

Appendix J2

Operation, Maintenance, and Monitoring Manual



Prepared for:
PPG
Monroeville, Pennsylvania

Prepared by:
AECOM
Piscataway, New Jersey
Project No. 60493065.27
November 2020

Operation, Maintenance, and Monitoring Manual Building No. 2 – Boiler Room Subslab Soil and Interior Concrete Surfaces (AOC 3)

Final

Hudson County Chromate Site 156 Metropolis Towers

270-280 Luis Munoz Marin Boulevard
Jersey City, New Jersey

NJDEP Program Interest Number: G000008770

Case Tracking Number: 104063

Contents

List of Acronyms	iii
1.0 Introduction.....	1-1
1.1 Remedial Standards for Soil and Concrete Samples.....	1-1
2.0 Description of Engineering and Institutional Controls	2-1
2.1 Remedial Action - Concrete	2-1
2.2 Remedial Action – Soils.....	2-1
2.3 Signage	2-1
3.0 Engineering Control Operation, Maintenance, and Monitoring Requirements.....	3-1
3.1 Maintenance	3-1
3.2 Performance Monitoring	3-1
3.2.1 Inspection Procedures	3-1
3.2.2 Sampling	3-2
3.3 Interim Protective Measures	3-2
3.4 Permanent Repairs	3-3
4.0 Reporting.....	4-1
5.0 Contact Information	5-1
6.0 References	6-1

List of Tables

Table 1	Soil Remediation Standards for CCPW Metals
Table 2	Contact Information for Current Inspection Personnel
Table 3	Contact Information for Key Project Personnel

List of Figures

Figure 1	Site Location Map
Figure 2	Property Map

List of Attachments

Attachment A	As-Built Figures A1, A2, and A3
Attachment B	Representative Photographs of Green/Yellow Staining

List of Acronyms

AOC	Area of Concern
ARS	Alternative Remediation Standard
CCPW	Chromate Chemical Production Waste
Cr	total chromium
Cr ⁺³	trivalent chromium
Cr ⁺⁶	hexavalent chromium
CrSCC	Chromium Soil Cleanup Criteria
DIGWSSL	Default Impact to Groundwater Soil Screening Level
Eh	redox potential
HCC	Hudson County Chromate
IRM	Interim Remedial Measure
LED	light-emitting diode
mg/kg	milligrams per kilogram
NA	Not Available
Ni	nickel
N.J.A.C.	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NRDC SRS	Non-Residential Direct Contact Soil Remediation Standard
OM&M	Operation, Maintenance, and Monitoring
RDC SRS	Residential Direct Contact Soil Remediation Standard
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan
RIR	Remedial Investigation Report
SA	Site Administrator
Sb	antimony
sq. ft.	square feet
SRP-PI	Site Remediation Program – Program Interest
SRS	Soil Remediation Standards
V	vanadium

1.0 Introduction

This Operation, Maintenance, and Monitoring (OM&M) Manual was prepared by AECOM on behalf of PPG to describe the measures necessary to operate, maintain, and monitor the components of the restricted use remedy selected for the Boiler Room Area of Concern (AOC 3) located inside the northeast corner of Building No. 2 at Hudson County Chromate (HCC) Site 156, Metropolis Towers (the Site), located at 270-280 Luis Munoz Marin Boulevard, also known as known as 280 Gregory Park Plaza, in Jersey City, Hudson County, New Jersey (**Figure 1**).

This OM&M Manual provides a description of the engineering control operation and monitoring requirements; performance monitoring requirements; and maintenance and repair requirements. The OM&M Manual will be updated periodically, if necessary, to reflect changes in site conditions or the manner in which the engineering control is operated and maintained.

The Site is bounded to the north by Christopher Columbus Drive; to the south by Montgomery Street; to the east by Warren Street; and to the west by Luis Munoz Marin Boulevard. The Site occupies tax parcels Block 13101 Lots 1 and 2. The New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program, Program Interest (SRP-PI) Number for Site 156 is G000008770.

The objective of the remedy is to permit the continued use of the Boiler Room of Building No. 2 (**Figure 2**) — which contains concrete surfaces (floor and column), and underlying soils with concentrations of hexavalent chromium (Cr^{+6}) exceeding the NJDEP Chromium Soil Cleanup Criteria (CrSCC) of 20 milligrams per kilogram (mg/kg) — while eliminating the potential for Cr^{+6} exposure to humans and the potential impact to the environment.

1.1 Remedial Standards for Soil and Concrete Samples

Remediation standards are provided in this section in the event that soil or concrete sampling is required during future monitoring. Currently, New Jersey does not have soil or concrete remediation standards for total chromium (Cr) or Cr^{+6} . Therefore, Cr and Cr^{+6} concentrations will be compared to the NJDEP CrSCC. The CrSCC of 20 mg/kg for Cr^{+6} and 120,000 mg/kg for trivalent chromium (Cr^{+3}) will be utilized to evaluate soil and concrete sample compliance.

The NJDEP's Soil Remediation Standards (SRS) for Chromate Chemical Production Waste (CCPW)-related metals are based on current NJDEP Residential Direct Contact (RDC) SRS, with the exception of vanadium, which has a NJDEP-approved site-specific Alternative Remediation Standard (ARS). In a December 12, 2011 letter, NJDEP accepted the use of a 370 mg/kg ARS for vanadium at this Site.

The concentrations of other metals recognized as being associated with CCPW are compared to the most stringent SRS, or site-specific value, as indicated in **Table 1** below:

Table 1 Soil Remediation Standards for CCPW Metals

Contaminant	RDC SRS (mg/kg)	NRDC SRS (mg/kg)	DIGWSSL (mg/kg)
Antimony (Sb)	31	450	6
Nickel (Ni)	1,600	23,000	48
Thallium (Tl)	NA	NA	3
Vanadium (V)	370*	1,100	NA

Notes:

mg/kg – milligrams per kilogram

NA – Not Available

RDC SRS – Residential Direct Contact Soil Remediation Standard

NRDC SRS – Non-Residential Direct Contact Soil Remediation Standard

DIGWSSL – Default Impact to Groundwater Soil Screening Levels

*Site-specific Alternative Remediation Standard (ARS)

2.0 Description of Engineering and Institutional Controls

2.1 Remedial Action - Concrete

Per the Remedial Investigation Report (RIR)/Remedial Action Work Plan (RAWP)/Remedial Action Report (RAR), the selected remedy for concrete (floor slab and column) is the use of engineering control (signage) and institutional control (Deed Notice). The Deed Notice for the Concrete Restricted Area is for the concrete floor encompassing an area of approximately 2,000 square feet (sq. ft.) and support column surfaces, including the bottom 18 inches above the floor surface of the building support column in the Boiler Room Basement. The Concrete Restricted Area extent for the concrete floor and support column surfaces is presented on the as-built drawing included in **Attachment A, Figure A1**. The engineering control (i.e., signage) for concrete is documented in a Deed Notice for the restricted use area of the Site.

2.2 Remedial Action – Soils

The engineering controls for the Cr⁺⁶ impacted soils are the concrete floor slab (which functions as a physical barrier preventing access to the underlying soils) coupled with the signage prohibiting damage to the concrete surfaces. The engineering controls are supplemented by an institutional control (Deed Notice) for the Cr⁺⁶ impacted soils (Soil Restricted Area), which is for a rectangular-shaped area of approximately 110 sq. ft. underlying the Concrete Restricted Area (described above). The Soil Restricted Area is depicted on **Figure A2**, included in **Attachment A**. The engineering controls for soils (i.e., concrete and signage) are documented in a Deed Notice for the restricted use area of the Site.

2.3 Signage

Signage is posted to restrict disturbance to the concrete surfaces, including the floor slab and column, in the Boiler Room Concrete and Soil Restricted Areas. Signs indicating “do not drill or penetrate or damage concrete surfaces” restrict disturbance to the engineering control installed within the Restricted Area and provide contact information for the responsible party in the event that the engineering control needs to be disturbed or in the event of an emergency.

A copy of the signage is included in **Attachment A, Figure A3**.

3.0 Engineering Control Operation, Maintenance, and Monitoring Requirements

PPG will conduct performance inspections of the engineering controls (i.e., concrete floor slab, column, and signage), on a quarterly basis for the first four years after engineering control installation, and biennially thereafter, provided that the quarterly inspections indicate, and NJDEP concurs, that the engineering controls are functioning as designed. PPG will be responsible for ensuring that an access agreement has been secured with the property owner.

As a measure of engineering control performance, visual inspections of the engineering controls for the presence of damage, deterioration, or Cr^{+6} blooms will be conducted during scheduled inspection events. Routine sampling to demonstrate ongoing compliance with remediation standards is not required. However, confirmation sampling of areas suspected as having potential Cr^{+6} blooms will be conducted.

In summary, during inspection, any observed damage or deterioration to the engineering controls will be evaluated and interim protective measures will be implemented in the field, if necessary. In the unlikely event that the concrete floor slab is significantly damaged exposing the soil beneath, PPG will make arrangements with the property owner for repairs to be completed. If the signage is significantly damaged or illegible, the signage will be replaced in kind. Details of these performance monitoring procedures are presented in **Section 3.2**.

3.1 Maintenance

Maintenance of the engineering controls (i.e., concrete floor slab and signage) will entail general housekeeping practices to ensure the area is kept clean and free of debris, and that heavy objects (i.e., with the potential to damage the concrete surface) are not handled within the restricted area. The signage will be posted in both English and Spanish, maintained free of moisture and dirt, and posted in a conspicuous area.

3.2 Performance Monitoring

3.2.1 Inspection Procedures

The procedures to be followed during the performance monitoring inspections are listed below. Note that in some situations, other alternatives may be necessary due to site-specific issues, and professional judgment by the inspection personnel will be applied.

1. Prepare the following types of inspection equipment:

- Inspection checklists and figures.
- Field book.
- Pen(s).
- Camera.
- Light-emitting diode (LED) flashlight (bright white light [e.g., 100 lumens or more]).
- Safety vest.
- Steel toe boots.
- Safety glasses with clear lenses (as appropriate).
- Hard hat (as appropriate).
- Equipment to collect concrete chip samples for Cr^{+6} analyses.
- Materials for implementing interim protective measures (see **Section 3.3**).

2. Arrive on site and meet with the other inspection personnel:

- Conduct a Tailgate Health & Safety Briefing.
 - Discuss the inspection approach.
 - Meet with the property owner or tenant, if applicable.
3. Conduct a full inspection of the accessible restricted areas of the Boiler Room (including the condition of the floor slab, column, and signage, to look for damaged or deteriorating areas) and areas exhibiting potential Cr^{+6} blooms (green/yellow staining). Representative photographs of the green/yellow staining are included in **Attachment B**. The signage will be inspected to confirm that it is present and legible, and is easily visible to building workers.
 4. Record field notes, observations, measurements, site sketches, and log photographs of areas in need of repair in the field book. Note areas inspected as well as areas that were not accessible or could not be inspected and indicate the reason why (e.g., time constraints, access issues, etc.).
 5. Document any temporary repairs that were implemented since the last inspection.
 6. Document areas where standard care and maintenance of the floor slab portion of the Concrete Restricted Area is not being conducted by facility management, including:
 - Areas where the floor has not been cleaned; or
 - Areas showing evidence that heavy, sharp, or abrasive objects have been dropped or have slid across the floor.
 7. Institute interim protective measures (i.e., temporary cover or barrier) as indicated in **Section 3.3**, and consistent with the *IRM Inspection and Reporting Procedures* memorandum (AECOM, 2016), as needed, to minimize the potential for exposure and limit inadvertent contact and access to potentially impacted areas until concrete chip samples can be collected and the area is repaired.
 8. Indicate additional actions that may be necessary and the estimated timeframes to complete the actions.

3.2.2 Sampling

Areas of the Concrete Restricted Area (concrete floor slab and column) noted during the inspection as having potential Cr^{+6} blooms will be sampled as needed to assess the nature of the impacts. Sampling will be completed as soon as is reasonably practical. During each inspection, AECOM will be prepared to collect chip samples, if required. If sampling cannot be completed prior to leaving the site (i.e., on the same day that suspected Cr^{+6} blooms are identified), areas of potential Cr^{+6} blooms will be covered with a temporary cover (e.g., plastic sheeting) and barriers (e.g., cones, caution tape, etc.) will be used to cordon off the areas until sampling can be conducted. In traffic areas, the installation of a temporary cover will be combined with a barrier to demarcate the temporary cover. Sampling equipment and epoxy will be available during the inspections so that samples may be taken and epoxy may be applied immediately, if feasible. The use of temporary covers will be consistent with the protocols established in the *IRM Inspection and Reporting Procedures* (AECOM, 2016).

Laboratory analysis of the chip samples will include Cr^{+6} , redox potential (Eh) and pH, and will be conducted with an expedited turn-around time. AECOM will validate the laboratory data within five business days of receipt of the final data packages, and will distribute the validated data results to the inspection team via email upon receipt. Validated data will be detailed in the Interim Remedial Measure (IRM) Biennial Inspection Reports.

3.3 Interim Protective Measures

As necessary, PPG and its consultants will be prepared to implement interim protective measures to cover or cordon off potentially impacted parts of the Concrete Restricted Area (concrete floor slab and column)

(i.e., areas with suspected Cr^{+6} blooms) until suspect areas are sampled, or until an interim protective measure can be installed (i.e., epoxy coating), in accordance with the *IRM Inspection and Reporting Procedures* (AECOM, 2016). The work area will be cordoned off using a combination of traffic cones, caution tape, and other physical barriers, in order to prevent contact with the affected area until the epoxy is cured. Sampling equipment and epoxy will be available during the inspections so that samples may be taken, and epoxy may be applied immediately, if deemed necessary.

Areas that have been subject to these interim protective measures will be included in subsequent inspection events.

3.4 Permanent Repairs

If the signage posted to prohibit disturbance to the concrete surfaces (floor slab and column) is found to be permanently damaged and/or illegible, PPG will replace the signage and ensure that it is protected from damage from water, dust, and human activity.

4.0 Reporting

Inspection summary reports will be submitted to NJDEP biennially in accordance with New Jersey Administrative Code (N.J.A.C.) 7:26E-8.4.

Inspection reports will include a description of the field inspection, findings, a summary table of samples and analytical results, and a figure illustrating the locations of any interim and final repairs of the concrete floor slab or column. Laboratory data reports and data validation reports will be provided as attachments. Only final validated data will be reported.

Note that laboratory data packages and validation reports will not be sent to property owner with the reports, unless requested. The cover letter will note that laboratory data packages and validation reports are available upon request.

5.0 Contact Information

Contact information for the current inspection personnel is listed in **Table 2**.

Table 2 – Contact Information for Current Inspection Personnel

Inspection Personnel	Contact Information
Christine De Ambrogio (AECOM)	Cell phone: 732-259-9401 Email: Christine.DeAmbrogio@aecom.com
Diann Deal (Weston)	Cell phone: 848-247-0239 Email: Diann.Deal@WestonSolutions.com

In addition to inspection personnel, the following personnel will be made aware of the inspection schedule and may attend the inspections, as needed:

- William Spronz (AECOM)
- Steven Surman (AECOM)
- Richard Feinberg (PPG)
- Jody Overmyer (PPG)
- Prabal Amin (Weston)

Contact information for key project personnel is provided in **Table 3**.

Table 3 Contact Information for Key Project Personnel

Project Team	Personnel	Address	Phone
PPG:			
PPG Project Manager	Jody Overmyer	440 College Park Drive Monroeville, PA USA 15146	(724) 325-5070
PPG Legal Contact	Dorothy Laguzza	K&L Gates LLP One Newark Center Newark, NJ 07102	(973) 848-4118

Project Team	Personnel	Address	Phone
Facility Contacts:			
Property Owners Representative	Alki Antonopoulos	Metropolis Towers Apartments 280 Marin Blvd. Jersey City, N.J. 07302	(201) 435-6200
PPG Public Relations	Jeff Worden, APR	Worden Public Relations P.O. Box 10443 Pittsburgh, Pa. 15234	(412) 253-0816
AECOM:			
Project Manager	William Spronz	30 Knightsbridge Rd., Suite 520 Piscataway, NJ 08854	O (732) 564-3917
Project Engineer	Steve Surman	30 Knightsbridge Rd., Suite 520 Piscataway, NJ 08854	O (732) 564-3639
Field Task Leader	Christine De Ambrogio	30 Knightsbridge Rd., Suite 520 Piscataway, NJ 08854	C (732) 259-9401
New York Area Safety Manager	Stacy Wells, CSP, CHST, MPH	1255 Broad Street, Suite 201 Clifton, NJ 07013	O (212) 377-8583 O (917) 324-2554

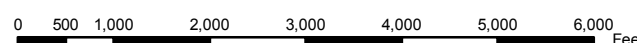
6.0 References

AECOM, 2016. *IRM Inspection and Reporting Procedures*. February 18, 2016.

Figures

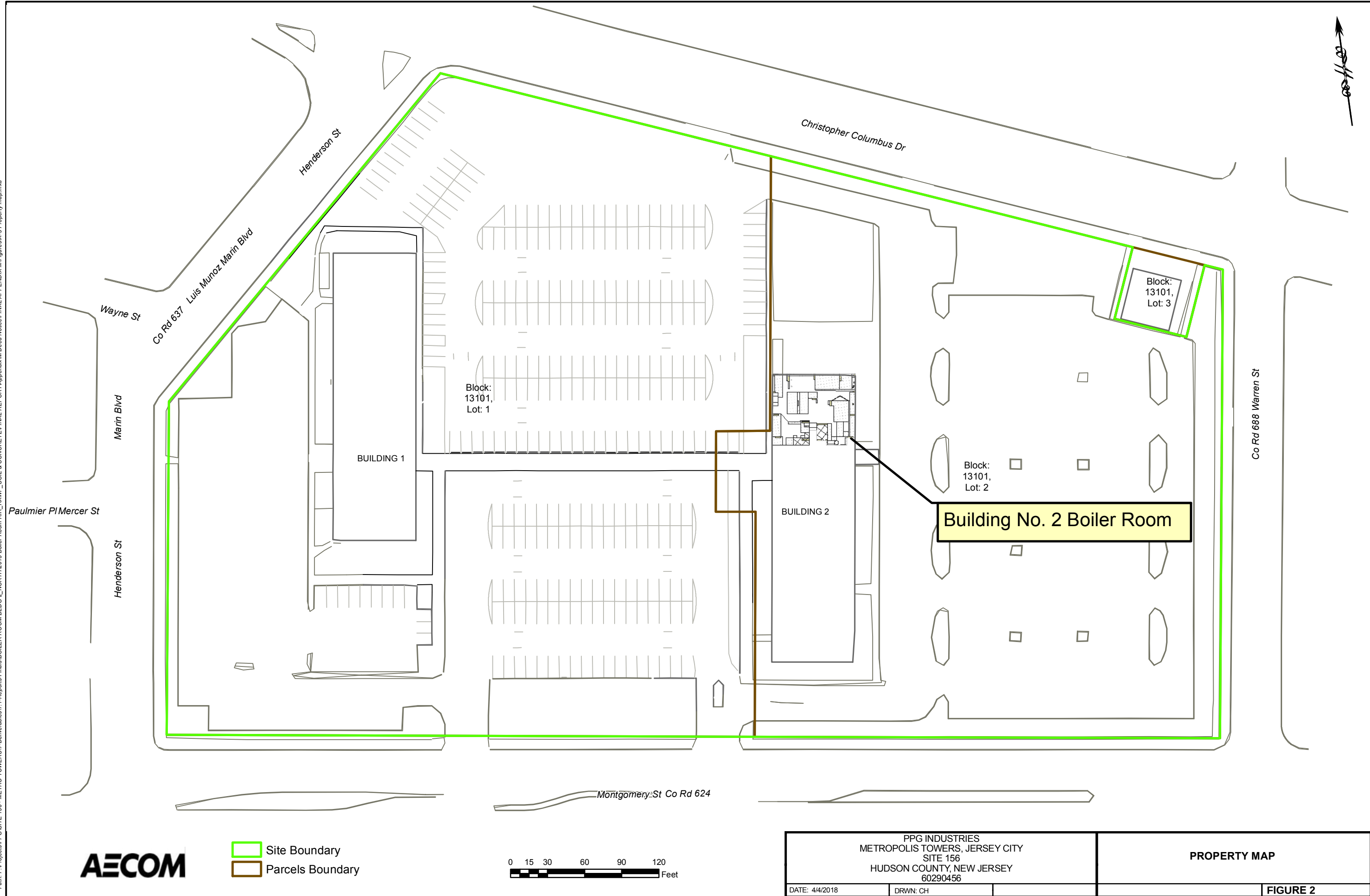
\\uspsw2\fp001\DATA_USPSW2\FP001\Environment\PPG\Scada\Way\Project\PPG-NJC\Program6-Project\Inputs6_4-GIS\MDX\GA\Group\RIWP-GW-USGS_Site_Location_Map.mxd



USGS Site Location Map PPG Site 156, Jersey City Hudson County, New Jersey	
	
	
Map Projection: NJ, State Plane, NAD 83, Feet. Image Source: USGS Topographic Quadrangle: Jersey City, NJ, 1967 - Photorevised 1981. Scale: 1:24,000 Contour Interval: 10' Latitude Coordinates: 40.6952° - 40.7410°; Longitude Coordinates: -074.0676° - -074.0134°.	

AECOM
Figure 1
Date: April 2018

P:\Projects\PPG\SITE 156 - METRO TOWERS\7-Deliverables\7.1-Reports-Finals\BOILER ROOM BLDG 2_NORTH\2016 Boiler Room RIR_RAWP_SOIL & CONCRETE\FINAL REPORT\Appendix\IM Deed Notice\FINAL APPENDIX M\Figures\A-3 Property Map.mxd

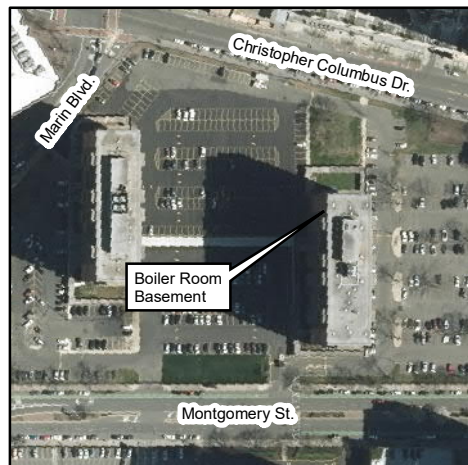


Attachments

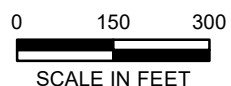
Attachment A

As-Built Figures A1, A2, and A3

Path: Q:\1920 GIS\MXD\Site 156 RAR Figs\DNIB-1A-4 Restricted Area Map.mxd



RESTRICTED AREA
LOCATION MAP



LEGEND

CONCRETE COLUMN RESTRICTED AREA

CONCRETE FLOOR RESTRICTED AREA

EPOXY

CR⁺⁶ CONCENTRATION IN SAMPLE AT LOCATION EXCEEDS THE CRSCC.

SIGN

BOILER

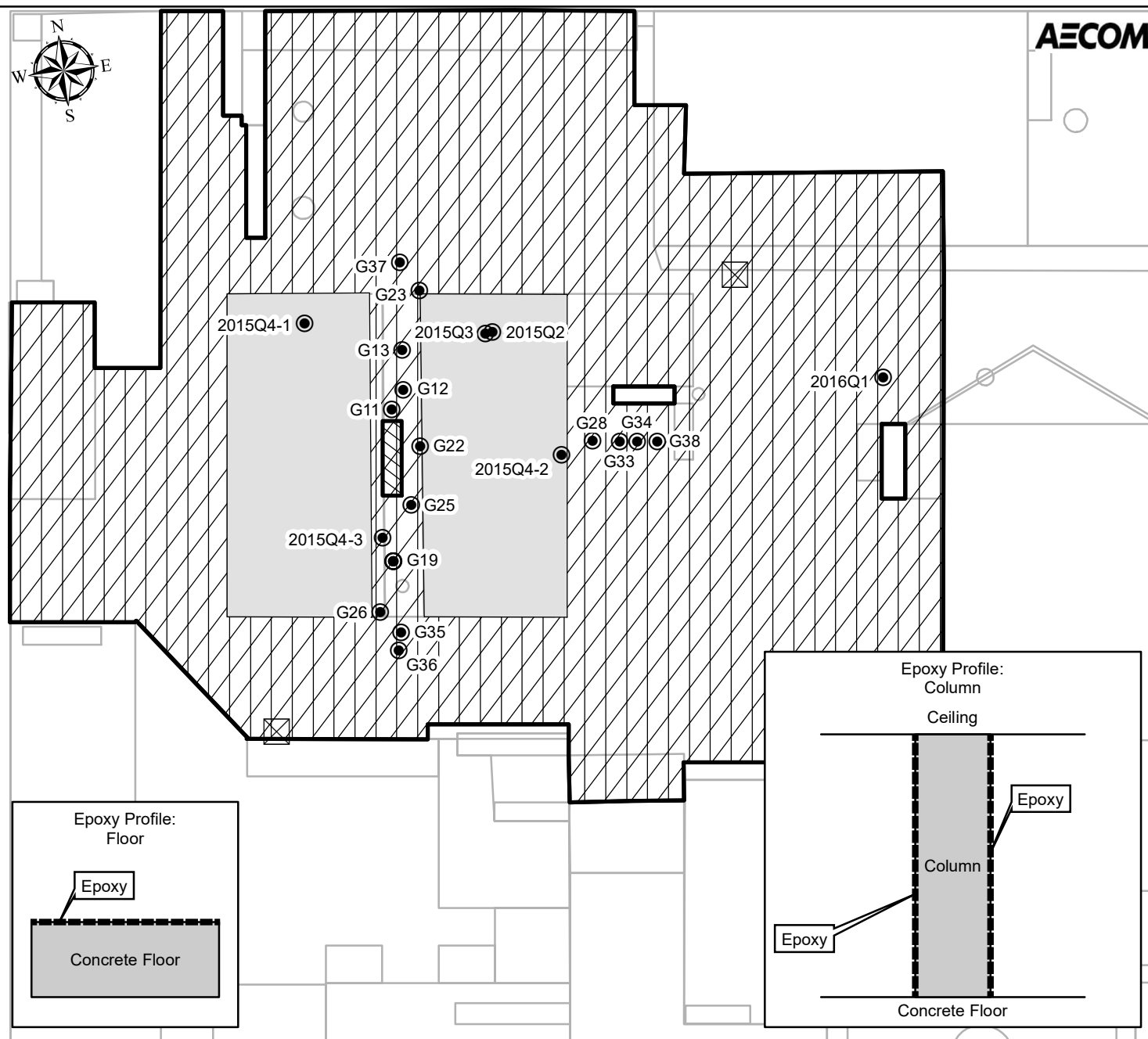
BUILDING FEATURES

NOTES:

Cr⁺⁶ hexavalent chromium

CrSCC Chromium Soil Cleanup Criteria

1. If monitoring results in the observance of a potential chromium bloom and sampling is conducted, an epoxy-like coating (20-30 mil thickness) will be applied to the concrete as a contingency measure.
2. Concrete floor is of variable thickness, approximately one foot.
3. Profiles are not to scale, and are for information purposes only.



AECOM



SITE 156
BLOCK 13101, LOT 2
PI NUMBER G000008770
JERSEY CITY, HUDSON COUNTY, NEW JERSEY

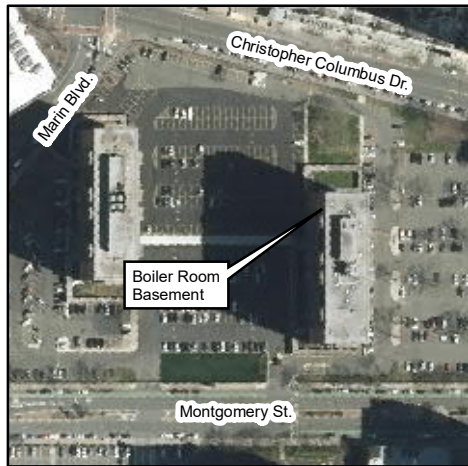
CONCRETE RESTRICTED AREA, SIGNAGE
LOCATIONS, AND FUTURE STAIN REMOVAL

DATE: 11/05/2020

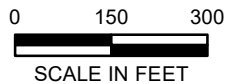
DRAWN BY: AC

CHECKED BY: CS

FIGURE A-1

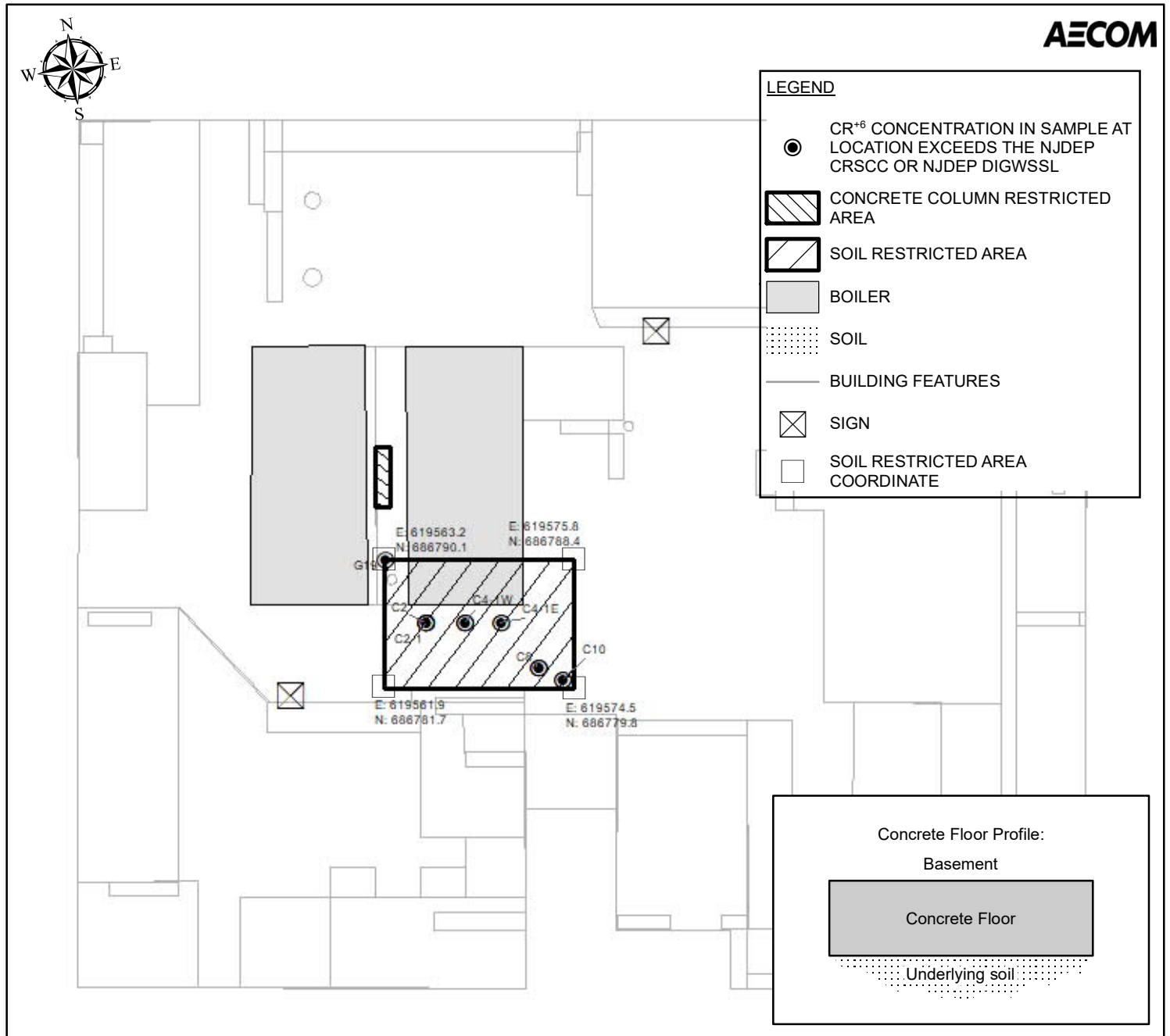


RESTRICTED AREA
LOCATION MAP



NOTES:
 Cr⁺⁶ hexavalent chromium
 CrSCC Chromium Soil Cleanup Criteria
 DIGWSSL Default Impact to Groundwater Soil Screening Level
 E Easting
 N Northing
 NJDEP New Jersey Department of Environmental Protection
 PI Program Interest

1. Depths shown are in feet below top of concrete slab.
2. Coordinate northings and eastings are presented in feet in the North American Datum of 1983.
3. Profile is not to scale and is for information purposes only.



SITE 156 BLOCK 13101, LOT 2 PI NUMBER G000008770 JERSEY CITY, HUDSON COUNTY, NEW JERSEY			REMEDIAL ACTION EXTENTS (SOIL) ENGINEERING CONTROL AND RESTRICTED AREA LIMITS	
DATE: 08/19/2020	DRAWN BY: AC	CHECKED BY: CS	FIGURE A-2	

RESTRICTED AREA
(ÁREA RESTRINGIDA)

DO NOT DRILL OR PENETRATE OR DAMAGE CONCRETE SURFACES
(NO TALADRE, PENETRE NI DAÑE LAS SUPERFICIES DE CONCRETO)

Disturbance to the concrete surfaces in this area is strictly prohibited to prevent human contact with hexavalent chromium contamination in the concrete and underlying soil.

(La alteración de las superficies de concreto en esta área está estrictamente prohibida para evitar el contacto humano con la contaminación de cromo hexavalente que hay en el concreto y el suelo subyacente.)

NJDEP PI# G000008770

If a disturbance in this area is required or detected, contact:

(Si se necesita una alteración en esta área o, si bien se detecta, póngase en contacto con:)

PPG Environmental Affairs
 (Asuntos Ambientales de PPG)
 Jody Overmyer
 Remediation Project Engineer
 (Ingeniero de Proyecto de Restauración)
 440 College Park Drive
 Monroeville, PA 15146
 (724) 325-5070
 overmyer@ppg.com

Property Manager
 (Director de la Propiedad)
 Alki Antonopoulos
 646-261-2651

Note:

The engineering control is a steel sign that is 24 inches wide and 16 inches high.

SITE 156 BLOCK 13101, LOT 2 PI NUMBER G000008770 JERSEY CITY, HUDSON COUNTY, NEW JERSEY			SOIL RESTRICTED AREA ENGINEERING CONTROL (SIGNAGE)	
DATE: 08/19/2020	DRAWN BY: AC	CHECKED BY: CS	EXHIBIT B-1A-3	

Attachment B

Representative Photographs of Green/Yellow Staining

Attachment B
Representative Photographs of Yellow/Green Staining

