EMERSON

INTERIM REMEDIAL MEASURES WORK PLAN (OU-2)

FORMER EMERSON POWER TRANSMISSION FACILITY ITHACA, NEW YORK
SITE NO. 755010

AUGUST 08, 2018

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EMERSON ELECTRIC CO.

PROJECT NO.: 31400551
DATE: AUGUST 8, 2018

WSP USA
13530 DULLES TECHNOLOGY DRIVE
SUITE 300
HERNDON, VA 20171

TEL.: +1 703 709-8505
WSP.COM

SIGNATURES

PREPARED BY

David Rykaczewski
Senior Technical Manager

REVIEWED BY

Lisa K. Bryda
Senior Project Director

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PROFESSIONAL ENGINEER CERTIFICATION

I, David Alan Rykaczewski, certify that I am currently a New York State Registered Professional Engineer as defined in 6 NYCRR Part 375 and that this Interim Remedial Measures Work Plan for the former Emerson Power Transmission facility in Ithaca, New York, was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

David Alan Rykaczewski, P.E.
Senior Technical Manager
New York State P.E. No. 099287

Date 8/8/18

WSP USA
11 Stanwix Street, Suite 950
Pittsburgh, Pennsylvania 15222

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1 INTRODUCTION

On behalf of Emerson Electric Co., WSP USA is submitting this Interim Remedial Measures (IRM) Work Plan for Operable Unit 2 (OU-2) to address soil conditions and sanitary sewers at the former Emerson Power Transmission (EPT) site in Ithaca, New York ("Site"; Figure 1-1). This remediation is being performed under Consent Order #A7-0125-87-09 that was entered into between the New York Department of Environmental Conservation (NYSDEC) and EPT on July 13, 1987.

Phase II Supplemental Remedial Investigations (SRIs) were conducted at the Site in 2015 and 2016 to delineate the extent of constituents of concern (COCs) identified in soil and groundwater at concentrations above the New York Codes, Rules and Regulations (NYCRR) Subpart 375-6 Remedial Program Soil Cleanup Objectives (SCOs), the New York State Ambient Water Quality Standards and Guidance Values for Class GA groundwater ("evaluation criteria") and the NYSDEC Sediment Guidance Values[1] in connection with investigations conducted in 2012 and 2014 by WSP and in 2013 and 2014 by LaBella Associates, on behalf of L Enterprises, LLC, which has entered into an agreement to purchase a considerable portion the former EPT property that is coterminous with the boundaries of OU-2 before the proposed boundary modification.[2]

The investigation results were presented in the Phase II SRI Report (WSP 2017), which summarized the conditions in each Area of Concern (AOC) at the Site, identified potential exposure pathways that posed unacceptable risks based on future land use and impact to groundwater, and evaluated the adequacy of delineation to applicable SCOs for the purpose of characterizing the nature and extent of COCs and evaluating remedial alternatives, where necessary.

This IRM Work Plan has been prepared to address soil in the AOCs identified in the SRI where remedy evaluation was determined to be warranted as part of an IRM. Remedial action alternatives for Site groundwater will be evaluated in a Feasibility Study. The primary objectives of the IRM Work Plan are to remediate soil to meet applicable SCOs and to facilitate planned future use of the property consistent with L Enterprises redevelopment plans. Soil conditions in one historical AOC, the Former Department 507 Degreaser (AOC 1), are also addressed in this IRM Work Plan. The approximate areas to be addressed during implementation of this IRM Work Plan are shown on Figure 1-2.

At the request of the NYSDEC, portions of the sanitary sewer network inside the facility will be addressed as part of this IRM Work Plan. The objectives of the work include removal of residual liquids and solids from designated manholes, evaluation of pipe integrity, and investigation of soil conditions below the invert elevation of the sewer pipe at selected locations.

Following this introduction, the IRM Work Plan includes seven sections. Section 2 describes the Site history and background. Section 3 summarizes the SRI findings for soil conditions in the 10 AOCs and the sanitary sewer conditions. Section 4 describes the remedy selection and evaluation. Section 5 provides the details for the selected remedies in each AOC and for the sanitary sewers. Section 6 describes the documentation and reports to be completed during and after the IRM work and Section 7 details the anticipated durations for major milestones during IRM implementation.

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[1] Drainage ditches on the property are primarily used to accumulate and discharge storm water runoff from the Site and, consequently, do not provide a habitat to support aquatic life. As such, the data for samples collected from drainage ditches were ultimately compared to the Restricted Residential Use SCOs instead of NYSDEC Sediment Guidance Values.

[2] As of the date of this submission, NYSDEC has agreed in principle to reduce the area of the facility property that is subject to the Consent Order, under which Emerson Electric Co. is undertaking the current site remediation. WSP understands that NYSDEC's current plan is to effectuate this boundary modification through an Explanation of Significant Differences document. The "Site", as referred to in this document, refers to those portions of the property where remediation will be performed regardless of the current or proposed property boundaries or Operable Unit boundaries.

2 SITE BACKGROUND

2.1 SITE SETTING

2.1.1 GENERAL

The Site is located at 620 South Aurora Street in Ithaca, New York (Figure 2-1) and encompasses approximately 100 acres. The facility, which includes several buildings, was constructed on partially excavated and backfilled terraces along the bedrock slope above the Cayuga Valley.

The buildings are situated at an elevation of approximately 600 feet above mean sea level (amsl). The main building is flanked by a number of smaller buildings to the southwest and a series of access roads and parking lots that terrace the hillside above main building to the east. Undeveloped woodland borders the Site to the southwest along the steep embankments of South Hill. West Spencer Street, which runs parallel to the Site, marks the western limit of the wooded area and the base of the hill. Beyond Spencer Street to the west and in areas along the steep northern approach to South Hill and the Site are residential areas. Six Mile Creek, farther to the west, flows north along the base of South Hill, emptying into Cayuga Lake approximately 2 miles northwest of the Site.

2.1.2 GEOLOGY AND HYDROGEOLOGY

The Site is located on the northern edge of the Appalachian Plateau Physiographic Province, which is characterized in central New York by deeply dissected hilly uplands and glacially gouged stream valleys and lowlands. The Site lies on the limits of one of the dissected uplands and overlooks the Cayuga Valley basin, which formed in a former stream valley eroded and enlarged by the advance of glaciers.

Regional upland geology is comprised of bedrock overlain by glacial deposits of varying thickness and a thin veneer of regolith. In the vicinity of Ithaca, New York, bedrock is classified as the Ithaca Siltstone which is typically well-cemented with generally non-fossiliferous beds ranging in thickness from 0.1 inch to 2.5 feet in thickness. Overburden on the undeveloped hill-slopes in the eastern portion of the Site is comprised of a thin, discontinuous veneer of dark gray bedrock-derived gravelly silt. The shallowest depths to bedrock (i.e., less than 1 foot below ground surface [bgs]) occur along the undeveloped hillsides and beneath buildings and roadways located on excavated bedrock terraces. The overburden is thickest to the west of the main building in the area of the retaining wall (greater than 25 feet bgs) and is comprised primarily of man-made fill, which consists of silty or clayey sand and gravel containing varying amounts of cinder fragments and construction debris. In other areas of the Site, coal ash, slag, and brick fragments are also present.

In the western areas of the Site, where the overburden is thickest, saturated conditions occur between approximately 10 and 20 feet bgs and the top of bedrock. The saturated overburden, where present, has been labeled the A-hydrogeologic zone. The underlying B-hydrogeologic zone is characterized as very highly- to highly-fractured weathered bedrock which is typically saturated. On the Site, the B zone extends to a depth of approximately 8 to 10 feet below the top of bedrock in areas with minimal overburden (i.e., less than 10 feet). The underlying transitional zone (C zone) extends from the base of the B zone to a maximum depth of approximately 55 feet bgs, and the D-zone extends from the bottom of the C zone to a minimum depth of 145 feet bgs.

Groundwater flow direction within the overburden and the B zone generally mimics surface topography, which slopes to the northwest. Groundwater flow within the C and D zones is predominantly through vertical and horizontal joint sets and horizontal bedding plane fractures within the upper sections of bedrock.

2.2 SITE HISTORY

Morse Industrial Corporation began industrial operations at the Site in 1906 to manufacture steel roller chain for the automobile industry. Morse operated the facility until approximately 1928 when the company was bought by Borg-Warner Corporation, which manufactured automotive components and power transmission equipment. In 1983, Emerson acquired Morse Industrial Corporation from Borg-Warner Corporation, as a result of which the Ithaca facility eventually became part of the former Emerson Power Transmission Corporation, a wholly-owned subsidiary of Emerson Electric Co. and a part of Emerson Electric Co.'s Power Transmission Solutions business. The former EPT entity continued to manufacture industrial roller chain, bearings, and clutching for the power transmission industry until operations were ceased in 2009. The facility was subsequently decommissioned and has been vacant since 2011.

In December 2014, Emerson transferred the property to EMERSUB 15 LLC in anticipation of the sale of its Power Transmission Solutions business, of which EPT was a part. In connection with this transaction, the Consent Order was amended to make Emerson Electric Co. the sole respondent responsible for the remediation.

2.3 PLANNED REDEVELOPMENT

L Enterprises has entered into an agreement to purchase a portion of the former EPT property that is coterminous with the boundaries of OU-2 and, accordingly, has developed conceptual plans for Site redevelopment (Figure 2-1). Redevelopment will incorporate a mix of residential, commercial and industrial uses. The proposed IRM remedies for the 10 AOCs described herein take into consideration the anticipated future uses of the Site.

3 SOIL AND SEWER INVESTIGATION SUMMARY

Nine new AOCs and one historical AOC (AOC 1, the former Department 507 vapor degreaser) were identified based on the presence of constituents in soil at concentrations above the anticipated future use criteria (Industrial, Commercial, or Restricted Residential Use SCOs) and, in areas where there is concurrent groundwater impact, the SCOs for protection of groundwater (PoG) (i.e., exceedences of the NYSDEC Part 703 evaluation criteria). The SRI evaluated and delineated the extent of the COCs above applicable criteria in the following nine AOCs:

— AOC 26 - Building 24 Area
— AOC 27 - Former Salt Baths Area
— AOC 28 - Building 30/Oil Shed Area
— AOC 29 - Former Propane Storage Area
— AOC 30 - Rice Paddy Area
— AOC 31 - Upper Parking Lot 6 Area
— AOC 32 - Former Spray Pond / Drainage Ditch Area
— AOC 34 - Area East of Buildings 13A and 14
— AOC 35 - Isolated Locations

The isolated locations associated with AOC 35 in which constituents in soil have been identified above applicable criteria have been renamed for clarity and ease of reference. The following designations for these 7 sub-areas are used in the tables, figures, and the remainder of this report:

— AOC 35A – East of Building 24
— AOC 35C – Building 11A
— AOC 35D – Near Parking Lot 4
— AOC 35G – South of Parking Lot 3
— AOC 35H – Parking Lot 3
— AOC 35K – Former Railway Right-of-Way / SB-240
— AOC 35L – Former Railway Right-of-Way / DS-1

The following sections summarize the investigation results in these AOCs and historical AOC 1 and identify those areas for which remedial measures are warranted to address exceedences of the direct contact SCOs, the PoG SCOs, or both. The information is summarized in tabular format in Table 3-1.

Section 3.1 summarizes the SRI data for AOCs that are located in areas proposed to be remediated to restricted residential SCOs (AOCs 1, 26, 27, 31, 32, 34, 35A, 35C, 35D, 35G, 35H, 35K, and 35L). Section 3.2 summarizes the AOCs that are located in areas that will be remediated to commercial SCOs (AOCs 28 and 29). Section 3.3 summarizes the one AOC that is located in the area that will be remediated to industrial SCOs (AOC 30). Section 3.4 summarizes the results of the sanitary sewer investigation inside the facility buildings.

3.1 AOCS IN FUTURE RESTRICTED RESIDENTIAL AREAS

New AOCs in areas proposed for restricted residential redevelopment include AOCs 26, 27, 31, 32, 34, 35A, 35C, 35D, 35G, 35H, 35K, and 35L. Historical AOC 1 is also located within the restricted residential redevelopment area. Investigation summaries for each AOC within the areas designated for restricted residential use are provided in the following sections.

3.1.1 AOC 26 - BUILDING 24 AREA

AOC 26 comprises two separate areas, one inside Building 24 on the second level and one outside Building 24 in the parking lot and access road between Buildings 1 and 24. The SRI results from the two areas are described below.

BUILDING 24 INTERIOR

Chlorinated volatile organic compounds (CVOCs) were detected at concentrations above the PoG SCOs in soil samples collected beneath the concrete floor on the second level in Building 24 (which was constructed on a bedrock terrace) in two locations (LBA-SB-401 and 26-04; Figure 3-1). CVOCs were also identified above the groundwater evaluation criteria in a seep[3] associated with the building and in downgradient monitoring wells.

The lateral extent of the soil exceedences is delineated by the existing data; the vertical extent of exceedences extends to the top of bedrock at LBA-SB-401 (1 to 2 feet below the base of the foundation). Thus, the data are sufficient for purposes of characterizing the nature and extent of COCs and evaluating and selecting an appropriate remedial alternative to implement as an IRM.

BUILDING 24 EXTERIOR

CVOCs, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs) were detected at concentrations above SCOs in soil samples collected from borings advanced within and along the parking lot adjacent to Building 24 (Figure 3-1) to the top of bedrock (typically 2 to 3 feet bgs). PCBs associated with a former transformer pad adjacent to Building 24 were remediated in 2015 in accordance with an EPA-approved Self-Implementing PCB Remediation Work Plan.

PAHs were detected in a surface soil[4] sample (SRI-SB-106) collected from the sidewall of the excavation at concentrations minimally above the Restricted Residential SCOs. However, no further action is necessary for PAHs because, in addition to the minimal level of the exceedence, the area is and will continue to be covered with asphalt which eliminates the direct contact exposure pathway for PAHs. Therefore, only soil with CVOC concentrations above the PoG SCOs will be addressed as an IRM in the Building 24 exterior.

CVOCs were detected in soil at concentrations above the PoG SCOs across the area and in groundwater at concentrations above the evaluation criteria.

The vertical extent of the CVOC exceedences of the PoG SCOs is approximately 2 feet bgs. The lateral extent of exceedences is delineated to the north-northeast (boring 26-19) and to the east and west by Building 24 (borings SRI-SB-105 and 26-16) and Building 1. To the south and east of Building 11A, the increase in elevation along the roadway would prevent CVOCs migrating along the bedrock surface in this direction. To the southwest, it is possible that the exceedence detected at boring 26-16 is related to AOC 35C (Building 11A). The decrease in concentrations between the most affected location (boring 26-07, with a trichloroethene (TCE) concentration of 36,700 micrograms per kilogram (µg/kg) and the boring farthest to the north-northwest (boring 26-18, with a TCE concentration of 730 µg/kg) suggests the lateral extent is adequately characterized to the north-northwest.

Based on the SRI data, the delineation in the exterior portion of AOC 26 is sufficient for purposes of characterizing the nature of the COCs and evaluating and selecting an appropriate remedial alternative to implement as an IRM.

3.1.2 AOC 27 - FORMER SALT BATHS AREA[5]

The materials below the concrete floor and former salt pots in Building 14 consist of fractured bedrock and subbase materials with soil present only in one area between the pits (Figure 3-2). However, the sample analytical results were compared to the Restricted Residential Use SCOs and, based on the presence of barium above the groundwater evaluation criterion in samples collected from nearby and downgradient wells, the PoG SCOs.

[3] Groundwater and seep issues will be addressed in the Feasibility Study.

[4] The direct contact SCOs are applicable to surface soil only, i.e., soil present between the ground surface and 2 feet bgs.

[5] The current redevelopment plan indicates Building 14 will be removed and used for green space and the remaining portions of the AOC will be for commercial/mixed use. The more conservative Restricted Residential Use SCOs were used to evaluate all of the AOC data, regardless of future use. Although exceedences of various SCOs were noted at LBA-SB-513, LBA-SB-515, LBA-MW-17, and LBA-MW-19, further evaluation was not performed as these locations are beneath the building foundations, thus limiting infiltration and migration to groundwater and eliminating future potential direct contact.

Barium concentrations exceeded both SCOs in samples collected from three locations (LBA-SB-410, B14-Main Floor, and B14-Quench Pit); chromium was detected at a concentration above the Restricted Residential Use SCO in the sample collected from B14-Quench Pit. No PoG SCO has been established for chromium.

Test pits were excavated following removal of portions of the concrete slab (to allow for sample collection) to determine the thickness of the weathered bedrock. The test pits encountered competent bedrock at a depth of approximately 1 to 2 feet bgs.

The analytical data and visual observations made during the test pit investigation are sufficient for purposes of characterizing the nature of the barium impacts and evaluating and selecting an appropriate remedial alternative to implement as an IRM.

3.1.3 AOC 31 - UPPER PARKING LOT 6

PAHs and metals were detected at concentrations above Restricted Residential Use SCOs in surface soil samples collected from the western portion of Parking Lot 6 (Figure 3-3). CVOCs, which were detected above the evaluation criteria in a nearby well, were not detected above the PoG SCOs in soil samples collected in this area.

Although PAHs were detected at concentrations above the Restricted Residential Use SCOs in the surface soil sample collected from nearby boring SB-124, the location is currently overlain by asphalt pavement and will continue to be covered in the future, thereby eliminating the direct contact pathway.

Arsenic, barium, cadmium, chromium, copper, nickel, or a combination thereof, were detected at concentrations above the Restricted Residential Use SCOs in surface soil samples collected from this area (borings 31-05, 31-06, WSP-SB-618, WSP-SB-619, and WSP-SB-620, and test pit LBA-TP-16). Most of these locations are currently overlain by asphalt pavement and will continue to be covered, thereby eliminating future potential direct contact.

Lateral delineation to the south and west is provided by borings 31-01 through -04. Delineation to the north is not warranted because, similar to SB-124, this area is overlain by pavement and will continue to be covered, thereby eliminating the direct contact pathway. To the east, delineation is not necessary based on the absence of significant overburden reflecting increasing elevations in this direction.

Based on the SRI data, the delineation is sufficient for purposes of characterizing the nature of the COCs and evaluating and selecting an appropriate remedial alternative to implement as an IRM.

3.1.4 AOC 32 - FORMER SPRAY POND / DRAINAGE DITCH AREA

PAHs and metals, including arsenic, barium, lead, and mercury, were detected at concentrations above the Restricted Residential Use SCOs in one or more surface soil and drainage ditch soil samples collected in the former spray pond / drainage ditch area (Figure 3-4).[6] PCBs were detected above the Restricted Residential Use SCO in two locations in the central portion of the AOC: sample location DS-15 and soil boring 32-07.

Lateral delineation is adequate for soil in this area. Concentrations above the SCOs are not anticipated significantly upstream (east) of 32-SED-04 because the storm water outfall at the headwaters of the ditch is less than 100 feet from this location. The downstream portion of the ditch ends at the “wooden shed” near 32-SED-10; consequently downstream delineation is not necessary. Further delineation east of the ditch is not necessary based on the steep nature of the topography and absence of significant soil cover on the adjacent slope. Further delineation to the west is not necessary because it is overlain by asphalt pavement and will continue to be covered in the future, thereby eliminating the direct contact pathway.

Based on the SRI data, delineation of soil and drainage ditch soil in AOC 32 is sufficient for purposes of characterizing the nature of COCs in soil and evaluating and selecting an appropriate remedial alternative to implement as an IRM.

[6] The drainage ditch soil samples were collected from a ditch which is primarily used to accumulate and discharge storm water runoff from the Site and, consequently, does not provide a habitat to support aquatic life. Consequently, the data for these samples were ultimately compared to the Restricted Residential Use SCOs.

3.1.5 AOC 34 - AREA EAST OF BUILDINGS 13A AND 14

CVOCs and PAHs were detected at concentrations above the Restricted Residential Use SCOs in surface soil samples collected east of Buildings 13A and 14 (Figure 3-2). Because CVOCs were also detected at concentrations above the screening criteria in Site groundwater downgradient, the soil results were also compared to PoG SCOs.

The lateral extent of CVOCs at concentrations above the Restricted Residential or PoG SCOs is delineated by borings 34-01, -02, -04, -06, and -07. The vertical extent of exceedences is typically 2 feet bgs, except at WSP-SB-626 where the vertical extent extends to at least 3 feet bgs (but less than 6 feet bgs). Delineation for CVOCs is complete.

Delineation of PAHs above the Restricted Residential Use SCOs is considered to be complete based on results for borings SB-114, 34-04, 34-06, and 34-07, and to the west of 34-05 by the exterior wall of Building 13A. In addition, all of the locations in which PAHs were present at concentrations above the SCOs, except boring 34-02, are covered by asphalt pavement, which eliminates the direct contact pathway.

Based on the SRI data, the delineation is sufficient for purposes of characterizing the nature of the COCs and evaluating and selecting an appropriate remedial alternative to implement as an IRM. The IRM in this AOC will address exceedences of PoG SCOs for CVOCs and Restricted Residential Use SCOs for PAHs only in areas which will not be covered by pavement in the future land use scenario.

3.1.6 AOC 35 - ISOLATED LOCATIONS

The Phase II SRI evaluated conditions in a variety of isolated locations within the residential and mixed use portions of the Site. Based on the SRI data, IRMs are warranted in seven of the sub-areas:

- AOC 35A - East of Building 24 (SB-103/SB-103SS)
- AOC 35C - Building 11A (LBA-SB-250)
- AOC 35D - Near Parking Lot 4 (SS-100)
- AOC 35G - South of Parking Lot 3 (LBA-B17-TSS-3)
- AOC 35H - Parking Lot 3 (LBA-TP-03)
- AOC 35K - Former Railway Right-of-Way (SB-240)
- AOC 35L – Former Railway Right-of-Way (DS-1)

The SRI findings for these locations are discussed below.

AOC 35A - EAST OF BUILDING 24

East of Building 24, arsenic was detected above the Restricted Residential Use SCO in the surface soil sample collected at boring SB-103 (Figure 3-1). Lateral delineation is complete based on data for borings 35-13 through 35-15.

Based on the SRI data, the delineation is sufficient for purposes of characterizing the nature of the COCs and evaluating and selecting an appropriate remedial alternative to implement as an IRM.

AOC 35C - BUILDING 11A

Beneath the foundation of Building 11A, CVOCs are present in soil samples at concentrations above the PoG SCOs (Figure 3-1) and at concentrations above the groundwater evaluation criterion in nearby wells. PAHs are present at concentrations above the Restricted Residential Use SCOs at LBA-SB-250.

The lateral extent of CVOCs at concentrations above the SCOs is delineated by borings 35-07, 35-08, and 35-09 to the northwest, west, and southeast. Delineation to the east is adequate based on the low level exceedence of the PoG SCO for TCE at boring 35-40 (766 µg/kg versus 470 µg/kg). Delineation to the northeast is incomplete and similar conditions encountered in adjacent AOC 26 suggest that the two AOCs may be connected. The maximum vertical extent of impact is approximately 2 to 3 feet bgs.

Based on the SRI data, delineation is sufficient for purposes of characterizing the nature of the COCs and evaluating and selecting an appropriate remedial alternative to implement as an IRM. Additional sampling may be conducted to further define the limits of affected soil during implementation of the IRM.

Delineation of the single PAHs exceedence of the SCOs was not performed initially based on the presumed continued presence of the building foundation which would eliminate the direct contact pathway. Based on the planned demolition of the building to make way for green space, the presence of PAHs within 2 feet of the ground surface will be addressed concurrent with the CVOC remedy.

AOC 35D - NEAR PARKING LOT 4

Near Parking Lot 4, PAHs were detected above the Restricted Residential Use SCOs in the surface soil sample collected at boring SS-100 (Figure 3-2). Lateral delineation is complete based on data for borings 35-10 through 35-12.

Based on the SRI data, the delineation is sufficient for purposes of characterizing the nature of the COCs and evaluating and selecting an appropriate remedial alternative to implement as an IRM.

AOC 35G - SOUTH OF PARKING LOT 3

South of Parking Lot 3, arsenic, barium, cadmium, and lead were detected at concentrations above the Restricted Residential Use SCOs in surface soil samples collected in this area (Figure 3-4):

- arsenic was detected at concentrations minimally above the SCO in samples collected at 0.5 to 2 feet bgs from borings 35-31 and 35-32 (20.4 and 18.3 milligrams per kilogram [mg/kg] versus an SCO of 16 mg/kg)
- barium was detected at concentrations above the SCO (400 mg/kg) in surface soil samples collected from boring 35-32 (621 and 640 mg/kg)
- cadmium was detected at concentrations minimally above the SCO (4.3 mg/kg) in the surface soil samples collected from LBA-B17-TSS-3 (4.8 mg/kg) and boring 35-32 (4.5 and 4.8 mg/kg)
- lead was detected at a concentration minimally above the SCO (400 mg/kg) in a surface soil sample collected from LBA-B17-TSS-3 (405 mg/kg)

Further delineation to the north is not necessary based on the presence of the ditch associated with AOC 32 and the existing building; delineation to the south, east, and west is provided by the results for 35-31, 35-33, and 35-36.

Based on the SRI data, the delineation is sufficient for purposes of characterizing the nature of the COCs (primarily barium) and evaluating and selecting an appropriate remedial alternative to implement as an IRM.

AOC 35H - PARKING LOT 3

In Parking Lot 3, PAHs were detected at concentrations above the Restricted Residential Use SCOs in a surface soil sample collected from LBA-TP-03 (Figure 3-4). Although delineation beneath the parking lot is incomplete, further delineation is not necessary because the area is overlain by asphalt pavement which eliminates the direct contact pathway. In addition, borings 35-09 and 35-33 are on or within the boundary of Operable Unit 1 which will remain as an Industrial Use area and the PAH concentrations in samples collected from these borings do not exceed the Industrial Use SCOs.

Delineation beyond the parking lot is provided to the west by boring 35-34, but is incomplete to the north based on exceedences at borings 35-07 and 35-35. Based on the SRI data, the delineation is sufficient for purposes of characterizing the nature of the COCs and evaluating and selecting an appropriate remedial alternative to implement as an IRM which addresses the direct contact pathway for those areas not covered with asphalt pavement.

AOC 35K AND 35L - FORMER RAILWAY RIGHT-OF-WAY

Two areas along the former railway right-of-way were evaluated:

- <u>AOC 35K (LBA-SB-240)</u> - Arsenic was detected at a concentration above the Restricted Residential Use SCO in a surface soil sample collected at boring LBA-SB-240 along the former railway right-of-way (Figure 3-5). The lateral extent of the exceedence is delineated by the absence of exceedences at borings 35-23, 35-24, and 35-25.

— AOC 35L (DS-1) - PAHs were detected at concentrations slightly above the Restricted Residential Use SCOs in the surface soil sample collected from DS-1 (Figure 3-5). Although the lateral extent of the exceedence is delineated by the absence of exceedences at boring 35-22, concentrations above the SCOs were detected in samples from borings 35-20 and 35-21. Further delineation east of the ditch (near boring 35-20) is not necessary based on the absence of a significant thickness of soil cover upslope.

Based on the SRI data, delineation in both areas is sufficient for purposes of characterizing the nature of the COCs and evaluating and selecting an appropriate remedial alternative to implement as an IRM.

3.1.7 AOC 1 - FORMER DEPARTMENT 507 DEGREASER

Prior to the SRI, investigations of soil conditions in the former Department 507 Degreaser area (Figure 3-6) were conducted to identify potential sources of CVOCs detected in groundwater in this area. Soil samples were generally collected at the surface (below the overlying concrete/asphalt pavement) and approaching the interface of the overburden and clay/bedrock; a limited number of samples were collected between these intervals. The maximum depths of the surface samples were approximately 2 feet bgs, except at boring SB-101112-2 with a maximum depth of 3 feet bgs; the majority of the subsurface samples were collected between approximately 10 and 25 feet bgs.

Although concentrations above the Restricted Residential Use SCOs were reported in several samples (SB-AOC1-2, -3, -4, -6, -7, and -8), the existing and anticipated future use of the area is as a paved roadway which will eliminate the direct contact exposure pathway.

Exceedences of the PoG SCOs were detected in exterior surface soil samples collected parallel to the western wall of Building 3 and an interior sample collected east of the former cooling water pit. The highest TCE concentrations (190,000 and 250,000 µg/kg) were reported for exterior borings SB-AOC1-2 and SB-AOC1-3.

Exceedences of the PoG SCOs in the subsurface were limited to one interior boring west of the former cooling water pit (SB-1d) and four exterior borings west of the building (SB-101112-1 and SB-AOC1-3, SB-AOC1-4, and SB-AOC1-8). Notably lower concentrations of TCE were reported in subsurface samples (non-detect to 660 µg/kg) than in the surface soil samples. Because the subsurface samples were collected beneath the potentiometric surface, the results are more indicative of CVOC-affected groundwater than actual subsurface soil conditions.

The lateral extent of the exterior impact is delineated to the east and west within an approximate 30-foot wide band parallel to the western wall of Building 3. The lower concentrations to the north and south and overall distribution suggest delineation is complete. The lateral extent of subsurface impact is delineated.

Based on the existing data, the delineation in both areas is sufficient for purposes of characterizing the nature of the COCs and evaluating and selecting an appropriate remedial alternative to implement as an IRM.

Inside Building 3, the surface and subsurface impacts are limited and no further delineation or remediation is necessary based on:

— the absence of exceedences of Restricted Residential Use SCOs in the surface soil, except at SB-AOC1-16, the modest concentration of 4,300 µg/kg TCE in the sample, the absence of impact at depth, and the presence of the overlying building foundation
— the single exceedence of Restricted Residential Use SCOs in the subsurface soil collected below the potentiometric surface at SB-1d

3.2 AOCS IN FUTURE COMMERCIAL AREAS

New AOCs in areas that may be redeveloped for commercial use in the proposed future land use scenario include AOCs 28 and 29. Investigation summaries for each of these AOCs are provided in the following sections.

3.2.1 AOC 28 - BUILDING 30/OIL SHED AREA

CVOCs were detected at concentrations above the PoG SCOs in soil samples collected in the area north and east of the oil shed (Figure 3-3). CVOCs are also present above the NYSDEC groundwater evaluation criteria in a sample collected from downgradient well WSP-MW-04B.

Lateral delineation of CVOCs above these SCOs is provided to the east, south, and west by data for borings 28-03, -15, -17, and -18, and the presence of the existing building. Data for boring 28-16 adequately delineate the extent of the SCO exceedences to the northeast where a low-level CVOC exceedence was limited to the surface soil (0 to 2 inches) and bedrock is present at approximately 2.5 feet bgs. Data for boring 28-15, where there were no exceedences between the ground surface and bedrock at 8 feet bgs, delineate exceedences to the northwest.

Based on the SRI data, the delineation is sufficient for purposes of characterizing the nature of the COCs and evaluating and selecting an appropriate remedial alternative to implement as an IRM.

3.2.2 AOC 29 - FORMER PROPANE ABOVEGROUND STORAGE TANK AREA

PAHs and arsenic were present at concentrations above the Commercial Use SCOs in subsurface (17 to 18 feet) soil samples and PAHs were present at concentrations above these SCOs in surface soil samples (0.5 to 2.5 feet bgs) collected in the former above ground propane storage tank area (Figure 3-3). Surface soil samples (0 to 2 feet bgs) were subsequently collected to evaluate the potential presence of arsenic above the SCO and to delineate extent of PAHs above the SCOs.

The extent of PAHs at concentrations above the Commercial Use SCOs in surface soil is adequately defined by borings 29-08 through 29-11 and 29-13, where there were no exceedences, and at boring 29-12, where there was a minimal exceedence for benzo(a)pyrene (1,210 µg/kg versus an SCO of 1,000 µg/kg). The extent of arsenic above the Commercial Use SCO is limited to a single minimal exceedence at boring 29-07 (22.7 mg/kg versus an SCO of 16 mg/kg).

Based on the SRI data, the delineation is sufficient for purposes of characterizing the nature of the COCs and evaluating and selecting an appropriate remedial alternative to implement as an IRM.

3.3 AOCS IN FUTURE INDUSTRIAL AREAS

New AOC 30 is in an area that will remain industrial in the proposed future land use scenario. An investigation summary for AOC 30 is provided below.

3.3.1 AOC 30 - RICE PADDY AREA

PAHs and arsenic were present at concentrations above the Industrial Use SCOs in soil samples collected from the Rice Paddy Area (Figure 3-3). Arsenic was detected at a concentration minimally above the SCO (16 mg/kg) in a subsurface soil sample collected from 27 feet bgs at LBA-SB-209 (18.2 mg/kg). Benzo(a)pyrene was detected at concentrations minimally above the SCO of 1,100 µg/kg in a surface soil sample (1,250 µg/kg) and in a subsurface soil sample (1,790 µg/kg) collected from 18.5 to 20 feet bgs at SB-125 (but not from an intervening sample collected from 11 to 12 feet bgs). In addition, PCBs were detected at a concentration of 32,789 µg/kg (versus an Industrial Use SCO of 25,000 µg/kg) in a sample collected from 8 to 8.6 feet-bgs in a sample collected from WSP-SB-617.

Eight additional borings were advanced in the area during the Phase II SRI. Despite the minimal arsenic and PAH exceedences and although the Industrial SCOs are not applicable below 1 foot bgs, samples were collected to evaluate their presence and distribution in the surface soil. Five of the borings were advanced to the top of bedrock to evaluate the potential distribution of PCBs in the surface and subsurface.

Lateral delineation of the surficial SCO exceedences for benzo(a)pyrene at borings SB-125 and 30-01 and 30-06 (4,090 µg/kg and 4,100 µg/kg) is complete based on the absence of exceedences to the east (borings 30-02 and 30-05) and west (boring 30-04) and minimal exceedences to the north and south at borings 30-07 and 30-08 (1,900 µg/kg and 1,130 µg/kg).

Arsenic delineation is considered complete based on the absence of an exceedence in surficial soil except for a minimal exceedence at boring 30-07 (20.9 mg/kg).

PCBs, cyanide, and CVOCs were not detected above their respective Industrial Use SCOs in any of the surficial soil samples collected during the Phase II SRI.

Based on the SRI data, the delineation is sufficient for purposes of characterizing the nature of the COCs and evaluating and selecting an appropriate remedial alternative to implement as an IRM.

3.4 SANITARY SEWER INVESTIGATION SUMMARY

Per NYSDEC's request, portions of the sanitary sewer system were evaluated in Buildings 4, 5, 6, 6A, 8, 9, 10, 10A, 11A, 13A, 13B, 14, 15, 34, and 35. Trench drains, manholes, and manways within buildings historically associated with manufacturing operations were located, accessed, and inspected, as were a majority of the other manholes and manways encountered outside the buildings.

Samples of water and residuals, where present, were collected from the majority of manholes/manways and analyzed for Resource Conservation and Recovery Act (RCRA) metals and cyanide. As a precautionary measure, most of the residual samples were submitted for Toxicity Characteristic Leaching Procedure (TCLP) metals.[7] Ultimately, residual samples were collected from 22 manholes and 2 trench drains; aqueous samples were collected from 14 manholes. Sample results are presented in the Phase II SRI Report and on Figure 3-7. Figure 3-7 also illustrates the known directions of pipe flow based on observation or, in the absence of flow, the assumed direction of flow based on invert elevations of the pipes present in the manholes.

[7] The SRI Work Plan required TCLP analysis only if a total metal concentration in a residual sample exceeded 20 times the NYSDEC criterion.

4 REMEDY SELECTION AND EVALUATION CRITERIA

4.1 REMEDIAL ACTION OBJECTIVES

IRMs are proposed in the 10 AOCs identified above to address the presence of constituents in soil at concentrations exceeding the anticipated future use criteria for direct contact (Restricted Residential, Commercial or Industrial Use SCOs) or at concentrations exceeding the PoG SCOs in areas where there is concurrent groundwater impact (i.e., exceedences of the NYSDEC Part 703 evaluation criteria). The AOCs and SCOs that apply in each are as follows:

	Soil Cleanup Objective			
	Direct Contact			**Protection of Groundwater**
Area of Concern	**Restricted Residential**	**Commercial**	**Industrial**	
AOC 1 - Former Department 507 Degreaser	-	-	-	X
AOC 26 - Building 24 Area	-	-	-	X
AOC 27 - Former Salt Baths Area	X	-	-	X
AOC 28 - Building 30/Oil Shed Area	-	X	-	X
AOC 29 - Former Propane Storage Area	-	X	-	-
AOC 30 - Rice Paddy Area	-	-	X	-
AOC 31 - Upper Parking Lot 6 Area	X	-	-	-
AOC 32 - Former Spray Pond / Drainage Ditch Area	X	-	-	-
AOC 34 - Area East of Buildings 13A and 14	X	-	-	X
AOC 35A - East of Building 24	X	-	-	-
AOC 35C - Building 11A	X	-	-	X
AOC 35D - Near Parking Lot 4	X	-	-	-
AOC 35G - South of Parking Lot 3	X	-	-	-
AOC 35H - Parking Lot 3	X	-	-	-
AOC 35K - Former Railway Right-of-Way (LBA-SB-240)	X	-	-	-
AOC 35L - Former Railway Right-of-Way (DS-1)	X	-	-	-

Table 3-1 lists the AOCs identified for remediation, identifies the COCs, affected media, applicable SCOs, anticipated future land use, and proposed IRM.

4.2 PROPOSED IRM FOR AREAS OF CONCERN

Proposed IRMs to address COCs for each of the AOCs listed above are described in detail in this section. References in this section are made to individual drawing Sheets that together comprise the IRM drawings. The complete set of IRM drawings is intended to serve as a stand-alone package to be used for bidding, surveying, and field implementation of the IRMs.

4.2.1 AOC 1 - FORMER DEPARTMENT 507 DEGREASER

CVOCs are present in shallow and deep soil within the driveway and utility corridor in the former Department 507 Degreaser area. Based on soil data collected during the SRI, the highest concentrations of VOCs representing a significant percentage of the VOC mass were present within the top two feet of soil in AOC 1. The proposed IRM for shallow soil within AOC 1 is excavation with offsite disposal, confirmation sampling, and backfilling with clean soil. The IRM for deep soil is construction of a low-permeability cap to minimize infiltration to the deeper soil zone. AOC 1 consists of two affected areas west of Building 3. The primary area is approximately 56 feet by 22 feet; the second area is approximately 15 feet north of the first and is approximately 5 feet by 7 feet.

Soil in both areas will be excavated to a depth of approximately 3 feet where the majority of VOC mass exists and the shallowest of several active utility lines is expected to be encountered. According to facility drawings, gas, water, storm water, and sanitary sewer lines lie within or near the footprint of the AOC 1 excavation.

Based on the depth and initial limits of excavation shown on Sheet 6 of the IRM drawings, approximately 130 cubic yards of soil will be excavated. Confirmation samples will be collected along the excavation perimeter to ensure that the SCOs are achieved followed by additional excavation, if necessary. Documentation samples will be collected from the excavation bottom. After sampling, a demarcation layer will be installed across the base of the excavation. The excavation will be backfilled with 2 feet of clean compacted fill, followed by installation of the low-permeability cap consisting of a geosynthetic clay liner (GCL), 6 inches of aggregate sub-base, and 6 inches of asphalt. The cap will cover approximately 1,200 square feet (based on the initial limits of excavation shown on Sheet 6 of the IRM drawings) and will serve to minimize infiltration of precipitation. The AOC 1 capping plan is shown on Sheet 6 and cap construction details are shown on Sheet 10 of the IRM drawings. Care will be taken to protect existing utilities and monitoring wells located within the excavation area.

4.2.2 AOC 26 - BUILDING 24 AREA

CVOCs are present in shallow soil within a localized area in Building 24 and a portion of the parking lot/driveway west of the building. The interior area measures approximately 25 feet by 12 feet, and the exterior area is irregularly shaped occupying approximately 8,215 square feet.

The proposed IRM is excavation to bedrock and offsite disposal in both the inside and outside portions of AOC 26. Based on SRI data, bedrock is expected to be encountered at the depth of 2 to 3 feet below the ground surface. Based on the initial limits of excavation shown on Sheet 3 of the IRM drawings, approximately 30 cubic yards will be excavated from the interior area and 770 cubic yards will be excavated from the parking lot/driveway area. Confirmation and documentation samples will be collected along the perimeter of AOC 26 as shown on Sheet 3. On completion of the excavation, clean soil or gravel will be placed and the concrete inside the facility and asphalt pavement outside the facility will be restored.

4.2.3 AOC 27 - FORMER SALT BATHS AREA

Barium, chromium, or both are present at concentrations above the Restricted Residential Use SCO and barium is present at concentrations above the PoG SCO in samples collected below the concrete floor and former salt pots in Building 14. The affected area measures approximately 40 feet by 25 feet and is visually identifiable by the presence of salt crystallization in the fractures of the weathered bedrock.

The proposed IRM to address the affected material is excavation to competent bedrock and offsite disposal. The potential vertical extent of the excavation will be approximately 1.5 to 2.5 feet below the building floor based on previous evaluation of the bedrock's competency. Based on the limits of excavation shown on Sheet 4 of the IRM drawings, approximately 80 cubic yards of loose, fragmented bedrock will be excavated. The potential lateral extent of the removal will be limited by the stability of existing structural walls on three sides of the AOC. Because representative samples of competent bedrock will be difficult to collect, excavation on the fourth side, toward the southwest, will be based on the ability to remove weathered or fragmented bedrock using conventional earthmoving equipment and the visual absence of salt crystallization within the bedrock fractures. No sampling will be performed unless soil is present. On completion, the excavation will be backfilled with clean soil to within 6 inches of the original grade of the floor followed by placement of gravel to the original grade.

4.2.4 AOC 28 - BUILDING 30/OIL SHED AREA

CVOCs are present in soil and above the groundwater evaluation criteria in nearby and downgradient groundwater. AOC 28 consists of two areas. The primary area is irregularly shaped occupying approximately 4,400 square feet north of Building 30; the second area measures approximately 12 feet by 25 feet and is located at the base of the bedrock outcrop below the primary area (see Sheet 7 of the IRM drawings).

The proposed IRM to address the affected soil is excavation and offsite disposal. Within the area bounded to the southeast and northwest by borings 28-04 and 28-05 and borings 28-02 and 28-06, respectively, soil will be excavated to an elevation of 605 feet amsl or bedrock, whichever is shallower. Based on known conditions, it is anticipated that excavation to this elevation will address most if not all CVOCs at concentrations above the PoG SCOs within this portion of the AOC. Advancing to the northwest, near boring 28-01, the excavation will deepen to 10 feet bgs (597 feet amsl). Based on the initial limits of excavation shown on Sheet 7 of the IRM drawings, approximately 500 cubic yards of soil will be excavated from the primary area. Excavation in the boring 28-16 area will be to a depth of 0.5 foot bgs which will add approximately 5 cubic yards. Confirmation samples will be collected along the perimeter where shown on Sheet 7 of the IRM drawings. Confirmation samples will also be collected from the base of the excavation unless bedrock was encountered.

On completion in both areas, the excavated areas will be backfilled with clean soil to restore the areas to their approximate original grades. Where bedrock was not encountered, a high-visibility demarcation layer will be installed above the existing soil before placement of imported soil. The elevated area will then be seeded with grass; the lower area will be covered with gravel.

4.2.5 AOC 29 - FORMER PROPANE ABOVEGROUND STORAGE TANK AREA

PAHs and arsenic are present in soil within the former propane storage tank area, which occupies approximately 14,000 square feet. The proposed IRM for AOC 29 is excavation to a depth of 2 feet with offsite disposal and backfilling to the approximate original grade. Confirmation samples will be collected from the southern limit in the vicinity of boring 29-07. Documentation samples are proposed for the remaining perimeter where the AOC limits abut the steep slopes and from the base of the excavation. Based on the initial limits of excavation shown on Sheet 8 of the IRM drawings, approximately 1,150 cubic yards of soil will be excavated.

The excavated surface will be proof rolled with three passes with a vibratory roller. A high-visibility demarcation layer will be installed after proof rolling to ensure that potentially affected soil is not disturbed during future use (or that precautions are to be taken if the soil is disturbed). The excavated area will be backfilled with clean soil, compacted with a minimum of three passes with a vibratory roller, and graded to a 1 percent minimum slope to prevent ponding of water on the backfilled surface. Care will be taken to minimize disturbance of the grade adjacent to the steep slopes. The final 4 to 6 inches of the backfilled surface will be topsoil capable of sustaining native grass. The topsoil may be substituted with 4 to 6 inches of gravel if growing conditions are not suitable at the time the work is performed. The AOC 29 excavation plan is shown on Sheet 8 and the final grade plan is shown on Sheet 9 of the IRM drawings. Cross sections of the AOC 29 excavation and backfill are provided on Sheet 10 of the IRM drawings.

The graded surface of AOC 29 will drain toward the access road (toward the northwest) to a drainage ditch that will be reconstructed along the side of the road. The drainage ditch will be directed toward a storm water inlet near Building 30. Inlet protection will be installed around storm water basins in the vicinity of the work and not removed until the exposed soils are stabilized. Inlet protection details are provided on Sheet 12 of the IRM drawings.

4.2.6 AOC 30 - RICE PADDY AREA

PAHs and metals are present in surface soil in portions of the rice paddy area. The affected area is irregularly shaped and occupies approximately 2,620 square feet (Sheet 7 of the IRM drawings).

The proposed IRM in AOC 30 is excavation of the affected surface soil to a depth of 1 foot and offsite disposal of the affected soil. Confirmation samples will be collected along the perimeter of the excavation except for the portion along the steep slope where documentation samples will be collected. A high-visibility demarcation layer will be installed above the existing soil before 1 foot of clean, imported soil is placed and compacted. Disturbed portions of the Rice Paddy Area will be seeded with grass. Based on the initial limits of excavation, approximately 100 cubic yards of surface soil (0 to 1-foot bgs) will be excavated. No excavation will be conducted within 5 feet of the edge of the steep slope.

Before backfilling, two areas exhibiting elevated PCB concentrations, one slightly above (WSP-SB-617 at 8 to 8.6 feet bgs) and one slightly below (LBA-TP-08 at 5 feet bgs) the industrial direct contact SCO, will be excavated at the locations and depths shown on Sheet 7. Existing delineation sample results described in the Phase II SRI report and summarized on Figure 3-3 will be used as final confirmation samples. No additional samples will be collected from these excavated pits. The total volume of soil removal from these two pits will be approximately 70 cubic yards.

PAHs were detected slightly above the Industrial Use direct contract criteria in sample 30-08, which was collected at the base of a crescent-shaped pile of debris consisting primarily of asphalt waste. The pile of debris will be removed and disposed before confirmation sampling is conducted near boring 30-08.

4.2.7 AOC 31 - UPPER PARKING LOT 6 AREA

PAHs and metals are present in surface soil in this area. The proposed IRM for this area is excavation to a depth of 2 feet, confirmation sampling, offsite disposal, placement of a demarcation layer, backfilling to grade, and grass restoration. No excavation or confirmation sampling is planned beneath the existing roadway as the pavement will address the direct contact pathway in the future. The affected area occupies approximately 230 square feet (Sheet 7 of the IRM drawings) and will result in approximately 20 cubic yards of excavation.

4.2.8 AOC 32 - FORMER SPRAY POND / DRAINAGE DITCH AREA

PAHs, PCBs, and metals are present in surface soil samples and drainage ditch soil samples collected in this area. The affected soil area occupies approximately 12,750 square feet and the affected drainage ditch soil is present in approximately 580 linear feet of drainage ditch (Sheet 5 of the IRM drawings).

The western limit of AOC 32 is bounded by the existing and planned future presence of a roadway/parking lot in this area which eliminates the need to address the direct contact pathway for soil except in unpaved areas of the AOC. The proposed IRM to address the affected soil and drainage ditch soil is excavation to 2 feet bgs with offsite disposal. Based on the initial limits of excavation, approximately 950 cubic yards of soil and 50 cubic yards of drainage ditch soil will be excavated. Confirmation samples will be collected along the perimeter of the excavation. Documentation samples will be collected as described in Section 5.3.6 from the base of the excavation to document the concentrations of COCs remaining after 2 feet of excavation. After excavation, a high-visibility demarcation layer will be installed, followed by backfilling with clean soil to the approximate original grade. The final 4 to 6 inches of fill will be soil capable of sustaining growth of native grass.

The drainage ditch flow will be bypassed during execution of the IRM work using temporary dams and bypass pumps capable of pumping peak storm flows around the active remediation area. Following remediation, the drainage ditch will be restored by backfilling with soil, placing geotextile lining, and installing riprap along the ditch bottom and banks. A drainage ditch restoration detail is provided on Sheet 12 of the IRM drawings. Existing drainage structures such as weirs, pipes, and sluices, if removed during remediation, will be replaced in kind.

The existing extraction wells, treatment system and its utilities, and discharge piping will be protected throughout the IRM work in this area. The raised landscape planter will remain.

4.2.9 AOC 34 - AREA EAST OF BUILDINGS 13A AND 14

PAHs and CVOCs are present in samples collected from the areas east of Buildings 13A and 14. The PAH and CVOC affected areas overlap and combined occupy a total of 2,575 square feet in grassed, paved, and graveled areas (Sheet 4 of the IRM drawings).

The proposed IRM to address the affected soil is excavation and offsite disposal. Excavation to address CVOCs will extend a minimum of 3 feet bgs, based on existing data, followed by confirmation sampling along the base of the excavation where bedrock is not encountered. The existing and planned future presence of a roadway in this area eliminates the need to address the direct contact pathway for PAHs, except for the grassy area between the existing roadway and Buildings 13A and 14. Soil in this area, where not otherwise excavated to address CVOCs or overlain by asphalt, will be excavated to 2 feet bgs. Based on the limits of excavation shown on Sheet 4 of the IRM drawings, approximately 210 cubic yards of soil will be excavated. Confirmation samples will be collected along the perimeter of the excavation for PAHs and CVOCs, except for the portions along the existing roadway. After excavation, a demarcation layer will be installed where bedrock was not encountered. Clean soil will be placed in the excavated areas to restore the original grade and the surface restored to its original condition (seeded with grass or covered with asphalt or gravel).

The historical equipment and housing used for methanol offloading are present near the proposed excavation area. If necessary based on the results of sampling, the shed, controls, piping, and overhead pipe racks will be removed and properly disposed during IRM work in this area.

4.2.10 AOC 35C - BUILDING 11A

The proposed IRM for Building 11A to address the affected soil containing CVOCs and PAHs is excavation to bedrock and offsite disposal. The affected area occupies approximately 1,450 square feet and is bounded by the existing loading dock on the west side (Sheet 3 of the IRM drawings). Excavation to address CVOCs will extend to bedrock with depths ranging from a few inches to approximately 3 feet below the overlying building floor. Additional excavation warranted by the presence of PAHs will not extend below 2 feet bgs. Based on the initial limits of excavation shown on Sheet 3 of the IRM drawings, approximately 140 cubic yards of soil will be excavated. Confirmation samples for PAH and CVOC analyses will be collected along perimeter except along the loading dock wall. Because the planned future use of this area is greenspace, the concrete floor will not be replaced. On completion, the excavation will be backfilled with clean soil and gravel to bring the ground surface to grade.

4.2.11 AOC 35H - PARKING LOT 3

PAHs are present in surface soil in AOC 35H where piles of asphalt debris were prevalent near the edge of the pavement adjacent to Parking Lot 3. The area measures approximately 770 square feet.

The proposed IRM for Parking Lot 3 is removal of the accessible asphalt piles, excavation of affected soil to a depth of 2 feet, and offsite disposal. Based on the initial limits of excavation shown on Sheet 7 of the IRM drawings, approximately 60 cubic yards of soil will be excavated (quantity does not include the asphalt piles). Confirmation samples will be collected along the perimeter of the excavation except for the portion along the paved parking lot and along the steep slope. On completion of excavation, demarcation layer and a 2-foot thick layer of clean soil will be placed across the excavated area and the grass will be restored.

4.2.12 AOCs 35A, AOC 35D, AOC 35G, AOC 35K, AND AOC 35L

The proposed IRM for the following AOC 35 sub-areas is excavation to a depth of 2 feet with offsite disposal, placement of a demarcation layer where bedrock is not encountered, confirmation sampling where indicated on the Sheets, backfilling with clean soil, and restoration to match the original ground conditions.

AOC	Sheet	Borings	Contaminants	Area (SF) / Volume (CY)
35A - East of Building 24	7	SB-103	Arsenic	920 SF / 70 CY
35D - Near Parking Lot 4	7	SS-100	PAHs	350 SF / 30 CY
35G - South of Parking Lot 3	5	LBA-B17-TSS-3	Barium[8]	500 SF / 40 CY
35K - Former Railway Right-of-Way	7	LBA-SB-240	Arsenic	500 SF / 40 CY
35L - Former Railway Right-of-Way	7	DS-1, 35-20, 35-21	PAHs	1,400 SF / 110 CY

[8] The area South of Parking Lot 3 is being excavated to address the presence of barium, not arsenic, cadmium, and lead which were detected at concentrations minimally above the SCOs in this area.

Excavation in portions of the railway right-of-way may not be feasible due to slope stability issues, limited access by construction equipment, and deterioration of the rail spur and culvert crossings along the rail line. The conditions will be re-evaluated before implementation of the IRM.

5 IRM IMPLEMENTATION

Details describing the implementation of the IRMs are provided in this section and in the IRM drawings, presented as Sheets 1 through 13 of this IRM Work Plan. Major components of the IRMs include pre-remediation planning, site preparation, soil excavation and management, cap and soil cover construction, sanitary sewer evaluation, and recording of the institutional controls. IRM procedures described herein generally follow the Division of Environmental Remediation-10 (DER-10), Technical Guidance for Site Investigation and Remediation (NYSDEC 2010). Following IRM implementation, an inspection and maintenance program will be developed to assure that the IRMs and institutional controls remain in place and effective. These activities are described in the following sections.

5.1 PRE-REMEDIATION PLANNING

5.1.1 HEALTH AND SAFETY PLAN

A site-specific health and safety plan (HASP) will be prepared for the work which will comply with 29 Code of Federal Regulations (CFR) 1910.120, the Hazardous Waste Operations and Emergency Response regulations. All subcontractors will be required to prepare and follow their own HASP that is commensurate with the work and activities.

The primary anticipated hazards include potential worker and public exposure to construction hazards and potential chemical exposure. Worker and public safety hazards will include those typically found at a construction site using heavy equipment. Potential chemical exposures are anticipated to derive from inhalation of vapors and particulates and direct contact with soils containing CVOCs, PAHs, metals, and other constituents detected in Site investigation samples. The following engineering controls will be established to minimize these exposures:

- The excavation surfaces will be maintained damp to minimize dust generation
- Continuous air monitoring will be conducted while work is being performed to reliably measure airborne contaminants, to delineate areas where respiratory protection is required, and to verify that control measures are adequate
- Work zones will be established, including exclusion zones, contaminant reduction zones, and support zones, and workers will wear personal protective equipment as specified in the HASP

A copy of the HASP will be available at the Site during the conduct of all activities to which it is applicable.

5.1.2 COMMUNITY AIR MONITORING PLAN

A site-specific Community Air Monitoring Plan (CAMP) will be prepared for the work outlined in this plan. The CAMP will identify measures and/or actions to ensure that the public living and working near the site as well as employees or visitors to any building located on the site are protected from exposure to site contaminants during IRM activities. In general, the CAMP will require particulate air monitoring and organic vapor monitoring. Particulates will be monitored using a MIE PDM-3 Miniram direct sensing, real-time monitor (or equivalent), with data logging capabilities. Organic vapors will be monitored using a photoionization detector (PID) with data logging capabilities. The meters selected for particulates and organic vapor monitoring will be suitable for detection of constituents to levels below the CAMP action levels.

5.1.3 PERMITTING REQUIREMENTS

The site is subject to the Inactive Hazardous Waste Disposal Site Remedial Program requirements. As such, the NYSDEC's approval of the Work Plan precludes the need to obtain coverage under the Stormwater General Permit for Construction Activities. However, because the combined area of soil disturbance will be greater than 1 acre, a Notice of Intent is required to be submitted and a Stormwater Pollution Prevention Plan (SWPPP) will need to be prepared that meets the substantive requirements of the NYSDEC SPDES General Permit for Stormwater Discharges. (GP-0-15-002). Erosion and sediment controls specified in the SWPPP shall comply with applicable sections of "New York State Standards and Specifications for Erosion and Sediment Control", July 2016.

5.2 SITE PREPARATION

Site preparation activities will be conducted before general excavation and soil management begins and will include location and protection of underground utilities in the proposed excavation areas, installation of erosion and sedimentation controls including provisions for dust control, clearing of brush and small trees, staging area construction, installation of temporary flow bypass and water management facilities, and establishment of site security and haul routes through the facility roadways. Details of these Site preparation activities are described in the following sections. Locations and details of the temporary facilities are shown on the IRM drawings.

5.2.1 UTILITY LOCATION AND PROTECTION

Underground utility lines (water, electric, gas, and sewer) are known to be present within the planned excavation areas of certain AOCs (Sheets 3 through 8 of the IRM drawings). The utility locations shown shall not be solely relied upon. Dig Safely New York, New York's one-call system, will be contacted at least three days before starting work to mark all public utilities at the Site. A private utility locator will also be contracted to locate and mark all utilities within each of the AOC work areas. Utility lines within the work areas may be temporarily de-energized, drained, or removed during excavation work, then restored in kind following completion of the work. Identified utilities that are outside the proposed remediation areas and all overhead utilities will be protected throughout the work.

Process lines and equipment found within excavation areas that are confirmed to be inactive and not required for future use of the Site may be removed and not replaced.

5.2.2 EROSION AND SEDIMENT CONTROLS

Erosion and sediment controls specified in the SWPPP will be installed before any intrusive soil disturbance activity commences. Additional controls will be implemented as necessary based on Site conditions to limit the amount of erosion and sedimentation in surface water runoff. Erosion and sediment controls to be installed and maintained include, but may not be limited to, silt fence, filter socks, hay bales, erosion mat, earthen berms, diversions, stockpile covers, stabilized construction entrances, inlet and outlet protection, and temporary and permanent seeding. Installation details are provided on Sheet 12 of the IRM drawings. Additional controls may be specified in the SWPPP. The erosion and sediment controls will not be removed until the disturbed areas have been backfilled and stabilized.

5.2.3 CLEARING

IRM work in certain AOCs require removal of small trees and brush before excavation work commences. Clearing will be performed only to the extent necessary to permit equipment access for remediation of the affected soils. Existing vegetation in non-remediation areas will be protected. Attempts will be made to save trees with trunks larger than 4 inches in diameter, especially those that may be habitat for threatened or endangered species such as the northern long-eared bat. Smaller trees and trees that cannot be saved shall be chipped and used for mulch during Site restoration activities. Brush and root systems shall be disposed with the excavated soil.

5.2.4 STAGING AREA CONSTRUCTION

Except under limited circumstances (e.g., AOCs that are fully delineated with no proposed confirmation samples), excavated soil shall be staged onsite pending characterization and offsite disposal. Several potential stockpile locations and potential haul routes through the facility are shown on Sheet 11 of the IRM drawings. Additional areas may be considered as the work progresses.

Soil from each AOC shall be stockpiled separately (no comingling of soils from separate sources). Excavated soil will be staged in 200 to 300 cubic yard (maximum) stockpiles on a 10-mil layer of polyethylene sheeting. Outdoor staging areas will be bermed to prevent precipitation runoff and the stockpiles covered with polyethylene sheeting during precipitation events and at the end of each work day. Polyethylene covers shall be draped over the berms to prevent precipitation accumulation within the staging areas. A cross section of a typical staging area is provided on Sheet 11 of the IRM drawings.

5.2.5 DUST CONTROL MEASURES

The excavation surfaces will be maintained damp and additional dust suppressant will be applied, as needed, to prevent or reduce dust emissions resulting from construction activities. Dust suppressant will be applied when exposed ground surfaces are dry and wind or vehicular traffic result in visible dust generation. Dust suppression will also be utilized when action levels in the HASP or CAMP are exceeded. Dust suppressant applications will consist of applying potable water via a mobile broadcast applicator in a controlled manner. Water for dust suppression will be available from various locations on Site.

5.2.6 DRAINAGE DITCH FLOW BYPASS

Drainage ditches flow through portions of AOCs 32 (Former Spray Pond / Drainage Ditch Area) and 35K and 35L (Former Railway Right-of-Way) where IRM excavation work is planned. The drainage ditches are intermittent meaning that flow is present only during high water table conditions or precipitation events. To the extent practical, IRM activities in these AOCs will be sequenced to be completed during low-flow or dry conditions.

If base flows are present or if precipitation is forecasted before restoration work can be completed, the ditch flows shall be bypassed around the IRM work areas to prevent contamination of clean water by excessive sediment or site-related contaminants. Earthen dikes will be constructed upstream and downstream of the active work areas and covered with gravel to protect the soil from erosion. Water from the upstream side will be bypassed using end-suction or submersible pumps and transferred to the downgradient side of the stream. The channel at the downstream side will be armored with riprap or other energy dissipating outlet protection device to prevent scouring. Any water that is not bypassed in this manner (i.e., direct precipitation in work area) will be managed as described in Section 5.2.7.

5.2.7 WATER MANAGEMENT

Any water that has the potential of contacting affected materials shall be collected and transferred to holding tanks (e.g., polyethylene tanks or fractionation tanks) equipped with secondary containment. WSP anticipates that potential sources of affected water will include water used for decontamination purposes, direct precipitation and runoff from soil staging areas, and perched groundwater and direct precipitation that accumulates within the excavations.

After allowing entrained sediment to settle out in the holding tanks, water from AOCs containing CVOCs and PAHs shall be transferred to the onsite IRM treatment system for treatment and discharge via the permitted State Pollutant Discharge Elimination System (SPDES) outfall. Water from AOCs containing metals may be used as dust suppression for soil materials designated for offsite disposal. The excess water shall be characterized for potential discharge, with approval, to the publicly-owned treatment works (POTW) or offsite disposal. Characterization testing will be based on the POTW or disposal facility requirements.

5.2.8 HAUL ROUTES

Most access roads through the Site are not suitable for two-way traffic. As such, a haul route through the site has been developed (Sheet 11 of the IRM drawings) to minimize traffic flow issues during excavation and soil transfer to the staging areas and during soil loading from the staging areas for offsite disposal. When leaving the site, loaded trucks shall follow designated truck routes through the city and town of Ithaca.

5.2.9 SITE SECURITY

The facility is enclosed by a chain link fence. Entry to the Site is controlled through a manned guard house and lockable gates. Personnel entering the Site will be required to sign in at the beginning of the work shift and sign out when leaving at the end of the shift. WSP will coordinate with security personnel to develop sign in and sign out procedures if secondary exits are used by trucking companies hauling contaminated soil to offsite disposal locations.

Exclusion zones and potential hazards such as open excavations and stockpiles shall be clearly marked to protect security personnel while making their daily rounds. Access roads must be kept clear at all times to allow access by security personnel and emergency response vehicles.

5.3 SOIL EXCAVATION AND MANAGEMENT

Excavation and offsite disposal is specified for all AOCs; AOC 35 is comprised of 7 isolated areas. This section describes the excavation, soil screening, confirmation sampling, onsite soil management, waste characterization, and transportation and disposal activities to be performed during execution of the IRMs.

5.3.1 EXCAVATION LIMITS

The initial excavation limits for each of the AOCs are shown on Sheets 3 through 8 of the IRM drawings. The initial limits of excavation in each AOC are defined by the state plane coordinates of each corner or turning point shown. The points defining the initial excavation limits will be staked by a surveyor registered in the state of New York. When excavation and confirmation sampling is completed, the final excavation limits will be surveyed before backfilling begins.

5.3.2 PAVEMENT REMOVAL

Remediation in several AOCs will require removal of concrete slabs inside buildings and asphalt pavements in access roads and parking lots. Pavements to be removed will be saw-cut to produce smooth edges. Care will be taken to note the locations of marked utilities before the pavements are removed. Utility locations will be repainted after pavement removal.

After saw-cutting, pavements will be broken up using hydraulic hammers, then removed using conventional earthmoving equipment and stockpiled pending proper characterization and recycling or disposal. Pavements to be restored shall be replaced in kind.

5.3.3 EXCAVATION AND SEGREGATION

Based on the initial limits of excavation and the planned depths of excavation in each of the AOCs, approximately 4,550 cubic yards of soil will be excavated during the course of IRM work at the Site. Following Site preparation and pavement removal, where necessary, soil will be excavated using conventional earthmoving equipment including hydraulic excavators, loaders, and skidsteer equipment. Soil will be transferred by dump truck to one of several potential stockpile locations for subsequent waste characterization and offsite disposal. Soil from each AOC will be stockpiled separately and covered at the end of each work day.

In AOCs where excavation limits are defined and no confirmation samples are proposed, soil may be characterized in advance and direct-loaded to transport carriers. These AOCs include AOC 27 – Former Salt Baths, AOC 35A – East of Building 24, AOC 35D – Near Parking Lot 4, and AOC 35K – Former Railway Right-of-Way/DS-1.

Soil from AOCs with CVOCs will be screened with a PID during excavation as described in Section 5.3.4. Soil that screen high compared to other soils within the AOC will be stockpiled and characterized separately.

Excavations will be extended to the depths described in Section 4.2 or to bedrock if shallower. No bedrock is proposed for removal except in AOC 27, the former salt baths area. In this AOC, weathered, loose, or fragmented bedrock will be removed. In general, excavations will be sloped near building columns, footers, foundations, retaining walls, monitoring wells, utility poles, and other similar structures.

No personnel will be permitted to enter any excavation that is not properly sloped or shored or evaluated by a competent person as defined by OSHA excavation regulations. All open excavations will be properly marked and secured to prevent unauthorized access. In addition, soil stockpiles in the staging area will be protected from unauthorized access. Breathing zone and property boundary monitoring will be conducted in accordance with the HASP and CAMP.

Perched groundwater or accumulated precipitation may be encountered during excavation of affected soil. Water that accumulates in the excavations will be removed with end-suction or submersible pumps and transferred to storage tanks for management as described in Section 5.2.7. Accumulated sediment from dewatering will be managed with affected soil.

5.3.4 FIELD SCREENING

During the excavation of AOCs containing CVOCs, soils will be field screened using the zero headspace method with a properly calibrated PID (equipped with an 11.7 eV lamp). Excavated soil with similar PID readings will be stockpiled together to ensure that soil that may potentially exhibit a hazardous waste characteristic is properly managed.

Similar screening in AOCs with soil affected by heavy metals will be performed using a properly calibrated X-ray fluorescence (XRF) meter to identify materials that may exceed direct contact SCOs during excavation.

PID and XRF measurements will also be used to screen potential soil confirmation and documentation sample locations as described in the following sections. Field screening results will not be used for soil disposal determinations. Disposal decisions will be made based on waste characterization analysis as described below in Section 5.3.7.

5.3.5 CONFIRMATION SAMPLING

Post-excavation confirmation samples will be collected and the results compared to the applicable SCOs. The excavation perimeters where confirmation sampling will be performed are depicted by dashed lines shown on Sheets 3 through 8 of the IRM drawings. Confirmation samples at the base of excavations will only be collected in AOC 28 and 34 affected by CVOCs where the excavations are not extended to the top of bedrock.

Excavation perimeters shown as solid lines on Sheets 3 to 8 of the IRM drawings indicate that no confirmation sampling is proposed. In certain cases, such as the isolated locations associated with AOC 35, SRI samples that did not exceed the applicable SCOs will be used as final confirmation samples.

All confirmation samples will be collected and analyzed as discrete samples in accordance with WSP standard operating procedures (SOPs). Where required, perimeter samples will be collected at an average rate of 1 sample per 30 linear feet, with selected locations biased toward areas with the highest expected COC levels or locations that screen the highest using field monitoring instruments. The depth of the perimeter samples will correspond to the depth interval where SCO exceedences occurred. Samples collected during the SRI phase will be used as final confirmation samples if the locations fall on the excavation line. Where required, excavation base samples will be collected at a rate of 1 sample per 900 square feet (30-foot grid). Duplicate samples will be collected at an approximate rate of 1 per 20 samples.

Samples will be packed in coolers with ice and shipped under chain of custody to the analytical laboratory. Confirmation samples will be analyzed for the parameters listed in Table 3-1 for each AOC; the laboratory analytical methods will be consistent with those prescribed in the SRI work plan. Samples will be analyzed on a 2- to 3-day turnaround time to minimize contractor downtime. Confirmation sample results will be compared to the appropriate SCO for each area. In general, if the results exceed the applicable SCO, additional excavation followed by additional confirmation sampling will be performed. If the results only marginally exceed the SCO, the results and locations will be reviewed with the NYSDEC before excavating additional soil.

5.3.6 DOCUMENTATION SAMPLING

Where the excavations are not extended vertically to the bedrock interface in AOCs affected by PAHs, metals, and PCBs (e.g., AOCs subject to restricted residential, commercial, or industrial direct contact criteria), documentation samples will be collected to document the soil levels achieved by the remedy and the results will form the basis for the Site Management Plan (SMP) to be developed after completion of the IRMs. Documentation samples will also be collected at the base of AOC 1 after excavation to a depth of 3 feet. Excavation bottom samples used for documentation will be collected at a rate of 1 sample per 900 square feet and will be analyzed for the COCs applicable to each individual AOC. Duplicate samples will be collected at an approximate rate of 1 per 20 samples. No additional excavation will be performed based on the results of documentation sampling.

Documentation sampling along excavation perimeters will be performed where excavation is not proposed due to the presence of structures, pavements, and steep slopes that cannot be safely excavated.

5.3.7 CHARACTERIZATION FOR DISPOSAL

Excavated soil accumulated in the soil stockpiles will be characterized for proper disposal as required by the disposal facilities. Representative samples from each stockpile will be collected in accordance with WSP SOPs and analyzed for one or more hazardous waste characteristics including toxicity by TCLP, reactivity, corrosivity, and ignitability. Samples will be analyzed for other parameters that may be required by the disposal facilities.

Soils from AOCs designated for direct loading to transport carriers shall be characterized in advance of excavation.

One representative sample from each stockpile will be collected and analyzed for disposal characterization purposes. Samples for volatile organic compound (VOC) analyses will not be composited. Soils characterized as hazardous may require additional laboratory testing as required by the selected disposal facility to assess compliance with the Land Disposal Restrictions regulations.

5.3.8 TRANSPORTATION AND DISPOSAL

After waste profiles are approved by the disposal facilities, stockpiled soil (or direct-loaded soil) will be transported by truck to the approved facilities which are permitted and licensed to accept the waste based on its waste characterization results. Used polyethylene sheeting, personnel protective equipment, sampling equipment, clearing and grubbing wastes, and other debris will be disposed with the soil. Pavements not affected by AOC-related COCs will be recycled at an offsite facility.

Shipments of non-hazardous waste will be accompanied by a non-hazardous waste manifest that at a minimum includes transporter and disposal facility names and locations, shipping dates, and approximate weight. If any portion of the waste is determined to be a hazardous waste, shipments will be accompanied by a hazardous waste manifest. Transportation and disposal of hazardous wastes will comply with applicable requirements of Department of Transportation regulations and other applicable federal, state, and local regulations. A WSP representative may, with Emerson approval, sign waste transportation and disposal documents on behalf of Emerson.

5.3.9 BACKFILLING AND COMPACTION

After the excavation, confirmation and documentation sampling activities are complete, the excavations will be backfilled with clean fill and topsoil from offsite sources. A minimum of 1 sample will be collected from each source of clean fill. Additional samples from each source will be based on the volume received. Sample frequency and analytes shall conform to Table 5.4(e)10 of DER-10 guidance. Additional parameters may be analyzed based on the source of the soil. The results of the testing will be compared to the allowable constituent levels for imported fill or soil found in Appendix 5 of DER-10 guidance. The NYSDEC form "Request to Import/Reuse Fill or Soil" (Appendix A) will be completed and submitted to the NYSDEC for review and the source approval before any soil is imported to the Site.

A high-visibility demarcation layer will be installed as a visual marker between clean soil backfill and potentially contaminated soil that was not excavated. No demarcation layer will be installed in the restored drainage ditch in AOC 28 or in any AOC that is excavated to bedrock.

Clean soil shall be placed in 12-inch loose lifts and compacted with a minimum of three passes with compaction equipment. Compaction testing will be required for fills beneath pavements. Fill beneath concrete and asphalt will be compacted to 95 percent of the maximum dry density as determined by standard proctor tests. Moisture content shall be within 3 percent of the optimum as determined by the proctor tests. Compaction testing shall be performed at a rate of 1 test per 1,000 square feet per lift within each area. If a test does not meet the compaction or moisture specification, the entire lift shall be reworked, compacted and retested.

5.3.10 RESTORATION

Surfaces of backfilled excavation areas will be restored in one of three ways: vegetated with native grasses, covered with gravel for erosion protection, and paved with concrete or asphalt. In all cases, the total thickness of the cover (the specified combination of soil, gravel, pavement) will be one foot for commercial and industrial use areas and two feet in restricted residential areas. A demarcation layer will be placed in all areas not excavated to bedrock. Where pavement is specified, the total thickness of asphalt or concrete will not be less than 6 inches.

The following table describes the anticipated cover at the completion of the IRM activities. Note that the post-development surface may differ.

Area of Concern	Fill Materials	Restored Surface
AOC 1 - Former Department 507 Degreaser	Soil to 1 foot bgs, gravel to 6 inches bgs	Asphalt (6 inches)
AOC 26 - Building 24 Area (Interior)	Soil to 1 foot bgs, gravel to 6 inches bgs	Concrete (6 inches)
AOC 26 - Building 24 Area (Exterior)	Soil to 1 foot bgs, gravel to 6 inches bgs	Asphalt (6 inches)
AOC 27 - Former Salt Baths Area	Soil to 6 inches bgs, gravel to surface	Gravel
AOC 28 - Building 30/Oil Shed Area	Soil to 6 inches bgs, topsoil to surface	Grass
AOC 29 - Former Propane Storage Area	Soil to 6 inches bgs, topsoil to surface	Grass
AOC 30 - Rice Paddy Area	Soil to 6 inches bgs, topsoil to surface	Grass
AOC 31 - Upper Parking Lot 6 Area	Soil to 6 inches bgs, topsoil to surface	Grass
AOC 32 - Former Spray Pond / Drainage Ditch Area	Soil to 6 inches bgs, topsoil to surface / see Detail on Sheet 12 for ditch restoration	Grass / Riprap (ditch)
AOC 34 - Area East of Buildings 13A and 14	Soil area – soil to 6 inches bgs, topsoil to surface Road area – soil to 1 foot bgs, gravel to 6 inches bgs	Grass / Asphalt (6 inches)
AOC 35A - East of Building 24	Soil to 6 inches bgs, topsoil to surface	Grass
AOC 35C - Building 11A	Soil to 6 inches bgs, gravel to surface	Gravel
AOC 35D - Near Parking Lot 4	Soil to 6 inches bgs, topsoil to surface	Grass
AOC 35G - South of Parking Lot 3	Soil to 6 inches bgs, topsoil to surface	Grass
AOC 35H - Parking Lot 3	Soil to 6 inches bgs, topsoil to surface	Grass
AOC 35K - Former Railway Right-of-Way (LBA-SB-240)	Soil to 6 inches bgs, topsoil to surface	Grass
AOC 35L - Former Railway Right-of-Way (DS-1)	Soil to 6 inches bgs, topsoil to surface see Detail on Sheet 12 for ditch restoration	Grass / Riprap (ditch)

In AOCs where vegetation is specified, the top 4- to 6-inch layer of backfilled soil shall be suitable to sustain the growth of appropriate vegetation. The final fill surface shall be fertilized, seeded with native grasses, and mulched. Erosion mat or tackified mulch shall be placed on erosion-prone areas.

Gravel shall be placed as the final surface in AOCs 27 and 35C (Building 11A). In these areas, soil will be placed and compacted to within 6 inches of the ground surface. A 6-inch thick layer of gravel (No. 57 stone or equivalent) will be placed over the compacted soil. Geotextile and riprap will be used to restore the affected portions of the drainage ditches. The drainage ditch restoration detail is provided on Sheet 12 of the IRM drawings.

Asphalt and concrete in designated AOCs will be replaced to match the pre-existing conditions. In each case, a 6-inch layer of subbase shall be placed and compacted. Asphalt restoration in AOC 1 shall consist of 4 inches of base course and 2 inches of wearing course separated by a tack coat and geotextile interlay. Replacement concrete shall match the existing reinforcement and slab thickness, be doweled into the existing slab on 12-inch centers, and meet 3,500 pounds per square inch compressive strength after 28 days of curing. Asphalt paving and concrete materials and workmanship shall comply with New York State Department of Transportation (NYSDOT) standards.

5.4 AOC 1 CAP CONSTRUCTION

Soil at depths up to 18 feet bgs in AOC 1 contain CVOCs above the PoG SCO that cannot be effectively excavated due to the presence of several underground utilities expected to be encountered between 3 and 7 feet bgs. A low-permeability cap has been designed to minimize migration of CVOCs present in soil at depths greater than the 3-foot deep excavation limit. The cap limits in AOC 1 will be the same limits shown for the excavation on Sheet 6 of the IRM drawings.

The excavation will remove soil to depths of approximately 3 feet bgs, where the highest concentrations of CVOCs were detected and where the shallowest utility line is expected to be present. After excavation, a high visibility demarcation barrier will be installed followed by a cap consisting of clean, compacted soil fill, GCL, 6 inches of gravel subbase, and a 6-inch thick layer of asphalt will be constructed. GCL consists of a sodium bentonite layer bound between two layers of woven geotextile that are needle punched together and laminated to a thin flexible liner. When saturated, the GCL is essentially impermeable with a permeability of 5×10^{-10} centimeters per second for a typical GCL thickness. The GCL was selected as a component to the cap to minimize infiltration that could mobilize the CVOCs that were detected in deeper zones in the AOC. The cap details and sections are shown on Sheet 10 of the IRM drawings.

After excavation, soil backfill will be placed in 12-inch loose lifts and compacted. Compaction of the soil fill will be tested to assure compaction to 95 percent of the maximum dry density and within 3 percent of optimum moisture content. One compaction test per 1,000 square feet per lift shall be performed. The soil fill will be graded to accommodate the GCL, 6 inches of aggregate subbase, 4 inches of bituminous base course, and 2 inches of wearing course. The GCL will be placed above the compacted soil in accordance with manufacturer's instructions. Asphalt subbase, materials and installation procedures shall conform to applicable NYSDOT standards and specifications.

5.5 SANITARY SEWER EVALUATION

The scope of work associated with the sanitary sewer evaluation includes removing residual water and solids from selected manholes and trenches and evaluating conditions of sewer lines at specified locations within the facility buildings as shown on Sheet 13 of the IRM drawings. The work will be performed in two phases with the manhole cleaning to be completed first. After residuals removal as described in Section 5.5.1, the manholes will be periodically inspected to evaluate potential effects of precipitation events on manhole conditions. Based on these observations, the plan for the sewer line investigation (Section 5.5.2) will be reviewed and modified, if necessary, before implementation.

5.5.1 MANHOLE CLEANING

Selected manholes were cleaned during the time from March 13 through March 17, 2017. Manhole residuals were removed by physical means (shovel, breaker bars, scrapers, etc.) followed by final removal by high vacuum. The use of water to remove solid residuals from manholes was minimized to the extent practical; however, all lines in the manholes were temporarily plugged to prevent solid residuals and water from being discharged to the municipal sewer system. The manholes that were cleaned include MH-A1, MH-A20, MH-A2, MH-A3, MH-A4, MH-A5, MH-03, MH-21, MH-23, MH-C1, MH-C2, MH-C3, MH-08, MH-D1, MH-10, MH-35, and MH-36. Residuals from trench drains near MH-03 and MH-07 were also removed. The manholes and trench drains are shown on Sheet 13 of the IRM drawings.

The solid and liquid materials were transferred to nine drums, characterized, and shipped offsite for disposal. Residual solids removed from MH-D1 and MH-A20 were managed separately from solids generated at other locations based on data that indicated the presence of cadmium and barium, respectively, at concentrations above the TCLP limits. Analytical data pertaining to the residual material in the manholes is shown on Figure 3-7. Composite sampling was conducted for characterization purposes. Results indicated that the residuals did not exhibit a hazardous characteristic. On May 2, 2017, the nine drums were shipped to Covanta Environmental Solutions in Niagara Falls, New York for disposal as a non-hazardous waste. Additional detail will be provided in a follow up report that also includes the sewer line investigation described below.

5.5.2 SEWER LINE INVESTIGATION

Locations along the sanitary sewer lines shown on Sheet 13 of the IRM drawings will be investigated to assess pipe integrity and potential impacts in soil beneath or adjacent to the sewer lines. These locations were selected based on the results of the manhole sampling described in Section 5.5.1. Where not impeded by residual solids in pipes, a tracer probe system equipped with a locator will be pushed through specific pipe runs from the manholes to identify their alignments and connections at the surface. The results of the tracer study will be used to determine locations of trenching for soil investigation. The approximate locations for sewer investigation are shown on Sheet 13 of the IRM drawings.

If the alignment of a pipe can be identified at the surface using the tracer probe, an approximate 5-foot section of concrete floor slab will be removed running parallel and immediately adjacent to the pipe. If the alignment cannot be identified, an approximate 5-foot section of concrete floor slab will be removed perpendicular to the presumptive location of the pipe to confirm its presence and alignment. The slabs will be saw cut, demolished and removed with an excavator. The excavations will then be advanced to the invert (base) elevation of the sewer pipe for inspection and sample collection.

A sample will be collected from 6 inches to 1 foot below the base of the excavation and submitted for laboratory analyses, the results of which will be used to evaluate the integrity of the line. Samples will be collected from areas with visible signs of staining or impacts, if encountered or from the center of the excavation. The depths of the excavations will vary between approximately 2 and 4 feet below the floor level (primarily in the range of 3 feet). Based on the shallow nature of bedrock in most of the areas to be evaluated, the samples will likely consist of a combination of soil, backfill, and weathered rock. All samples will be analyzed for barium and cyanide. Samples collected from three locations along pipes that are believed to be connected to MH-D1 will also be analyzed for cadmium based on data that indicate its presence in this manhole at a concentration above the TCLP limit. In addition, the sample collected from along the pipe between MH-36 and MH-53 will be analyzed for VOCs.

Concrete removed during the sewer evaluation will be placed in container(s) for characterization and offsite disposal. The underlying excavated material will be temporarily stockpiled on plastic sheeting adjacent to each excavation. This material will subsequently be used for backfilling the pits after the investigation is completed at each location. The remaining voids of the excavations will be backfilled with aggregate and finished flush with the surrounding concrete surface.

5.6 INSTITUTIONAL CONTROLS

Institutional controls in the form of deed restrictions will be placed on areas of the Site where soil containing COC concentrations greater than the Unrestricted Use SCOs remain at the Site. The IRMs described in this work plan take into consideration the planned future use of the property. The deed notices will prevent changes from less restrictive use to more restrictive use (e.g., industrial to restricted residential) without performing additional remedial measures.

Deed notices will also serve to protect the locations where a soil cover is necessary to eliminate the direct contact exposure pathway and to notify prospective purchasers of the presence of contaminated materials below the soil cover.

5.7 INSTITUTIONAL CONTROL AND ENGINEERING CONTROL PLAN

An Institutional and Engineering Control (IEC) Plan will be developed as a component of a larger SMP for the Site. The SMP will be developed subsequent to completion of all IRMs, Feasibility Study, Amended ROD, remedial actions, and Final Engineering Report. The SMP and its components will be used to facilitate redevelopment and to ensure that the IRMs and Remedial Actions remain functional and effective during and after redevelopment. Regular inspection of the caps, soil covers, and permanent erosion controls (i.e., gravel and vegetation) will identify potential problems and allow maintenance actions to be taken before more serious issues arise. For example, worn or distressed vegetation is an early indicator that the soil is more susceptible to erosion in the event of a high intensity precipitation and runoff event.

Lastly, the IEC Plan will identify the locations of the Site where contamination remains and will include procedures for assuring that the institutional controls remain in place and effective.

6 DOCUMENTATION AND REPORTING

WSP will provide full-time oversight and construction management during execution of the IRM activities. Oversight personnel will be responsible for maintaining project field records as described below. After completion of the field work and waste transportation and disposal, the project records will be incorporated into a final report.

6.1 DAILY REPORTS

WSP's oversight personnel will maintain a bound log book to document remedial action activities. At the end of each work day, a daily report will be prepared to summarize the following information:

- date, name of oversight personnel, and daily report number
- weather conditions
- log of contractor personnel, equipment, material deliveries, and visitors
- health and safety meeting notes, accidents or near-hit incidents, and CAMP/HASP air monitoring data
- description of IRM work conducted
- description of samples collected and results received
- summary of waste materials shipped offsite
- summary of important meetings, discussions, and decisions
- description of problems encountered and their resolution

Copies of the daily report will be maintained at the site and the information used during development of the final report. Record copies of manifests and sampling documentation will be maintained in a secure location. Copies of the daily reports and CAMP data will be provided to the NYSDEC on a weekly basis.

6.2 PHOTOGRAPHS

The oversight personnel will maintain a photographic log of the IRM activities and daily progress. Photographs will be digital prints stamped with the date and time.

6.3 IRM COMPLETION REPORT

After completion of field work and disposal activities, an IRM Completion report will be prepared using information from the daily reports and from contractors responsible for execution of the work. The IRM Completion report will include, at a minimum, a narrative of the remedial action work performed, compilation of PID screening and sample data, and quantities and locations of disposed wastes. Waste transportation and disposal records and selected photographs will be appended to the final report.

A set of drawings will be maintained in the field to document and track approved changes and final conditions of the remedy. A final set of as-built drawings will be prepared using the red-lined changes to the work plan drawings and surveyor deliverables showing final limits of excavations and cap, soil cover, subgrades and final grade contours and invert elevation from restored drainage ditches.

The IRM Completion report will be prepared within 60 days of the completion of field work.

7 IRM SCHEDULE

Emerson anticipates that the IRM work will commence in the summer and fall of 2018. Following NYSDEC approval of this IRM Work Plan, the estimated durations of the key tasks are as follows:

SWPPP and permit applications	3 weeks
Bid Specifications and Request for Proposal	3 weeks
Bidding period and award of contract	4 weeks
IRM implementation including sewer investigation	12 to 14 weeks
IRM Completion report	6 to 8 weeks

REFERENCES

- New York State Department of Environmental Conservation (NYSDEC). 2010. Draft Department of Environmental Remediation Technical Guidance for Site Investigation and Remediation. May 3.
- New York State Department of Environmental Conservation (NYSDEC). 2016. New York State Standards and Specifications for Erosion and Sediment Control. July.
- WSP Engineering of New York, P.C., 2011. AOC-1 Soil Design Report and Work Plan. Emerson Power Transmission, Ithaca, New York. October 27.
- WSP. 2015. Self-Implementing PCB Remediation Completion Report. Emerson Power Transmission Site, Ithaca, New York. Site No. 7-55-010. July 16.
- WSP. 2017. Phase II Supplemental Remedial Investigation Report. Former Emerson Power Transmission Facility, Ithaca, New York. July 6.

ACRONYMS AND ABBREVIATIONS

amsl	above mean sea level
AOC	Area of Concern
CAMP	Community Air Monitoring Plan
CVOC	chlorinated volatile organic compound
CFR	Code of Federal Regulations
COC	constituent of concern
CY	cubic yard
DER-10	NYSDEC Department of Environmental Remediation Technical Guidance for Site Investigation and Remediation
EPT	Emerson Power Transmission
GCL	geosynthetic clay liner
HASP	Health and Safety Plan
IEC	Institutional and Engineering Control
IRM	interim remedial measure
µg/kg	micrograms per kilogram
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOT	New York State Department of Transportation
PAH	polycyclic aromatic hydrocarbon
PCBs	polychlorinated biphenyls
PID	photoionization detector
PoG	Protection of groundwater
POTW	publicly-owned treatment works
RCRA	Resource Conservation and Recovery Act
SMP	Site Management Plan
SCO	soil cleanup objective
SF	square feet
SPDES	State Pollutant Discharge Elimination System
SOP	standard operating procedure
SRI	Supplemental Remedial Investigation
SWPP	Storm Water Pollution Prevention Plan
TCLP	Toxicity Characteristic Leaching Procedure
TCE	trichloroethene
VOC	volatile organic compound
XRF	X-ray Fluorescence

FIGURES

DWG Name: 314000551_Figure 1_A01.pub
Checked: MEF 05/19/17
Approved:
Drawn By: emk 051717
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REFERENCE:
7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLE
ITHACA EAST AND WEST, NEW YORK 2016
SCALE 1:24,000

QUADRANGLE LOCATION

N

0 1000 2000 4000
SCALE, FEET

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

FIGURE 1-1

SITE LOCATION

FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK
PREPARED FOR
EMERSON
ST. LOUIS, MISSOURI

NOTES:

1. GOOGLE EARTH AERIAL PHOTOGRAPH, IMAGERY DATE 5/5/2013.

2. AERIAL PHOTOGRAPHS USED FOR THIS ILLUSTRATION CONTAIN INHERENT DISTORTIONS RESULTING FROM THE PHOTOGRAPHIC PROCESS THAT MAY RESULT IN SLIGHT MISALIGNMENTS WITH THE SURVEYED SITE FEATURES.

LEGEND

34 BUILDING NUMBER

PROPERTY BOUNDARY

APPROXIMATE LIMITS OF SOIL MANAGEMENT WITHIN AOC

100 0 100 200

SCALE, FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE REPRODUCTION MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

D

REV	DESCRIPTION
REVISIONS	

SEAL

DATE

DRAWN BY RAE 06/22/2018

CHECKED SAR 07/03/2018

APPROVED SAR 07/09/2018

IRM SOIL REMEDIATION AREAS

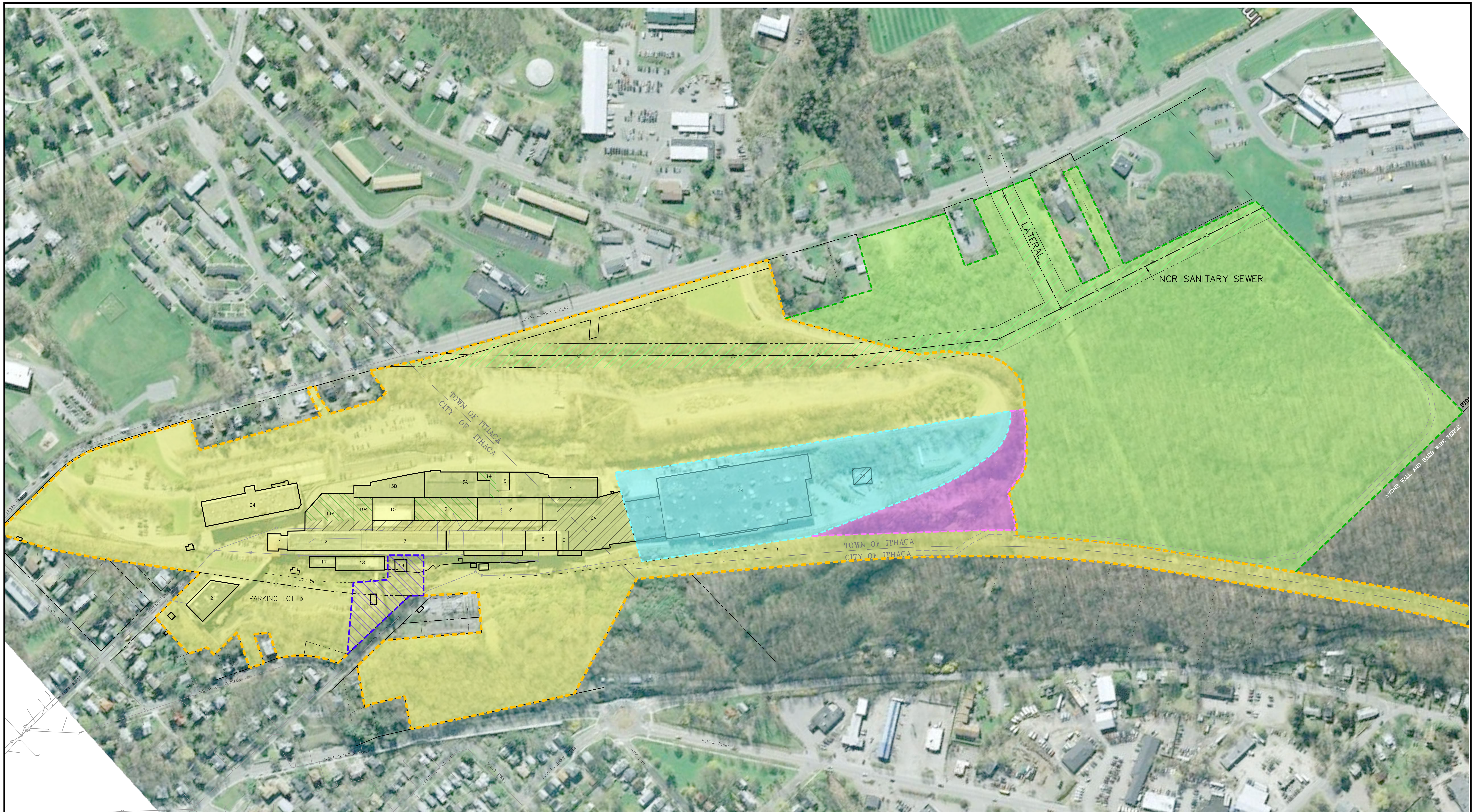
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON
ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

FIGURE 1–2

Drawing Number
314P0551–D124



LEGEND

34	BUILDING NUMBER
	PROPOSED EASEMENT FOR NCR SEWER
	SANITARY SEWER
	PROPOSED BOUNDARY FOR OU–1 (RETAINED PROPERTY)
	PROPOSED BOUNDARY FOR OU–2/PROPERTY BOUNDARY SITE NO. 755010 (YELLOW SHADED AREA INDICATES WHERE RESTRICTED RESIDENTIAL USE SOCs ARE APPLIED)
	PROPOSED FOR REMOVAL FROM OU–2/PROPERTY BOUNDARY SITE NO. 755010
	AREA WITHIN OU–2 WHERE COMMERCIAL USE SCOs ARE APPLIED
	AREA WITHIN OU–2 WHERE INDUSTRIAL USE SCOs ARE APPLIED
	PROPOSED DEMOLITION AREA FOR GREEN SPACE
	PROPOSED DEMOLITION AREA FOR ROADWAY/PARKING

150 0 150 300
SCALE, FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE REPRODUCTION MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

D

REVISIONS

REV	DESCRIPTION

DRAWN BY
CHECKED
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SEAL
DATE

PROPOSED LAND USE AND APPLIED SCOs

IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK
PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

FIGURE 2–1

Drawing Number
314P0551–D125

NOTES:

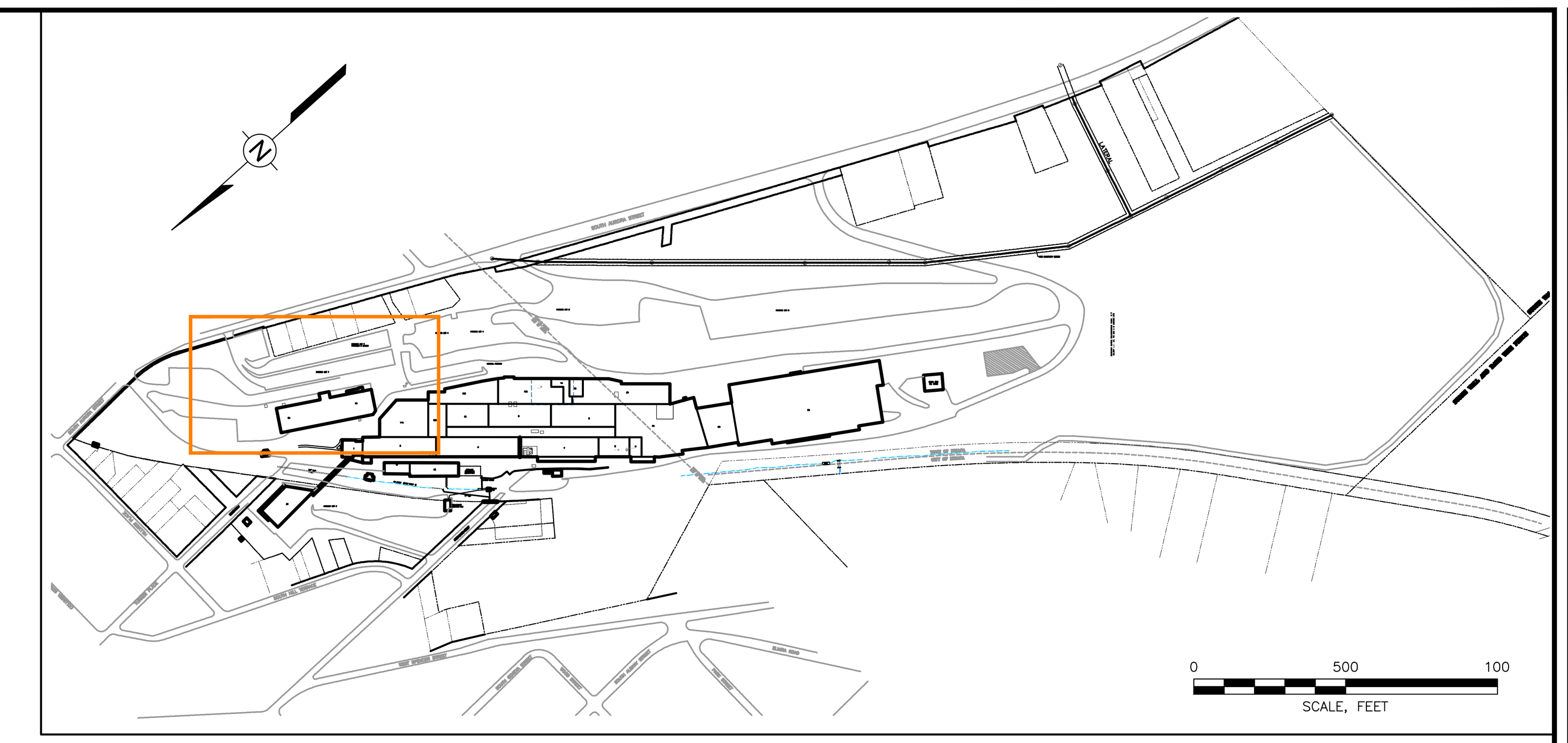
1(a). IN AOC 26, DATA FOR SOIL SAMPLES COLLECTED BETWEEN THE GROUND SURFACE AND 2 FEET BGS WERE COMPARED TO RESTRICTED RESIDENTIAL USE SCOs. BASED ON THE PRESENCE OF CVOCs ABOVE THE GROUNDWATER STANDARDS IN THIS AREA, SAMPLES COLLECTED FROM THE GROUND SURFACE TO THE TOP OF BEDROCK WERE COMPARED TO THE PROTECTION OF GROUNDWATER SCOs.

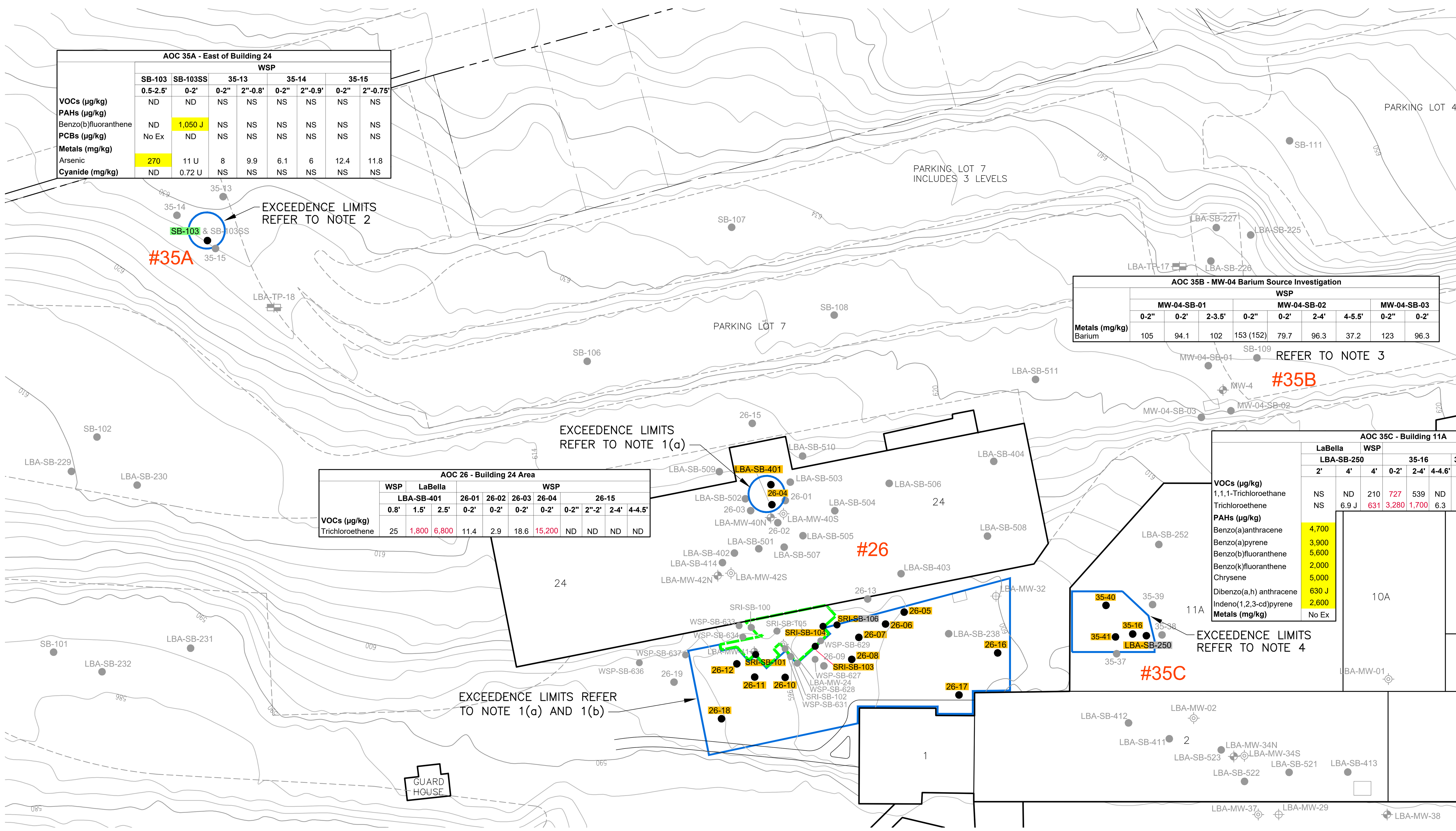
1(b). THE SOIL SURROUNDING LBA-MW-24 WAS EXCAVATED DURING COMPLETION OF THE SELF-IMPLEMENTING PCB REMEDIATION WORK PLAN. PCBs WERE NOT DETECTED ABOVE THE RESTRICTED RESIDENTIAL USE SCO IN SAMPLES COLLECTED FROM THE REMAINING WSP-SB-600-SERIES BORINGS. THE DATA WERE PREVIOUSLY PRESENTED IN THE REMEDIATION REPORT.

2. FOR SB-103 AND 35-13, -14, AND -15, AOC 35A, DATA FOR SOIL SAMPLES COLLECTED BETWEEN THE GROUND SURFACE AND 2 FEET BGS WERE COMPARED TO THE RESTRICTED RESIDENTIAL USE SCOs.

3. FOR MW-04-SB-01, -02, AND -03, AOC-35B, DATA FOR SOIL SAMPLES COLLECTED FROM THE GROUND SURFACE TO 2 FEET WERE COMPARED TO THE RESTRICTED RESIDENTIAL USE SCOs. BASED ON THE PRESENCE OF BARIUM ABOVE THE GROUNDWATER STANDARD IN THIS AREA, DATA FOR SAMPLES COLLECTED BETWEEN THE GROUND SURFACE AND TOP OF BEDROCK WERE COMPARED TO THE PROTECTION OF GROUNDWATER SCO.

4. FOR LBA-SB-250, 35-16, AND 35-37 THROUGH -41, AOC 35C, DATA FOR SAMPLES COLLECTED FROM THE GROUND SURFACE TO 2 FEET BGS WERE COMPARED TO THE RESTRICTED RESIDENTIAL USE SCOs. BASED ON THE PRESENCE OF CVOCs ABOVE THE GROUNDWATER STANDARDS IN THIS AREA, DATA FOR SAMPLES COLLECTED BETWEEN THE GROUND SURFACE AND TOP OF BEDROCK WERE COMPARED TO THE PROTECTION OF GROUNDWATER SCOs.





AOC 35A - East of Building 24

	WSP							
	SB-103	SB-103SS	35-13		35-14		35-15	
	0.5-2.5'	0-2'	0-2"	2"-0.8'	0-2"	2"-0.9'	0-2"	2"-0.75'
VOCs (µg/kg)	ND	ND	NS	NS	NS	NS	NS	NS
PAHs (µg/kg)								
Benzo(b)fluoranthene	ND	1,050 J	NS	NS	NS	NS	NS	NS
PCBs (µg/kg)	No Ex	ND	NS	NS	NS	NS	NS	NS
Metals (mg/kg)								
Arsenic	270	11 U	8	9.9	6.1	6	12.4	11.8
Cyanide (mg/kg)	ND	0.72 U	NS	NS	NS	NS	NS	NS

AOC 35B - MW-04 Barium Source Investigation

	WSP								
	MW-04-SB-01			MW-04-SB-02				MW-04-SB-03	
	0-2"	0-2'	2-3.5'	0-2"	0-2'	2-4'	4-5.5'	0-2"	0-2'
Metals (mg/kg)									
Barium	105	94.1	102	153 (152)	79.7	96.3	37.2	123	96.3

AOC 26 - Building 24 Area

	WSP	LaBella		WSP							
	LBA-SB-401			26-01	26-02	26-03	26-04	26-15			
	0.8'	1.5'	2.5'	0-2'	0-2'	0-2'	0-2'	0-2"	2"-2'	2-4'	4-4.5'
VOCs (µg/kg)											
Trichloroethene	25	1,800	6,800	11.4	2.9	18.6	15,200	ND	ND	ND	ND

AOC 35C - Building 11A

	LaBella		WSP	WSP								
	LBA-SB-250			35-16			35-37	35-38	35-39	35-40	35-41	
	2'	4'	4'	0-2'	2-4'	4-4.6'	0-2"	0-2"	0-1'	0-1'	0-2"	2"-2'
VOCs (µg/kg)												
1,1,1-Trichloroethane	NS	ND	210	727	539	ND	2.0	4.9	28.4	313	243	730
Trichloroethene	NS	6.9 J	631	3,280	1,700	6.3	8.6	14.2	13.3	766	1,450	4,560
PAHs (µg/kg)												
Benzo(a)anthracene	4,700											
Benzo(a)pyrene	3,900											
Benzo(b)fluoranthene	5,600											
Benzo(k)fluoranthene	2,000											
Chrysene	5,000											
Dibenzo(a,h) anthracene	630 J											
Indeno(1,2,3-cd)pyrene	2,600											
Metals (mg/kg)	No Ex											

AOC 26 - Building 24 Area

	LaBella	WSP							
	LBA-MW-24		SRI-SB-100	SRI-SB-101	SRI-SB-102	SRI-SB-103	SRI-SB-104	SRI-SB-105	SRI-SB-106
	1'	1'	1'	1'	1'	0.75'	0.25'	3.5'	1.5'
VOCs (µg/kg)									
cis-1,2-Dichloroethene	4.3 J	1,400	ND (ND)	ND	ND	ND	8,620	ND	10,100
trans-1,2-Dichloroethene	ND	564	ND (ND)	ND	ND	ND	2,670	ND	2,740
Methylene chloride	ND	ND	ND (ND)	ND	ND	ND	ND	ND	ND
Trichloroethene	1.5 J	2,510	6.1 (5.1)	797	10	828	22,000	20.6	31,500
Vinyl chloride	ND	176	ND (ND)	ND	ND	ND	ND	ND	ND
PAHs (µg/kg)									
Benzo(a)anthracene	ND	6,240	535 (972)	155	22.4 J	143	132	1,380	2,333
Benzo(a)pyrene	7,800	5,500	448 (802)	144	23.7 J	157	137	1,750	2,210
Benzo(b)fluoranthene	11,000	4,770	359 (697)	159	26.3 J	183	163	1,650	2,190
Benzo(k)fluoranthene	4,000	4,600	426 (680)	134	20.3 J	163	145	1,600	1,860
Chrysene	8,900	5,980	511 (925)	172	28.5 J	163	178	1,390	2,370
Dibenzo(a,h) anthracene	1,100	1,070	121 J (227)	32.6 J	ND	56.2 J	36.3 J	425	476 J
Indeno(1,2,3-cd)pyrene	4,900	2,980	221 (409)	90.4 J	15.5 J	120	104 J	1,210	1,220
PCBs (µg/kg)	6,100	11,300							
Metals (mg/kg)	No Ex								

	WSP																		
	26-05	26-06	26-07	26-08		26-09	26-10	26-11	26-12	26-13	26-16		26-17			26-18		26-19	
	0-1.5'	0-1.5'	0-1.5'	0-1.5'	(0-1.5')	0-1.5'	0-1.5'	0-1.5'	0-1.5'	0-1.5'	0-2'	2-3.5'	0-2"	2"-2'	2-3.5'	0-2"	2-4'	0-2"	2"-1.5'
VOCs (µg/kg)																			
cis-1,2-Dichloroethene	163 J	ND	1,410	81 J	(101 J)	4.3	345 J	114 J	ND	ND	91.1 J	0.49 J	ND	1.9 J	ND	ND	5	ND	ND
trans-1,2-Dichloroethene	141 J	ND	ND	ND	(ND)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	ND	ND	ND	ND	(ND)	ND	ND	ND	ND	ND	ND	0.62 J	1.5 J	0.59 J	0.63 J	130 JB	1.4 J	0.77 J	ND
Trichloroethene	1,310	3,010	36,700	3,180	(2,970)	29.9	5,280	3,190	3,560	2.1 J	1,420	3.5	ND	1.8 J	2.9	730	32.8	ND	0.9 J
Vinyl chloride	ND	ND	ND	ND	(ND)	0.48 J	ND	ND	ND	ND	ND	ND	ND	64.3	ND	ND	ND	ND	ND

LEGEND

- B HYDROGEOLOGIC ZONE WELL
- B/C HYDROGEOLOGIC ZONES WELL
- C HYDROGEOLOGIC ZONE WELL
- 34-04 SOIL BORING WITH NO EXCEEDENCE
- 35-16 SOIL BORING WITH A VOC EXCEEDENCE
- 32-01 SOIL BORING WITH A PAH EXCEEDENCE
- 32-08 SOIL BORING WITH A METALS OR CYANIDE EXCEEDENCE
- TEST PIT WITH NO EXCEEDENCE
- 34 BUILDING NUMBER
- PROPERTY BOUNDARY
- #35 AREA OF CONCERN
- PCB EXCAVATION BOUNDARY
- APPROXIMATE EXTENT OF IMPACTED SOIL
- NYSDEC SCO NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION SOIL CLEANUP OBJECTIVE
- VOCs VOLATILE ORGANIC COMPOUNDS (SITE RELATED)
- PAHs POLYCYCLIC AROMATIC HYDROCARBONS
- PCBs POLYCHLORINATED BIPHENYLS
- RR RESTRICTED RESIDENTIAL USE
- PoG PROTECTION OF GROUNDWATER
- ND NOT DETECTED
- No Ex NO EXCEEDENCE
- NS NOT SAMPLED
- B ANALYTE FOUND IN ASSOCIATED BLANK
- J ESTIMATED CONCENTRATION
- (µg/kg) MICROGRAMS PER KILOGRAM
- (mg/kg) MILLIGRAMS PER KILOGRAM
- 500 EXCEEDS RR
- 500 EXCEEDS PoG
- (500) CONCENTRATION IS FROM A DUPLICATE SAMPLE

AOC 35 (AOC)

	LaBella (SAMPLING ENTITY)	WSP	
	LBA-SB-240 (SAMPLE LOCATION)	35-23	
	1' (SAMPLE DEPTH BELOW GROUND SURFACE)	0-2"	2"-2'
PAHs (µg/kg)	No Ex (SAMPLE RESULT)	NS	NS
Metals (mg/kg)			
Arsenic	23	No Ex	No Ex

NYSDEC SCOs

	RR	PoG
VOCs (µg/kg)		
cis-1,2-Dichloroethene	100,000	250
trans-1,2-Dichloroethene	100,000	190
Methylene chloride	100,000	50
1,1,1-Trichloroethane	100,000	680
Trichloroethene	21,000	470
Vinyl chloride	900	20
PAHs (µg/kg)		
Benzo(a)anthracene	1,000	NA
Benzo(a)pyrene	1,000	NA
Benzo(b)fluoranthene	1,000	NA
Benzo(k)fluoranthene	3,900	NA
Chrysene	3,900	NA
Dibenzo(a,h)anthracene	330	NA
Indeno(1,2,3-cd)pyrene	500	NA
PCBs (µg/kg)	1,000	NA
Metals (mg/kg)		
Arsenic	16	NA
Barium	400	820
Cyanide (mg/kg)	27	NA

40 20 0 40 80

SCALE, FEET

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REVISIONS

REV | DESCRIPTION

DRAWN BY | CHECKED | APPROVED

SEAL

DATE

SOIL SAMPLE RESULTS AOCs 26, 35A, 35B, AND 35C

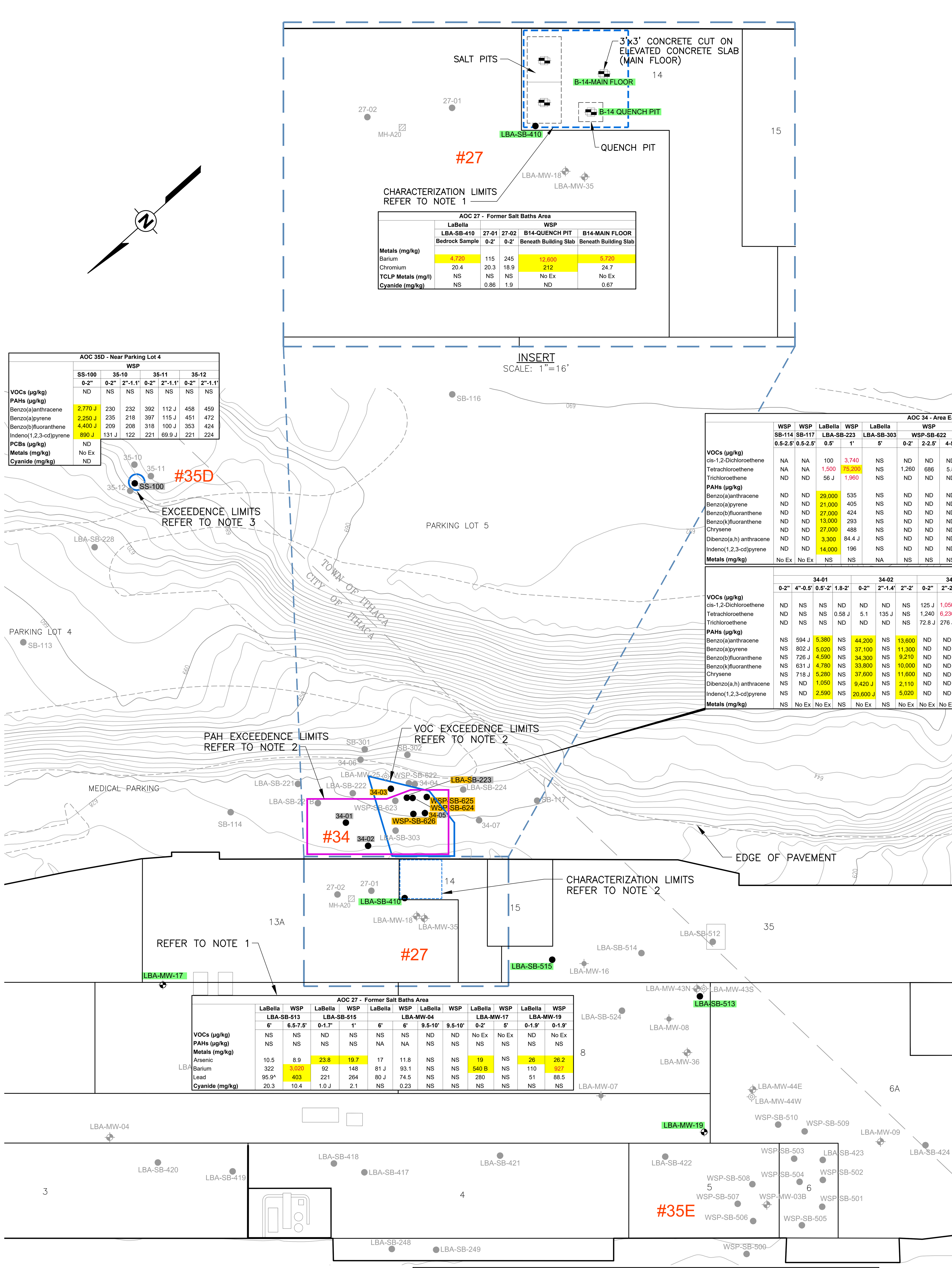
IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

FIGURE 3-1

Drawing Number
314P0551-D126



AOC 27 - Former Salt Baths Area	LaBella	WSP	WSP	WSP	WSP
	LBA-SB-410	27-01	27-02	B14-QUENCH PIT	B14-MAIN FLOOR
	Bedrock Sample	0-2'	0-2'	Beneath Building Slab	Beneath Building Slab
Metals (mg/kg)					
Barium	4,720	115	245	12,600	5,720
Chromium	20.4	20.3	18.9	212	24.7
TCLP Metals (mg/l)	NS	NS	NS	No Ex	No Ex
Cyanide (mg/kg)	NS	0.86	1.9	ND	0.67

AOC 35D - Near Parking Lot 4	WSP						
	SS-100	35-10		35-11		35-12	
	0-2"	0-2"	2"-1.1'	0-2"	2"-1.1'	0-2"	2"-1.1'
VOCs (µg/kg)	ND	NS	NS	NS	NS	NS	NS
PAHs (µg/kg)							
Benzo(a)anthracene	2,770 J	230	232	392	112 J	458	459
Benzo(a)pyrene	2,250 J	235	218	397	115 J	451	472
Benzo(b)fluoranthene	4,400 J	209	208	318	100 J	353	424
Indeno(1,2,3-cd)pyrene	890 J	131 J	122	221	69.9 J	221	224
PCBs (µg/kg)	ND						
Metals (mg/kg)	No Ex						
Cyanide (mg/kg)	ND						

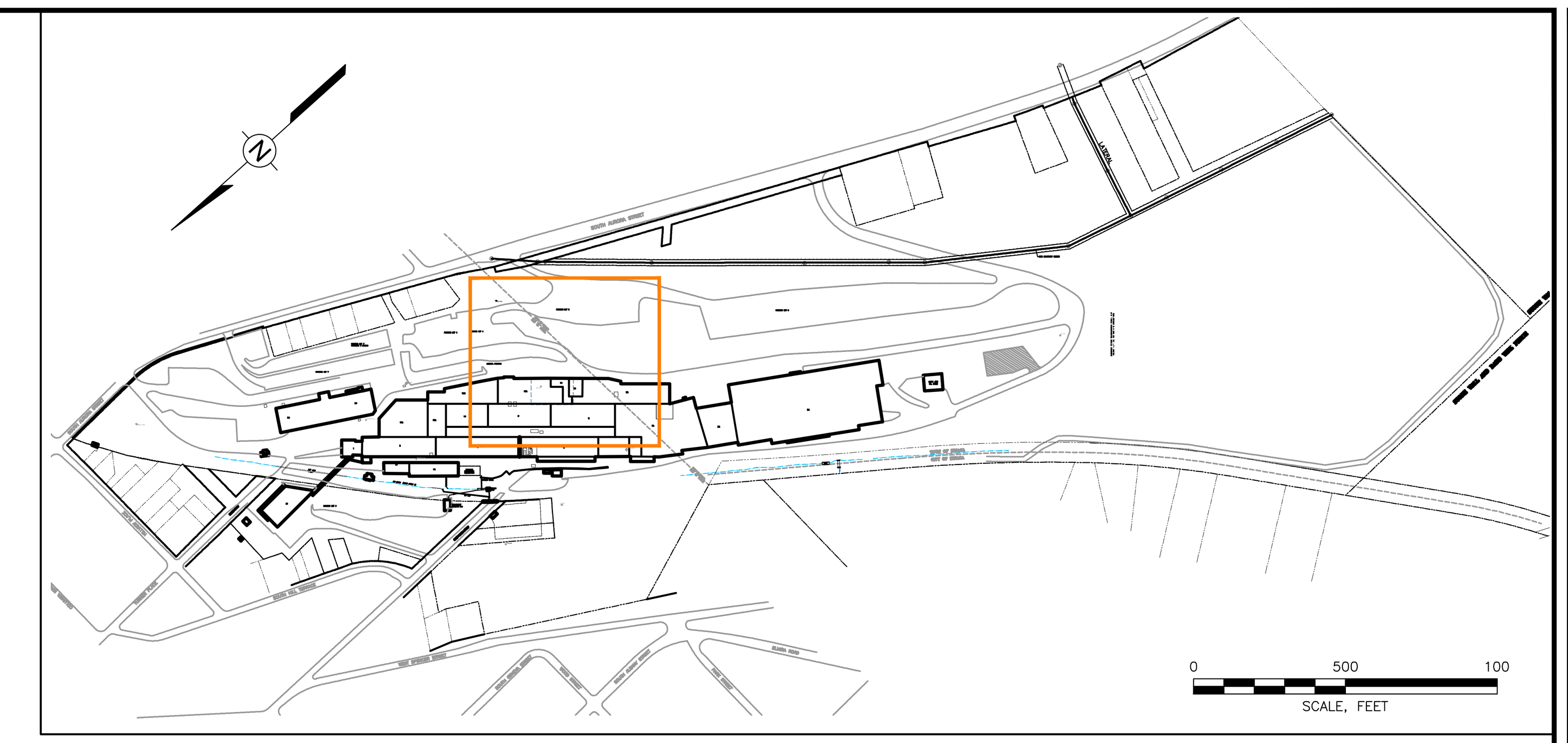
AOC 34 - Area East of Buildings 13A and 14

	WSP	WSP	LaBella	WSP	LaBella	WSP			WSP			LaBella	WSP		WSP		WSP			LaBella
	SB-114	SB-117	LBA-SB-223		LBA-SB-303	WSP-SB-622			WSP-SB-623				WSP-SB-624		WSP-SB-625		WSP-SB-626			
	0.5-2.5'	0.5-2.5'	0.5'	1'	5'	0-2'	2-2.5'	4-5'	0-2'	2-2.5'	4.5-5'	2'	0-2'	2-2.5'	0-2'	2-2.5'	0-2'	2-2.5'	6-7'	7'
VOCs (µg/kg)																				
cis-1,2-Dichloroethene	NA	NA	100	3,740	NS	ND	ND	ND	2.1	ND	ND	ND	11,300 (8,380)	2.3 J	11,900	0.75 J	ND	ND	ND	ND
Tetrachloroethene	NA	NA	1,500	75,200	NS	1,260	686	5.8	2.5	13 J	97.5	11 JL	116,000 (87,400)	9.5	66,600	2.3	2,320	1,400	838	11 JL
Trichloroethene	ND	ND	56 J	1,960	NS	ND	ND	ND	ND	ND	ND	ND	5,060 (3,830)	ND	4,980	ND	ND	ND	ND	ND
PAHs (µg/kg)																				
Benzo(a)anthracene	ND	ND	29,000	535	NS	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(a)pyrene	ND	ND	21,000	405	NS	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(b)fluoranthene	ND	ND	27,000	424	NS	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(k)fluoranthene	ND	ND	13,000	293	NS	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chrysene	ND	ND	27,000	488	NS	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dibenzo(a,h)anthracene	ND	ND	3,300	84.4 J	NS	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
Indeno(1,2,3-cd)pyrene	ND	ND	14,000	196	NS	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
Metals (mg/kg)	No Ex	No Ex	NS	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

	WSP																				
	34-01				34-02			34-03				34-04		34-05				34-06		34-07	
	0-2"	4"-0.5'	0.5'-2'	1.8-2'	0-2"	2"-1.4'	2"-2'	0-2"	2"-2'	2-3'	4-4.5'	0-2"	2"-2'	0-2"	2"-2'	2-2.5'	4-5'	0-2"	2"-2'	0-2"	2"-2'
VOCs (µg/kg)																					
cis-1,2-Dichloroethene	ND	NS	NS	ND	ND	ND	NS	125 J	1,050	43	7.8	ND	ND	0.76 J	ND	ND	0.35 J	ND	ND	ND	ND
Tetrachloroethene	ND	NS	NS	0.58 J	5.1	135 J	NS	1,240	6,230	28.5	109	10.9	17.6	1.2 J	1,500	13.1	2.9	ND	ND	ND	23.1
Trichloroethene	ND	NS	NS	ND	ND	ND	NS	72.8 J	276 J	4.6	4.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.45 J
PAHs (µg/kg)																					
Benzo(a)anthracene	NS	594 J	5,380	NS	44,200	NS	13,600	ND	ND	ND	NS	121 J	28 J	2,870	12,700	ND	NS	682	320	ND	194
Benzo(a)pyrene	NS	802 J	5,020	NS	37,100	NS	11,300	ND	ND	ND	NS	ND	24.9 J	2,580	11,200	ND	NS	417	285	ND	176
Benzo(b)fluoranthene	NS	726 J	4,590	NS	34,300	NS	9,210	ND	ND	ND	NS	ND	26.9 J	2,380	10,000	ND	NS	583	255	ND	187
Benzo(k)fluoranthene	NS	631 J	4,780	NS	33,800	NS	10,000	ND	ND	ND	NS	ND	24.7 J	2,060	9,500	ND	NS	461	277	ND	141
Chrysene	NS	718 J	5,280	NS	37,600	NS	11,600	ND	ND	ND	NS	144 J	28.6 J	2,470	11,200	ND	NS	902	340	ND	213
Dibenzo(a,h)anthracene	NS	ND	1,050	NS	9,420 J	NS	2,110	ND	ND	ND	NS	ND	ND	676	3,040	ND	NS	90.4 J	59.9 J	ND	36.6 J
Indeno(1,2,3-cd)pyrene	NS	ND	2,590	NS	20,600 J	NS	5,020	ND	ND	ND	NS	ND	ND	1,760	7,660	ND	NS	216	142	ND	86.8 J
Metals (mg/kg)	NS	No Ex	No Ex	NS	No Ex	NS	No Ex	No Ex	No Ex	No Ex	NS	NS	NS	No Ex	No Ex	NS	NS	NS	NS	NS	NS

AOC 27 - Former Salt Baths Area	LaBella	WSP	LaBella	WSP	LaBella	WSP	LaBella	WSP	LaBella	WSP	LaBella	WSP
	LBA-SB-513		LBA-SB-515		LBA-MW-04				LBA-MW-17		LBA-MW-19	
	6'	6.5-7.5'	0-1.7'	1'	6'	6'	9.5-10'	9.5-10'	0-2'	5'	0-1.9'	0-1.9'
VOCs (µg/kg)	NS	NS	ND	NS	NS	NS	ND	ND	No Ex	No Ex	ND	No Ex
PAHs (µg/kg)	NS	NS	NS	NS	NA	NA	NS	NS	NS	NS	NS	NS
Metals (mg/kg)												
Arsenic	10.5	8.9	23.8	19.7	17	11.8	NS	NS	19	NS	26	26.2
Barium	322	3,020	92	148	81 J	93.1	NS	NS	540 B	NS	110	927
Lead	95.9^	403	221	264	80 J	74.5	NS	NS	280	NS	51	88.5
Cyanide (mg/kg)	20.3	10.4	1.0 J	2.1	NS	0.23	NS	NS	NS	NS	NS	NS

AOC 35E - WSP-MW-03B VOC Source Investigation	WSP																				
	WSP-SB-500		WSP-SB-501		WSP-SB-502		WSP-SB-503	WSP-SB-504		WSP-SB-505		WSP-SB-506		WSP-SB-507		WSP-SB-508		WSP-SB-509		WSP-SB-510	
	0-1'	8-9'	0-1'	7-8'	0-1'	1-2'	0-1'	0-1'	5-6'	0-1'	7-8'	0-1'	5-6'	0-1'	6-7'	0-1'	4.5-5.5'	0-1'	1-2'	0-1'	1-2'
VOCs (µg/kg)	No Ex																				



KEY MAP

LEGEND

- MANHOLE
- HISTORICAL WELL
- A/B HYDROGEOLOGIC ZONES WELL
- B HYDROGEOLOGIC ZONE WELL
- B/C HYDROGEOLOGIC ZONES WELL
- C HYDROGEOLOGIC ZONE WELL
- 34-04 SOIL BORING WITH NO EXCEEDENCE
- 35-16 SOIL BORING WITH A VOC EXCEEDENCE
- 32-01 SOIL BORING WITH A PAH EXCEEDENCE
- 32-08 SOIL BORING WITH A METALS OR CYANIDE EXCEEDENCE
- QUENCH PIT TEST PIT WITH METALS OR CYANIDE EXCEEDENCE
- 34 BUILDING NUMBER
- PROPERTY BOUNDARY
- #26 AREA OF CONCERN
- APPROXIMATE EXTENT OF SOIL IMPACTED BY VOCs
- APPROXIMATE EXTENT OF SOIL IMPACTED BY PAHs
- NYSDEC SCO NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION SOIL CLEANUP OBJECTIVE
- VOCs VOLATILE ORGANIC COMPOUNDS (SITE RELATED)
- PAHs POLYCYCLIC AROMATIC HYDROCARBONS
- TCLP TOXICITY CHARACTERISTIC LEACHING PROCEDURE
- RR RESTRICTED RESIDENTIAL USE
- PoG PROTECTION OF GROUNDWATER
- NA NOT APPLICABLE
- ND NOT DETECTED
- No EX NO EXCEEDENCE
- NS NOT SAMPLED
- J ESTIMATED CONCENTRATION (ORGANIC)
- B ESTIMATED CONCENTRATION (METAL)
- L RESULT BIASED LOW
- ^ INSTRUMENT–RELATED QUALITY CONTROL EXCEEDS THE CONTROL LIMITS
- (µg/kg) MICROGRAMS PER KILOGRAM
- (mg/kg) MILLIGRAMS PER KILOGRAM
- 500 EXCEEDS RR
- 500 EXCEEDS PoG
- (500) CONCENTRATION IS FROM A DUPLICATE SAMPLE

AOC 34 (AOC)	LaBella	WSP (SAMPLING ENTITY)	
	LBA-SB-303	34-01 (SAMPLE LOCATION)	
	5'	0-2"	4"-0.5' (SAMPLE DEPTH BELOW GROUND SURFACE)
VOCs (µg/kg)	NS	ND	NS (SAMPLE RESULT)
Metals (mg/kg)			
Copper	460	NS	13.3 (SAMPLE RESULT)

NYSDEC SCOs	RR	PoG
VOCs (µg/kg)		
cis-1,2-Dichloroethene	100,000	250
Tetrachloroethene	19,000	1,300
Trichloroethene	21,000	470
PAHs (µg/kg)		
Benzo(a)anthracene	1,000	NA
Benzo(a)pyrene	1,000	NA
Benzo(b)fluoranthene	1,000	NA
Benzo(k)fluoranthene	3,900	NA
Chrysene	3,900	NA
Dibenzo(a,h)anthracene	330	NA
Indeno(1,2,3-cd)pyrene	500	NA
Metals (mg/kg)		
Arsenic	16	NA
Barium	400	820
Chromium	180	NA
Lead	400	NA
Cyanide (mg/kg)	27	40

40 20 0 40 80

SCALE, FEET

NOTES:

1. IN AOC 27, DATA FOR SOIL SAMPLES COLLECTED BETWEEN THE GROUND SURFACE AND 2 FEET BGS WERE COMPARED TO RESTRICTED RESIDENTIAL USE SCOs. BASED ON THE PRESENCE OF BARIUM ABOVE THE GROUNDWATER STANDARD IN THIS AREA, SAMPLES COLLECTED FROM THE GROUND SURFACE TO THE TOP OF BEDROCK WERE COMPARED TO THE HIGHER PROTECTION OF GROUNDWATER SCO FOR BARIUM.

   FURTHER INVESTIGATION AND REMEDIATION OF EXCEEDENCES OF THE RESTRICTED RESIDENTIAL USE SCOs AT LBA–SB–513, –515, –MW–17, AND –MW–19 WAS NOT NECESSARY BECAUSE THE BUILDING FOUNDATION WILL REMAIN IN PLACE, ELIMINATING THE DIRECT CONTACT PATHWAY, BECAUSE THE EXCEEDENCES WERE MINIMAL, OR BOTH.

2. IN AOC 34, DATA FOR SOIL SAMPLES COLLECTED BETWEEN THE GROUND SURFACE AND 2 FEET BGS WERE COMPARED TO THE RESTRICTED RESIDENTIAL USE SCOs. BECAUSE COPPER WAS DETECTED ABOVE THE SCO IN A SUBSURFACE SOIL SAMPLE COLLECTED FROM LBA–SB–303, SURFACE SOIL SAMPLES WERE SUBSEQUENTLY ANALYZED FOR RCRA METALS AND COPPER. BASED ON THE PRESENCE OF CVOCs ABOVE THE GROUNDWATER STANDARDS IN THIS AREA, SAMPLES COLLECTED FROM THE GROUND SURFACE TO THE TOP OF BEDROCK WERE COMPARED TO THE PROTECTION OF GROUNDWATER SCOs.

3. FOR SS–100 AND 35–13, –14, AND –15, AOC 35D, DATA FOR SOIL SAMPLES COLLECTED BETWEEN THE GROUND SURFACE AND 2 FEET BGS WERE COMPARED TO THE RESTRICTED RESIDENTIAL USE SCOs.

4. FOR WSP–SB–500 THROUGH –510, AOC 35E, DATA FOR SOIL SAMPLES COLLECTED BETWEEN THE GROUND SURFACE AND 2 FEET BGS WERE COMPARED TO THE RESTRICTED RESIDENTIAL USE SCOs. BASED ON THE PRESENCE OF CVOCs ABOVE THE GROUNDWATER STANDARDS IN THIS AREA, SAMPLES COLLECTED FROM THE GROUND SURFACE TO THE TOP OF BEDROCK WERE COMPARED TO THE PROTECTION OF GROUNDWATER SCOs.

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE REPRODUCTION MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

D

REVISIONS

REV	DESCRIPTION
1	Revised: Chkd: Appr.:
2	Revised: Chkd: Appr.:
3	Revised: Chkd: Appr.:

SEAL

DATE

DRAWN BY RA 06/22/2018
CHECKED SAR 07/03/2018
APPROVED SAR 07/09/2018

SOIL SAMPLE RESULTS
AOCs 27, 34, 35D, AND 35E

IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

FIGURE 3–2

Drawing Number
314P0551–D127

NOTES:

1. IN AOC 28, DATA FOR THE SOIL SAMPLES COLLECTED FROM THE GROUND SURFACE TO 2 FEET BGS NEAR LBA-TP-10 WERE COMPARED TO THE COMMERCIAL USE SCOs. BASED ON THE PRESENCE OF VOCs ABOVE THE GROUNDWATER STANDARDS IN THIS AREA, DATA FOR SAMPLES COLLECTED FROM THE GROUND SURFACE TO THE TOP OF BEDROCK WERE COMPARED TO THE LOWER PROTECTION OF GROUNDWATER SCOs. (SAMPLES FROM LBA-SB-214 WERE ANALYZED FOR METALS, NOT VOCs.)

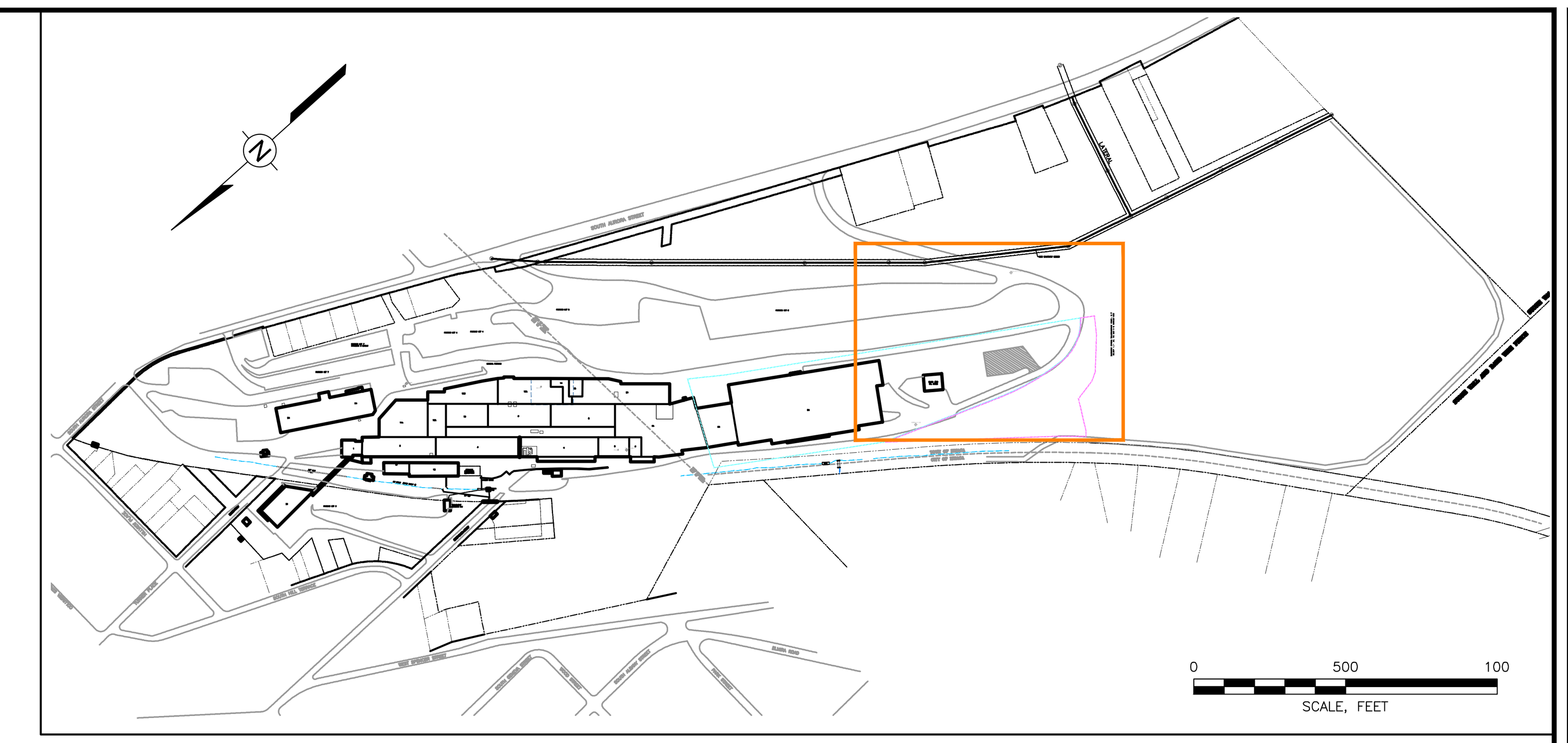
2. IN AOC 28, DATA FOR THE SOIL SAMPLES COLLECTED FROM THE GROUND SURFACE TO 2 FEET BGS NEAR LBA-TP-12 WERE COMPARED TO THE COMMERCIAL USE SCOs FOR METALS. BASED ON THE PRESENCE OF CYANIDE ABOVE THE GROUNDWATER STANDARD IN THIS AREA, CYANIDE DATA FOR SAMPLES COLLECTED FROM THE GROUND SURFACE TO THE TOP OF BEDROCK WERE ALSO COMPARED TO THE LOWER PROTECTION OF GROUNDWATER SCO. BECAUSE THE ARSENIC CONCENTRATIONS IN SURFACE SOIL SAMPLES COLLECTED FROM BORINGS 28-09 AND 28-13 ONLY SLIGHTLY EXCEEDED THE INDUSTRIAL USE SCO (29 mg/kg AND 19.7 mg/kg, RESPECTIVELY, (VERSUS AN SCO OF 16 mg/kg) AND BECAUSE THE FUTURE USE OF THE AREA IS AS A PAVED PARKING LOT, NO FURTHER ACTION IS WARRANTED.

3. IN AOC 29, DATA FOR THE SOIL SAMPLES COLLECTED FROM THE SUBSURFACE AT THE LBA-SERIES LOCATIONS AND SB-123 WERE COMPARED TO THE COMMERCIAL USE SCOs. BASED ON AN EXCEEDENCE FOR METALS, PAHs, OR BOTH, SURFACE SOIL SAMPLES WERE COLLECTED FROM 29-01 THROUGH 29-13 FOR COMPARISON WITH THESE SCOs.

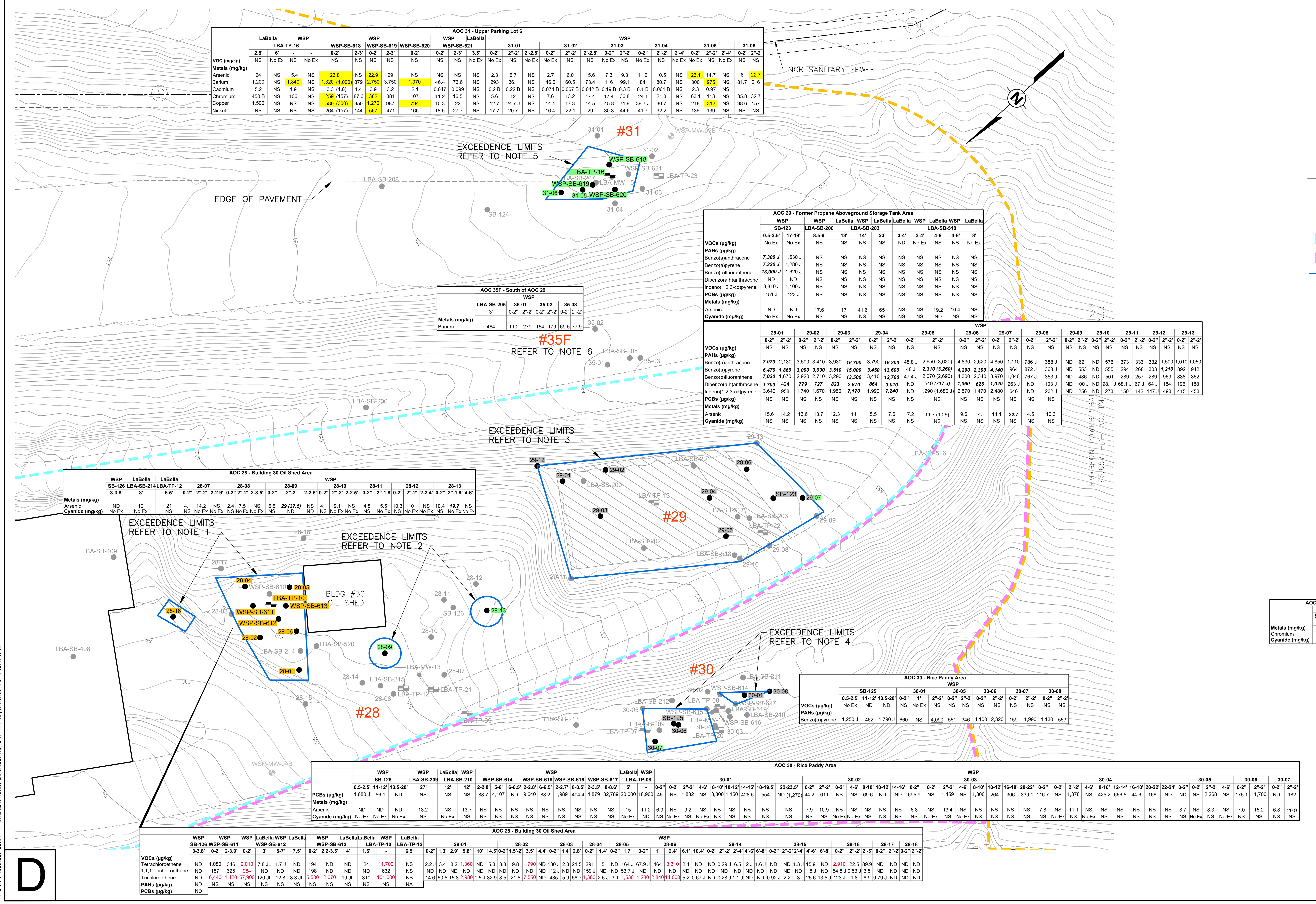
4. IN AOC 30, DATA FOR THE SOIL SAMPLES COLLECTED FROM THE GROUND SURFACE TO 2 FEET BGS WERE COMPARED TO THE INDUSTRIAL USE SCOs. BASED ON THE PRESENCE OF CYANIDE ABOVE THE GROUNDWATER STANDARD IN THIS AREA, CYANIDE DATA FOR SAMPLES COLLECTED FROM THE GROUND SURFACE TO THE TOP OF BEDROCK WERE ALSO COMPARED TO THE LOWER PROTECTION OF GROUNDWATER SCO.

5. IN AOC 31, DATA FOR THE SOIL SAMPLES COLLECTED BETWEEN THE GROUND SURFACE AND 2 FEET BGS WERE COMPARED TO THE RESTRICTED RESIDENTIAL USE SCOs. BASED ON THE PRESENCE OF CVOCs ABOVE THE GROUNDWATER STANDARDS IN THIS AREA, DATA FOR SAMPLES COLLECTED FROM THE GROUND SURFACE TO THE TOP OF BEDROCK WERE ALSO COMPARED TO THE LOWER PROTECTION OF GROUNDWATER SCOs.

6. FOR LBA-SB-205 AND 35-01, 35-02, 35-03, AOC 35F, DATA FOR THE SOIL SAMPLES COLLECTED BETWEEN THE GROUND SURFACE AND 2 FEET BGS WERE COMPARED TO THE RESTRICTED RESIDENTIAL USE SCOs.



KEY MAP



AOC 31 - Upper Parking Lot 6

	LaBella		WSP		WSP					WSP			LaBella				WSP										
	LBA-TP-16		-	-	WSP-SB-618		WSP-SB-619		WSP-SB-620	WSP-SB-621			31-01			31-02			31-03		31-04			31-05			31-06
	2.5'	6'	-	-	0-2'	2-3'	0-2'	2-3'	0-2'	0-2'	2-3'	3.5'	0-2"	2"-2'	2'-2.5'	0-2"	2"-2'	2'-2.5'	0-2"	2"-2'	0-2"	2"-2'	2'-4'	0-2"	2"-2'	2'-4'	0-2"
VOC (mg/kg)	NS	NS	No Ex	NS	NS	No Ex	NS	NS	NS	NS	NS	No Ex	NS	No Ex	NS	NS	NS	No Ex	NS	No Ex	NS	No Ex	No Ex	NS	No Ex	No Ex	NS	NS
Metals (mg/kg)																												
Arsenic	24	NS	15.4	NS	23.8	NS	22.9	29	NS	NS	NS	NS	2.3	5.7	NS	2.7	6.0	15.6	7.3	9.3	11.2	10.5	NS	23.1	14.7	NS	8	22.7
Barium	1,200	NS	1,840	NS	1,320 (1,000)	879	2,750	3,750	1,070	46.4	73.6	NS	293	36.1	NS	46.6	60.5	73.4	116	99.1	84	80.7	NS	300	975	NS	81.7	216
Cadmium	5.2	NS	1.9	NS	3.3 (1.8)	1.4	3.9	3.2	2.1	0.047	0.099	NS	0.2 B	0.22 B	NS	0.074 B	0.067 B	0.042 B	0.19 B	0.3 B	0.1 B	0.061 B	NS	2.3	0.97	NS	NS	NS
Chromium	450 B	NS	106	NS	259 (157)	87.6	382	381	107	11.2	16.5	NS	5.6	12	NS	7.6	13.2	17.4	17.4	36.8	24.1	21.3	NS	63.1	113	NS	35.8	32.7
Copper	1,500	NS	NS	NS	589 (300)	350	1,270	987	794	10.3	22	NS	12.7	24.7	NS	14.4	17.3	14.5	45.8	71.9	39.7 J	30.7	NS	218	312	NS	98.6	157
Nickel	NS	NS	NS	NS	264 (157)	144	567	471	166	18.5	27.7	NS	17.7	20.7	NS	16.4	22.1	29	30.3	44.6	41.7	32.2	NS	136	139	NS	NS	NS

AOC 29 - Former Propane Aboveground Storage Tank Area

	WSP		WSP	LaBella	WSP	LaBella	LaBella	WSP	LaBella	WSP	LaBella
	SB-123		LBA-SB-200	LBA-SB-203				LBA-SB-518			
	0.5-2.5'	17-18'	8.5-9'	13'	14'	23'	3-4'	3-4'	4-6'	4-6'	8'
VOCs (µg/kg)	No Ex	No Ex	NS	NS	NS	NS	ND	No Ex	No Ex	NS	No Ex
PAHs (µg/kg)											
Benzo(a)anthracene	7,300 J	1,630 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(a)pyrene	7,320 J	1,280 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Benzo(b)fluoranthene	13,000 J	1,620 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Dibenzo(a,h)anthracene	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS
Indeno(1,2,3-cd)pyrene	3,810 J	1,100 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
PCBs (µg/kg)	151 J	123 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Metals (mg/kg)											
Arsenic	ND	ND	17.6	17	41.6	65	NS	NS	19.2	10.4	NS
Cyanide (mg/kg)	No Ex	No Ex	NS	NS	NS	NS	NS	NS	ND	NS	NS

	WSP																									
	29-01		29-02		29-03		29-04			29-05	29-06		29-07		29-08		29-09		29-10		29-11		29-12		29-13	
	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	2"-2'	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'
VOCs (µg/kg)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PAHs (µg/kg)																										
Benzo(a)anthracene	7,070	2,130	3,500	3,410	3,930	16,700	3,790	16,300	48.8 J	2,650 (3,620)	4,830	2,620	4,850	1,110	786 J	388 J	ND	621	ND	576	373	333	332	1,500	1,010	1,050
Benzo(a)pyrene	6,470	1,660	3,090	3,030	3,510	15,000	3,450	13,600	48 J	2,310 (3,260)	4,290	2,390	4,140	964	872 J	368 J	ND	553	ND	555	294	268	303	1,210	892	942
Benzo(b)fluoranthene	7,030	1,670	2,920	2,710	3,290	13,500	3,410	12,700	47.4 J	2,070 (2,690)	4,300	2,340	3,970	1,040	767 J	353 J	ND	486	ND	501	289	257	289	969	888	862
Dibenzo(a,h)anthracene	1,700	424	779	727	823	2,870	864	3,010	ND	549 (717 J)	1,060	626	1,020	263 J	ND	103 J	ND	100 J	ND	98.1 J	68.1 J	67 J	64 J	184	196	188
Indeno(1,2,3-cd)pyrene	3,640	958	1,740	1,670	1,950	7,170	1,990	7,240	ND	1,290 (1,680 J)	2,570	1,470	2,480	646	ND	232 J	ND	256	ND	273	150	142	147 J	493	415	453
PCBs (µg/kg)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS										
Metals (mg/kg)																										
Arsenic	15.6	14.2	13.6	13.7	12.3	14	5.5	7.6	7.2	11.7 (10.6)	9.6	14.1	14.1	22.7	4.5	10.3										
Cyanide (mg/kg)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS										

AOC 35F - South of AOC 29

	WSP						
	LBA-SB-205	35-01		35-02		35-03	
	3'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'
Metals (mg/kg)							
Barium	464	110	279	154	179	69.5	77.9

AOC 28 - Building 30 Oil Shed Area

	WSP	LaBella	LaBella	WSP																				
	SB-126	LBA-SB-214	LBA-TP-12	28-07			28-08			28-09			28-10			28-11			28-12			28-13		
	3-3.8'	8'	6.5'	0-2"	2"-2'	2-2.9'	0-2"	2"-2'	2-3.5'	0-2"	2"-2'	2-2.5'	0-2"	2"-2'	2-2.5'	0-2"	2"-1.8'	0-2'	0-2"	2"-2'	2-2.4'	0-2"	2"-1.9'	4-6'
Metals (mg/kg)																								
Arsenic	ND	12	21	4.1	14.2	NS	2.4	7.5	NS	6.5	29 (37.5)	NS	4.1	9.1	NS	4.8	5.5	10.3	10	NS	10.4	19.7	NS	NS
Cyanide (mg/kg)	No Ex	No Ex	NS	NS	No Ex	NS	No Ex	No Ex	NS	No Ex	ND	NS	No Ex	NS	No Ex	No Ex	NS	No Ex	NS	No Ex	No Ex	NS	No Ex	No Ex

AOC 30 - Rice Paddy Area

	WSP													
	SB-125			30-01			30-05		30-06		30-07		30-08	
	0.5-2.5'	11-12'	18.5-20'	0-2"	1'	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'
VOCs (µg/kg)	No Ex	ND	ND	NS	No Ex	NS	NS	NS	NS	NS	NS	NS	NS	NS
PAHs (µg/kg)														
Benzo(a)pyrene	1,250 J	462	1,790 J	660	NS	4,090	561	346	4,100	2,320	159	1,990	1,130	553

AOC 30 - Rice Paddy Area

	WSP			WSP	LaBella	WSP	WSP									LaBella	WSP	WSP								
	SB-125			LBA-SB-209	LBA-SB-210		WSP-SB-614			WSP-SB-615		WSP-SB-616		WSP-SB-617		LBA-TP-08		30-01								
	0.5-2.5'	11-12'	18.5-20'	27'	12'	12'	2-2.8'	5-6'	6-6.5'	2-2.8'	6-6.5'	2-2.7'	8-8.5'	2-3.5'	8-8.6'	5'	-	0-2"	0-2'	2"-2'	4-6'	8-10'	10-12'	14-15'	18-19.5'	22-23.5'
PCBs (µg/kg)	1,680 J	56.1	ND	NS	NS	NS	88.7	4,107	ND	9,640	88.2	1,989	404.4	4,879	32,789	20,000	18,900	45	NS	1,832	NS	3,800	1,150	428.5	554	ND (1,270)
Metals (mg/kg)																										
Arsenic	ND	ND	ND	18.2	NS	13.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	15	11.2	6.9	NS	9.2	NS	NS	NS	NS	NS	NS
Cyanide (mg/kg)	No Ex	No Ex	No Ex	NS	No Ex	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	No Ex	ND	NS	No Ex	NS	No Ex	NS	NS	NS	NS	NS

	WSP																															
	30-02							30-03								30-04									30-05				30-06		30-07	
	0-2"	2"-2'	0-2'	4-6'	8-10'	10-12'	14-16'	0-2"	0-2'	2"-2'	4-6'	8-10'	10-12'	16-18'	20-22'	0-2"	0-2'	2"-2'	4-6'	8-10'	12-14'	16-18'	20-22'	22-24'	0-2"	0-2'	2"-2'	4-6'	0-2"	2"-2'	0-2"	2"-2'
PCBs (µg/kg)	44.2	611	NS	NS	69.6	ND	ND	695.9	NS	1,459	NS	1,300	264	306	339.1	116.7	NS	1,378	NS	425.2	666.5	44.6	166	ND	ND	NS	2,268	NS	175.1	11,700	ND	182
Metals (mg/kg)																																
Arsenic	7.9	10.9	NS	NS	NS	NS	NS	6.8	NS	13.4	NS	NS	NS	NS	NS	7.8	NS	11.1	NS	NS	NS	NS	NS	NS	8.7	NS	8.3	NS	7.0	15.2	6.8	20.9
Cyanide (mg/kg)	NS	NS	No Ex	No Ex	NS	NS	NS	NS	No Ex	NS	No Ex	NS	NS	NS	NS	NS	No Ex	NS	No Ex	NS	NS	NS	NS	NS	NS	No Ex	NS	No Ex	NS	NS	NS	NS

AOC 28 - Building 30 Oil Shed Area

	WSP	WSP		WSP	LaBella	WSP	LaBella	WSP		LaBella	LaBella	WSP	LaBella
	SB-126	WSP-SB-611		WSP-SB-612				WSP-SB-613			LBA-TP-10		LBA-TP-12
	3-3.8'	0-2'	2-3.9'	0-2'	3'	5-7'	7.5'	0-2'	2.2-3.5'	4'	1.5'	-	6.5'
VOCs (µg/kg)													
Tetrachloroethene	ND	1,080	346	9,010	7.8 JL	1.7 J	ND	194	ND	ND	24	11,700	NS
1,1,1-Trichloroethane	ND	187	325	984	ND	ND	ND	198	ND	ND	ND	632	NS
Trichloroethene	ND	6,440	1,420	57,900	120 JL	12.8	8.3 JL	5,500	2,070	19 JL	310	101,000	NS
PAHs (µg/kg)	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NA
PCBs (µg/kg)	ND												

	WSP																																								
	28-01						28-02				28-03			28-04		28-05		28-06					28-14					28-15					28-16			28-17		28-18	
	0-2"	1.3'	2.9'	5.8'	10'	14.5'	0-2"	1.5'-2'	3.5'	4.4'	0-2"	1.4'	2.8'	0-2"	1.4'	0-2"	1.7'	0-2"	1'	2.4'	6.1'	10.4'	0-2"	2"-2'	2'-4'	4'-6'	6'-8'	0-2"	2"-2'	2'-4'	4'-6'	6'-8'	0-2"	2"-2'	2'-5'	0-2"	2"-2'	0-2"	2"-2'
VOCs (µg/kg)																																							
Tetrachloroethene	2.2 J	3.4	3.2	1,360	ND	5.3	3.8	9.8	1,790	ND	130 J	2.8	21.5	291	5	ND	164 J	67.9 J	464	3,310	2.4	ND	ND	0.29 J	6.5	2 J	1.6 J	ND	ND	1.3 J	15.9	ND	2,910	22.5	89.9	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	112 J	ND	ND	159 J	ND	ND	53.7 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8 J	ND	54.8 J	0.53 J	3.5	ND	ND	ND	ND
Trichloroethene	14.6	60.5	15.8	2,980	1.5 J	32.9	8.5	21.5	7,550	ND	435	5.9	58.7	1,360	2.5 J	3.1	1,530	1,230	2,840	14,000	5.2	0.67 J	ND	0.28 J	1.1 J	ND	ND	0.92 J	2.2	3	25.6	13.5 J	123 J	1.8	8.9	0.79 J	ND	ND	ND

LEGEND

A/B HYDROGEOLOGIC ZONES WELL
B HYDROGEOLOGIC ZONE WELL
34-04 SOIL BORING WITH NO EXCEEDENCE
35-16 SOIL BORING WITH A VOC EXCEEDENCE
32-01 SOIL BORING WITH A PAH EXCEEDENCE
32-08 SOIL BORING WITH A METALS OR CYANIDE EXCEEDENCE
TEST PIT WITH NO EXCEEDENCE
LBA-TP-10 TEST PIT WITH A VOC EXCEEDENCE
LBA-TP-16 TEST PIT WITH A METALS OR CYANIDE EXCEEDENCE
34 BUILDING NUMBER
PROPERTY BOUNDARY
#35 AREA OF CONCERN
PROPOSED NEW BOUNDARY FOR SITE NO. 755010 OPERABLE UNIT 2 (FUTURE RESTRICTED RESIDENTIAL/MIXED USE)
FUTURE COMMERCIAL USE
FUTURE INDUSTRIAL USE
APPROXIMATE EXTENT OF SOIL IMPACT
NYSDEC SCO NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION SOIL CLEANUP OBJECTIVE
VOCs VOLATILE ORGANIC COMPOUNDS (SITE RELATED)
PAHs POLYCYCLIC AROMATIC HYDROCARBONS
PCBs POLYCHLORINATED BIPHENYLS
RR RESTRICTED RESIDENTIAL USE
C COMMERCIAL USE
I INDUSTRIAL USE
PoG PROTECTION OF GROUNDWATER
NA NOT APPLICABLE
ND NOT DETECTED
No EX NO EXCEEDENCE
NS NOT SAMPLED
J ESTIMATED CONCENTRATION (ORGANIC)
B ESTIMATED CONCENTRATION (METAL)
L RESULT BIASED LOW
^ INSTRUMENT RELATED QUALITY CONTROL EXCEEDS CONTROL LIMITS
(µg/kg) MICROGRAMS PER KILOGRAM
(mg/kg) MILLIGRAMS PER KILOGRAM
500 EXCEEDS RR
500 EXCEEDS C
500 EXCEEDS I
500 EXCEEDS PoG
(500) CONCENTRATION IS FROM A DUPLICATE SAMPLE

AOC 28	WSP	LaBella
	SB-126	LBA-SB-214
	3-3.8'	8'
Metals (mg/kg)		
Chromium	1,450	300
Cyanide (mg/kg)	3.5	20

AOC
SAMPLING ENTITY
SAMPLE LOCATION
SAMPLE DEPTH BELOW GROUND SURFACE
SAMPLE RESULT

NYSDEC SCOs

	RR	C	I	PoG
VOCs (µg/kg)				
Tetrachloroethene	19,000	150,000	300,000	1,300
1,1,1-Trichloroethane	100,000	500,000	1,000,000	680
Trichloroethene	21,000	200,000	400,000	470
PAHs (µg/kg)				
Benzo(a)anthracene	1,000	5,600	11,000	NA
Benzo(a)pyrene	1,000	1,000	1,100	NA
Benzo(b)fluoranthene	1,000	5,600	11,000	NA
Dibenzo(a,h)anthracene	330	560	1,100	NA
Indeno(1,2,3-cd)pyrene	500	5,600	11,000	NA
PCBs (µg/kg)	1,000	1,000	25,000	NA
Metals (mg/kg)				
Arsenic	16	16	16	NA
Barium	400	400	10,000	NA
Cadmium	4.3	9.3	60	NA
Chromium	180	1,500	6,800	NA
Copper	270	270	10,000	NA
Nickel	310	310	10,000	NA
Cyanide (mg/kg)	27	27	10,000	40

40 20 0 40 80
SCALE, FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE REPRODUCTION MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

REVISIONS
REV | DESCRIPTION | Revised: | Chkd: | Appr:

DRAWN BY
CHECKED
APPROVED

SEAL
DATE

SOIL SAMPLE RESULTS AOCs 28, 29, 30, 31, AND 35F

IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK
PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

FIGURE 3-3

Drawing Number
314P0551-D128

D

LEGEND

- HISTORICAL WELL
- B HYDROGEOLOGIC ZONE WELL
- C HYDROGEOLOGIC ZONE WELL
- 34-04 SOIL BORING WITH NO EXCEEDENCE
- 32-01 SOIL BORING WITH A PAH EXCEEDENCE
- 32-07 SOIL BORING WITH A PCB EXCEEDENCE
- 32-08 SOIL BORING WITH A METALS OR CYANIDE EXCEEDENCE
- 32-SED-02 SEDIMENT SAMPLE WITH A PAH EXCEEDENCE
- 32-SED-02 SEDIMENT SAMPLE WITH A PCB EXCEEDENCE
- 32-SED-02 SEDIMENT SAMPLE WITH A METALS EXCEEDENCE
- LBA-TP-01 TEST PIT WITH NO EXCEEDENCE
- LBA-TP-06 TEST PIT WITH A PAH EXCEEDENCE
- 34 BUILDING NUMBER
- PROPERTY BOUNDARY
- INTERMITTENT STREAM OR DRAINAGE DITCH
- #35 AREA OF CONCERN
- PROPOSED BOUNDARY FOR OU-1
- APPROXIMATE EXTENT OF SOIL IMPACT
- NYSDEC SCO NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION SOIL CLEANUP OBJECTIVE
- PAHs POLYCYCLIC AROMATIC HYDROCARBONS
- PCBs POLYCHLORINATED BIPHENYLS
- RR RESTRICTED RESIDENTIAL USE
- PoG PROTECTION OF GROUNDWATER
- NA NOT APPLICABLE
- ND NOT DETECTED
- No Ex NO EXCEEDENCE
- NS NOT SAMPLED
- J OR B ESTIMATED CONCENTRATION
- (µg/kg) MICROGRAMS PER KILOGRAM
- (mg/kg) MILLIGRAMS PER KILOGRAM
- 500 EXCEEDS RR
- 500 EXCEEDS PoG
- (500) CONCENTRATION IS FROM A DUPLICATE SAMPLE

AOC 35	LaBella	WSP	
	B17-TSS-3	35-30	
	-	0-2"	2"-2'
Metals (mg/kg)			
Arsenic	14.4	9.9	15
Cyanide (mg/kg)	2.2	NS	NS

AOC / SAMPLING ENTITY / SAMPLE LOCATION / SAMPLE DEPTH BELOW GROUND SURFACE / SAMPLE RESULT

NOTES:

1. IN AOC 32, DATA FOR SOIL AND DRAINAGE DITCH SOIL SAMPLES COLLECTED BETWEEN THE GROUND SURFACE AND 2 FEET BGS WERE COMPARED TO RESTRICTED RESIDENTIAL USE SCOs.

2. IN AOC 33, ARSENIC AND BARIUM WERE DETECTED ABOVE THE RESTRICTED RESIDENTIAL USE SCOs IN A SUBSURFACE SOIL SAMPLE COLLECTED FROM LBA-SB-425. BECAUSE BARIUM IS PRESENT IN GROUNDWATER AT CONCENTRATIONS ABOVE THE GROUNDWATER STANDARD IN THIS AREA, DATA FOR SURFACE AND SUBSURFACE SOIL SAMPLES COLLECTED IN THIS AREA WERE ALSO COMPARED TO THE PROTECTION OF GROUNDWATER SCOs. BASED ON THE SINGULAR OCCURRENCE OF BARIUM ABOVE THE PoG SCO, THE MINIMAL ARSENIC EXCEEDENCE OF THE RESTRICTED RESIDENTIAL USE SCO, AND THE PRESENCE OF CONCRETE/ASPHALT PAVEMENT ACROSS THE AREA, WHICH ELIMINATES THE DIRECT CONTACT PATHWAY, NO REMEDIAL ACTION IS WARRANTED.

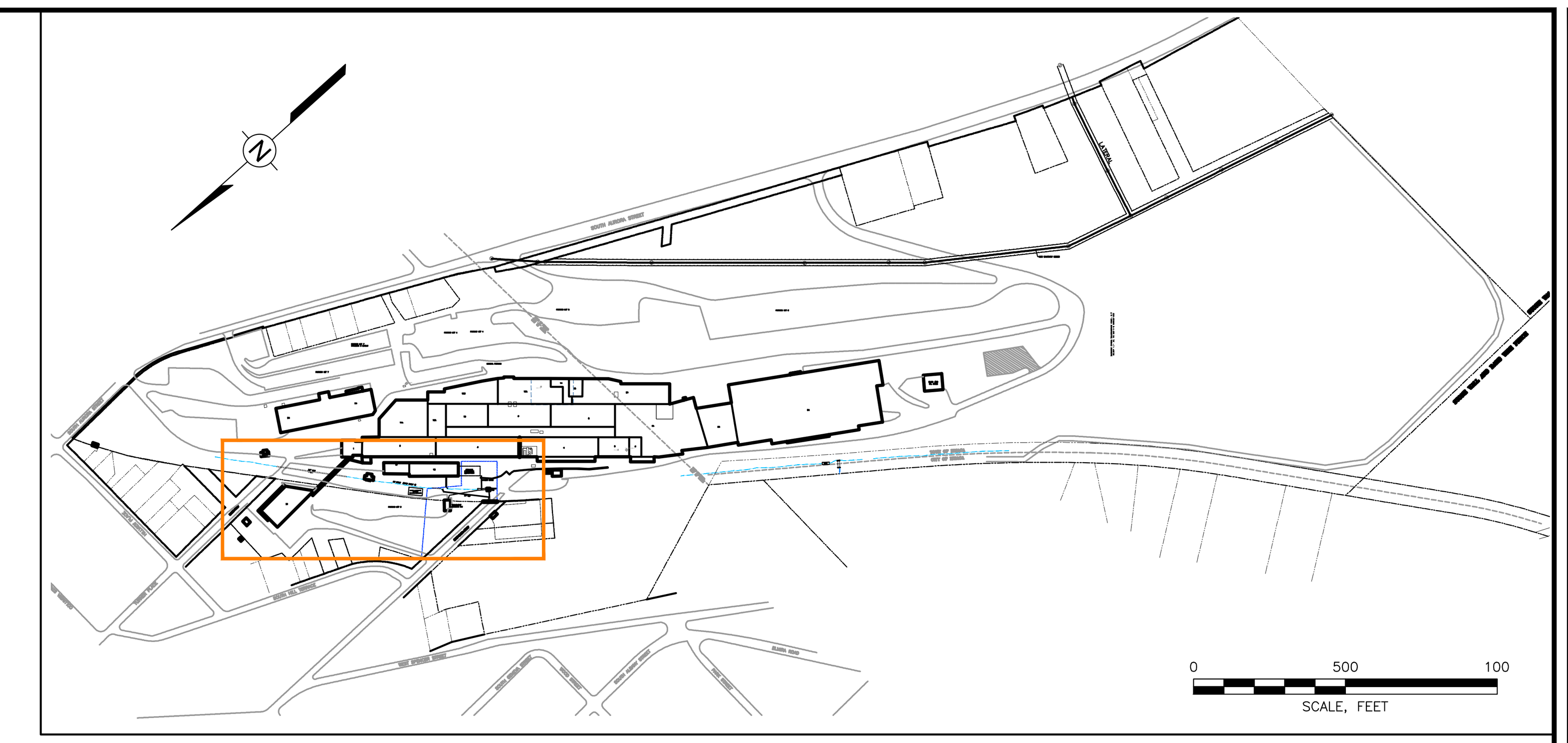
3. FOR B17-TSS-3 AND 35-30, -31, -32, AND -36, AOC 35G, DATA FOR SOIL SAMPLES COLLECTED BETWEEN THE GROUND SURFACE AND 2 FEET BGS WERE COMPARED TO THE RESTRICTED RESIDENTIAL USE SCOs.

4. FOR LBA-TP-03, 35-07, -08, -09, -33, -34, AND -35, AOC 35H, DATA FOR SOIL SAMPLES COLLECTED BETWEEN THE GROUND SURFACE AND 2 FEET BGS WERE COMPARED TO RESTRICTED RESIDENTIAL USE SCOs.

5. FOR SS-103, AOC 35I, THERE WERE EXCEEDENCES OF THE RESTRICTED RESIDENTIAL USE SCOs FOR LEAD AND PAHs IN SAMPLES COLLECTED BETWEEN THE GROUND SURFACE AND 2 FEET BGS. BORINGS 35-17, -18, AND -19 WERE SUBSEQUENTLY ADVANCED AND SAMPLED; EXCEEDENCES OF THE SCOs WERE DETECTED IN ALL THREE. BECAUSE THE PRESENCE OF METALS AND PAHs IN THIS AREA IS MORE LIKELY RELATED TO THE ADJACENT SUBSTATION THAN SITE OPERATIONS, NO FURTHER ACTION IS WARRANTED.

6. DUE TO THE SCALE OF THE DRAWING AND NUMBER OF INSTALLATIONS IN THE FORMER FIREWATER RESERVOIR, NOT ALL OF THE SITE WELLS AND PIEZOMETERS ARE SHOWN IN THE FIGURE.

7. REFER TO THE TABLES REGARDING THE VARIOUS PESTICIDE PARAMETERS AND SCOs.



KEY MAP

NYSDEC SCOs	RR	PoG
PAHs (µg/kg)		
Benzo(a)anthracene	1,000	NA
Benzo(a)pyrene	1,000	NA
Benzo(b)fluoranthene	1,000	NA
Benzo(k)fluoranthene	3,900	NA
Chrysene	3,900	NA
Dibenzo(a,h)anthracene	330	NA
Fluoranthene	100,000	NA
Indeno(1,2,3-cd)pyrene	500	NA
Phenanthrene	100,000	NA
Pyrene	100,000	NA
PCBs (µg/kg)	1,000	NA
Metals (mg/kg)		
Arsenic	16	NA
Barium	400	820
Cadmium	4.3	NA
Chromium	180	NA
Lead	400	NA
Mercury	0.81	NA
Cyanide (mg/kg)	27	NA

AOC 35G - South of Parking Lot 3

	LaBella	WSP							
	B17-TSS-3	35-30		35-31		35-32		35-36	
	-	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'
PCBs (mg/kg)	ND	NS	NS	NS	NS	NS	NS	NS	NS
Metals (mg/kg)									
Arsenic	14.4	9.9	15	14.4	20.4	12.9	18.3	7.4	8.5
Barium	184	156	125	106	137	621	640	90.8	101
Cadmium	4.8	3.4	2.9	0.49	0.37 B	4.5	4.8	3.2	1.8 B
Lead	405	249	209	167	156	249	282	187	83
Cyanide (mg/kg)	No Ex	NS	NS	NS	NS	NS	NS	NS	NS

AOC 32 - Former Spray Pond/Drainage Ditch Area

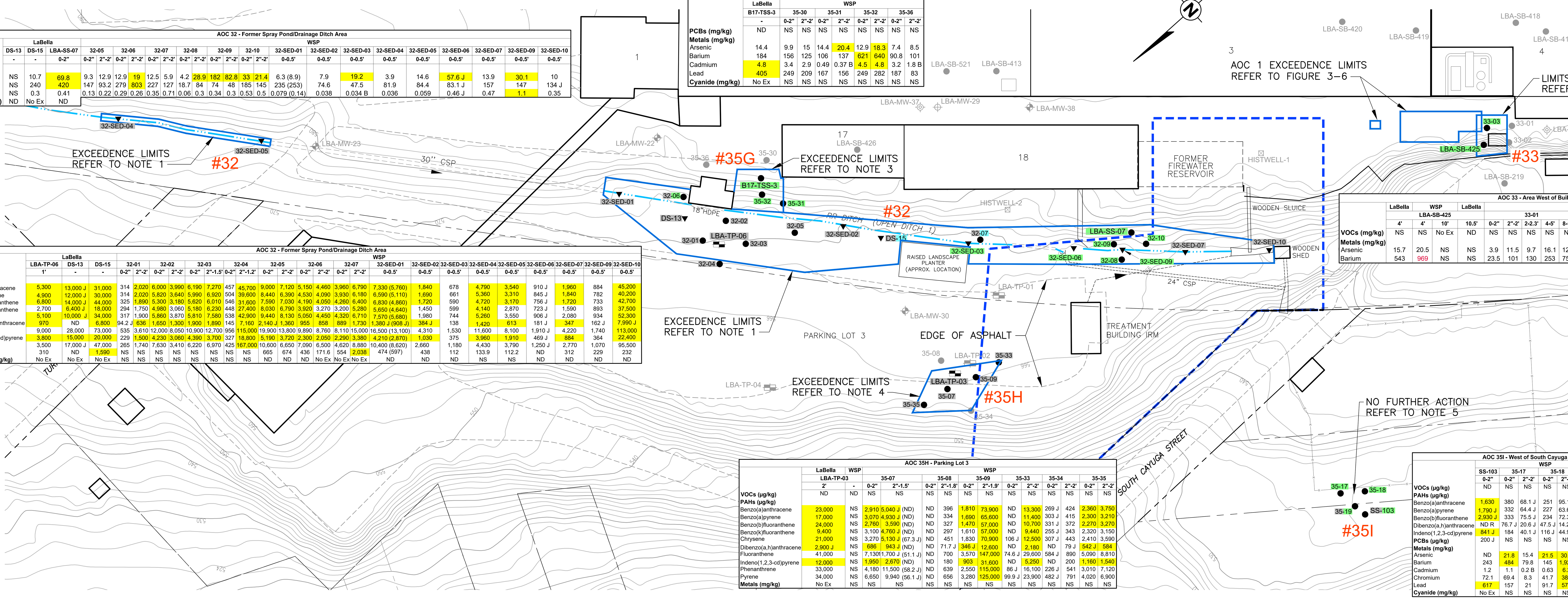
	LaBella			WSP																					
	DS-13	DS-15	LBA-SS-07	32-05		32-06		32-07		32-08		32-09		32-10		32-SED-01	32-SED-02	32-SED-03	32-SED-04	32-SED-05	32-SED-06	32-SED-07	32-SED-09	32-SED-10
	-	-	0-2"	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'
Metals (mg/kg)																								
Arsenic	NS	10.7	69.8	9.3	12.9	12.9	19	12.5	5.9	4.2	28.9	182	82.8	33	21.4	6.3 (8.9)	7.9	19.2	3.9	14.6	57.6 J	13.9	30.1	10
Lead	NS	240	420	147	93.2	279	803	227	127	18.7	84	74	48	185	145	235 (253)	74.6	47.5	81.9	84.4	83.1 J	157	147	134 J
Mercury	NS	0.3	0.41	0.13	0.22	0.29	0.26	0.35	0.71	0.06	0.3	0.34	0.3	0.53	0.5	0.079 (0.14)	0.038	0.034 B	0.036	0.059	0.46 J	0.47	1.1	0.35
Cyanide (mg/kg)	ND	No Ex	ND																					

AOC 32 - Former Spray Pond/Drainage Ditch Area

	LaBella			WSP																						
	LBA-TP-06	DS-13	DS-15	32-01		32-02		32-03		32-04		32-05		32-06		32-07		32-SED-01	32-SED-02	32-SED-03	32-SED-04	32-SED-05	32-SED-06	32-SED-07	32-SED-09	32-SED-10
	1'	-	-	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-1.5'	0-2"	2"-1.2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'
PAHs (µg/kg)																										
Benzo(a)anthracene	5,300	13,000 J	31,000	314	2,020	6,000	3,990	6,190	7,270	457	45,700	9,000	7,120	5,150	4,460	3,960	6,790	7,330 (5,760)	1,840	678	4,790	3,540	910 J	1,960	884	45,200
Benzo(a)pyrene	4,900	12,000 J	30,000	314	2,020	5,820	3,640	5,990	6,920	504	39,600	8,440	6,390	4,530	4,090	3,930	6,180	6,590 (5,110)	1,690	661	5,360	3,310	845 J	1,840	782	40,200
Benzo(b)fluoranthene	6,800	14,000 J	44,000	325	1,890	5,300	3,180	5,620	6,010	546	31,600	7,590	7,030	4,190	4,050	4,260	6,400	6,830 (4,860)	1,720	590	4,720	3,170	756 J	1,720	733	42,700
Benzo(k)fluoranthene	2,700	6,400 J	18,000	294	1,750	4,980	3,060	5,180	6,230	448	27,400	8,030	6,790	3,920	3,270	3,200	5,280	5,650 (4,640)	1,450	599	4,140	2,870	723 J	1,590	893	37,500
Chrysene	5,100	10,000 J	34,000	317	1,900	5,860	3,870	5,810	7,580	538	42,900	9,440	8,130	5,050	4,450	4,320	6,710	7,570 (5,680)	1,980	744	5,260	3,550	906 J	2,080	934	52,300
Dibenzo(a,h)anthracene	970	ND	6,800	94.2 J	636	1,650	1,300	1,900	1,890	145	7,160	2,140 J	1,360	955	858	889	1,730	1,380 J (908 J)	384 J	138	1,420	613	181 J	347	162 J	7,990 J
Fluoranthene	9,000	28,000	73,000	535	3,610	12,000	8,050	10,900	12,700	956	115,000	19,900	13,800	9,890	8,760	8,110	15,000	16,500 (13,100)	4,310	1,530	11,600	8,100	1,910 J	4,220	1,740	113,000
Indeno(1,2,3-cd)pyrene	3,800	15,000	20,000	229	1,500	4,230	3,060	4,390	3,700	327	18,800	5,190	3,720	2,300	2,050	2,290	3,380	4,210 (2,870)	1,030	375	3,960	1,910	469 J	884	364	22,400
Phenanthrene	3,500	17,000 J	47,000	265	1,740	7,630	3,410	6,220	6,970	425	167,000	10,600	6,650	7,090	6,500	4,620	8,880	10,400 (8,620)	2,660	1,180	4,430	3,790	1,250 J	2,770	1,070	95,500
PCBs (µg/kg)	310	ND	1,590	NS	NS	NS	NS	NS	NS	NS	NS	665	674	436	171.6	554	2,038	474 (597)	438	112	133.9	112.2	ND	312	229	232
Pesticides (µg/kg)	No Ex	No Ex	No Ex	NS	NS	NS	NS	NS	NS	NS	NS	ND	ND	ND	No Ex	No Ex	No Ex	ND	ND	ND	NS	NS	ND	ND	ND	ND

AOC 33 - Area West of Building 4

	LaBella	WSP		LaBella	WSP													
	LBA-SB-425				33-01					33-02				33-03				
	4'	4'	10'	10.5'	0-2"	2"-2'	2-2.3'	4-5'	8-10'	0-2"	2"-2'	4-6'	8-10'	0-2"	2"-2'	2-2.9'	4-6'	6-6.5'
VOCs (mg/kg)	ND	NS	No Ex	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Metals (mg/kg)																		
Arsenic	15.7	20.5	NS	NS	3.9	11.5	9.7	16.1	12.9	4.2	4.8	23	38.8	5.4	17.6 (15.5)	14.9	16.2	16.3
Barium	543	969	NS	NS	23.5	101	130	253	75.3	118	90	112	343	163	181 (171)	126	245	205



AOC 35H - Parking Lot 3

	LaBella	WSP												
	LBA-TP-03	35-07			35-08		35-09		35-33		35-34		35-35	
	2'	-	0-2"	2"-1.5'	0-2"	2"-1.8'	0-2"	2"-1.9'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'
VOCs (µg/kg)	ND	NS	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PAHs (µg/kg)														
Benzo(a)anthracene	23,000	NS	2,910	5,040 J (ND)	ND	396	1,810	73,900	ND	13,300	269 J	424	2,360	3,750
Benzo(a)pyrene	17,000	NS	3,070	4,930 J (ND)	ND	334	1,690	65,600	ND	11,400	303 J	415	2,300	3,210
Benzo(b)fluoranthene	24,000	NS	2,760	3,590 (ND)	ND	327	1,470	57,000	ND	10,700	331 J	372	2,270	3,270
Benzo(k)fluoranthene	9,400	NS	3,100	4,760 J (ND)	ND	297	1,610	57,000	ND	9,440	255 J	343	2,320	3,150
Chrysene	21,000	NS	3,270	5,130 J (67.3 J)	ND	451	1,830	70,900	106 J	12,500	307 J	443	2,410	3,590
Dibenzo(a,h)anthracene	2,900 J	NS	686	943 J (ND)	ND	71.7 J	346 J	12,600	ND	2,180	ND	79 J	342 J	584
Fluoranthene	41,000	NS	7,130	11,700 J (51.1 J)	ND	700	3,570	147,000	74.6 J	29,600	584 J	890	5,090	8,810
Indeno(1,2,3-cd)pyrene	12,000	NS	1,950	2,670 (ND)	ND	180	903	31,600	ND	5,250	ND	200	1,160	1,540
Phenanthrene	33,000	NS	4,180	11,500 (58.2 J)	ND	639	2,550	115,000	86 J	16,100	226 J	541	3,010	7,120
Pyrene	34,000	NS	6,650	9,940 (56.1 J)	ND	656	3,280	125,000	99.9 J	23,900	482 J	791	4,020	6,900
Metals (mg/kg)	No Ex	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

AOC 35I - West of South Cayuga

	WSP						
	SS-103	35-17		35-18		35-19	
	0-2"	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'
VOCs (µg/kg)	ND	NS	NS	NS	NS	NS	NS
PAHs (µg/kg)							
Benzo(a)anthracene	1,630	380	68.1 J	251	95.1 J	2,920 J	139
Benzo(a)pyrene	1,790 J	332	64.4 J	227	63.6 J	2,730 J	129
Benzo(b)fluoranthene	2,930 J	333	75.5 J	234	72.3 J	2,720	127
Dibenzo(a,h)anthracene	ND R	76.7 J	20.6 J	47.5 J	14.2 J	596	34.6 J
Indeno(1,2,3-cd)pyrene	841 J	184	40.1 J	116 J	44.9 J	1,380	74 J
PCBs (µg/kg)	200 J	NS	NS	NS	NS	NS	NS
Metals (mg/kg)							
Arsenic	ND	21.8	15.4	21.5	30.7	7.2	19.9
Barium	243	484	79.8	145	1,920	93.1	51.7
Cadmium	1.2	1.1	0.2 B	0.63	6.2	0.53	0.073 B
Chromium	72.1	69.4	8.3	41.7	382	10.8	7.1
Lead	617	157	21	91.7	574	76.2	10.5
Cyanide (mg/kg)	No Ex	NS	NS	NS	NS	NS	NS

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE REPRODUCTION MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

40 20 0 40 80
SCALE, FEET

D

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REVISIONS | REV | DESCRIPTION | Appr. | Chkd. | Revised:

SEAL | DATE

DRAWN BY RZ 06/22/2018
CHECKED DAR 07/03/2018
APPROVED DAR 07/09/2018

SOIL SAMPLE RESULTS AOCs 32, 33, 35G, 35H, AND 35I

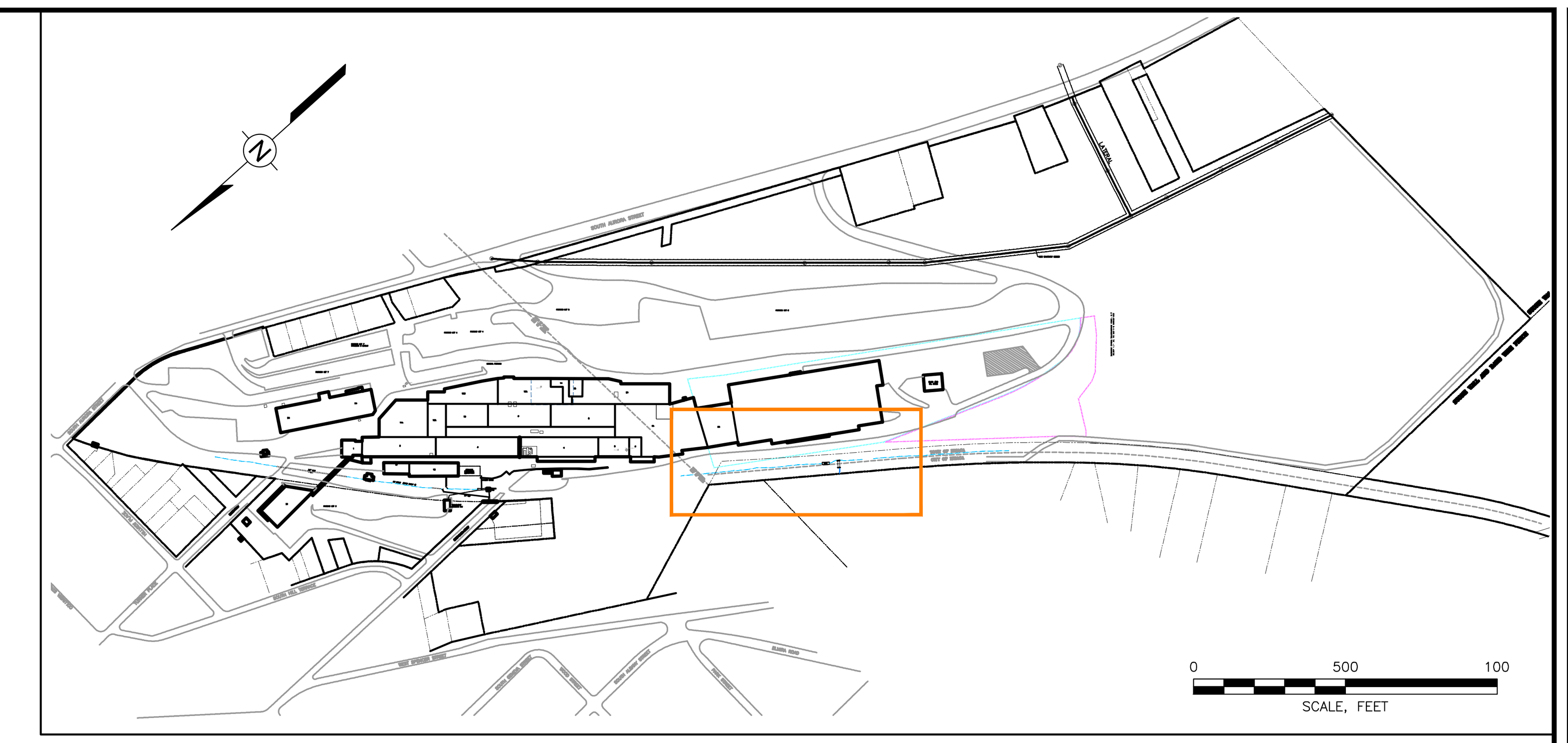
IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

FIGURE 3-4

Drawing Number
314P0551-D129



KEY MAP

NOTES:

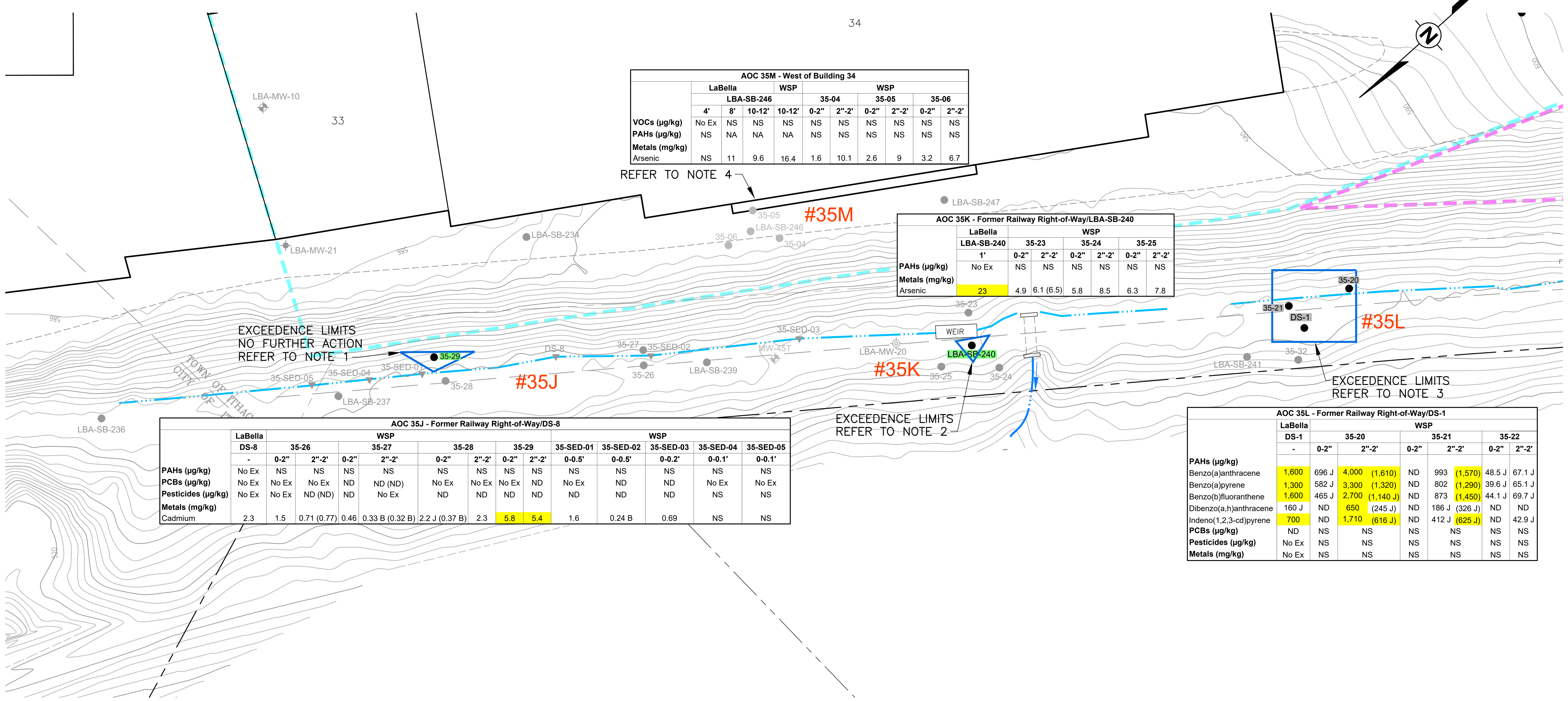
1. FOR DS–8, AOC 35J THE SEDIMENT SAMPLE DATA WERE INITIALLY COMPARED TO THE SEDIMENT GUIDANCE VALUES. BASED ON EXCEEDENCES, ADDITIONAL SEDIMENT SAMPLES (35–SED–01 THROUGH –05) AND SOIL BORINGS (35–26 THROUGH –29) WERE COLLECTED. THE RESULTS WERE COMPARED TO THE RESTRICTED RESIDENTIAL USE SCOs. THE CADMIUM CONCENTRATIONS IN THE SURFACE SOIL SAMPLES COLLECTED FROM BORING 35–29 WERE ONLY SLIGHTLY ABOVE THE RESTRICTED USE SCO. CONSEQUENTLY, NO FURTHER ACTION IS WARRANTED.

2. FOR LBA–SB–240 AND 35–23, –24, –25, AOC 35K, DATA FOR THE SOIL SAMPLES COLLECTED FROM THE GROUND SURFACE TO 2 FEET BGS WERE COMPARED TO THE RESTRICTED RESIDENTIAL USE SCOs.

3. FOR DS–1 AND 35–20, –21, AND –22, AOC 35L, DATA FOR THE SOIL SAMPLES COLLECTED FROM THE GROUND SURFACE TO 2 FEET BGS WERE COMPARED TO THE RESTRICTED RESIDENTIAL USE SCOs.

4. FOR LBA–SB–246 AND 35–04, –05, AND –06, AOC 35M, DATA FOR THE SOIL SAMPLES COLLECTED FROM THE GROUND SURFACE TO 2 FEET BGS WERE COMPARED TO THE COMMERCIAL USE SCOs.

5. REFER TO THE TABLES REGARDING THE VARIOUS PESTICIDE PARAMETERS AND SCOs.



AOC 35M - West of Building 34

	LaBella			WSP	WSP					
	LBA-SB-246				35-04		35-05		35-06	
	4'	8'	10-12'	10-12'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'
VOCs (µg/kg)	No Ex	NS	NS	NS	NS	NS	NS	NS	NS	NS
PAHs (µg/kg)	NS	NA	NA	NA	NS	NS	NS	NS	NS	NS
Metals (mg/kg)										
Arsenic	NS	11	9.6	16.4	1.6	10.1	2.6	9	3.2	6.7

AOC 35K - Former Railway Right-of-Way/LBA-SB-240

	LaBella	WSP					
	LBA-SB-240	35-23		35-24		35-25	
	1'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'
PAHs (µg/kg)	No Ex	NS	NS	NS	NS	NS	NS
Metals (mg/kg)							
Arsenic	23	4.9	6.1 (6.5)	5.8	8.5	6.3	7.8

AOC 35J - Former Railway Right-of-Way/DS-8

	LaBella	WSP								WSP				
	DS-8	35-26		35-27		35-28		35-29		35-SED-01	35-SED-02	35-SED-03	35-SED-04	35-SED-05
	-	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-2"	2"-2'	0-0.5'	0-0.5'	0-0.2'	0-0.1'	0-0.1'
PAHs (µg/kg)	No Ex	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PCBs (µg/kg)	No Ex	No Ex	No Ex	ND	ND (ND)	No Ex	No Ex	No Ex	ND	No Ex	ND	ND	No Ex	No Ex
Pesticides (µg/kg)	No Ex	No Ex	ND (ND)	ND	No Ex	ND	ND	ND	ND	ND	ND	ND	NS	NS
Metals (mg/kg)														
Cadmium	2.3	1.5	0.71 (0.77)	0.46	0.33 B (0.32 B)	2.2 J (0.37 B)	2.3	5.8	5.4	1.6	0.24 B	0.69	NS	NS

AOC 35L - Former Railway Right-of-Way/DS-1

	LaBella	WSP							
	DS-1	35-20			35-21			35-22	
	-	0-2"	2"-2'		0-2"	2"-2'		0-2"	2"-2'
PAHs (µg/kg)									
Benzo(a)anthracene	1,600	696 J	4,000	(1,610)	ND	993	(1,570)	48.5 J	67.1 J
Benzo(a)pyrene	1,300	582 J	3,300	(1,320)	ND	802	(1,290)	39.6 J	65.1 J
Benzo(b)fluoranthene	1,600	465 J	2,700	(1,140 J)	ND	873	(1,450)	44.1 J	69.7 J
Dibenzo(a,h)anthracene	160 J	ND	650	(245 J)	ND	186 J	(326 J)	ND	ND
Indeno(1,2,3-cd)pyrene	700	ND	1,710	(616 J)	ND	412 J	(625 J)	ND	42.9 J
PCBs (µg/kg)	ND	NS	NS		NS	NS		NS	NS
Pesticides (µg/kg)	No Ex	NS	NS		NS	NS		NS	NS
Metals (mg/kg)	No Ex	NS	NS		NS	NS		NS	NS

LEGEND

- B HYDROGEOLOGIC ZONE WELL
- C HYDROGEOLOGIC ZONE WELL
- 34-04 SOIL BORING WITH NO EXCEEDENCE
- 32-01 SOIL BORING WITH A PAH EXCEEDENCE
- 32-08 SOIL BORING WITH A METALS OR CYANIDE EXCEEDENCE
- 35-SED-03 SEDIMENT SAMPLE WITH NO EXCEEDENCE
- 34 BUILDING NUMBER
- PROPERTY BOUNDARY
- INTERMITTENT STREAM OR DRAINAGE DITCH
- #35 AREA OF CONCERN
- FUTURE COMMERCIAL USE
- FUTURE INDUSTRIAL USE
- APPROXIMATE EXTENT OF SOIL IMPACT
- NYSDEC SCO NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION SOIL CLEANUP OBJECTIVE
- VOCs VOLATILE ORGANIC COMPOUNDS
- PAHs POLYCYCLIC AROMATIC HYDROCARBONS
- PCBs POLYCHLORINATED BIPHENYLS
- RR RESTRICTED RESIDENTIAL USE
- C COMMERCIAL USE
- NA NOT APPLICABLE
- ND NOT DETECTED
- No Ex NO EXCEEDENCE
- NS NOT SAMPLED
- J ESTIMATED CONCENTRATION (ORGANIC)
- B ESTIMATED CONCENTRATION (METAL)
- (µg/kg) MICROGRAMS PER KILOGRAM
- (mg/kg) MILLIGRAMS PER KILOGRAM
- 500 EXCEEDS RR
- **500** EXCEEDS C
- (500) CONCENTRATION IS FROM A DUPLICATE SAMPLE

AOC 35K ← AOC

	LaBella	WSP	
	LBA-SB-240	35-23	
	1'	0-2"	2"-2'
PAHs (µg/kg)	No Ex	NS	NS
Metals (mg/kg)			
Arsenic	23	No Ex	No Ex

SAMPLING ENTITY
SAMPLE LOCATION
SAMPLE DEPTH BELOW GROUND SURFACE
SAMPLE RESULT

NYSDEC SCOs

	RR	C
PAHs (µg/kg)		
Benzo(a)anthracene	1,000	5,600
Benzo(a)pyrene	1,000	1,000
Benzo(b)fluoranthene	1,000	5,600
Dibenzo(a,h)anthracene	330	560
Indeno(1,2,3-cd)pyrene	500	5,600
PCBs (µg/kg)	1,000	1,000
Metals (mg/kg)		
Arsenic	16	16
Cadmium	4.3	9.3

40 20 0 40 80
SCALE, FEET

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REVISIONS

REV	DESCRIPTION	Revised:	Chkd:	Appr:

SEAL

DATE

DRAWN BY PAZ 06/22/2018
CHECKED DAR 07/03/2018
APPROVED DAR 07/09/2018

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SOIL SAMPLE RESULTS AOCs 35J, 35K, 35L, AND 35M

IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

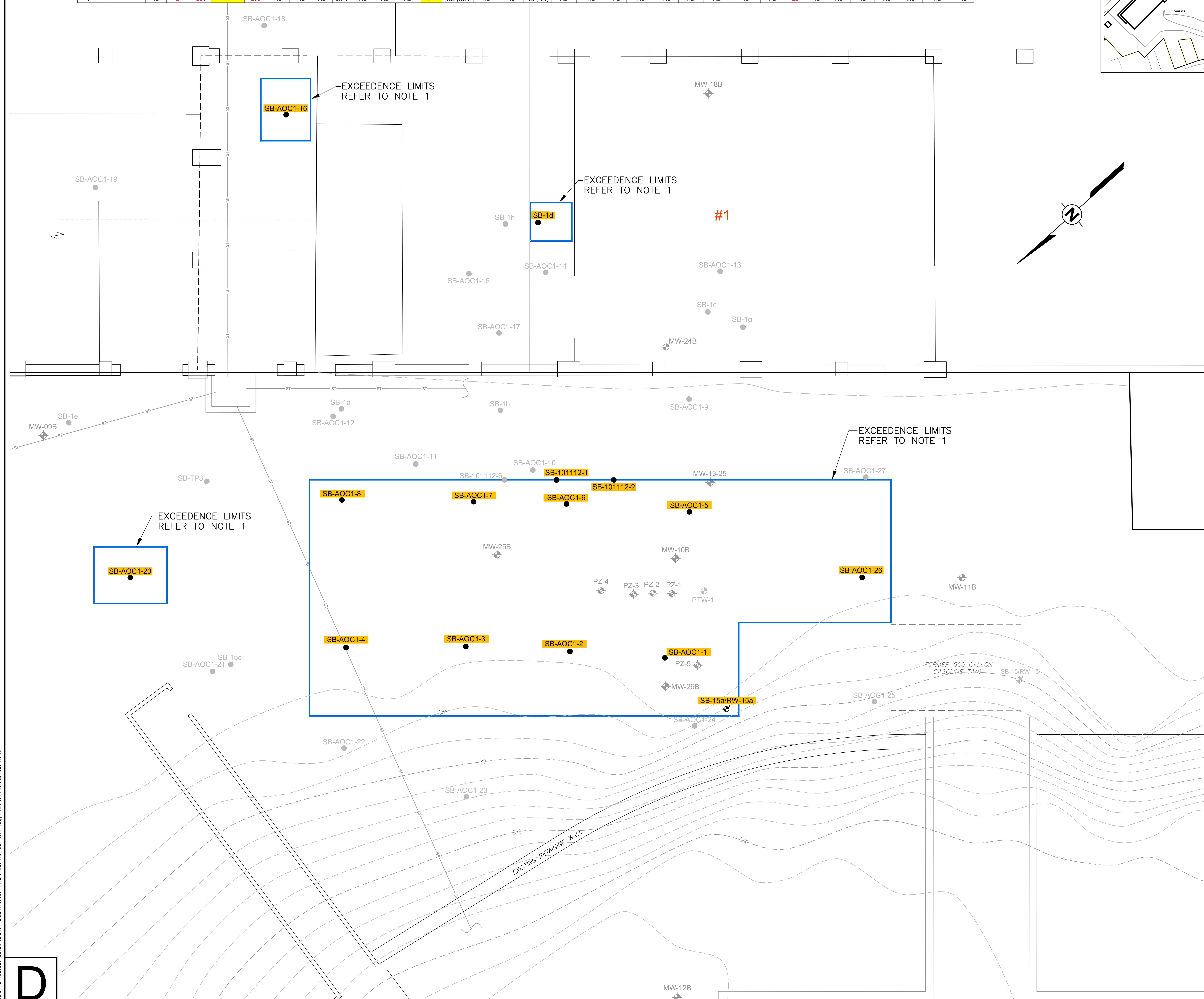
WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

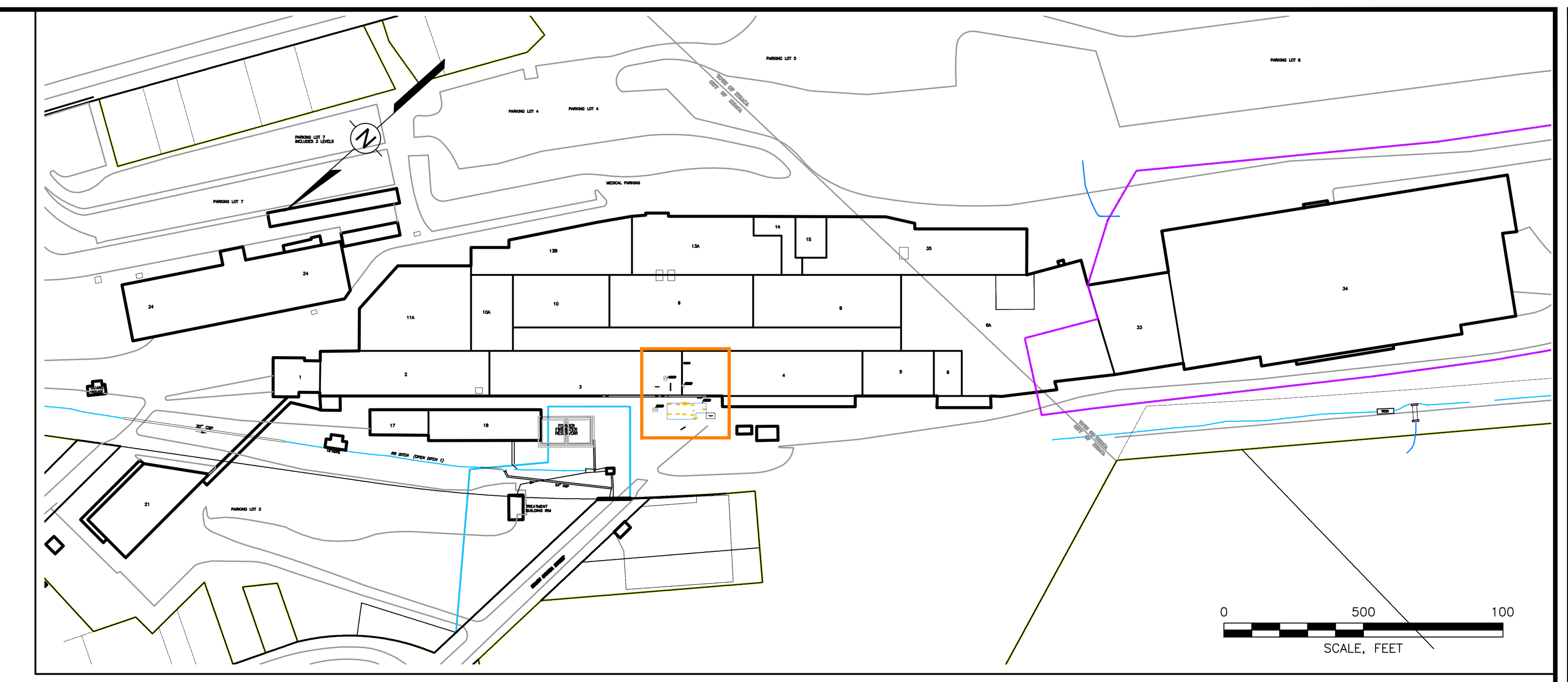
FIGURE 3–5

Drawing Number
314P0551–D130

AOC 1 - Former Department 507 Degreaser	SB-15a/RW-15a		SB-1d	SB-101112-1	SB-101112-2		SB-AOC1-1			SB-AOC1-2		SB-AOC1-3			SB-AOC1-4			
	10'-12'	22'-22.4'	11'-12'	13.75'-15.5	2.25'-3'	14'-15.5	1'-1.17'	14'-16'	16'-18'	1'-1.17'	10'-12'	1'-1.17'	12'-14'	14'-16'	0.7'-0.87'	12'-14'	14'-16'	16'-18'
VOCs (µg/kg)																		
1,2-Dichloroethane	NS	NS	NS	5,870	7.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	42	130 J	ND	ND	ND	61 J	11	32	12,000	0.96 J	2,000 J	3,300	ND (ND)	67 J	ND	ND (ND)	ND
trans-1.2-Dichloroethene	ND	ND	NS	ND	ND	ND	ND	2.1 J	2.4 J	450 J	ND	ND	230	ND (ND)	ND	ND	ND (ND)	ND
Methylene chloride	ND	ND	170	ND	ND	9.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	190	2.5 J	1.2 J	6,700	4.3 J	24,000	100 J	ND (ND)	12,000	ND	ND (ND)	95 J
1,1,1-Trichloroethane	ND	ND	NS	ND	ND	ND	ND	ND	ND	2,400	ND	ND	ND	ND (ND)	96 J	ND	ND (ND)	ND
Trichloroethene	8.2	13	73 J	ND	ND	ND	5,700	9.9	ND	250,000	28	150,000	630	ND (ND)	63,000	ND	ND (ND)	660
Vinyl chloride	ND	21	290	9,400	206	ND	ND	ND	3.7 J	ND	ND	ND	1,100	ND (ND)	ND	ND	ND (ND)	ND

AOC 1 - Former Department 507 Degreaser	SB-AOC1-5		SB-AOC1-6		SB-AOC1-7		SB-AOC1-8			SB-AOC1-16			SB-AOC1-20		SB-AOC1-26	
	1'-1.17'	14'-16'	0-1.17'	14'-16'	0-1.17'	12'-14'	0.75'-0.92'	10'-12'	18'-20'	0-0.17'	0-2'	6'-8'	2-2.17'	7.5'	0.67'-0.84'	10.5'
VOCs (µg/kg)																
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	780	ND	ND	0.81 J	ND	ND	170	ND	ND	2.5 J	53 J	ND	230	ND
trans-1.2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	1.8 J	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	40 JB	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	99 J	ND	81 J	ND
Tetrachloroethene	140 J	ND	2,200	ND	1,800	4.6	9,900	ND	ND	ND	210	1.4 J	160	ND	5,100	2.7 J
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.47 J	ND	ND	ND	ND
Trichloroethene	770	ND	86,000	1.6 J	42,000	26	37,000	7	2.9 J	ND	4,300	3.3 J	1,400	2.8 J	18,000	14
Vinyl chloride	ND	ND	ND	ND	ND	ND	ND	ND	22	ND	ND	ND	ND	ND	ND	ND





KEY MAP

LEGEND

- B HYDROGEOLOGIC ZONE WELL
- EXTRACTION WELL
- PIEZOMETER
- 34-04 SOIL BORING WITH NO EXCEEDENCE
- SB-AOC1-26 SOIL BORING WITH A VOC EXCEEDENCE
- 3 BUILDING NUMBER
- #1 AREA OF CONCERN
- WATER LINE
- SANITARY SEWER LINE
- STORM SEWER LINE
- GAS LINE
- APPROXIMATE EXTENT OF SOIL IMPACT
- NYSDEC SCO NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION SOIL CLEANUP OBJECTIVE
- VOCs VOLATILE ORGANIC COMPOUNDS (SITE RELATED)
- RR RESTRICTED RESIDENTIAL USE
- PoG PROTECTION OF GROUNDWATER
- ND NOT DETECTED
- J ESTIMATED CONCENTRATION
- B ALSO DETECTED IN ASSOCIATED BLANK
- (µg/kg) MICROGRAMS PER KILOGRAM
- 500 EXCEEDS RR
- 500 EXCEEDS PoG
- (500) CONCENTRATION IS FROM A DUPLICATE SAMPLE

AOC 1		
WSP		
SB-AOC1-2		
	1'-1.17'	10'-12'
VOCs (µg/kg)	ND	ND

AOC — SAMPLING ENTITY — SAMPLE LOCATION — SAMPLE DEPTH BELOW GROUND SURFACE — SAMPLE RESULT

NYSDEC SCOs	RR	PoG
VOCs (µg/kg)		
1,2-Dichloroethane	3,100	20
cis-1,2-Dichloroethene	100,000	250
trans-1,2-Dichloroethene	100,000	190
Methylene chloride	100,000	50
Tetrachloroethene	19,000	1,300
1,1,1-Trichloroethane	100,000	680
Trichloroethene	21,000	470
Vinyl chloride	900	20

NOTES:

1. IN AOC 1, DATA FOR SOIL SAMPLES COLLECTED FROM THE GROUND SURFACE TO 2 FEET BGS WERE COMPARED TO THE RESTRICTED RESIDENTIAL USE SCOs. BECAUSE VOCs ARE PRESENT IN GROUNDWATER AT CONCENTRATIONS ABOVE THE GROUNDWATER STANDARD IN THIS AREA, DATA FOR THE SOIL SAMPLES COLLECTED IN THIS AREA WERE ALSO COMPARED TO THE PROTECTION OF GROUNDWATER SCOs.
2. INTERIOR BUILDING AND EXISTING UTILITIES DIGITIZED FROM MORSE CHAIN CO. SHOP DRAWINGS TITLED PROPOSED FLOOR REPLACEMENT, BLDG. 3 BASEMENT DEPT. 507 PRESS ROOM, DRAWING NUMBER 118795, DATED 8-5-69. INTERIOR BUILDING AND EXISTING UTILITY LOCATIONS ARE APPROXIMATE.

40 20 0 40 80
SCALE, FEET

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REVISIONS

REV	DESCRIPTION		
1	Revised:	Chkd:	Appr.:
2	Revised:	Chkd:	Appr.:
3	Revised:	Chkd:	Appr.:

SEAL

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SOIL SAMPLE RESULTS
AOC 1

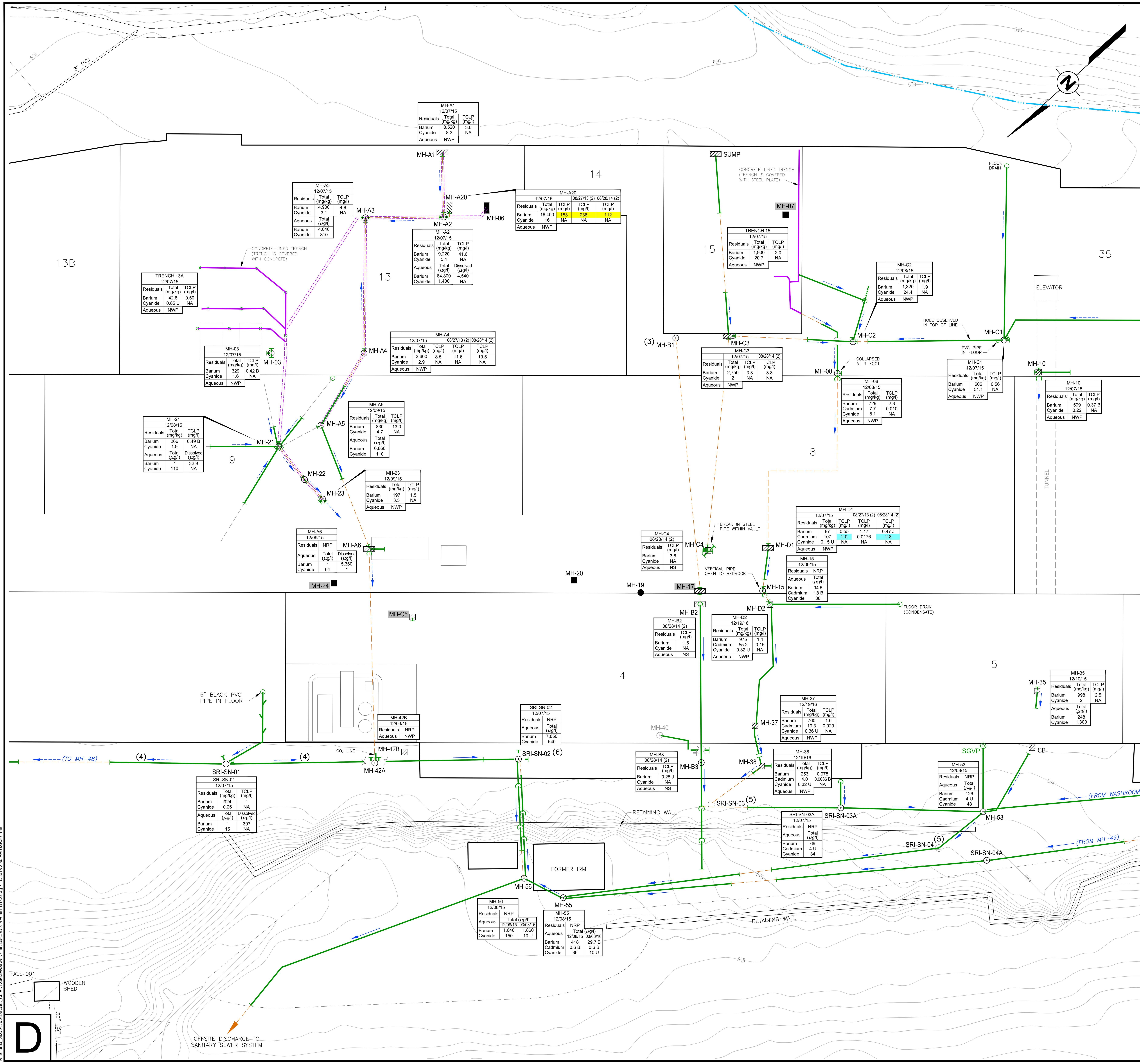
IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

FIGURE 3-6

Drawing Number
314P0551-D131



LEGEND

- SANITARY MANHOLE/MANWAY
- SEALED MANHOLE/MANWAY
- MH-01 — NOT PART OF SANITARY SEWER SYSTEM (REFER TO TEXT)
- VIDEO SURVEYED
- LINE ADVANCEMENT LIMITED DUE TO BUILD UP OF RESIDUAL MATERIAL (REFER TO TEXT)
- VERTICAL TRANSITION IN LINE
- SAW CUT/REPAIRED CONCRETE FLOOR
- TRENCH
- CONNECTIONS BASED ON FACILITY DRAWINGS
- OBSERVED DIRECTION OF FLOW
- PRESUMED DIRECTION OF FLOW (REFER TO NOTE 1)
- SGVP — SEWER GAS VENT
- CB — CATCH BASIN
- CSP — CORRUGATED STEEL PIPE
- PVC — POLYVINYL CHLORIDE
- 34 — BUILDING NUMBER
- INTERMITTENT STREAM OR DRAINAGE DITCH
- TCLP — TOXICITY CHARACTERISTIC LEACHING PROCEDURE
- NA — NOT APPLICABLE
- NRP — NO FREE RESIDUALS PRESENT
- NS or – — NOT SAMPLED
- NWP — NO WATER PRESENT (OR INSUFFICIENT TO SAMPLE)
- U — NOT DETECTED
- B — ESTIMATED CONCENTRATION
- mg/kg — MILLIGRAMS PER KILOGRAM
- mg/l — MILLIGRAMS PER LITER
- µg/l — MICROGRAMS PER LITER
- 998 — EXCEEDS BARIUM TCLP LIMIT
- 998 — EXCEEDS CADMIUM TCLP LIMIT

MH-A2		
12/07/15		
Residuals	Total (mg/kg)	TCLP (mg/l)
Barium	9,220	41.6
Cyanide	5.4	NA
Aqueous	Total (µg/l)	Dissolved (µg/l)
Barium	84,800	4,540
Cyanide	1,400	NA

- SAMPLE LOCATION
- SAMPLE DATE
- SAMPLE TYPE
- SAMPLE RESULT

TCLP LIMITS (mg/l)

BARIUM	100
CADMIUM	1
CYANIDE	NA

NOTES:

1. THE PRESUMED DIRECTIONS OF FLOW ARE BASED ON THE INVERT ELEVATIONS OF THE PIPES OBSERVED IN EACH OF THE MANHOLES.

2. DATA PRESENTED IN THE SUPPLEMENTAL PHASE II SRI WORK PLAN FOR SAMPLES COLLECTED PRIOR TO PREPARATION OF THAT DOCUMENT.

3. MH-B1 INCLUDES TWO HORIZONTAL 4-INCH DIAMETER PIPES (PVC AND CAST IRON) THAT ARE CAPPED. THE LINES WERE EXPOSED WHEN THE ASSOCIATED MANHOLE AND ADJACENT CONCRETE FLOOR WERE REMOVED.

4. THE INVERT ELEVATIONS INDICATE TYPICAL FLOW TO THE NORTHEAST (TOWARD MH-48) AND OVERFLOW TO THE SOUTHWEST (TOWARD SRI-SN-02).

5. THE SRI-SN-03 AND SRI-SN-04 LOCATIONS ARE APPROXIMATE AND BASED ON HISTORICAL FACILITY DRAWINGS.

SRI-SN-03 COULD NOT BE LOCATED AT THE GROUND SURFACE AND IS BELIEVED TO BE PAVED OVER. ITS EXISTENCE COULD NOT BE CONFIRMED DURING THE EVALUATION OF UPSTREAM MANHOLE MH-B3 DUE TO THE PRESENCE OF RESIDUALS WHICH BLOCKED WHAT MAY BE THE CONNECTING PIPE BETWEEN THESE LOCATIONS.

SRI-SN-04 COULD NOT BE LOCATED AT THE GROUND SURFACE. DURING THE VIDEO SCOPING OF MH-53, A BRICK-LINED VAULT, WHICH IS NOW OVERLAIN BY A CONCRETE PAD, WAS OBSERVED AT THE APPROXIMATE LOCATION OF SRI-SN-04.

6. INFORMATION FOR THE LINE ASSOCIATED WITH SRI-SN-02 AND MH-56 (THE LINE WAS SCOPED FROM BOTH LOCATIONS) IS OFFSET FOR PRESENTATION PURPOSES.

20 10 0 20 40

SCALE, FEET

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REVISIONS — REV | DESCRIPTION | Chkd: | Appr: | Revised:

DRAWN BY | CHECKED | APPROVED | DATE | SEAL

SANITARY SEWER SYSTEM AND SAMPLE RESULTS

IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

FIGURE 3–7

Drawing Number
314P0551–D132

IRM DRAWINGS

INDEX OF DRAWINGS

TITLE SHEET

INTERIM REMEDIAL MEASURES WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR

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ST. LOUIS, MISSOURI

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REVISIONS

TITLE SHEET

IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
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EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

AUGUST 07, 2018

SHEET 1

Drawing Number
314P0551–D139

NOTES:

1. GOOGLE EARTH AERIAL PHOTOGRAPH, IMAGERY DATE 5/5/2013.

2. AERIAL PHOTOGRAPHS USED FOR THIS ILLUSTRATION CONTAIN INHERENT DISTORTIONS RESULTING FROM THE PHOTOGRAPHIC PROCESS THAT MAY RESULT IN SLIGHT MISALIGNMENTS WITH THE SURVEYED SITE FEATURES.

LEGEND

34 BUILDING NUMBER

PROPERTY BOUNDARY

APPROXIMATE LIMITS OF SOIL MANAGEMENT WITHIN AOC

100 0 100 200

SCALE, FEET

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REVISIONS

REV	DESCRIPTION

SEAL

DAVID ALAN RYCZEK · STATE OF NEW YORK · LICENSED PROFESSIONAL ENGINEER · 099287

AUGUST 03, 2018
DATE

DRAWN BY	RAZ 08022018
CHECKED	DAR 08032018
APPROVED	DAR 08032018

GENERAL SITE PLAN

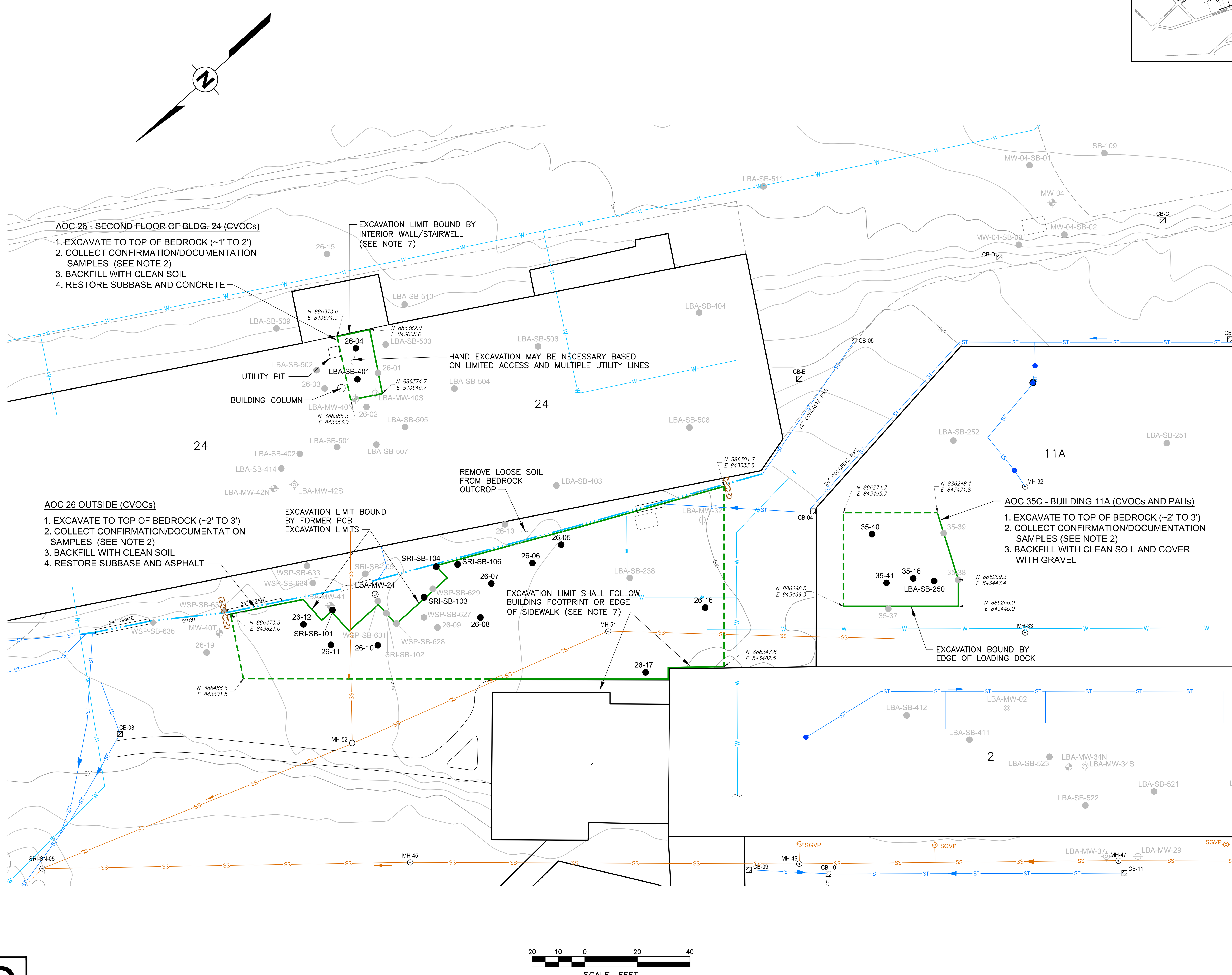
IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

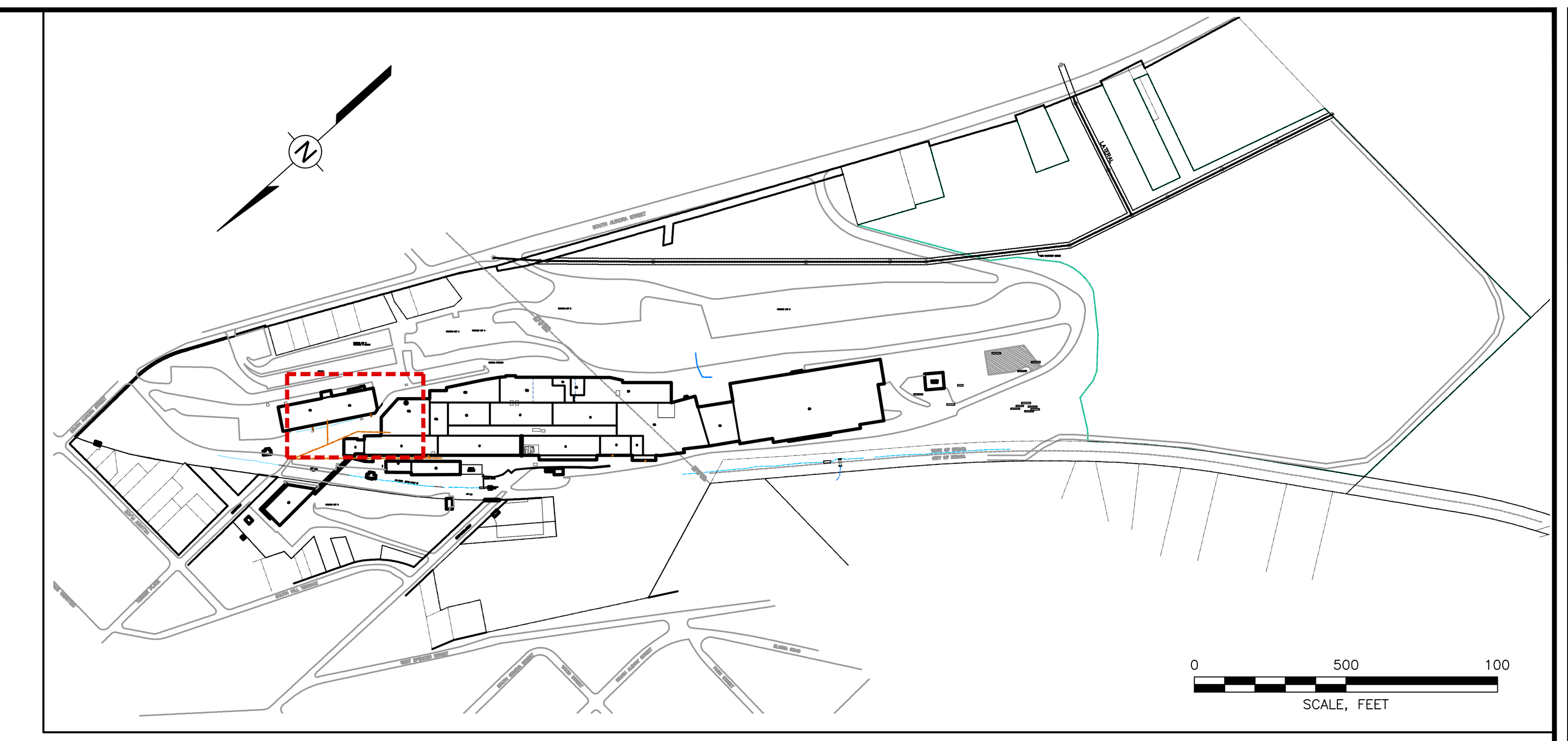
PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

SHEET 2

Drawing Number
314P0551–D140





KEY MAP

LEGEND

- B HYDROGEOLOGIC ZONE
- B/C HYDROGEOLOGIC ZONES
- C HYDROGEOLOGIC ZONE
- SOIL BORING (WITH EXCEEDENCE)
- SOIL BORING (WITHOUT EXCEEDENCE)
- MH-52 MANHOLE/MANWAY
- CB-03 CATCH BASIN
- ROOF DRAIN
- SGVP SANITARY GAS VENT PIPE
- 34 BUILDING NUMBER
- W WATER LINE (APPROXIMATE LOCATION, SEE NOTE 6)
- ST STORM WATER SEWER LINE (APPROXIMATE LOCATION)
- SS SANITARY SEWER LINE (APPROXIMATE LOCATION)
- INTERMITTENT STREAM OR DRAINAGE DITCH
- MAXIMUM EXTENT OF SOIL EXCAVATION (SEE IRM WORK PLAN FOR CONDITIONS IN WHICH DOCUMENTATION SAMPLES WILL BE COLLECTED)
- INITIAL EXTENT OF SOIL EXCAVATION (CONFIRMATION SAMPLING REQUIRED)
- STRAW BALE DIKE

NOTES:

1. UTILITY LINES SHOWN ON THIS DRAWING ARE APPROXIMATE. PUBLIC AND PRIVATE UTILITY SURVEYS SHALL BE CONDUCTED IN ALL EXCAVATION AREAS. IDENTIFIED UTILITIES SHALL BE MARKED AND PROTECTED THROUGHOUT THE WORK. UTILITIES MAY BE TEMPORARILY DE-ENERGIZED, REMOVED, AND REPLACED IN ACCORDANCE WITH SERVICE PROVIDERS' PROCEDURES.

2. CONFIRMATION SAMPLES SHALL BE COLLECTED AT A RATE OF 1 SAMPLE PER 30 LINEAR FEET WHERE INDICATED. ADDITIONAL EXCAVATION SHALL BE PERFORMED WHERE SAMPLE RESULTS EXCEED APPLICABLE SCOs. HISTORICAL SRI DATA MAY BE USED AS CONFIRMATION SAMPLES.

3. EXCAVATED SOILS SHALL BE STOCKPILED, CHARACTERIZED, AND DISPOSED OF OFFSITE. SEE SHEET 11 FOR POTENTIAL STOCKPILE LOCATIONS.

4. EXCAVATED AREAS SHALL BE BACKFILLED WITH CLEAN SOIL TO MATCH THE ORIGINAL GRADES. DISTURBED AREAS SHALL BE FERTILIZED, SEEDED, AND MULCHED.

5. PAVEMENTS SHALL BE RESTORED IN KIND UNLESS OTHERWISE SPECIFIED.

6. WATER LINES ARE LOCATED FROM A FACTORY MUTUAL SYSTEM DRAWING DATED 12-3-91, SERIAL 82768, INDEX 27036.00.

7. THE DEPTH OF THE FOOTERS SHALL BE VERIFIED BY HAND-DIGGING WHERE EXCAVATION IS PLANNED NEAR BUILDING WALLS. NO EXCAVATION SHALL BE PERFORMED BELOW THE BOTTOM OF THE BUILDING FOOTERS.

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REVISIONS

REV	DESCRIPTION

SEAL — JULY 09, 2018 DATE

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CHECKED	DAR 07/03/2018
APPROVED	DAR 07/09/2018

AOCs 26 AND 35C EXCAVATION PLAN

IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
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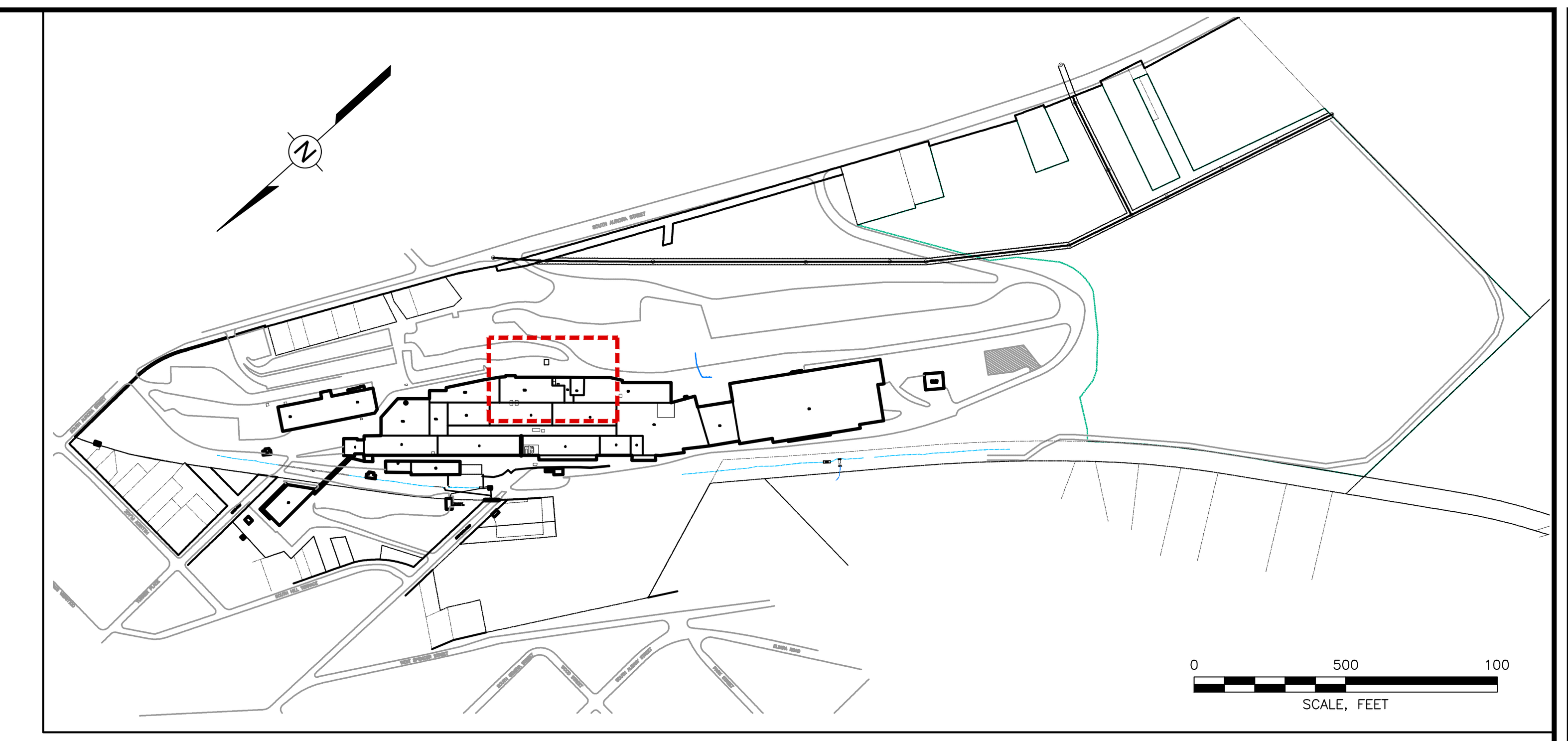
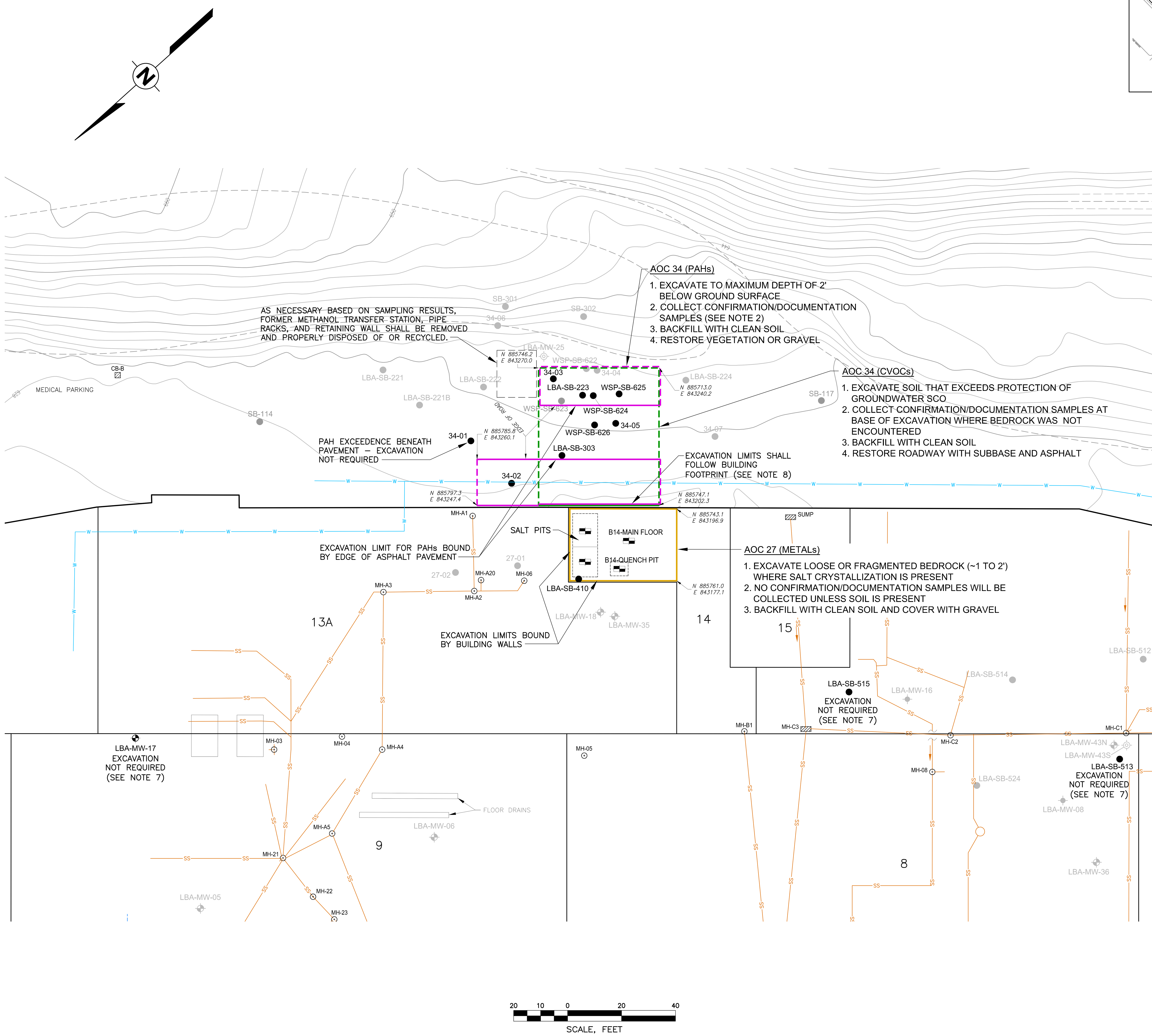
SHEET 3

Drawing Number
314P0551-D113





LEGEND

- A/B HYDROGEOLOGIC ZONES
- B HYDROGEOLOGIC ZONE
- C HYDROGEOLOGIC ZONE
- SOIL BORING (WITH EXCEEDENCE)
- SOIL BORING (WITHOUT EXCEEDENCE)
- TEST PIT (WITH EXCEEDENCE)
- TEST PIT (WITHOUT EXCEEDENCE)
- MH-52 MANHOLE/MANWAY
- CB-03 CATCH BASIN
- 34 BUILDING NUMBER
- W WATER LINE (APPROXIMATE LOCATION, SEE NOTE 6)
- SS SANITARY SEWER LINE (APPROXIMATE LOCATION)
- MAXIMUM EXTENT OF SOIL EXCAVATION (PAHs) (SEE IRM WORK PLAN FOR CONDITIONS IN WHICH DOCUMENTATION SAMPLES WILL BE COLLECTED)
- INITIAL EXTENT OF SOIL EXCAVATION (PAHs) (CONFIRMATION SAMPLING REQUIRED)
- MAXIMUM EXTENT OF SOIL EXCAVATION (CVOCs) (SEE IRM WORK PLAN FOR CONDITIONS IN WHICH DOCUMENTATION SAMPLES WILL BE COLLECTED)
- INITIAL EXTENT OF SOIL EXCAVATION (CVOCs) (CONFIRMATION SAMPLING REQUIRED)
- MAXIMUM EXTENT OF BEDROCK EXCAVATION (METALS) (SEE IRM WORK PLAN FOR CONDITIONS IN WHICH DOCUMENTATION SAMPLES WILL BE COLLECTED)

NOTES:

1. UTILITY LINES SHOWN ON THIS DRAWING ARE APPROXIMATE. PUBLIC AND PRIVATE UTILITY SURVEYS SHALL BE CONDUCTED IN ALL EXCAVATION AREAS. IDENTIFIED UTILITIES SHALL BE MARKED AND PROTECTED THROUGHOUT THE WORK. UTILITIES MAY BE TEMPORARILY DE-ENERGIZED, REMOVED, AND REPLACED IN ACCORDANCE WITH SERVICE PROVIDERS' PROCEDURES.

2. CONFIRMATION SAMPLES SHALL BE COLLECTED AT A RATE OF 1 SAMPLE PER 30 LINEAR FEET WHERE INDICATED. ADDITIONAL EXCAVATION SHALL BE PERFORMED WHERE SAMPLE RESULTS EXCEED APPLICABLE SCOs. HISTORICAL SRI DATA MAY BE USED AS CONFIRMATION SAMPLES.

3. EXCAVATED SOILS SHALL BE STOCKPILED, CHARACTERIZED, AND DISPOSED OF OFFSITE. SEE SHEET 11 FOR POTENTIAL STOCKPILE LOCATIONS.

4. EXCAVATED AREAS SHALL BE BACKFILLED WITH CLEAN SOIL TO MATCH THE ORIGINAL GRADES. DISTURBED AREAS SHALL BE FERTILIZED, SEEDED, AND MULCHED.

5. PAVEMENTS SHALL BE RESTORED IN KIND UNLESS OTHERWISE SPECIFIED.

6. WATER LINES ARE LOCATED FROM A FACTORY MUTUAL SYSTEM DRAWING DATED 12-3-91, SERIAL 82768, INDEX 27036.00.

7. REFER TO THE PHASE II SRI REPORT REGARDING CONDITIONS AT THESE LOCATIONS.

8. THE DEPTH OF THE FOOTERS SHALL BE VERIFIED BY HAND-DIGGING WHERE EXCAVATION IS PLANNED NEAR BUILDING WALLS. NO EXCAVATION SHALL BE PERFORMED BELOW THE BOTTOM OF THE BUILDING FOOTERS.

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE REPRODUCTION MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

REVISIONS — REV | DESCRIPTION

SEAL — STATE OF NEW YORK, DAVID ... LICENSED PROFESSIONAL ENGINEER — DATE JULY 09, 2018

DRAWN BY / CHECKED / APPROVED

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AOCs 27 AND 34 EXCAVATION PLAN

IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

SHEET 4

Drawing Number
314P0551-D114

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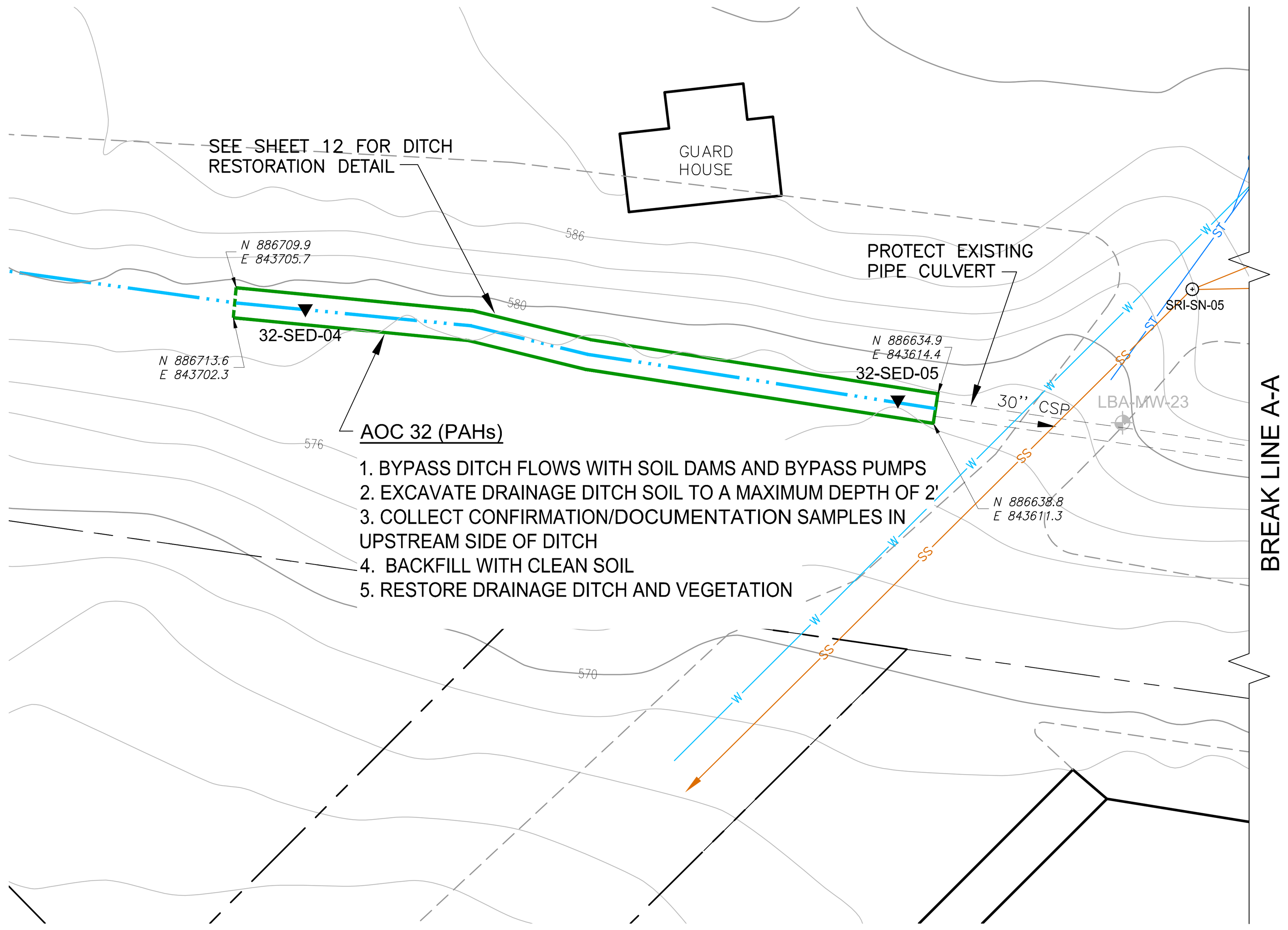
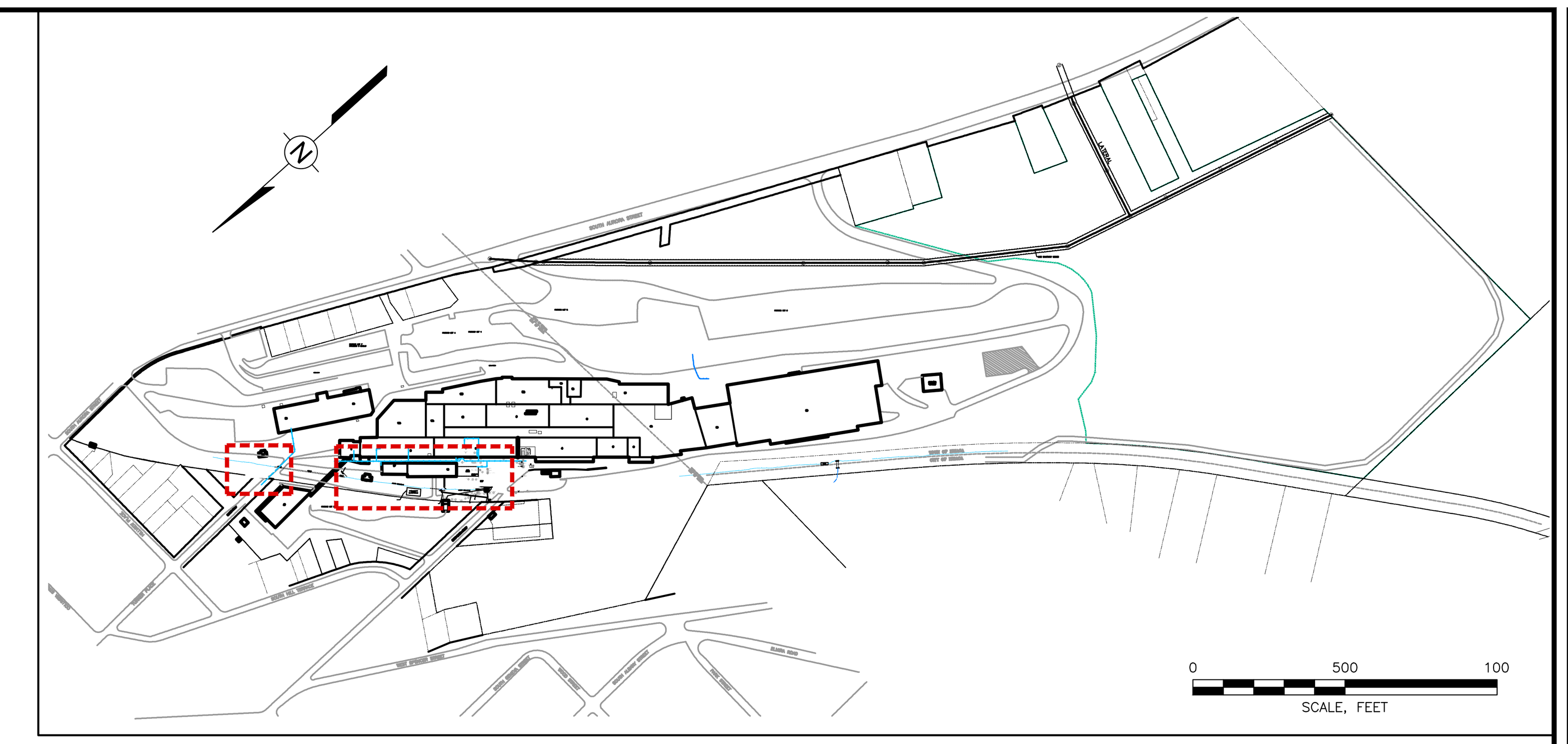


LEGEND

- HISTORICAL WELL
- A/B HYDROGEOLOGIC ZONES
- B HYDROGEOLOGIC ZONE
- B/C HYDROGEOLOGIC ZONES
- C HYDROGEOLOGIC ZONE
- D HYDROGEOLOGIC ZONE
- EXTRACTION WELL
- PIEZOMETER
- SOIL BORING (WITH EXCEEDENCE)
- SOIL BORING (WITHOUT EXCEEDENCE)
- SEDIMENT SAMPLE (WITH EXCEEDENCE)
- TEST PIT (WITH EXCEEDENCE)
- TEST PIT (WITHOUT EXCEEDENCE)
- MH-52 MANHOLE/MANWAY
- CB-03 CATCH BASIN
- SGVP SANITARY GAS VENT PIPE
- 34 BUILDING NUMBER
- PROPERTY BOUNDARY
- W WATER LINE (APPROXIMATE LOCATION, SEE NOTE 6)
- ST STORM WATER SEWER LINE (APPROXIMATE LOCATION)
- SS SANITARY SEWER LINE (APPROXIMATE LOCATION)
- INTERMITTENT STREAM OR DRAINAGE DITCH
- MAXIMUM EXTENT OF SOIL EXCAVATION (SEE IRM WORK PLAN FOR CONDITIONS IN WHICH DOCUMENTATION SAMPLES WILL BE COLLECTED)
- INITIAL EXTENT OF SOIL EXCAVATION (CONFIRMATION SAMPLING REQUIRED)



KEY MAP

NOTES:

1. UTILITY LINES SHOWN ON THIS DRAWING ARE APPROXIMATE. PUBLIC AND PRIVATE UTILITY SURVEYS SHALL BE CONDUCTED IN ALL EXCAVATION AREAS. IDENTIFIED UTILITIES SHALL BE MARKED AND PROTECTED THROUGHOUT THE WORK. UTILITIES MAY BE TEMPORARILY DE-ENERGIZED, REMOVED, AND REPLACED IN ACCORDANCE WITH SERVICE PROVIDERS' PROCEDURES.

2. CONFIRMATION SAMPLES SHALL BE COLLECTED AT A RATE OF 1 SAMPLE PER 30 LINEAR FEET WHERE INDICATED. ADDITIONAL EXCAVATION SHALL BE PERFORMED WHERE SAMPLE RESULTS EXCEED APPLICABLE SCOs. HISTORICAL SRI DATA MAY BE USED AS CONFIRMATION SAMPLES. DOCUMENTATION SAMPLES WILL BE COLLECTED ALONG THE BASE OF THE AOC 32 EXCAVATION AT A RATE OF 1 SAMPLE PER 900 SQUARE FEET.

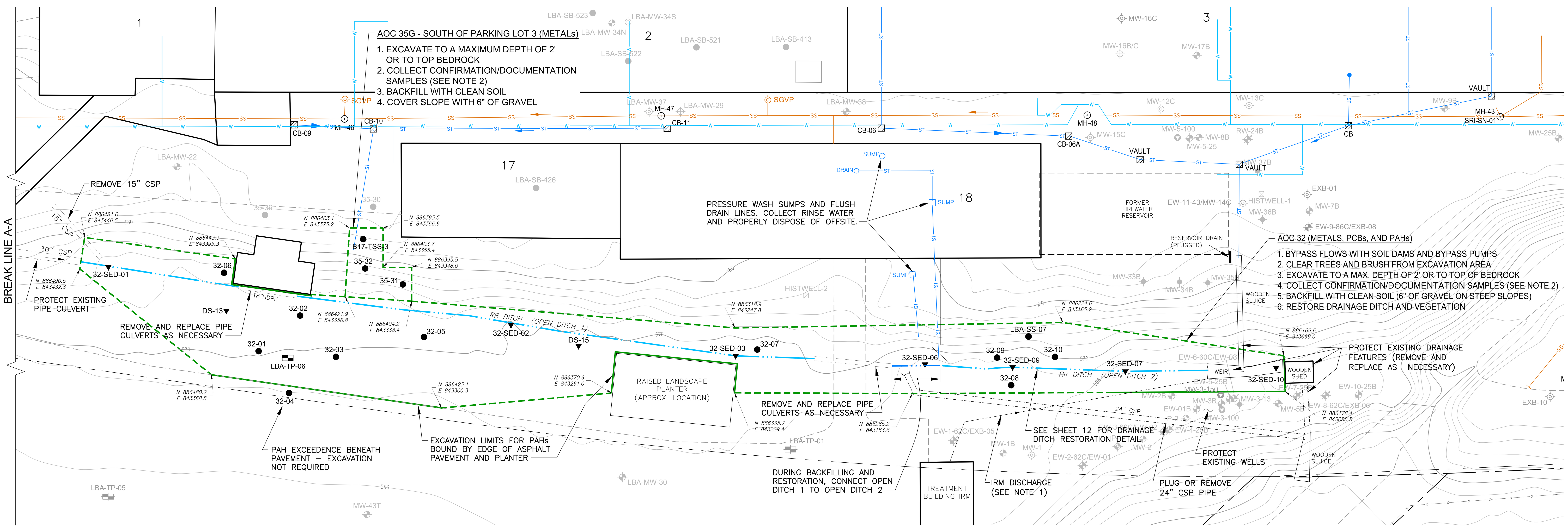
3. EXCAVATED SOILS SHALL BE STOCKPILED, CHARACTERIZED, AND DISPOSED OF OFFSITE. SEE SHEET 11 FOR POTENTIAL STOCKPILE LOCATIONS.

4. EXCAVATED AREAS SHALL BE BACKFILLED WITH CLEAN SOIL TO MATCH THE ORIGINAL GRADES. DISTURBED AREAS SHALL BE FERTILIZED, SEEDED, AND MULCHED.

5. PAVEMENTS SHALL BE RESTORED IN KIND UNLESS OTHERWISE SPECIFIED.

6. WATER LINES ARE LOCATED FROM A FACTORY MUTUAL SYSTEM DRAWING DATED 12-3-91, SERIAL 82768, INDEX 27036.00.

7. THE DEPTH OF THE FOOTERS SHALL BE VERIFIED BY HAND-DIGGING WHERE EXCAVATION IS PLANNED NEAR BUILDING WALLS. NO EXCAVATION SHALL BE PERFORMED BELOW THE BOTTOM OF THE BUILDING FOOTERS.



20 10 0 20 40
SCALE, FEET

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REVISIONS

REV	DESCRIPTION	Chkd:	Appr.:
		Revised:	
		Revised:	
		Revised:	

SEAL

DATE JULY 09 2018

DRAWN BY	RA 06/22/2018
CHECKED	DAR 07/03/2018
APPROVED	DAR 07/09/2018

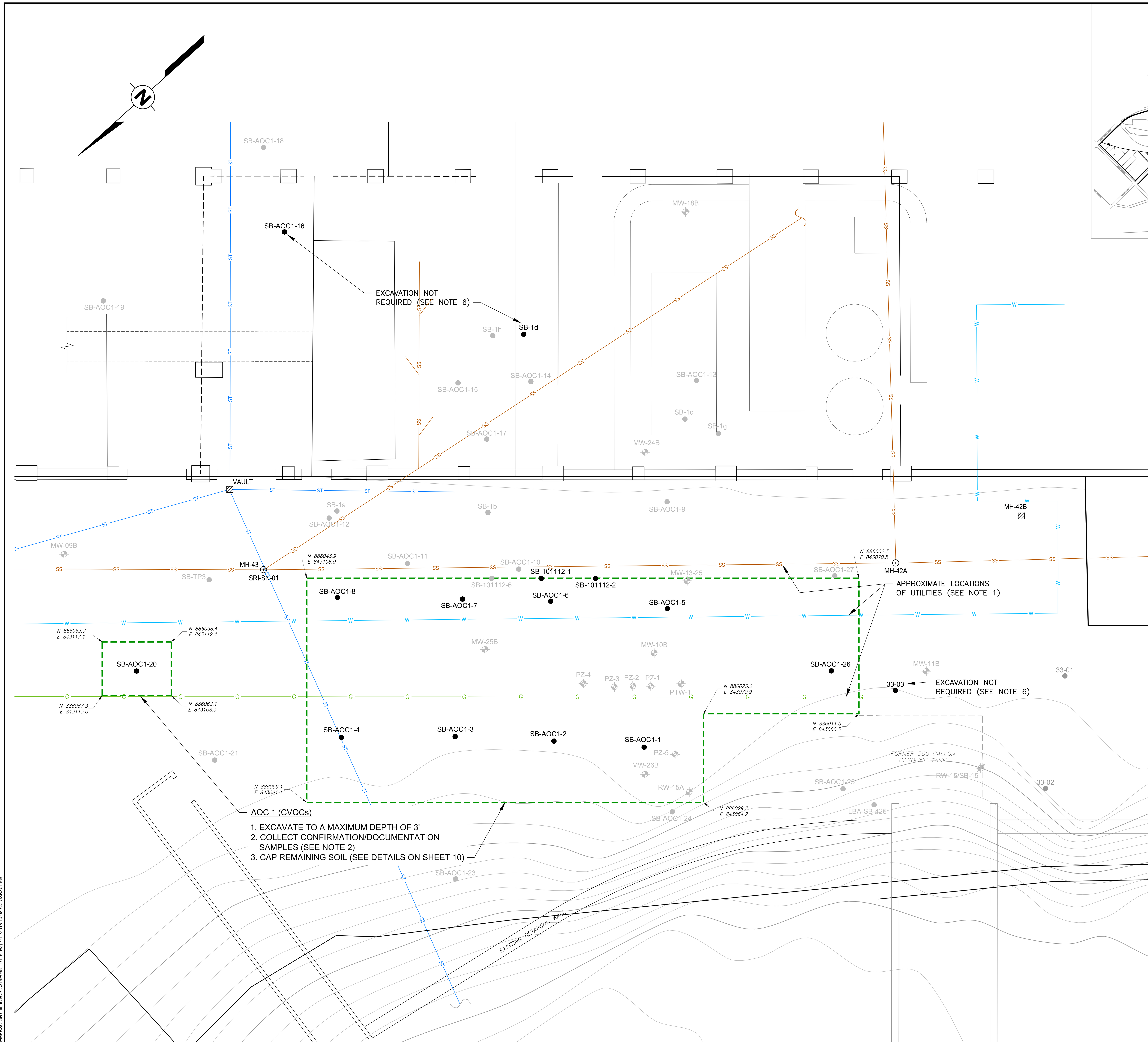
AOCs 32 AND 35G EXCAVATION PLAN

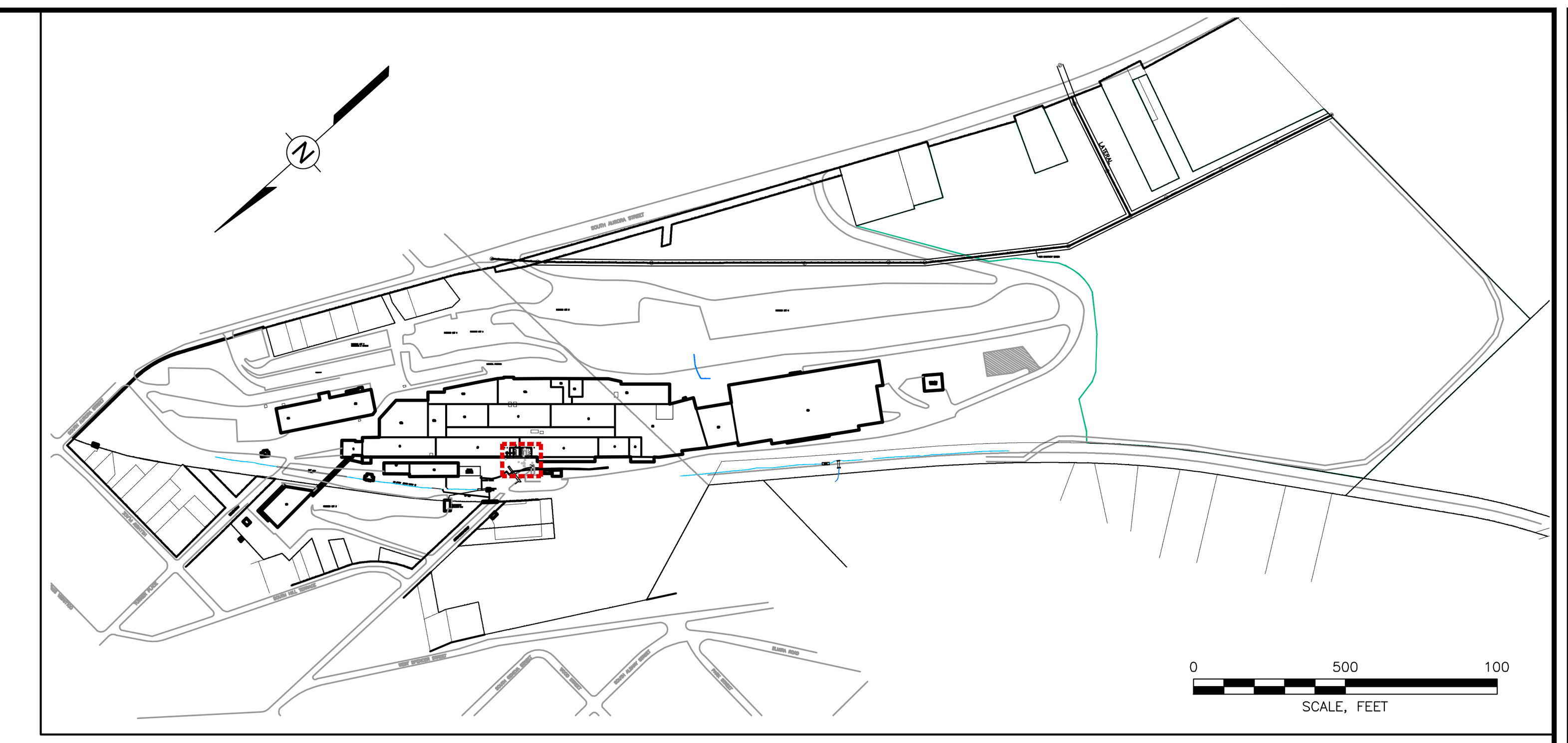
IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK
PREPARED FOR
EMERSON - ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

SHEET 5

Drawing Number
314P0551-D115





KEY MAP

LEGEND

- B HYDROGEOLOGIC ZONE
- EXTRACTION WELL
- PIEZOMETER
- SOIL BORING (WITH EXCEEDENCE)
- SOIL BORING (WITHOUT EXCEEDENCE)
- MH-52 MANHOLE/MANWAY
- CB-03 CATCH BASIN
- 34 BUILDING NUMBER
- W WATER LINE (APPROXIMATE LOCATION, SEE NOTE 6)
- ST STORM WATER SEWER LINE (APPROXIMATE LOCATION)
- SS SANITARY SEWER LINE (APPROXIMATE LOCATION)
- MAXIMUM EXTENT OF SOIL EXCAVATION (SEE IRM WORK PLAN FOR CONDITIONS IN WHICH DOCUMENTATION SAMPLES WILL BE COLLECTED)
- INITIAL EXTENT OF SOIL EXCAVATION (CONFIRMATION SAMPLING REQUIRED)

NOTES:

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3. EXCAVATED SOILS SHALL BE STOCKPILED, CHARACTERIZED, AND DISPOSED OF OFFSITE. SEE SHEET 11 FOR POTENTIAL STOCKPILE LOCATIONS.

4. PAVEMENTS SHALL BE RESTORED IN KIND UNLESS OTHERWISE SPECIFIED.

5. WATER LINES ARE LOCATED FROM A FACTORY MUTUAL SYSTEM DRAWING DATED 12-3-91, SERIAL 82768, INDEX 27036.00.

6. REFER TO THE PHASE II SRI REPORT REGARDING CONDITIONS AT THIS LOCATION.

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE REPRODUCTION MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

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REVISIONS

REV | DESCRIPTION

SEAL

JULY 09, 2018
DATE

DRAWN BY
CHECKED
APPROVED

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AOC 1 EXCAVATION AND CAPPING PLAN

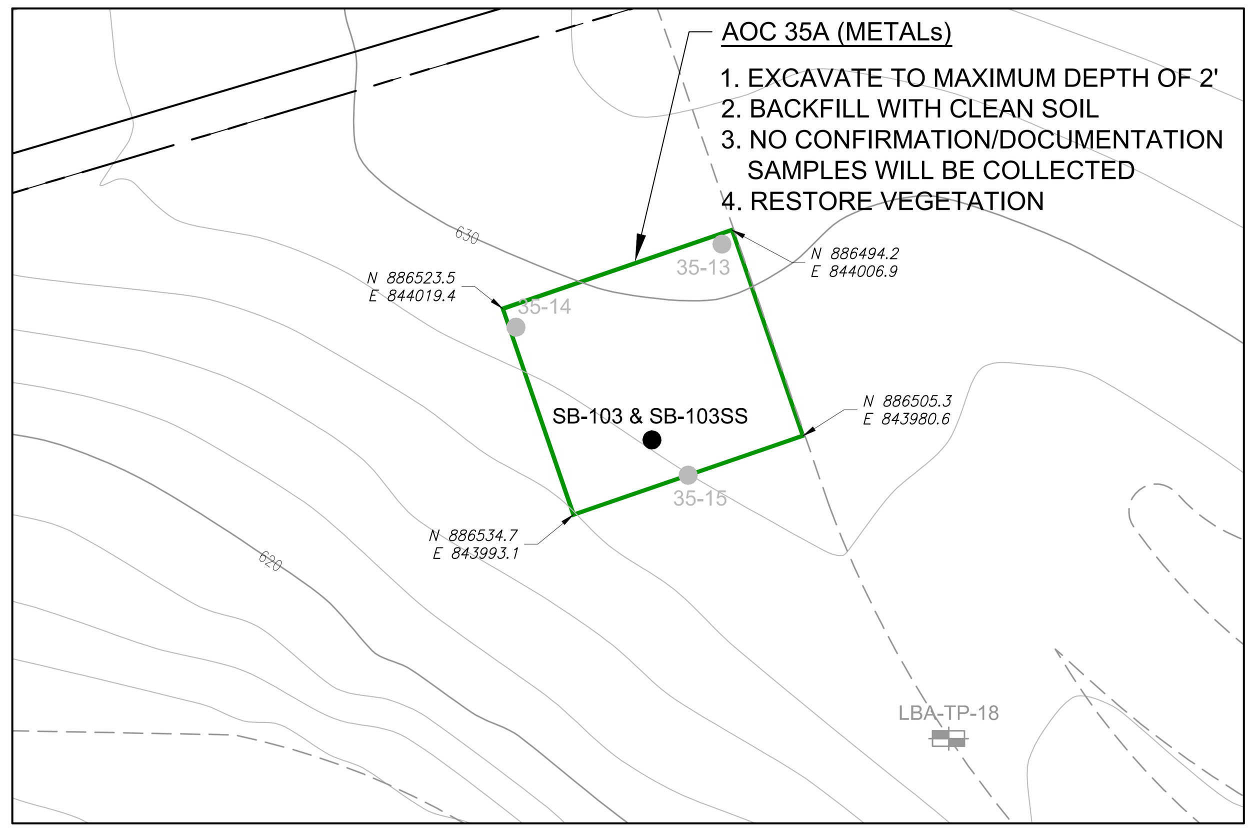
IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

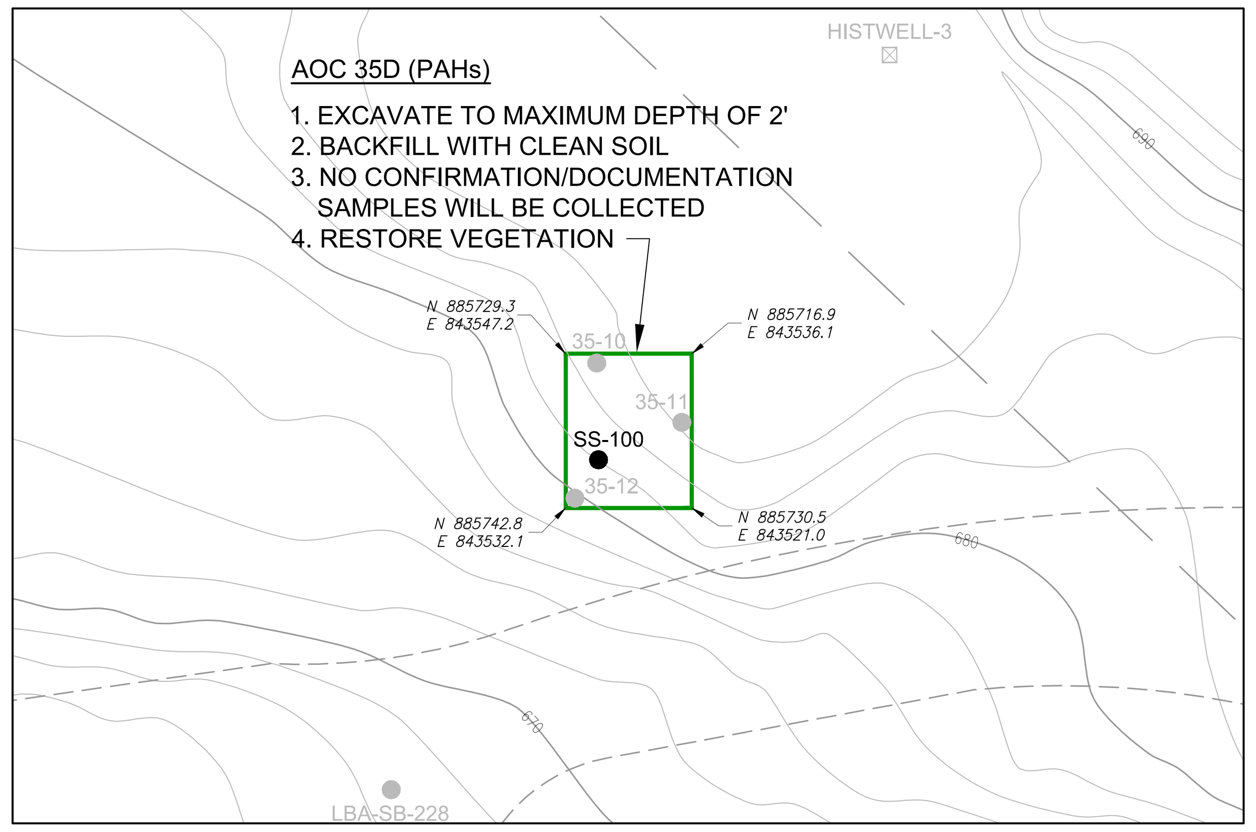
WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

SHEET 6

Drawing Number
314P0551-D116



AOC 35A - EAST OF BUILDING 24 (METALs)



AOC 35D - NEAR PARKING LOT 4 (PAHs)

NOTES:

1. UTILITY LINES SHOWN ON THIS DRAWING ARE APPROXIMATE. PUBLIC AND PRIVATE UTILITY SURVEYS SHALL BE CONDUCTED IN ALL EXCAVATION AREAS. IDENTIFIED UTILITIES SHALL BE MARKED AND PROTECTED THROUGHOUT THE WORK. UTILITIES MAY BE TEMPORARILY DE–ENERGIZED, REMOVED, AND REPLACED IN ACCORDANCE WITH SERVICE PROVIDERS' PROCEDURES.

2. CONFIRMATION SAMPLES SHALL BE COLLECTED AT A RATE OF 1 SAMPLE PER 30 LINEAR FEET WHERE INDICATED. ADDITIONAL EXCAVATION SHALL BE PERFORMED WHERE SAMPLE RESULTS EXCEED APPLICABLE SCOs. HISTORICAL SRI DATA MAY BE USED AS CONFIRMATION SAMPLES.

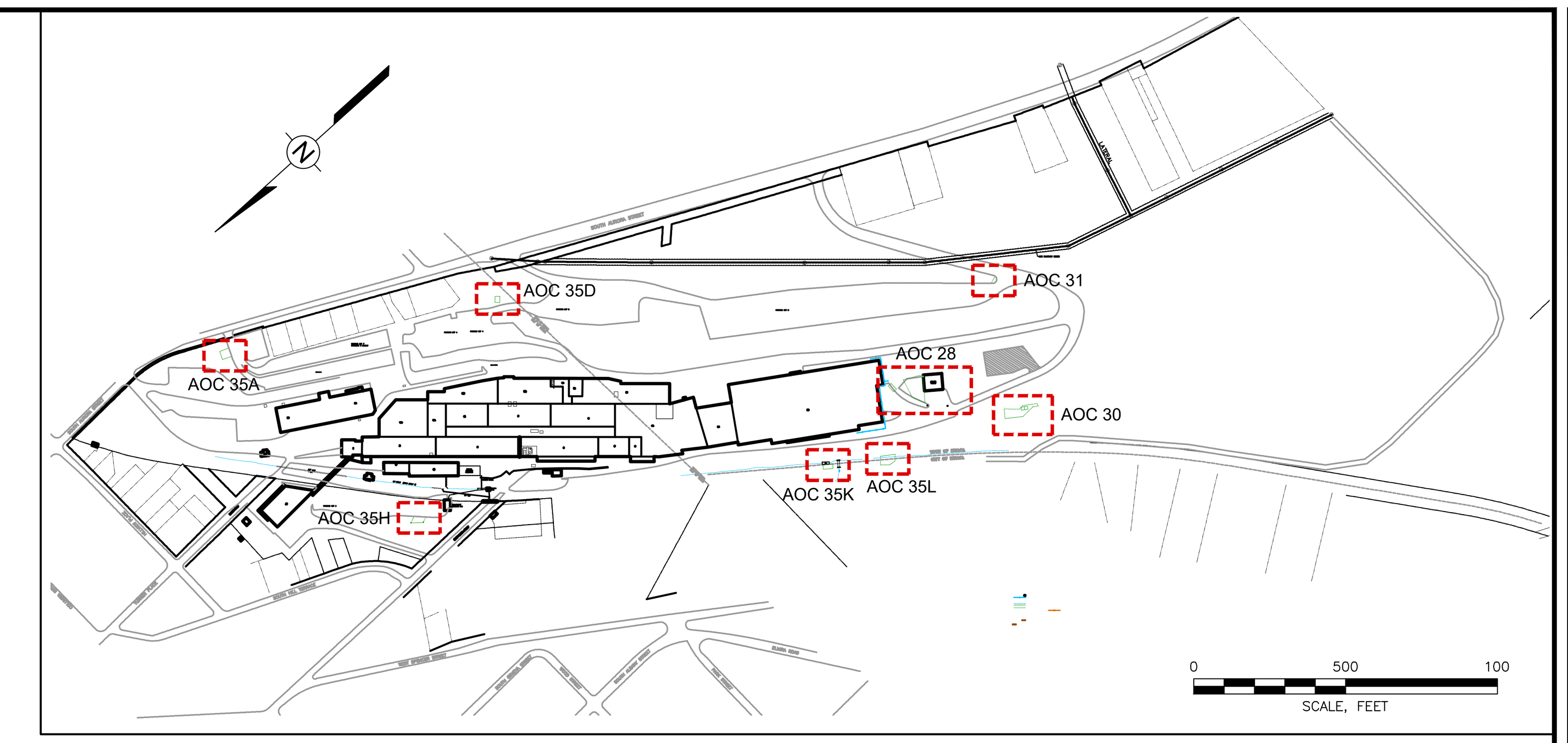
3. EXCAVATED SOILS SHALL BE STOCKPILED, CHARACTERIZED, AND DISPOSED OF OFFSITE. SEE SHEET 11 FOR POTENTIAL STOCKPILE LOCATIONS.

4. EXCAVATED AREAS SHALL BE BACKFILLED WITH CLEAN SOIL TO MATCH THE ORIGINAL GRADES. DISTURBED AREAS SHALL BE FERTILIZED, SEEDED, AND MULCHED.

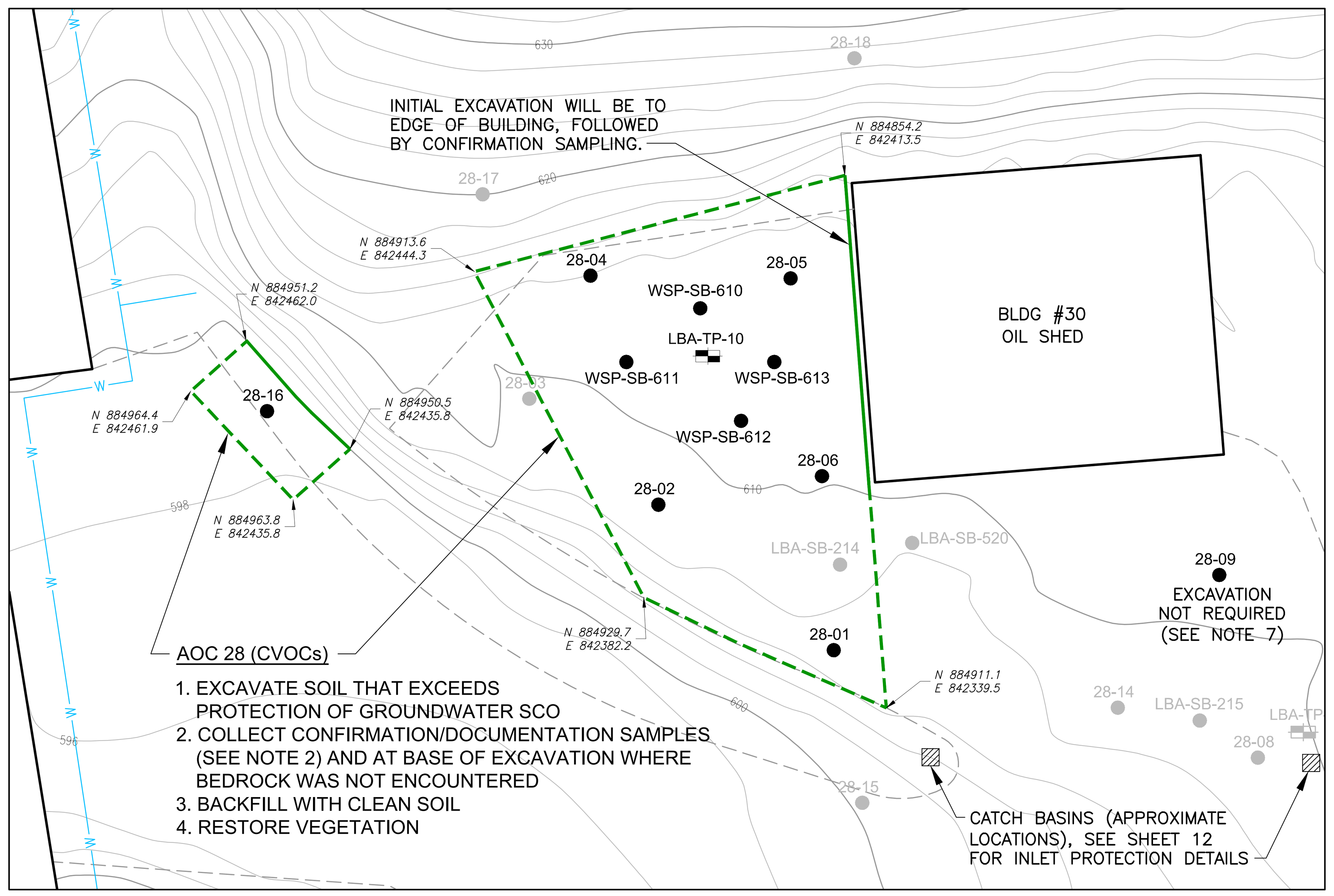
5. PAVEMENTS SHALL BE RESTORED IN KIND UNLESS OTHERWISE SPECIFIED.

6. WATER LINES ARE LOCATED FROM A FACTORY MUTUAL SYSTEM DRAWING DATED 12–3–91, SERIAL 82768, INDEX 27036.00.

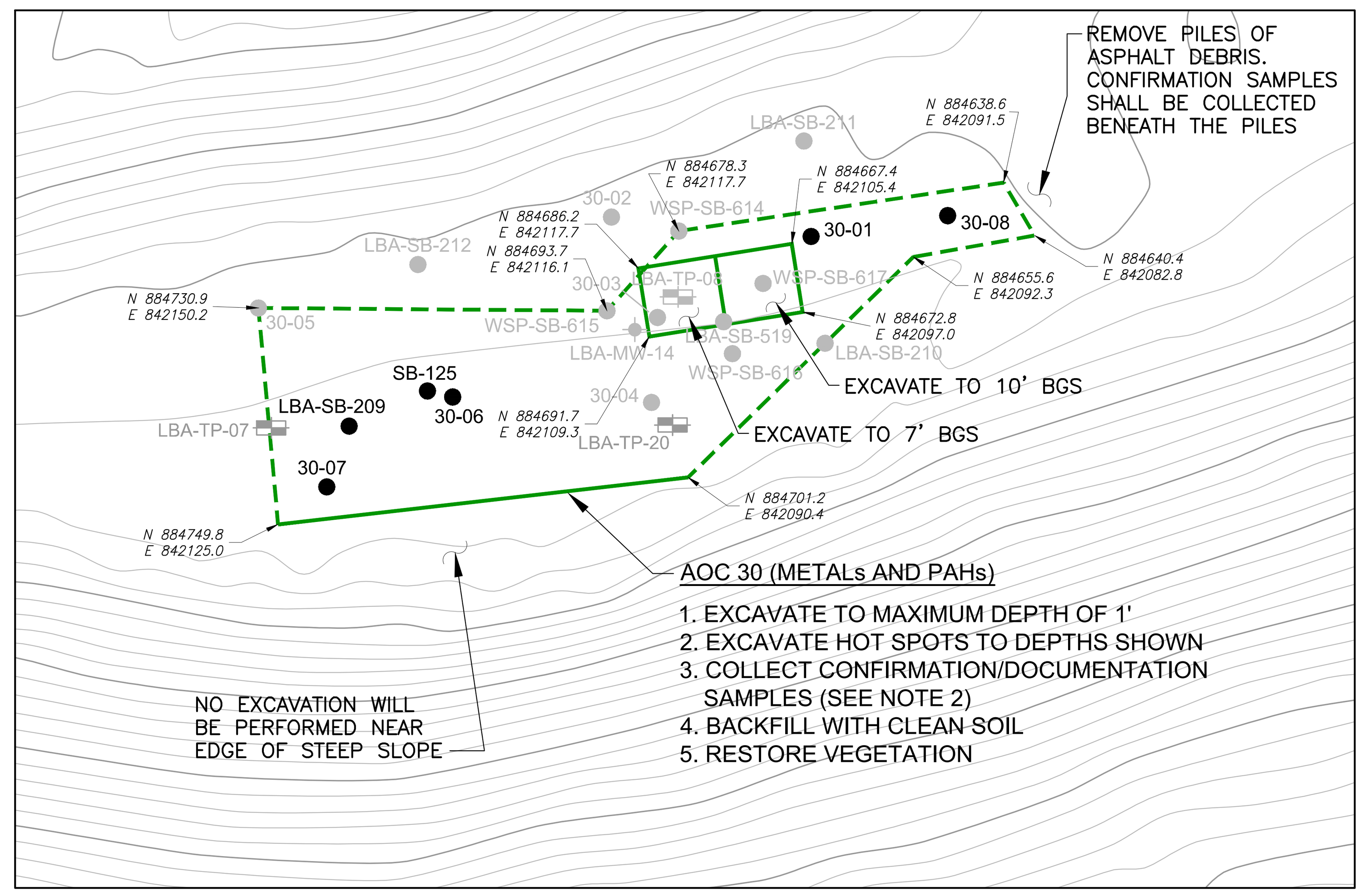
7. REFER TO THE TEXT REGARDING CONDITIONS AT THIS LOCATION.



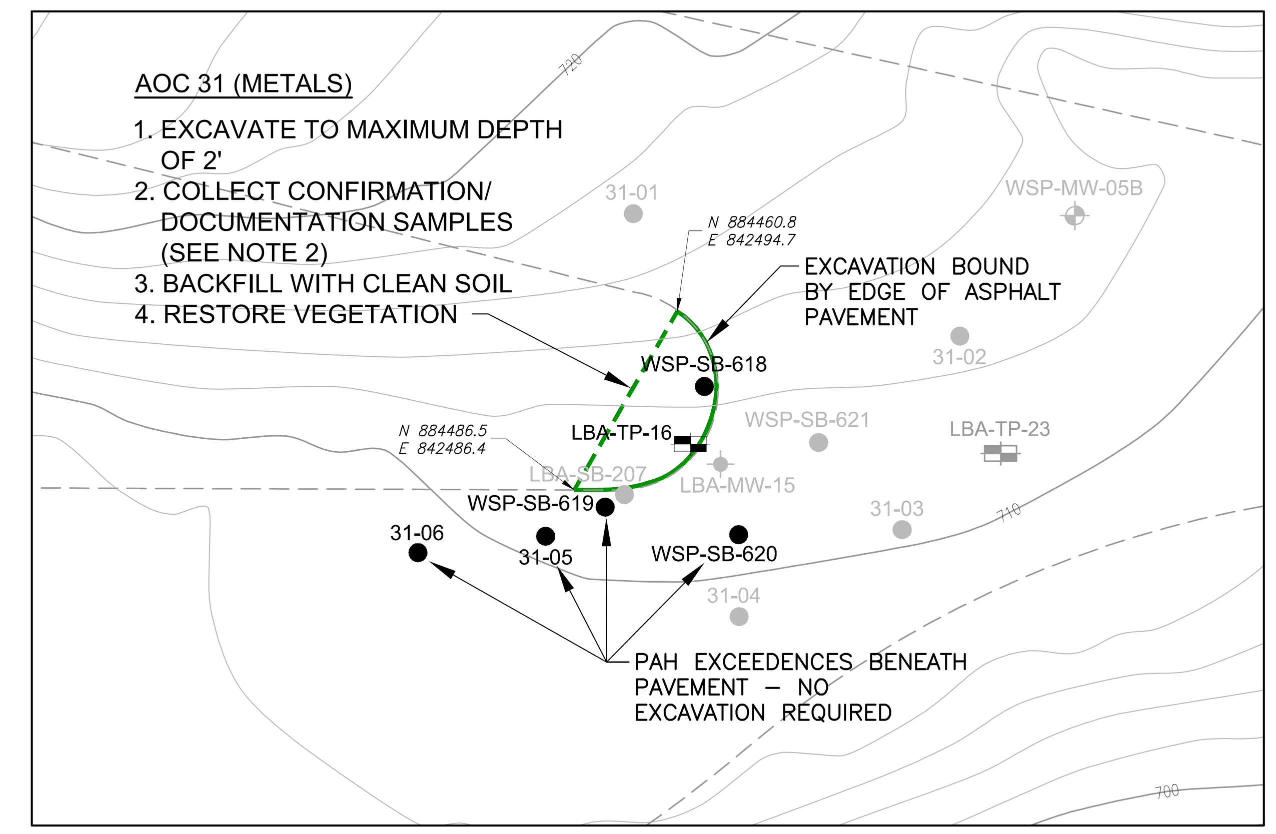
KEY MAP



AOC 28 (CVOCs)



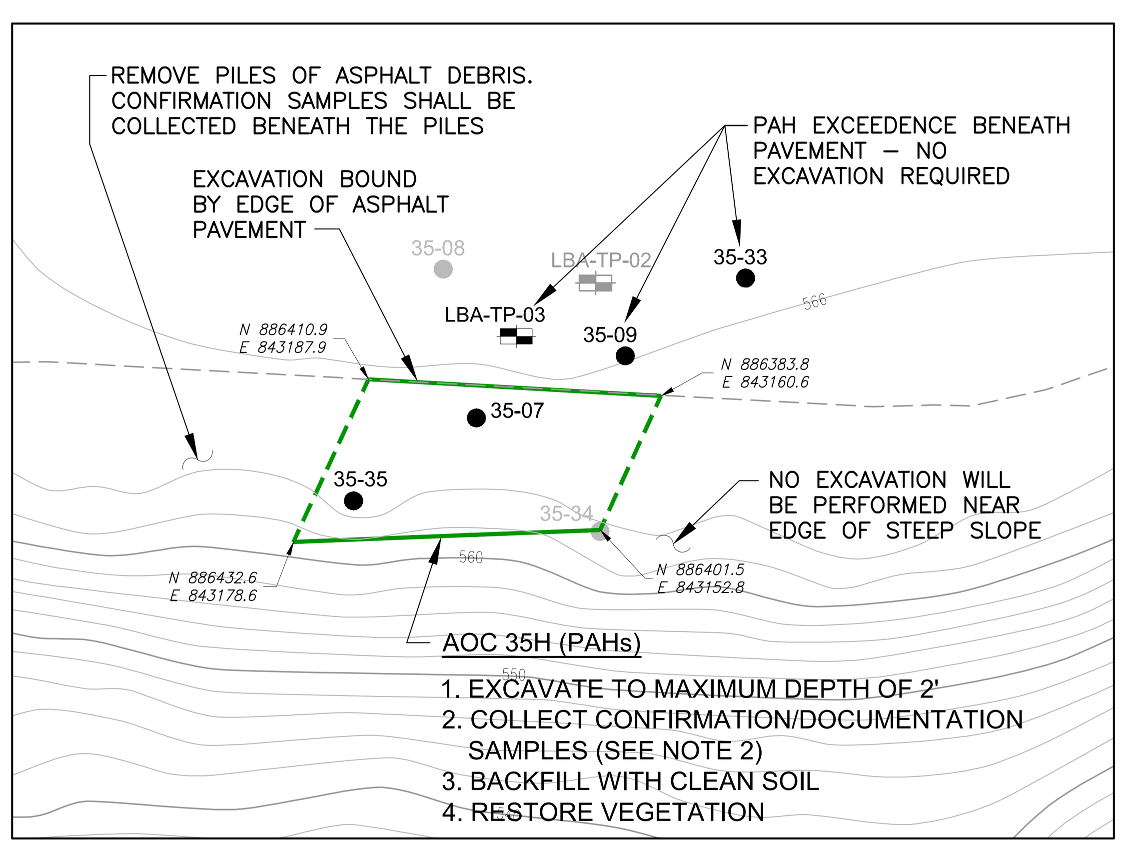
AOC 30 (METALs AND PAHs)



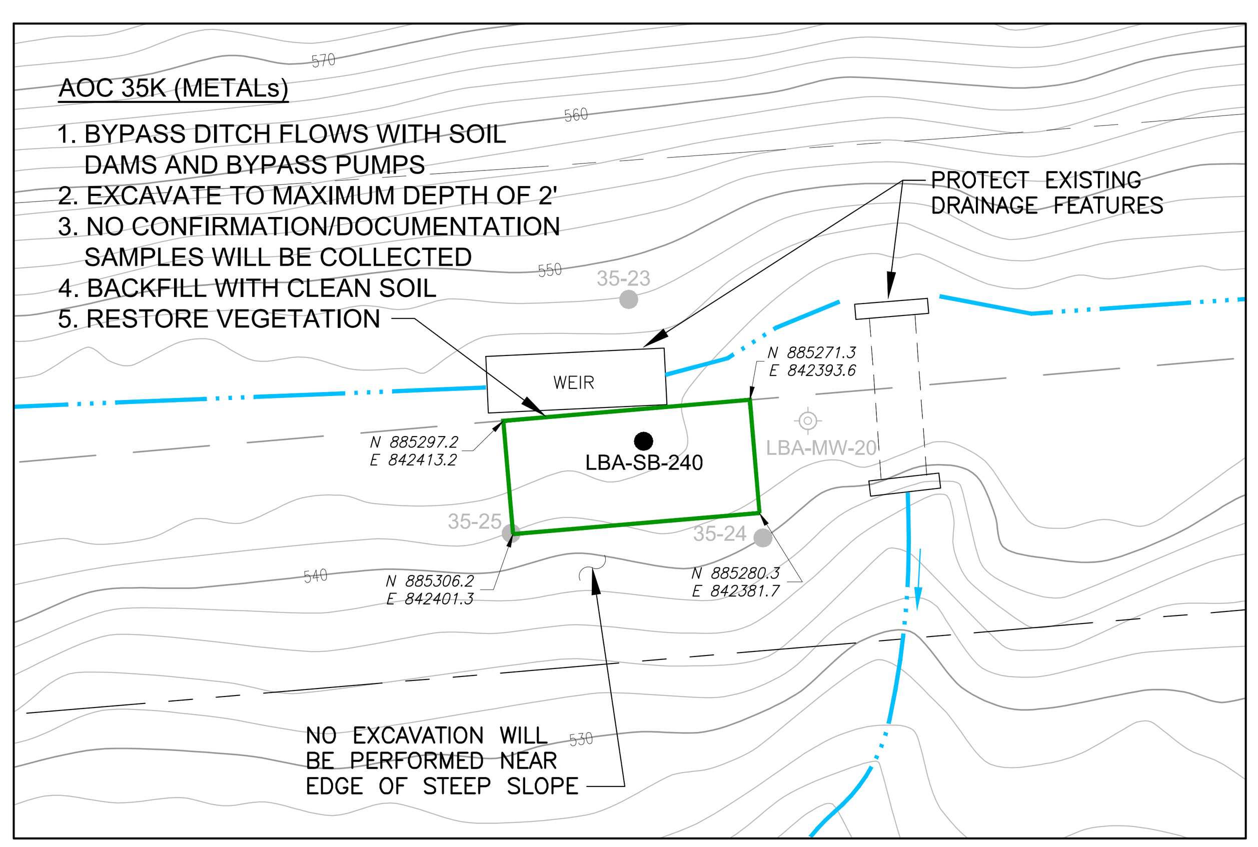
AOC 31 - UPPER PARKING LOT 6 (METALs)

LEGEND

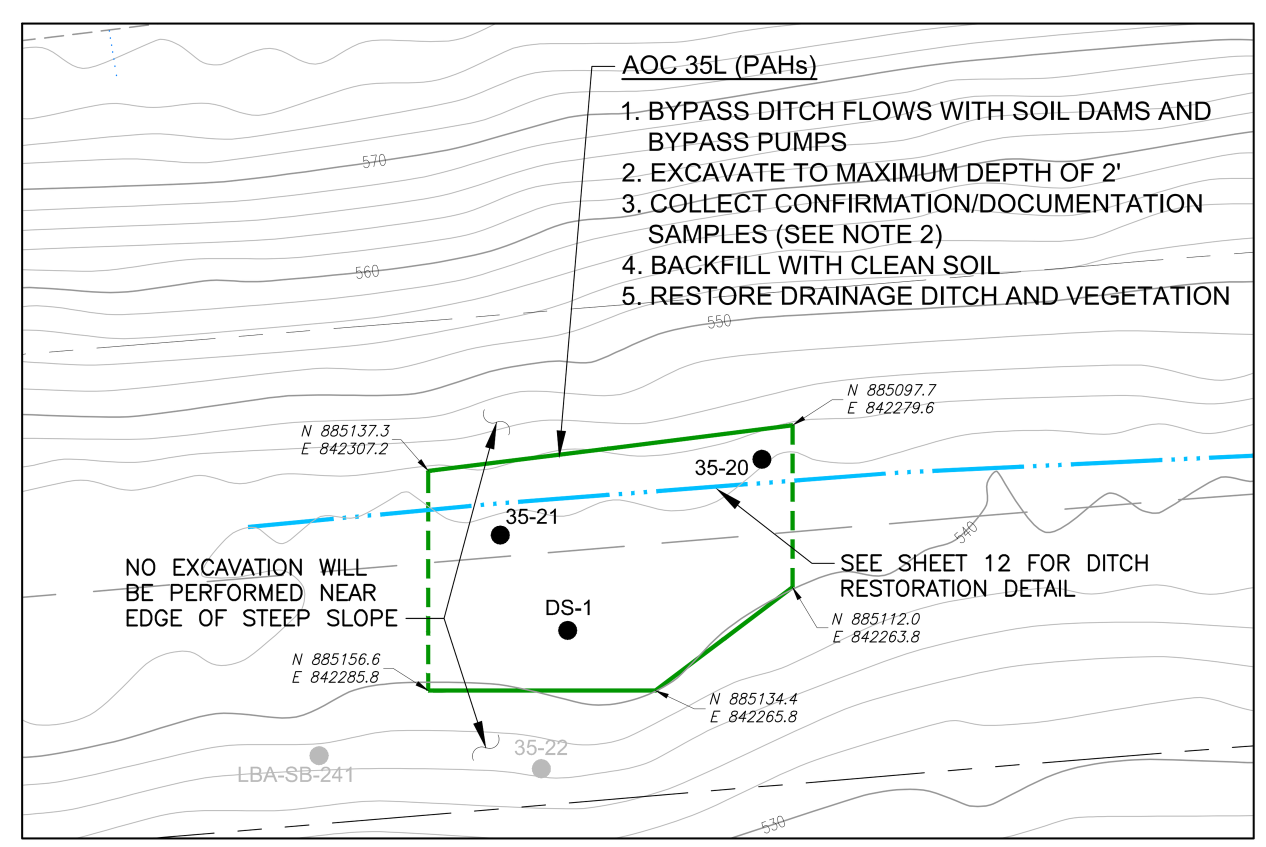
- A/B HYDROGEOLOGIC ZONES
- B HYDROGEOLOGIC ZONE
- C HYDROGEOLOGIC ZONE
- SOIL BORING (WITH EXCEEDENCE)
- SOIL BORING (WITHOUT EXCEEDENCE)
- TEST PIT (WITH EXCEEDENCE)
- TEST PIT (WITHOUT EXCEEDENCE)
- CB-03 CATCH BASIN
- PROPERTY BOUNDARY
- W WATER LINE (APPROXIMATE LOCATION, SEE NOTE 6)
- ST STORM WATER SEWER LINE (APPROXIMATE LOCATION)
- INTERMITTENT STREAM OR DRAINAGE DITCH
- MAXIMUM EXTENT OF SOIL EXCAVATION (SEE IRM WORK PLAN FOR CONDITIONS IN WHICH DOCUMENTATION SAMPLES WILL BE COLLECTED)
- INITIAL EXTENT OF SOIL EXCAVATION (CONFIRMATION SAMPLING REQUIRED)



AOC 35H - PARKING LOT 3 (PAHs)



AOC 35K - FORMER RAILWAY RIGHT-OF-WAY/LBA-SB-240 (METALs)



AOC 35L - FORMER RAILWAY RIGHT-OF-WAY/DS-1 (PAHs)

SCALE, FEET

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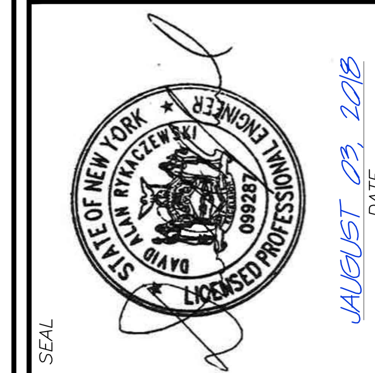
REVISIONS

REV | DESCRIPTION

SEAL



AUGUST 03 2018
DATE

DRAWN BY
CHECKED
APPROVED

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AOCs 28, 30, 31, 35A, 35D, 35H, 35K, AND 35L EXCAVATION PLAN

IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

SHEET 7

Drawing Number
314P0551–D135

LEGEND

- MONITORING WELL
- HISTORICAL WELL
- A/B HYDROGEOLOGIC ZONES
- B HYDROGEOLOGIC ZONE
- B/C HYDROGEOLOGIC ZONES
- C HYDROGEOLOGIC ZONE
- SOIL BORING (WITH EXCEEDENCE)
- SOIL BORING (WITHOUT EXCEEDENCE)
- TEST PIT (WITHOUT EXCEEDENCE)
- EXTENT OF SOIL IMPACT (SEE IRM WORK PLAN FOR CONDITIONS IN WHICH DOCUMENTATION SAMPLES WILL BE COLLECTED)
- EXTENT OF SOIL IMPACT (CONFIRMATION SAMPLING REQUIRED)

LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- 650 PROPOSED 10' SUBGRADE CONTOUR
- 648 PROPOSED 2' SUBGRADE CONTOUR
- FS FILTER SOCK
- STRAW BALE DIKE

NOTES:

1. UTILITY LINES SHOWN ON THIS DRAWING ARE APPROXIMATE. PUBLIC AND PRIVATE UTILITY SURVEYS SHALL BE CONDUCTED IN ALL EXCAVATION AREAS. IDENTIFIED UTILITIES SHALL BE MARKED AND PROTECTED THROUGHOUT THE WORK. UTILITIES MAY BE TEMPORARILY DE-ENERGIZED, REMOVED, AND REPLACED IN ACCORDANCE WITH SERVICE PROVIDERS' PROCEDURES.

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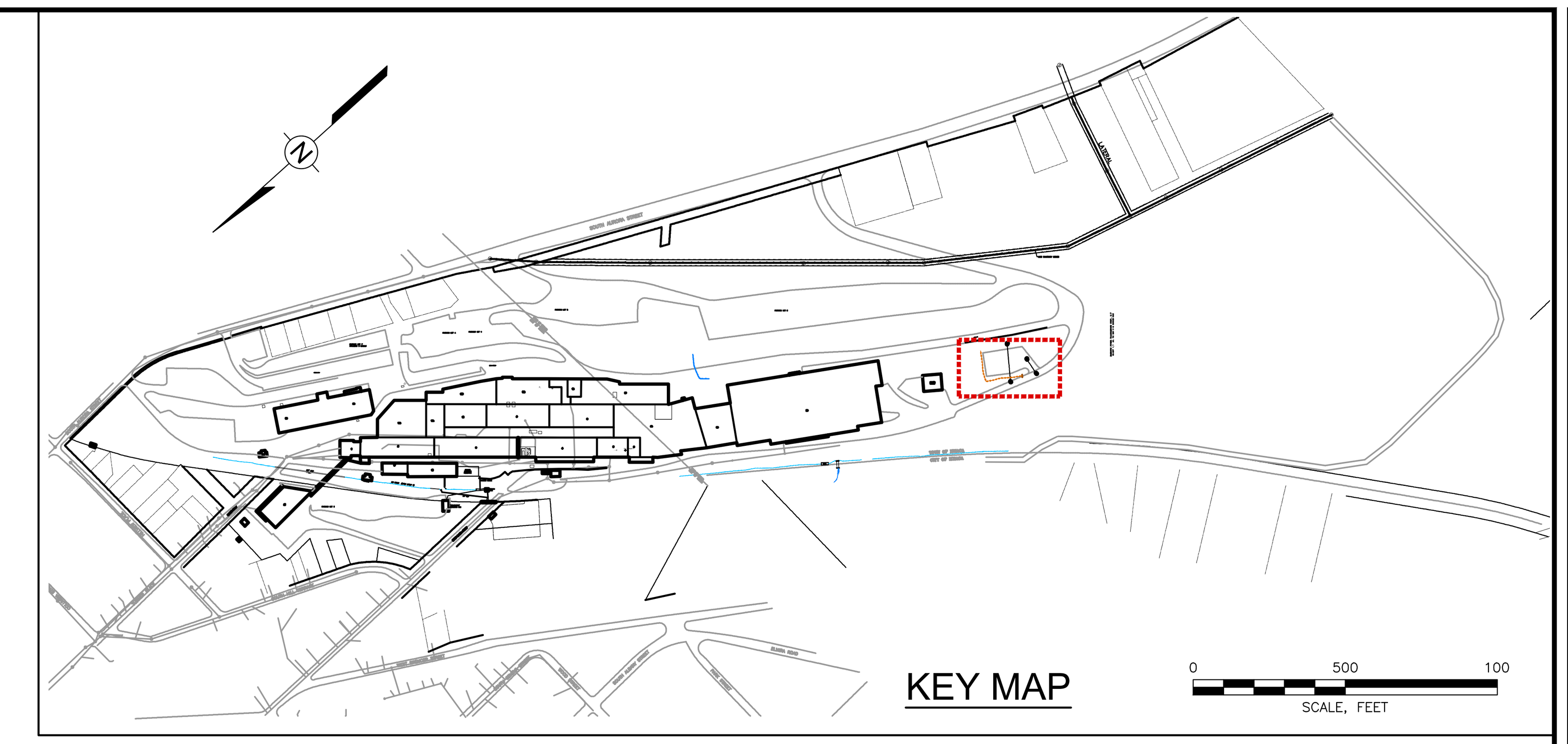
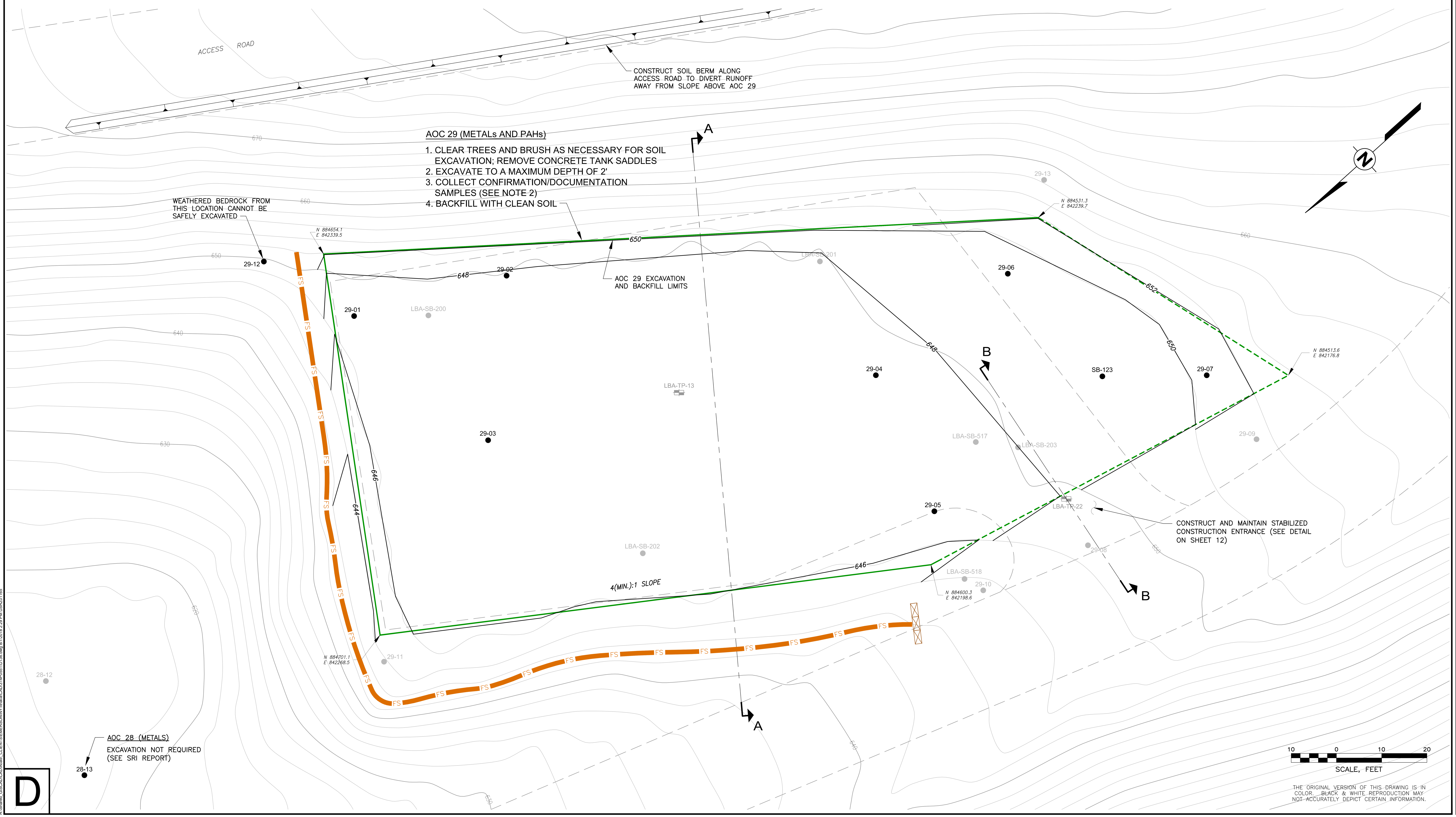
3. SEE SHEET 10 FOR SECTIONS A-A AND B-B.

4. EROSION CONTROLS ARE SUBJECT TO CHANGE BASED ON STORM WATER POLLUTION PREVENTION PLAN.





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REV	DESCRIPTION
	REVISIONS

SEAL

DAVID ALAN KYACZEWSKI
STATE OF NEW YORK
LICENSED PROFESSIONAL ENGINEER
099287

AUGUST 09, 2018
DATE

DRAWN BY RP 08/02/2018
CHECKED DAK 08/02/2018
APPROVED DAK 08/09/2018

AOC 29 EXCAVATION PLAN

IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

SHEET 8

Drawing Number
314P0551-D136

LEGEND

- MONITORING WELL
- HISTORICAL WELL
- A/B HYDROGEOLOGIC ZONES
- B HYDROGEOLOGIC ZONE
- B/C HYDROGEOLOGIC ZONES
- C HYDROGEOLOGIC ZONE
- SOIL BORING (WITH EXCEEDENCE)
- SOIL BORING (WITHOUT EXCEEDENCE)
- TEST PIT (WITHOUT EXCEEDENCE)
- LIMITS OF SOIL COVER

LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- 650 PROPOSED 10' SUBGRADE CONTOUR
- 648 PROPOSED 2' SUBGRADE CONTOUR
- FS FILTER SOCK
- STRAW BALE DIKE

NOTES:

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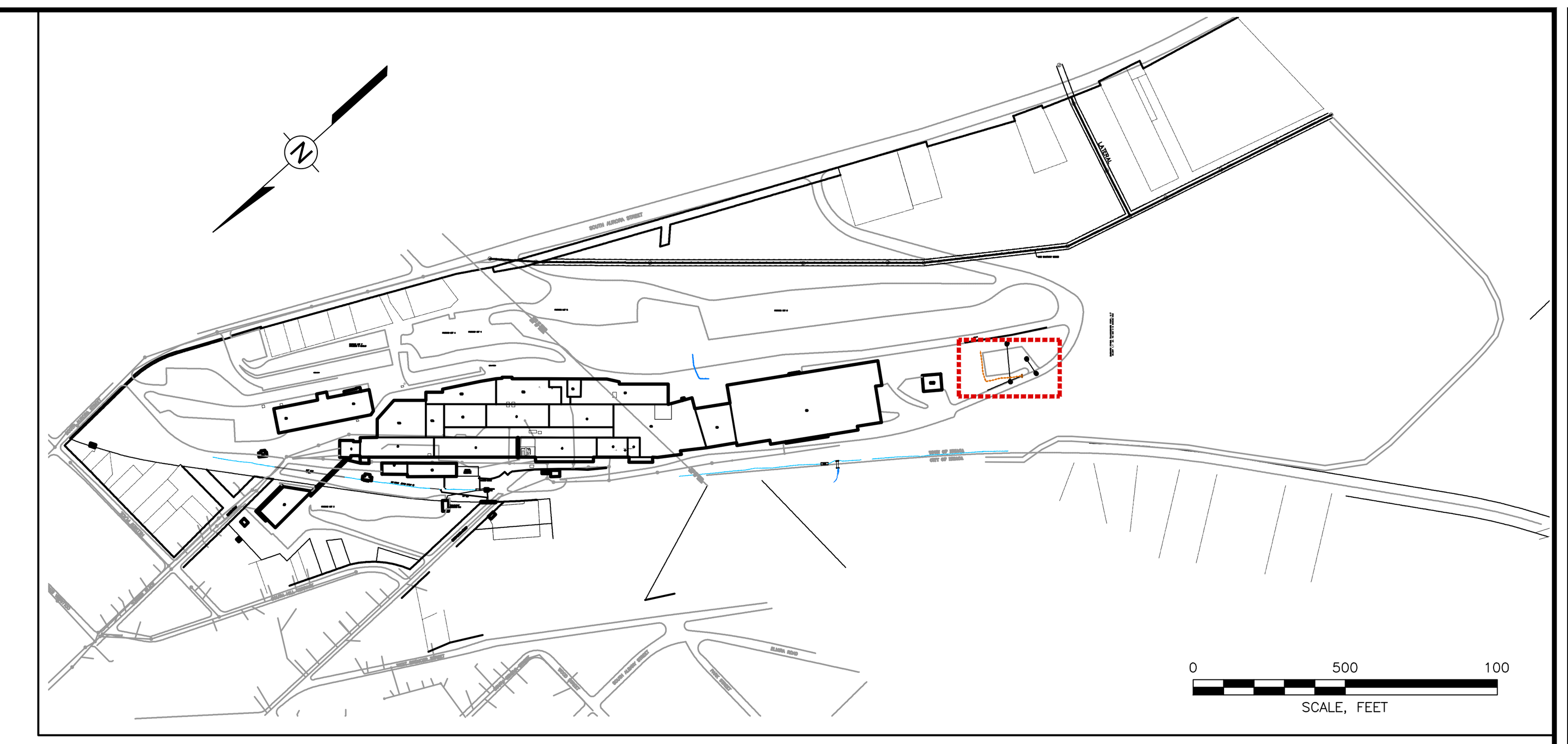
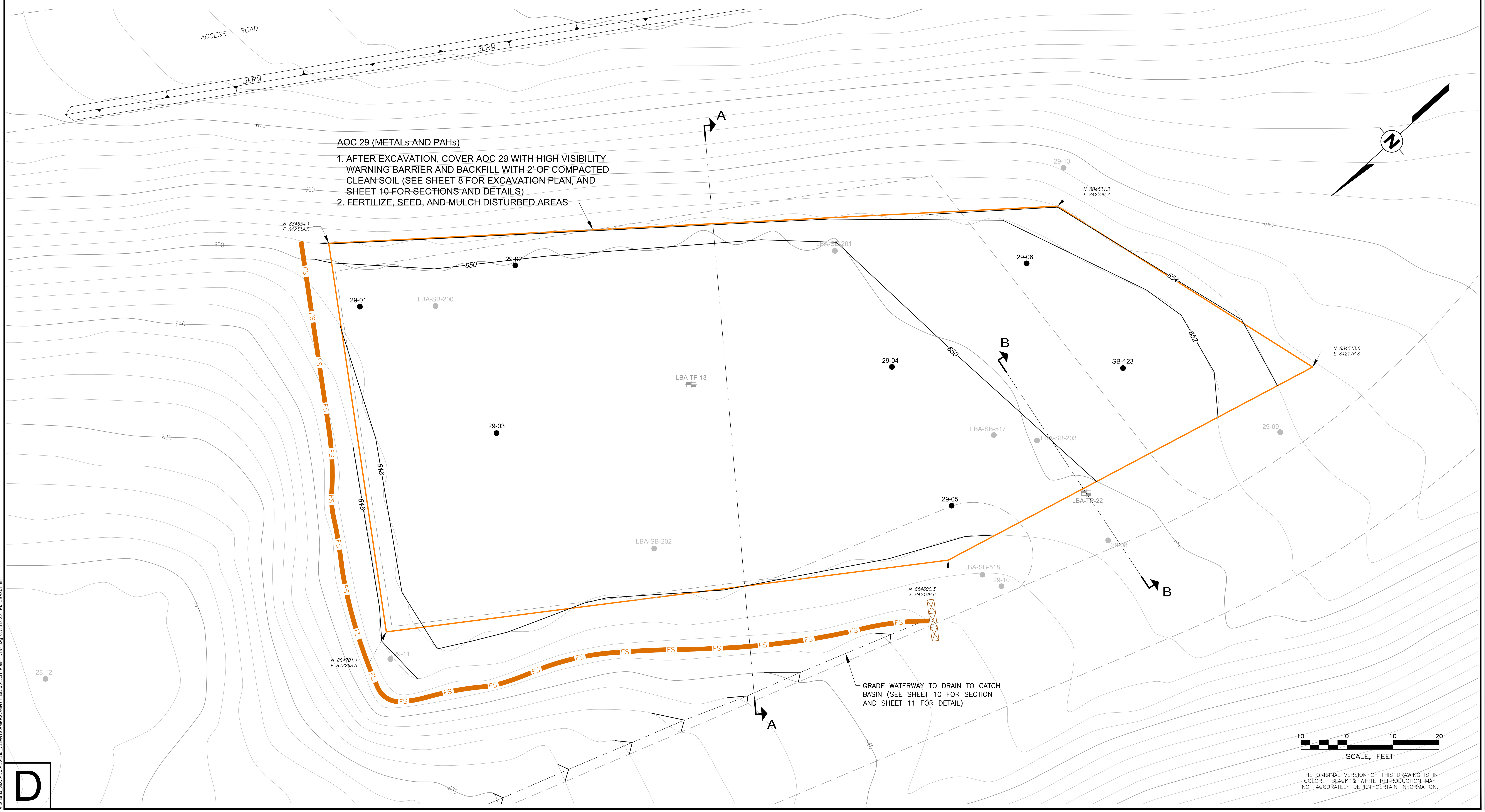
2. SEE SHEET 10 FOR SECTIONS A–A AND B–B.
3. CRUSHED GRAVEL MAY BE SUBSTITUTED FOR THE FINAL 6 INCHES OF COVER, DEPENDING ON SITE CONDITIONS AT THE TIME OF THE WORK.
4. EROSION CONTROLS ARE SUBJECT TO CHANGE BASED ON STORM WATER POLLUTION PREVENTION PLAN.



KEY MAP

AOC 29 (METALs AND PAHs)

1. AFTER EXCAVATION, COVER AOC 29 WITH HIGH VISIBILITY WARNING BARRIER AND BACKFILL WITH 2' OF COMPACTED CLEAN SOIL (SEE SHEET 8 FOR EXCAVATION PLAN, AND SHEET 10 FOR SECTIONS AND DETAILS)
2. FERTILIZE, SEED, AND MULCH DISTURBED AREAS



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REV	DESCRIPTION		
1	Revised:	Chkd:	Appr.:
2	Revised:	Chkd:	Appr.:
3	Revised:	Chkd:	Appr.:

SEAL

STATE OF NEW YORK · DAVID ALAN RYKACZEWSKI · 099287 · LICENSED PROFESSIONAL ENGINEER

AUGUST 03, 2018
DATE

DRAWN BY	RAZ 08032018
CHECKED	DAR 08032018
APPROVED	DAR 08032018

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AOC 29 FINAL GRADE PLAN

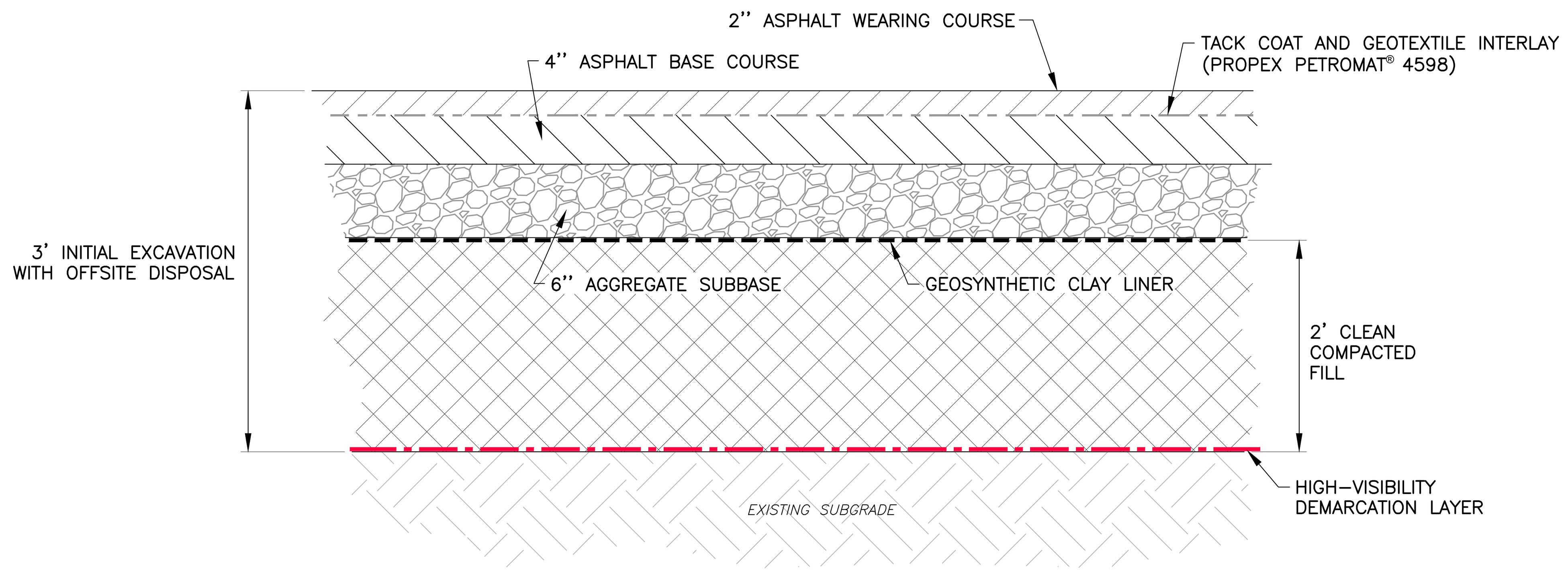
IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

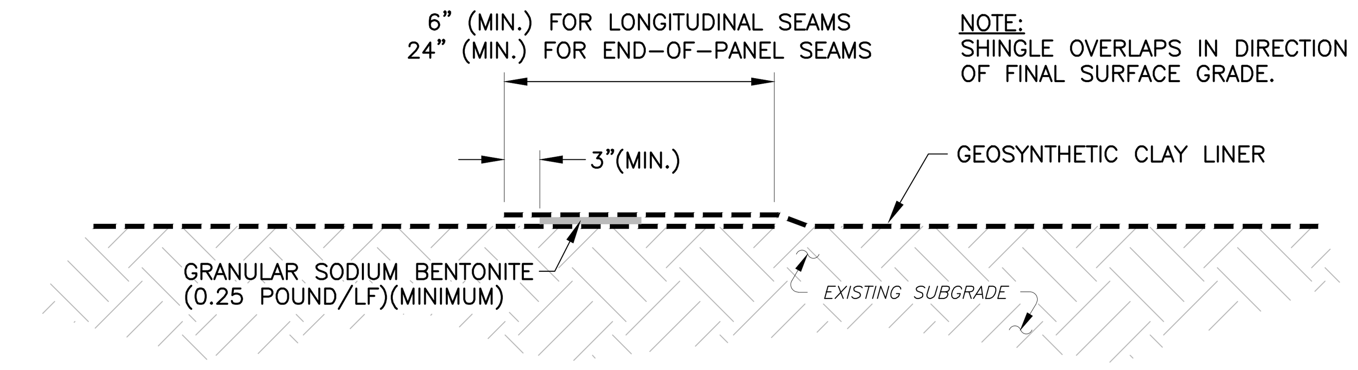
SHEET 9

Drawing Number
314P0551–D137



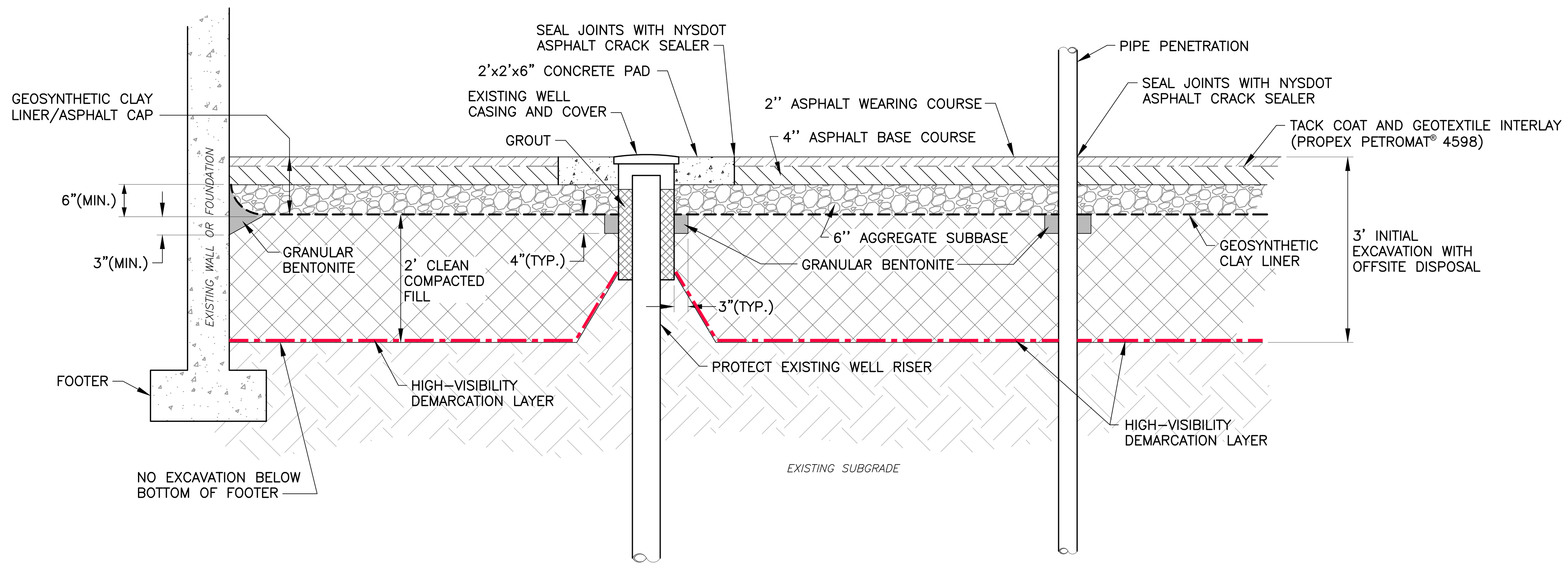
GEOSYNTHETIC CLAY LINER / ASPHALT CAP SECTION (AOC 1)

NOT TO SCALE



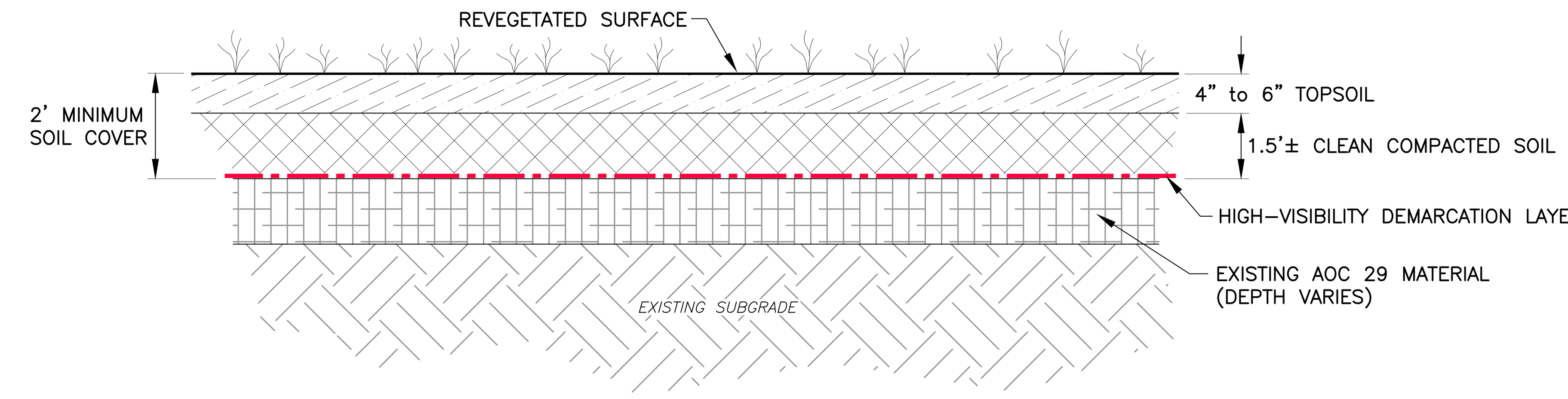
GEOSYNTHETIC CLAY LINER OVERLAP DETAIL (AOC 1)

NOT TO SCALE



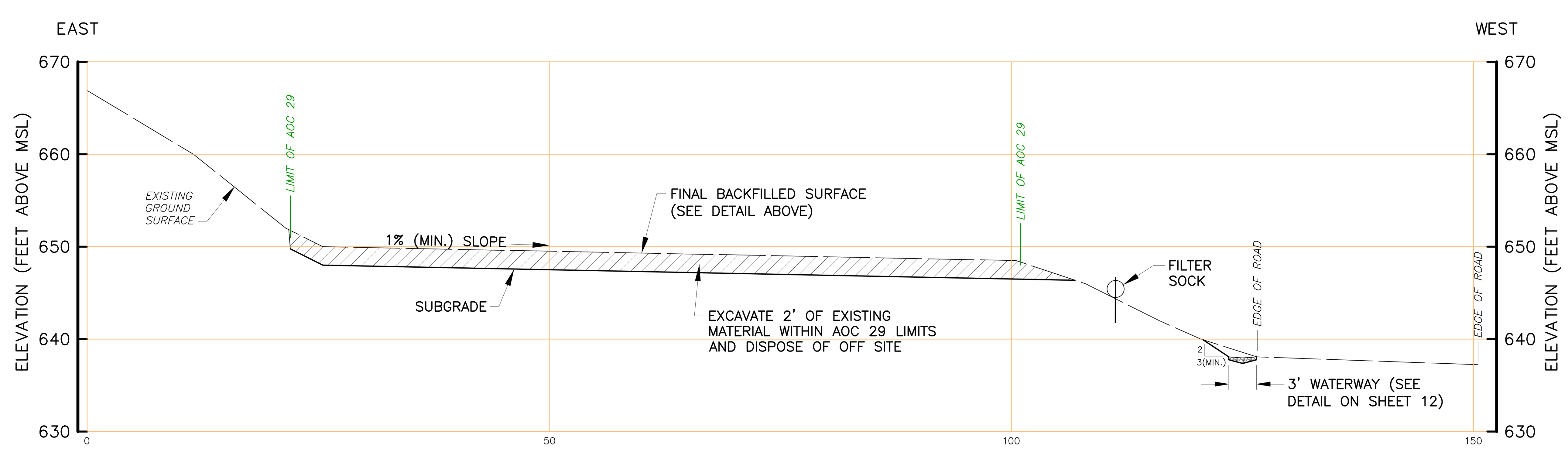
MONITORING WELL / PIPE PENETRATION / WALL TERMINATION DETAIL (AOC 1)

NOT TO SCALE



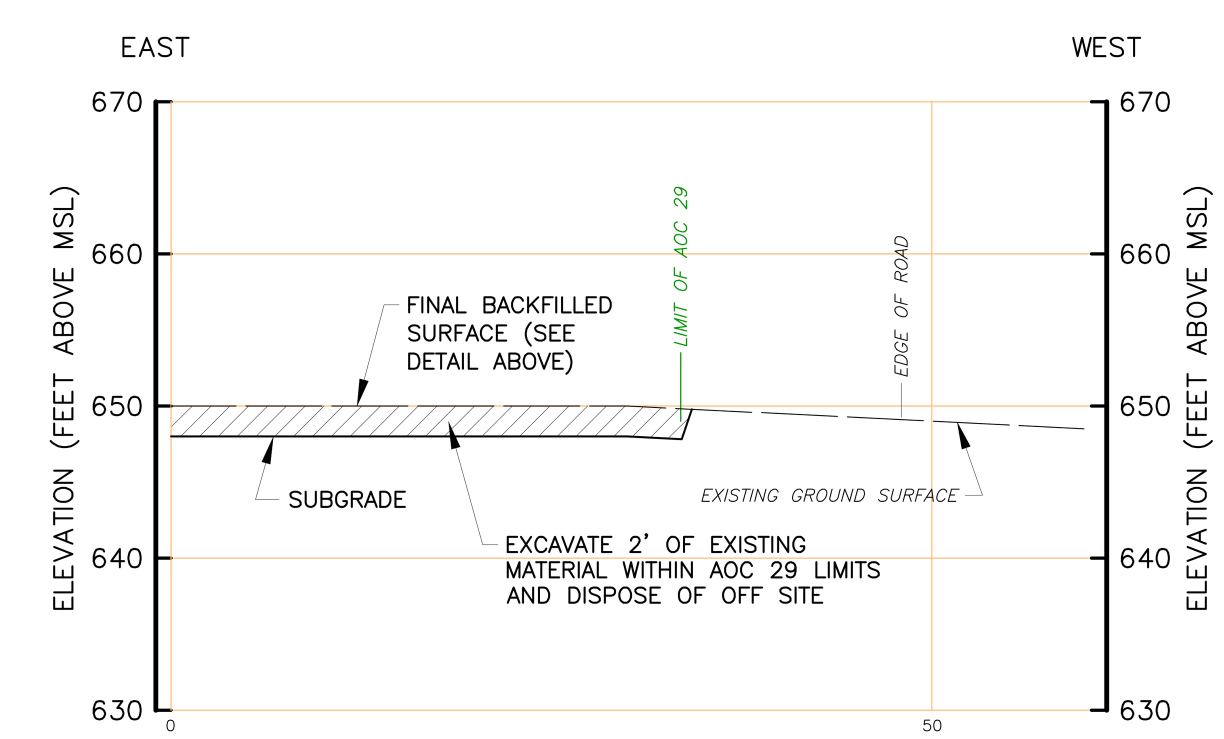
TYPICAL SOIL BACKFILL SECTION (AOC 29)

NOT TO SCALE



CROSS SECTION A-A (AOC 29)

0 10 20
SCALE, FEET



CROSS SECTION B-B (AOC 29)

0 10 20
SCALE, FEET

D

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REVISIONS

REV	DESCRIPTION

SEAL

AUGUST 09 2018
DATE

DRAWN BY RA 08032018
CHECKED DAR 08032018
APPROVED DAR 08032018

AOC 1 CAP AND 29 BACKFILL SECTIONS AND DETAILS

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ITHACA, NEW YORK

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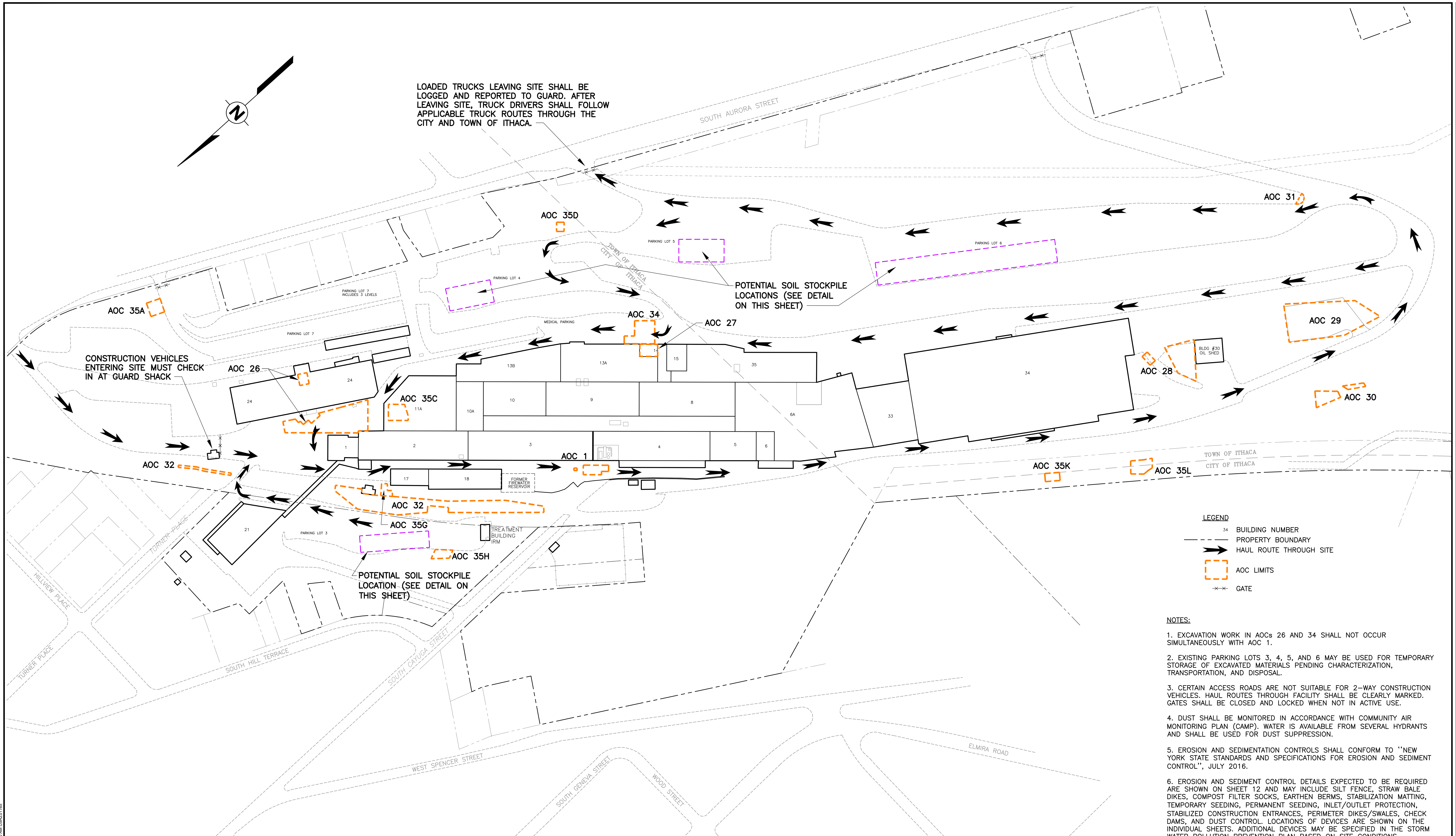
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

SHEET 10

Drawing Number
314P0551-D138

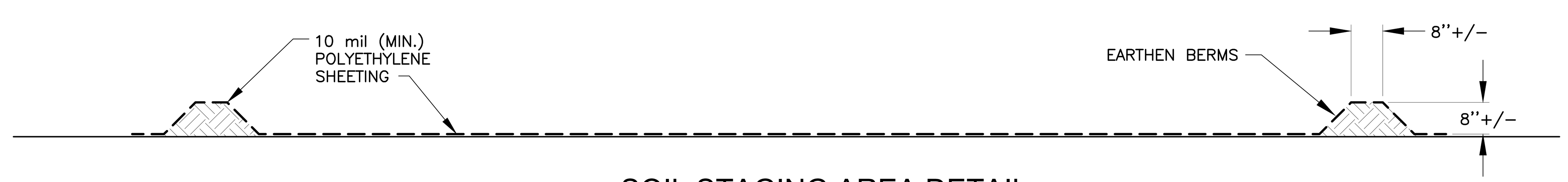


LEGEND

34	BUILDING NUMBER
	PROPERTY BOUNDARY
	HAUL ROUTE THROUGH SITE
	AOC LIMITS
	GATE

NOTES:

1. EXCAVATION WORK IN AOCs 26 AND 34 SHALL NOT OCCUR SIMULTANEOUSLY WITH AOC 1.
2. EXISTING PARKING LOTS 3, 4, 5, AND 6 MAY BE USED FOR TEMPORARY STORAGE OF EXCAVATED MATERIALS PENDING CHARACTERIZATION, TRANSPORTATION, AND DISPOSAL.
3. CERTAIN ACCESS ROADS ARE NOT SUITABLE FOR 2-WAY CONSTRUCTION VEHICLES. HAUL ROUTES THROUGH FACILITY SHALL BE CLEARLY MARKED. GATES SHALL BE CLOSED AND LOCKED WHEN NOT IN ACTIVE USE.
4. DUST SHALL BE MONITORED IN ACCORDANCE WITH COMMUNITY AIR MONITORING PLAN (CAMP). WATER IS AVAILABLE FROM SEVERAL HYDRANTS AND SHALL BE USED FOR DUST SUPPRESSION.
5. EROSION AND SEDIMENTATION CONTROLS SHALL CONFORM TO "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL", JULY 2016.
6. EROSION AND SEDIMENT CONTROL DETAILS EXPECTED TO BE REQUIRED ARE SHOWN ON SHEET 12 AND MAY INCLUDE SILT FENCE, STRAW BALE DIKES, COMPOST FILTER SOCKS, EARTHEN BERMS, STABILIZATION MATTING, TEMPORARY SEEDING, PERMANENT SEEDING, INLET/OUTLET PROTECTION, STABILIZED CONSTRUCTION ENTRANCES, PERIMETER DIKES/SWALES, CHECK DAMS, AND DUST CONTROL. LOCATIONS OF DEVICES ARE SHOWN ON THE INDIVIDUAL SHEETS. ADDITIONAL DEVICES MAY BE SPECIFIED IN THE STORM WATER POLLUTION PREVENTION PLAN BASED ON SITE CONDITIONS.
7. EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN.



SOIL STAGING AREA DETAIL

NOT TO SCALE

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100 0 100 200

SCALE, FEET

D

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SEAL

JULY 09, 2018

DATE

DRAWN BY

CHECKED

APPROVED

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TEMPORARY FACILITIES AND SITE CONTROLS

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ITHACA, NEW YORK

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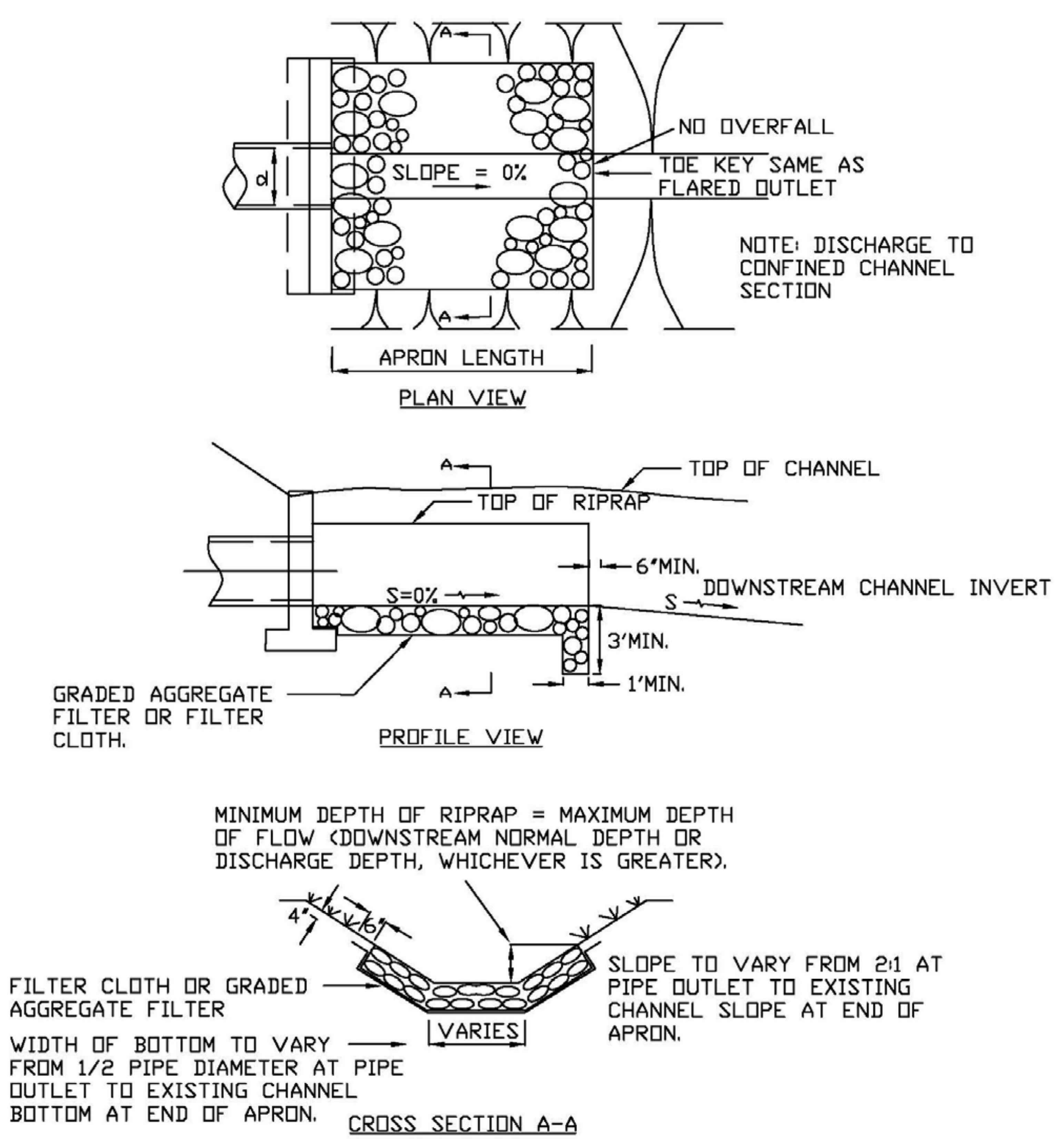
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

SHEET 11

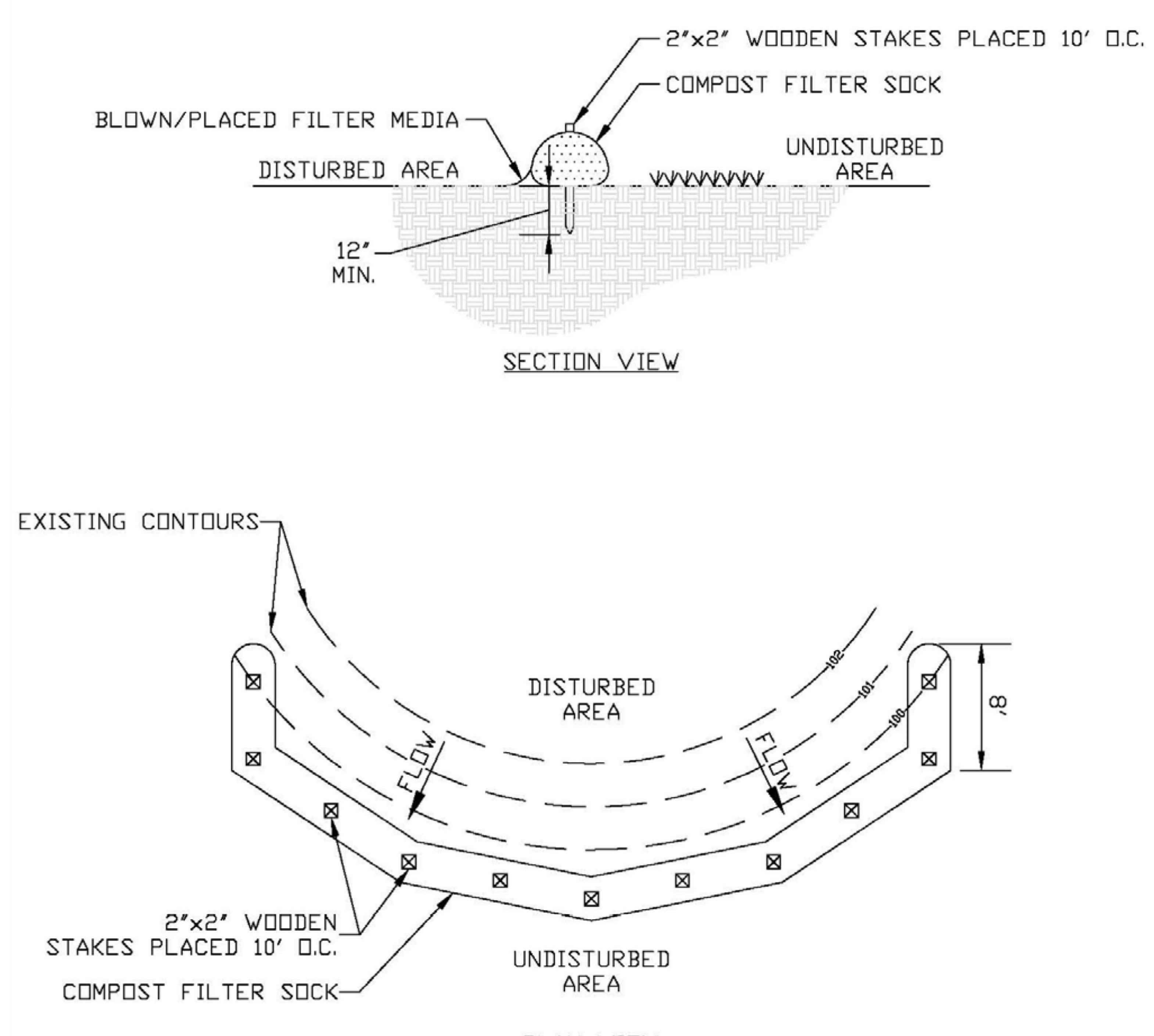
Drawing Number

314P0551-D121



RIPRAP OUTLET PROTECTION DETAIL

NOT TO SCALE



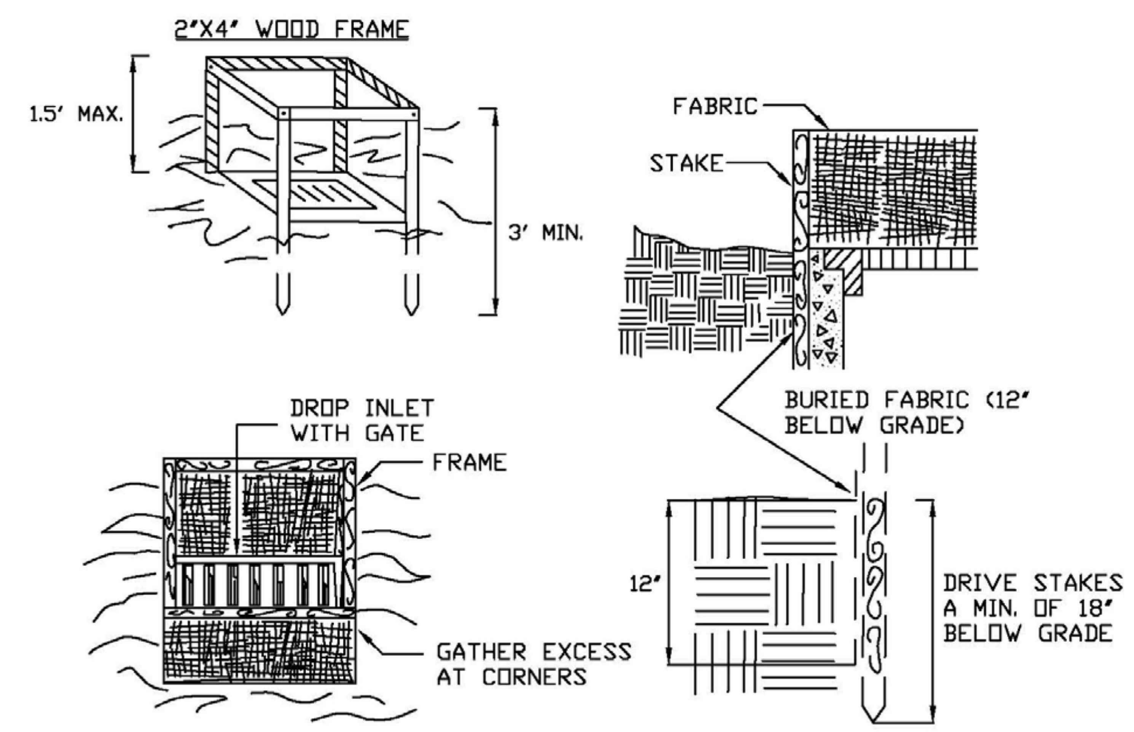
COMPOSITE FILTER SOCK DETAIL

NOT TO SCALE

REFERENCE:

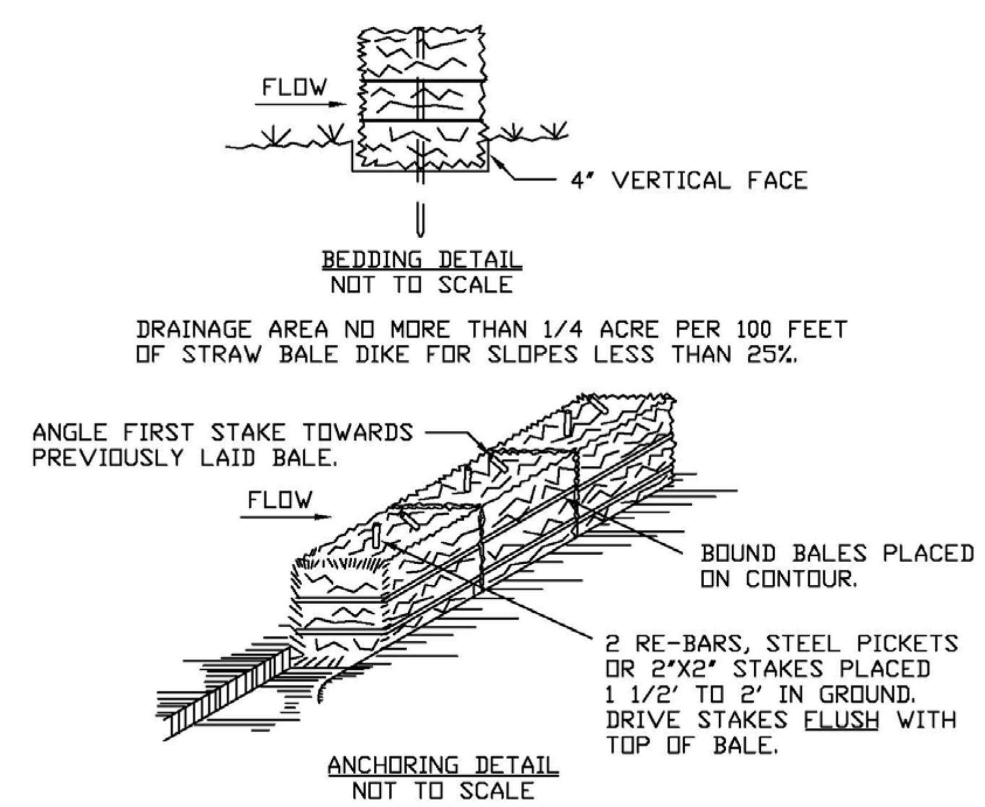
NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION DOCUMENT TITLED, "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL", DATED JULY 2016.

D



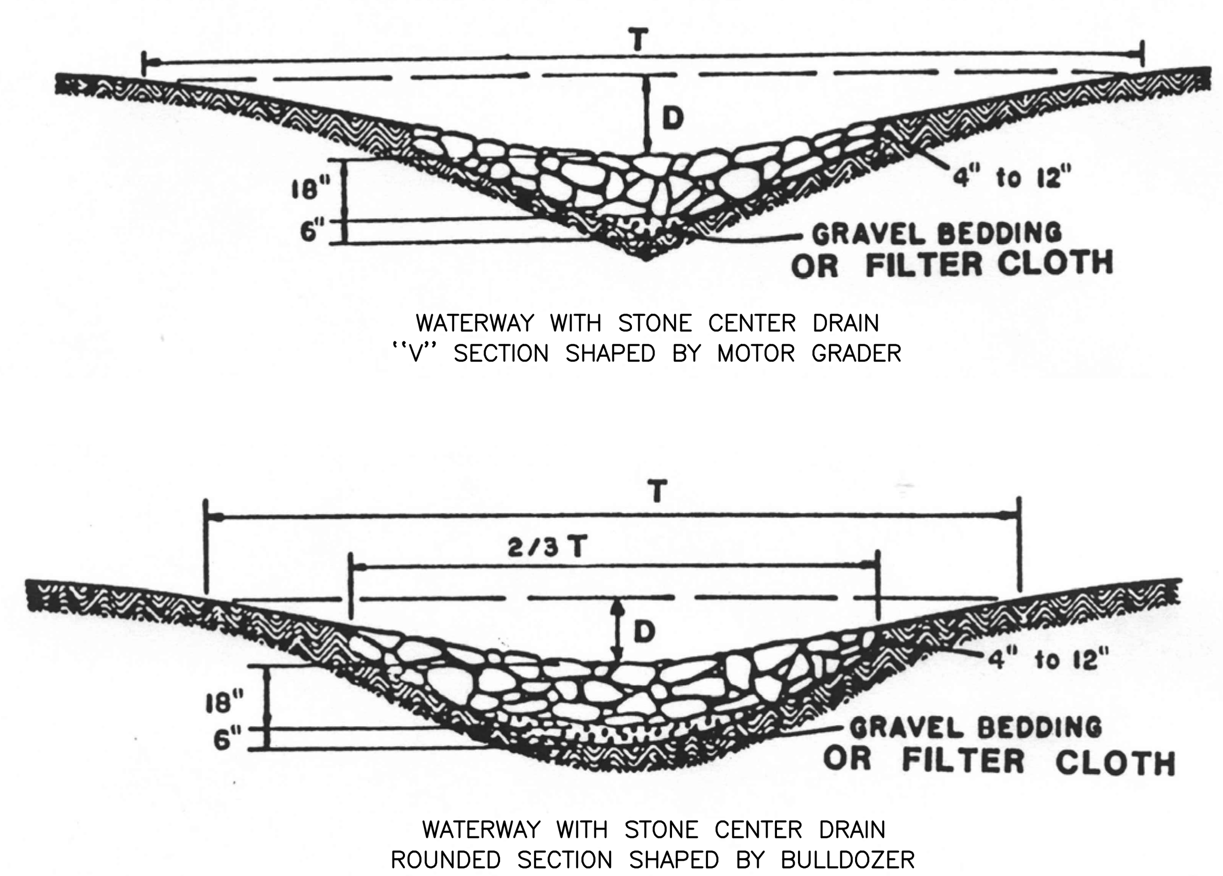
FABRIC DROP INLET PROTECTION DETAIL

NOT TO SCALE



STRAW BALE DIKE DETAIL

NOT TO SCALE



TYPICAL WATERWAY CROSS SECTIONS DETAILS

NOT TO SCALE

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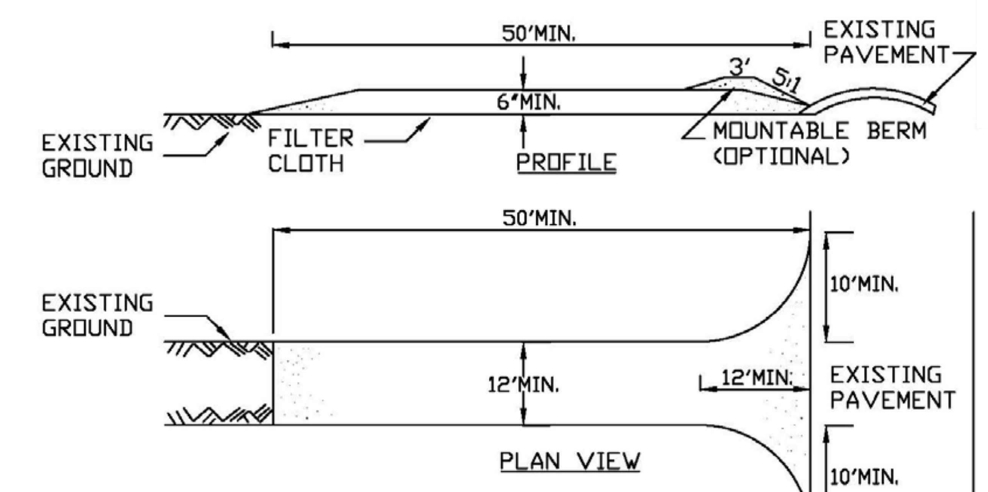
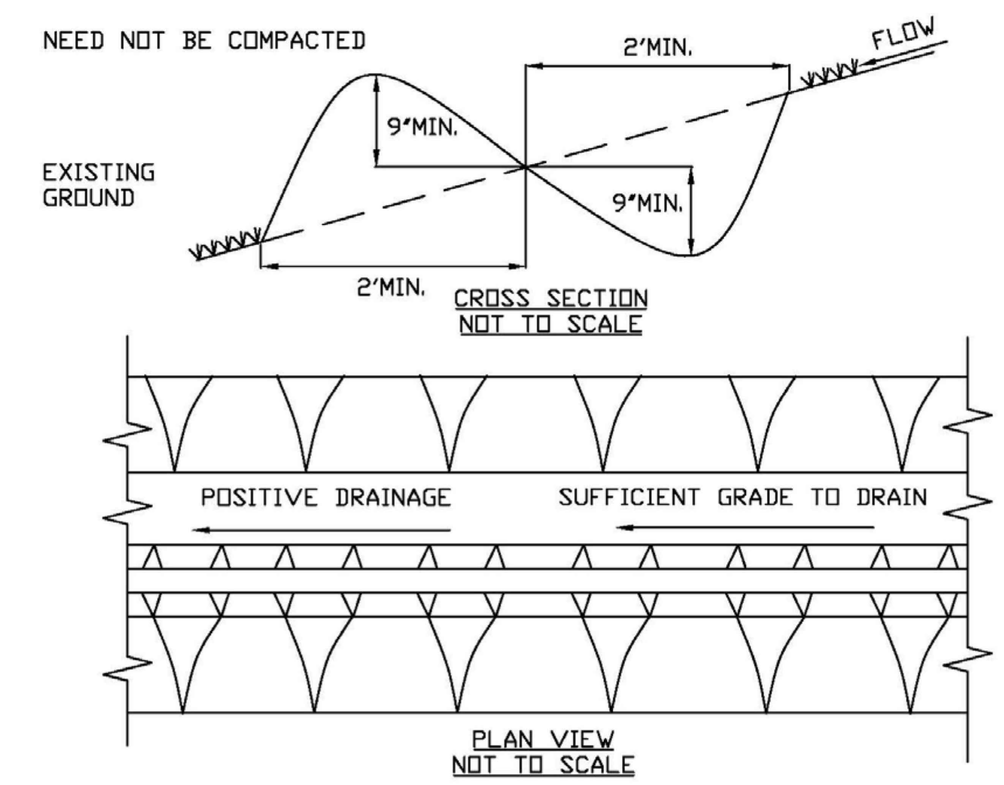


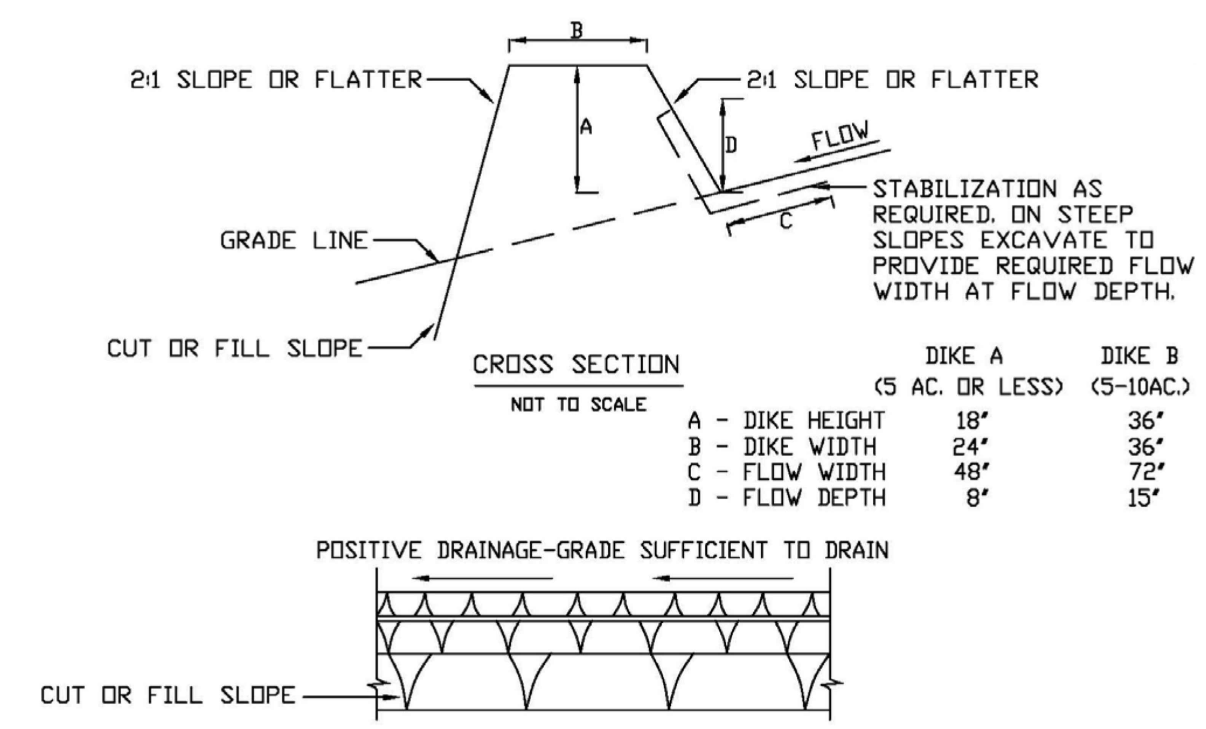
STABILIZED CONSTRUCTION ACCESS DETAIL

NOT TO SCALE



PERIMETER DIKE/SWALE DETAIL

NOT TO SCALE



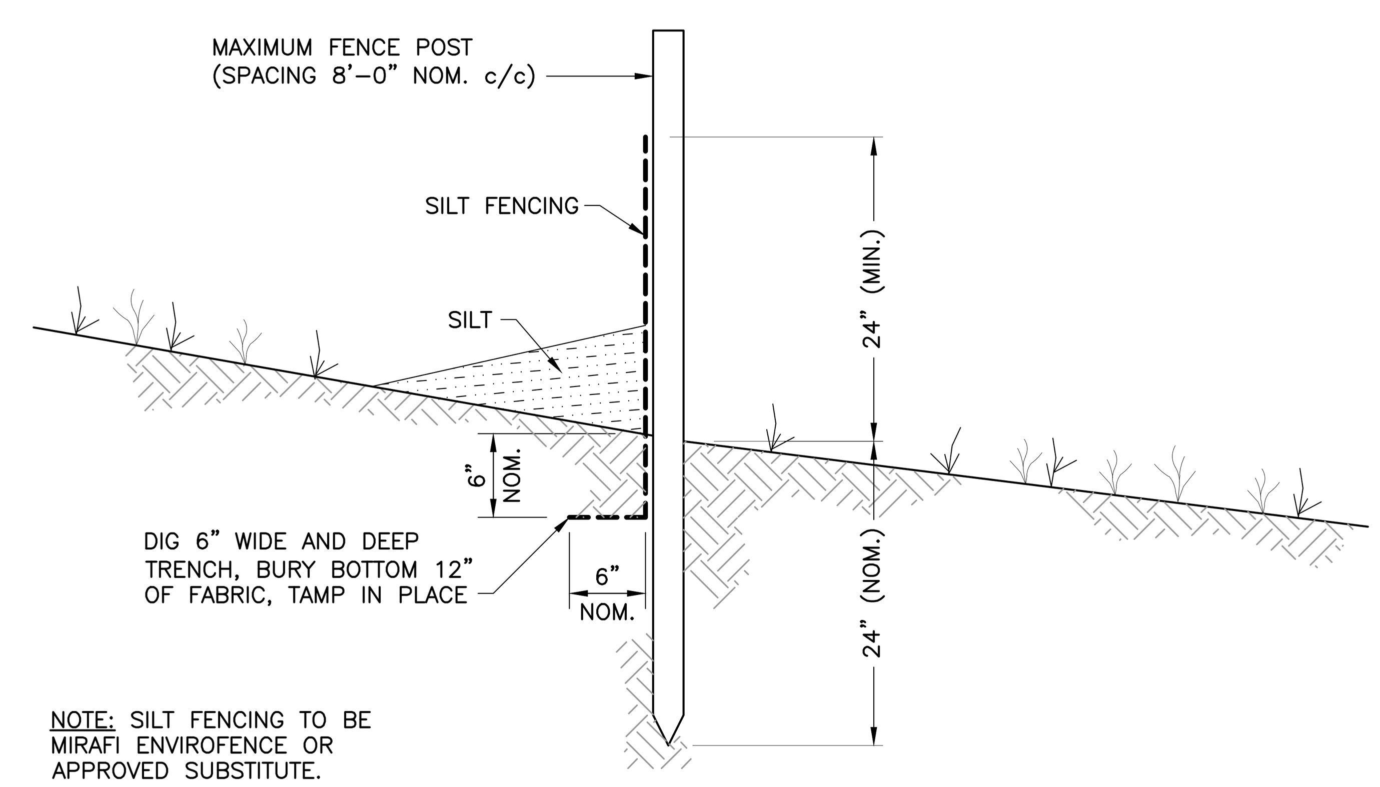
	DIKE A (5 AC. OR LESS)	DIKE B (5-10AC.)
A - DIKE HEIGHT	18"	36"
B - DIKE WIDTH	24"	36"
C - FLOW WIDTH	48"	72"
D - FLOW DEPTH	8"	15"

POSITIVE DRAINAGE-GRADE SUFFICIENT TO DRAIN

CUT OR FILL SLOPE

EARTH DIKE DETAIL

NOT TO SCALE



NOTE: SILT FENCING TO BE MIRAFI ENVIROFENCE OR APPROVED SUBSTITUTE.

SILT FENCE DETAIL

NOT TO SCALE

REVISIONS

REV | DESCRIPTION

SEAL | DATE

DRAWN BY | CHECKED | APPROVED

EROSION AND SEDIMENT CONTROL DETAILS

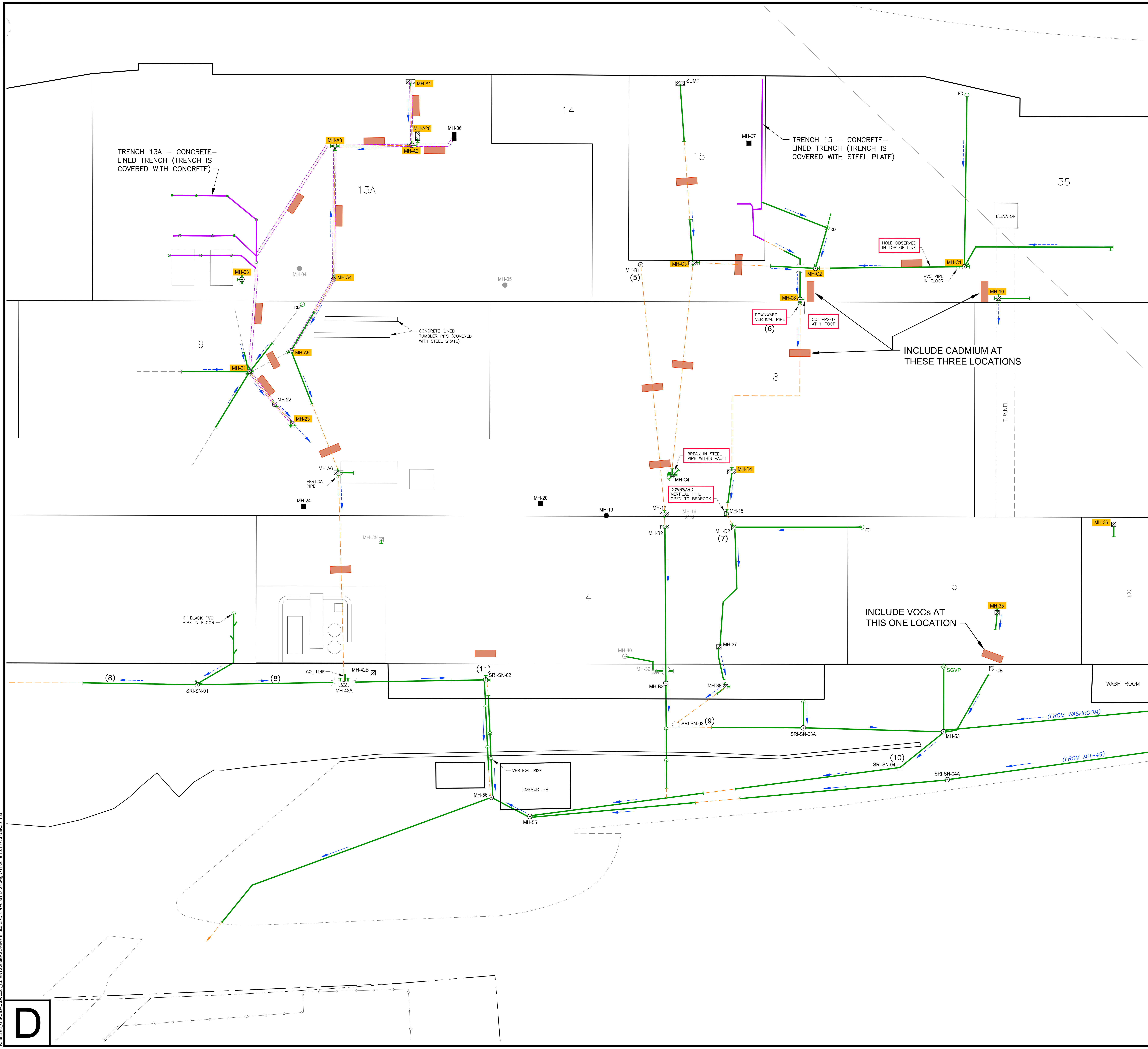
IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
EMERSON – ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

SHEET 12

Drawing Number
314P0551-D122



LEGEND

- PROPOSED CONCRETE SAW CUT/EXCAVATION (REFER TO NOTES 1 AND 2; ORIENTATIONS MAY BE ADJUSTED IN THE FIELD IF SURFACE OBSTRUCTIONS ARE PRESENT)
- MH-D2 — SANITARY MANHOLE/MANWAY
- MH-C1 — CLEANED SANITARY MANHOLE/MANWAY
- NON–SANITARY MANHOLE/MANWAY
- SEALED MANHOLE/MANWAY
- CLEANED TRENCH
- VIDEO SURVEYED
- LINE ADVANCEMENT LIMITED DUE TO BUILD UP OF RESIDUAL MATERIAL (REFER TO TEXT)
- VERTICAL TRANSITION IN LINE
- SAW CUT/REPAIRED CONCRETE FLOOR
- CONNECTIONS BASED ON FACILITY DRAWINGS
- OBSERVED DIRECTION OF FLOW
- PRESUMED DIRECTION OF FLOW (REFER TO NOTE 4)
- FD RD — FLOOR DRAIN/ROOF DRAIN
- SGVP — SEWER GAS VENT
- CB — CATCH BASIN
- 34 — BUILDING NUMBER
- PROPERTY BOUNDARY

NOTES:

1. WHERE THE LOCATIONS OF THE SEWER LINES ARE KNOWN, A SECTION OF CONCRETE FLOOR WILL BE SAW CUT PARALLEL TO THE LINE, THEN REMOVED, BEFORE PROCEEDING WITH EXCAVATION ALONG THE LINE TO ITS INVERT ELEVATION.

2. WHERE THE LOCATIONS OF THE SEWER LINES ARE NOT KNOWN, A SECTION OF CONCRETE FLOOR WILL BE SAW CUT PERPENDICULAR TO AND ACROSS THE PRESUMED LOCATION, THEN REMOVED, TO CONFIRM THE LINE'S POSITION. THEREAFTER, THE SCOPE OF WORK SUMMARIZED IN NOTE 1 WILL BE IMPLEMENTED.

3. ALL TEST PIT SAMPLES ARE TO BE COLLECTED BELOW THE LINE'S INVERT ELEVATION AND ANALYZED FOR BARIUM AND CYANIDE. CADMIUM AND VOCs ARE INCLUDED AT SELECTED LOCATIONS AS SHOWN.

4. THE PRESUMED DIRECTIONS OF FLOW ARE BASED ON THE INVERT ELEVATIONS OF THE PIPES OBSERVED IN EACH OF THE MANHOLES.

5. MH–B1 INCLUDES TWO HORIZONTAL 4–INCH DIAMETER PIPES (PVC AND CAST IRON) THAT ARE CAPPED. THE LINES WERE EXPOSED WHEN THE ASSOCIATED MANHOLE AND ADJACENT CONCRETE FLOOR WERE REMOVED.

6. THE VERTICAL PIPE EXTENDS TO 10 FEET; THE LINE IS THEN OPEN TO BEDROCK, BUT COLLAPSED AT 14 FEET.

7. MH–D2 NORTHWEST PIPE MAY BE VERTICAL (UP).

8. THE INVERT ELEVATIONS INDICATE TYPICAL FLOW TO THE NORTHEAST (TOWARD MH–48) AND OVERFLOW TO THE SOUTHWEST (TOWARD SRI–SN–02).

9. MH–B3 VIDEO SURVEY INDICATED A POTENTIAL BREAK IN THE PIPE BETWEEN 17 AND 20 FEET WHICH ROUGHLY COINCIDES WITH THE SRI–SN–03 VAULT SHOWN ON HISTORICAL DRAWINGS, BUT WHICH WAS NOT LOCATED IN THE FIELD. THE LOCATION SHOWN WAS NOT SURVEYED AND IS, THEREFORE, APPROXIMATE.

10. SRI–SN–04 COULD NOT BE LOCATED AT THE GROUND SURFACE. DURING THE VIDEO SCOPING OF MH–53, A BRICK–LINED VAULT, WHICH IS NOW OVERLAIN BY A CONCRETE PAD, WAS OBSERVED AT THE APPROXIMATE LOCATION OF SRI–SN–04. THE LOCATION SHOWN WAS NOT SURVEYED AND IS, THEREFORE, APPROXIMATE.

11. INFORMATION FOR THE LINE ASSOCIATED WITH SRI–SN–02 AND MH–56 (THE LINE WAS SCOPED FROM BOTH LOCATIONS) IS OFFSET FOR PRESENTATION PURPOSES.

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20 10 0 20 40
SCALE, FEET

REVISIONS

REV	DESCRIPTION	Revised:	Chkd:	Appr.:

SEAL

JULY 09, 2018
DATE

DRAWN BY	RA 06/22/2018
CHECKED	DAR 07/03/2018
APPROVED	DAR 07/09/2018

SANITARY SEWER EVALUATION

IRM WORK PLAN
FORMER EMERSON POWER TRANSMISSION
ITHACA, NEW YORK

PREPARED FOR
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WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

SHEET 13

Drawing Number
314P0551–D123

TABLE

Table 3-1

Summary of Soil AOCs and Interim Remedial Measures
IRM Work Plan
Former Emerson Power Transmission Facility
Ithaca, New York (a)

AOC	AOC Description/Sub-Area	Contaminant(s) (b)	Affected Media	SCO Driver (c)	Anticipated Future Land Use (d)	Anticipated Final Cover (e)	Demarcation Barrier?	IRM Remedy	Estimated Excavation (CY) or Cap/Cover (SF)
Restricted Residential/Mixed Use Area (d)									
1	Former Department 507 Degreaser (exterior)	CVOCs	Soil, Groundwater	Protection of Groundwater	Restricted Residential	Asphalt	Yes	1. Excavate to 3 feet and dispose of CVOC soil offsite. 2. Collect confirmation and documentation samples and excavate additional soil if necessary 3. Install cap consisting of clean soil backfill, geosynthetic clay liner, and asphalt	130 1,200 SF cap
26	Building 24 Interior (second floor)	CVOCs	Soil, Groundwater	Protection of Groundwater	Restricted Residential	Concrete	No	1. Excavate to bedrock and dispose of CVOC soil offsite 2. Collect confirmation and documentation samples and excavate additional soil if necessary 3. Backfill with clean soil and restore concrete floor	30
	Building 24 Exterior (parking lot)	CVOCs	Soil, Groundwater	Protection of Groundwater	Restricted Residential	Asphalt	No	1. Excavate to bedrock and dispose of CVOC soil offsite 2. Collect confirmation and documentation samples and excavate additional soil if necessary 3. Backfill with clean soil and restore asphalt pavement	770
27	Former Salt Baths	Metals (Ba)	Soil/Bedrock/Groundwater	Restricted Residential Use	Restricted Residential	To be Determined (green space or plaza area) (f)	No	1. Excavate loose or fragmented bedrock (~2 feet) and dispose of material offsite 2. Backfill with clean soil and cover with gravel (future grass by others)	80
31	Upper Parking Lot 6	Metals (As, Ba, Cd, Cr, Cu, Ni)	Soil	Restricted Residential Use	Restricted Residential	Asphalt/Grass	Yes	1. Excavate to 2 feet and dispose of metals soils offsite 2. Collect confirmation and documentation samples and excavate additional soil if necessary 3. Backfill with clean soil and restore grass	20
32	Former Spray Pond Area	PAHs, PCBs, and Metals (As, Ba, Pb, Hg)	Soil	Restricted Residential Use	Restricted Residential	Asphalt/Grass	Yes	1. Excavate to 2 feet and dispose of PAH, PCB, and metals soil offsite 2. Collect confirmation and documentation samples and excavate additional soil if necessary 3. Backfill with clean soil and restore grass	950
	Former Spray Pond Area/Drainage Ditch	PAHs and Metals	Drainage Ditch Soil	Restricted Residential Use	Restricted Residential	Riprap/Gravel	No	1. Excavate to 2 feet and dispose of PAH and metals soil offsite 2. Backfill with clean soil and restore ditch lining	50
34	Area East of Buildings 13A and 14	CVOCs	Soil	Protection of Groundwater	Restricted Residential	Asphalt/Grass	Possible (g)	1. Excavate CVOC soil that exceeds PoG SCO and dispose of soil offsite 2. Collect confirmation samples of base and sidewalls (unless bedrock is encountered) and excavate additional soil if necessary 3. Backfill with clean soil and restore asphalt/grass/gravel	210
		PAHs	Soil	Restricted Residential Use	Restricted Residential		Possible (g)	1. Excavate to 2 feet and dispose of PAH soil offsite 2. Collect confirmation and documentation samples and excavate additional soil if necessary 3. Backfill with clean soil and restore grass or gravel	
35A	East of Building 24 (SB-103/SB-103SS)	Metals (As)	Soil	Restricted Residential Use	Restricted Residential	Soil (Grass)	Possible (g)	1. Excavate to 2 feet and dispose of arsenic soil offsite 2. Backfill with clean soil and restore grass	70
35C	Building 11A (LBA-SB-250)	CVOCs	Soil/Groundwater	Protection of Groundwater	Restricted Residential	To be Determined	No	1. Excavate to bedrock and dispose of CVOC soil offsite 2. Collect confirmation and documentation samples and excavate additional soil if necessary 3. Backfill with clean soil and cover with gravel (future grass by others)	140
		PAHs	Soil	Restricted Residential Use	Restricted Residential		Possible (g)	1. Excavate to 2 feet and dispose of PAH soil offsite 2. Collect confirmation and documentation samples and excavate additional soil if necessary 3. Backfill with clean soil and cover with gravel (future grass by others)	
35D	Near Parking Lot 4 (SS-100)	PAHs	Soil	Restricted Residential Use	Restricted Residential	Soil (Grass)	Possible (g)	1. Excavate to 2 feet and dispose of PAH soil offsite 2. Backfill with clean soil and restore grass	30
35G	South of Parking Lot 3 (LBA-B17-TSS-3)	Metals (Ba)	Soil	Restricted Residential Use	Restricted Residential	Soil (Grass)	Possible (g)	1. Excavate to 2 feet and dispose of barium soil offsite 2. Collect confirmation samples and excavate additional soil if necessary 3. Backfill with clean soil and restore grass	40
35H	Parking Lot 3 (LBA-TP-03)	PAHs	Soil	Restricted Residential Use	Restricted Residential	Soil (Grass)	Possible (g)	1. Excavate to 2 feet and dispose of PAH soil offsite 2. Collect confirmation and documentation samples and excavate additional soil if necessary 3. Backfill with clean soil and restore grass	60
35K	Former Railway Right-of-Way (SB-240)	Metals (As)	Soil	Restricted Residential Use	Restricted Residential	Soil (Grass)	Possible (g)	1. Excavate to 2 feet and dispose of arsenic soil offsite 2. Backfill with clean soil and restore grass	40
35L	Former Railway Right-of-Way (DS-1)	PAHs	Soil	Restricted Residential Use	Restricted Residential	Soil (Grass)	Possible (g)	1. Excavate to 2 feet and dispose of PAH soil offsite 2. Collect confirmation and documentation samples and excavate additional soil if necessary 3. Backfill with clean soil and restore grass and ditch lining	110
Commercial Use Area									
28	Oil Shed Area - Northeast	CVOCs	Soil/Groundwater	Protection of Groundwater	Commercial	Asphalt	Possible (g)	1. Excavate CVOC soil that exceeds PoG SCO and dispose of soil offsite 2. Collect confirmation and documentation samples of base and sidewalls (unless bedrock is encountered) 3. Backfill with clean soil and restore grass (future paving by others)	500
29	Former Propane Aboveground Storage Tank Area	PAHs	Soil	Commercial Use	Commercial	Asphalt	Yes	1. Excavate to 2 feet and dispose of the PAH soil offsite 2. Collect confirmation and documentation samples and excavate additional soil if necessary 3. Place and compact 2 feet of soil cover to the approximate original grade and restore grass (future paving by others)	1150
Industrial Use Area									
30	Rice Paddy Area	PAHs	Soil	Industrial Use	Industrial	Soil (Grass)	Yes	1. Excavate to 1 foot and disposal of PAH soil offsite 2. Excavate PCB hotspots at depths indicated on IRM drawings. 3. Collect confirmation and documentation samples and excavate additional soil if necessary 4. Backfill with clean soil and restore grass	170

a\ AOC = area of concern; IRM = Interim Remedial Measure; SCO = soil cleanup objective; CVOC = chlorinated volatile organic compound; PAH = polycyclic aromatic hydrocarbon; PCBs = polychlorinated biphenyls; CY = cubic yard; SF = square feet; NA = not applicable.

b\ The contaminants include the constituents that are the primary drivers of the need for interim remedial measures; they do not include constituents present at concentrations minimally above the SCOs.

c\ SCO source: Table 375-6.8(b), Title 6 New York Codes, Rules and Regulations Part 375, Subpart 375-6.

d\ The term Restricted Residential/Mixed Use is defined as including one or more of the following: apartments and multi-family residences, offices, commercial endeavors, recreational areas, and green space. Restricted Residential Use SCOs are applicable in these areas.

e\ The anticipated final cover is based on the current layout for redevelopment.

f\ The current layout for the redevelopment plan indicates that the former salt baths area (Building 14) will be removed and used for green space or plaza area serving as an entry point for mixed use. The remaining portions of the AOC will be for industrial, warehouse, or storage uses.

g/ A demaracation barrier will be installed only in areas where bedrock is not encountered after excavation to the prescribed detph.

APPENDIX

A

NYSDEC REQUEST TO IMPORT/REUSE FILL OR SOIL

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Request to Import/Reuse Fill or Soil

This form is based on the information required by DER-10, Section 5.4(e). Use of this form is not a substitute for reading the applicable Technical Guidance document.

SECTION 1 – SITE BACKGROUND

The allowable site use is: Choose an item

Have Ecological Resources been identified? Choose an item

Is this soil originating from the site? Choose an item

How many cubic yards of soil will be imported/reused? Choose an item

If greater than 1000 cubic yards will be imported, enter volume to be imported:

SECTION 2 – MATERIAL OTHER THAN SOIL

Is the material to be imported gravel, rock or stone? Choose an item

Does it contain less than 10%, by weight, material that would pass a size 80 sieve? Choose an item

Is this virgin material from a permitted mine or quarry? Choose an item

Is this material recycled concrete or brick from a DEC registered processing facility? Choose an item

SECTION 3 - SAMPLING

Provide a brief description of the number and type of samples collected in the space below:

Example Text: 5 discrete samples were collected and analyzed for VOCs. 2 composite samples were collected and analyzed for SVOCs, Inorganics & PCBs/Pesticides.

If the material meets requirements of DER-10 section 5.5 (other material), no chemical testing needed.

SECTION 3 CONT'D - SAMPLING

Provide a brief written summary of the sampling results or attach evaluation tables (compare to DER-10, Appendix 5):

Example Text: Arsenic was detected up to 17 ppm in 1 (of 5) samples; the allowable level is 16 ppm.

If Ecological Resources have been identified use the "If Ecological Resources are Present" column in Appendix 5.

SECTION 4 – SOURCE OF FILL

Name of person providing fill and relationship to the source:

Location where fill was obtained:

Identification of any state or local approvals as a fill source:

If no approvals are available, provide a brief history of the use of the property that is the fill source:

Provide a list of supporting documentation included with this request:

The information provided on this form is accurate and complete.

Signature

Date

Print Name

Firm