on-site processor to down-size any large brick. The pile was then treated with a 2% Portland cement add mixture. A composite sample of the pile was analyzed for TCLP Lead.
6. The standing water in the concrete foundations was pumped into the water treatment facility. The foundations were demolished to grade and loaded into the cinder block pile for disposal.
7. The existing foundation was demolished level with the existing pad. The fire brick was segregated and moved to the Buildings 17/28 brick piles. The concrete was processed and used for on-site backfill.

Following the demolition of Building 36, ESG performed the following in regard to the debris:

- All brick, debris and silt within the pits was consolidated into the existing Brick/Silt pile for treatment.
- The existing cinder block pile was staged in a separate pile for loadout with the treated Brick/Silt pile.

- The concrete cap was removed to inspect the vault contents.
- Excavated soils were consolidated into the existing Brick/Silt pile in for treatment.
- The Brick/Silt pile was crushed and mixed with the on-site processor to down-size large brick. The pile was treated with a 2% Portland cement add mixture. A composite sample of the pile was analyzed for TCLP Lead.
- Standing water was pumped out. The foundations were demolished to grade and loaded into the cinder block pile for disposal.
- The existing foundation was demolished level with the existing pad. The fire brick was segregated and moved to the building 17/28 brick piles. The concrete was processed and used for on-site backfill.

4.3.10 Buildings 22/23/14 Parquet Flooring Removal

On May 11, 2022, ESG collected a composite sample of the parquet flooring at Building 22 for waste profile development via Total VOCs, semivolatile organic compounds (SVOCs), PCBs, Metals and TCLP Metals analyses. On June 20, 2022, an additional composite of the sample of the parquet flooring was collected from Buildings 22 and 23 for TCLP SVOC analyses. The detected concentrations of in this sample were below hazardous waste criteria. However, this flooring was mixed with the parquet flooring from Building 36, which was deemed PCB waste; and therefore, managed as such.

Between August 8 and 15, 2022, ESG loaded out the parquet flooring and stabilized mix material from the Building 23 and Building 36 pit for transport to the Emelle Landfill in Alabama. Waste handling is summarized in Section 4.4. Details on the waste load out and disposal are provided in Appendices H and O.

4.3.11 Building 27 Arc Furnace Dust Handling and Removal

On January 14, 2022, ESG and AECOM collected a composite sample of the arc furnace dust from three discrete locations in Building 27 for TCLP Metals analysis. The detected concentrations in this sample were below hazardous waste criteria. However, this dust is a listed hazardous waste (Waste Code K061 per 40 CFR Part 261.32); and therefore, managed as such.

Between May 10 and June 28, 2022, ESG loaded out the arc furnace dust from the Building 27 for transport to the Michigan Disposal Waste Treatment facility in Belleville, Michigan. Waste handling is summarized in Section 4.4. Details on the waste load out and disposal are provided in Appendices H and O.

4.3.12 Pit/Slab Cleaning

ESG cleaned building pits and concrete slabs onsite from April 2022 through May 2023. ESG was required to receive approval from onsite AECOM personnel to backfill the pits after decontamination and a visual inspection. ESG experienced difficulty cleaning the pits at Buildings 9, 22, 28, and 36 due to heavy staining and contaminant residues from past operations. In addition, some of the pits in these buildings were determined to be much deeper than anticipated and identified in the RD. Some of the pits also contained massive steel making machinery and presses that extended to depths of approximately 20 feet bgs. As a result, significant extra time was required for ESG personnel to remove materials and machinery as summarized in Sections 4.12.4 and 4.12.5. Due to the heavy staining of contaminant residues within the pits at these buildings, Site personnel conducted a pilot test onsite in December 2022 to test additional surfactants including ZEP ® Heavy Duty Citrus Degreaser and Cleaner as an agent to clean the pits. The pilot test was successful, and the products were subsequently used for pit cleaning moving forward. ESG personnel utilized scrapers, scrub brushes and brooms, mechanical grinders, and excavators, in combination with the surfactants to satisfactorily decontaminate the pits in accordance with the Contract Documents.

4.3.13 Remedial Performance Documentation Sampling

After Buildings 9, 14, 17, 12, 22, 28 and 36 were demolished, and their C&D debris was transported off site, the pits/ transformer pads that remained were subsequently cleaned to remove any residual PCBs and/or gasoline range organics (GRO)/diesel range organics (DRO). Upon completion of each pit's/pad's cleaning, confirmatory samples were collected to ascertain the remaining levels of PCBs/GRO/DRO.

The sampling dates and remaining contamination at each pit/pad are summarized in Table 4-4 below. Details on the confirmatory sampling and analyses, including photo logs, sample locations figures, and lab results are presented in Appendix Q.

Table 4-4 Summary of Remaining Contamination of Pits

Building ID	Pit ID	Sample Collection Date(s)	PCB Concentration Range (ppm)	GRO/DRO Concentration Range (ppm)
9	18	3/23/2023	0.048-2.1	Not Analyzed
14	1	8/17/2022	Non Detect-1.18	Not Analyzed
17	T1 (Transformer Pad)	1/5/2023	1.2-18	Not Analyzed
12	2A	11/4/2022 – 11/7/2022	Non Detect-0.6	Not Analyzed
	2E	11/15/2022	0.072	Not Analyzed
22	4A	10/25/2022	3.3-15.9	Not Analyzed
	4B	10/25/2022	0.74-120	Not Analyzed
	2	10/25/2022 - 10/26/2022	0.52-2.25	Not Analyzed
	1	12/30/2022	0.33-8.4	Not Analyzed
28	1	4/26/2023	0.084-0.44	GRO – Not detected/ DRO 2,500-6,900
36	1	8/17/2022	Non Detect-0.31	Not Analyzed

It should be noted that the remaining DRO in Pit 1 of Building 28 is considered to be attributed to groundwater infiltrating the pit and not from the pit itself. Groundwater is not part of OU-3 and will be addressed at a later date.

4.3.14 Green and Sustainable Remediation

As part of remedial design and construction, various green remediation best management practices were incorporated and implemented to reduce the environmental footprint of cleanup activities, including:

- A State Pollutant Discharge Elimination System (SPDES) permit equivalency was obtained by the Department for use by the Contractor to discharge treated construction water to the Kromma Kill, eliminating transport and disposal of some of the construction wastewater. A portion of the wastewater was also transported to the City of Schenectady POTW for treatment to accelerate the project schedule.

- Over 18,000 tons of clean backfill was locally sourced.
- Heavy equipment was clean-diesel certified and an idle reduction plan was implemented to reduce greenhouse gas emissions.
- The remediation contractor employed more than 50 percent of their labor force locally, including multiple local area subcontractors.
- Over 11,000 tons of masonry materials from on-site structures were recycled on-site for use as clean backfill.
- 4,760 tons of structural steel were salvaged and recycled locally.

Additional green remediation metrics are as follows:

- 28,400.35 tons of remediation waste, and four (4) tons of contractor waste, were generated on-site throughout the project duration. 23,639.33 tons of this waste were transported off-site to landfills; the remaining waste was transported off site for recycling/reuse.
- The total electricity usage during these activities was 215,637 kilowatt hours.
- Off-site mobile hauling covered 1,445,683.2 miles.
- On-site diesel excavation/construction equipment usage was 19,296.8 hours.
- Total quantity of water used on-site was 1,105,900 gallons.
- 3.9 acres of land was disturbed and subsequently restored.

FORM A details on these activities are provided in Appendix K. Remedial construction resulted in rehabilitation of a large portion of the MPA and created valuable commercial space for future use and will provide lasting benefits to the community and the Town of Colonie.

4.4 Waste Disposal

4.4.1 Waste Profiles for Disposal Facility Acceptance

Prior to performing demolition activities, ESG collected waste characterization samples to supplement the existing waste characterization database. These waste characterization samples were used in concert with samples collected by AECOM as part of the pre-design waste characterization effort in May 2020. The number of characterization samples collected from each of the proposed structures to be

demolished was based on the estimated volume of material to be removed from each structure, the historical database, and the frequency required by the disposal facility. In general, waste characterization samples were analyzed in accordance with the Contractor's Sampling and Analysis Plan (included in Appendix E), which included TCLP analysis for RCRA (8) metals, VOCs, SVOCs, and pesticides/herbicides, total PCBs, pH, reactivity, ignitability, and % solids. However, the TSDFs did not always require the full suite, and in some instances ESG only collected data that was required to supplement historical data that the TSDF had already accepted. The analytical results for these samples were used to generate waste profiles, which were submitted to the waste disposal facilities listed in Table 4-5 below.

Table 4-5: Waste Disposal Locations

Disposal Materials	Disposal Locations
Construction and Demolition (C&D) Debris	Waste Management Green Ridge Management Facility, Gansevoort, New York
Construction and Demolition Debris with trace Asbestos Containing Material (ACM)	Seneca Meadows Waste Management Facility, Waterloo, New York
Friable Asbestos Containing Material (ACM)	Waste Management Green Ridge Management Facility, Gansevoort, New York
Non-Friable Asbestos Containing Material (ACM)	Waste Management Green Ridge Management Facility, Gansevoort, New York
Non-Friable Asbestos Containing Material (Galbestos Panels)	Seneca Meadows Waste Management Facility, Waterloo, New York
Soil Containing Galbestos Siding Debris	Seneca Meadows Waste Management Facility, Waterloo, New York
Scrap Metal	Metro Metal Recycling, Albany, New York; Sims Metal, Frankfort, New York
Technologically Enhanced Naturally Occurring Radioactive Material (TENORM)	Waste Management American Landfill in Waynesburg, Ohio
Toxic Substances Control Act (TSCA) Regulated Non-Friable Asbestos Containing Material (ACM)	Waste Management Emelle Hazardous Waste Facility, Emelle, Alabama

Disposal Materials	Disposal Locations
Technologically Enhanced Naturally Occurring Radioactive Material (TENORM)	Waste Management Phoenix Resources Landfill, Wellsboro, Pennsylvania
Arc Furnace Dust	U.S. Ecology Michigan Disposal Waste Treatment Plant, Belleville, Michigan
Friable Asbestos Containing Material (ACM)	Seneca Meadows Waste Management Facility in Waterloo, New York
Solidified Lead Polychlorinated Biphenyl (PCB)	U.S. Ecology Michigan Disposal Waste Treatment Plant, Belleville, Michigan
Hazardous Polychlorinated Biphenyl (PCB)	Waste Management Emelle Hazardous Waste Facility, Emelle, Alabama
Non-Hazardous Petroleum Based Oil	American Recyclers Company, Tonawanda, New York
Fluorescent Light Bulbs	American Recyclers Company, Tonawanda, New York
Hazardous Petroleum Based Oil	Veolia ES Technical Solutions Corporation Flanders, New Jersey
Hazardous Debris	Veolia ES Technical Solutions Corporation Flanders, New Jersey
Tires	American Recyclers Company, Tonawanda, New York

4.4.2 Disposal of Non-Hazardous Waste

Material disposed of under this category includes the following:

- 1,454.96 tons of construction and demolition debris disposed of at Waste Management's Green Ridge Management Facility

4.4.3 Disposal of Hazardous Debris

Material disposed of under this category includes the following:

- 132.24 tons of Hazardous TSCA/Lead Waste disposed of at U.S. Ecology Michigan Disposal Waste Treatment Plant

4.4.4 Disposal of Radiologic Waste (TENORM)

Material disposed of under this category includes the following:

- 1,498.82 tons of brick disposed of at Waste Management American Landfill

- 1,996.97 tons of brick disposed of at Waste Management Phoenix Resources Landfill

4.4.5 Disposal of ACM Non-Hazardous

Material disposed of under this category includes the following:

- 241.84 tons of Non-Friable ACM disposed of at Waste Management Green Ridge Management Facility
- 69.72 tons of Friable ACM disposed of at Waste Management Green Ridge Management Facility
- 8,435.33 tons of Non-Friable ACM/Galbestos disposed of at Seneca Meadows Waste Management Facility
- 69.17 tons of Friable ACM disposed of at Seneca Meadows Waste Management Facility
- 3,384.90 tons of Non-Friable ACM disposed of at Seneca Meadows Waste Management Facility

4.4.6 Disposal of ACM Hazardous

Material disposed of under this category includes the following:

- 1,960.28 tons of Hazardous Galbestos disposed of at Waste Management Emelle Hazardous Waste Facility
- 4,085.07 tons of Hazardous TSCA Waste disposed of at Waste Management Emelle Hazardous Waste Facility
- 306.48 tons of Hazardous Arc Furnace Duct disposed of at U.S. Ecology Michigan Disposal Waste Treatment Plant

PCB Coated Steel from Building 17 was disposed of with these materials.

4.4.7 Recycling of Salvageable Steel

Material recycled under this category includes the following:

- 4,758.9 tons of steel recycled at Metro Metals Recycling and Sims Metal

4.4.8 Disposal of Universal Wastes

Material disposed of under this category includes the following:

- 2 drums of non-hazardous petroleum based oil recycled at American Recyclers Company. This oil was collected after leaking from overhead piping during building demolition.
- 3 drums of fluorescent light bulbs recycled at American Recyclers Company
- 4 drums of hazardous TSCA petroleum based oil disposed of at Veolia ES Technical Solutions Corporation
- 2 drums of hazardous TSCA debris disposed of at Veolia ES Technical Solutions Corporation
- 9.79 tons of tires recycled at American Recyclers Company

ESG utilized the disposal locations identified in Table 4-5 to dispose of C&D Debris, C&D Debris with trace ACM, Friable ACM, Non-Friable ACM, Galbestos Panels, Soil containing Galbestos debris, metals, TENORM, TSCA regulated Non-friable ACM, EAF Dust, Solidified Lead PCB wastes, and universal wastes generated at the Al-Tech Specialty Steel Corporation Site. The waste profiles and approvals are provided in Appendix N. Waste profiles were not required for salvage and recycling of metals at the Metro Metal and Sims Metal Recycling facilities.

ESG utilized the following haulers to transport the various waste streams generated at the site:

- Goulet Trucking, Inc. (C&D Debris, Non-Hazardous Non-Friable Galbestos Panels, TENORM);
- Waste Management Intellectual Property Holdings, L.L.C. (Friable ACM, Non-Friable ACM);
- Riccelli Trucking, Inc. (Non-Hazardous Non-Friable Galbestos Panels);
- S. M. Gallivan. L.L.C. (Scrape Metal);
- Horwith Trucks, Inc. (TSCA regulated Non-friable ACM, Hazardous PCBs); and
- GPS Transport, Inc. (TENORM, Arc Furnace Dust).

4.4.9 Waste Disposal Quantities

Table 4-6 shows the total bid and actual quantities of material removed from the site. Waste disposal quantities are confirmed by weigh tickets provided by the disposal facilities and corroborated using the weights measured at the on-site truck scale.

Waste manifests were prepared by ESG for each truckload of material transported off site; and waste manifests were signed by AECOM as agent for NYSDEC. Weigh tickets and waste manifests are provided in Appendix O.

Table 4-6: Total Weight of Waste Disposed, by Type.

Bid Item	Originally Estimated Quantity	Units	Actual Quantity
UC-4 Handling, Transport and off-site disposal of Non-Hazardous Waste	10,573	Ton	1,454.96
UC-5 Handling, Transport and off-site disposal of Hazardous Waste	4,720	Ton	0.00
UC-6 Handling, Transport and off-site disposal of Hazardous Debris	6,694	Ton	132.24
UC-7 Handling, Transport and off-site disposal of Radiologic Waste (TENORM)	1,260	Ton	3,495.79
UC-8 Handling, Transport and off-site disposal of ACM – Non-Hazardous	12,470	Ton	12,200.51
UC-9 Handling, Transport and off-site disposal of ACM – Hazardous	756	Ton	6,351.83
Salvageable Steel	N/A	Ton	4,758.91
Non-Hazardous Petroleum Based Oil	N/A	Drum	2
Fluorescent Light Bulbs	N/A	Drum	3
Hazardous TSCA Petroleum Based Oil	N/A	Drum	4
Hazardous TSCA Debris	N/A	Drum	2
LS-10 Handling and Transport of Tires (PCO No. 8)	N/A	Ton	9.79

4.5 Imported Backfill

ESG backfilled and graded the site from September 2021 through June 2023. A total of 12,706.94 cubic yards of backfill material from Troy Sand and Gravel in Watervliet, New York and Constantine Construction and Farm, Inc. in Loudonville, New York were used to backfill and grade the site. All backfill was certified per DER-10 requirements and included in Appendices E and F. AECOM personnel visited the pit sources to verify borrow areas and sampling locations. Select demolition debris was also re-used onsite as clean backfill material.

4.6 Dewatering/Contact Water Treatment, Handling and Disposal

All water generated on site from construction activities was anticipated to contain contaminants of concern and was required to be treated prior to discharge. This included groundwater from pits, pit excavations, and vaults, dewatering from stockpiled contaminated soils, decontamination water and water from miscellaneous sources.

A Contact Water Treatment Plan was designed and submitted by ESG in order to satisfy the effluent requirements of the SPDES Permit Equivalent provided in Section 02 24 23 Attachment A of the Contract Documents. Sampling and analysis of water that was discharged from site was performed in accordance with the approved Sampling and Analysis Plan, which is included in Appendix E. Effluent grab samples were required once per every 10,000 gallons of water discharged. All samples were analyzed for pH, TSS, Metals, VOCs and SVOCs.

The approved Contact Water Treatment Plan is included in Appendix E and included a lined, bermed secondary containment system adequately sized for all treatment equipment and piping and 110 percent of the largest effluent storage tank to contain and capture all spills and leaks. The approved treatment process included sedimentation, oil water separation, bag filtration and granular activated carbon adsorption.

Prior to mobilization of any treatment equipment to the site, ESG certified in writing that all treatment equipment had been fully decontaminated and would not affect the quality of treated water. Tanks or other equipment rentals for the Contact Water Treatment System were certified clean by each vendor prior to being brought on site. The Contact Water Treatment System was deemed acceptably “clean,” no visible staining or sheen on any of the treatment equipment, after visual inspection by AECOM.

A portion of the contact water was treated on site using the contact water treatment system and discharged to the Kromma Kill. The balance of the contact water was transported and treated at the City of Schenectady Water Pollution Control Plant (WPCP). A total of 1,644,719 gallons of water was either treated on-site and discharged to the Kromma Kill or transported to the City of Schenectady WPCP through the duration of the work.

Once sampling and testing was completed per the approved Sampling and Analysis Plan, confirmed that the effluent met the SPDES Permit Equivalent effluent limitations, authorization to discharge to the Kromma Kill was given by AECOM. A total of 483,288 gallons of water were treated on site and discharged through a piping system and flow meter to the Kromma Kill. Prior to discharge to the Kromma Kill, discharge monitoring reports were required by the project’s SPDES Permit Equivalent and are included in Appendix E. Mass loading calculations for the discharged water are also included

A total of 1,161,431 gallons of water were transported to the City of Schenectady WPCP for disposal during the period between November 22, 2022, and May 25, 2023. ESG coordinated transport of contact water to the City of Schenectady WPCP for additional treatment to accelerate the project schedule.

Wastes generated as a result of contact water treatment operations, such as spent resins, polymers, bag filters and other operational derived waste were disposed of by ESG in accordance with Section 01 74 19 – Construction Waste Management and Disposal of the Contract Documents.

4.7 Contamination Remaining at the Site

Section 4.3.13 summarizes the post-remediation sampling results collected from subgrade concrete pits which were analyzed for potentially remaining PCBs. Concrete samples collected from Pit 1 at Building 28 were also analyzed for DRO and GRO compounds because LNAPL petroleum is known to be present in groundwater in the vicinity of Building 28. The associated Data Usability Summary Report is provided in Appendix F. Photographic records and associated contaminant concentrations are depicted in a summary report and provided in Appendix H. No other analytical sampling was required to document remaining contamination in other environmental media as part of OU3 remediation.

4.8 Soil Cover [or CAP] System

A soil cover/cap was not included as part of OU3 remedial construction. All subgrade pits, vaults, and basements were backfilled with certified clean approved backfill after removal of materials and decontamination. In addition, much of the surface area within the MPA was restored with certified clean approved backfill materials to establish gentle grades and transitions for ease of future access and beneficial use.

4.9 Site Restoration

4.9.1 Sanitary Sewer Abandonment

All on-site sanitary manholes were backfilled with certified approved backfill material at the surface, and sanitary sewer piping and subgrade portions of manholes were filled with low strength concrete (flowable fill) from April 21, 2023 through May 5, 2023. Sanitary manhole covers were removed and salvaged, and sanitary manhole cones were removed before backfilling operations. All subsurface piping adjacent to machine pits, including electrical ducts banks and transformer vaults, were also filled with flowable fill or sealed with hydraulic cement. A Sanitary Sewer Closure Report is included in Appendix E and summarized in Figures 4 and 5.

Specifications for the closure of Manhole 5905 are included in RFI No. 3, included in Appendix D. The specifications were approved by the Town of Colonie on May 11,

2021 and the work was completed on May 13, 2021. The details of the closure are depicted in Figure 5.

4.9.2 Storm Sewer Repair and Maintenance

ESG repaired storm sewer drainage inlets across the site with brick and mortar from May 23, 2023, through June 13, 2023.

4.9.3 Hydroseeding

ESG hydroseeded the grass areas onsite from September 7, 2022, through June 28, 2023. Refer to Record Drawings included in Appendix I.

4.9.4 Fencing

Rommell Fencing installed permanent chain-link fencing from June 19, 2023, through June 28, 2023. A total of 640 linear feet of fencing was installed onsite. A total of 500 linear feet of fencing is more robust, with barbed wire across the top was placed along the northern portion of Building 37 as depicted in the Site Restoration Record Drawing provided in Appendix I.

4.9.5 Monitoring Well Installations

Due to damage during construction operations, ESG's subcontractor Precision Environmental reinstalled monitoring wells OW-1R, PZ-16R, PES-8R, PES-9R, PES-13R, PES-15R, and MW-12R from January 16, 2023 through January 17, 2023. Monitoring well installation logs are included in Appendix E.

4.9.6 Security Incidents

On February 26, 2022, several individuals entered the Site and began walking around. They were confronted by security and advised to leave. The individuals promptly left site.

Between March 11, 2022 and March 12, 2022, unknown individuals entered the project site and walked around. The Site tool cabinet had been opened and displaced tools were observed in the area. Upon inspection of the area, there was no damage to the tools or the Site.

4.10 Engineering Controls

The remedy for the OU3 did not require the construction of any other engineering control systems. The perimeter fencing and locked gates are being maintained by the NYSDEC. Long term groundwater monitoring is also being conducted as part of other ongoing work at the Site but is not part of the OU3 requirements.

4.11 Institutional Controls

An Environmental Easement is not part of the OU3 remediation requirements. The EE will be completed at a later date.

4.12 Deviations from the Scope of Work

Deviations from the scope of work during construction arose due to RFIs and Proposed Change Orders (PCOs) submitted by the Contractor.

4.12.1 Requests for Information

RFIs were submitted for clarification or interpretation of the Contract Documents or Contractor operations. A total of 17 individual RFIs were submitted to AECOM and are summarized below. Completed RFIs with AECOM's responses are included as Appendix D.

- RFI No. 1 was issued by ESG requesting AutoCAD base files for the project. AECOM provided the files to ESG.
- RFI No. 2 was issued by ESG requesting the information necessary for them to complete the asbestos variance. AECOM provided the information to ESG.
- RFI No. 3 was issued by ESG to request approval of their proposed methods for abandoning existing sewer lines around the site. AECOM approved the approach.
- RFI No. 4 was issued by ESG to request exclusion of importing sand for use as a bedding beneath the liner in the API OWS. They requested to instead use an additional layer of geofabric. AECOM disapproved the request.

- RFI No. 5 was issued by ESG to propose not removing loose lead-based paint chips from building components prior to demolition. AECOM responded that it is up to the owner whether loose paint is manually removed. AECOM also allowed ESG to discontinue use of poly liner on window and door openings but indicated that loose paint be removed prior to demolition.
- RFI No. 6 was issued by ESG to request changing the work schedule to four 10-hour days per week; this also included a request to add an additional workday per week to their security watchman. AECOM and NYSDEC approved the change for a trial period of one month. In addition, NYSDEC would pay 50% of bid items UC-1 and UC-2 (site services and health and safety days) for non-working Fridays.
- RFI No. 7 was issued by ESG asking whether they should pursue a non-hazardous determination by sampling the materials. AECOM and NYSDEC responded that additional samples shall be collected to determine whether a more economical disposal option is viable. AECOM added that they must first approve the sample frequency, and that ESG must submit a Sampling and Analysis Plan to AECOM.
- RFI No. 8 was issued by ESG requesting a letter from AECOM's asbestos project monitor confirming that all friable ACM had been abated from Buildings 10, 11, 12, 14, 21, 22, 23 and 36. This was a request from Seneca Meadows Landfill. AECOM approved the request and the letter was provided by AECOM's asbestos project monitor.
- RFI No. 9 was issued by ESG requesting direction on how to handle the two large furnace units in building 27 (the furnaces contained an unidentified white fibrous material). AECOM and ESG examined the units and determined that the material should be sampled for ACM.
- RFI No. 10 was issued by ESG to request a review of the SPDES permit, as the daily maximum limit for benzo(a)pyrene was too low for their current laboratory to analyze. AECOM and NYSDEC responded that ESG should procure a laboratory that can analyze benzo(a)pyrene using the most sensitive

method (Method 625.1 with select ion monitoring) and should direct the laboratory to use Method 610 if the MDL is lower than can be achieved by 625.1 SIM.

- RFI No. 11 was issued by ESG to request raising the method detection limit of benzo(a)pyrene from 0.02 µg/L to 0.073 µg/L. AECOM responded that this was acceptable.
- RFI No. 12 was issued by ESG requesting permission to use oversized concrete as backfill in the pits. AECOM approved the request provided that the pieces were no larger than 2 ft x 2 ft x 6 ft with all protruding rebar removed, granular backfill be layered in to prevent voids, and a minimum of 4 ft of cover be placed over the concrete. AECOM added that sufficient space needs to be left between the concrete pieces so that processed brick/imported fill can be placed and compacted in accordance with the Contract Documents.
- RFI No. 13 was issued by ESG requesting to decrease the sampling frequency of treated water from one sample per 10,000 gallons to one sample per 20,000 gallons. AECOM disapproved the request until analytical results could demonstrate that treatment was satisfying the SPDES daily average requirements.
- RFI No. 14 was issued by ESG requesting permission to pre-sample pit debris for RCRA metals and PCBs. ESG would then consolidate the haz and non-haz materials into their respective piles and tested for disposal characterization. AECOM approved this approach.
- RFI No. 15 was issued by ESG requesting permission to blend four of the post treatment water storage tanks prior to discharge, due to elevated TSS and zinc. AECOM requested that ESG revise the request as the TSS readings were not observed by AECOM.
- RFI No. 16 was issued by ESG requesting direction on investigating the source of water percolating from a manhole located in building 9. The water was flooding of a portion of the surrounding area. AECOM responded with Field

Order No. 013 discussed below, outlining procedures to investigate and address the percolating manhole and resulting flooding.

- RFI No. 17 was issued by ESG requesting direction on how to address oil penetrating through concrete located in a pit in building 28, following initial cleaning and clearing in that building. AECOM responded that ESG shall thoroughly clean the pit in accordance with the Contract Documents, using approved surfactants. AECOM requested that a second round of surfactant application and power washing be completed in areas not thoroughly cleaned to specifications.

4.12.2 Field Orders

Field Orders (FOs) were submitted by AECOM as directed by NYSDEC in response to changes in field conditions that required additional direction. Over the course of the project, AECOM issued 13 FOs as summarized below. Completed FOs are included as Appendix R.

- FO No. 001 was issued by AECOM instructing ESG to provide site security on Friday between 6:00 PM and midnight, and on Saturday, Sunday and any non-working days between 12:00 PM and midnight. ESG complied with this request.
- FO No. 002 was issued by AECOM instructing ESG to clarify the legal weights of haul trucks and truck routes, including actions that will be taken to ensure trucks are not overloaded. ESG complied and submitted an addendum to the Work Plan.
- FO No. 003 was issued by AECOM instructing ESG to provide methods and details for the demolition of building 36, along with resumes and work experience for workers performing that work. ESG complied and submitted an addendum to the Work Plan.
- FO No. 004 was issued by AECOM instructing ESG to sampling and profile galbestos waste. This Field Order was associated with RFI No. 007. ESG responded by submitting PCO No. 004.

- FO No. 005 was issued by AECOM instructing ESG to segregate debris and material present in pits and sumps along the north side of Building 36, adding that the material should be disposed of as listed waste K062 (hazardous).
- FO No. 006 was issued by AECOM instructing ESG to spread additional stone in the Contractor parking and staging area. ESG complied with this request.
- FO No. 007 was issued by AECOM instructing ESG to clean the floors of their trailer, and to provide AECOM with cleaning supplies. ESG complied with this request.
- FO No. 008 was issued by AECOM instructing ESG to re-sample galbestos sample locations 2 through 4 in Building 9. ESG complied with this direction.
- FO No. 009 was issued by AECOM instructing ESG to immediately cease all masonry and steel demolition activities due to non-compliance with the Contract Documents. ESG was instructed to clean all poly sheeting, general trash and residual non-friable ACM from demo sites immediately; no demolition would be permitted until approved by AECOM's asbestos project monitor. ESG complied with this request.
- FO No. 010 was issued by AECOM directing ESG to use TSCA-approved decontamination fluid (Zep Big Orange or Capsur®) to clean the inside of pits where necessary. AECOM would then collect chip samples from inside the pits to be analyzed for PCBs. ESG would then be permitted to penetrate the pit floors and proceed with backfill if the total PCB concentrations in the chip samples were below 10 ppm. If the total PCB concentrations were above 10 ppm, ESG was to await further instruction. ESG complied with this request.
- FO No. 011 was issued by AECOM instructing ESG to prepare the drainage inlet near building 14 for cleanout, and to support the cleanout operation as necessary (remove the vault lid, handle material removed from the vault and pipe, and procure additional weir tanks for the treatment of sediment removed from the pipe). The cleanout operation was performed by others, not involved with this Contract. ESG complied with this request.

- FO No. 012 was issued by AECOM instructing ESG to backfill pits in buildings 9, 22 and 28 with larger particle size material than specified in the Contract Documents. This was because the pits are so deep in these areas that adequate compaction cannot be achieved. ESG complied with this request.
- FO No. 013 was issued by AECOM instructing ESG to investigate and the source of water percolating from an existing manhole in Building 9 and address the resulting flooding in Building 9. This Field Order was associated with RFI No. 16.

4.12.3 Field Clarification Memoranda

One field clarification memorandum was issued over the course of the project, following an inquiry from ESG about the contract requirements of a certified weigh master during Progress Meeting No. 1. AECOM directed ESG that the on-site scale does not need to be operated by a certified weigh master. A copy of Field Clarification Memorandum No. 1 is included in Appendix S.

4.12.4 Proposed Change Orders

A total of 12 PCOs were submitted by ESG over the course of the project. The PCOs are summarized below. PCOs are included as Appendix C. Note that PCO Nos. 001, 002 and 003 were not approved and/or did not result in a change to the Contract cost or schedule.

- PCO No. 001 pertained to the abatement of lead-based paint and included a request for additional funding to remove and handle lead-based paint. This PCO coincided with RFI No. 005 discussed below, where clarification on the procedures for lead-based paint handling was requested by ESG. This PCO did not result in a Change Order and did not impact the project cost or schedule.
- PCO No. 002 was a request to modify the cost of Transportation and Disposal (T&D) of galbestos materials as non-hazardous ACM with PCBs. This PCO was disapproved by AECOM.
- PCO No. 003 included a request for additional funding in order to respond to Field Order No. 3, where ESG was instructed to include a description of the

method and sequence for demolition of building 36 prior to demolition of the structural steel. Field Order No. 3 also included a request for resumes and worker experience related to the Building 36 work. This PCO was disapproved by AECOM.

- PCO No. 004 pertained to additional sampling and analysis required for characterization of the Galbestos materials throughout the site.
- PCO No. 005 requested compensation for concrete scarifying work that was required to complete abatement but was not included in the TENORM Contract Documents.
- PCO No. 006 was issued following the request by NYSDEC that the Contractor provide a site utility vehicle for use by the AECOM and NYSDEC.
- PCO No. 007 was issued to request additional funding for asbestos abatement, demolition and disposal of Buildings 20, 29, and 33 in accordance with the requirements of the Contract Documents. This PCO also included a request for additional contract time and additional funding for the installation of a permanent chain-link fence along Spring Street Road, and between Buildings 36 and 37.
- PCO No. 008 was issued requesting compensation for the collection, handling and disposal of various tires that were found throughout the site. The tires were not identified in the Contract Documents and thus required extra work by the Contractor to manage. Monetary compensation was approved however the additional calendar day was not approved.
- PCO No. 009 was issued following the discovery of unknown TENORM pits throughout the site. This discovery required the handling and excavation of additional TENORM material that was not identified in the Contract Documents.
- PCO No. 010 was informally initiated by ESG for pit cleaning and was never allocated. The subsequent PCO resumed with PCO-011.
- PCO No. 011 was issued by ESG to request additional funding to clean pits discovered on site that were either not identified in the Contract Documents or

were larger than what was shown in the Contract Documents. ESG also requested compensation for increased T&D costs associated with hazardous ACM.

- PCO No. 012 requested an extension of contract time due to the performance of additional work associated with PCO No. 011 and the winter shutdown period commencing January 6, 2023, and ending March 15, 2023.

4.12.5 Change Orders

Three COs were issued for this project. The COs combined multiple PCOs. The COs are summarized below and are included in Appendix T. The original contract time for ESG was 587 calendar days to Substantial Completion with an approved budget of \$ 14,497,477.00. By way of CO Nos. 1, 2, and 3, 237 days and \$1,242,441.75 were added to the contract.

Of the 18 original bid items, 6 remained unchanged, 6 items increased in quantity, 6 items decreased in quantity, and 12 items were added.

- CO No. 1 was approved by NYSDEC in October 2022. It included a cost increase of \$1,301,495.29 and a time increase of 92 days. It incorporated cost and schedule increases associated with PCO Nos. 004, 005, 007, and 009.
- CO No. 2 was approved by NYSDEC in March 2023. It included no cost increase and a time increase of 145 days. It included a schedule increase associated with PCO No. 012.
- CO No. 3 was approved by NYSDEC in August 2023. It included no time increases and a cost decrease of \$59,053.54. It reconciled costs associated with PCO No. 011 and compensation to the NYSDEC for dispensation.

4.12.6 Issues and Concerns

There were no issues or concerns at the completion of the Work.

5.0 COST SUMMARY

Section 5.8(b)7 of DER-10 requires that the FER provide a detailed report of the actual costs, including bid tabulations and change orders, if any State funding is provided. This section presents information to satisfy the requirements of DER-10, and additional information necessary to fully document the construction.

AECOM's oversight and reporting of this work was performed under WA No. D009803-22. On July 21, 2020, the NYSDEC issued AECOM a Work Assignment Approval Letter for an estimated total cost of \$2,194,955. On March 3, 2023, the NYSDEC issued AECOM a Work Assignment Approval Letter approving Amendment 1 for an estimated total cost of \$730,584. The total Work Assignment cost is not to exceed \$2,925,539. The total amount spent on this Work Assignment through AECOM's CAP 39 (period ending July 28, 2023) was \$2,630,456.92, including completion of final design, construction management and inspection, and preparation of this FER.

The total cost of the construction work performed by ESG under Contract D011842 was \$15,739,918.75. This included an original bid award amount of \$14,497,477.00 plus three Change Orders totaling \$1,242,441.75, for a total contract amount of \$15,739,918.75.

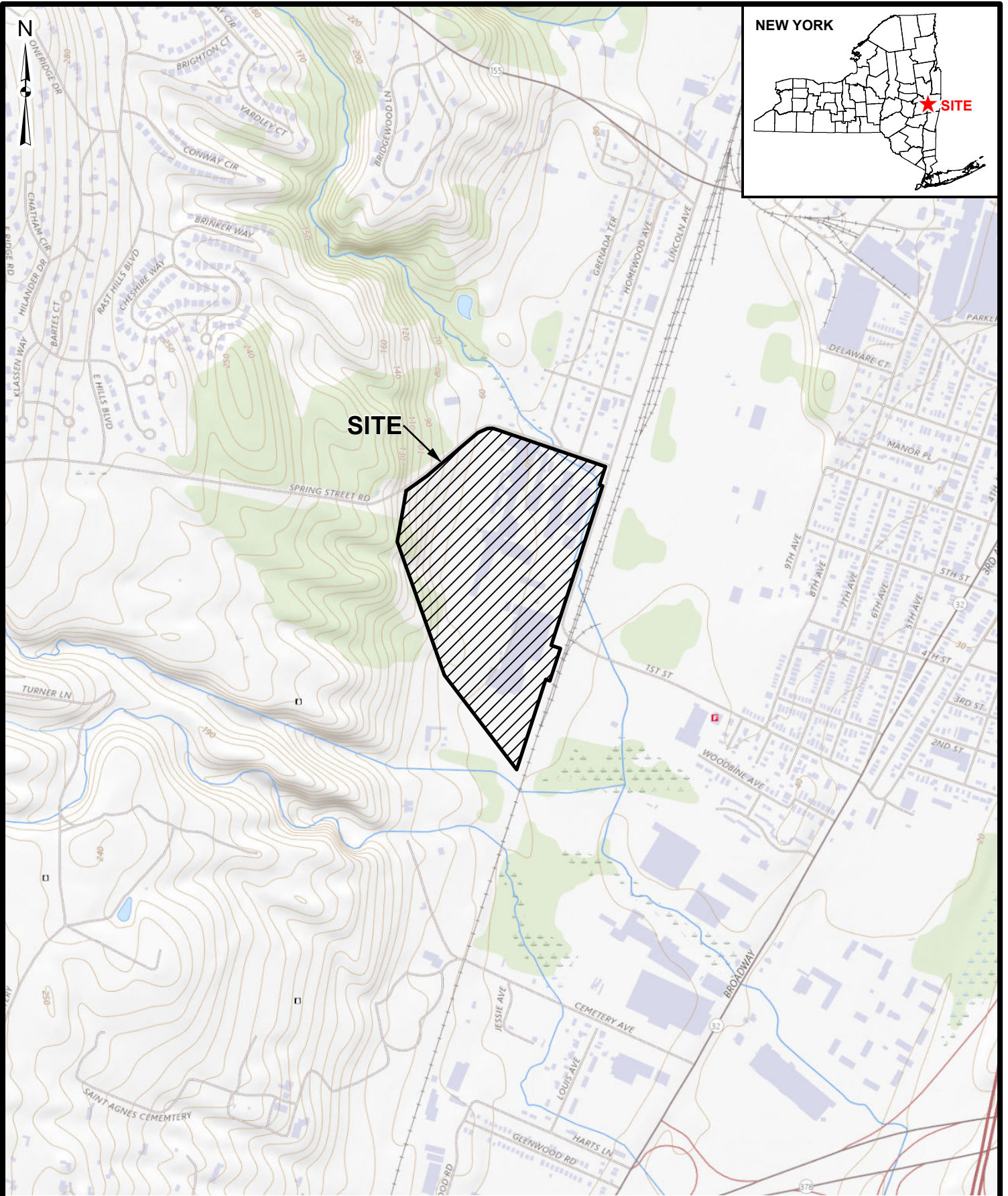
6.0 REFERENCES

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- MACTEC Engineering and Consulting, P.C., (MACTEC), 2007. Transformer Surface Soil Sampling and Analysis Report
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- MACTEC, 2014c. Previous Activities Summary Report.
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- NYSDEC, 2018. Record of Decision
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- Realco, Inc. Construction Certification Report. Decontamination and demolition of Melt Shop/Baghouse/Castor Building.

URS Corporation – New York (URS), 2020. Waste Characterization Summary
Report. May

FIGURES

L:\DCS\Projects\050594845 AL Tech\SI\900 CAD_GIS\920 929 GIS Graphics\Maps\01 OU3 Site Location.mxd 11/27/2023



Source: USGS The National Map Web Map Service

AECOM

AL TECH OPERABLE UNIT NUMBER 03
ON-SITE STRUCTURES
SITE LOCATION

FIGURE 1

Project Management Initials: Designer: E.J.H. Checked: K.J. Approved: M.G. ANS I B 11" x 17" Last saved by: L17.HILL(2023-08-31) Last Plotted: 2023-08-31 Filename: L:\DCS\PROJECTS\60632380\AL_TechSTL1900_CAD_GIS\910_CAD_20-SHEETS\100%FIG-4-1.DWG

BUILDING #	BUILDING NAME	BUILDING #	BUILDING NAME
1	FORMER EAF BAGHOUSE	21	VACUUM ARC REMELTING ANNEX
2	FORMER MELT SHOP	22	VACUUM ARC REMELTING
3	FORMER CASTER	23	CONSUTRODE
4	LABORATORY	24	DISPENSARY/CHEM LAB
5	ELECTRICAL	25	SHED
6	ELECTRICAL	26	ACID STORAGE
7	HYDROMATION PLANT	27	GRINDING
8	PUMP HOUSE	28	FORGE PRESS
9	ROLLING MILLS	29	OFFICE
10	BILLET GRINDING	30	STORAGE
11	ROLL TURNING	31	TECH SERVICES
12	BAR FINISHING	32	TRANSPORTATION
13	FORMER WATER SYSTEMS	33	HOUSE-SOUTH
14	BAR TURNING	34	ACID NEUTRALIZING
15	FORMER QUONSET	35	MECHANICAL
16	FORMER SUBSTATION #2	36	PICKLE HOUSE
17	ANNEALING	37	EXTRUSION
18	PUMP HOUSE	38	WATER TREATMENT
19	GAS METER	G	GUARD SHACK
20	ADMINISTRATION		

NOTES:

- SEE SHEET G-01 FOR TYPICAL LEGEND.
- SEE SHEET G-04 FOR EXISTING SITE CONDITIONS INFORMATION.
- SEE SHEET G-06 FOR SITE UTILITY INFORMATION.
- SEE SHEET G-07 FOR SITE OVERVIEW DEMOLITION INFORMATION.
- SEE SHEET G-09 FOR SITE KEY MAP.

LEGEND:

- T2

FORMER SUBSTATION
TRANSFORMER/CAPACITOR
AREA LOCATION
- S

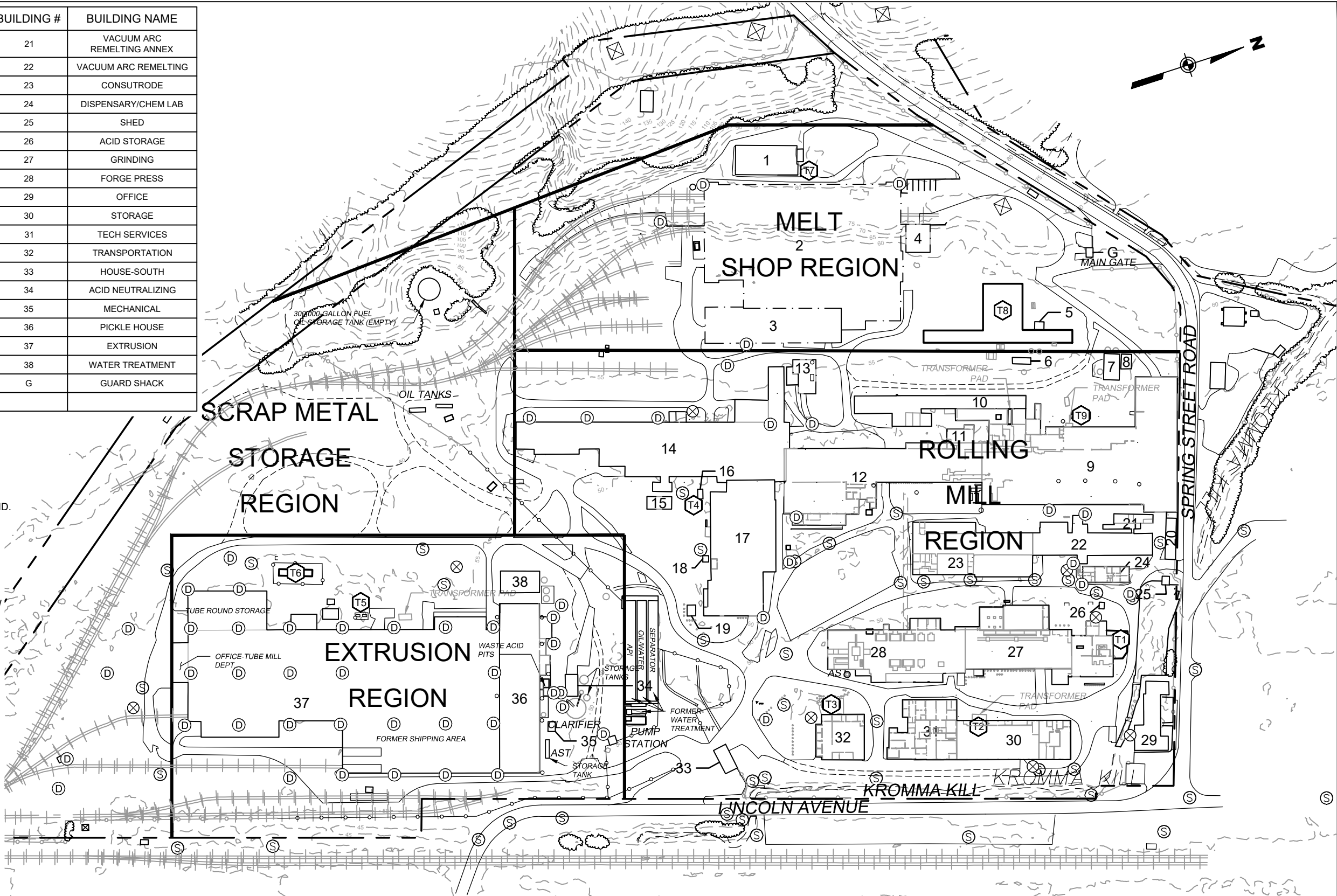
SANITARY SEWER MANHOLE
- D

STORM SEWER MANHOLE
- X X

STORM SEWER CATCH BASIN

MAPPING NOTES:

- MAPPING SHOWN BASED ON PLANS TITLED: 1) "AL_TechSTL 2019" BY MJ ENGINEERING, DATED NOVEMBER 18, 2019, INCLUDING ALL NOTES AND REFERENCES THEREIN; 2) "SITE LAYOUT - RFI REPORT" BY ENVIRONMENTAL STRATEGIES CORPORATION, DATED NOVEMBER 6, 1997, INCLUDING ALL NOTES AND REFERENCES THEREIN.
- THE HORIZONTAL DATUM IS ON NORTH AMERICAN DATUM OF 1983, NEW YORK STATE PLANE EAST ZONE 3101
- THE VERTICAL DATUM IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)



- INFORMATION SHOWN HEREON IS FROM: A LIDAR SCAN COLLECTED BETWEEN MAY 14 AND MAY 24, 2019; A MOBILE SCAN DATA COLLECTED ON MAY 24, 2019; 2008 USGS AERIAL LIDAR INFORMATION; AND 2005 SITE MAP DRAFTED BY REALCO INC - DRAWING NUMBER: WMPA0501.
- PIT AND RUBBLE PILE EXTENTS SHOWN HEREON ARE BASED ON SURFACE EVIDENCE AND INFORMATION RECORDED DURING LIDAR SURVEY.
- THIS MAPPING DOES NOT PURPORT TO SHOW ALL UNDERGROUND FEATURES ON SITE AND IS SUBJECT TO FIELD VERIFICATION.
- UTILITY INFORMATION IS SHOWN ALIGNED ONTO CURRENT SURVEY BASE MAPPING FROM VARIOUS SOURCES AND SHALL BE CONSIDERED APPROXIMATE.



FORMER PLANT LAYOUT

FORMER AL TECH SPECIALTY STEEL STRUCTURES

SITE NO. 401003, CONTRACT NO. D011482

TOWN OF COLONIE

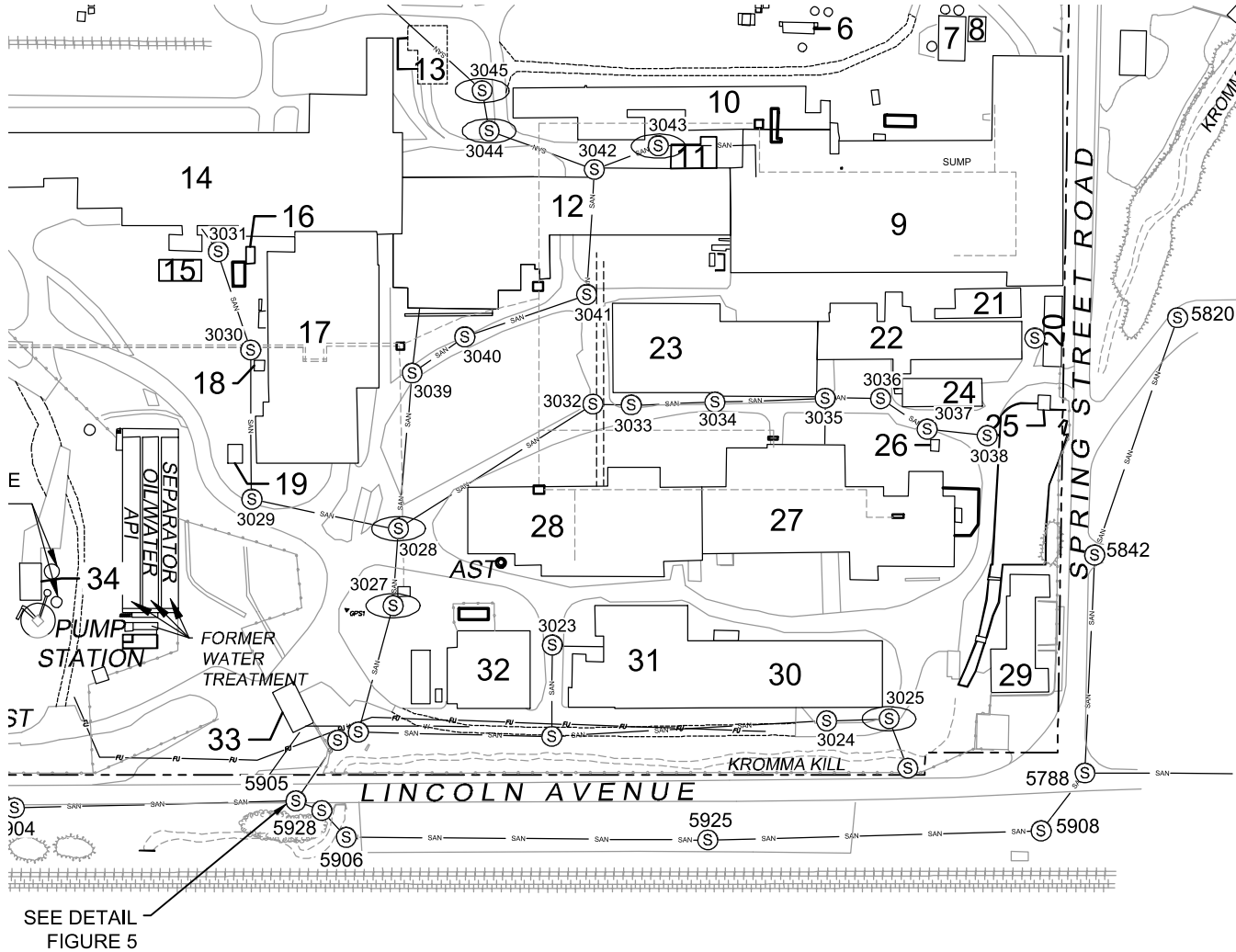
Project No.: 60632380

AECOM

Figure: 3

Al-Tech Specialty Steel Sanitary													
Point Number	Northing	Easting	Elevation	Description	Condition	Notes	Filled	Quantity-yards	Invert pipe in.	Invert Pipe Dia	Manhole Dia in.	Depth	Area
536871110	1414006.876	701383.101	50.989	SMH 3022	FOUND	Good Condition	Filled -4/25/23	4	120"	8"	36"	129	
536871111	1414312.654	701709.878	48.151	SMH 3023	MISSING LID	lid missing -steel plate covering	Filled -4/24/23-4/25/23	26	120"	8"	36"	129	
536871112	1414585.095	701884.977	48.298	SMH 3024	FOUND	Good Condition	Filled -4/25/23	10	116"	8"	36"	120	
536871113	1414654.478	701901.892	48.378	SMH 3025	UNABLE TO LOCATE	NO SANITARY STRUCTUE/AECOM VERIFIED	LT/John 4/28/23						
536871114	1414154.455	701610.874	49.953	SMH 3027	UNABLE TO LOCATE	NO SANITARY STRUCTUE/AECOM VERIFIED	LT/John 4/28/23						
536871115	1414186.308	701533.02	50.232	SMH 3028	UNABLE TO LOCATE	NO SANITARY STRUCTUE/AECOM VERIFIED	LT/John 4/28/23						
536871116	1414087.277	701287.157	50.026	SMH 3030	FOUND	lid/frame missing -steel plate covering	Filled -4/21/23	15	84"	8"	36"	99"	
536871117	1414037.13	701448.052	50.991	SMH 3029	FOUND	Found roadway- great condition - lid removed	Filled -4/21/23	22	118"	8"	36"	121"	
536871118	1414081.44	701168.216	49.869	SMH 3031	MISSING LID	lid/frame missing -steel plate covering	Filled -4/21/23	8	50"	8"	36"	54"	
536871119	1414436.978	701461.555	50.01	SMH 3032	FOUND	Lid/frame damaged	Filled -4/24/23	7	101"	8"	36"	116"	
536871120	1414480.451	701474.513	49.803	SMH 3033	OK	Good Condtion	Filled -4/24/23	6	50"	8"	36"	56"	
536871121	1414690.568	701534.295	49.267	SMH 3035	OK	Good Condtion	Filled -4/24/23	32	100"	8"	48"	119"	
536871122	1414569.698	701499.541	49.484	SMH 3034	OK	Good Condtion	Filled -4/24/23	6	99"	8"	48"	115"	
536871125	1414426.285	701083.57	52.175	SMH 3045	UNABLE TO LOCATE	NO SANITARY STRUCTUE/AECOM VERIFIED	LT/John 4/28/23						
536871126	1414420.195	701131.309	50.081	SMH 3044	UNABLE TO LOCATE	NO SANITARY STRUCTUE/AECOM VERIFIED	LT/John 4/28/23						
536871127	1414593.197	701196.22	50.039	SMH 3043	UNABLE TO LOCATE	NO SANITARY STRUCTUE/AECOM VERIFIED	LT/John 4/28/23						
536871128	1414519.872	701202.292	50.039	SMH 3042	FOUND	Good Condition	Filled -4/21/23	8	30"	8"	48"	36"	
536871129	1414468.98	701341.635	50.113	SMH 3041	FOUND	Good Condtion	Filled -4/21/23	8	98"	8"	48"	113"	
536871130	1414321.816	701346.374	50.299	SMH 3040	FOUND	Lid /frame removed	Filled -4/21/23	9	103"	8"	48"	111"	
536871131	1414253.107	701366.934	50.098	SMH 3039	OK	lid/frame missing -steel plate covering	Filled -4/21/23	29	104"	8"	48"	111"	
536871132	1414856.701	701628.543	49.54	SMH 3038	OK	lid/frame missing -steel plate covering	Filled -4/24/23	8	90"	8"	48"	99"	
	1414947.34	701543.75	0	SMH 3049	OK	Found - great condition -	Filled -5/5/23	8	55"	8"	48"	60"	
536871133	1414791.011	701604.934	49.601	SMH 3037	FOUND	Found - great condition -	Filled -4/24/23	6	103"	8"	48"	105"	
536871134	1414750.738	701552.167	49.579	SMH 3036	FOUND	Found - great condition -	Filled -4/24/23	8	104"	8"	48"	113"	

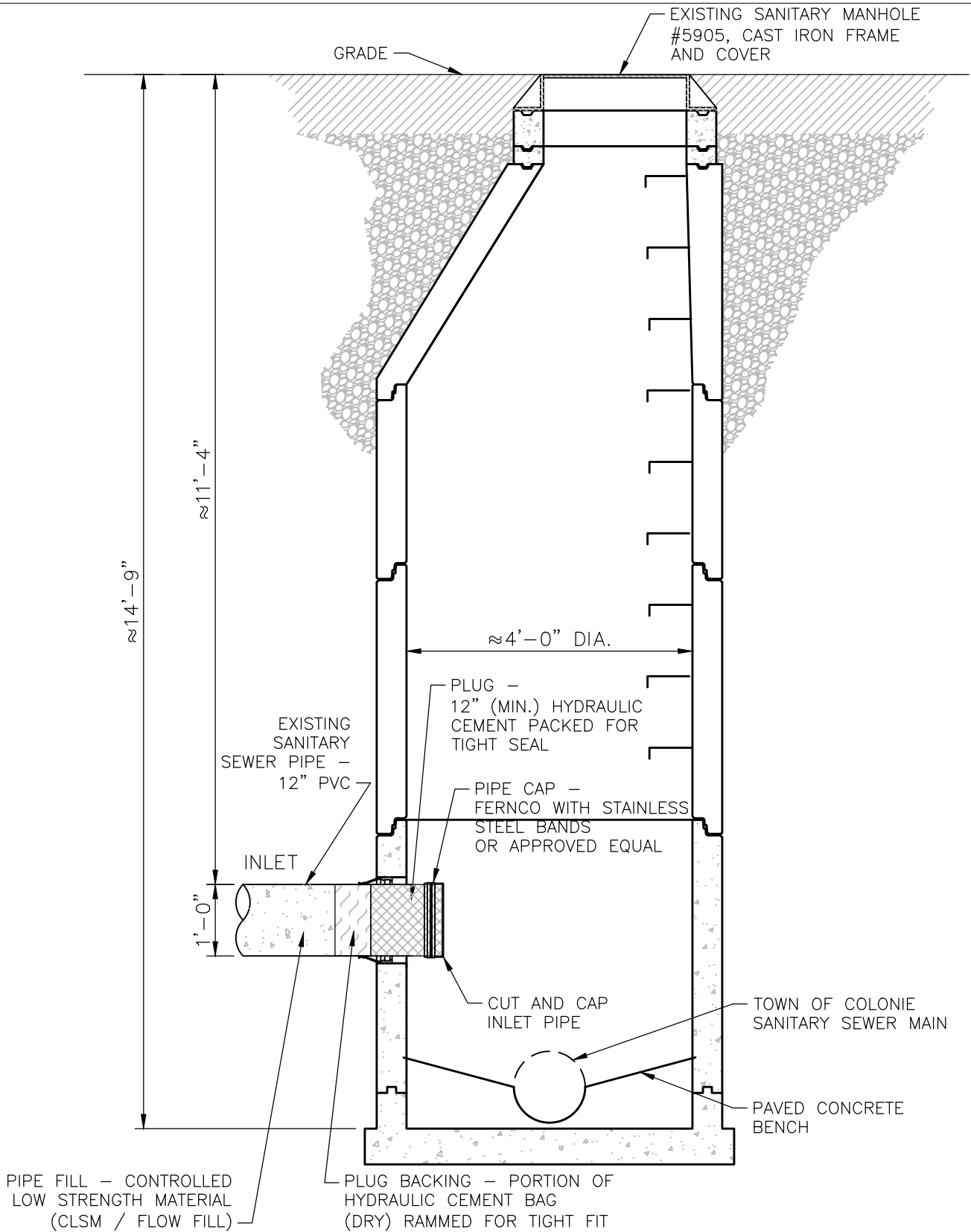
BUILDING #	BUILDING NAME
6	ELECTRICAL
7	HYDROMATION PLANT
8	PUMP HOUSE
9	ROLLING MILLS
10	BILLET GRINDING
11	ROLL TURNING
12	BAR FINISHING
13	FORMER WATER SYSTEMS
14	BAR TURNING
15	FORMER QUONSET
16	FORMER SUBSTATION #2
17	ANNEALING
18	PUMP HOUSE
19	GAS METER
20	ADMINISTRATION
21	VACUUM ARC REMELTING ANNEX
22	VACUUM ARC REMELTING
23	CONSUTRODE
24	DISPENSARY/CHEM LAB
25	SHED
26	ACID STORAGE
27	GRINDING
28	FORGE PRESS
29	OFFICE
30	STORAGE
31	TECH SERVICES
32	TRANSPORTATION
33	HOUSE-SOUTH
34	ACID NEUTRALIZING
35	MECHANICAL



LEGEND

- FORMER FUEL OIL DISTRIBUTION SYSTEM
- FUEL OIL ICM INTERCEPTOR TRENCH
- SANITARY SEWER MANHOLE
- SANITARY SEWER
- WATER LINE
- MISSING/PRESUMED ABSENT OR DESTROYED MANHOLE

- NOTES:
- ALL SEWER MANHOLE COVERS AND COVERPLATES WERE REMOVED AND SALVAGED
 - ALL LAVATORY SINK AND TOILET PENETRATIONS WERE SEALED WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM)



APPENDIX A

SURVEY MAP, CONTROL MONUMENTS

NYS IMAGERY 6961414, 6991414



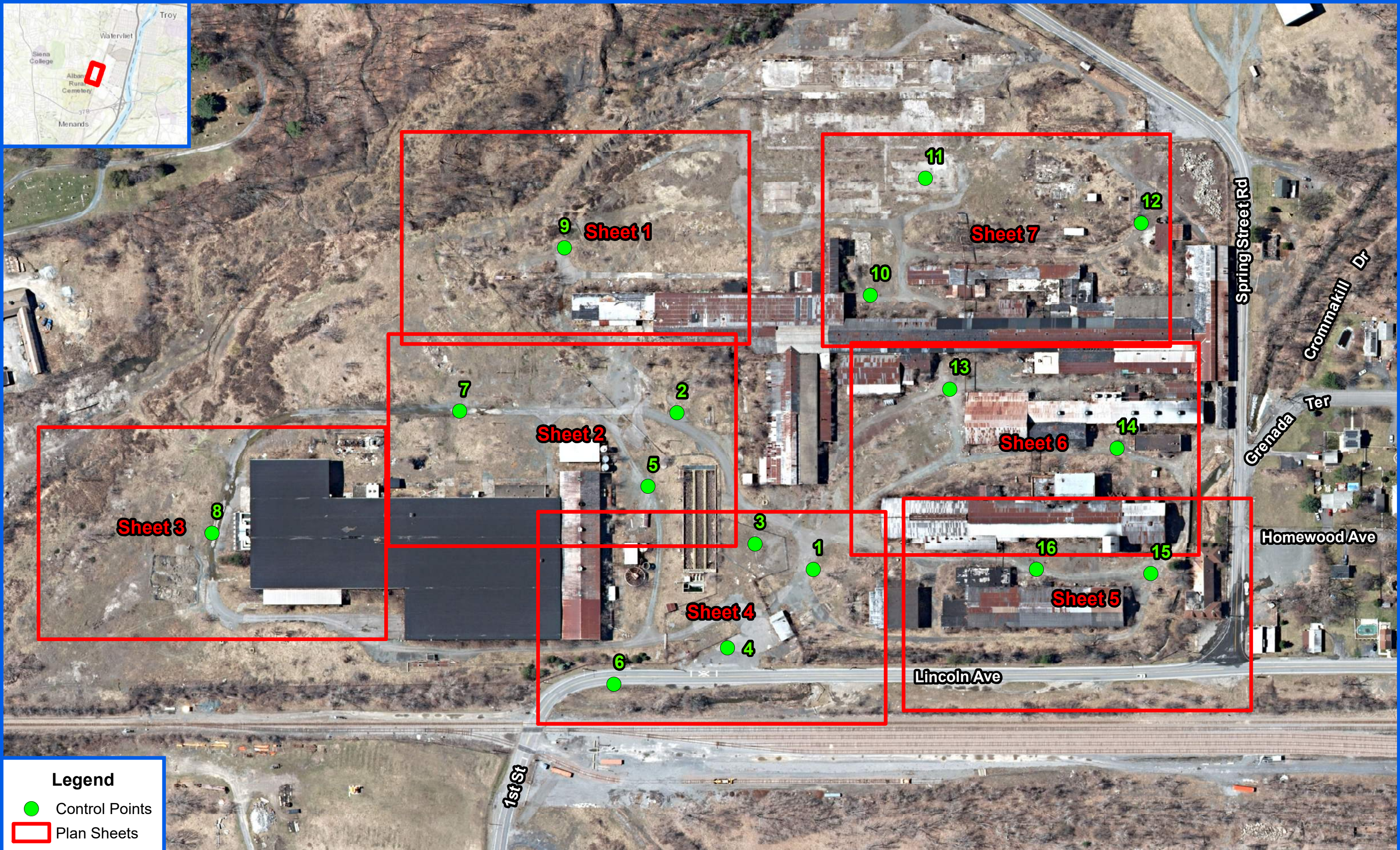
THIS MAP PREPARED FOR ASSESSMENT PURPOSES ONLY AND NOT TO BE USED FOR THE CONVEYANCE OF PROPERTY

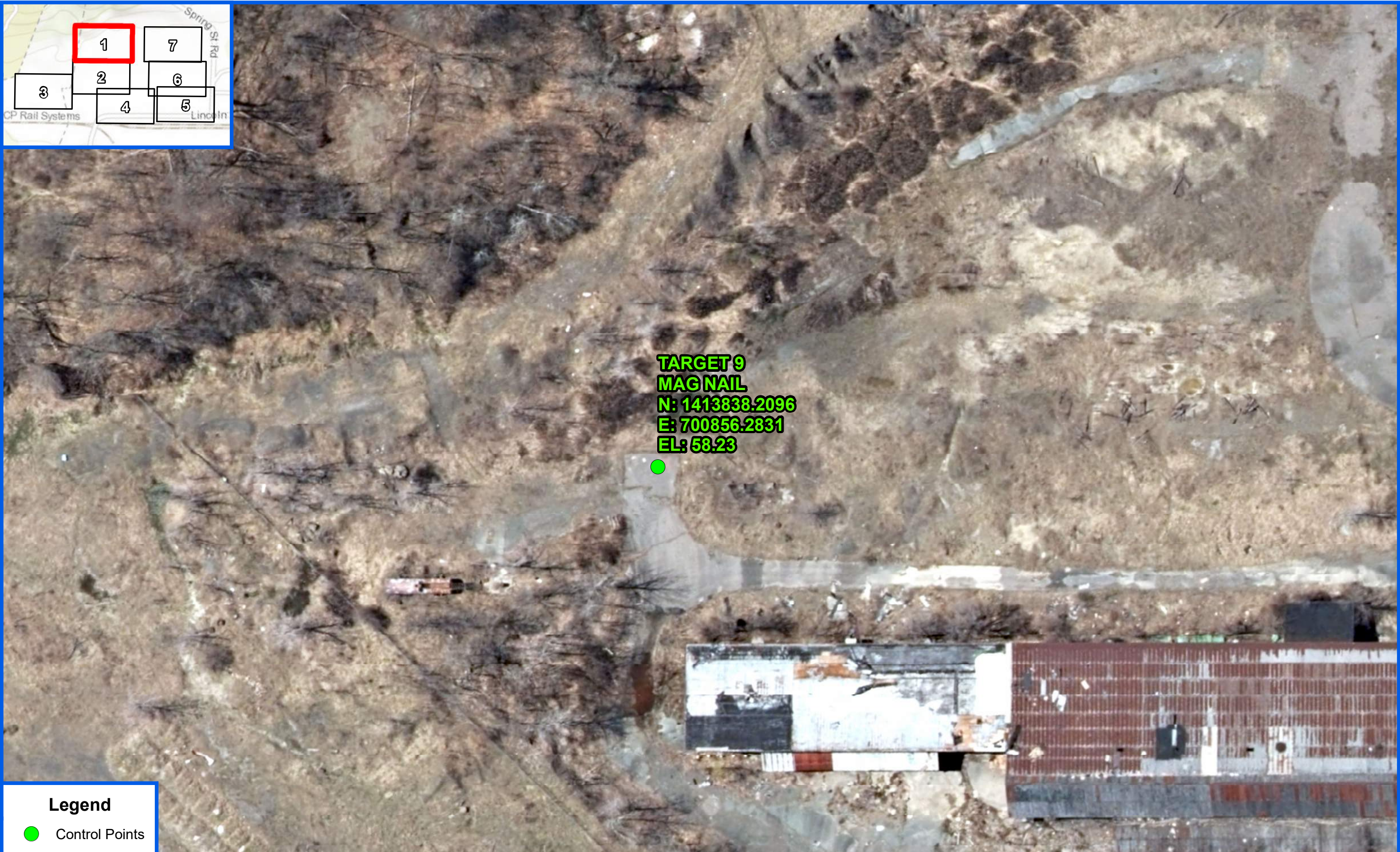
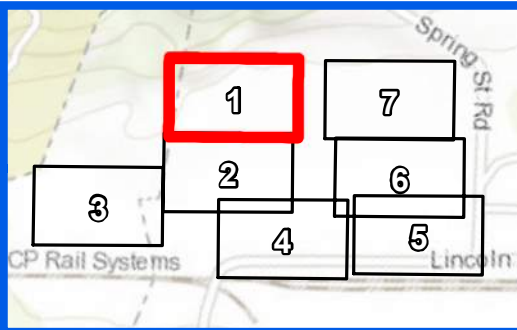
PREPARED BY
SMITH & MAHONEY, ENGINEERS & SURVEYORS
ALBANY, NEW YORK
PREPARED FOR
REAL PROPERTY TAX SERVICE AGENCY
ALBANY COUNTY, NEW YORK

DIGITAL CONVERSION BY:
THE SANBORN MAP COMPANY INC.

DATE: 3/14/09
BY: JAW
CHANGES OR ADDITIONS:
2/23/18
8/6/18

ADDITIONAL CHANGES OR ADDITIONS:
SUBD 241 RD 1-21 & 22 PER MAP 1326
SUBD 1-2 RD 1-21 & 22 PER MAP 1326
DELETED PARCELS 1-21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 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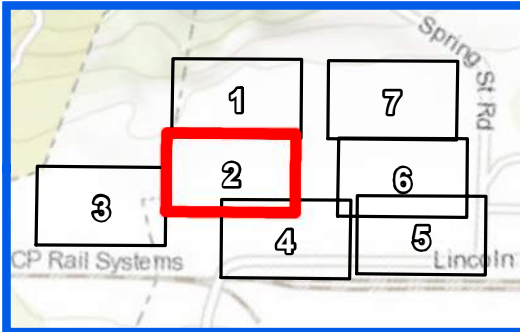




Legend

● Control Points





**TARGET 7
MAG NAIL
N: 1413544.6193
E: 701096.8630
EL: 56.02**



**TARGET 2
MAG NAIL
N: 1413947.4005
E: 701231.2717
EL: 53.63**



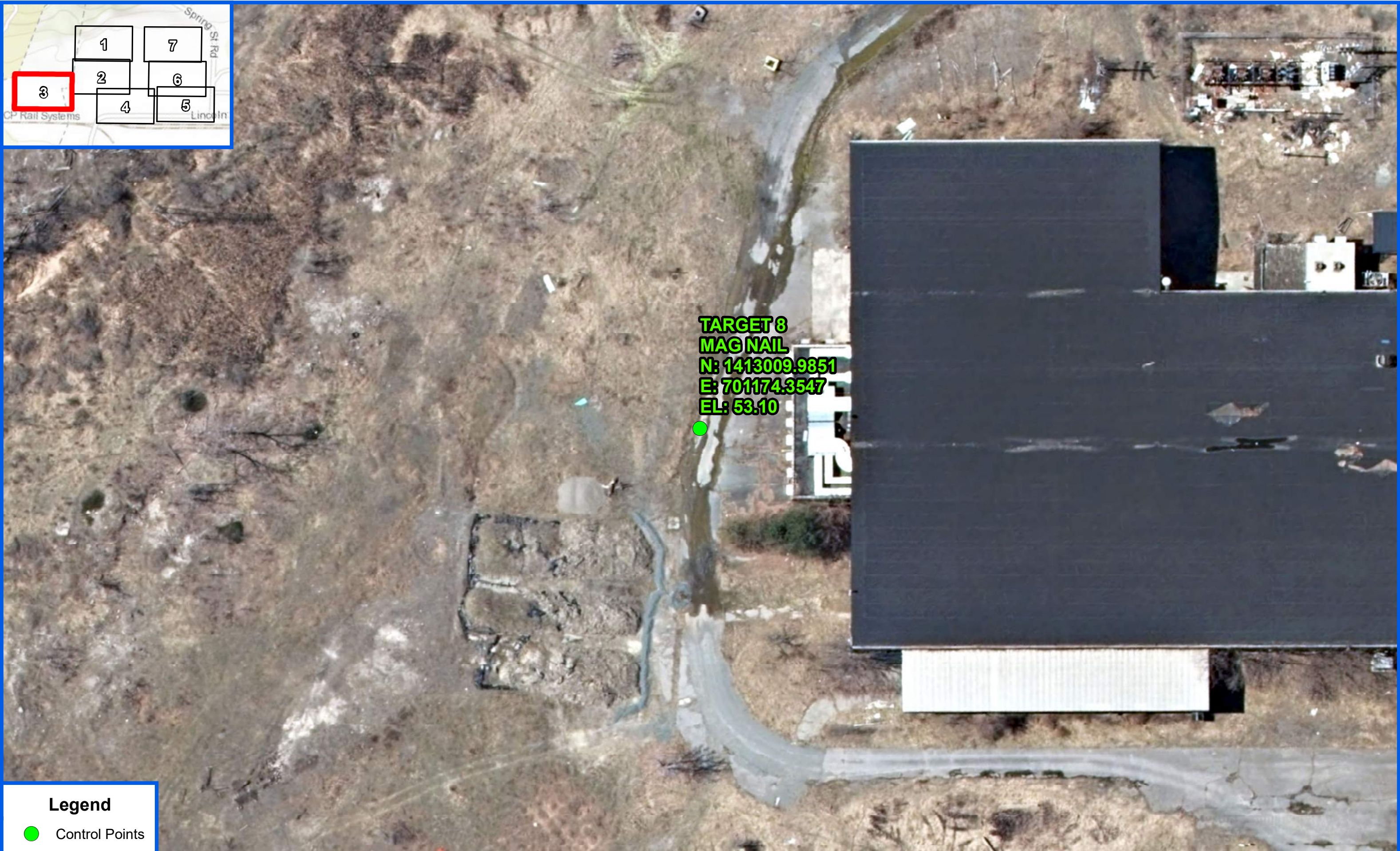
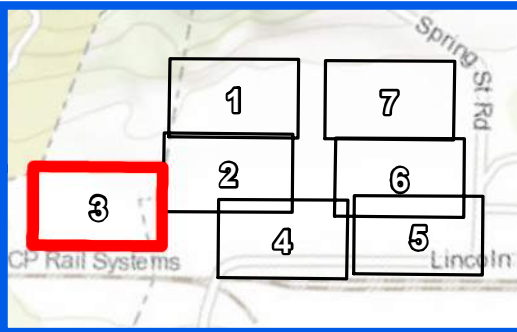
**TARGET 5
MAG NAIL
N: 1413849.2980
E: 701350.6516
EL: 51.03**



Legend

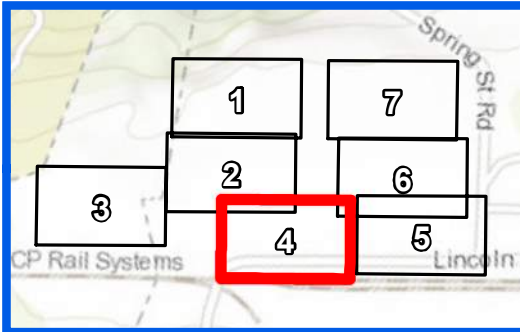
 Control Points





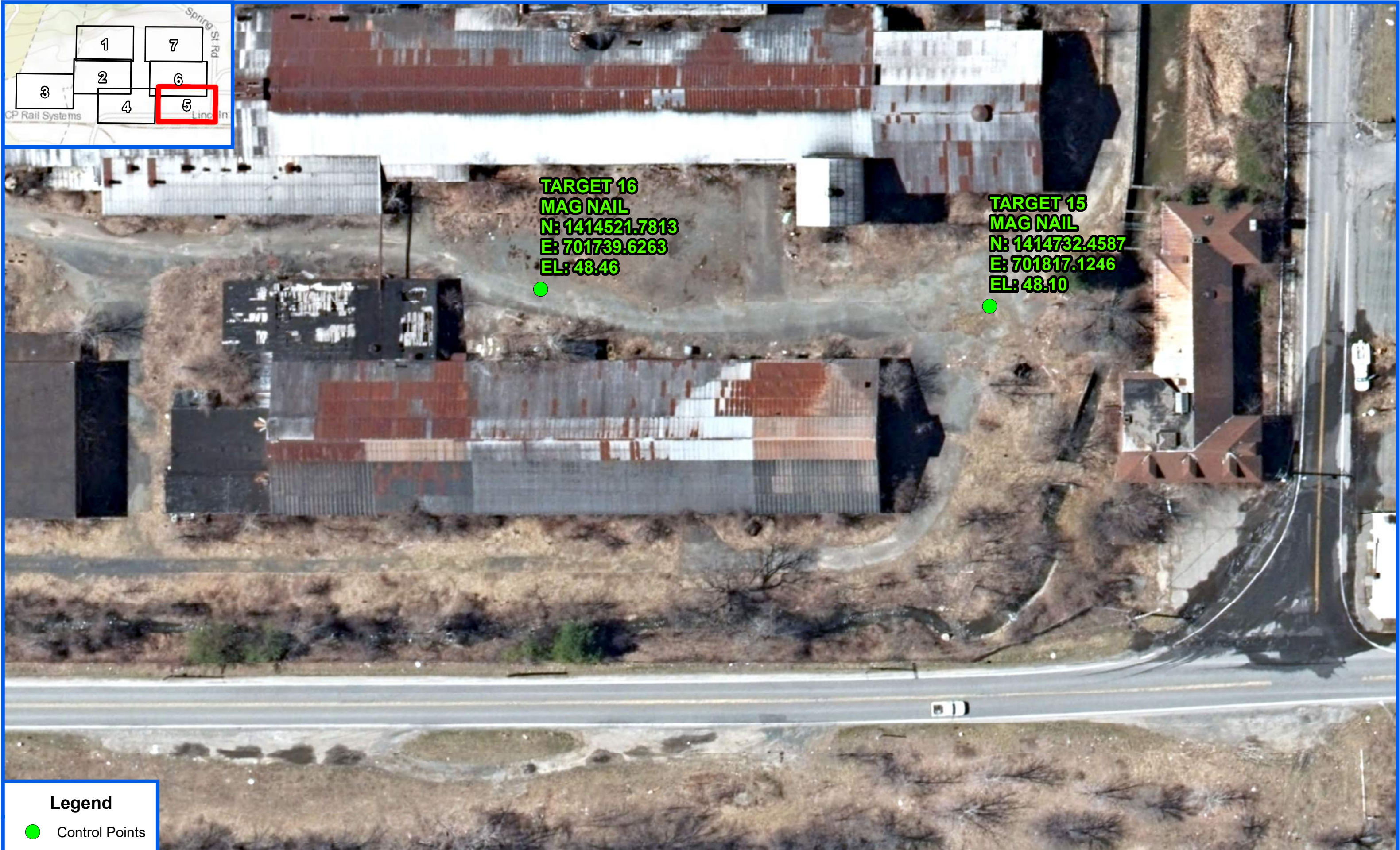
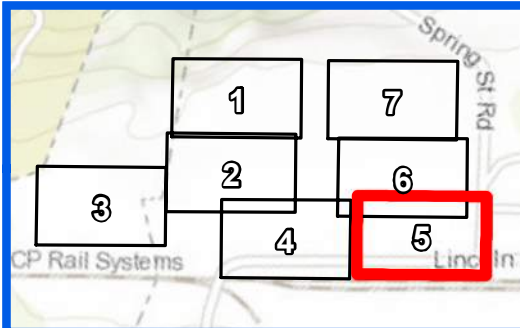
Legend

● Control Points



Legend

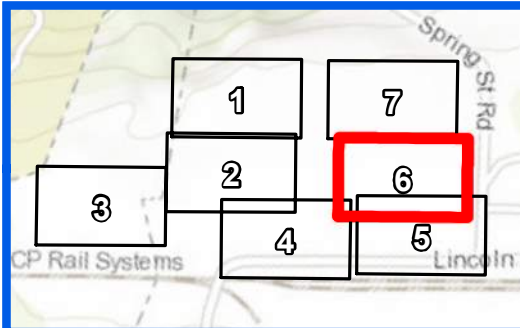
● Control Points



Legend

● Control Points





TARGET 13
MAG NAIL
N: 1414469.5859
E: 701352.2202
EL: 50.14



TARGET 14
MAG NAIL
N: 1414744.9431
E: 701563.5211
EL: 49.56



Legend

 Control Points

