

INTERIM REMEDIAL MEASURE WORK PLAN

OLD CHENANGO CANAL SITE
NYSDEC SITE No. 633051
UTICA, NEW YORK

Prepared for:

Honeywell

THE POWER OF **CONNECTED**

115 Tabor Road

Morris Plains, New Jersey 07950

Prepared by:



Amec Foster Wheeler Environment & Infrastructure, Inc.
511 Congress St.
Portland, Maine 04101

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Amec Foster Wheeler Project No. 3616176062


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1.0 INTRODUCTION

On behalf of Honeywell International Inc. (Honeywell), Amec Foster Wheeler Environment & Infrastructure (Amec Foster Wheeler) has prepared this Work Plan for Interim Remedial Measure (IRM) activities at the Old Chenango Canal Site (Site) in Utica, New York. The Site is currently listed in the New York State Department of Environmental Conservation (NYSDEC) Registry of Inactive Hazardous Waste Disposal Sites as Site No. 633051. Honeywell is performing remediation in accordance with the Order on Consent and Administrative Settlement Index #B6-776-08-02 as issued by the NYSDEC.

This IRM will address polychlorinated biphenyl (PCB)-impacted materials in the westernmost portion of the Site (the Remedial Investigation [RI] Study Area shown on Figure 1.1). The NYSDEC, New York State Department of Health (NYSDOH) and Honeywell collectively agreed that it would be appropriate for Honeywell to remediate the western portion of the Site that exhibits the highest concentrations of PCBs, as part of an IRM. The scope of the IRM will include removal of soils and canal bottom material with PCB impacts within an area covering approximately 32,000 square feet (0.75 acres) including material within a 165-foot long reach of an abandoned canal and surrounding surface soil situated between the highway and railroad embankments (see inset on Figure 1.1). The RI has been performed to characterize impact throughout the site and the Final RI Report (Amec Foster Wheeler, 2015) has been approved by NYSDEC. The full scale remedy for the remainder of the Site (comprising approximately 3650 feet of channel length) will be evaluated and presented in a Feasibility Study, which is anticipated to be submitted to NYSDEC and NYSDOH in 2018.

This IRM Work Plan presents remediation activities to be completed in support of the excavation, transport, and off-site disposal of approximately 1,500 cubic yards of surface soil and canal material (e.g. sand and rock debris) containing levels of PCBs above the Soil Cleanup Objectives (SCOs) established for the Site. The impacted material from the abandoned canal segment meet the definition of PCB remediation waste under the Toxic Substances Control Act (TSCA) regulations (40 Code of Federal Regulations [CFR] 761), with approximately 300 cubic yards of the targeted soil removal exceeding 50 milligrams per kilogram (mg/kg) total PCBs. The remaining floodplain soils exhibit much lower concentrations and do not exceed the TSCA threshold. The IRM also includes some signage and fencing that will be installed at

various locations along the full Site corridor to limit access to parts of the canal with elevated concentrations of PCBs, and to raise public awareness.

For the IRM, the extent of excavation will be guided by the levels of PCBs determined to be present in soils or canal material, as determined through post-excavation confirmatory sampling. The chemical-specific standards, criteria, guidance (SCGs) that will apply are shown in the following table:

Table 4-1: IRM Chemical-Specific SCGs		
Chemical	Canal Bottom and Bank Material	Soil
PCBs – Ecological Screening Level	0.1 mg/kg	1 mg/kg
PCBs – Residential Use	N/A	1 mg/kg

Notes

mg/kg: milligrams per kilogram

N/A: not applicable

2.0 SITE DESCRIPTION AND HISTORY

The following sections summarize the Site's general conditions, history, topography, geology, and surface water hydrology. Additional details can be found in the Final RI Report (Amec Foster Wheeler, 2015).

2.1 SITE DESCRIPTION

The Site is located within the Nail Creek watershed, which drains the west-central portion of the City of Utica. The Site occupies a section of the Old Chenango Canal, which begins at a storm sewer that extends eastward from French Road and leads to a channelized portion of Nail Creek. The Site encompasses a 3,650-foot drainage pathway from the French Road outfall to the entrance to the Utica Box Culvert. The IRM will address the westernmost portion of the Site that contains a 165-foot portion of old canal channel and surrounding floodplains (Figure 2.1).

The channel is mainly open, transitioning to culverts beneath the railroad and roadways. The watercourse follows the footprint of the old canal, becoming Nail Creek to the east where it joins the Upper Nail Creek tributary. The channel transitions to a rock-armored drainage channel approximately 1,600 feet from the French Road storm sewer outlet. The rock-armored drainage channel runs beside the highway until it enters the Utica Box Culvert, which consists of a concrete box structure that represents the downstream extent of the Site. The Utica Box Culvert flows beneath the heart of Utica and discharges to Lower Nail Creek, which continues as an open channel to the Mohawk River.

2.2 SITE HISTORY

The Old Chenango Canal receives water from a series of storm sewers, including the City of Utica French Road Sewer. The French Road storm sewer received discharges from a number of commercial and industrial sources within the storm water catchment, including the former Bendix facility and storm water runoff from roadway storm drain inlets.

Historical sampling of the French Road municipal storm sewers identified PCBs near the former Bendix facility. The former Bendix facility was remediated under a separate Consent Order between New York State (NYS) and Northrop Grumman. The remediation included removal of Bendix property sewers, sections of the municipal storm sewer near the facility, pipe bedding material, and accumulated material in the French Road storm sewer.

In 2003 the NYSDEC collected soil samples from the Old Chenango Canal and Nail Creek. PCBs were identified in laboratory results and the NYSDEC listed the sampled reach of the watercourse as the Old Chenango Canal Site (Site No. 633501 on the Inactive Hazardous Waste Site Registry). Honeywell signed a Consent Order with the NYSDEC in March 2009, assuming responsibility for the first 850 feet of the Site, and began RI sampling in 2009 confirming PCB impacts in the channel. Subsequent investigations were performed through 2014 to delineate the extent of PCB-impacted materials, with Honeywell voluntarily characterizing impact beyond the 850-foot length of the Site (as described in the Consent Order) and eastward to the Utica Box Culvert. The Final RI Report was reviewed and approved by the NYSDEC in 2016.

2.3 REMEDIAL INVESTIGATION

Honeywell performed phased characterization activities that culminated in a Final RI Report. The RI Report determined that PCBs were the predominant Contaminant of Concern and recommended SCOs for total PCBs of 1 mg/kg for soil and 0.1 mg/kg for sediment. In the IRM area, the 0.1 mg/kg criterion applies to the uppermost two feet of material (channel bottom and adjacent bank soils with the potential to erode into the channel). The lateral limit of the 0.1 mg/kg criteria will be the remnant canal walls, where present, and an elevation contour of 489.0 feet for bank sections where structure is not present. This is shown on Figure 2.2 that provides additional surface detail near the canal. The SCO of 1 mg/kg applies to soil outside of the channel and channel soils (below two feet as long as two feet of backfill is returned during restoration). Other constituents that may be present above applicable SCOs were considered to be co-located with PCB-impacted material and will therefore be addressed as part of the remedial action.

2.4 INTERIM REMEDIAL MEASURE AREA SITE CONDITIONS

The portion of the Site subject to this IRM contains remnant structure (quarried rock walls and floor) of a former canal lock. Material with PCBs has washed to the channel from upstream sources and has been deposited within the canal. The canal lock structure transitions downstream to an open channel with similar bottom deposits and sandy bank material. The channel gradient in the IRM area is 0.0012 feet per lineal foot. The width of the canal structure (distance between the near vertical walls) is approximately 15 feet.

Borings completed within the IRM area and outside the canal channel found surface soils to consist of approximately six inches of sandy loam with vegetation (roots) over tan to brown unconsolidated graded sand with gravel. The surface sand unit overlies

dense glacial till that is approximately 15 feet below ground surface. The IRM area is bordered by fill slopes constructed for the railroad (east) and the highway (west).

The RI presented a hydrologic and hydraulic assessment of the watercourse with modeled potential flood inundation zones. Virtually all flow enters the IRM section as discharge from the French Road storm culvert that forms the westernmost point of the open canal channel. During periods of low precipitation, observed flow from the culvert is minimal. The hydrologic assessment of modeled peak discharge from a 2-year storm event generated from the storm sewer shed upstream from the railroad is 92 cubic feet per second.

3.0 INTERIM REMEDIAL MEASURE OBJECTIVES

3.1 INTERIM REMEDIAL MEASURE CANAL AREA

The portion of canal subject to this IRM is 165 feet in length and contains depositional material and soil that are impacted with PCBs at concentrations that exceed 50 mg/kg. The western 90 feet of the canal exhibits intact stone walls that are remnant structure of an original canal lock. The stone forming the canal walls has a nominal dimension of approximately 48 inches long by 18 inches tall and is estimated to project laterally into the bank approximately 24 inches or more. Material and broken rock have accumulated against the walls to thickness of approximately two to four feet. Field probing activities along the bed of the canal encountered refusal at an approximate depth of 2.5 feet, which is assumed to be a stone bottom constructed as part of the original canal lock. The remaining approximately 75-foot long portion of the canal east of the lock structure does not appear to have remnant block walls or bottom and is characterized by steep sandy banks with vegetation, brush, and trees.

IRM objectives for the canal area include removal and off-site disposal of PCB-impacted material to meet SCOs and eliminate potential exposure pathways. Existing undergrowth and small diameter trees (< 3 inch diameter at breast height {DBH}) will be removed as necessary to access the work area. Larger diameter trees will remain, to the extent practicable, by utilizing hand work or air knifing techniques to remove soils around the base of the tree. Trees in excess of 3-inch diameter at DBH will not be removed without coordination with the NYSDEC. Based on initial observations, there are less than 6 trees with DBH greater than 3-inches that could be subject to removal. Tree diameters will be confirmed during mobilization activities to document the final number of trees that will need to be re-planted during Site restoration.

Material will be removed to expose the stone wall and floor along the upstream portion of the canal. Exposed stone will be scraped to remove unconsolidated material without removing interstitial soil between the stones. Photographs will be collected to document the condition and extent of the exposed structure prior to backfill. No post-excavation samples will be required along portions of the canal with an exposed stone surface.

Bottom material and bank soil from the remaining portion of the canal within the IRM area will be excavated to an initial depth of approximately 2 feet. Post-excavation sampling will be completed in accordance with Section 4.0 of this IRM Work Plan. If exceedances of 0.1 mg/kg are identified, one additional excavation pass

will be conducted to remove an additional 1 foot of material. The excavation may be limited to approximately 3 feet based on practical considerations that include the presence of utilities (e.g. transmission poles), the railroad embankment, and slope stability. Following removal of the additional 1 foot of material (if required), additional samples will be collected to characterize soils that remain in place prior to backfill. Note that supplemental sampling will be completed prior to IRM construction to further evaluate the levels of PCBs in bed material along this section of the canal. This sampling is described in a separate Work Plan (Amec Foster Wheeler, June 2017).

All material removed from within the canal lock structure and downstream area to the railroad culvert will be handled as a hazardous waste. Approximately 300 cubic yards of PCB-impacted material is anticipated to be removed from within the former canal and disposed off-site at a TSCA permitted facility.

3.2 UPLAND FLOODPLAIN AREA

An area beyond the top of the canal wall or banking includes impacted surface soils with PCBs exceeding the 1 mg/kg SCO. Characterization performed during the RI identified the extent of material above 1 parts per million (ppm) was generally limited to the upper six inches to a foot of soil. Based on RI results, the IRM will initially include removal of the top 1 foot of soil from an area covering approximately 30,000 square feet. Soil from areas where the in-place concentration of total PCBs has been found to be 50 ppm or greater will be disposed off-site at a TSCA-permitted facility. Soil from areas with in-place PCB concentrations less than 50 ppm will be sent to a solid waste landfill in accordance with 40 CFR 761.61(a)(5)(i)(B)(2)(ii).

Post-excavation samples will be collected from defined grids as shown on Drawing C-103 (Appendix A). An additional foot of soil may be removed from areas where confirmatory sampling results still indicate PCBs above 1 mg/kg. Post-excavation samples will be collected from all cells to document PCB concentrations at the limits of excavation. Approximately 1,200 cubic yards of PCB-impacted soil is anticipated to be removed from the area outside the canal.

The extent of surficial soil impacts has been defined based on samples collected during the RI. Confirmation of the vertical extent of impacts will be completed as part of the confirmatory sampling program during the IRM. Supplemental surface samples may be collected in the IRM area to further refine the extent of surface soil impacts in the IRM area. Completed excavations will be sampled in accordance with Section 4.0 of this IRM Work Plan prior to placement of backfill.

3.3 SIGNAGE AND FENCING

The IRM activities will also include fencing improvements and additional signage as an engineering control to control trespass and provide notice on the un-remediated portion of the Site. Repairs will be completed to two existing sections of fence located east of Arcadia Avenue adjacent to the former landfill area. A new fence, gate and signage will be installed at the primary access point located at the end of Arcadia Avenue to control public entry to the canal area. Additional signage will also be installed along the railroad tracks in the vicinity of the French Road interchange to deter public access to the site. Refer to Figure 3.1 for the location of proposed fencing and signage controls.

4.0 SAMPLING AND ANALYSIS

IRM areas scheduled for removal of PCB-impacted materials will be subject to post-excavation confirmation sampling. This section provides the proposed analytical methods and sampling frequencies to be implemented during IRM excavation activities. Sampling conducted during the IRM will utilize a confirmation criterion of 0.1 mg/kg within the canal and 1 mg/kg for floodplain areas beyond the top of bank (Figure 2.1). As discussed in Section 3.0, physical constraints such as the railroad and utilities may prohibit excavation beyond proposed depths. Post-excavation sample results will be evaluated by the project team and reviewed with NYSDEC prior to commencing backfill activities. Backfill and restoration are further discussed in Section 5.0.

4.1 ANALYTICAL METHODS

Analysis of confirmation sampling will be completed at an off-site independent laboratory. Samples will be extracted using United States Environmental Protection Agency (USEPA) Method 3550C or USEPA Method 3540C. PCB analysis will be conducted in accordance with USEPA Method 8082A using NYSDEC Analytical Services Protocol. A 24-hour turnaround time will be requested for sample analysis to allow for timely decisions in the field on supplemental excavation or backfill and restoration activities.

4.2 SAMPLING FREQUENCY

Confirmation sampling will be conducted consistent with Section 5.4 “Remedial action performance compliance” of DER-10 - Technical Guidance for Site Investigation and Remediation (NYSDEC, 2010) and using collection techniques and methods that have been approved by NYSDEC for prior Site characterization events.

The proposed horizontal and vertical removal limits are based on analytical results obtained during the RI. Excavation limits are shown on Design Drawing C-103 Excavation Plan that is included in Appendix A of this IRM Work Plan.

A proposed sampling grid has been developed that covers the canal and floodplain areas that require remediation. The grid is shown on Design Drawing C-103 and each cell covers a maximum of 400 square feet (e.g. typical dimensions are 20 feet by 20 feet) with post-excavation confirmation samples to be collected from the approximate center of each cell. As described in the Notes on Figure C-103 (Appendix A), multiple confirmation samples will be collected within cells that span both the channel bottom

and adjacent banking. Sidewall confirmation samples will be collected at a frequency of one per 30 linear feet along the perimeter of the excavation area in compliance with DER-10 guidance.

5.0 BACKFILL AND RESTORATION

This section describes the clean backfill process. The section also discusses restoration including final seeding and plantings.

5.1 BACKFILL

The canal area will be backfilled to generally match the current pre-construction grade. The upland area beyond the edge of the canal will be graded to match the top of the exiting stone walls where present. Portions of the canal without stone walls will be backfilled to generally match the pre-construction top of bank and side slopes.

The canal area will be backfilled utilizing clean imported gravel with an approximate D₅₀ stone size of 3-inches with a maximum dimension of 4.5-inches. The imported gravel will be an open graded mixture with fines content below 5 percent to create void space within the backfill structure. This void space will allow for the deposition of finer particles suspended in storm water discharge entering the canal from the French Road culvert. This approach will allow for restoration of the canal bed to pre-existing conditions.

The area adjacent to the canal will be restored to generally match pre-construction grades. This area will be backfilled with clean imported topsoil amended to increase the total organic content to 20 to 25% to provide an appropriate substrate for re-establishment of native vegetation. The amendment and source will be communicated to NYSDEC prior to start of restoration activities. Backfill for the area adjacent to the canal will meet the following project specifications.

Table 5.1 – Floodplain Backfill Requirements

Property	Specified Value
Maximum Particle Size	1.5 inches
Gravel Content	< 5 percent
Clay Content	< 36 percent
Percent Passing #200 Sieve	15 – 80 percent
Organic Content	20 – 25 percent
Recommended PH	5.5 – 7.6
Soluble Salts	< 500 ppm

5.2 RESTORATION

The restoration activities will focus on the floodplain areas since the canal bottom will remain a gravelly substrate to support water conveyance. The natural accumulation of suspended fines within the void space will allow for restoration of the canal bed to pre-construction conditions. Biodegradable fiber rolls will be installed to control erosion until stabilizing vegetation is established along the sides of the canal between topsoil placed beyond the banks and coarse gravel placed on the canal bottom.

The area adjacent to the canal scheduled to be backfilled with sand / topsoil mixture will be seeded with a blend of conservation and wet meadow seed mix. This type of seed mixture will allow for the development of a wetland / riparian type vegetation including grass, flowers, and shrubs. Seed mixture for the IRM area will consist of a 50/50 blend of the following seed mixtures provided by New England Wetland Plants or approved equal. Refer to Appendix B for species distribution within these two seed mixtures.

1. New England Roadside Matrix Wet Meadow Seed Mix
2. New England Conservation / Wildlife Mix

As discussed in Section 3.1, IRM soil removal activities will be conducted in a manner that minimizes removal of trees with a diameter greater than 3-inches. The contractor will be required to identify any trees greater than 3-inch DBH within the area being remediated as a part of the existing conditions verification survey. This data will be used during restoration activities to facilitate reestablishment of the vegetation bordering the existing canal.

The trees larger than 3 inch DBH removed during IRM activities will be replaced in-kind (i.e. with multiple smaller trees with equivalent total diameter) during restoration of the site, with additional trees planted to augment the habitat within the area of the IRM. The tree species that have been selected for use in restoration include red maple (*Acer rubrum*), hickory (*Carya ovata*), gray birch (*Betula populifolia*), cotton wood (*Populus deltoids*) and black cherry (*Prunus serotina*). These species were selected based on observed presence at the site or in the vicinity of non-impacted areas. In addition, the following scrub shrub species will be planted during restoration along the riparian edge of the channel; alder (*Alnus incana/rugose*), red-osier dogwood (*Cornus sericea*), gray dogwood (*Cornus racemose*), sand-bar willow (*Salix exigua*), pussy willow (*Salix discolor*) and elderberry (*Sambucus canadensis*). The planting plan including proposed planting areas as well as tree and shrub species

are shown on drawing C-107 (Landscaping Plan) contained in Appendix A of this report. The contractor will be required to remove wire and/or plastic baskets from the root balls prior to planting.

6.0 WORK PLAN DRAWINGS

Draft IRM drawings are included with this Work Plan. Appendix A includes the following work plan design drawings:

- G-001 Cover Sheet
- G-002 General Notes and Abbreviations
- C-101 Overall Access and Staging Plan
- C-102 Soil Erosion and Sediment Control Plan
- C-103 IRM Excavation Plan
- C-104 Canal Plan and Profile
- C-105 IRM Fencing and Signage Plan
- C-106 Restoration Plan
- C-107 Landscaping Plan
- C-301 Soil Erosion and Sediment Control Notes
- C-302 Soil Erosion and Sediment Control Details
- C-303 Civil Details
- C-304 Restoration Details
- C-501 Canal Cross Sections
- C-502 Upland Cross Sections (1 of 3)
- C-503 Upland Cross Sections (2 of 3)
- C-504 Upland Cross Sections (3 of 3)

7.0 GENERAL CONSTRUCTION SEQUENCE

The following section provides the general construction sequence for completing the IRM work activities.

- Site preparation and mobilization including installation of temporary construction fencing, contractor support facilities, access roads, and soil erosion control measures;
- Verification survey including tree and shrub inventory;
- Installation of IRM fencing and signage near Arcadia Avenue, the dump area, and east of the railroad tracks;
- Clearing of brush and small diameter trees to provide access to the work area;
- Removal of upland floodplain soils and stage for off-site disposal;
- Collect post-excavation confirmation samples for PCB laboratory analysis;
- Plug existing French Road outlet culvert and dewater canal work area;
- Construct berm and bypass piping at the upstream end of the canal;
- Coordinate work with weather forecasts and monitor water levels in upstream structure;
- Excavate impacted soil in the upstream portion of the canal;
- Complete canal soil removal and stage material for stabilization as necessary;
- Collect post-excavation confirmation samples for PCB laboratory analysis;
- Coordinate transportation and disposal of material soils identified for off-site disposal;
- Backfill canal area to pre-construction grade with coarse gravel material;
- Backfill upland floodplain area with sand / topsoil mixture;
- Complete planting of trees and shrubs as shown on design drawings;
- Seed and mulch all disturbed areas in accordance with project specifications;
- Remove temporary erosion controls and facilities; and
- Demobilize.

8.0 REPORTING AND SCHEDULE

This section discusses the proposed schedule for executing IRM construction activities as well as the reporting requirements to document successful completion of the IRM work.

The NYSDEC has requested that the IRM be completed in 2017, if possible. Seasonal considerations dictate a field window of mid-October to mid-November. Key target dates are listed below. A detailed task schedule will be maintained to track progress and compliance with subtask deliverable requirements (e.g. permits). The schedule will be refined periodically as design drawings and permits are submitted and reviewed by stakeholders.

<u>Activity</u>	<u>Target Date</u>
IRM Work Plan Final Approval: NYSDEC	11/06/2017
Permitting Final Approvals: (various)	11/10/2017
IRM Construction Mobilization	11/13/2017
IRM Field Completion/Demobilization	12/15/2017

Following completion of the IRM field activities, Amec Foster Wheeler will prepare a Construction Completion Report that includes a NYS-licensed Professional Engineer's Construction Certification of the work performed and reported therein. The report will present the IRM scope of work performed, including elements such as:

- Health and Safety
- Site Mobilization and Preparation
- Soil Excavation
- Imported Backfill
- Documentation Samples (e.g. results from confirmation samples and imported fill)
- Material Transport and Disposal
- Site Restoration
- Construction Surveys

The schedule for submittal of the Construction Completion Report will be within 60 days of demobilization.

9.0 REFERENCES

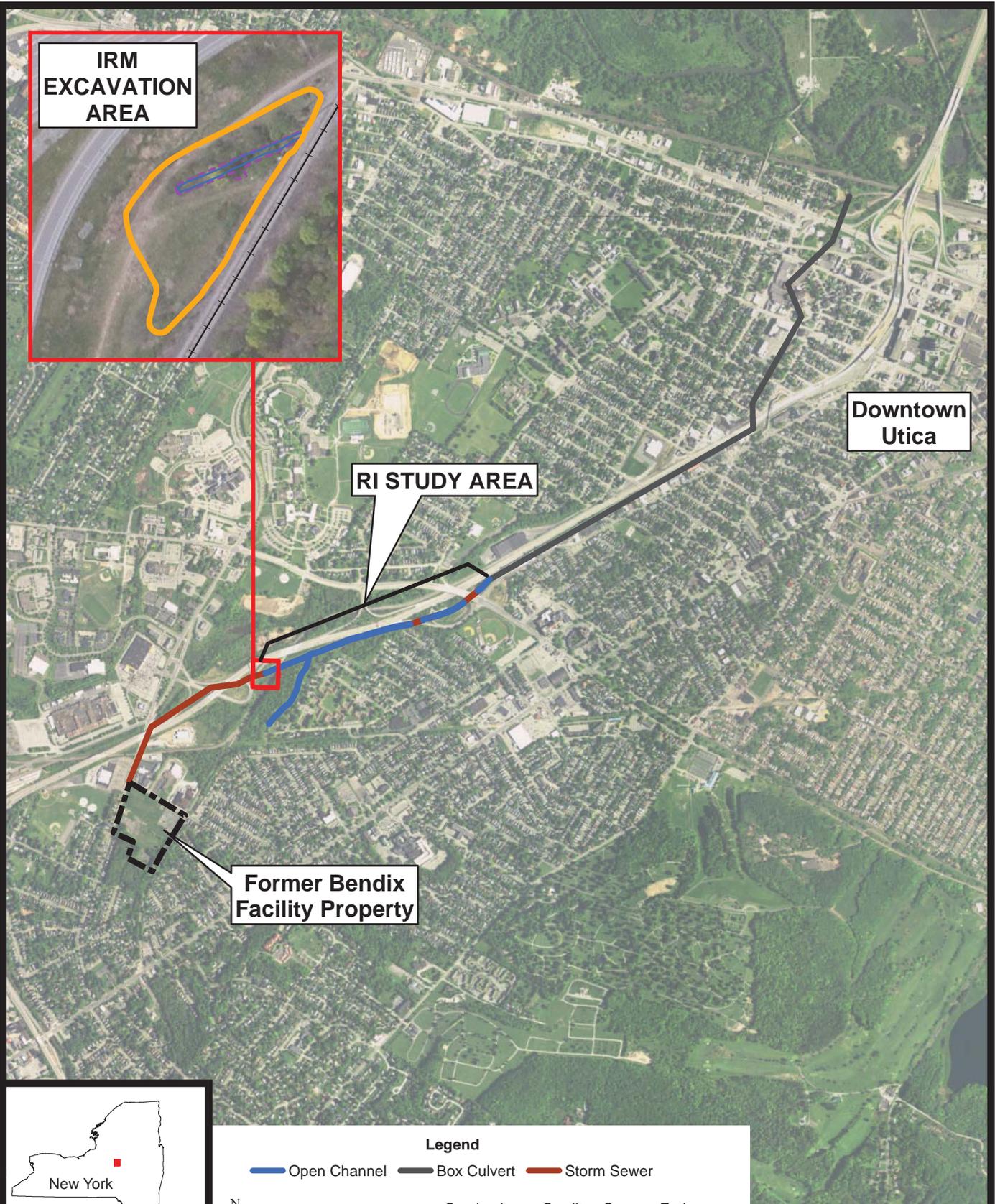
Amec Foster Wheeler, 2015. Final Remedial Investigation Report, Old Chenango Canal Site No. 633051. December 2015

NYSDEC, 2010. Final DER-10, Technical Guidance for Site Investigation and Remediation. December 2002.

10.0 ACRONYMS AND ABBREVIATIONS

Amec Foster Wheeler	Amec Foster Wheeler Environment & Infrastructure
CFR	Code of Federal Regulations
DBH	Diameter at breast height
Honeywell	Honeywell International Inc.
IRM	Interim Remedial Measure
mg/kg	milligrams per kilogram
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PCB	polychlorinated biphenyl
ppm	parts per million
RI	Remedial Investigation
SCG	Standards, Criteria, or Guidance value
SCO	Soil Clean-up Objective
Site	Old Chenango Canal NYSDEC Site No. 633051
TSCA	The Toxic Substances Control Act
USEPA	United States Environmental Protection Agency

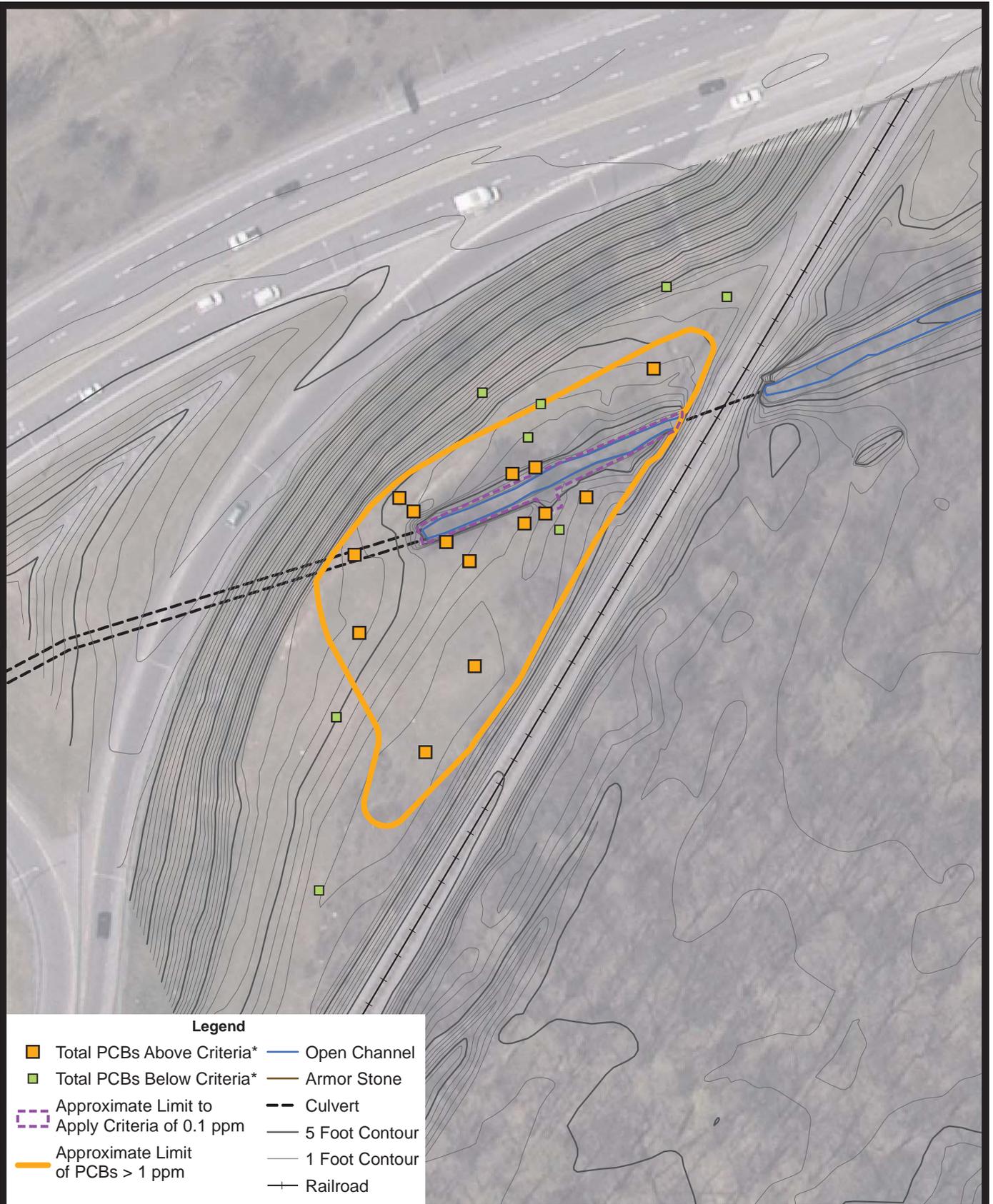
FIGURES



IRM WORK PLAN
OLD CHENANGO CANAL SITE
NYSDEC SITE No. 633051
UTICA, NEW YORK



SITE LOCATION
Project 3616176062 Figure 2.1



Legend

- | | |
|--|--|
|  Total PCBs Above Criteria* |  Open Channel |
|  Total PCBs Below Criteria* |  Armor Stone |
|  Approximate Limit to Apply Criteria of 0.1 ppm |  Culvert |
|  Approximate Limit of PCBs > 1 ppm |  5 Foot Contour |
| |  1 Foot Contour |
| |  Railroad |



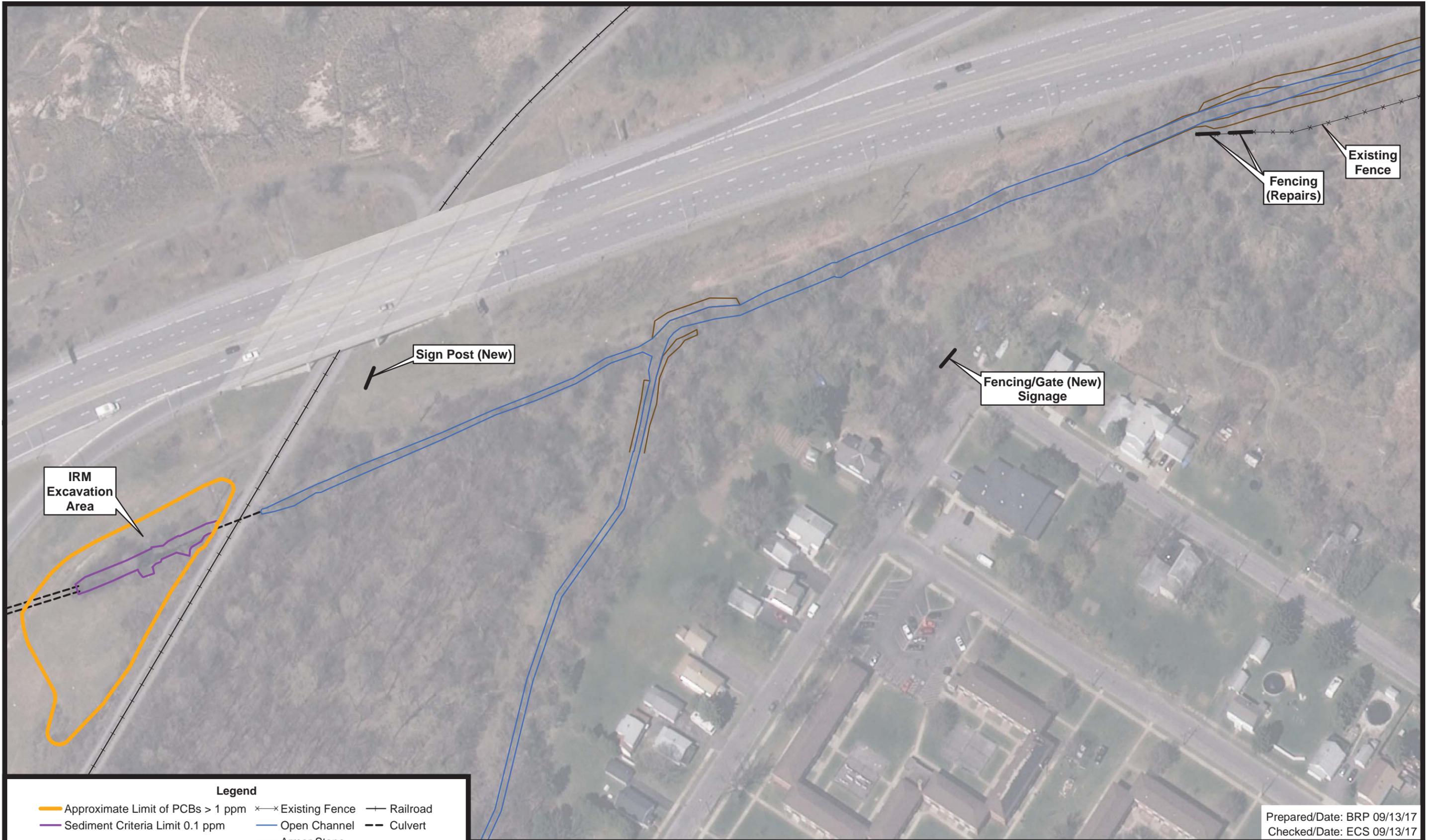
Oneida County color digital orthoimagery (2008) obtained from New York State GIS Clearinghouse at: <http://www.nysgis.state.ny.us>

Prepared/Date: BRP 07/12/17
Checked/Date: ECS 07/12/17

IRM WORK PLAN
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IRM AREA
 EXCAVATION FOOTPRINT
 AND RI SAMPLES
 Project 3616176062 Figure 2.1



IRM
Excavation
Area

Sign Post (New)

Fencing/Gate (New)
Signage

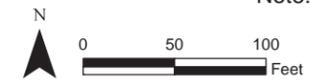
Fencing
(Repairs)

Existing
Fence

Legend

- Approximate Limit of PCBs > 1 ppm
- Sediment Criteria Limit 0.1 ppm
- Existing Fence
- Open Channel
- Railroad
- Culvert
- Armor Stone

Note: See Drawing C-105 for Details on Fencing and Signage



Oneida County color digital orthoimagery (2008) obtained from New York State GIS Clearinghouse at: <http://www.nysgis.state.ny.us>

Prepared/Date: BRP 09/13/17
Checked/Date: ECS 09/13/17

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IRM FENCING AND SIGNAGE
Project 3616176062
3.1

APPENDIX A
WORK PLAN DRAWINGS

A
B
C
D

LEGEND:

EXISTING		PROPOSED
	SITE/PROPERTY BOUNDARY	
	MAJOR CONTOURS	
	MINOR CONTOURS	
	TREE/BRUSH LINE	
	RAILROAD TRACKS	
	GUARDRAIL	
	FENCE	
	SEWER MANHOLE	
	LIGHT	
	UTILITY POLE	
	GUY WIRE	
	CULVERT HEADWALL	
	TEMPORARY STORMWATER BYPASS PIPE	
	TEMPORARY CONSTRUCTION CHAIN LINK FENCE	
	APPROXIMATE LIMIT OF WORK	
	FLOOD HAZARD ZONE AE	
	SILT FENCE	
	ROCK CHECK DAM	
	RIPRAP	
	COARSE GRAVEL RESTORATION	
	STONE RING INLET PROTECTION	
	STABILIZED CONSTRUCTION ENTRANCE	
	VEGETATED RESTORATION	

REFERENCE LEGEND:

	DETAIL LETTER
	WHERE DETAIL APPEARS
	SECTION NUMBER
	WHERE SECTION APPEARS

ABBREVIATIONS

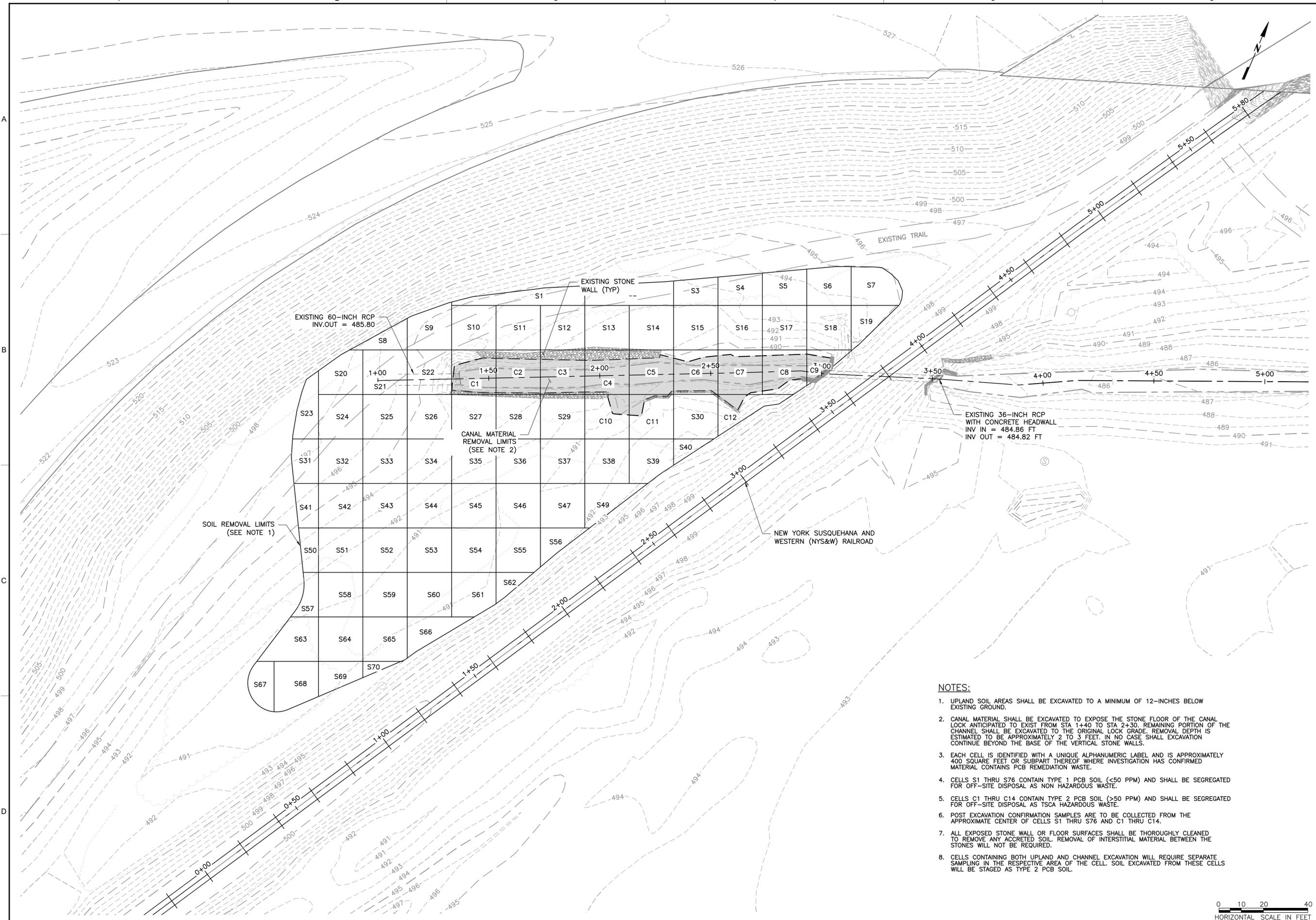
ACB	ARTICULATED CONCRETE BLOCK
AMSL	ABOVE MEAN SEA LEVEL
AOC	AREA OF CONCERN
BLD	BUILDING
BMP(S)	BEST MANAGEMENT PRACTICE(S)
CERCLA	COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT
CPP	CORRUGATED PLASTIC PIPE
DBH	DIAMETER AT BREAST HEIGHT
ECB	EROSION CONTROL BLANKET
EL/ELEV	ELEVATION
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY
GIS	GEOGRAPHIC INFORMATION SYSTEM
INV	INVERT
MW	MONITORING WELL
N	NORTH
NAD	NORTH AMERICAN DATUM
NAVD	NORTH AMERICAN VERTICAL DATUM
NRCS	NATURAL RESOURCES CONSERVATION SERVICES
NYSOT	NEW YORK STATE DEPARTMENT OF TRANSPORTATION
NYSDEC	NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
NYSDOH	NEW YORK STATE DEPARTMENT OF HEALTH
NYSWR	NEW YORK SUSQUEHANA AND WESTERN RAILROAD
OCIDA	ONEIDA COUNTY INDUSTRIAL DEVELOPMENT AUTHORITY
PCB	POLYCHLORINATED BIPHENYL
RCP	REINFORCED CONCRETE PIPE
S	SOUTH
SCO _s	SITE CLEANUP OBJECTIVES
SF	SQUARE FEET
TYP	TYPICAL
USGS	U.S. GEOLOGICAL SURVEY
USEPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

GENERAL NOTES:

- MAPPING COORDINATES ARE REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (COORS) – NEW YORK STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE.
- ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
- EXISTING CONDITIONS BASED ON THE FOLLOWING SURVEYS:
 - AERIAL MAPPING BY AERIAL SURVEY & PHOTO INC. BASED ON PHOTOGRAPHY OBTAINED IN NOVEMBER 2012.
 - SUPPLEMENTAL GROUND SURVEY PERFORMED BY AMEC FOSTER WHEELER IN DECEMBER 2012.
 - LIDAR SURVEY PROVIDED BY HERKIMER ONEIDA COUNTIES COMPREHENSIVE PLANNING PROGRAM.
 - IMAGE BACKGROUNDS TAKEN FROM THE NEW YORK STATE GIS WEB SITE IMAGES ARE IN STATE PLANE NAD 83, US SURVEY FEET.
- UTILITIES SHOWN HEREON ARE BASED ON VISIBLE EVIDENCE. THE UNDERGROUND POSITION OF ALL UTILITIES SHOWN HEREON SHOULD BE CONSIDERED APPROXIMATE.

 101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962		D 9/22/17 C 8/8/17 B 7/13/17 A 6/21/17		TDD TDD TDD TDD		ECS ECS ECS ECS		NY PROFESSIONAL ENGINEER LICENSE NUMBER	
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OLD CHENANGO CANAL SITE INTERIM REMEDIAL MEASURES NYSDEC SITE ID 633051 UTICA, NEW YORK		DSGN		REVISION		BY		TDD TDD TDD	
DRAWING STATUS IRM WORK PLAN DRAWINGS GENERAL		GENERAL NOTES, LEGEND AND ABBREVIATIONS		DATE		PROJ 3616-17-6062		DWG G-002	
amec foster wheeler Environment & Infrastructure, Inc. 200 American Metro Blvd, Suite 113 Hamilton, NJ 08619 (609) 589-2829		VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"		DATE		PROJ 3616-17-6062		DWG G-002	
				SHEET 2 OF 17					

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EXISTING 60-INCH RCP
INV. OUT = 485.80

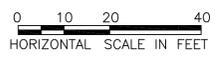
CANAL MATERIAL
REMOVAL LIMITS
(SEE NOTE 2)

SOIL REMOVAL LIMITS
(SEE NOTE 1)

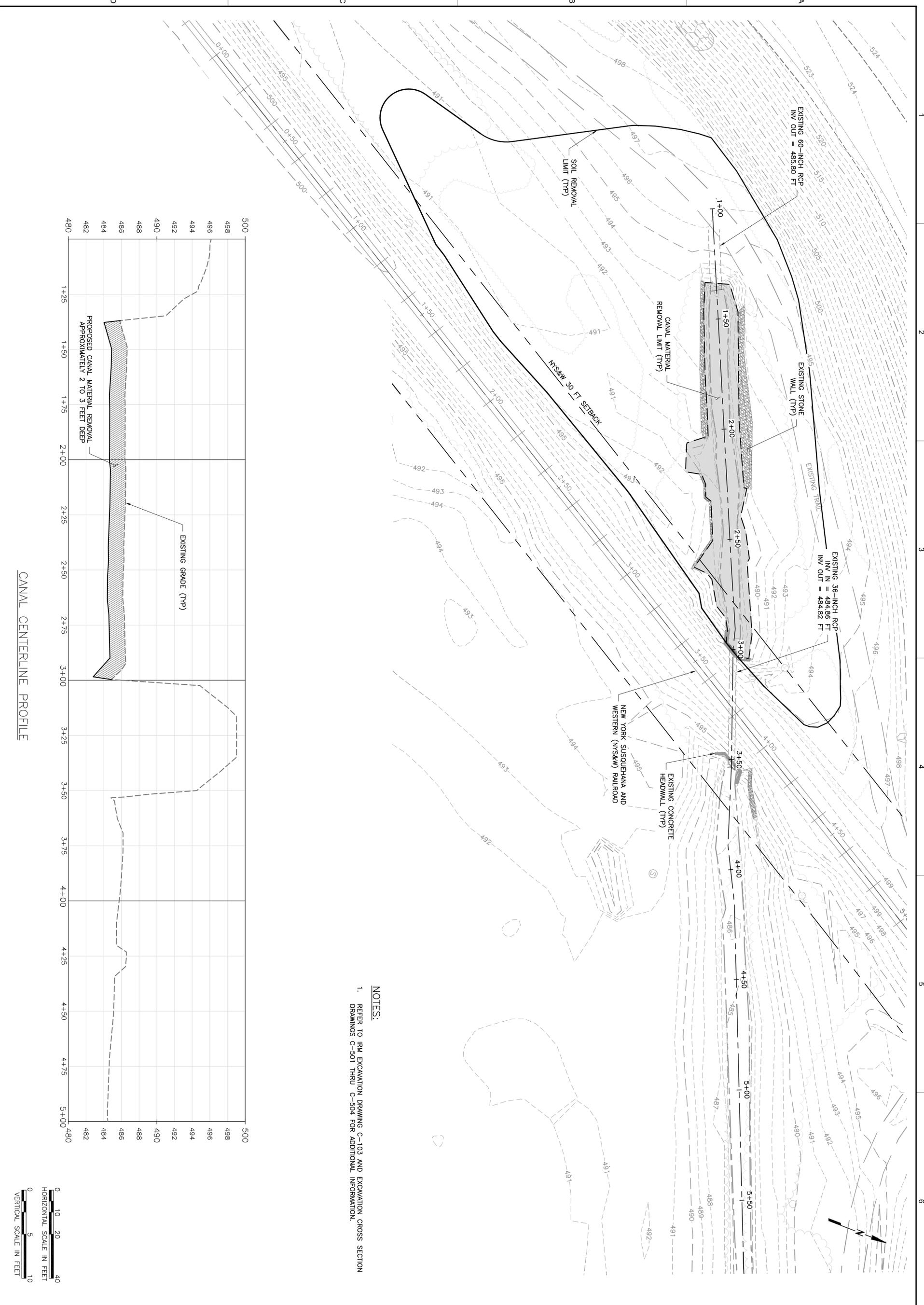
EXISTING 36-INCH RCP
WITH CONCRETE HEADWALL
INV IN = 484.86 FT
INV OUT = 484.82 FT

NOTES:

1. UPLAND SOIL AREAS SHALL BE EXCAVATED TO A MINIMUM OF 12-INCHES BELOW EXISTING GROUND.
2. CANAL MATERIAL SHALL BE EXCAVATED TO EXPOSE THE STONE FLOOR OF THE CANAL LOCK ANTICIPATED TO EXIST FROM STA 1+40 TO STA 2+30. REMAINING PORTION OF THE CHANNEL SHALL BE EXCAVATED TO THE ORIGINAL LOCK GRADE. REMOVAL DEPTH IS ESTIMATED TO BE APPROXIMATELY 2 TO 3 FEET. IN NO CASE SHALL EXCAVATION CONTINUE BEYOND THE BASE OF THE VERTICAL STONE WALLS.
3. EACH CELL IS IDENTIFIED WITH A UNIQUE ALPHANUMERIC LABEL AND IS APPROXIMATELY 400 SQUARE FEET OR SUBPART THEREOF WHERE INVESTIGATION HAS CONFIRMED MATERIAL CONTAINS PCB REMEDIATION WASTE.
4. CELLS S1 THRU S76 CONTAIN TYPE 1 PCB SOIL (<50 PPM) AND SHALL BE SEGREGATED FOR OFF-SITE DISPOSAL AS NON HAZARDOUS WASTE.
5. CELLS C1 THRU C14 CONTAIN TYPE 2 PCB SOIL (>50 PPM) AND SHALL BE SEGREGATED FOR OFF-SITE DISPOSAL AS TSCA HAZARDOUS WASTE.
6. POST EXCAVATION CONFIRMATION SAMPLES ARE TO BE COLLECTED FROM THE APPROXIMATE CENTER OF CELLS S1 THRU S76 AND C1 THRU C14.
7. ALL EXPOSED STONE WALL OR FLOOR SURFACES SHALL BE THOROUGHLY CLEANED TO REMOVE ANY ACCRETED SOIL. REMOVAL OF INTERSTITIAL MATERIAL BETWEEN THE STONES WILL NOT BE REQUIRED.
8. CELLS CONTAINING BOTH UPLAND AND CHANNEL EXCAVATION WILL REQUIRE SEPARATE SAMPLING IN THE RESPECTIVE AREA OF THE CELL. SOIL EXCAVATED FROM THESE CELLS WILL BE STAGED AS TYPE 2 PCB SOIL.

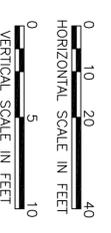


DRAWING STATUS IRM WORK PLAN DRAWINGS	CIVIL IRM EXCAVATION PLAN	Honeywell 101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962		OLD CHENANGO CANAL SITE INTERIM REMEDIAL MEASURES NYSDEC SITE ID 633051 UTICA, NEW YORK	
		DATE: 9/22/17		TDD	
		PROJECT: 3616-17-6062		TDD	
		DWG: C-103		TDD	
SHEET: 5 OF 17		DATE: 6/26/17		NY PROFESSIONAL ENGINEER LICENSE NUMBER	
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING		DATE: 6/26/17		NY PROFESSIONAL ENGINEER LICENSE NUMBER	
DATE: 6/26/17		PROJECT: 3616-17-6062		NY PROFESSIONAL ENGINEER LICENSE NUMBER	
DWG: C-103		SHEET: 5 OF 17		NY PROFESSIONAL ENGINEER LICENSE NUMBER	



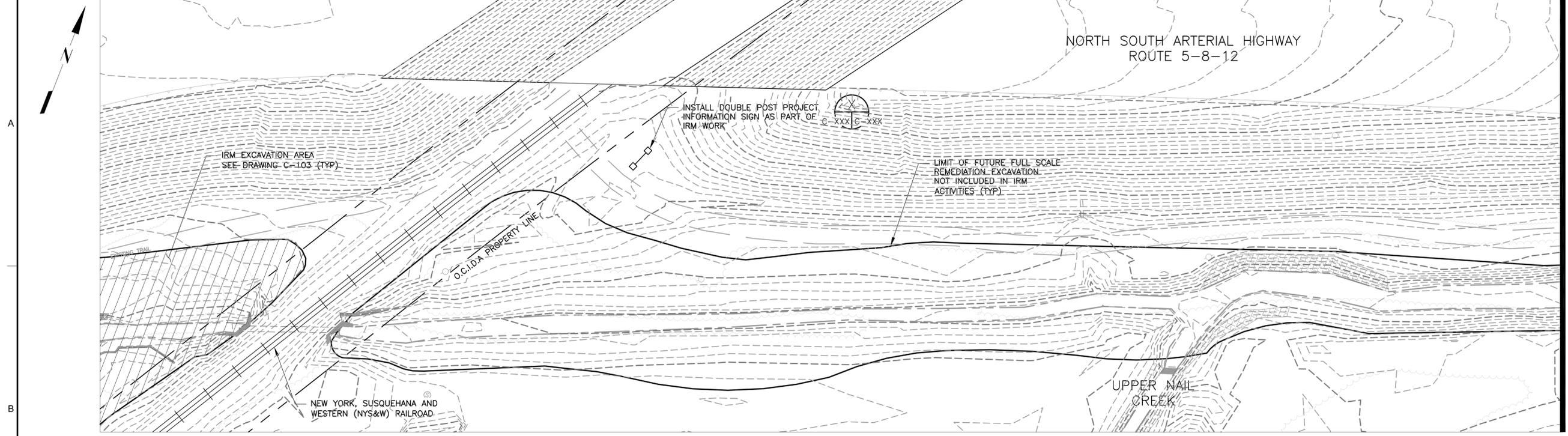
- NOTES:**
- REFER TO IRM EXCAVATION DRAWING C-103 AND EXCAVATION CROSS SECTION DRAWINGS C-501 THRU C-504 FOR ADDITIONAL INFORMATION.

CANAL CENTERLINE PROFILE

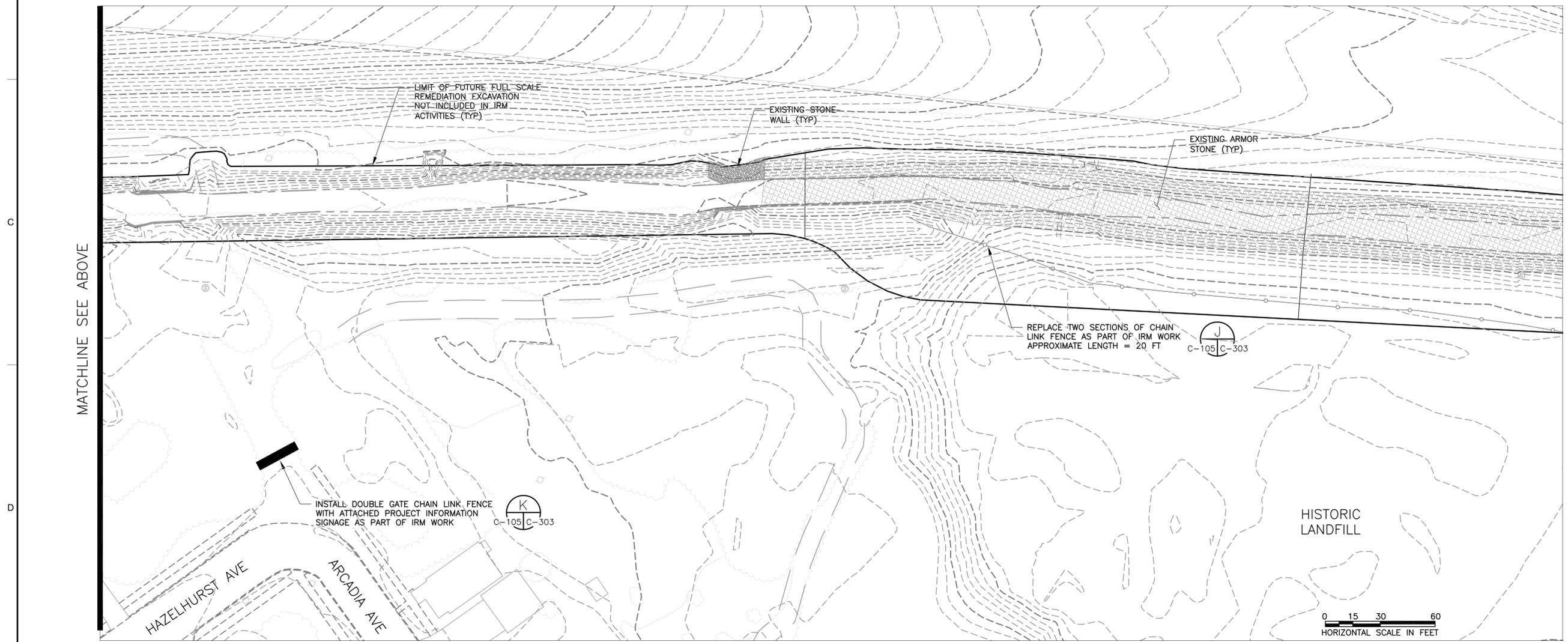


<p>amec foster wheeler Environment & Infrastructure, Inc. 200 American Metro Blvd, Suite 113 Hamilton, NJ, 08619 (609) 689-2829</p>		<p>DRAWING STATUS IRM WORK PLAN DRAWINGS</p> <p>CIVIL</p> <p>PLAN AND PROFILE CANAL MATERIAL REMOVAL</p>	<p>Honeywell 101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962</p> <p>OLD CHENANGO CANAL SITE INTERIM REMEDIAL MEASURES NYSDEC SITE ID 633051 UTICA, NEW YORK</p>	<table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION</th> <th>BY</th> <th>APVD</th> </tr> <tr> <td>D</td> <td>9/22/17</td> <td>FINAL NYSDEC WORK PLAN DRAWINGS</td> <td>TDD</td> <td>ECS</td> </tr> <tr> <td>C</td> <td>8/8/17</td> <td>ISSUED FOR BID</td> <td>TDD</td> <td>ECS</td> </tr> <tr> <td>B</td> <td>7/13/17</td> <td>ISSUED FOR NYSDEC REVIEW</td> <td>TDD</td> <td>ECS</td> </tr> <tr> <td>A</td> <td>6/26/17</td> <td>IRM WORK PLAN DRAWINGS FOR CLIENT REVIEW</td> <td>TDD</td> <td>ECS</td> </tr> </table>	NO.	DATE	REVISION	BY	APVD	D	9/22/17	FINAL NYSDEC WORK PLAN DRAWINGS	TDD	ECS	C	8/8/17	ISSUED FOR BID	TDD	ECS	B	7/13/17	ISSUED FOR NYSDEC REVIEW	TDD	ECS	A	6/26/17	IRM WORK PLAN DRAWINGS FOR CLIENT REVIEW	TDD	ECS	<table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>DR</th> <th>CHK</th> <th>APVD</th> </tr> <tr> <td>D</td> <td>9/22/17</td> <td>TDD</td> <td>TDD</td> <td>ECS</td> </tr> </table>	NO.	DATE	DR	CHK	APVD	D	9/22/17	TDD	TDD	ECS	<p>NY PROFESSIONAL ENGINEER LICENSE NUMBER</p>
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MATCHLINE SEE BELOW



MATCHLINE SEE ABOVE

<p>101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962</p>		<p>OLD CHENANGO CANAL SITE INTERIM REMEDIAL MEASURES NYSDEC SITE ID 633051 UTICA, NEW YORK</p>	
<p>DRAWING STATUS IRM WORK PLAN DRAWINGS</p>		<p>IRM FENCING AND SIGNAGE PLAN</p>	
<p>amec foster wheeler Environment & Infrastructure, Inc. 200 American Metro Blvd, Suite 113 Hamilton, NJ 08619 (609) 688-2829</p>		<p>VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING</p>	
<p>DATE 6/21/17</p>		<p>PROJ 3616-17-6062</p>	
<p>DWG C-105</p>		<p>SHEET 7 OF 17</p>	
<p>D 9/22/17 C 8/18/17 B 7/13/17 A 6/21/17 NO. 1 DATE</p>		<p>FINAL NYSDEC WORK PLAN DRAWINGS ISSUED FOR BID ISSUED FOR NYSDEC REVIEW IRM WORK PLAN DRAWINGS FOR CLIENT REVIEW</p>	
<p>DSGN</p>		<p>DR TDD CHK TDD APVD TDD</p>	
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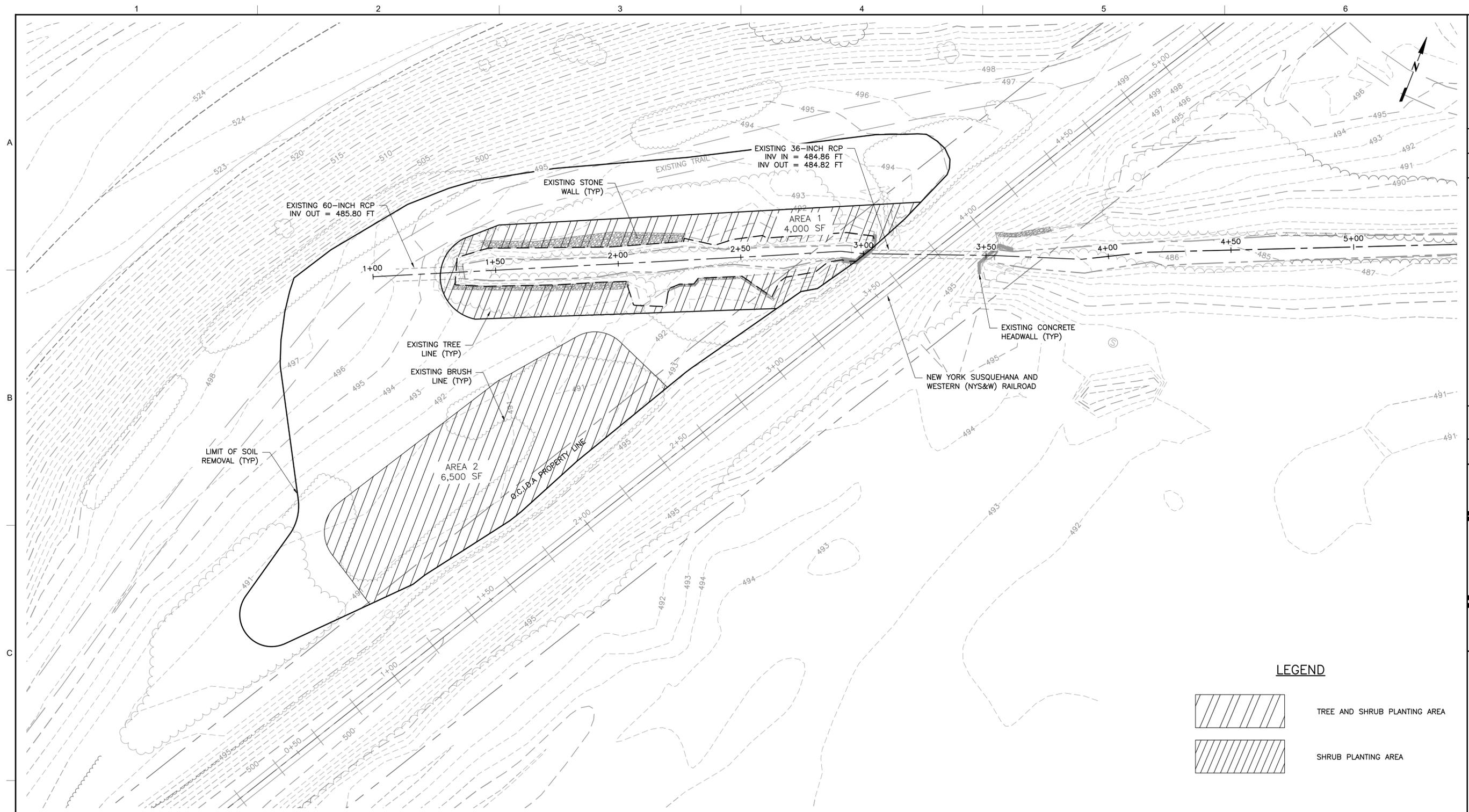
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LEGEND

- NOTES:**
- REFER TO DRAWING C-107 FOR TREE AND SHRUB PLANTING SCHEDULES.
 - REFER TO RESTORATION DETAILS ON DRAWING C-304 FOR TOPSOIL AND BACKFILL REQUIREMENTS.
 - SEED MIXTURE SHALL BE A 50/50 BLEND OF ROADSIDE MATRIX WET MEADOW AND CONSERVATION / WILDLIFE MIX MANUFACTURED BY NEW ENGLAND WETLAND PLANTS OR APPROVED EQUAL.
 - COARSE GRAVEL WITHIN THE CANAL AREA SHALL HAVE AN APPROXIMATE D₅₀ OF 3 INCHES WITH A FINES CONTENT BELOW 5 PERCENT.
- | | |
|--|---------------------------------|
| | VEGETATIVE RESTORATION |
| | VEGETATIVE RIPARIAN RESTORATION |
| | COARSE GRAVEL RESTORATION |

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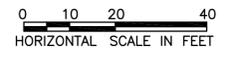
- TREE AND SHRUB PLANTING AREA
- SHRUB PLANTING AREA

NOTES:

1. REFER TO C-106 FOR SURFACE RESTORATION AND SEEDING REQUIREMENTS.
2. EXISTING TREES ARE TO BE PROTECTED DURING UPLAND SOIL EXCAVATION THROUGH HAND WORK OR OTHER TECHNIQUES TO REMOVE 1 FOOT OF SOIL AROUND THE BASE OF THE TREE.
3. CONTRACTOR SHALL DOCUMENT EXISTING CONDITIONS WITH PHOTOGRAPHS AND A PRE-CONSTRUCTION SURVEY. ANY TREES REQUIRING REMOVAL TO COMPLETE THE WORK WILL BE SURVEYED PRIOR TO REMOVAL. SHRUB AND TREE PLANTING WILL BE COMPLETED TO RESTORE THE WORK AREA TO MATCH PRE-CONSTRUCTION CONDITIONS.
4. RESTORATION PLANTING DENSITY AND LOCATION TO BE COORDINATED WITH THE NYSDEC AND THE ENGINEER.
5. YEARLY MONITORING WILL BE COMPLETED AS PART OF THE OM&M PLAN FOR A FIVE YEAR PERIOD TO EVALUATE SURVIVABILITY AND INVASIVE SPECIES.

TREE PLANTING SPECIES	
COMMON NAME	BOTANICAL NAME
RED MAPLE	ACER RUBRUM
SHAGBARK HICKORY	CARYA OVATA
GRAY BIRCH	BETULA POPULIFOLIA
COTTON WOOD	POPULUS DELTOIDES
BLACK CHERRY	PRUNUS SEROTINA

SHRUB PLANTING SPECIES	
COMMON NAME	BOTANICAL NAME
ALDER	ALNUS INCANA/RUGOSA
RED-OSIER DOGWOOD	CORNUS SERICEA
GRAY DOGWOOD	CORNUS RACEMOSA
SAND-BAR WILLOW	SALIX EXIQUA
PUSSY WILLOW	SALIX DISCOLOR
ELDERBERRY	SAMBUCUS CANADENSIS



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SOIL EROSION AND SEDIMENT CONTROL NOTES

- ALL WORK IS TO BE DONE IN ACCORDANCE WITH THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL (STATE STANDARDS) AND THE CONTRACT DOCUMENTS, SPECIFICALLY:
 - SPECIFICATION SECTION 02370 "EROSION AND SEDIMENTATION CONTROL";
 - DRAWING C-102 "STAGING AND SOIL EROSION SEDIMENT CONTROL PLAN";
 - DRAWING C-301 "SOILEROSION AND SEDIMENT CONTROL NOTES"; AND
 - DRAWING C-302 "SOILEROSION AND SEDIMENT CONTROL DETAILS".
- STATE STANDARDS SHALL TAKE PRECEDENCE IF A DISCREPANCY EXISTS BETWEEN THE STANDARDS AND THE CONTRACT DOCUMENTS.
- ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
- EROSION AND SEDIMENTATION CONTROLS SHALL BE AUGMENTED OR SUPPLEMENTED IF THE INSTALLED MEASURES DO NOT PROVIDE ADEQUATE PROTECTION OF DOWNSTREAM RESOURCES AS DETERMINED BY THE ENGINEER OR THE NYSDEC.
- ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN FOURTEEN (14) DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE TEMPORARY SEEDING AND MULCHING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH HAY OR STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF 2 TONS PER ACRE, ACCORDING TO STATE STANDARDS.
- ANY STEEP SLOPES (I.E. SLOPES GREATER THAN 3:1) WILL BE COMPLETELY GRADED AND STABILIZED DAILY, AS CONSTRUCTION PROGRESSES.
- THE STANDARD FOR STABILIZED CONSTRUCTION ENTRANCE REQUIRES THE INSTALLATION OF A PAD OF CLEAN CRUSHED STONE AT POINTS WHERE TRAFFIC WILL BE ACCESSING THE CONSTRUCTION SITE.
- ALL SOIL WASHED, DROPPED, SPILLED, OR TRACKED OUTSIDE THE LIMIT OF WORK OR ONTO PUBLIC RIGHT-OF-WAYS SHALL BE REMOVED IMMEDIATELY.
- PERMANENT SEEDING IS TO BE APPLIED TO ALL EXPOSED AREAS AS SOON AS POSSIBLE AFTER FINAL GRADING. PERMANENT SEEDING SHALL BE A 50/50 BLEND OF ROADSIDE MATRIX WET MEADOW AND CONSERVATION/WILDLIFE SEED MIX BY NEW ENGLAND WETLAND PLANTS OR APPROVED EQUAL.
- ALL AREAS SCHEDULED FOR VEGETATION SHALL BE PREPARED WITH A MINIMUM 12-INCH LAYER OF TOPSOIL WITH AND ORGANIC CONTENT OF 20-25% AND MEET ALL OTHER REQUIREMENTS OF SPECIFICATION SECTION 2900 - TOPSOIL AND SEEDING.
- DEWATERING OPERATIONS SHALL BE UNDERTAKEN IN A MANNER TO MINIMIZE SEDIMENT TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH THE SPECIFICATIONS.
- ALL COLLECTED CONSTRUCTION WATER FROM THE CANAL AREA OR DECONTAMINATION PAD SHALL BE PUMPED TO A FRAC TANK FOR CHARACTERIZATION AND OFF-SITE DISPOSAL.
- SHOULD THE CONTROL OF DUST AT THE SITE BE NECESSARY, THE SITE WILL BE SPRINKLED WITH WATER UNTIL THE SURFACE IS WET. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED OR MULCH SHALL BE APPLIED PER THE STATE STANDARDS. CALCIUM CHLORIDE SHALL ONLY BE USED FOR DUST CONTROL DURING FREEZING CONDITIONS.
- STOCKPILE AND STAGING LOCATIONS ESTABLISHED IN THE FIELD SHALL BE PLACED WITHIN THE LIMIT OF WORK WITH APPROPRIATE PROTECTIVE EROSION AND SEDIMENTATION CONTROLS.
- CONTRACTOR SHALL PROVIDE POLY SCRIM OR APPROVED EQUAL TO SECURELY PROTECT THE DISTURBED CANAL BOTTOM SHOULD A RAINFALL EVENT EXCEED BYPASS PUMPING CAPACITIES AND DISCHARGE FLOW MUST BE CONVEYED THROUGH THE CHANNEL BOTTOM.
- ALL EROSION CONTROL DEVICES SHALL BE PERIODICALLY INSPECTED, MAINTAINED, AND REPAIRED BY THE CONTRACTOR. ANY DAMAGE INCURRED BY EROSION SHALL BE RECTIFIED IMMEDIATELY.

INSPECTION AND MAINTENANCE:

SEDIMENT BARRIERS:

- HAY BALE BARRIERS, ROCK OUTLET FILTERS, AND SILT FENCE SHALL BE INSPECTED AND REPAIRED IMMEDIATELY FOLLOWING ANY RAINFALL EVENT AND DAILY DURING PROLONGED RAINFALL. OTHERWISE, INSPECTION SHALL BE WEEKLY, AT A MINIMUM.
- SEDIMENT SHALL BE REMOVED FROM THE UPSTREAM FACE OF THE BARRIER WHEN IT HAS REACHED A DEPTH OF ONE HALF THE BARRIER HEIGHT.
- REPAIR OR REPLACE BARRIER (FABRIC, POSTS, BALES, ETC.) WHEN DAMAGED.
- BARRIERS SHALL BE INSPECTED DAILY FOR SIGNS OF DETERIORATION.

STABILIZED CONSTRUCTION ACCESS:

- THE ENTRANCE/EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO ROADWAYS (PUBLIC OR PRIVATE) OR OTHER IMPERVIOUS SURFACES MUST BE REMOVED IMMEDIATELY.
- WHERE ACCUMULATION OF DUST/SEDIMENT IS INADEQUATELY CLEANED OR REMOVED BY CONVENTIONAL METHODS, A POWER BROOM OR STREET SWEEPER WILL BE REQUIRED TO CLEAN PAVED OR IMPERVIOUS SURFACES.

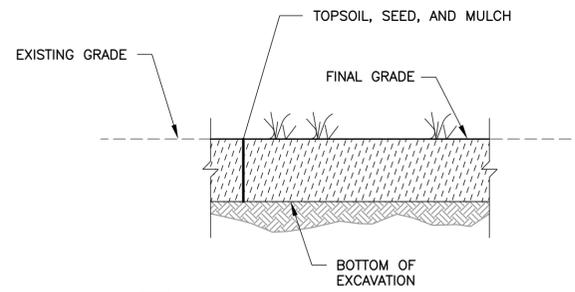
CONSTRUCTION SEQUENCE:

GENERAL CONSTRUCTION SEQUENCING WILL BE AS FOLLOWS:

- SITE PREPARATION AND MOBILIZATION INCLUDING INSTALLATION OF TEMPORARY CONSTRUCTION FENCING, CONTRACTOR SUPPORT FACILITIES, ACCESS ROADS, AND SOIL EROSION CONTROL MEASURES;
- COMPLETE VERIFICATION SURVEY INCLUDING TREE AND SHRUB INVENTORY;
- INSTALLATION OF IRM FENCING AND SIGNAGE AT ARCADIA AVENUE AND EAST OF THE RAILROAD TRACKS;
- CLEARING OF BRUSH AND SMALL DIAMETER TREES TO PROVIDE ACCESS TO THE WORK AREA;
- REMOVAL OF UPLAND FLOODPLAIN SOILS AND STAGE FOR OFF-SITE DISPOSAL;
- PLUG EXISTING FRENCH ROAD OUTLET CULVERT AND DEWATER CANAL WORK AREA;
- COORDINATE WORK WITH WEATHER FORECASTS AND MONITOR WATER LEVELS IN UPSTREAM STRUCTURE;
- EXCAVATE IMPACTED SOIL IN THE UPSTREAM PORTION OF THE CANAL;
- CONSTRUCT BERM AND BYPASS PIPING AT THE UPSTREAM END OF THE CANAL;
- COMPLETE CANAL SOIL REMOVAL AND STAGE MATERIAL FOR STABILIZATION AS NECESSARY;
- COLLECT POST-EXCAVATION CONFIRMATION SAMPLES FOR PCB LABORATORY ANALYSIS;
- COORDINATE TRANSPORTATION AND DISPOSAL OF SOILS IDENTIFIED FOR OFF-SITE DISPOSAL;
- BACKFILL CANAL AREA TO PRE-CONSTRUCTION GRADE WITH COURSE GRAVEL MATERIAL;
- BACKFILL UPLAND FLOODPLAIN AREA WITH SAND / TOPSOIL MIXTURE;
- COMPLETE PLANTING OF TREES AND SHRUBS AS SHOWN ON DESIGN DRAWINGS;
- SEED AND MULCH ALL DISTURBED AREAS IN ACCORDANCE WITH PROJECT SPECIFICATIONS;
- REMOVE TEMPORARY EROSION CONTROLS AND FACILITIES INCLUDING DECONTAMINATION PAD AND STABILIZED CONSTRUCTION ENTRANCE; AND
- DEMOBILIZE.

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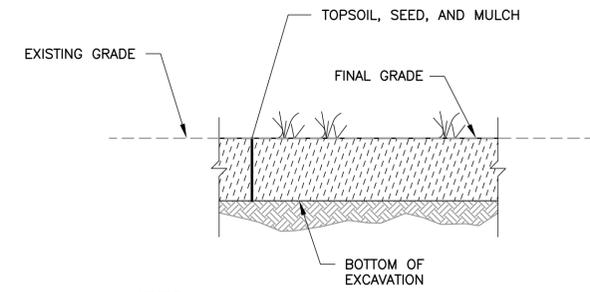
 101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962		OLD CHENANGO CANAL SITE INTERIM REMEDIAL MEASURES NYSDEC SITE ID 633051 UTICA, NEW YORK		DRAWING STATUS IRM WORK PLAN DRAWINGS		CIVIL SOIL EROSION AND SEDIMENT CONTROL NOTES		 amec foster wheeler Environment & Infrastructure, Inc. 200 American Metro Blvd, Suite 113 Hamilton, NJ 08619 (609) 689-2829		VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"		DATE 6/26/17 PROJ 3616-17-6062 DWG C-301 SHEET 10 OF 17		NY PROFESSIONAL ENGINEER LICENSE NUMBER SCP	
D 9/22/17 C 8/8/17 B 7/13/17 A 6/26/17 NO. DATE		FINAL NYSDEC WORK PLAN DRAWINGS ISSUED FOR BID ISSUED FOR NYSDEC REVIEW IRM WORK PLAN DRAWINGS FOR CLIENT REVIEW		DSGN		DR TDD CHK APVD ECS		TDD CHK APVD ECS		TDD ECS TDD ECS TDD ECS TDD ECS BY /APVD		THIS DRAWING IS THE PROPERTY OF AMEC, INCLUDING ALL PATENTED AND PATENTABLE FEATURES, AND/OR CONFIDENTIAL INFORMATION AND ITS USE IS CONDITIONED UPON THE USER'S AGREEMENT NOT TO REPRODUCE THE DRAWING, IN WHOLE OR PART, NOR THE MATERIAL DESCRIBED THEREON, NOR THE USE OF THE DRAWING FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED IN WRITING BY AMEC.			



NOTES:

1. FINAL GRADE TO GENERALLY MATCH EXISTING GRADE.
2. BOTTOM OF EXCAVATION APPROXIMATELY 12-INCHES BELOW EXISTING GRADE AND WILL BE VERIFIED WITH POST-EXCAVATION CONFIRMATION SAMPLES.
3. VEGETATED RESTORATION AREAS SHALL BE BACKFILLED UTILIZING A SAND/TOPSOIL MIXTURE WITH A TOTAL ORGANIC CONTENT OF 2 TO 10 PERCENT AND MEET OTHER PHYSICAL REQUIREMENTS IDENTIFIED IN SPECIFICATION SECTION 2900 - TOPSOIL AND SEEDING.
4. REFER TO RESTORATION PLAN C-106 FOR AREAS SCHEDULED FOR VEGETATED RESTORATION.
5. INSTALL PLANTINGS AS SHOWN ON LANDSCAPE PLAN C-107.

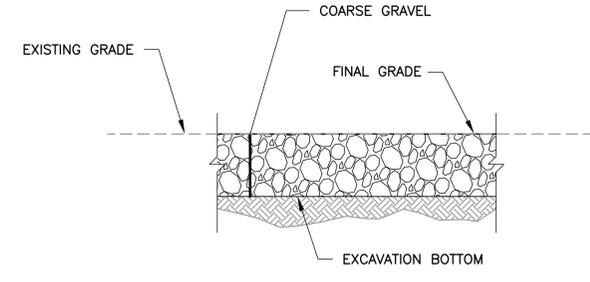
M VEGETATED RESTORATION
NTS



NOTES:

1. FINAL GRADE TO GENERALLY MATCH EXISTING GRADE.
2. BOTTOM OF EXCAVATION APPROXIMATELY 12-INCHES BELOW EXISTING GRADE AND WILL BE VERIFIED WITH POST EXCAVATION CONFIRMATION SAMPLES.
3. VEGETATED RIPARIAN RESTORATION AREAS SHALL BE BACKFILLED UTILIZING A SAND/TOPSOIL MIXTURE WITH A TOTAL ORGANIC CONTENT OF 20 TO 25 PERCENT AND MEET OTHER PHYSICAL REQUIREMENTS IDENTIFIED IN SPECIFICATION SECTION 2900 - TOPSOIL AND SEEDING.
4. REFER TO RESTORATION PLAN C-106 FOR AREAS SCHEDULED FOR RIPARIAN VEGETATED RESTORATION.
5. INSTALL PLANTINGS AS SHOWN ON LANDSCAPE PLAN C-107.

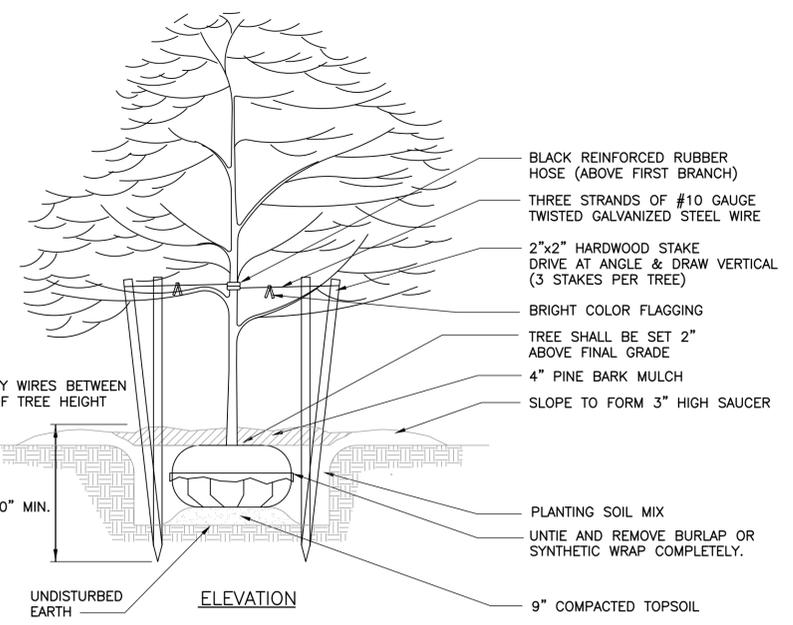
N VEGETATED RIPARIAN RESTORATION
NTS



NOTES:

1. FINAL GRADE TO GENERALLY MATCH EXISTING GRADE WITHIN THE CANAL.
2. BOTTOM OF EXCAVATION APPROXIMATELY 30-INCHES BELOW EXISTING GRADE AND WILL BE VERIFIED WITH POST EXCAVATION CONFIRMATION SAMPLES IN AREAS A STONE BOTTOM IS NOT ENCOUNTERED.
3. RESTORATION IN THE CANAL AREA SHALL CONSIST OF A COARSE GRAVEL WITH A D₅₀ OF 3-INCHES AND A FINES CONTENT LESS THAN 5 PERCENT.
4. REFER TO RESTORATION PLAN C-106 FOR THE LIMITS OF GRAVEL RESTORATION.

O GRAVEL RESTORATION
NTS

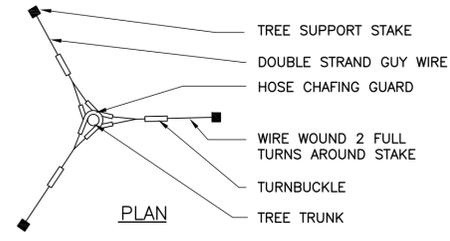


NOTE:
HEIGHT OF GUY WIRES BETWEEN
1/3 & 1/2 OF TREE HEIGHT

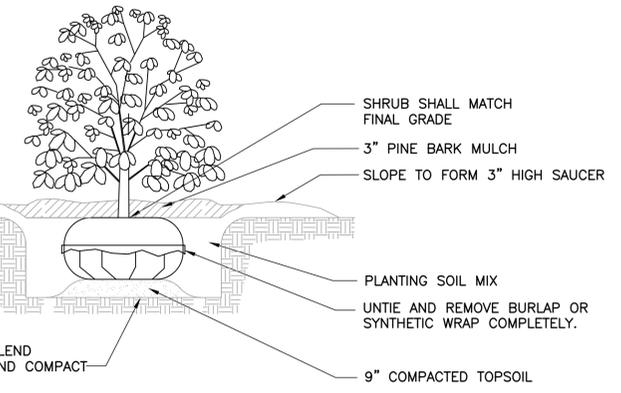
ELEVATION

P DECIDUOUS TREE PLANTING
NTS

NOTE: PROVIDE FENCING AROUND TREE TO PROTECT AGAINST WILDLIFE DAMAGE. CONTRACTOR TO INSTALL 1-INCH CHICKEN WIRE MESH EXTENDING 6 FEET ABOVE FINAL GRADE ATTACHED TO 8 FOOT T-POSTS OR APPROVED EQUAL.



PLAN



NOTE:
PRUNE 1/5 OF LEAF AREA BUT
RETAIN NATURAL FORM. DO NOT
PRUNE LEADER. ALL WOUNDS
OVER ONE HALF DIA. TREAT WITH
WOUND DRESSING.

Q SHRUB PLANTING
NTS

<p>101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962</p>		<p>OLD CHENANGO CANAL SITE INTERIM REMEDIAL MEASURES NYSDEC SITE ID 633051 UTICA, NEW YORK</p>		<p>THIS DRAWING IS THE PROPERTY OF AMEC, INCLUDING ALL PATENTED AND PATENTABLE FEATURES, AND/OR CONFIDENTIAL INFORMATION AND ITS USE IS CONDITIONED UPON THE USER'S AGREEMENT NOT TO REPRODUCE THE DRAWING, IN WHOLE OR PART, NOR THE MATERIAL DESCRIBED THEREON, NOR THE USE OF THE DRAWING FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED IN WRITING BY AMEC.</p>	
DRAWING STATUS	CIVIL	RESTORATION	DETAILS	<p>Environment & Infrastructure, Inc. 200 American Metro Blvd, Suite 113 Hamilton, NJ 08619 (609) 688-2829</p>	
IRM WORK PLAN DRAWINGS	<p>9/22/17 C 8/8/17 7/13/17 6/26/17</p>		<p>FINAL NYSDEC WORK PLAN DRAWINGS ISSUED FOR BID ISSUED FOR NYSDEC REVIEW IRM WORK PLAN DRAWINGS FOR CLIENT REVIEW</p>	<p>TDD ECS TDD ECS TDD ECS TDD ECS</p>	<p>NY PROFESSIONAL ENGINEER LICENSE NUMBER</p>
<p>VERIFY SCALE</p> <p>BAR IS ONE INCH ON ORIGINAL DRAWING</p>		DATE	6/26/17		<p>DR TDD</p> <p>CHK</p> <p>APVD</p> <p>ECS</p> <p>SCP</p>
PROJ	3616-17-6062		DWG	C-304	
SHEET	13 OF 17				

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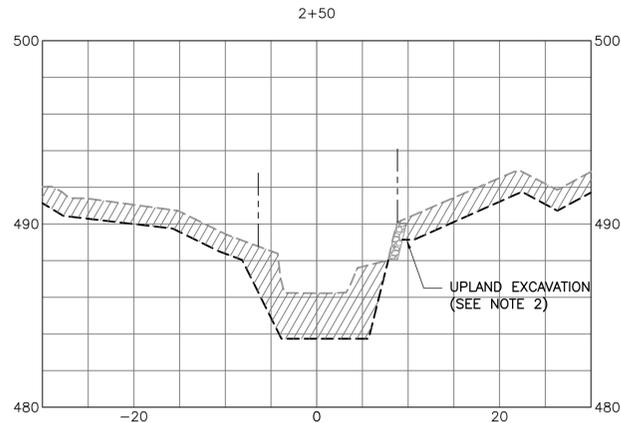
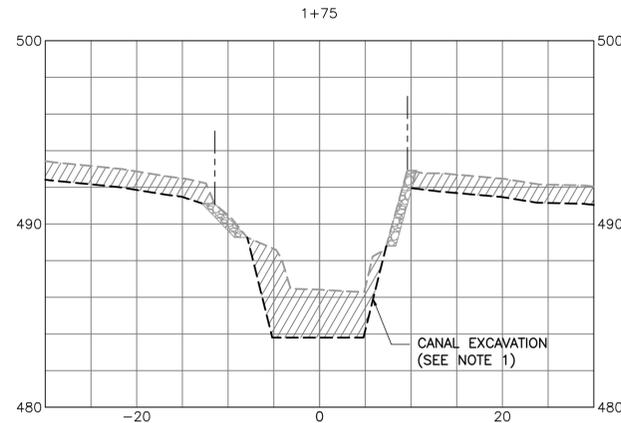
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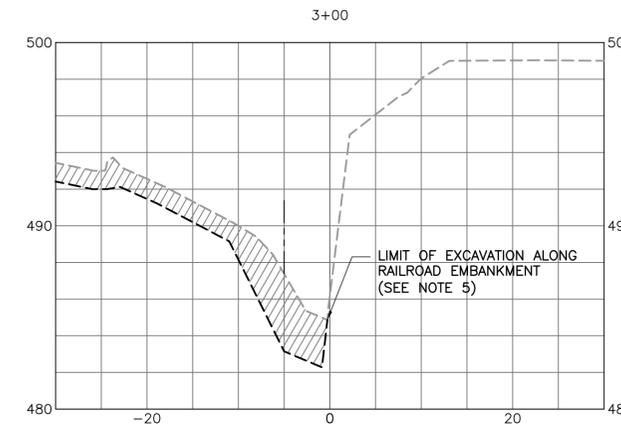
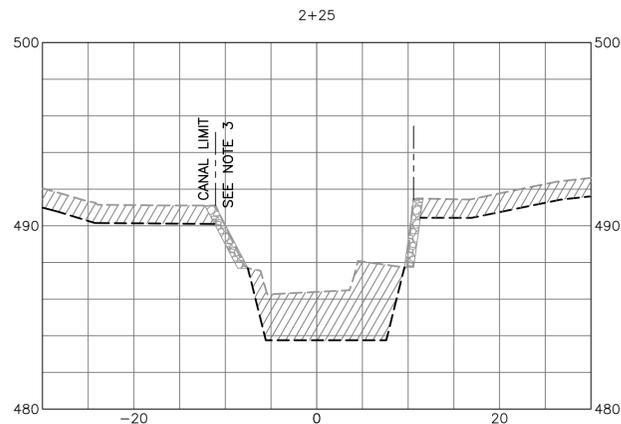
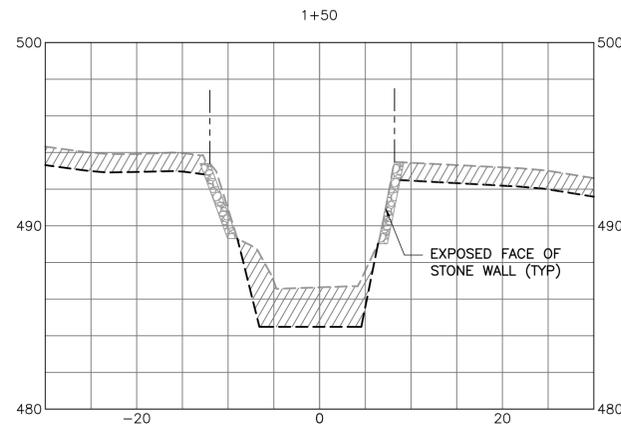
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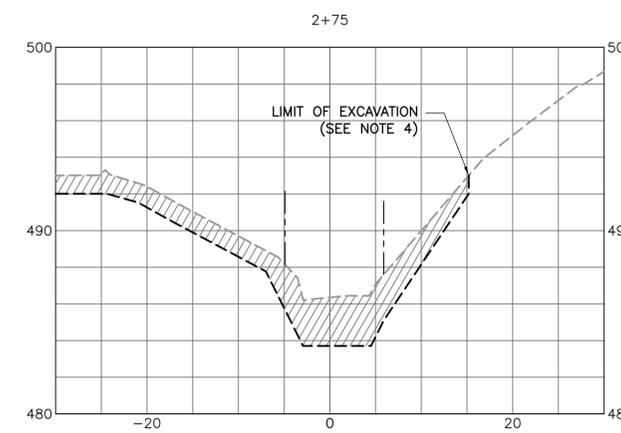
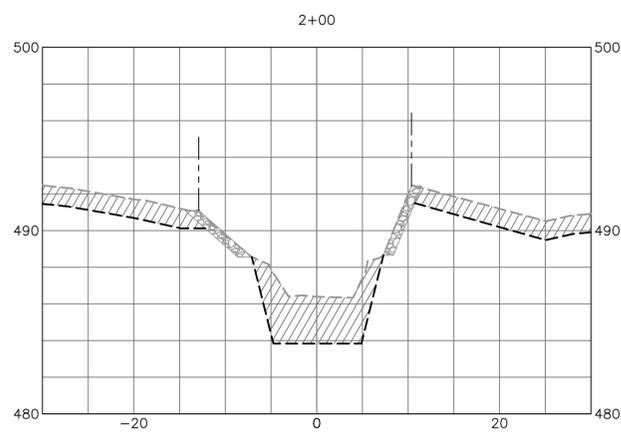
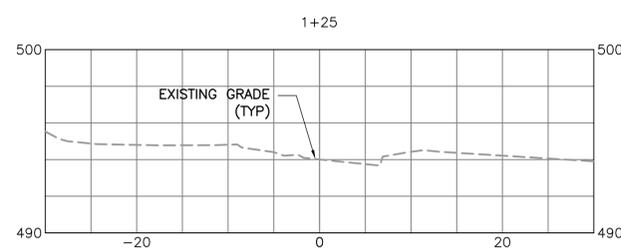
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C



D

CROSS SECTION NOTES -- DRAWINGS C-501 THRU C-504

1. CANAL MATERIAL IN AREAS WITH STONE WALLS SHALL BE EXCAVATED TO AN APPROXIMATE DEPTH OF 2.5 FT TO EXPOSE THE ORIGINAL STONE FLOOR. REMAINING PORTION OF THE CANAL SHALL BE EXCAVATED TO THE SAME DEPTH AND SUBJECT TO POST-EXCAVATION CONFIRMATION SAMPLING. REFER TO DRAWING C-103 EXCAVATION PLAN FOR ADDITIONAL INFORMATION.
2. AREAS BEYOND THE CANAL LIMITS (UPLAND AREAS) SHALL BE EXCAVATED TO AN APPROXIMATE DEPTH OF 1FT AND SUBJECT TO POST-EXCAVATION CONFIRMATION SAMPLING.
3. CONTRACTOR SHALL PROVIDE A STABLE TRANSITION SLOPE AT THE LIMIT OF CANAL MATERIAL REMOVAL WHERE STONE WALLS ARE NOT PRESENT.
4. CONTRACTOR SHALL PROVIDE A STABLE TERMINATION SLOPE FROM THE BOTTOM OF EXCAVATION TO EXISTING GRADE ALONG THE REMOVAL LIMITS AS SHOWN ON DRAWING C-103 IN AREAS NOT ADJACENT TO RAILROAD EMBANKMENT.
5. CONTRACTOR SHALL FIELD ESTABLISH THE TOP OF EXCAVATION SLOPE BASED ON THE LIMIT OF BALLAST STONE IN AREAS ADJACENT TO THE RAILROAD EMBANKMENT. THE TRANSITION SLOPE TO THE BOTTOM OF EXCAVATION SHALL FOLLOW THE EXISTING EMBANKMENT GRADE BUT IN NO CASE EXCEED 2H:1V.
6. REFER TO DRAWING C-103 FOR SEGREGATION REQUIREMENTS OF TSCA HAZARDOUS PCB MATERIAL.
7. REFER TO DRAWING C-106 FOR BACKFILL AND RESTORATION REQUIREMENTS.

NY PROFESSIONAL ENGINEER LICENSE NUMBER	SCP
TDD	ECS
BY	APVD
REVISION	CHK
DR	TDD
DSGN	NO. 1
DATE	6/26/17
ISSUED FOR BID	8/8/17
SUBMITTED FOR NYSDEC REVIEW	7/13/17
IRM WORK PLAN DRAWINGS FOR CLIENT REVIEW	6/26/17
FINAL NYSDEC WORK PLAN DRAWINGS	9/22/17

Honeywell
 101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962

OLD CHENANGO CANAL SITE
 INTERIM REMEDIAL MEASURES
 NYSDEC SITE ID 633051
 UTICA, NEW YORK

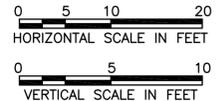
DRAWING STATUS
 IRM WORK PLAN DRAWINGS

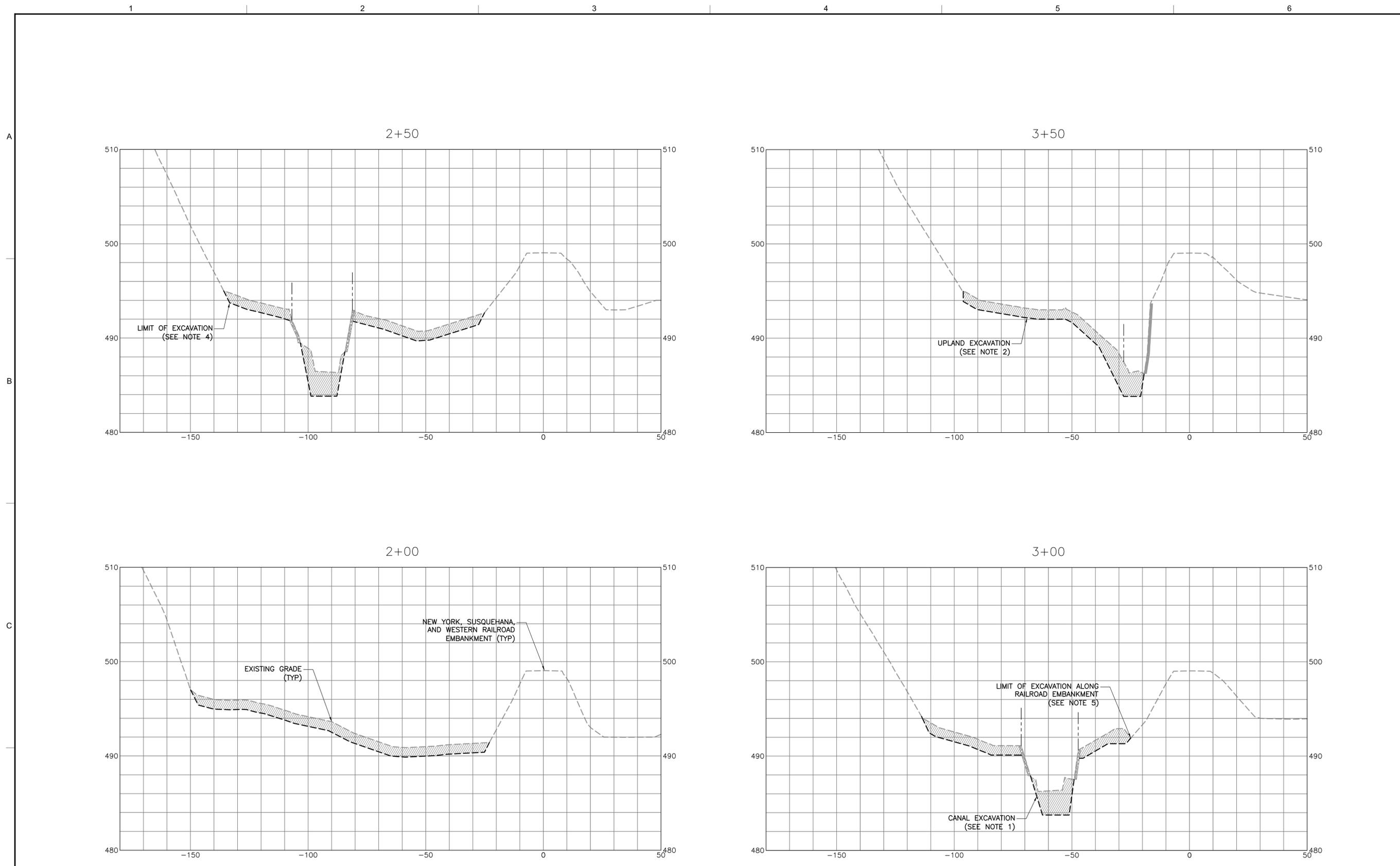
CIVIL

CANAL CROSS SECTIONS

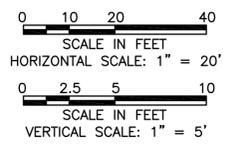


VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING
DATE	6/26/17
PROJ	3616-17-6062
DWG	C-501
SHEET	14 OF 17



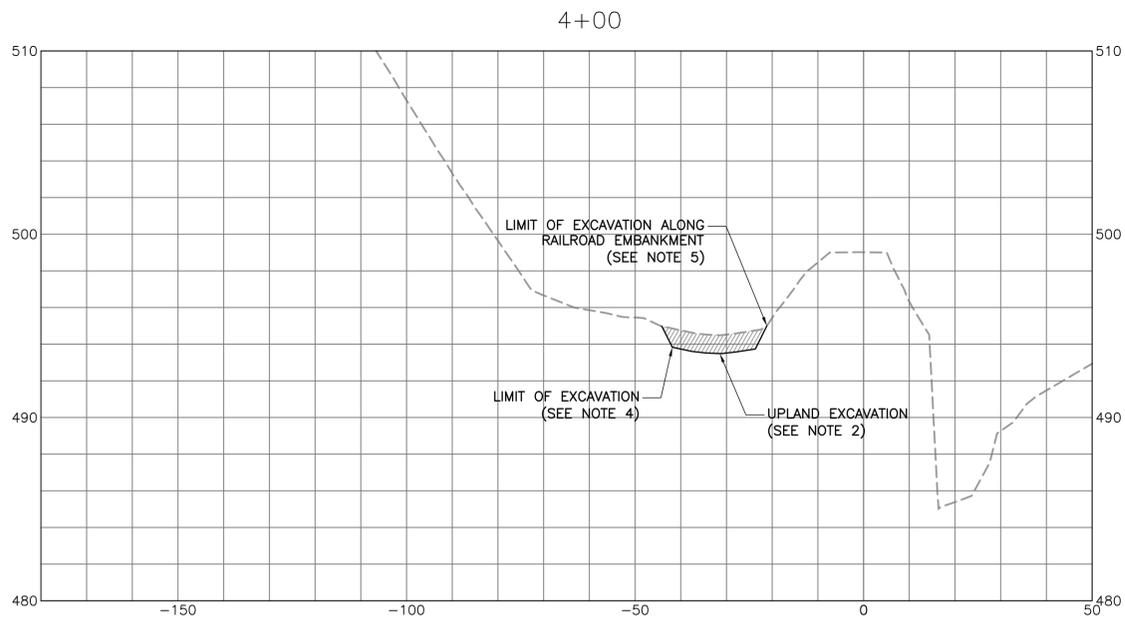
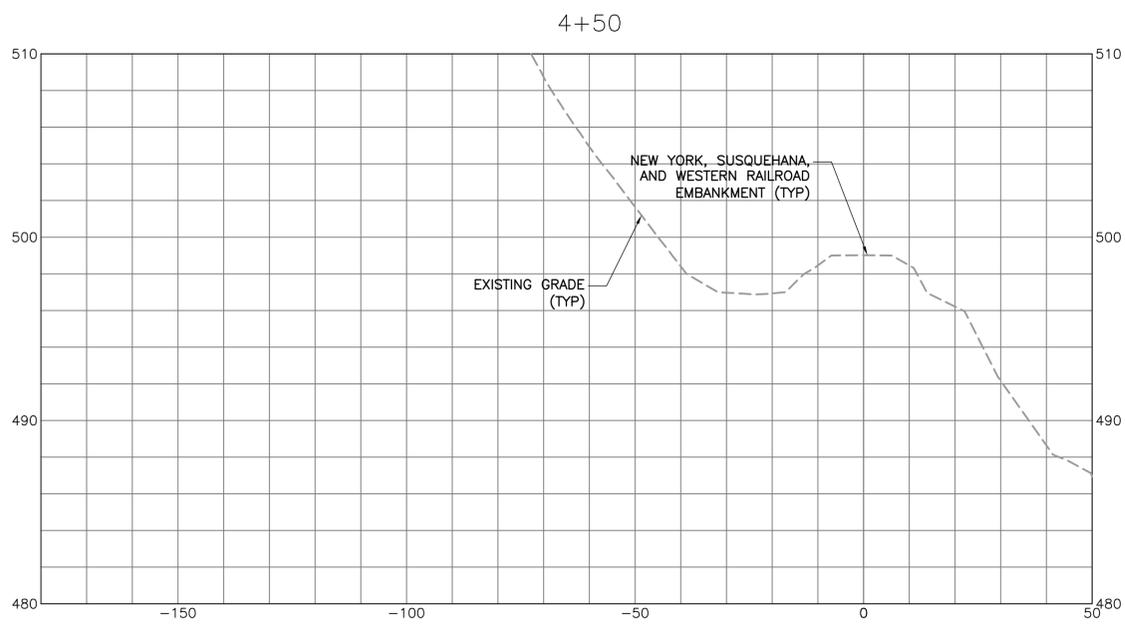


SEE EXCAVATION CROSS SECTION NOTES ON SHEET C-501

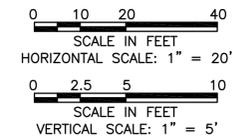


 101 COLUMBIA RD. BOX 2105, MORRISTOWN, NJ 07962		OLD CHENANGO CANAL SITE INTERIM REMEDIAL MEASURES NYSDEC SITE ID 633051 UTICA, NEW YORK			
DRAWING STATUS IRM WORK PLAN DRAWINGS		CIVIL EXCAVATION CROSS SECTIONS 2			
 amec foster wheeler Environment & Infrastructure, Inc. 200 American Metro Blvd, Suite 113 Hamilton, NJ 08619 (609) 589-2829		VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING			
DATE 6/26/17		PROJ 3616-17-6062			
DWG C-503		SHEET 16 OF 17			
D	9/22/17	FINAL NYSDEC WORK PLAN DRAWINGS	TDD	ECS	SCP
C	8/8/17	ISSUED FOR BID	TDD	ECS	LICENSE NUMBER
B	7/13/17	ISSUED FOR NYSDEC REVIEW	TDD	ECS	
A	6/26/17	IRM WORK PLAN DRAWINGS	TDD	ECS	
NO.	DATE	REVISION	BY	APVD	
DSGN			DR	CHK	APVD
			TDD	ECS	

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SEE EXCAVATION CROSS SECTION NOTES ON SHEET C-501



Honeywell
101 COLUMBIA RD. BOX 2105 MORRISTOWN, NJ 07962

OLD CHENANGO CANAL SITE
INTERIM REMEDIAL MEASURES
NYSDEC SITE ID 633051
UTICA, NEW YORK

DRAWING STATUS
IRM WORK PLAN DRAWINGS

CIVIL
EXCAVATION CROSS
SECTIONS 3



VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING	
DATE	6/26/17
PROJ	3616-17-6062
DWG	C-504
SHEET	17 OF 17

D	9/22/17	FINAL NYSDEC WORK PLAN DRAWINGS	TDD	ECS	SCP
C	8/8/17	ISSUED FOR BID	TDD	ECS	
B	7/13/17	ISSUED FOR NYSDEC REVIEW	TDD	ECS	
A	6/26/17	IRM WORK PLAN DRAWINGS	TDD	ECS	
NO.	DATE	REVISION	BY	APVD	
				DR	TDD
				CHK	ECS
				APVD	SCP

THIS DRAWING IS THE PROPERTY OF AMEC, INCLUDING ALL PATENTED AND PATENTABLE FEATURES, AND/OR CONFIDENTIAL INFORMATION AND ITS USE IS CONDITIONED UPON THE USER'S AGREEMENT NOT TO REPRODUCE THE DRAWING, IN WHOLE OR PART, NOR THE MATERIAL DESCRIBED THEREON, NOR THE USE OF THE DRAWING FOR ANY PURPOSE OTHER THAN SPECIFICALLY PERMITTED IN WRITING BY AMEC.

1 2 3 4 5 6

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APPENDIX B
SEED MIXES



NEW ENGLAND WETLAND PLANTS, INC

820 WEST STREET, AMHERST, MA 01002
PHONE: 413-548-8000 FAX 413-549-4000
EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM

New England Roadside Matrix Wet Meadow Seed Mix

Botanical Name	Common Name	Indicator
Elymus riparius	Riverbank Wild Rye	FACW
Festuca rubra	Creeping Red Fescue	FACU
Elymus virginicus	Virginia Wild Rye	FACW-
Bidens aristosa	Tickseed Sunflower/Bur Marigold	FACW
Panicum dichotomiflorum	Smooth Panic Grass	FACW-
Panicum virgatum	Switch Grass	FAC
Cornus amomum	Silky Dogwood	FACW
Verbena hastata	Blue Vervain	FACW
Carex lurida	Lurid Sedge	OBL
Carex scoparia	Blunt Broom Sedge	FACW
Helenium autumnale	Common Sneezeweed	FACW+
Viburnum dentatum	Arrow Wood Viburnum	FAC
Asclepias incarnata	Swamp Milkweed	OBL
Aster novae-angliae	New England Aster	FACW-
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed	FACW
Eupatorium perfoliatum	Boneset	FACW
Agrostis scabra	Rough Bentgrass/Ticklegrass	FAC
Scirpus atrovirens	Green Bulrush	OBL
Sambucus canadensis	Elderberry	FACW-

PRICE PER LB. \$57.00
 REQ. QUANTITY: 1 LBS.
TOTAL \$57.00

APPLY: 35 LBS/ACRE
 1 LB/1250 SQ FT
 MINIMUM QUANTITY: 1 LBS

The New England Roadside Matrix Wet Meadow Mix is a specialty mix designed for use along roads and highways. The mix is unusual in that it contains native grasses, wildflowers and shrubs that are blended together as a native matrix seed mix. In areas that receive frequent mowing, the grasses will dominate, such as those areas

closest to the roadway shoulder. In areas farther from the road, which may be mown only once each year, or in hard to mow areas, such as around sign posts, the wildflower component will become dominant, along cuts and side slopes which may never be mown, the shrub component will add diversity, beauty, and wildlife habitat to the roadside plantings. The mix may be applied by hydro-seeding, by mechanical spreader, or on small sites it can be spread by hand. Lightly rake, or roll to ensure proper seed to soil contact. Best results are obtained with a Spring seeding. Late Spring and early Summer seeding will benefit with a light mulching of weed-free straw to conserve moisture. If conditions are drier than usual, watering may be required. Late Fall and Winter dormant seeding require an increase in the seeding rate. Fertilization is not required unless the soils are particularly infertile. Preparation of a clean weed free seed bed is necessary for optimal results.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged.
 Price is \$/bulk pound, FOB warehouse, plus S&H and applicable taxes.



NEW ENGLAND WETLAND PLANTS, INC

820 WEST STREET
AMHERST, MA 01002

PHONE: 413.548.8000
FAX: 413.549.4000
EMAIL: INFO@NEWP.COM
WEB ADDRESS: WWW.NEWP.COM

New England Conservation/Wildlife Mix

BOTANICAL NAME	COMMON NAME	IND.
<i>Elymus virginicus</i>	Virginia Wild Rye	FACW-
<i>Schizachyrium scoparium</i>	Little Bluestem	FACU
<i>Festuca rubra</i>	Creeping Red Fescue	FACU
<i>Andropogon gerardii</i>	Big Bluestem	FAC
<i>Chamaecrista fasciculata</i>	Partridge Pea	FACU
<i>Panicum clandestinum</i>	Deer Tongue	FAC+
<i>Panicum virgatum</i>	Switch Grass	FAC
<i>Sorghastrum nutans</i>	Indian Grass	UPL
<i>Helenium autumnale</i>	Common Sneezeweed	FACW+
<i>Heliopsis helianthoides</i>	Ox Eye Sunflower	UPL
<i>Verbena hastata</i>	Blue Vervain	FACW
<i>Asclepias syriaca</i>	Common Milkweed	FACU-
<i>Aster umbellatus</i>	Flat Topped/Umbrella Aster	FACW
<i>Eupatorium purpureum</i>	Purple Joe Pye Weed	FAC
<i>Solidago juncea</i>	Early Goldenrod	
<i>Zizia aurea</i>	Golden Alexanders	FAC

PRICE PER LB. \$36.50

MIN. QUANTITY: 2 LBS.

TOTAL \$73.00

APPLY: 25 LBS/ACRE

1LB/1750 SQ FT

MINIMUM QUANTITY: 2 LBS

The New England Conservation/Wildlife Mix provides a permanent cover of grasses, wildflowers and legumes to provide both good erosion control and wildlife habitat value. This mix is designed to be a no maintenance seeding, and it is appropriate to cut and fill slopes, detention basin slopes, and disturbed areas adjacent to commercial and residential projects. Always apply on clean bare soil.

The mix may be applied by hydro-seeding, by mechanical spreader, or on small sites it can be spread by hand. Lightly rake, or roll to ensure proper seed to soil contact. Best results are obtained with a Spring seeding. Late Spring through early Summer seeding will benefit with a light mulching of weed-free straw to conserve moisture. If conditions are drier than usual, watering will be required. Late Fall and Winter dormant seeding require an increase in the seeding rate. Fertilization is not required unless the soils are particularly infertile. Preparation of a clean weed free soil surface is necessary for optimal results.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged.

Price is \$/bulk pound. FOB warehouse, plus S&H and applicable taxes.

APPENDIX C
COMMUNITY AIR MONITORING PLAN

Community Air Monitoring Plan 2017 Interim Remedial Measure Old Chenango Canal (NYSDEC Site 633051) Amec Foster Wheeler Environment and Infrastructure

INTRODUCTION

This Community Air Monitoring Plan (CAMP) has been prepared by Amec Foster Wheeler Environment and Infrastructure (Amec Foster Wheeler) for the Old Chenango Canal Site (No 633051) for activities described in the Interim Remedial Measure (IRM) Work Plan dated November 2017. Amec Foster Wheeler will be overseeing the IRM for Honeywell, Inc. (Honeywell).

The IRM includes excavation of canal sediment and surrounding surface soil that contain polychlorinated biphenyls (PCBs) above clean-up objectives established for the project (0.1 ppm for sediments and 1.0 ppm for soils). Excavation activities are confined to an approximate 0.7-acre areal footprint located at the base of the French Road northbound on-ramp to NY Route 5/8/12 (Arterial Highway) and between the highway ramp and a New York, Susquehanna & Western railroad corridor. The excavation and handling of potentially impacted material is expected to occur within a two to four week project timeframe in November and December 2017. Once excavation is complete, the work area will backfilled with clean soil (uplands) or bed material (canal).

Based on the nature and extent of contamination as determined during a multi-phase Remedial Investigation, IRM activities that include excavation and handling of PCB-impacted material are:

- Excavation of canal bed material and immediate soil banking with elevated levels of PCBs, (e.g. includes material >50 ppm)
- Temporary staging of impacted canal bed and bank material to stabilize for transport and off-site disposal and loading the material into truck transports
- Excavation of upland soil with low levels of PCBs
- Temporary staging of low-impact upland soil and loading for transport and off-site disposal
- Decontamination of equipment and collection/transfer of wash water and solids to containers for transport and off-site disposal

This CAMP has been prepared in accordance with the New York State Department of Health (NYSDOH) and New York State Department of Environmental Conservation (NYSDEC) requirements. Guidance documents used to prepare this plan include the following that are cited in NYSDEC DER-10 (May 2010):

1. NYSDOH Generic Community Air Monitoring Plan
2. Fugitive Dust and Particulate Monitoring guidance

This CAMP is a stand-alone companion document to Site-specific Health and Safety Plan(s) (HASP) that will be prepared by Amec Foster Wheeler and the construction contractor(s). The purpose of the HASP is to provide details related to health and safety for Site workers during on-Site activities. The purpose of this CAMP is to describe the air monitoring activities that will be performed for protection of potential off-Site receptors.

This CAMP provides a plan for evaluating potential airborne PCB and particulate releases that may occur as a result of remedial work activities, which could potentially impact the downwind community (i.e., off-site receptors including residents). NYSDEC and NYSDOH approval will be required prior to implementing any modifications to this CAMP.

PCB Air Monitoring. PCB air monitoring will be performed to document levels of PCBs in air. Air samples will be collected from a minimum of five locations to monitor conditions between work areas and off-site receptors. Locations may be adjusted based on wind direction and/or planned daily activities. Factors that have been considered in choosing air monitoring locations include:

- The dominant seasonal wind direction (winter) is westerly (source: <http://www.cnyweather.com/wxwinddirectionseason>)
- The closest residences are approximately 500 feet to the southeast on Hazelhurst Avenue (i.e., a typical winter downwind direction from the work area)
- The excavation area is at the base of a highway embankment and the embankment and highway corridor to the north and west is a barrier to human trespass and a buffer between the Site and developed commercial parcels to the west on French Road
- Some material may be temporarily staged and/or transferred to truck transports northwest (i.e. further upwind) along the transport route and on the north side of the highway.

Planned sampling stations are summarized below and identified on Figure 1:

- Air Monitoring Station 1 (Air 1) will be established at an upwind location (e.g., west [typically] of all Site activities involving handling of PCB-impacted material).
- Air 2 will be located downwind of the temporary staging area for those days when PCB-material is being staged or handled at this location.
- Air 3 and Air 4 will be established east of the excavation and its immediate project work area to document conditions near the perimeter of the work Site and between the project work area and nearest residential development.
- Air 5 will be established to the southwest of the excavation work area to provide a monitoring point between the excavation area and developed parcels to the southwest.
- An additional location will be added to document conditions upwind of the excavation area if Air 1 or Air 5 are not considered upwind of this area on a day with active PCB-material excavation or handling.

The stations will document air quality (PCBs and particulates) at locations between the work site and the nearest residential and commercial receptors. The locations will be established as close as practical to the perimeter of the work area. Stations cannot be located within the railroad right of way that abuts the project area to the east and are therefore planned at the edge of that corridor (i.e., along the western edge of a wooded parcel owned by the City of Utica).

PCB air samples will be collected initially over 24-hour periods using a deployed sample pump (e.g. AirCheck® XR5000, or equivalent) that will continuously draw air through a sample collection cartridge at a flow rate sufficient to achieve a reporting limit of 0.11 µg/m³ (in the direction of residential homes) and 0.26 ug.m³ (in the direction of commercial/industrial properties). The sum of all detected Aroclors will be compared to the appropriate reporting limit. Sampling will be performed continuously (over 24-hours) during all days where material with elevated PCBs are being handled (e.g. excavated, staged or loaded for transport). Samples will be deployed and/or retrieved at the start of each construction day. Results will be shared with NYSDOH and NYSDEC as they become available and evaluated against the limits. Once the project has shifted from removal of the material with elevated impact to material with low impact, air monitoring will continue during working hours and will be performed for all days when an activity includes handling excavated and/or impacted materials. One of the downwind stations (i.e., Air 3 or Air 4) will continue with 24-hour sample intervals.

One or more days of sampling may be accomplished prior to intrusive activities to test equipment and provide baseline data for comparison with construction conditions.

Samples will be analyzed for PCBs by USEPA Method TO-10A by the NYS-approved off-site laboratory. Samples (each including pre-filter and PUF cartridge) will be overnighted daily the laboratory. Analysis will be performed and initial results provided by the laboratory within 72-hours of receipt by the laboratory. If PCB results exceed the work limits listed above, NYSDEC and NYSDOH representatives will be notified and potential modifications to the execution approach for the work will be discussed.

Particulate Air Monitoring. While work is being conducted at the Site, particulate monitoring will be conducted in accordance with the Fugitive Dust and Particulate Monitoring from DER-10: Technical Guidance for Site Investigation and Remediation (Attachment 1). PCBs have a low potential for volatilization, however, they have an affinity for binding to soil particles, and therefore, airborne migration of particulates is the primary route by which contaminants could potentially migrate offsite.

Particulate monitoring will be conducted at the same planned air monitoring stations as the PCB samples. Particulate monitoring may be suspended during periods of heavy precipitation.

Particulate monitoring will be conducted with a DataRAM-4 (or a similar device) equipped with an audible alarm (indication of exceedance) and capable of measuring particulate matter less than 10 micrometers in size (PM-10). It will continually record emissions (calculating 15-minute running average concentrations) generated during field intrusive and material handling activities, including but not limited to, excavation, fill placement, grading, sampling, waste management, loading and transport, and Site restoration. Dust monitoring devices will be checked throughout the working day by Amec Foster Wheeler. Readings will be reviewed to assess emissions and potential need for corrective action.

Particulate monitoring response and action levels include:

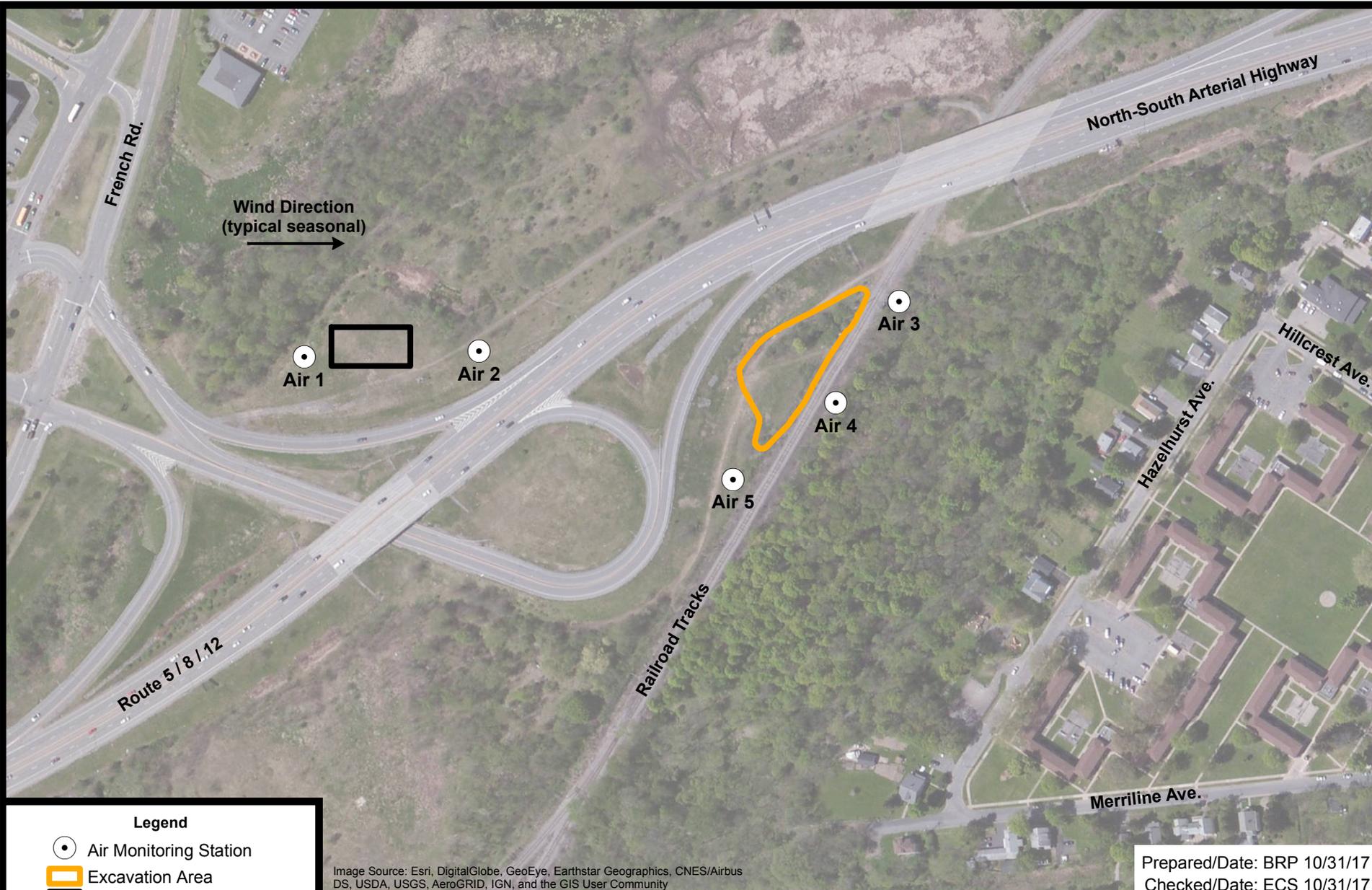
- If the downwind PM-10 particulate level is 100 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed $150 \mu\text{g}/\text{m}^3$ above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 $\mu\text{g}/\text{m}^3$ above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 $\mu\text{g}/\text{m}^3$ of the upwind level and in preventing visible dust migration.

Volatile Organic Compound Air Monitoring. Reported volatile organic compound (VOC) concentrations in soil during sampling in the work area did not exceed NYSDEC Residential Soil Concentration Objectives. Therefore, VOCs are not expected to be released during the IRM activities, and VOC monitoring will not be conducted as part of this CAMP.

Meteorological Data. A wind sock or flag will be used to evaluate wind direction which will be recorded each day during site activities. As work and weather conditions change throughout the day, the locations where monitoring devices are set up may be adjusted accordingly. Areal meteorological conditions (e.g. daily low and high temperature and precipitation totals) will be obtained from a published source and provided in the Construction Completion Report that will document the IRM activities.

Documentation. Upon completion of field activities, available monitoring data that has been recorded will be downloaded, evaluated, and summarized in the Construction Completion Report.



Legend

- Air Monitoring Station
- ▭ Excavation Area
- ▭ Temporary Staging Area

Image Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

0 125 250 Feet

OLD CHENANGO CANAL SITE
NYSDEC SITE No. 633051
UTICA, NEW YORK



PLANNED AIR MONITORING STATIONS
Project 3616176067 Figure 1

Prepared/Date: BRP 10/31/17
Checked/Date: ECS 10/31/17