REPORT

Remedial Action Work Plan (RAWP)

Unnamed Tributary Remediation Area III
Upper Portion Operable Unit II

August 2017

CDM Smith

UNNAMED TRIBUTARY REMEDIATION
AREA III, OPERABLE UNIT 1
REMEDIAL ACTION WORK PLAN

New York State Professional Engineer Certification

"I Michael S. Schultz certify that I am currently a New York State Registered Professional Engineer as defined under 6 NYCRR Part 375 and that this Remedial Action Work Plan 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)."

Name: Michael S. Schultz

Company: CDM Smith

Telephone: 617-452-6399

Signature:

Date: May 15, 2017

Table of Contents

List of Figures

List of Tables

Appendices

Acronyms

Alcoa	Alcoa USA Corp.
Arconic	Arconic, Inc.
bgs	below ground surface
BMP	best management practices
CAMP	community air monitoring plan
CPESC	Certified Professional in Erosion and Sediment Control
DQA	Data Quality Assessment
DUSR	data usability summary report
LPOU2	Lower Portion of Operable Unit 2
MDL	method detection limit
MS/MSD	matrix spike/matrix spike duplicate
NWP	Nationwide Permit
NYSDEC	New York State Department of Environmental Conservation
OHW	Ordinary High Water
PCB	polychlorinated biphenyls
PE	Professional Engineer
PM10	particulate matter less than ten microns
PQL	Practical Quantitation Limit
QA/QC	Quality assurance and quality control
QAPP	Quality Assurance Project Plan
RAWP	Remedial Action Work Plan
RCP	reinforced concrete pipe
RLA	Registered Landscape Architect
ROD	Record of Decision
ROW	Right-of-Way

UNT	Unnamed Tributary
UPOU2	Upper Portion of Operable Unit 2
USACE	U.S. Army Corps of Engineers New England District
USEPA	United States Environmental Protection Agency

Section 1
Introduction

This Remedial Action Work Plan (RAWP) presents the proposed scope of work to complete remedial action for Area III, Upper Portion Operable Unit 2 (Area III UPOU2) of the Unnamed Tributary (UNT), located in Massena, New York. A site locus plan, included as **Figure 1-1,** shows the location of the project site. This RAWP summarizes the nature and extent of contamination based on samples collected as part of the field investigation performed in August and December 2016 and May/June 2017, as well as historic samples collected during prior investigations in the early 1990's. Additionally, this RAWP provides site background, a thorough site description, a description of the selected remedy, details for the remedial construction, and follow-on activities such as verification sampling and site restoration.

1.1 Regulatory Setting

This RAWP has been prepared in accordance with the New York State Department of Environmental Conservation's (NYSDEC) May 2010 DER-10 Technical Guidance for Site Investigation and Remediation. This RAWP provides details on implementation of the selected remedy that meets the remedial objectives in accordance with DER-10.

The UNT is subject to the conditions of the March 1991 Record of Decision (ROD) between Alcoa Inc., and NYSDEC. Alcoa Inc. recently formed two companies, Arconic Inc. (Arconic) (formally Alcoa Inc.) and Alcoa USA Corp. (Alcoa). Arconic will proceed to address the requirements for the UNT in an agreement with Alcoa. The cleanup goals for the UNT were established in the March 1991 Record of Decision and included PCBs (areas outside of groundwater management units, 1 ppm), PAHs, and cyanide. In conversations with the Department and based on the results of verification samples collected in Operable Unit 1 (Areas I and II of the UNT), Arconic understands that the site specific cleanup goal for Area III UPOU2, is limited to total PCBs at a concentration of less than or equal to one (1) part per million (ppm).

The selected remedial action includes the excavation of PCB-contaminated sediments. The UNT is a Class D waterbody and is therefore not regulated under 6 NYCRR Part 608 Use and Protection of Waters. The UNT does discharge directly to the Grasse River, a Class B waterbody. Regardless of classification, best management practices (BMPs) to address soil erosion and sediment control will be required to minimize the generation of turbidity to the maximum extent practicable.

Implementation of the remedy, will require permits (some being substantive) or approvals from several regulatory agencies. Arconic may be exempt from obtaining certain permits/approvals issued by New York State and local agencies pursuant to DER-10 section 1.10. It is important to note the site activities are to be conducted in such a manner as to satisfy all substantive regulatory and technical requirements applicable to the activity. Although NYSDEC may determine Arconic is exempt from the requirement to obtain certain permits, the RAWP and implementation of the remedial measure will be in conformance with the requirements/intent of the implementing regulations.

The table below summarizes the applicable regulatory requirements and permitting/approval requirements under the current regulatory settings for the UNT.

Table 1-1: Summary of Applicable Regulatory and Permit/Approval Requirements

Regulatory Agency	Regulatory Citation	Permit/Approval Name	Notes
US Army Corp of Engineers	Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act	Nationwide Permit (NWP) #33 – Temporary Construction, Access & Dewatering NWP #38 – Cleanup of Hazardous & Toxic Waste	• Use Joint Application Form • Requires consistency approval by NYSDOS • Requires 401 WQ Cert to be issued by NYSDEC (needed for NWP#38)
New York State Department of State	15 CFR part 930.41	Consistency Approval	Consistency determination issued by DOS for NWP#33 and 38. No submittal required if action meets regional conditions.
New York State Department of Environmental Conservation	Section 401 of the Clean Water Act	Section 401 Water Quality Certification	• Use Joint Application Form • Blanket Section 401 WQC for NWP# 33 • Required for activities authorized under ACE NWP #38
New York State Office of Parks Recreation and Historic Preservation	Section 106 of the National Historic Preservation Act	Cultural Resources Assessment (Phase 1A/1B)	Determination by OPRHP included with Joint Application Form
Additional Regulatory Permits			
New York State Department of Environmental Conservation	Article 17, Titles 7, 8 and Article 70 of the ECL	SPDES General Permit for Stormwater Discharges during Construction (GP-0-15-002)	SWPPP required + filing of NOI
New York State Department of Conservation (Regional	6 NYCRR Part 182 Section 7 of the Endangered Species Act	Incidental Take of Endangered/Threatened Species	• Use Joint Application Form • Required if action is likely to take any species

Office)/NYS Natural Heritage Program	NLEB Final 4(d) Rule		listed as endangered/threatened or destroy/adversely modify habitat of such species.

1.2 Operable Units

In correspondence dated March 28, 2017, and included in **Appendix A** with other agency correspondence, Arconic proposed to address environmental remediation of the UNT in phases. Based on available characterization data, Arconic is prepared to proceed with remediation of the upper section of the UNT, to be referred to as Area III Upper Portion Operable Unit 2, Area III UPOU2. This reach extends from the terminus of Area II at Station 46+00 to a beaver dam at approximately Station 53+50. Additional remediation is anticipated between Area III, UPOU2 and County Road 42, to be addressed in 2018 referred to as Area III Lower Portion Operable Unit 2 , Area III LPOU2, however additional data is required before the remedial design for this operable unit can be completed.

One additional area of the UNT had a detection of PCBs greater than the ROD cleanup goal of 1 ppm total PCBs; an accumulation of sediment at the mouth of the UNT's intersection with the Grasse River. Based on the location, and the lack of any other depositional areas with greater than 1 ppm total PCBs between County Road 42 and the Grasse River, this one sediment sample location will be addressed and remediated as part of the pending Grasse River Remediation Project.

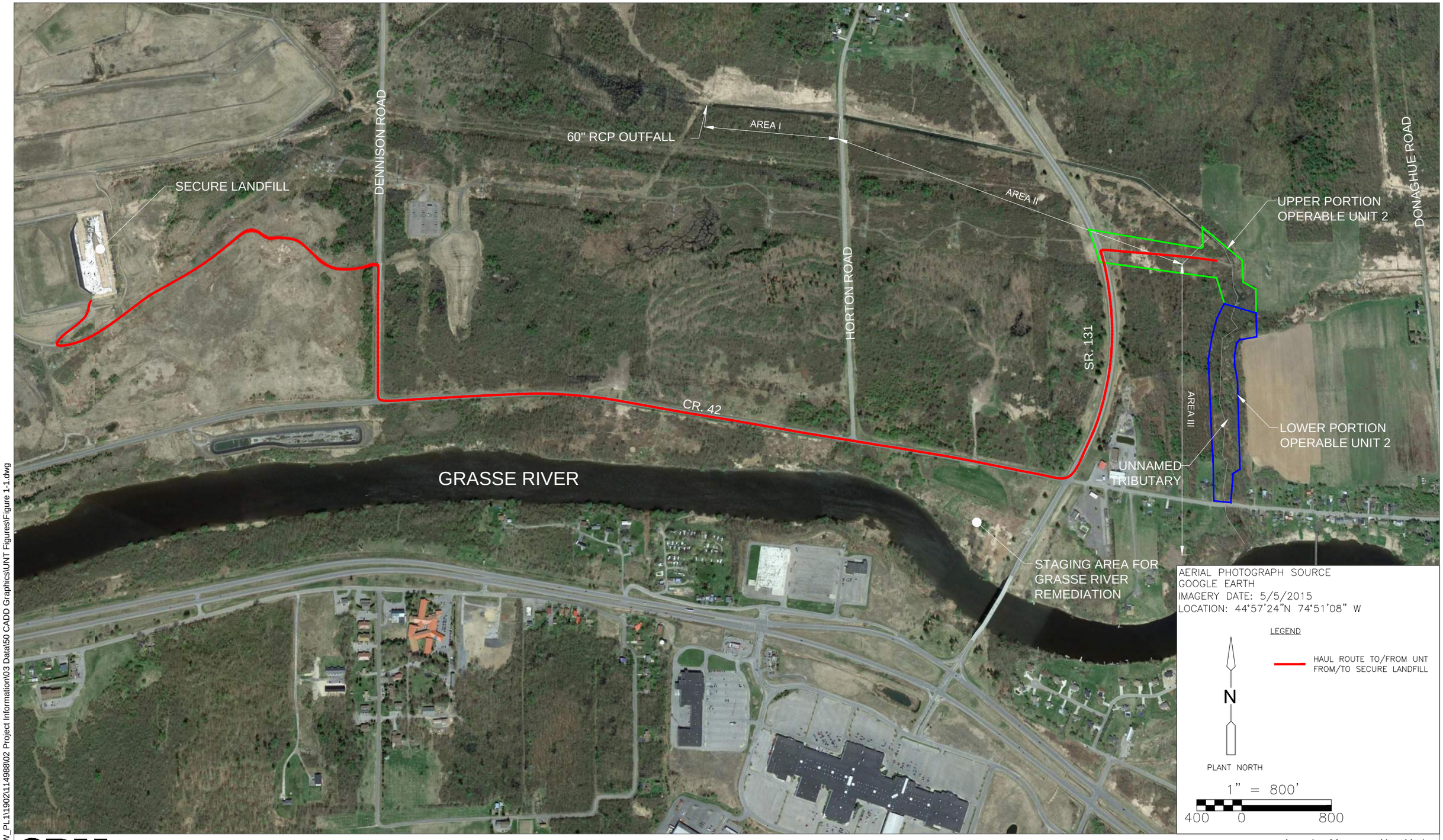
1.3 Document Organization

The remedy described in this document is consistent with the procedure defined in DER-10 and complies with all applicable standards, criteria, and guidance.

The RAWP is organized into the following sections:

- Section 1 – Introduction: This section includes an overview of the regulatory framework, scope of work for the Site, and document organization.
- Section 2 – Site Description and Background: This section includes general site information, a physical description of the Site and the surrounding land use, and a discussion of the environmental attributes.
- Section 3 –Nature and Extent of Contamination: This section presents the nature and extent of the contamination, including historical sampling, Area III, UPOU2 PCB delineation, and the conceptual site model.
- Section 4 –Selected Remedy: This section documents the remediation requirements, selected remedy rationale, and relevant institutional controls.

- Section 5 – Remedial Construction: This section describes the components of the remedial construction, including; the removal areas, construction methods, erosion and sedimentation controls, and the planned temporary facilities.
- Section 6 – Verification Sampling and Contingencies: This section describes the rationale, methodology, and analysis for the verification sampling and contingencies.
- Section 7 – Site and Stream Restoration: This section documents evaluation of the existing environmental conditions, functions and values and presents the planned actions for the site and stream restoration following the remedial actions.
- Section 8 – Health and Safety: This section describes the health and safety plan requirements for this project, as well as those for the community air monitoring plan.
- Section 9 – Construction Schedule: This section documents the planned construction scheduled for completion of the remedial activities.
- Section 10 – Reporting: This section documents the documentation and reporting for remedy construction of the UNT Area III UPOU2 and ultimately the UNT as a whole.
- Supporting Materials (Figures, Appendices, Tables): Figures, tables, and appendices are included to provide additional information regarding remedial activities. Appendix A includes agency correspondence.



CDM Smith

Arconic - Massena, New York

UNNAMED TRIBUTARY (UNT) AREA III SITE LOCUS AND HAUL ROAD PLAN FIGURE 1-1

Section 2
Site History and Setting

This section provides relevant information on site history and the physical and environmental setting, and attributes of the site as they pertain to proposed remedial action and restoration of the UNT.

2.1 Site History

In the 1950s, coincident with the Power Canal being taken out of service, Alcoa began using and discharging through outfalls to the Grasse River, the Massena Power Canal, and the Unnamed Tributary. As a result of these past practices, the UNT was historically contaminated with polychlorinated biphenyls (PCBs).

Remediation of the UNT was included in the March 1991 Record of Decision that addressed eight sites at the Arconic Massena (West Plant) facility. Characterization of the UNT began in 1990 and most recent active remediation ended in 1998. During initial remediation activities, the UNT was divided in three sections: Area I, Area II and Area III. Based on the sediment sampling results, remedial plans were approved by NYSDEC and implemented for each area of the UNT. Areas I and II were remediated by excavating a defined channel. A decision was made based on the existing sample results to perform no active remediation in Area III of the UNT and to monitor the biota throughout all sections: Area I, Area II and Area III.

Post-closure monitoring of the UNT consists of collecting biota (frogs and fish), water and sediment samples. Baseline sampling was conducted in 1999 and 2000 as part of the 5-year biological monitoring requirement of the ROD (NYSDEC, March 1991). Supplemental sampling was conducted in 2002 and 2004 as part of the 5-year biological monitoring requirement of the ROD. This is defined in the Post-Closure Monitoring Plan for The Unnamed Tributary (CDM, October 1998). The Unnamed Tributary Supplemental Evaluation Report (CDM, August 2005) presented the results of this sampling. Based on the results, the report recommended continued monitoring of the UNT. Sampling occurred every three years, beginning in 2007. The latest round of sampling was completed in 2013 and documented in the Supplemental Evaluation Report (CDM, August 2015).

Alcoa proposed modifying the post-closure monitoring plan in a letter to NYSDEC dated August 17, 2015. In their review, NYSDEC requested that Alcoa develop a work plan to characterize the sediment in Area III. A work plan was developed by CDM Smith and submitted by Alcoa to NYSDEC on February 11, 2016. The work plan was approved by NYSDEC in a letter dated May 23, 2016 and the document was finalized on June 8, 2016. Sediment sampling was performed in accordance with this work plan, the results of which are discussed in Section 3.

2.2 Physical Setting

The UNT, shown on **Figure 2-1**, is located east of the Arconic Massena Operations aluminum production facility. The UNT consists of a 60-inch reinforced concrete pipe (RCP) and an open

stream which extends from near the Arconic Massena Operations' Plant Area III Impoundment (not connected to the UNT) to the Grasse River and is approximately 7,380 feet in length. The 60-inch RCP continues to function as a storm water over flow for Area III Impoundment for extreme, 24-hour, 50-year storm events. However, there is no record of storm water being discharged from the Area III Impoundment to the UNT. This RAWP details the remediation planned for Area III, UPOU2 of the UNT. Area III UPOU2 is the reach of the UNT from the terminus of Area II at Sta. 46+00 to a beaver dam at approximately 53+50. Beaver dams have altered channel flow and water levels in Area III UPOU2 as shown in **Figure 2-2**.

The immediate vicinity surrounding the site is primarily wooded and heavily vegetated. A review of the area land use, based on the online GIS database for St. Lawrence County (DANC Internet Mapping, 2017), shows that the predominate land use is farmland, including "farmland of statewide importance", "prime farmland", and "prime farmland if drained". Additionally, state and federal wetlands were identified within ½ mile of the UNT. To the east of the UNT is agricultural land; to the south is County Road 42, residential houses and ultimately the Grasse River; and to the west and north of the UNT is undeveloped wooded land until Route 131. Overhead transmission power lines cross the northern portion of the Area III UPOU2, from approximately Sta. 48+00 to 51+00. The UNT site originates at an underground 60-inch reinforced concrete pipe transitioning to an open ditch and subsequently to an unnamed tributary to the Grasse River. The open ditch and stream areas have been identified as Areas I, II and III respectively. Land above and adjacent to the 60" RCP is primarily undeveloped woodland and an open field. Land adjacent to the straight sections of the UNT (Areas I and II) is primarily low lying woodlands. Active farmland, woodlands and meadow abut the upper portion of Area III where the work subject to this RAWP will take place.

Arconic has a right of way along the UNT as shown on Figure 2-1. Abutting properties along the UNT are not owned by Arconic, however access will be secured prior to implementation of the RAWP. Properties which abut the UNT that will require access include private property to the east and west of the UNT and an electrical power line utility easement that runs from east to west and crosses the UNT from approximately Sta. 49+75 to 51+50. Within the utility easement, a utility line access road crosses the UNT over a culvert located at approximately Sta. 50+00.

As Area III UPOU2 is heavily vegetated, access to the removal areas have been considered in developing design components. The upper portion of the Area III UPOU2 from Sta. 46+00 to Sta. 49+75 is a defined, essentially straight channel with established banks and sidewalls. The lower portion of Area III UPOU2 from Sta. 49+75 to Sta. 53+50, upstream of the beaver dam is a wider meandering channel with seasonally ponding water behind the beaver dam. At approximate Sta. 50+00, the utility access road, associated with the overhead transmission lines, provides primary point of access to Area III UPOU2.

2.3 Topography and Drainage

The topography and slope of the UNT is relatively consistent, with a stream centerline of approximately EL. 186' at the start of Area III UPOU2 (Sta. 46+00), dropping to El. 183' near the culvert at Sta. 50+00, and a bottom elevation of 182' in the ponded area upstream of the beaver dam (at approximately Sta. 52+00 to 53+50). Downstream of the beaver dam, immediately after Sta. 53+50, the elevation of the UNT at the end of the Area III UPOU2 is approximately El. 180'.

The upper banks of the UNT are approximately El. 196' starting at Sta. 49+00, with slightly lower upper banks at the start of the Area III UPOU2 area (Sta. 46+00 to 49+00). Between Sta. 50+00 to 52+00 the upper defined banks are approximately elevation El. 196'. Beyond the banks the topography rises in elevation to a maximum height of approximately El. 200'.

Features along the UNT include the culvert located at approximately Sta. 50+00 and the beaver dam located at Sta. 53+50. The site topographic survey shows that surface of the access road crossing the culvert at Sta. 50+00 is approximately 5 feet higher in elevation than the streambed below. Seasonally ponding water upstream of the beaver dam has been observed between Sta. 52+00, where the UNT widens from a defined channel, and Sta. 53+50. At its widest point, the pool is approximately 130 feet wide (east-west) and several feet deep. The upper bank surrounding the pool is approximately El. 196' with the bottom elevation ranging from El. 186' to El. 182' in elevation. Downstream of the dam, at Sta. 54+00 the elevation of the streambed is at approximately El. 180'.

The tributary watershed to the UNT is approximately 415 acres and consists of primarily wooded and heavily vegetated areas. Stormwater runoff flows from surrounding highpoints into the upper portion of the UNT with an approximate elevation difference of 50-60 ft. throughout.

2.4 Environmental Attributes

Surface water quality classification of the UNT is Class D under Regulation 910-949. The best usage of Class D waters is fishing (6NYCRR Part 701.9). Due to such natural conditions as intermittency of flow, water conditions not conducive to propagation of game fishery, or stream bed conditions, the waters will not support fish propagation. Class D waters are suitable for fish, shellfish and wildlife survival, and suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.

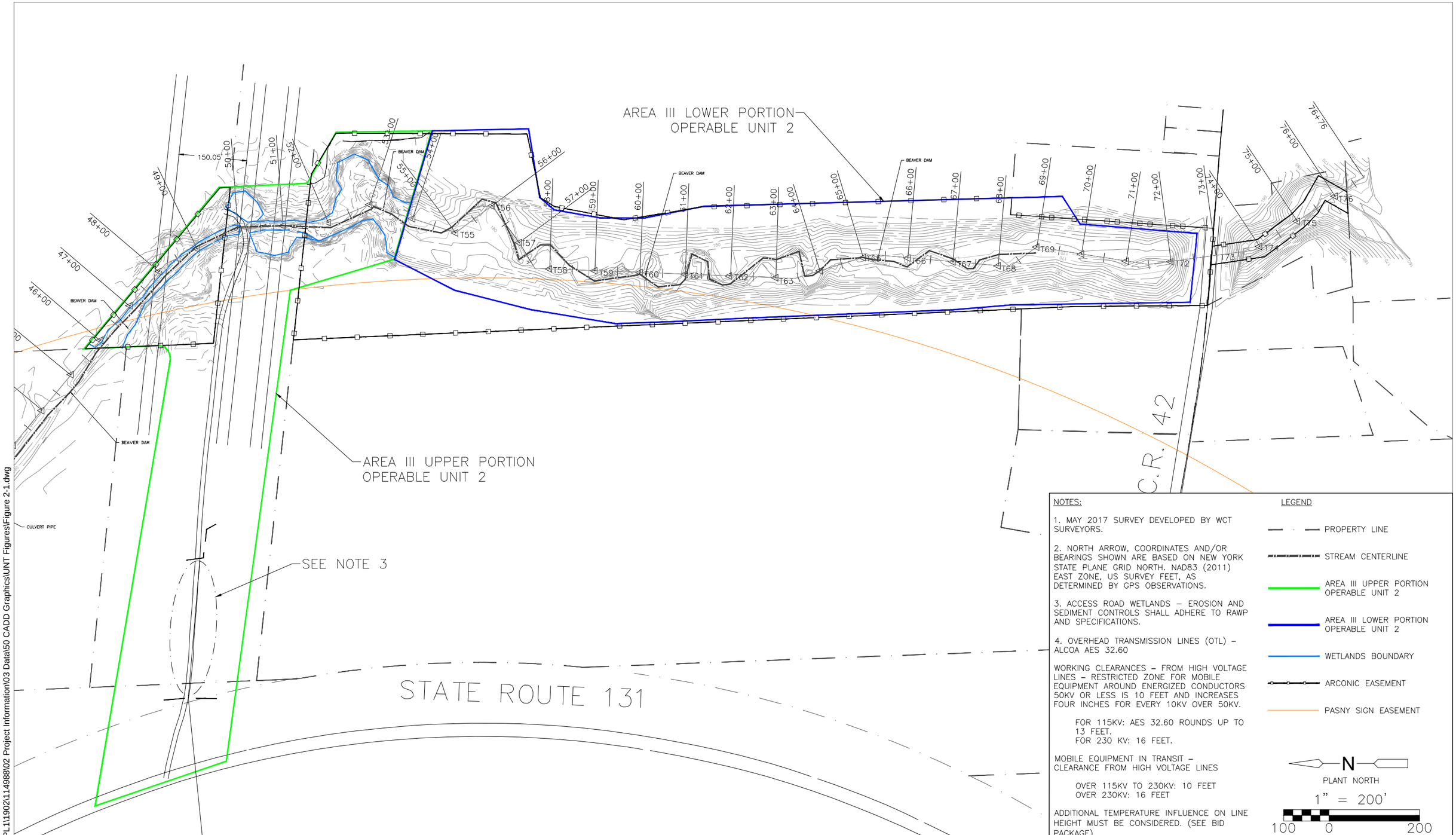
Wetlands resources were demarcated in the field on April 26 through 28, 2017 by CDM Smith Professional Wetlands Scientist. Existing field delineated wetlands resource boundaries were evaluated for conformance with the New York State Freshwater Wetlands Act and the three-parameter delineation method as described in the U.S. Army Corps of Engineers 1987 Wetlands Delineation Manual (Environmental Laboratory, 1987) [the Manual], and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (v 2.0) (ERDC/EL TR-12-1 dated January 2012.

In the absence of vegetated wetlands, the federal jurisdiction under Section 404 of the Clean Water Act, extend to the Ordinary High Water (OHW) line. The limits of the OHW were demarcated in the field by the use of flagging and incorporated into the survey. Three vegetated wetlands areas along the UNT were demarcated. Groundwater is discharged at the toe of the steep slope of the stream gulley, vegetated wetlands are found where the discharge is present for long enough periods to establish a predominance of wetland species. Hydric soils (Adjidaumo silty clay) are present throughout the stream valley and on the steep slopes and beyond.

The vegetation along the stream channel consists of dense stands of nannyberry (*Viburnum lentago*), northern wild raisin (*Viburnum cassinoides*), and honeysuckle (*Lonicera* sp.) or herbaceous vegetation consisting of grasses including reed canary grass (*Phalaris arundinacea*),

Canada goldenrod (*Solidago altissimo*), common horsetail (*Equiseteum arvense*), tansy (*Tanacetum vulgare*), soft rush (*Juncus effusus*), and sensitive fern (*Onoclea sensibilis*). Two vegetated wetlands extend beyond the OHW line immediately south of the culvert crossing, these were demarcated as WF 3-1 to 3-5 (east side) and WF 11-1 to 11-6 (west side). Dominant species within these two adjacent wetland areas were similar and consisted of northern wild raisin, black ash (*Fraxinus nigra*), red-osier dogwood (*Cornus alterniflora*), common horsetail, and Canada goldenrod.

A *Wetland Functions and Values Assessment* evaluation of the UNT and associated vegetated wetlands (delineated April 2017) was also conducted, refer to Section 7. Based on the functions and values assessment conducted, the principal functions of this wetland system are sediment/toxicant retention and sediment/shoreline stabilization.



NOTES:

1. MAY 2017 SURVEY DEVELOPED BY WCT SURVEYORS.

2. NORTH ARROW, COORDINATES AND/OR BEARINGS SHOWN ARE BASED ON NEW YORK STATE PLANE GRID NORTH. NAD83 (2011) EAST ZONE, US SURVEY FEET, AS DETERMINED BY GPS OBSERVATIONS.

3. ACCESS ROAD WETLANDS – EROSION AND SEDIMENT CONTROLS SHALL ADHERE TO RAWP AND SPECIFICATIONS.

4. OVERHEAD TRANSMISSION LINES (OTL) – ALCOA AES 32.60

WORKING CLEARANCES – FROM HIGH VOLTAGE LINES – RESTRICTED ZONE FOR MOBILE EQUIPMENT AROUND ENERGIZED CONDUCTORS 50KV OR LESS IS 10 FEET AND INCREASES FOUR INCHES FOR EVERY 10KV OVER 50KV.

FOR 115KV: AES 32.60 ROUNDS UP TO 13 FEET.
FOR 230 KV: 16 FEET.

MOBILE EQUIPMENT IN TRANSIT – CLEARANCE FROM HIGH VOLTAGE LINES

OVER 115KV TO 230KV: 10 FEET
OVER 230KV: 16 FEET

ADDITIONAL TEMPERATURE INFLUENCE ON LINE HEIGHT MUST BE CONSIDERED. (SEE BID PACKAGE)

LEGEND

- PROPERTY LINE
- STREAM CENTERLINE
- AREA III UPPER PORTION OPERABLE UNIT 2
- AREA III LOWER PORTION OPERABLE UNIT 2
- WETLANDS BOUNDARY
- ARCONIC EASEMENT
- PASNY SIGN EASEMENT

N
PLANT NORTH
1" = 200'
100 0 200

CDM Smith

Arconic - Massena, New York

UNNAMED TRIBUTARY (UNT) AREA III EXISTING SITE PLAN - FULL EXTENT FIGURE 2-1

NYPA OTL – 230kV

ALCOA OTL – 115kV

AREA III LOWER PORTION
OPERABLE UNIT 2

AREA III UPPER PORTION
OPERABLE UNIT 2

BEAVER DAM

BEAVER DAM

ACCESS ROAD

T55

46+00

47+00

48+00

50+00

51+00

52+00

53+00

54+00

55+00

200

195

190

185

205

NOTES:

1. MAY 2017 SURVEY DEVELOPED BY WCT SURVEYORS.

2. NORTH ARROW, COORDINATES AND/OR BEARINGS SHOWN ARE BASED ON NEW YORK STATE PLANE GRID NORTH. NAD83 (2011) EAST ZONE, US SURVEY FEET, AS DETERMINED BY GPS OBSERVATIONS.

3. OVERHEAD TRANSMISSION LINES (OTL) – ALCOA AES 32.60

WORKING CLEARANCES – FROM HIGH VOLTAGE LINES – RESTRICTED ZONE FOR MOBILE EQUIPMENT AROUND ENERGIZED CONDUCTORS 50KV OR LESS IS 10 FEET AND INCREASES FOUR INCHES FOR EVERY 10KV OVER 50KV.

FOR 115KV: AES 32.60 ROUNDS UP TO 13 FEET.
FOR 230 KV: 16 FEET.

MOBILE EQUIPMENT IN TRANSIT – CLEARANCE FROM HIGH VOLTAGE LINES

OVER 115KV TO 230KV: 10 FEET
OVER 230KV: 16 FEET

ADDITIONAL TEMPERATURE INFLUENCE ON LINE HEIGHT MUST BE CONSIDERED. (SEE BID PACKAGE)

4. CONTRACTOR SHALL VERIFY TRANSMISSION LINE LOCATION AND CLEARANCE W/ SURVEY AND ALCOA/AGENCIES.

LEGEND

- PROPERTY LINE
- STREAM CENTERLINE
- AREA III UPPER PORTION OPERABLE UNIT 2
- AREA III LOWER PORTION OPERABLE UNIT 2
- WETLANDS BOUNDARY
- ARCONIC EASEMENT
- PASNY SIGN EASEMENT

N
PLANT NORTH

1" = 60'
30 0 60

CDM Smith

Arconic - Massena, New York

UNNAMED TRIBUTARY (UNT) AREA III
EXISTING SITE PLAN - AREA III UPPER PORTION OPERABLE UNIT 2
FIGURE 2-2

XREFs: [F11X17, CEP002ST] Images: []
Last saved by: DOWDJT Time: 6/29/2017 3:40:06 PM
pw:\\DACPWAPP2:PW_PL11\902\111498\02 Project Information\03 Data\50 CADD Graphics\UNT Figures\Figure 2-2.dwg

Section 3

Nature and Extent of Contamination

This section includes a discussion of the recent characterization and contaminant delineation work conducted in Area III to delineate the areas proposed for remediation, as well as the historic sampling conducting in the early 1990's as part of the initial unnamed tributary investigation.

3.1 Historic Sampling Results

Historic sampling was conducted along the UNT during initial site investigations in the early 1990's as the initial step to characterize the full length of the UNT. Initial results indicated that the PCB contamination located in what is now called Area I and Area II was not only higher, but would need to be remediated first to avoid the release or flushing of PCB sediments downstream. As such, Area I and Area II were focused on first for additional delineation and remediation, however the data from the early characterization did capture the PCB concentrations in Area III.

The data collected by Engineering Science in Area III of the UNT as a part of their Unnamed Tributary Post Interim Remedial Measures Sampling Program, May 1992, was collected from approximately Sta. 47+00 to 76+00. Concentrations of PCBs ranged from 1.1 ppm to 3.7 ppm in the sediment samples collected, and up to 12 ppm in one of the samples (Sample number 65) collected from the streambank soil. The one sample with 12 ppm was from a location at an elevation significantly above the UNT and based on subsequent samples collected during later characterization efforts, is now considered an anomalous data point not associated with the UNT. On average, the samples collected have a PCB concentration of 2.3 ppm for the sediment samples and 5.0 ppm for the streambank soil. The depth of the samples was on average 3.5", with the deepest collected with an exceedance of 1 ppm collected to a depth of 8".

Eleven of the 66 total samples were collected from within Area III UPOU2. Ten sediment samples were collected, up to a depth of 12" in some locations, and one streambank sample was collected. Three of the historic samples collected in Area III UPOU2 exceeded the 1ppm criteria for PCBs. A sediment sample collected at Sta. 47+83 (3.4 ppm), a streambank sample collected at Sta. 51+00 (1.8 ppm), and a second sediment sample collected at 53+00 (2.2 ppm). All other samples collected along what is currently called Area III UPOU2 of Area III were below 1 ppm.

3.2 Area III Delineation Sampling – 2016 & 2017

3.2.1 Summary of Sampling Activities

August 2016

The initial round of Area III delineation sampling was conducted by CDM Smith personnel between August 1 and August 8, 2016. Generally dry conditions existed at the time of sampling. Many stretches of Area III were dry with no standing or running water present. Of the stretches with standing or running water present the depth of water was on average four inches.

Two-inch diameter plastic sampling tubes were easily advanced into the underlying clay layer at most locations. The tubes hit refusal in areas of the UNT where a coarse bottom consisting of

cobbles and gravel was encountered. Samples were collected using a hand trowel at these locations, including at station Sta.48+50 and between stations Sta. 50+50 and Sta. 51+50 where a granular bottom was overlain by only 1 to 2 inches of sediment. A hand trowel was also used to collect samples from the downstream areas between station Sta. 72+00 and Sta. 76+00 where only 1-inch of sediment was present. The majority of samples submitted to the laboratory were collected from depths ranging from 1 to 6 inches. However, there were eight locations where 12 inches or more of accumulated sediment was observed, including one Area II and one floodplain locations. At those eight locations where sediment thickness was greater than 6", samples were collected in two, 6-inch intervals. At two of the eight locations, sediment was deeper than 12", and at those locations deeper sample were collected. The deepest sediment sample was collected at Sta. 70, to a depth of 17", and the deepest flood plain samples was collected at Sta. 58, to a depth of 18'. In total, ten samples were collected deeper than 6".

During the August event, five beaver dams were identified, four in Area III of the UNT and one immediately upstream of Area III between station Sta.44+00 and Sta.45+00.The beaver dam located near Sta. 53+50 has created a widened ponded area upstream of the dam. In wetter conditions, there is a higher island area near the center of the ponded area. Due to the dry conditions at the time of sampling in August, this upstream area was primarily dry and surface cracking was observed, which indicated an extended period of dry conditions in the area. Two samples were collected at this station, one from the north and one from the south side of the island within the channel around the island (Sta. 53.5 ISLAND NORTH and Sta. 53.5 ISLAND SOUTH).

A culvert is present at Sta. 50+00. Two sediment samples, one immediately upstream and one immediately downstream (Sta. 50 US CULVERT AND Sta. 50 DSCULVERT) of the culvert were collected. Adjacent to Sta. 55+00 a bifurcating channel was observed. The stream bed at the time of sampling was dry. Also in the vicinity of Sta. 55+00 there is a tributary which enters the UNT. A sample was collected approximately 30 feet upstream from the confluence with the UNT.

No samples were collected from Sta. 72+50 through Sta. 73+50 as these locations were inside the steel culvert which passes below Route 42 and no sediment accumulations were noted inside the culvert.

December 2016

Based on the results of the initial round of sampling, a follow-up round of sample collection was proposed to provide additional delineation of PCBs above the cleanup goal. A meeting was held with Alcoa and NYSDEC in Massena, NY on October 25, 2016 to discuss the results of the initial sampling and develop an approach for follow-up sampling. Following the meeting, NYSDEC and representatives of the Fish and Wildlife Bureau performed a site walk of the UNT to review the initial and proposed follow-up sampling locations. The proposed approach for follow-up sampling was incorporated into an addendum to the June 2016 work plan. The work plan addendum was submitted to NYSDEC on November 28, 2016 and was approved by NYSDEC in correspondence dated December 5, 2016. Follow-up sediment samples were collected by CDM Smith personnel between December 12 and December 14, 2016 in accordance with the revised work plan. Lincoln Fancher of NYSDEC accompanied CDM Smith on the first day of sampling to identify specific locations of interest. At the time of sampling snow cover of two to four inches was present. Ice

cover was present along the majority of Area III of the UNT ranging in thickness from one quarter inch to three inches. Samples were collected using the same methodology used in the initial round and were collected from depth intervals of 0 to 6 inches and from 6 to 12 inches at all locations. Samples collected from 0 to 6 inches were submitted to the laboratory for analysis; the deeper sample was submitted for analysis at locations where the shallow sample yielded a total PCB concentration greater than 0.9 ppm.

All sediment samples collected during the follow-up sampling were analyzed by Pace Analytical in Minneapolis, Minnesota for analysis of PCB Aroclors using USEPA Method 8082A.

May and June 2017

In May and June 2017, CDM Smith collected samples along the length of the Area III UPOU2 channel to further delineate the vertical and horizontal extents of PCB impacts in order to support the upcoming remediation activities and construction. Samples were collected along the length of the channel from the top of banks (TB), sidewalls (SW), and centerlines (CL) of the area in order to determine the extent and depth of sediment removal. Based on the sampling results as of May 2017, supplemental sampling was conducted June 20 and 22, 2017 to further delineate limits of PCB impacts greater than 1 ppm.

3.2.2 Summary of Sampling Results

August 2016

Sediment samples were analyzed for TOC and for PCBs using USEPA Method 8082A. Seven Aroclors (i.e., Aroclor 1016, 1221, 1232, 1242, 1248, 1254 and 1260) were reported. The majority of detections were for Aroclor 1260, however there were two samples that contained detections for Aroclor 1254 and three samples that contained detections for Aroclor 1248. Additionally, one sample contained a detection for Aroclor 1221, however the laboratory qualified this as an altered Aroclor pattern; actual Aroclor 1221 was not presumed to be present.

The PCB results were compared to the post-remedial soil cleanup goal of 1 part per million (ppm). All analytical results are presented in **Table 3-1.** The locations where the soil clean up goal was exceeded in Area III UPOU2, 2017 Operable Unit, are shown on **Figure 3-1**.

Eleven of the 13 locations sampled in the upstream portion of Area III between stations Sta.46+00 and Sta.52+00 had total PCB concentrations above 1.0 ppm. Aroclor 1260 was the only detected Aroclor at most locations between these stations, however Aroclor 1254 was detected in the samples collected at stations Sta.46+00 and Sta.48+00. The highest total PCB concentration was 13.2 ppm at station Sta.48+50 from a depth interval of 0 to 2 inches. At station Sta.47+00, the total PCB concentration in the sample collected from 0 to 6 inches was below the cleanup goal at 0.426 ppm, however the deeper sample collected from 6 to 12 inches was above the goal at 1.17 ppm. At station Sta. 50+00, a sample was collected upstream and downstream of an identified culvert. The upstream sample collected to a depth of 6 inches contained a total PCB concentration of 3.83ppm, while the downstream sample collected to a depth of 3 inches had a total PCB concentration of 1.23ppm.

As previously mentioned, a beaver dam was identified near station Sta. 53+50 where a widened ponded area is created during wet conditions. Samples collected to a depth of 6 inches from both

the north and south side of an island area contained total PCB concentrations of 1.38 ppm and 0.91 ppm, respectively.

All samples collected beyond Sta. 53+50 are in the sections downstream of the upper portion, and will be further investigated outside of this current remedial effort and discussed as part of the 2018 Operable Unit (Area III LPOU2).

December 2016

Seven Aroclors (i.e., Aroclor 1016, 1221, 1232, 1242, 1248, 1254 and 1260) were reported. Similar to the results of the initial August 2016 sampling, the majority of detections were for Aroclor 1260, however there were four samples that contained detections for Aroclor 1254. Additionally, there were several samples that had estimated detections for Aroclor 1248 or Aroclor 1254; these results were qualified with a "J" as they were detected above the method detection limit (MDL), but below the laboratory's Practical Quantitation Limit (PQL). Analytical results from the follow-up sampling are presented in **Table 3-2** and these Area III UPOU2 locations are shown on Figure 3-1.

The sample results from the follow-up sampling round indicated a higher average PCB concentration outside the steam bed. This is likely due to historical deposition of PCB impacted sediment outside the streambed with limited scouring events that would have transported this sediment out of the area.

PCBs were not detected in the sample collected at Sta.45+50 at the upstream end of Area III. This provides evidence to support the conclusion that PCBs are not present in the sediment upstream of Area III.

May 2017

Nine Aroclors (i.e., Aroclor 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1962 and 1968) were reported. Similar to the results of the 2016 sampling, the majority of detections were for Aroclor 1260. Several samples had detections for 1262 and 1268, largely as estimated detections; these results were qualified with a "J" as they were detected above the method detection limit (MDL), but below the laboratory's Practical Quantitation Limit (PQL). Analytical results from the May 2017 sampling are presented in **Table 3-3** and these locations are shown on Figure 3-1.

June 2017

Two Aroclors (i.e., Aroclor1248and 1260) were reported. Results were similar to the 2016 and May 2017 sampling, with each of the 13 samples detecting Aroclor 1260. One of the 1260 detections was qualified with a "J" as it was detected above the method detection limit (MDL), but below the laboratory's Practical Quantitation Limit (PQL). Two samples had detections for 1248. Analytical results from the June 2017 sampling are presented in **Table 3-4** and these locations are shown on Figure 3-1.

3.3 Conceptual Site Model

Key observations from the two rounds of UNT sediment sampling in 2017 are presented below. While remedial activities will be spilt into the 2017 Area III UPOU2 and the 2018 operable unit Area III LPOU2, key observations from the recent sampling program are presented below for the whole of Area III. Additional detail presenting the understanding specifically for Area III UPOU2, for which this RAWP is being prepared, is discussed in following the observations.

- Discharge to the UNT occurred from the 1950s until the Primary Lagoon was operational in 1993. Subsequently, only occasional stormwater overflow discharged to the UNT until all stormwater discharge ceased in the 1999 when the Plant Area III Impoundment was operational.
- Current Arconic Massena Operations Plant Area III stormwaters are collected and discharged to the Plant Area III impoundment.
- Remediation of the 60-inch RCP and Areas I & II was completed in 1998 removing upstream sources of PCBs to Area III of the UNT.
- The current presence of PCBs in Area III are a result of past discharges that ended in the 1980s and prior downstream transport that ended with the completion of remediation in UNT Areas I & II.
- No detections of PCBs in the three Area II samples indicate there is no continuing upstream source of PCBs to UNT Area III.
- PCB concentrations greater than 1 ppm are present in the general area from Sta. 46+00 to 54+50.
- Intermittent detections greater than 1 ppm are present to Sta. 61+50, a slight extension from initial sampling results.
- Total PCB concentrations ranged from non-detect to less than 1 ppm from Sta. 61.50+00 to Sta. 68+50.
- Total PCB concentrations greater than 1 ppm were observed from Sta. 69+00 to Station 72+00 (Route 42 culvert).
- Additional sampling during Phase II better identified the lateral extent of PCBs near Sta. 69+00 and 71+00.
- Total PCB concentrations were non-detect to less than 0.5 ppm from Sta. 72+00 to terminus at Grasse River except for one sample near the mouth of the UNT that was greater than 1 ppm.
- Recent data had more detections greater than 1 ppm in the deeper 6-to 12-inch interval.
- There were no detections greater than 1 ppm in samples from the underlying clay samples.

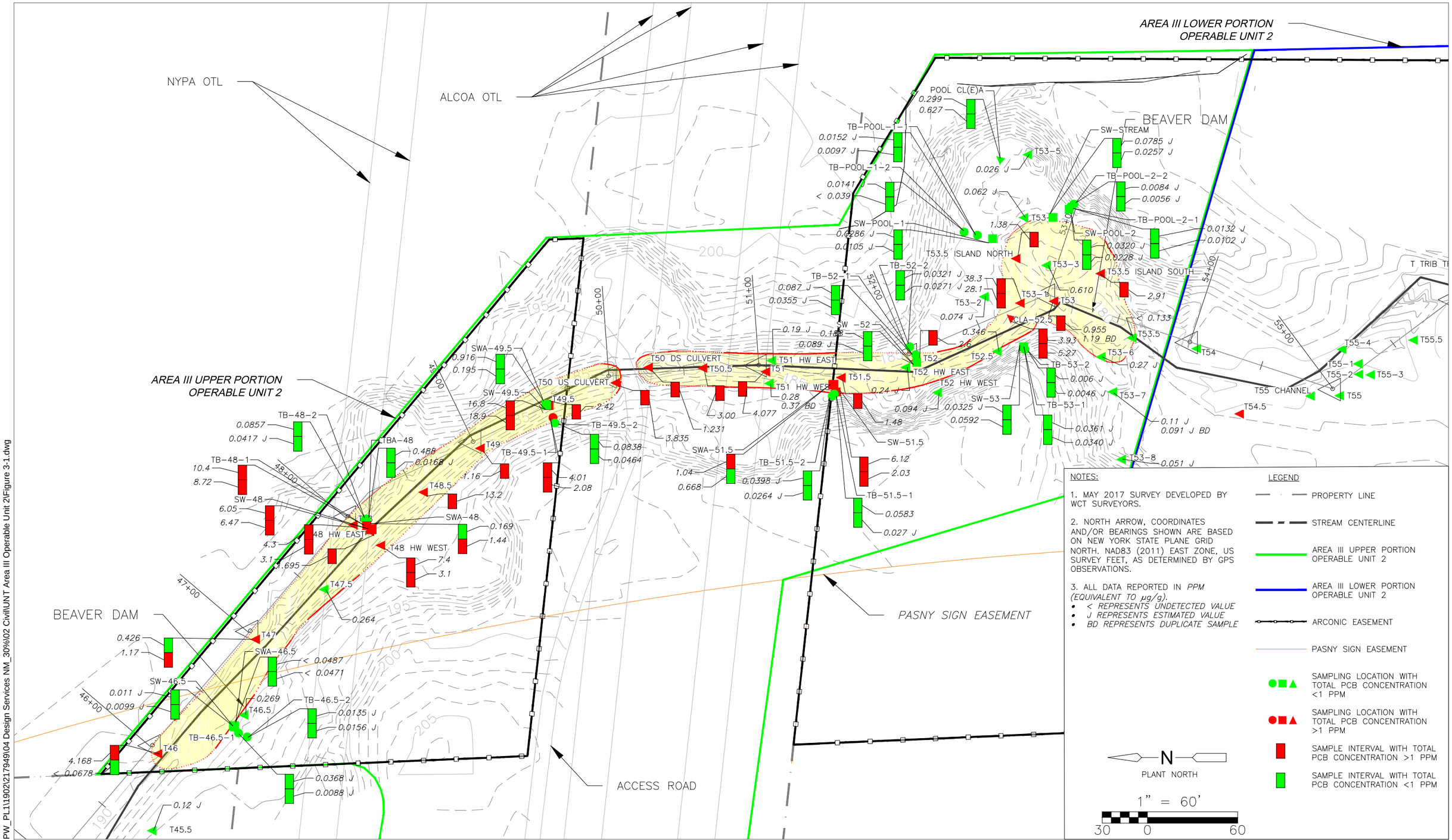
- Features identified during stream inspections and sampling that may influence contaminant distribution in Area III were preliminary identified as; the five beaver dams located from immediately upstream of Area III to approximately Sta. 65+00, the ponded area upstream of the Sta. 53+50 beaver dam, the culvert at Sta. 50+00, and the bifurcating channel at Sta. 55+00. This also includes debris within the UNT, and meanders that would cause deposition.

The combined data set provides a substantial amount of information with which to describe the occurrence of PCBs in Area III. The source of PCBs in the UNT is understood to be discharge from the Alcoa West Plant to the UNT beginning in the 1950s. Remediation of the 60-inch RCP and in the upper portions of the UNT (Areas I and II), removed PCBs that could constitute a continuing upstream source to Area III. Recent sampling has documented very thin (typically <6") sediment in the stream channel and somewhat thicker sediment or impacted soils along the banks relatively low PCB concentrations within the active stream channel and higher concentrations of PCBs in overbank deposits. These higher concentrations are thought to be a result of historic deposition and existing concentrations that were not identified in earlier sampling efforts and not a result of additional or recent releases or transport of contamination from upstream Areas I & II.

As noted above, PCBs have not been detected and are not expected to exist in the native clay that underlies most of the UNT. In many areas, the width of impacts has been delineated / bracketed by data below the anticipated cleanup goal. In the upper reaches of the UNT where the channel is narrow and "V" shaped, the upper limits of PCB impacts can be estimated based on the maximum elevation that flowing water might reach considering the culvert and road surface at Station 50+00.

The upper limit of PCB impacts is expected to be based on historic high water marks. Existing sampling data in the banks of the upper reach of Area III has detected PCBs greater than the cleanup goal of 1 ppm. The depth of PCB impacts above 1 ppm is thought to be approximately one foot. However, confirmation of these assumptions and limits will have to be documented with cleanup verification samples. Some additional pre-design sampling may be performed to assist in final design and construction plans.

The degree of characterization required for remediation is directly related to the likely remedial design approach. With the additional data collected during the supplemental remediation investigation, the conceptual site mode of the UNT is sufficient to develop a comprehensive remedial design for the upper portion of Area III extending from Sta. 46 to ~Sta. 54. The adequacy of removal can and will be documented with verification sampling.



XREFs: [F11X17, CEP002ST] Images: []
Last saved by: DOWDJT Time: 7/31/2017 2:45:21 PM
pw:\\pw.cdmsmith.com:PW_PL111902\217949\04 Design Services NM_30%\02 Civil\UNT Area III Operable Unit 2\Figure 3-1.dwg

CDM Smith

Arconic - Massena, New York

UNNAMED TRIBUTARY (UNT) AREA III
PCB CONCENTRATIONS - AREA III UPPER PORTION OPERABLE UNIT 2
FIGURE 3-1

Table 3-1
Summary of August 2016 Characterization Sampling

Sample ID		UNT-A2-SED-1 0-6"	UNT-A2-SED-1 6-12"	UNT-A2-SED-2 0-6"	UNT-A2-SED-3 0-6"
Sample Date		8/8/16	8/8/16	8/8/16	8/8/16
Depth interval (inches)		0-6	6-12	0-6	0-6
Parameter ID	Unit				
Total Organic Carbon	mg/kg	25000	12,000	12000	31000
% solids	%	32.2	54.3	53.1	34.2
PCBs					
Aroclor 1016	µg/g	0.15U	0.0874U	0.0911U	0.137U
Aroclor 1221	µg/g	0.15U	0.0874U	0.0911U	0.137U
Aroclor 1232	µg/g	0.15U	0.0874U	0.0911U	0.137U
Aroclor 1242	µg/g	0.15U	0.0874U	0.0911U	0.137U
Aroclor 1248	µg/g	0.15U	0.0874U	0.0911U	0.137U
Aroclor 1254	µg/g	0.15U	0.0874U	0.0911U	0.137U
Aroclor 1260	µg/g	0.15U	0.0874U	0.0911U	0.137U
Total PCBs		0.15U	0.0874U	0.0911U	0.137U

Sample ID		UNT-A3-SED-T46	UNT-SED-A3-46 4-10"	UNT-A3-SED-T46.5	UNT-A3-SED-T47	UNT-A3-SED-T47
Sample Date		8/4/16	8/4/16	8/4/16	8/4/16	8/4/16
Depth interval (inches)		0-4	4-10	0-6	0-6	6-12
Parameter ID	Unit					
Total Organic Carbon	mg/kg	13000	2200	9800	37000	27000
% solids	%	49.1	72.2	61.5	43.4	54.2
PCBs						
Aroclor 1016	µg/g	0.099U	0.0678U	0.0789U	0.112U	0.0914U
Aroclor 1221	µg/g	0.099U	0.0678U	0.0789U	0.112U	0.0914U
Aroclor 1232	µg/g	0.099U	0.0678U	0.0789U	0.112U	0.0914U
Aroclor 1242	µg/g	0.099U	0.0678U	0.0789U	0.112U	0.0914U
Aroclor 1248	µg/g	0.099U	0.0678U	0.0789U	0.112U	0.0914U
Aroclor 1254	µg/g	**0.828**	0.0678U	0.0789U	0.112U	0.0914U
Aroclor 1260	µg/g	**3.34**	0.0678U	**0.269**	**0.426**	**1.17**
Total PCBs		**4.168**	0.0678U	**0.269**	**0.426**	**1.17**

Sample ID		UNT-A3-SED-T47.5	UNT-A3-SED-T48	UNT-A3-SED-T48.5	UNT-A3-SED-T49	UNT-A3-SED-T49.5
Sample Date		8/4/16	8/4/16	8/4/16	8/4/16	8/4/16
Depth interval (inches)		0-6	0-4.5	0-2	0-4	0-6
Parameter ID	Unit					
Total Organic Carbon	mg/kg	10000	19000	12000	16000	25000
% solids	%	68.1	60.7	70.6	75.2	55.3
PCBs						
Aroclor 1016	µg/g	0.0712U	0.0821U	0.486U	0.0659U	0.0874U
Aroclor 1221	µg/g	0.0712U	0.0821U	0.486U	0.0659U	0.0874U
Aroclor 1232	µg/g	0.0712U	0.0821U	0.486U	0.0659U	0.0874U
Aroclor 1242	µg/g	0.0712U	0.0821U	0.486U	0.0659U	0.0874U
Aroclor 1248	µg/g	0.0712U	0.0821U	0.486U	0.0659U	0.0874U
Aroclor 1254	µg/g	0.0712U	**0.415**	0.486U	0.0659U	0.0874U
Aroclor 1260	µg/g	**0.264**	**1.28**	**13.2**	**1.16**	**2.42**
Total PCBs		**0.264**	**1.695**	**13.2**	**1.16**	**2.42**

Sample ID		UNT-A3-SED-T50 CULV DS	UNT-A3-SED-T50 CULV US	UNT-A3-SED-T50.5	UNT-A3-SED-T51	UNT-A3-SED-T51.5
Sample Date		8/4/16	8/4/16	8/8/16	8/8/16	8/8/16
Depth interval (inches)		0-3	0-6	0-1	0-1	0-1
Parameter ID	Unit					
Total Organic Carbon	mg/kg	24000	27000	40000	39000	11000
% solids	%	42.4	53.7	64.7	62.3	78.3
PCBs						
Aroclor 1016	µg/g	0.116U	0.0907U	0.0738U	0.0777U	0.0631U
Aroclor 1221	µg/g	0.116U	0.0907U	0.0738U	0.0777U	0.0631U
Aroclor 1232	µg/g	0.116U	0.0907U	0.0738U	0.0777U	0.0631U
Aroclor 1242	µg/g	0.116U	0.0907U	0.0738U	0.0777U	0.0631U
Aroclor 1248	µg/g	0.116U	0.0907U	0.0738U	**0.627**	0.0631U
Aroclor 1254	µg/g	0.249	0.795	0.0738U	0.0777U	0.0631U
Aroclor 1260	µg/g	**0.982**	**3.04**	**3**	**3.45**	**1.48**
Total PCBs		**1.231**	**3.835**	**3**	**4.077**	**1.48**

Table 3-1
Summary of August 2016 Characterization Sampling

Sample ID		UNT-A3-SED-T52	UNT-A3-SED-T52.5	UNT-A3-SED-T53	UNT-A3-SED-BD4 (53)	UNT-A3-SED-T53.5
Sample Date		8/4/16	8/4/16	8/4/16	8/4/16	8/4/16
Depth interval (inches)		0-4	0-3	0-6	0-6	0-6
Parameter ID	Unit					
Total Organic Carbon	mg/kg	39000	25000	14000	12000	42000
% solids	%	45.7	55.8	63.1	60.8	37.3
PCBs						
Aroclor 1016	µg/g	0.108U	0.0865U	0.0770U	0.0799U	0.133U
Aroclor 1221	µg/g	0.108U	0.0865U	0.0770U	0.0799U	0.133U
Aroclor 1232	µg/g	0.108U	0.0865U	0.0770U	0.0799U	0.133U
Aroclor 1242	µg/g	0.108U	0.0865U	0.0770U	0.0799U	0.133U
Aroclor 1248	µg/g	0.108U	0.0865U	0.0770U	0.0799U	0.133U
Aroclor 1254	µg/g	0.108U	0.0865U	0.0770U	0.0799U	0.133U
Aroclor 1260	µg/g	**2.6**	**0.346**	**0.955**	**1.19**	0.133U
Total PCBs		**2.6**	**0.346**	**0.955**	**1.19**	0.133U

Sample ID		UNT-A3-SED-T53.5 ISLAND N	UNT-A3-SED-T53.5 ISLAND S	UNT-A3-SED-54	UNT-A3-SED-54.5	UNT-SED-A3-54.5 4-9.5"
Sample Date		8/4/16	8/4/16	8/4/16	8/3/16	8/3/16
Depth interval (inches)		0-6	0-6	0-3	0-4	4-9.5
Parameter ID	Unit					
Total Organic Carbon	mg/kg	48000	26000	6300	15000	4100
% solids	%	44.7	58.4	58.3	68.5	59.5
PCBs						
Aroclor 1016	µg/g	0.110U	0.0817U	0.0846U	0.072U	0.0834U
Aroclor 1221	µg/g	0.110U	0.0817U	0.0846U	0.072U	0.0834U
Aroclor 1232	µg/g	0.110U	0.0817U	0.0846U	0.072U	0.0834U
Aroclor 1242	µg/g	0.110U	0.0817U	0.0846U	0.072U	0.0834U
Aroclor 1248	µg/g	0.110U	0.0817U	0.0846U	0.072U	0.0834U
Aroclor 1254	µg/g	0.110U	0.0817U	0.0846U	0.072U	0.0834U
Aroclor 1260	µg/g	**1.38**	**2.91**	**0.0912**	**2.5**	0.0834U
Total PCBs		**1.38**	**2.91**	**0.0912**	**2.5**	0.0834U

Sample ID		UNT-A3-SED-55 CHANNEL	UNT-A3-SED-TRIBT55 0-3"	UNT-A3-SED-55 0-4"	UNT-A3-SED-55.5	UNT-A3-SED-56 0-3"
Sample Date		8/4/16	8/8/16	8/8/16	8/3/16	8/3/16
Depth interval (inches)		0-6	0-3	0-4	0-4	0-3
Parameter ID	Unit					
Total Organic Carbon	mg/kg	11000	9000	6400	11000	3100
% solids	%	65.6	61.4	68.2	56.7	54.1
PCBs						
Aroclor 1016	µg/g	0.0737U	0.0814U	0.0705U	0.0873U	0.0912U
Aroclor 1221	µg/g	0.0737U	**0.0883PB**	0.0705U	0.0873U	0.0912U
Aroclor 1232	µg/g	0.0737U	0.0814U	0.0705U	0.0873U	0.0912U
Aroclor 1242	µg/g	0.0737U	0.0814U	0.0705U	0.0873U	0.0912U
Aroclor 1248	µg/g	0.0737U	0.0814U	0.0705U	0.0873U	0.0912U
Aroclor 1254	µg/g	0.0737U	0.0814U	0.0705U	0.0873U	0.0912U
Aroclor 1260	µg/g	**0.172**	0.0814U	**0.885AG**	**0.443**	0.0912U
Total PCBs		**0.172**	**0.0883**	**0.885**	**0.443**	0.0912U

Sample ID		UNT-A3-SED-56.5 0-4"	UNT-A3-SED-57	UNT-A3-SED-57.5 0-4"	UNT-A3-SED-58	UNT-A3-SED-BD3 (58)
Sample Date		8/3/16	8/3/16	8/3/16	8/3/16	8/3/16
Depth interval (inches)		0-4	0-5	0-4	0-4	0-4
Parameter ID	Unit					
Total Organic Carbon	mg/kg	13000	9100	16000	1700	2400
% solids	%	63.2	75.1	68.2	74.8	74.9
PCBs						
Aroclor 1016	µg/g	0.0753U	0.0651U	0.0713U	0.0664U	0.0655U
Aroclor 1221	µg/g	0.0753U	0.0651U	0.0713U	0.0664U	0.0655U
Aroclor 1232	µg/g	0.0753U	0.0651U	0.0713U	0.0664U	0.0655U
Aroclor 1242	µg/g	0.0753U	0.0651U	0.0713U	0.0664U	0.0655U
Aroclor 1248	µg/g	0.0753U	0.0651U	0.0713U	0.0664U	0.0655U
Aroclor 1254	µg/g	0.0753U	0.0651U	0.0713U	0.0664U	0.0655U
Aroclor 1260	µg/g	0.0753U	**0.0711**	**0.175**	0.0664U	0.0655U
Total PCBs		0.0753U	**0.0711**	**0.175**	0.0664U	0.0655U

Sample ID		UNT-A3-SED-58.5 0-4"	UNT-A3-SED-59 0-6"	UNT-A3-SED-59.5 0-4"	UNT-A3-SED-T60	UNT-A3-SED-T60.5 0-6"
Sample Date		8/3/16	8/3/16	8/3/16	8/2/16	8/2/16
Depth interval (inches)		0-4	0-6	0-4	0-3	0-3
Parameter ID	Unit					
Total Organic Carbon	mg/kg	11000	14000	7900	10000	5300
% solids	%	61.8	64.6	75.9	57.5	62.4
PCBs						
Aroclor 1016	µg/g	0.0744U	0.0725U	0.0628U	0.0843U	0.078U
Aroclor 1221	µg/g	0.0744U	0.0725U	0.0628U	0.0843U	0.078U
Aroclor 1232	µg/g	0.0744U	0.0725U	0.0628U	0.0843U	0.078U
Aroclor 1242	µg/g	0.0744U	0.0725U	0.0628U	0.0843U	0.078U
Aroclor 1248	µg/g	0.0744U	0.0725U	0.0628U	0.0843U	0.078U
Aroclor 1254	µg/g	0.0744U	0.0725U	0.0628U	0.0843U	0.078U
Aroclor 1260	µg/g	**0.0908**	**0.199**	0.0628U	0.0843U	0.078U
Total PCBs		**0.0908**	**0.199**	0.0628U	0.0843U	0.078U

Table 3-1
Summary of August 2016 Characterization Sampling

Sample ID		UNT-A3-SED-T61 0-3"	UNT-A3-SED-T61.5 0-4"	UNT-A3-SED-T62 0-6"	UNT-A3-SED-T62.5 0-6"	UNT-A3-SED-T63 0-6"
Sample Date		8/2/16	8/2/16	8/2/16	8/2/16	8/2/16
Depth interval (inches)		0-3	0-4	0-6	0-6	0-6
Parameter ID	Unit					
Total Organic Carbon	mg/kg	6400	18000	6600	2000	8900
% solids	%	62.6	54.6	70.6	62.2	67.2
PCBs						
Aroclor 1016	µg/g	0.0793U	0.0873U	0.07U	0.0784U	0.0737U
Aroclor 1221	µg/g	0.0793U	0.0873U	0.07U	0.0784U	0.0737U
Aroclor 1232	µg/g	0.0793U	0.0873U	0.07U	0.0784U	0.0737U
Aroclor 1242	µg/g	0.0793U	0.0873U	0.07U	0.0784U	0.0737U
Aroclor 1248	µg/g	0.0793U	0.0873U	0.07U	0.0784U	0.0737U
Aroclor 1254	µg/g	0.0793U	0.0873U	0.07U	0.0784U	0.0737U
Aroclor 1260	µg/g	0.0793U	**0.122**	0.07U	0.0784U	0.0737U
Total PCBs		0.0793U	**0.122**	0.07U	0.0784U	0.0737U

Sample ID		UNT-A3-SED-T63.5 0-6"	UNT-A3-SED-T64	UNT-A3-SED-BD2 (64)	UNT-A3-SED-T64.5 0-6"	UNT-A3-SED-T65 0-6"
Sample Date		8/2/16	8/2/16	8/2/16	8/2/16	8/2/16
Depth interval (inches)		0-6	0-4	0-4	0-6	0-6
Parameter ID	Unit					
Total Organic Carbon	mg/kg	8400	17000	18000	2200	12000
% solids	%	65.1	53.1	49.8	59.3	54.7
PCBs						
Aroclor 1016	µg/g	0.0744U	0.0931U	0.0986U	0.0825U	0.0891U
Aroclor 1221	µg/g	0.0744U	0.0931U	0.0986U	0.0825U	0.0891U
Aroclor 1232	µg/g	0.0744U	0.0931U	0.0986U	0.0825U	0.0891U
Aroclor 1242	µg/g	0.0744U	0.0931U	0.0986U	0.0825U	0.0891U
Aroclor 1248	µg/g	0.0744U	0.0931U	0.0986U	0.0825U	0.0891U
Aroclor 1254	µg/g	0.0744U	0.0931U	0.0986U	0.0825U	0.0891U
Aroclor 1260	µg/g	0.0744U	0.0931U	**0.176**	0.0825U	**0.43**
Total PCBs		0.0744U	0.0931U	**0.176**	0.0825U	**0.43**

Sample ID		UNT-A3-SED-T65.5 0-3"	UNT-A3-SED-T66 0-6"	UNT-A3-SED-T66.5 0-3"	UNT-A3-SED-T67 0-4"	UNT-A3-SED-T67.5
Sample Date		8/2/16	8/2/16	8/2/16	8/1/16	8/1/16
Depth interval (inches)		0-3	0-6	0-6	0-4	0-3
Parameter ID	Unit					
Total Organic Carbon	mg/kg	3100	7900	4100	4600	3700
% solids	%	77.1	77.9	56.4	70.7	65.5
PCBs						
Aroclor 1016	µg/g	0.0629U	0.0626U	0.085U	0.0679U	0.0742U
Aroclor 1221	µg/g	0.0629U	0.0626U	0.085U	0.0679U	0.0742U
Aroclor 1232	µg/g	0.0629U	0.0626U	0.085U	0.0679U	0.0742U
Aroclor 1242	µg/g	0.0629U	0.0626U	0.085U	0.0679U	0.0742U
Aroclor 1248	µg/g	0.0629U	0.0626U	0.085U	0.0679U	0.0742U
Aroclor 1254	µg/g	0.0629U	0.0626U	0.085U	0.0679U	0.0742U
Aroclor 1260	µg/g	**0.284**	**0.218**	0.085U	0.0679U	0.0742U
Total PCBs		**0.284**	**0.218**	0.085U	0.0679U	0.0742U

Sample ID		UNT-A3-SED-T68	UNT-A3-SED-T68.5	UNT-A3-SED-T69	UNT-A3-SED-T69.5	UNT-A3-SED-T69.5
Sample Date		8/1/16	8/1/16	8/1/16	8/2/16	8/2/16
Depth interval (inches)		0-3	0-3	0-6	0-6	6-12
Parameter ID	Unit					
Total Organic Carbon	mg/kg	3100	2800	11000	6700	6100
% solids	%	74.6	67.7	73	68.8	75.6
PCBs						
Aroclor 1016	µg/g	0.0653U	0.0718U	0.0675U	0.0724U	0.0642U
Aroclor 1221	µg/g	0.0653U	0.0718U	0.0675U	0.0724U	0.0642U
Aroclor 1232	µg/g	0.0653U	0.0718U	0.0675U	0.0724U	0.0642U
Aroclor 1242	µg/g	0.0653U	0.0718U	0.0675U	0.0724U	0.0642U
Aroclor 1248	µg/g	0.0653U	0.0718U	0.0675U	0.0724U	0.0642U
Aroclor 1254	µg/g	0.0653U	0.0718U	0.0675U	0.0724U	0.0642U
Aroclor 1260	µg/g	0.0653U	0.0718U	**0.177**	**0.645**	**0.141**
Total PCBs		0.0653U	0.0718U	**0.177**	**0.645**	**0.141**

Sample ID		UNT-A3-SED-T70 0-6"	UNT-A3-SED-T70	UNT-A3-SED-70 12-17"	UNT-A3-SED-T70.5	UNT-A3-SED-T71
Sample Date		8/1/16	8/1/16	8/1/16	8/1/16	8/1/16
Depth interval (inches)		0-6	6-12	12-17	0-6	0-6
Parameter ID	Unit					
Total Organic Carbon	mg/kg	17000	19000	9800	11000	16000
% solids	%	62.1	58.1	74.7	69	68.6
PCBs						
Aroclor 1016	µg/g	0.080U	0.0825U	0.0665U	0.0716U	0.072U
Aroclor 1221	µg/g	0.080U	0.0825U	0.0665U	0.0716U	0.072U
Aroclor 1232	µg/g	0.080U	0.0825U	0.0665U	0.0716U	0.072U
Aroclor 1242	µg/g	0.080U	0.0825U	0.0665U	0.0716U	0.072U
Aroclor 1248	µg/g	**0.607**	0.0825U	0.0665U	0.0716U	0.072U
Aroclor 1254	µg/g	0.080U	0.0825U	0.0665U	0.0716U	0.072U
Aroclor 1260	µg/g	**2.94**	**0.964**	**0.461**	**0.364**	**0.314**
Total PCBs		**3.547**	**0.964**	**0.461**	**0.364**	**0.314**

Table 3-1
Summary of August 2016 Characterization Sampling

Sample ID		UNT-A3-SED-BD1 (71)	UNT-A3-SED-T71	UNT-A3-SED-T71.5 0-3"	UNT-A3-SED-T72	UNT-A3-SED-T74
Sample Date		8/1/16	8/1/16	8/8/16	8/8/16	8/8/16
Depth interval (inches)		0-6	6-12	0-3	0-1	0-1
Parameter ID	Unit					
Total Organic Carbon	mg/kg	12000	6500	23000	6000	5200
% solids	%	68.6	82.3	62.3	80.1	74.3
PCBs						
Aroclor 1016	µg/g	0.0679U	0.0572U	0.0788U	0.0616U	0.0659U
Aroclor 1221	µg/g	0.0679U	0.0572U	0.0788U	0.0616U	0.0659U
Aroclor 1232	µg/g	0.0679U	0.0572U	0.0788U	0.0616U	0.0659U
Aroclor 1242	µg/g	0.0679U	0.0572U	0.0788U	0.0616U	0.0659U
Aroclor 1248	µg/g	0.0679U	0.0572U	0.0788U	0.0616U	0.0659U
Aroclor 1254	µg/g	0.0679U	0.0572U	0.0788U	0.0616U	0.0659U
Aroclor 1260	µg/g	**1.27**	**0.155**	**0.655AG**	**0.2**	**0.275**
Total PCBs		**1.27**	**0.155**	**0.655**	**0.2**	**0.275**

Sample ID		UNT-A3-SED-T74.5	UNT-A3-SED-BD5 (74.5)	UNT-A3-SED-T75	UNT-A3-SED-T75.5	UNT-A3-SED-T76
Sample Date		8/8/16	8/8/16	8/8/16	8/8/16	8/8/16
Depth interval (inches)		0-1	0-1	0-1	0-1	0-1
Parameter ID	Unit					
Total Organic Carbon	mg/kg	6600	6200	5100	8200	15000
% solids	%	78.1	79.5	81.3	75	66.4
PCBs						
Aroclor 1016	µg/g	0.0634U	0.0606U	0.0602U	0.0657U	0.0752U
Aroclor 1221	µg/g	0.0634U	0.0606U	0.0602U	0.0657U	0.0752U
Aroclor 1232	µg/g	0.0634U	0.0606U	0.0602U	0.0657U	0.0752U
Aroclor 1242	µg/g	0.0634U	0.0606U	0.0602U	0.0657U	0.0752U
Aroclor 1248	µg/g	0.0634U	0.0606U	0.0602U	0.0657U	0.0752U
Aroclor 1254	µg/g	0.0634U	0.0606U	0.0602U	0.0657U	0.0752U
Aroclor 1260	µg/g	**0.229**	**0.581**	**0.0981**	**0.142**	**0.434**
Total PCBs		**0.229**	**0.581**	**0.0981**	**0.142**	**0.434**

Floodplain Samples

Sample ID		UNT-A3-SED-58-POOL: 0-6"	UNT-A3-SED-58-POOL: 6-12"	UNT-SED-A3-58POOL 12-18"	UNT-A3-SED-FP2 0-3"	UNT-A3-SED-FP3 0-6"
Sample Date		8/3/16	8/3/16	8/3/16	8/8/16	8/8/16
Depth interval (inches)		0-6	6-12	12-18	0-3	0-6
Parameter ID	Unit					
Total Organic Carbon	mg/kg	41000	14000	3400	40000	43000
% solids	%	42.4	55.6	57.6	57.2	52.7
PCBs						
Aroclor 1016	µg/g	0.112U	0.0871U	0.0843U	0.0816U	0.09U
Aroclor 1221	µg/g	0.112U	0.0871U	0.0843U	0.0816U	0.09U
Aroclor 1232	µg/g	0.112U	0.0871U	0.0843U	0.0816U	0.09U
Aroclor 1242	µg/g	0.112U	0.0871U	0.0843U	0.0816U	0.09U
Aroclor 1248	µg/g	0.112U	0.0871U	0.0843U	**0.176AE**	0.09U
Aroclor 1254	µg/g	0.112U	0.0871U	0.0843U	0.0816U	0.09U
Aroclor 1260	µg/g	**2.27**	**1.14**	0.0843U	**2.16AG**	**0.259AG**
Total PCBs		**2.27**	**1.14**	0.0843U	**2.336**	**0.259**

Sample ID		UNT-A3-SED-FP4 0-3"	UNT-A3-SED-FP5 0-6"
Sample Date		8/8/16	8/8/16
Depth interval (inches)		0-4	0-6
Parameter ID	Unit		
Total Organic Carbon	mg/kg	34000	28000
% solids	%	80.3	59.5
PCBs			
Aroclor 1016	µg/g	0.0606U	0.0819U
Aroclor 1221	µg/g	0.0606U	0.0819U
Aroclor 1232	µg/g	0.0606U	0.0819U
Aroclor 1242	µg/g	0.0606U	0.0819U
Aroclor 1248	µg/g	0.0606U	0.0819U
Aroclor 1254	µg/g	0.0606U	0.0819U
Aroclor 1260	µg/g	**0.361AG**	**0.534AG**
Total PCBs		**0.361**	**0.534**

Key:
U = Nondetect
AE= Aroclor 1248 concentration flagged to denote that an altered Aroclor patter was observed.
AG = Aroclor 1260 concentration flagged to denote that an altered Aroclor patter was observed.
PB = Aroclor 1221 is being used to quantify an altered Aroclor pattern; Aroclor 1221 is not preseumed to be present.
Bold font indicates PCB detection
Blue highlight indicates total PCB concentration greater than cleanup goal of 1 part per million (ppm)

Note: Laboratory reported units (micrograms per kilogram, or ug/kg), have been converted to microgram per gram (ug/g), which is equivalent to milligrams per kilogram (mg/kg) and parts per million (ppm)

Table 3-2
Summary of December 2016 Characterization Sampling

Sample ID		UNT-A3-SED-T45.5	UNT-A3-SED-T48HWEAST	UNT-A3-SED-T48HWEAST	UNT-A3-SED-T48HWWEST	UNT-A3-SED-T48HWWEST
Sample Date		12/16/16	12/16/16	12/16/16	12/16/16	12/16/16
Depth interval (inches)		0-6	0-6	6-12	0-6	6-12
Parameter ID	Unit					
% moisture	%	36.9	25.9	27	31.2	31.3
PCBs						
Aroclor 1016	µg/g	<0.023	<0.079	<0.020	<0.086	<0.021
Aroclor 1221	µg/g	<0.021	<0.070	<0.018	<0.076	<0.019
Aroclor 1232	µg/g	<0.025	<0.086	<0.022	<0.093	<0.023
Aroclor 1242	µg/g	<0.016	<0.054	<0.014	<0.058	<0.015
Aroclor 1248	µg/g	<0.014	**0.17J**	<0.012	**0.41J**	<0.012
Aroclor 1254	µg/g	<0.014	<0.048	<0.012	<0.052	**1.3**
Aroclor 1260	µg/g	0.11J	**4.1**	**3.1**	**7.0**	**1.8**
Total PCBs		0.12J	**4.3**	**3.1**	**7.4**	**3.1**

Sample ID		UNT-A3-SED-T51HWWEST	UNT-A3-SED-BD8 (51HWWEST)	UNT-A3-SED-T51HWEAST	UNT-A3-SED-52HWEAST	UNT-A3-SED-52HWWEST
Sample Date		12/16/16	12/16/16	12/16/16	12/16/16	12/16/16
Depth interval (inches)		0-6	0-6	0-6	0-6	0-6
Parameter ID	Unit					
% moisture	%	19.4	27.6	25.4	23.2	26.7
PCBs						
Aroclor 1016	µg/g	<0.018	<0.020	<0.020	<0.019	<0.020
Aroclor 1221	µg/g	<0.016	<0.018	<0.017	<0.017	<0.018
Aroclor 1232	µg/g	<0.020	<0.022	<0.021	<0.021	<0.022
Aroclor 1242	µg/g	<0.012	<0.014	<0.013	<0.013	<0.014
Aroclor 1248	µg/g	**0.045J**	**0.054J**	**0.021J**	<0.011	<0.012
Aroclor 1254	µg/g	<0.011	<0.012	<0.012	<0.012	<0.012
Aroclor 1260	µg/g	**0.24J**	**0.32**	**0.16J**	**0.23J**	**0.083J**
Total PCBs		**0.28**	**0.37**	**0.19J**	**0.24J**	**0.094J**

Sample ID		UNT-A3-SED-T53-1	UNT-A3-SED-T53-1	UNT-A3-SED-T53-2	UNT-A3-SED-T53-3	UNT-A3-SED-T53-4
Sample Date		12/16/16	12/16/16	12/16/16	12/16/16	12/16/16
Depth interval (inches)		0-6	6-12	0-6	0-6	0-6
Parameter ID	Unit					
% moisture	%	33.2	29.1	30.3	29.1	42.3
PCBs						
Aroclor 1016	µg/g	<1.1	<0.021	<0.021	<0.021	<0.025
Aroclor 1221	µg/g	<0.97	<0.018	<0.019	<0.018	<0.023
Aroclor 1232	µg/g	<1.2	<0.022	<0.023	<0.023	<0.028
Aroclor 1242	µg/g	<0.75	<0.014	<0.014	<0.014	<0.017
Aroclor 1248	µg/g	**2.8J**	<0.012	<0.012	<0.012	<0.015
Aroclor 1254	µg/g	<0.67	<0.013	<0.013	<0.013	<0.015
Aroclor 1260	µg/g	**35.4**	**28.1**	**0.074J**	**0.31**	**0.062J**
Total PCBs		**38.3**	**28.1**	**0.074J**	**0.61**	**0.062J**

Sample ID		UNT-A3-SED-T53-5	UNT-A3-SED-T53-6	UNT-A3-SED-T53-7	UNT-A3-SED-BD7 (53-7)	UNT-A3-SED-T53-8
Sample Date		12/16/16	12/16/16	12/16/16	12/16/16	12/16/16
Depth interval (inches)		0-6	0-6	0-6	0-6	0-6
Parameter ID	Unit					
% moisture	%	30.1	32.9	27.0	28.4	28.2
PCBs						
Aroclor 1016	µg/g	<0.021	<0.022	<0.020	<0.021	<0.020
Aroclor 1221	µg/g	<0.019	<0.019	<0.018	<0.018	<0.018
Aroclor 1232	µg/g	<0.023	<0.024	<0.022	<0.022	<0.022
Aroclor 1242	µg/g	<0.014	<0.015	<0.014	<0.014	<0.014
Aroclor 1248	µg/g	<0.012	**0.025J**	<0.012	<0.012	<0.012
Aroclor 1254	µg/g	<0.013	<0.013	<0.012	<0.012	<0.012
Aroclor 1260	µg/g	**0.026J**	**0.24J**	**0.11J**	**0.091J**	**0.051J**
Total PCBs		**0.026J**	**0.27J**	**0.11J**	**0.091J**	**0.051J**

Table 3-2
Summary of December 2016 Characterization Sampling

Sample ID		UNT-A3-SED-T55-1	UNT-A3-SED-T55-1	UNT-A3-SED-T55-2	UNT-A3-SED-T55-3	UNT-A3-SED-T55-4
Sample Date		12/16/16	12/16/16	12/16/16	12/16/16	12/16/16
Depth interval (inches)		0-6	6-12	0-6	0-6	0-6
Parameter ID	Unit					
% moisture	%	45.4	37.1	33.5	21.8	22.1
PCBs						
Aroclor 1016	µg/g	<0.027	<0.023	<0.022	<0.019	<0.019
Aroclor 1221	µg/g	<0.024	<0.021	<0.020	<0.017	<0.017
Aroclor 1232	µg/g	<0.029	<0.025	<0.024	<0.020	<0.021
Aroclor 1242	µg/g	<0.018	<0.016	<0.015	<0.013	<0.013
Aroclor 1248	µg/g	**0.11J**	<0.014	**0.12J**	<0.011	<0.011
Aroclor 1254	µg/g	<0.016	**0.36**	<0.013	<0.011	<0.011
Aroclor 1260	µg/g	**0.83**	**0.57**	**0.71**	**0.31**	**0.12J**
Total PCBs		**0.94**	**0.92**	**0.83**	**0.59**	**0.12J**

Sample ID		UNT-A3-SED-T58-1	UNT-A3-SED-T58-2	UNT-A3-SED-T58-4	UNT-A3-SED-T58-5	UNT-A3-SED-T58-5
Sample Date		12/16/16	12/16/16	12/16/16	12/16/16	12/16/16
Depth interval (inches)		0-6	0-6	0-6	0-6	6-12
Parameter ID	Unit					
% moisture	%	30.4	32.3	31.1	36.6	31.7
PCBs						
Aroclor 1016	µg/g	<0.021	<0.022	<0.021	<0.023	<0.022
Aroclor 1221	µg/g	<0.019	<0.019	<0.019	<0.020	<0.019
Aroclor 1232	µg/g	<0.023	<0.024	<0.023	<0.025	<0.023
Aroclor 1242	µg/g	<0.014	<0.015	<0.014	<0.016	<0.015
Aroclor 1248	µg/g	<0.012	<0.013	<0.012	**0.27J**	<0.013
Aroclor 1254	µg/g	<0.013	<0.013	<0.013	<0.014	<0.013
Aroclor 1260	µg/g	**0.11J**	**0.090J**	**0.12J**	**3.1**	**3.3**
Total PCBs		**0.31**	**0.090J**	**0.12J**	**3.4**	**3.3**

Sample ID		UNT-A3-SED-T58-6	UNT-A3-SED-T69-1	UNT-A3-SED-T69-1	UNT-A3-SED-T69-2	UNT-A3-SED-T69-2
Sample Date		12/16/16	12/16/16	12/16/16	12/16/16	12/16/16
Depth interval (inches)		0-6	0-6	6-12	0-6	6-12
Parameter ID	Unit					
% moisture	%	31.3	23.4	28.1	31.6	21.4
PCBs						
Aroclor 1016	µg/g	<0.021	<0.019	<0.020	<0.021	<0.019
Aroclor 1221	µg/g	<0.019	<0.017	<0.018	<0.019	<0.017
Aroclor 1232	µg/g	<0.023	<0.021	<0.022	<0.023	<0.020
Aroclor 1242	µg/g	<0.015	<0.013	<0.014	<0.015	<0.013
Aroclor 1248	µg/g	<0.013	**0.15J**	<0.012	**0.13J**	<0.011
Aroclor 1254	µg/g	<0.013	<0.012	<0.012	<0.013	<0.011
Aroclor 1260	µg/g	**0.066J**	**2.8**	**3.6**	**5.8**	**1.2**
Total PCBs		**0.066J**	**3.0**	**3.6**	**5.9**	**1.2**

Sample ID		UNT-A3-SED-T69-3	UNT-A3-SED-T69-4	UNT-A3-SED-T69-5	UNT-A3-SED-T69-5	UNT-A3-SED-T69-6
Sample Date		12/16/16	12/16/16	12/16/16	12/16/16	12/16/16
Depth interval (inches)		0-6	0-6	0-6	6-12	0-6
Parameter ID	Unit					
% moisture	%	42.9	27.7	23.8	30.5	28.2
PCBs						
Aroclor 1016	µg/g	<0.026	<0.020	<0.019	<0.021	<0.020
Aroclor 1221	µg/g	<0.023	<0.018	<0.017	<0.019	<0.018
Aroclor 1232	µg/g	<0.028	<0.022	<0.021	<0.023	<0.022
Aroclor 1242	µg/g	<0.017	<0.014	<0.013	<0.014	<0.014
Aroclor 1248	µg/g	**0.018J**	<0.012	**0.091J**	<0.012	**0.15J**
Aroclor 1254	µg/g	<0.016	<0.012	<0.012	<0.013	<0.012
Aroclor 1260	µg/g	**0.55**	**0.028J**	**1.2**	**3.6**	**2.5**
Total PCBs		**0.57**	**0.028J**	**1.3**	**3.6**	**2.6**

Table 3-2
Summary of December 2016 Characterization Sampling

Sample ID		UNT-A3-SED-T69-6	UNT-A3-SED-T69-7	UNT-A3-SED-T70-1	UNT-A3-SED-T70-2	UNT-A3-SED-T70-3
Sample Date		12/16/16	12/16/16	12/16/16	12/16/16	12/16/16
Depth interval (inches)		6-12	0-6	0-6	0-6	0-6
Parameter ID	Unit					
% moisture	%	22.3	28.2	37.1	26.1	30.8
PCBs						
Aroclor 1016	µg/g	<0.019	<0.020	<0.023	<0.020	<0.021
Aroclor 1221	µg/g	<0.017	<0.018	<0.021	<0.018	<0.019
Aroclor 1232	µg/g	<0.021	<0.022	<0.025	<0.022	<0.023
Aroclor 1242	µg/g	<0.013	<0.014	<0.016	<0.014	<0.014
Aroclor 1248	µg/g	<0.011	<0.012	<0.014	**0.043J**	**0.036J**
Aroclor 1254	µg/g	**11.3**	<0.012	<0.014	<0.012	<0.013
Aroclor 1260	µg/g	<0.0094	**0.046J**	**0.18J**	**0.63**	**0.43**
Total PCBs		**11.3**	**0.046J**	**0.18J**	**0.67**	**0.47**

Sample ID		UNT-A3-SED-T70-4	UNT-A3-SED-T70-5	UNT-A3-SED-T71-1	UNT-A3-SED-T71-2	UNT-A3-SED-T71-3
Sample Date		12/16/16	12/16/16	12/16/16	12/16/16	12/16/16
Depth interval (inches)		0-6	0-6	0-6	0-6	0-6
Parameter ID	Unit					
% moisture	%	23.4	20.3	26.1	27.8	30.9
PCBs						
Aroclor 1016	µg/g	<0.019	<0.018	<0.020	<0.020	<0.021
Aroclor 1221	µg/g	<0.017	<0.016	<0.018	<0.018	<0.019
Aroclor 1232	µg/g	<0.021	<0.020	<0.022	<0.022	<0.023
Aroclor 1242	µg/g	<0.013	<0.013	<0.014	<0.014	<0.014
Aroclor 1248	µg/g	<0.011	<0.011	**0.040J**	**0.012J**	<0.012
Aroclor 1254	µg/g	<0.012	<0.011	<0.012	<0.012	<0.013
Aroclor 1260	µg/g	**0.037J**	**0.015J**	**0.42**	**0.27J**	**0.014J**
Total PCBs		**0.037J**	<0.021	**0.46**	**0.28**	<0.024

Sample ID		UNT-A3-SED-T71-4	UNT-A3-SED-T71-5	UNT-A3-SED-T71-5	UNT-A3-SED-T71-6	UNT-A3-SED-BD6 (71-6)
Sample Date		12/16/16	12/16/16	12/16/16	12/16/16	12/16/16
Depth interval (inches)		0-6	0-6	6-12	0-6	0-6
Parameter ID	Unit					
% moisture	%	30.9	25.9	29.3	29.9	28.8
PCBs						
Aroclor 1016	µg/g	<0.021	<0.020	<0.021	<0.021	<0.021
Aroclor 1221	µg/g	<0.019	<0.017	<0.018	<0.018	<0.018
Aroclor 1232	µg/g	<0.023	<0.021	<0.023	<0.023	<0.022
Aroclor 1242	µg/g	<0.014	<0.013	<0.014	<0.014	<0.014
Aroclor 1248	µg/g	<0.012	**0.49**	<0.012	**0.032J**	0.026J
Aroclor 1254	µg/g	<0.013	<0.012	**15.1**	<0.013	<0.013
Aroclor 1260	µg/g	**0.020J**	**5.7**	<0.010	**1.1**	**1.2**
Total PCBs		<0.024	**6.2**	**15.1**	**1.2**	**1.2**

Sample ID		UNT-A3-SED-T71-6	UNT-A3-SED-T71-7	UNT-A3-SED-END
Sample Date		12/16/16	12/16/16	12/16/16
Depth interval (inches)		6-12	0-6	0-6
Parameter ID	Unit			
% moisture	%	20.4	31.3	39.4
PCBs				
Aroclor 1016	µg/g	<0.018	<0.021	<0.024
Aroclor 1221	µg/g	<0.016	<0.019	<0.021
Aroclor 1232	µg/g	<0.020	<0.023	<0.026
Aroclor 1242	µg/g	<0.013	<0.014	<0.016
Aroclor 1248	µg/g	<0.011	<0.012	**0.035J**
Aroclor 1254	µg/g	**0.11J**	<0.013	<0.015
Aroclor 1260	µg/g	**0.31**	**0.025J**	**0.28J**
Total PCBs		**0.42**	**0.025J**	**0.31J**

Table 3-2
Summary of December 2016 Characterization Sampling

Floodplain Samples						
Sample ID		**UNT-A3-SED-FP6**	**UNT-A3-SED-FP7**	**UNT-A3-SED-FP7**	**UNT-A3-SED-BD10 (FP-7)**	**UNT-A3-SED-FP8**
Sample Date		**12/16/16**	**12/16/16**	**12/16/16**	**12/16/16**	**12/16/16**
Depth interval (inches)		**0-6**	**0-6**	**6-12**	**6-12**	**0-6**
Parameter ID	**Unit**					
% moisture	%	32.9	36.1	28.7	28.6	47.0
PCBs						
Aroclor 1016	µg/g	<0.022	<0.092	<0.021	<0.020	<0.028
Aroclor 1221	µg/g	<0.019	<0.081	<0.018	<0.018	<0.025
Aroclor 1232	µg/g	<0.024	<0.10	<0.022	<0.022	<0.030
Aroclor 1242	µg/g	<0.015	<0.063	<0.014	<0.014	<0.019
Aroclor 1248	µg/g	<0.013	**0.22J**	<0.012	<0.012	**0.089J**
Aroclor 1254	µg/g	<0.013	<0.056	<0.013	<0.012	<0.017
Aroclor 1260	µg/g	0.22J	**4.2**	**7.2**	**10.9**	**0.88**
Total PCBs		0.22J	**4.4**	**7.2**	**10.9**	**0.96**

Sample ID		**UNT-A3-SED-FP8**	**UNT-A3-SED-FP9**	**UNT-A3-SED-FP10**	**UNT-A3-SED-FP10**	**UNT-A3-SED-FP11**
Sample Date		**12/16/16**	**12/16/16**	**12/16/16**	**12/16/16**	**12/16/16**
Depth interval (inches)		**6-12**	**0-6**	**0-6**	**6-12**	**0-6**
Parameter ID	**Unit**					
% moisture	%	39.8	49.2	43.4	41.1	32.6
PCBs						
Aroclor 1016	µg/g	<0.024	<0.029	<0.052	<0.025	<0.022
Aroclor 1221	µg/g	<0.022	<0.026	<0.046	<0.022	<0.019
Aroclor 1232	µg/g	<0.027	<0.032	<0.056	<0.027	<0.024
Aroclor 1242	µg/g	<0.017	<0.020	<0.035	<0.017	<0.015
Aroclor 1248	µg/g	<0.014	**0.023J**	0.57J	<0.015	**0.060J**
Aroclor 1254	µg/g	**0.14J**	<0.018	<0.031	<0.015	<0.013
Aroclor 1260	µg/g	**0.36**	**0.16J**	**3.5**	**4.1**	**0.29J**
Total PCBs		**0.5**	**0.19J**	**4.1**	**4.1**	**0.35**

Sample ID		**UNT-A3-SED-FP12**	**UNT-A3-SED-FP13**	**UNT-A3-SED-FP14**	**UNT-A3-SED-FP15**	**UNT-A3-SED-BD9 (FP15)**
Sample Date		**12/16/16**	**12/16/16**	**12/16/16**	**12/16/16**	**12/16/16**
Depth interval (inches)		**0-6**	**0-6**	**0-6**	**0-6**	**0-6**
Parameter ID	**Unit**					
% moisture	%	26.6	23.8	33.7	21.7	24.2
PCBs						
Aroclor 1016	µg/g	<0.020	<0.019	<0.022	<0.019	<0.019
Aroclor 1221	µg/g	<0.018	<0.017	<0.020	<0.017	<0.017
Aroclor 1232	µg/g	<0.022	<0.021	<0.024	<0.020	<0.021
Aroclor 1242	µg/g	<0.014	<0.013	<0.015	<0.013	<0.013
Aroclor 1248	µg/g	**0.024J**	**0.11J**	**0.014J**	**0.033J**	**0.039J**
Aroclor 1254	µg/g	<0.012	<0.012	<0.013	<0.011	<0.012
Aroclor 1260	µg/g	**0.59**	**0.41**	**0.11J**	**0.41**	**0.15J**
Total PCBs		**0.61**	**0.52**	**0.13J**	**0.45**	**0.19J**

Sample ID		**UNT-A3-SED-FP16**	**UNT-A3-SED-FP16**
Sample Date		**12/16/16**	**12/16/16**
Depth interval (inches)		**0-6**	**6-12**
Parameter ID	**Unit**		
% moisture	%	36.3	36.2
PCBs			
Aroclor 1016	µg/g	<0.092	<0.023
Aroclor 1221	µg/g	<0.082	<0.020
Aroclor 1232	µg/g	<0.10	<0.025
Aroclor 1242	µg/g	<0.063	<0.016
Aroclor 1248	µg/g	**0.22J**	<0.013
Aroclor 1254	µg/g	<0.056	<0.014
Aroclor 1260	µg/g	**3.6**	**3.7**
Total PCBs		**3.9**	**3.7**

Key:
<= Nondetect
J = Estimated; detected above the method detection limit (MDL), but below the Practical Quantitation Limit (PQL)
BD = Blind Duplicate
FP = Flood Plain
Notes:
Bold font indicates PCB detection
Blue highlight indicates total PCB concentration greater than cleanup goal of 1 part per million (ppm)
Sample UNT-A3-SED-58-3 was broken during shipment and therfore not analyzed.

Note: Laboratory reported units (micrograms per kilogram, or ug/kg), have been converted to microgram per gram (ug/g), which is equivalent to milligrams per kilogram (mg/kg) and parts per million (ppm)

Table 3-3
Summary of May 2017 Characterization Sediment Sampling

Sample ID		SW-49.5 12-18		SW-49.5 18-24		TB-49.5-1 0-6		TB-49.5-1 6-12		TB-49.5-2 0-6	
Date		5/24/2017		5/24/2017		5/24/2017		5/24/2017		5/24/2017	
Depth Interval (in)		12-18		18-24		0-6		6-12		0-6	
Chemical_Name	Unit	Result_Value	Qual		Qual		Qual		Qual		Qual
Solids, Total	%	69.5		65.4		71.9		73.6		70.7	
Aroclor 1016	ug/g	0.93	U	1.00	U	0.46	U	0.22	U	0.05	U
Aroclor 1221	ug/g	0.93	U	1.00	U	0.46	U	0.22	U	0.05	U
Aroclor 1232	ug/g	0.93	U	1.00	U	0.46	U	0.22	U	0.05	U
Aroclor 1242	ug/g	0.93	U	1.00	U	0.46	U	0.22	U	0.05	U
Aroclor 1248	ug/g	0.93	U	1.00	U	0.46	U	0.22	U	0.05	U
Aroclor 1254	ug/g	0.93	U	1.00	U	0.46	U	0.22	U	0.05	U
Aroclor 1262	ug/g	0.93	U	1.00	U	0.46	U	0.22	U	**0.08**	
Aroclor 1268	ug/g	0.93	U	1.00	U	0.46	U	0.22	U	0.05	U
Aroclor 1260	ug/g	**16.80**		**18.90**		**4.01**		**2.08**		0.05	U
PCBs, Total	ug/g	**16.80**		**18.90**		**4.01**		**2.08**		**0.08**	

Sample ID		TB-49.5-2 6-12		SW-48 12-18		SW-48 18-24		TB-48-1 0-6		TB-48-1 6-12	
Date		5/24/2017		5/24/2017		5/24/2017		5/24/2017		5/24/2017	
Depth Interval (in)		6-12		12-18		18-24		0-6		6-12	
Chemical_Name	Unit		Qual		Qual		Qual		Qual		Qual
Solids, Total	%	80.7		61.8		70.1		73.4		73.8	
Aroclor 1016	ug/g	0.041	U	0.522	U	0.465	U	0.888	U	0.862	U
Aroclor 1221	ug/g	0.041	U	0.522	U	0.465	U	0.888	U	0.862	U
Aroclor 1232	ug/g	0.041	U	0.522	U	0.465	U	0.888	U	0.862	U
Aroclor 1242	ug/g	0.041	U	0.522	U	0.465	U	0.888	U	0.862	U
Aroclor 1248	ug/g	0.041	U	0.522	U	0.465	U	0.888	U	0.862	U
Aroclor 1254	ug/g	0.041	U	0.522	U	0.465	U	0.888	U	0.862	U
Aroclor 1262	ug/g	**0.046**		0.522	U	0.465	U	0.888	U	0.862	U
Aroclor 1268	ug/g	0.041	U	0.522	U	0.465	U	0.888	U	0.862	U
Aroclor 1260	ug/g	0.041	U	**6.050**		**6.470**		**10.400**		**8.720**	
PCBs, Total	ug/g	**0.05**		**6.05**		**6.47**		**10.40**		**8.72**	

Sample ID		TB-48-2 0-6		TB-48-2 6-12		SW-46.5 12-18		SW-46.5 18-24		TB-46.5-1 0-6	
Date		5/24/2017		5/24/2017		5/24/2017		5/24/2017		5/24/2017	
Depth Interval (in)		0-6		6-12		12-18		18-24		0-6	
Chemical_Name	Unit		Qual		Qual		Qual		Qual		Qual
Solids, Total	%	79.5		74.9		66.4		63.5		73.1	
Aroclor 1016	ug/g	0.040	U	0.044	U	0.049	U	0.051	U	0.044	U
Aroclor 1221	ug/g	0.040	U	0.044	U	0.049	U	0.051	U	0.044	U
Aroclor 1232	ug/g	0.040	U	0.044	U	0.049	U	0.051	U	0.044	U
Aroclor 1242	ug/g	0.040	U	0.044	U	0.049	U	0.051	U	0.044	U
Aroclor 1248	ug/g	0.040	U	0.044	U	0.049	U	0.051	U	0.044	U
Aroclor 1254	ug/g	0.040	U	0.044	U	0.049	U	0.051	U	0.044	U
Aroclor 1262	ug/g	**0.086**		**0.042**	**J**	**0.011**	**J**	**0.010**	**J**	**0.037**	**J**
Aroclor 1268	ug/g	0.040	U	0.044	U	0.049	U	0.051	U	0.044	U
Aroclor 1260	ug/g	0.040	U	0.044	U	0.049	U	0.051	U	0.044	U
PCBs, Total	ug/g	**0.086**		**0.042**	**J**	**0.011**	**J**	**0.010**	**J**	**0.037**	**J**

Sample ID		TB-46.5-1 6-12		TB-46.5-2 0-6		TB-46.5-2 6-12		SW-51.5 12-18		SW-51.5 18-24	
Date		5/24/2017		5/24/2017		5/24/2017		5/24/2017		5/24/2017	
Depth Interval (in)		6-12		0-6		6-12		12-18		18-24	
Chemical_Name	Unit		Qual		Qual		Qual		Qual		Qual
Solids, Total	%	76.40		78.8		78.7		74.2		72.8	
Aroclor 1016	ug/g	0.04	U	0.0416	U	0.0417	U	0.445	U	0.221	U
Aroclor 1221	ug/g	0.04	U	0.0416	U	0.0417	U	0.445	U	0.221	U
Aroclor 1232	ug/g	0.04	U	0.0416	U	0.0417	U	0.445	U	0.221	U
Aroclor 1242	ug/g	0.04	U	0.0416	U	0.0417	U	0.445	U	0.221	U
Aroclor 1248	ug/g	0.04	U	0.0416	U	0.0417	U	0.445	U	0.221	U
Aroclor 1254	ug/g	0.04	U	0.0416	U	0.0417	U	0.445	U	0.221	U
Aroclor 1262	ug/g	**0.01**	**J**	**0.0135**	**J**	**0.0156**	**J**	0.445	U	0.221	U
Aroclor 1268	ug/g	0.04	U	0.0416	U	0.0417	U	0.445	U	0.221	U
Aroclor 1260	ug/g	0.04	U	0.0416	U	0.0417	U	**6.12**		**2.03**	
PCBs, Total	ug/g	**0.01**	**J**	**0.0135**	**J**	**0.0156**	**J**	**6.12**		**2.03**	

Table 3-3
Summary of May 2017 Characterization Sediment Sampling

Sample ID		TB-51.5-1 0-6		TB-51.5-1 6-12		TB-51.5-2 0-6		TB-51.5-2 6-12		SW-52 0-6	
Date		5/24/2017		5/24/2017		5/24/2017		5/24/2017		5/24/2017	
Depth Interval (in)		0-6		6-12		0-6		6-12		0-6	
Chemical_Name	Unit		Qual		Qual		Qual		Qual		Qual
Solids, Total	%	73.2		79.3		77.9		79.0		67.6	
Aroclor 1016	ug/g	0.045	U	0.0408	U	0.0421	U	0.041	U	0.0475	U
Aroclor 1221	ug/g	0.045	U	0.0408	U	0.0421	U	0.041	U	0.0475	U
Aroclor 1232	ug/g	0.045	U	0.0408	U	0.0421	U	0.041	U	0.0475	U
Aroclor 1242	ug/g	0.045	U	0.0408	U	0.0421	U	0.041	U	0.0475	U
Aroclor 1248	ug/g	0.045	U	0.0408	U	0.0421	U	0.041	U	0.0475	U
Aroclor 1254	ug/g	0.045	U	0.0408	U	0.0421	U	0.041	U	0.0475	U
Aroclor 1262	ug/g	0.045	U	**0.027**	**J**	**0.0398**	**J**	**0.0264**	**J**	0.0475	U
Aroclor 1268	ug/g	0.045	U	0.0408	U	0.0421	U	0.041	U	**0.106**	
Aroclor 1260	ug/g	**0.0583**		0.0408	U	0.0421	U	0.041	U	**0.0817**	
PCBs, Total	ug/g	**0.0583**		**0.027**	**J**	**0.0398**	**J**	**0.0264**	**J**	**0.188**	

Sample ID		SW-52 6-12		TB-52-1 0-6		TB-52-1 6-12		TB-52-2 0-6		TB-52-2 6-12	
Date		5/24/2017		5/24/2017		5/24/2017		5/24/2017		5/24/2017	
Depth Interval (in)		6-12		0-6		6-12		0-6		6-12	
Chemical_Name	Unit		Qual		Qual		Qual		Qual		Qual
Solids, Total	%	76.2		71.6		76.3		79.1		79.3	
Aroclor 1016	ug/g	0.0428	U	0.0443	U	0.0419	U	0.0404	U	0.0414	U
Aroclor 1221	ug/g	0.0428	U	0.0443	U	0.0419	U	0.0404	U	0.0414	U
Aroclor 1232	ug/g	0.0428	U	0.0443	U	0.0419	U	0.0404	U	0.0414	U
Aroclor 1242	ug/g	0.0428	U	0.0443	U	0.0419	U	0.0404	U	0.0414	U
Aroclor 1248	ug/g	0.0428	U	0.0443	U	0.0419	U	0.0404	U	0.0414	U
Aroclor 1254	ug/g	0.0428	U	0.0443	U	0.0419	U	0.0404	U	0.0414	U
Aroclor 1262	ug/g	**0.0508**		**0.0497**		**0.0194**	**J**	0.0404	U	**0.0183**	**J**
Aroclor 1268	ug/g	0.0428	U	0.0443	U	0.0419	U	**0.0233**	**J**	0.0414	U
Aroclor 1260	ug/g	**0.0382**	**J**	**0.0374**	**J**	**0.0161**	**J**	**0.00881**	**J**	**0.00881**	**J**
PCBs, Total	ug/g	**0.089**	**J**	**0.0871**	**J**	**0.0355**	**J**	**0.0321**	**J**	**0.0271**	**J**

Sample ID		SW-POOL-1 0-6		SW-POOL-1 6-12		TB-POOL-1-1 0-6		TB-POOL-1-1 6-12		TB-POOL-1-2 0-6	
Date		5/25/2017		5/25/2017		5/25/2017		5/25/2017		5/25/2017	
Depth Interval (in)		0-6		6-12		0-6		6-12		0-6	
Chemical_Name	Unit		Qual		Qual		Qual		Qual		Qual
Solids, Total	%	67.5		72.1		68.5		73.4		78.3	
Aroclor 1016	ug/g	0.0484	U	0.0452	U	0.0474	U	0.0441	U	0.0416	U
Aroclor 1221	ug/g	0.0484	U	0.0452	U	0.0474	U	0.0441	U	0.0416	U
Aroclor 1232	ug/g	0.0484	U	0.0452	U	0.0474	U	0.0441	U	0.0416	U
Aroclor 1242	ug/g	0.0484	U	0.0452	U	0.0474	U	0.0441	U	0.0416	U
Aroclor 1248	ug/g	0.0484	U	0.0452	U	0.0474	U	0.0441	U	0.0416	U
Aroclor 1254	ug/g	0.0484	U	0.0452	U	0.0474	U	0.0441	U	0.0416	U
Aroclor 1262	ug/g	**0.0201**	**J**	0.0452	U	**0.0152**	**J**	0.0441	U	**0.0141**	**J**
Aroclor 1268	ug/g	0.0484	U	0.0452	U	0.0474	U	0.0441	U	0.0416	U
Aroclor 1260	ug/g	**0.00848**	**J**	**0.0105**	**J**	0.0474	U	**0.00974**	**J**	0.0416	U
PCBs, Total	ug/g	**0.0286**	**J**	**0.0105**	**J**	**0.0152**	**J**	**0.00974**	**J**	**0.0141**	**J**

Sample ID		TB-POOL-1-2 6-12		SW-POOL-2 0-6		SW-POOL-2 6-12		TB-POOL-2-1 0-6		TB-POOL-2-1 6-12	
Date		5/25/2017		5/25/2017		5/25/2017		5/25/2017		5/25/2017	
Depth Interval (in)		6-12		0-6		6-12		0-6		6-12	
Chemical_Name	Unit		Qual		Qual		Qual		Qual		Qual
Solids, Total	%	83.0		69.4		71.1		79.4		78.6	
Aroclor 1016	ug/g	0.039	U	0.047	U	0.046	U	0.0412	U	0.0415	U
Aroclor 1221	ug/g	0.039	U	0.047	U	0.046	U	0.0412	U	0.0415	U
Aroclor 1232	ug/g	0.039	U	0.047	U	0.046	U	0.0412	U	0.0415	U
Aroclor 1242	ug/g	0.039	U	0.047	U	0.046	U	0.0412	U	0.0415	U
Aroclor 1248	ug/g	0.039	U	0.047	U	0.046	U	0.0412	U	0.0415	U
Aroclor 1254	ug/g	0.039	U	0.047	U	0.046	U	0.0412	U	0.0415	U
Aroclor 1262	ug/g	0.039	U	**0.0208**	**J**	**0.0126**	**J**	0.0412	U	0.0415	U
Aroclor 1268	ug/g	0.039	U	0.047	U	0.046	U	0.0412	U	0.0415	U
Aroclor 1260	ug/g	0.039	U	**0.0112**	**J**	**0.0102**	**J**	**0.0132**	**J**	**0.0102**	**J**
PCBs, Total	ug/g	0.039	U	**0.032**	**J**	**0.0228**	**J**	**0.0132**	**J**	**0.0102**	**J**

Table 3-3
Summary of May 2017 Characterization Sediment Sampling

Sample ID		TB-POOL-2-2 0-6		TB-POOL-2-2 6-12		SW-53 12-18		SW-53 18-24		TB-53-1 0-6	
Date		5/25/2017		5/25/2017		5/25/2017		5/25/2017		5/25/2017	
Depth Interval (in)		0-6		6-12		12-18		18-24		0-6	
Chemical_Name	Unit		Qual		Qual		Qual		Qual		Qual
Solids, Total	%	78.9		81.1		72.0		67.6		66.9	
Aroclor 1016	ug/g	0.0416	U	0.0404	U	0.0457	U	0.0481	U	0.0479	U
Aroclor 1221	ug/g	0.0416	U	0.0404	U	0.0457	U	0.0481	U	0.0479	U
Aroclor 1232	ug/g	0.0416	U	0.0404	U	0.0457	U	0.0481	U	0.0479	U
Aroclor 1242	ug/g	0.0416	U	0.0404	U	0.0457	U	0.0481	U	0.0479	U
Aroclor 1248	ug/g	0.0416	U	0.0404	U	0.0457	U	0.0481	U	0.0479	U
Aroclor 1254	ug/g	0.0416	U	0.0404	U	0.0457	U	0.0481	U	0.0479	U
Aroclor 1262	ug/g	**0.00836**	**J**	0.0404	U	0.0457	U	**0.0592**		**0.0361**	**J**
Aroclor 1268	ug/g	0.0416	U	0.0404	U	0.0457	U	0.0481	U	0.0479	U
Aroclor 1260	ug/g	0.0416	U	**0.0056**	**J**	**0.0325**	**J**	0.0481	U	0.0479	U
PCBs, Total	ug/g	**0.00836**	**J**	**0.0056**	**J**	**0.0325**	**J**	**0.0592**		**0.0361**	**J**

Sample ID		TB-53-1 6-12		TB-53-2 0-6		TB-53-2 6-12		STREAM 0-6		STREAM 6-12	
Date		5/25/2017		5/25/2017		5/25/2017		5/25/2017		5/25/2017	
Depth Interval (in)		6-12		0-6		6-12		0-6		6-12	
Chemical_Name	Unit		Qual		Qual		Qual		Qual		Qual
Solids, Total	%	73.7		76.6		74.1		70.0		71.6	
Aroclor 1016	ug/g	0.0437	U	0.0421	U	0.0446	U	0.046	U	0.0445	U
Aroclor 1221	ug/g	0.0437	U	0.0421	U	0.0446	U	0.046	U	0.0445	U
Aroclor 1232	ug/g	0.0437	U	0.0421	U	0.0446	U	0.046	U	0.0445	U
Aroclor 1242	ug/g	0.0437	U	0.0421	U	0.0446	U	0.046	U	0.0445	U
Aroclor 1248	ug/g	0.0437	U	0.0421	U	0.0446	U	0.046	U	0.0445	U
Aroclor 1254	ug/g	0.0437	U	0.0421	U	0.0446	U	0.046	U	0.0445	U
Aroclor 1262	ug/g	**0.034**	**J**	0.0421	U	0.0446	U	**0.0423**	**J**	**0.014**	**J**
Aroclor 1268	ug/g	0.0437	U	0.0421	U	0.0446	U	0.046	U	0.0445	U
Aroclor 1260	ug/g	0.0437	U	**0.00598**	**J**	**0.00464**	**J**	**0.0362**	**J**	**0.0117**	**J**
PCBs, Total	ug/g	**0.034**	**J**	**0.00598**	**J**	**0.00464**	**J**	**0.0785**	**J**	**0.0257**	**J**

Key:
U = nondetect
J= Laboratory qualifier, estimated value (analyte is below the quantitation limit but above the method detection limit)
SW = Sidewall Sample
TB = Top of Bank Sample
STREAM = Sidewall of Stream
POOL= Sample from Beaver Dam Impoundment
Bold font indicates PCB detection
Blue highlight indicates total PCB concentration greater than cleanup goal of 1 part per million (ppm)
Laboratory reported units (micrograms per kilogram, or ug/kg), have been converted to microgram per gram (ug/g), which is equivalent to milligrams per kilogram (mg/kg) and parts per million (ppm)

Table 3-4
Summary of June 2017 Characterization Sediment Sampling

Sample ID		49+50-SWA-24-30		49+50-SWA-30-36		46+50-SWA-12-18		46+50-SWA-18-24		Dup-1	
Date		6/20/2017		6/20/2017		6/20/2017		6/20/2017		6/20/2017	
Depth Interval (in)		L1721383-01		L1721383-02		L1721383-03		L1721383-04		L1721383-05	
Chemical_Name	Unit										
Solids, Total	%	72.8		76.2		66.3		69.3		70.7	
Aroclor 1016	ug/g	0.0907	U	0.0415	U	0.0487	U	0.0471	U	0.0467	U
Aroclor 1221	ug/g	0.0907	U	0.0415	U	0.0487	U	0.0471	U	0.0467	U
Aroclor 1232	ug/g	0.0907	U	0.0415	U	0.0487	U	0.0471	U	0.0467	U
Aroclor 1242	ug/g	0.0907	U	0.0415	U	0.0487	U	0.0471	U	0.0467	U
Aroclor 1248	ug/g	0.0907	U	0.0415	U	0.0487	U	0.0471	U	0.0467	U
Aroclor 1254	ug/g	0.0907	U	0.0415	U	0.0487	U	0.0471	U	0.0467	U
Aroclor 1260	ug/g	**0.916**		**0.195**		0.0487	U	0.0471	U	**0.813**	
Aroclor 1262	ug/g	0.0907	U	0.0415	U	0.0487	U	0.0471	U	0.0467	U
Aroclor 1268	ug/g	0.0907	U	0.0415	U	0.0487	U	0.0471	U	0.0467	U
PCBs, Total	ug/g	**0.916**		**0.195**		0.0487	U	0.0471	U	**0.813**	

Sample ID		48+00-TBA-12-18		48+00-TBA-18-24		48+00-SWA-24-30		48+00-SWA-30-36		51+50-SWA-24-30	
Date		6/20/2017		6/20/2017		6/20/2017		6/20/2017		6/20/2017	
Depth Interval (in)		L1721383-06		L1721383-07		L1721383-08		L1721383-09		L1721383-10	
Chemical_Name	Unit										
Solids, Total	%	74.4		88.8		80.4		77.0		76.7	
Aroclor 1016	ug/g	0.0440	U	0.0369	U	0.0401	U	0.212	U	0.0420	U
Aroclor 1221	ug/g	0.0440	U	0.0369	U	0.0401	U	0.212	U	0.0420	U
Aroclor 1232	ug/g	0.0440	U	0.0369	U	0.0401	U	0.212	U	0.0420	U
Aroclor 1242	ug/g	0.0440	U	0.0369	U	0.0401	U	0.212	U	0.0420	U
Aroclor 1248	ug/g	0.0440	U	0.0369	U	0.0401	U	0.212	U	**0.491**	
Aroclor 1254	ug/g	0.0440	U	0.0369	U	0.0401	U	0.212	U	0.0420	U
Aroclor 1260	ug/g	**0.4880**		**0.0168**	**J**	**0.1690**		**1.44**		**0.545**	
Aroclor 1262	ug/g	0.0440	U	0.0369	U	0.0401	U	0.212	U	0.0420	U
Aroclor 1268	ug/g	0.0440	U	0.0369	U	0.0401	U	0.212	U	0.0420	U
PCBs, Total	ug/g	**0.4880**		**0.0168**	**J**	**0.1690**		**1.44**		**1.04**	

Sample ID		51+50-SWA-30-36		52+50-CLA-0-6		52+50-CLA-6-12		POOL CL(E)A 0-6		POOL CL(E)A 6-12	
Date		6/20/2017		6/22/2017		6/22/2017		6/22/2017		6/22/2017	
Depth Interval (in)		L1721383-11		L1721383-12		L1721383-13		L1721383-14		L1721383-15	
Chemical_Name	Unit										
Solids, Total	%	78.2		66.9		60.6		69.6		68.2	
Aroclor 1016	ug/g	0.0408	U	0.487	U	1.09	U	0.046	U	0.0472	U
Aroclor 1221	ug/g	0.0408	U	0.487	U	1.09	U	0.046	U	0.0472	U
Aroclor 1232	ug/g	0.0408	U	0.487	U	1.09	U	0.046	U	0.0472	U
Aroclor 1242	ug/g	0.0408	U	0.487	U	1.09	U	0.046	U	0.0472	U
Aroclor 1248	ug/g	**0.286**		0.487	U	1.09	U	0.046	U	0.0472	U
Aroclor 1254	ug/g	0.0408	U	0.487	U	1.09	U	0.046	U	0.0472	U
Aroclor 1260	ug/g	**0.382**		**3.93**		**5.27**		**0.299**		**0.672**	
Aroclor 1262	ug/g	0.0408	U	0.487	U	1.09	U	0.046	U	0.0472	U
Aroclor 1268	ug/g	0.0408	U	0.487	U	1.09	U	0.046	U	0.0472	U
PCBs, Total	ug/g	**0.668**		**3.93**		**5.27**		**0.299**		**0.672**	

Key:
U = nondetect
J= Laboratory qualifier, estimated value (analyte is below the quantitation limit but above the method detection limit)
SW = Sidewall Sample
TB = Top of Bank Sample
CL= Centerline Sample
POOL= Sample from Beaver Dam Impoundment
A = An "A" designation following the sample location identifier indicates that these samples are additional delineation samples collected offset from the original May 2017 samples
(E) = Sample collected on the east side of a sample location
Bold font indicates PCB detection
Blue highlight indicates total PCB concentration greater than cleanup goal of 1 part per million (ppm)
Laboratory reported units (micrograms per kilogram, or ug/kg), have been converted to microgram per gram (ug/g), which is equivalent to milligrams per kilogram (mg/kg) and parts per million (ppm)

Section 4
Selected Remedy

This section provides a description of the remedial alternatives considered, and the rationale and justification for the selected remedial approach. The remedial construction is described in text augmented with figures and drawings.

4.1 Remediation Requirements

The UNT is subject to the conditions of the March 1991 ROD between Alcoa and NYSDEC.

The removal requirements, which must be met during remediation, include those listed in the March 1991 ROD. Removal activities will be complete when all verification samples collected for PCBs are less than 1 ppm. Should any verification sample return results higher than 1 ppm, additional excavation will be performed. The March ROD stated that "the original grades of the tributary will be re-established using clean fill and rip-rap as needed, to control erosion". Restoration of the UNT will be done in accordance with the intent of the ROD to return the UNT to the pre-remediation grade. In the downstream portion of Area III UPOU2, the beaver dam and associated impacted sediment behind the dam will be removed, and the stream bed will be allowed to return to natural, pre-beaver dam conditions. Additionally, as indicated by NYSDEC, restoration in Area III requires; an existing conditions assessment, streambed restoration, vegetation repopulation, and reestablished monitoring.

4.2 Removal Remedy Rationale

The removal remedy was selected based on the requirements of the ROD, limitations and implications of working on properties not owned by Arconic, previous experience with the remediation activities of Area I and II, and the requirements of NYSDEC. In addition, Institutional Controls (ICs) are generally not applicable components of a remedy for properties not under the direct ownership/ control of the remedial party. Based on accessibility, the need to execute a remedy without further detriment to the surroundings, and the desire to achieve a permanent solution and eliminate the need for continued biological monitoring, excavation and removal of the impacted soils was identified as the best choice.

Successful execution of similar activities in Area I and Area II of the UNT were significant considerations considered when determining the best approach for Area III. Consistency between the areas ensures a more stable end environmental once all actions are completed, and the proximity to the disposal facility for the excavated soil (the Alcoa landfill located approximately 2.5 miles away) contribute to the rationale for this remedy. Additionally, fully removing all impacted sediment with confirmation via the verification sampling, eliminates the need for institutional controls, which would require continued effort, access and coordination as the surrounding properties are not owned by Arconic.

4.3 Remedy Components

The selected remedy includes removal of PCB impacted sediment and streambank soils, backfilling to original grades and site restoration. The removal of PCB impacted sediment from Area III of the UNT will be conducted in phases, the first of which is addressed in this RAWP for Area III UPOU2 (Sta. 46+00 to a beaver dam at approximately Sta. 53+50).

The remedy consists of the following components:

- Site access road upgrades and installation of temporary erosion and sediment controls
- Temporary storm water diversion features
- Dewatering and treatment of water within the removal areas
- Clearing of brush for access to removal areas
- Excavation of impacted sediments and streambank soils
- Solidification of excavated materials
- Verification sampling
- Removal of additional material if necessary and additional confirmatory sampling
- Transportation and disposal of the solidified material
- Backfill of the excavated areas and site restoration. Adequate soils will be returned to restore the functions and values but not the sediments upstream of the beaver dam or the beaver dam itself.

A more detailed discussion of the remedial activities and construction, and remedy components is included in Section 5.

4.4 Institutional Controls

Arconic has negotiated and been granted an easement for the remediation work, the boundaries of which are shown on the figures included herein. The footprint for activity proposed for Area III UPOU2 includes the following parcels, easements and Right-of-Ways. Property limits can be seen on Figure 2-1, the existing site plan.

Arconic has negotiated an easement for the activities associated with the remediation work. Access will be maintained with property owners throughout the remediation and monitoring periods. NYSDEC and DOH will also have access to the impacted areas of the UNT. The planned remedial activity is designed to remove PCB in soil and sediment to below 1 ppm and therefore continuing institutional controls across the area including parcels owned by others will not be required.

Section 5
Remedial Construction

Details regarding implementation of the selected remedy, which includes removal of PCB impacted sediment and streambank soils, backfilling and site restoration are presented in this section.

5.1 Removal Areas

The removal of PCB impacted sediment from Area III of the UNT will be conducted in phases. This RAWP addresses Phase 1 of the remedial action which includes removal of sediment from Area III UPOU2 extending from the terminus of Area II at Sta. 46+00 to a beaver dam at approximately Sta. 53+50. Phase 2 of the remedial action which involves removal of sediment from the downstream portion of the UNT, Area III LPOU2, which extends downstream from Sta. 53+50 to County Road 42, will be implemented after completion of supplemental delineation sampling and testing to better delineate the limits of contamination in this section.

As discussed in Section 3.3, total PCB concentrations exceeding the ROD cleanup goal of 1 ppm have been recorded in Area III UPOU2 at depths of up to 12 inches. The currently estimated excavation limits within Area III UPOU2 encompass an area of approximately 27,750 square feet. Approximately 1,269 cubic yards (in place volume) of sediment and streambank soils will be excavated from Area III UPOU2 under the Phase 1 remedial action as shown on **Figure 5-1**. Additional delineation sampling and testing will be performed in select areas within Area III UPOU2 concurrent with implementation of the remedial action to better estimate the lateral and vertical extents of contamination, especially upslope from the channel along the streambanks. The excavated sediments and streambank soils from the UNT will be hauled to Cell 3 of the Secure Landfill for disposal.

5.2 Remedial Action Activities

5.2.1 Pre-Remediation Activities

Pre-remediation activities that have been or will be performed include the following sequential tasks:

1. Perform topographic survey of Area III and adjacent overhead transmission lines
2. Wetland function and value assessment and delineation
3. Perform utility clearance within the excavation limits
4. Perform Cultural Resource Assessment
5. Notify NYSDEC of planned commencement of remedial activities

A survey of Area III was completed by WCT Surveyors in April-May, 2017 to establish current topography within Area III UPOU2 and the sections downstream of Area III UPOU2. Minimum

clearances below overhead transmission cables within Area III UPOU2 were also surveyed. The current topography within the UNT is shown on Figure 2-1depicting the existing site conditions in Area III.

A wetland function and value assessment as well as a wetland delineation survey were conducted by CDM Smith in April 2017 as part of the pre-remediation activities. The identified wetlands in the vicinity of Area III are shown on Figure 2-1.

Underground utility clearance will be performed within the excavation limits prior to commencement of excavation activities by calling Dig Safely New York and by referring to Alcoa's internal records. A cultural resource assessment survey will be performed and submitted to the NYSDEC for review prior to initiation of remedial activities.

Additional delineation sampling and testing will be performed in Area III UPOU2 to better estimate the limits of contamination prior to implementation of the Remedial Action. Results of the supplemental delineation investigations and any updates to the excavation limits will be submitted to NYSDEC in a memorandum format.

Particle size analysis (ASTM D7928) of proposed borrow soils to be used for backfilling of excavated areas will be performed to confirm that the borrow soils meet the gradation requirements discussed for backfill soils in Section 7.2. Testing of borrow materials must be performed to demonstrate they meet the NYSDEC class A sediment screening criteria for VOCs, SVOCs, PCBs/ Pesticides, and TAL inorganic parameters/ metals. Testing will be performed at frequencies commensurate with NYSDEC's DER 10 regulations.

NYSDEC will be informed in writing of planned commencement of remediation activities at least 5 business days in advance. Excavation, confirmatory sampling, backfilling and site restoration will be performed under the oversight of NYSDEC field personnel. Results of post excavation confirmatory sampling will be provided to NYSDEC upon receipt from the analytical laboratory.

5.2.2 Remediation Activities

Construction activities that will be performed as part of remedial action include the following sequential tasks:

1. Equipment and personnel mobilization
2. Upgrade site access road(s)
3. Clear brush to provide access to removal areas
4. Install temporary erosion and sediment control features
5. Install signage and temporary construction facilities
6. Delineate exclusion zone
7. Install temporary storm water diversion features
8. Construct material processing and staging areas

9. Install water treatment equipment
10. Excavate impacted sediment and streambank soils
11. Perform post-excavation (verification) sampling and testing
12. Solidify excavated sediment and soils
13. Decontaminate vehicles and equipment
14. Haul and dispose solidified sediment and soils to the on-site Secure Landfill
15. Backfill excavated areas
16. Perform site restoration
17. Demobilize equipment and personnel

5.2.2.1 Mobilization

Construction equipment and personnel will mobilize to the site after notifying NYSDEC of planned commencement of remedial construction. Construction equipment may include typical earthmoving equipment such as hydraulic excavator(s), front-end loaders, dump trucks, roll offs, track mounted crane(s), temporary wastewater storage and treatment tanks and bulk material silos. The access road from Route 131 will be upgraded by widening and installing additional layers of crusher-run gravel as needed for safe access to the Site. Site clearing will be performed by clearing existing brush and vegetation from the limits of construction. The removed brush and vegetation will be stored on-site at a location designated by Arconic for future restoration purposes. Temporary erosion and sediment control features will be installed as discussed in Section 5.3 prior to commencing remedial construction.

5.2.2.2 Temporary Construction Facilities and Signage

Temporary construction facilities including construction support trailer(s) will be installed prior to construction. The construction trailer will be equipped with office supplies, storage for monitoring/sampling equipment, first aid equipment, records storage and personal protective equipment storage. Portable toilets will also be installed at the site. An equipment/vehicle decontamination pad, based on contractor mean and methods, may also be installed as shown on **Figure 5-2** for cleaning of equipment and vehicles that come in contact with impacted material prior to leaving the site.

Signage will be installed on-site and along the waste haul route to/from the Secure Landfill as shown on **Figure 5-3.**

5.2.2.3 Exclusion Zone Demarcation

Prior to initiating excavation activities an exclusion zone will be demarcated around the active excavation areas using orange construction fence or other approved means. Appropriate signage will be installed outside the exclusion zone to demarcate the area inside the fence as the exclusion zone.

5.2.2.4 Temporary Stormwater Diversion

During excavation, dewatering activities are anticipated in the Unnamed Tributary to aid in remediation. The Contractor will be required to design the dewatering system in accordance with the New York SPDES requirements. This system is likely to include a by-pass of the UNT in the area of work. Stormwater from sections upstream of Area III will be temporarily diverted around the site during remedial construction activities. The stormwater diversion features will include construction of a temporary berm across the channel immediately upstream of 46+00. Stormwater impounded behind the temporary berm during construction will be diverted around Area III UPOU2 via a gravity pipe installed through the berm as shown on Figure 5-2. Stormwater and groundwater seepage that comes in contact with disturbed sediment during removal activities will be collected and treated (See section 5.2.2.9).

5.2.2.5 Material Processing and Staging Areas

A temporary material processing area will be constructed for processing of excavated sediment and soils prior to hauling to the Secure Landfill for disposal. The material processing area will include a HDPE or LLDPE geomembrane liner installed over a prepared sub-base, overlain by a protective sand cover. The material processing area will be graded such that stormwater runoff from the staging area will drain towards a sump from where it will be pumped to the temporary treatment facility. Solidification of the excavated sediment/soils will be performed in the lined material processing area using portable roll-offs or other means proposed by the Contractor to meet the performance criteria discussed in Section 5.2.2.8. The Contractor's proposed means and methods for solidification will require review and approval by Arconic and NYSDEC.

Borrow soils and construction equipment will be stored in a designated staging area at the site. The staging area will be constructed by leveling and compacting the existing subgrade to provide a firm well-draining surface for storage of non-impacted (i.e. soil that has been tested and approved for clean fill) borrow soils and equipment. The surface of the staging area shall be slightly elevated above the surrounding ground to prevent storm water run on into the staging area. Stormwater runoff from the staging area will be managed in accordance with Section 5.2.2.8.

The material processing and staging areas will be located such that equipment operating within these areas maintain a minimum horizontal and vertical clearance of 13 feet (plus additional clearance required based on Kw) is maintained from the nearest Arconic overhead transmission line and 16 feet (plus additional clearance required based on Kw) from the New York Power Authority overhead transmission line. Additional clearance distance based upon the ambient air temperature and its impact on the transmission line height must also be considered.

5.2.2.6 Sediment/Soil Excavation

The sediment and streambank soil excavation boundary based on the delineation sampling results is presented in Figure 5-1. Cross sections showing the depth of excavation are shown on **Figures 5-4** through **5-6.** Excavation of PCB impacted sediment and soils will be performed from the western banks of the tributary channel using backhoe excavators. Long reach excavators may be used in the wider sections of the channel. The excavated sediment/soil will be loaded directly on to tri-axle dump trucks. The excavated material will either be hauled to the material

processing area for solidification or directly to the Secure Landfill depending on visual indications of the moisture content and physical consistency of the excavated material.

Excavation operations shall be conducted such that dust emissions during excavation are minimized. Fugitive dust monitoring will be performed as part of the Community Air Monitoring Plan (CAMP). Excavation and material loading operations will be performed within the exclusion zone and care shall be taken to avoid impacting areas outside the exclusion zone with the contaminated materials. In accordance with Alcoa AES 32.60 the working clearances from high voltage lines is 13 feet from 115 kV lines and 16 feet for 230 kV lines plus additional restriction based upon kV levels and ambient air temperature at the time of work. In accordance with Alcoa AES 32.60 the mobile equipment in transit clearance is 10 feet for a 115 kV line and 16 feet for a 230 kV line. Contractor shall ensure that AES 32.60, kV and ambient temperature are included in determining transmission line clearance. Refer to Figure 2-2 for application to both New York Power Authority and Alcoa overhead transmission lines.

5.2.2.7 Verification Sampling

After the contaminated sediment/soils have been excavated to the predetermined depth, the excavated surfaces will be sampled to verify complete removal of contaminated materials from the target areas. The proposed verification sampling program is detailed in Section 6 and sampling locations are shown on **Figure 6-1**. If verification sampling results indicate total PCB concentrations less than or equal to 1 ppm, excavation shall be deemed complete at that location. If verification sampling results indicate total PCB concentrations greater than 1 ppm, excavation shall be advanced below 12 inches in a minimum of 6- inch increments until PCB concentration less than 1 ppm are achieved. Verification sampling rationale and procedures are discussed in further detail in Section 6.

5.2.2.8 Sediment/Soil Solidification

Excavated sediment/soil that are visually identified as excessively wet for hauling and disposal to the Secure Landfill shall be solidified in the material processing area prior to hauling to the landfill to improve the strength of the waste materials. Solidification includes adding a binding reagent such as Portland cement, lime, lime kiln dust, cement kiln dust or other reagent/polymer approved by the NYSDEC for disposal in the Secure Landfill. The solidified materials shall meet the waste placement criteria for the Secure Landfill which includes passing the Paint Filter Test and achieving short term and long term shear strengths of 6 psi and 16 psi, respectively. Solidified materials that meet these criteria shall be loaded in to trucks for transport to and disposal in the Secure Landfill.

5.2.2.9 Temporary Water Treatment Facility

While excavation work is intended to be conducted in the dry (after removal of all standing water), in the event that storm water or groundwater is present in the removal areas during excavation, the water will be treated before being discharged downstream of the active removal area. Impounded water behind the beaver dam may be pumped downstream without treatment until the water level has declined to a depth of 1 foot, after which the impounded water will be treated. The beaver dam impounded water must be sampled prior to pumping. In addition, water

that drains from material processing will also be treated. A temporary water treatment process will be set up. Water pumped out of the excavation during removal activities will be temporary stored in a frac tank, and will then be treated via bag filters and carbon before being discharged back to the UNT downstream of the removal area. The water will be put through a series of 25 micron bag filters, and will then pass through a granular activated carbon filled vessel. This represents best management practices for the constituents of concern (turbidity and PCBs). Based on 6 NYCRR 75001.5 Exceptions, treatment and discharge of remediation waters in compliance with an order issued pursuant to ECL 27-1313 or under any remedial or corrective action work plan approved by the department to implement a department approved inactive hazardous waste remedial site program, does not require a SPDES permit provided that such discharge complies with the substantive requirements of a SPDES permit.

5.2.2.10 Vehicle/Equipment Decontamination and Waste Haulage

Equipment that has come in contact with impacted sediment/soils and vehicles hauling impacted wastes shall be decontaminated at the decontaminated pad prior to leaving the site. The decontamination pad shall be located immediately outside the exclusion zone and shall be lined with a geosynthetic liner with appropriate protective cover to avoid migration of contamination beyond the excavation areas. Equipment and vehicles shall be decontaminated by pressure washing. Decontaminated equipment and vehicles shall be visually inspected for remnant dirt or other signs of contamination prior to leaving the site. The loaded dump truck shall be covered with tarp at the decontamination area prior to hauling to avoid dust borne migration of contamination. Proper manifesting and waste shipment procedures will be followed at the site prior to hauling the waste materials to the Secure Landfill via state and county roadways.

5.2.2.11 Backfilling

Upon successful post excavation confirmation sampling, excavated areas will be backfilled to the approximate pre-excavation grades within the channel portions and to the pre-beaver dam grades in the ponded area upstream of the dam, using clean off-site borrow materials as discussed in Section 7.2. Backfill materials shall be placed in lifts and adequately compacted using multiple passes of a bulldozer or other equipment as approved by the Engineer. A post backfill survey will be performed to document final grades within the remediated portions and to compare the final grades with the pre-excavation survey.

5.2.2.12 Site Restoration

Restoration activities will commence upon confirmation that excavations have met cleanup goals and will proceed as the excavation process moves from upstream to downstream. Restoration will include stabilization of bank soils, replacement of wetland soils in the stream bed at specific locations, and restoration of upland construction staging and solidification areas. Additional effort will be made below Sta. 50+00 to replicate the meandering stream channel and elevations of the overbank deposits. Additional detail on restoration efforts is provided in Section 7.0.

5.2.2.13 Demobilization

The Contractor will de-mobilize equipment and personnel from the Site after site restoration has been completed.

5.3 Stormwater Erosion and Sediment Control Practices/Best Management Practices (BMPs) Installation

Before construction is initiated, stormwater management measures will be installed at locations designated in the erosion and sediment control drawings, to control erosion and sedimentation associated with stormwater runoff. The area of remedial construction, sediment and soil removals and restoration is the topographically lowest point of the active construction work area. This area will be subject to remedial activities until restoration and stabilization is complete. The remediation areas will be cordoned off and UNT water flow bypassed around the active sections to enable the excavation work to be performed "in the dry". Therefore, critical point for sediment control and monitoring will be at the downstream extent of the Area III UPOU2 remediation project or approximate Sta. 53+50.

Stormwater management features include silt/sediment fences, a stabilized construction entrance, truck wheel wash, temporary sediment basins, erosion control blankets, temporary diversion swales, and possibly temporary sediment traps, among others. The location of construction work is shown on Figure 5-2. Runoff from cleared areas will be collected via drainage swales, each leading to filtration devices such as sediment traps or filters or other similar devices. Backfill material will be stockpiled in a designated area on the site. The active work area will be sloped to the centerline of the UNT, therefore surface water will be managed from a central location.

Measures that will be implemented for erosion and sediment control during initial construction activities include:

- Installing fiber rolls and/or silt fence;
- Installing a stabilized construction entrance and staging area;
- Implementation of erosion control blankets;
- Drainage swales, riprap and check dams;
- Sediment traps or basins; and
- Dust control.

These measures will be in place to help prevent sediment resulting from construction activities from leaving the work areas and entering the UNT downstream of the work area. The Contractor shall develop a detailed Erosion and Sediment Control Plan that includes the elements included in this RAWP prior to the commencement of construction.

The following is a list and brief description of temporary erosion and sedimentation control features to be used during the construction process.

Temporary Sediment Trap. A temporary sediment trap is a settling area created by constructing an earthen embankment with a stone outlet. The purpose is to detain sediment-

laden runoff from small disturbed areas, generally less than five acres, allowing the majority of the sediment to settle out, thus protecting drainage ways and adjacent properties.

Sediment Basin. A temporary sediment basin is a barrier or dam with a controlled stormwater release structure formed by constructing an embankment of compacted soil across a drainage way. The purpose is to detain sediment-laden runoff from disturbed areas larger than those upstream of traps, generally five acres or greater.

Sediment Fence. A sediment fence is a temporary barrier composed of trap rock and straw bales, used to intercept sediment-laden runoff (sheet-flow) from small drainage areas of disturbed soil. The sediment fence reduces runoff velocity and affects deposition of sediment load.

Silt Fence. A silt fence is a temporary barrier composed of synthetic filter fabric, used to intercept sediment-laden runoff (sheet-flow) from small drainage areas of disturbed soil. The sediment fence reduces runoff velocity and affects deposition of sediment load.

Stabilized Construction Entrance. This measure consists of a stabilized pad of aggregate underlain with filter cloth. It is located at a point where traffic will be entering or leaving a construction site to or from a public right-of-way. The stabilized construction entrance serves to reduce the tracking of sediment onto public streets.

Temporary Diversion Swale. This is a temporary, excavated drainage way used to prevent runoff from entering disturbed areas by intercepting and diverting it to a sediment trap.

Check Dam. These are small, temporary stone dams constructed across a drainage channel to reduce erosion and limit sediment transport by restricting the velocity of flow in the channel.

Truck Wheel Wash. These systems clean the tires of trucks when they are leaving a site by strategically spraying water at each wheel axel.

Erosion Control Blanket. This is a blanket woven from natural or synthetic materials meant to slow down the speed at which water moves across the surface.

Dust Control. Visual air monitoring will be performed concurrently with remediation activities. If physical controls are needed, dust suppression will be implemented as needed or at the direction of the Engineer. Dust suppression may include the use of water. The site may be sprayed with water until the surface is wet. This is especially effective on the driving areas and entrance ways to the construction work areas.

Figures 5-7 and **5-8** show the Erosion and Sediment Control Plan with some example details.

5.3.1 Construction Dewatering

During construction of the project, dewatering activities are anticipated in the UNT to aid in remediation. The Contractor will be required to design the dewatering system in accordance with the New York SPDES requirements. Treatment of water from collected areas with disturbed sediment is described in section 5.2.2.9.

5.3.2 Inspections and Maintenance of Stormwater Controls During Construction

Stormwater controls must be maintained in good operating condition until all disturbed soils are permanently stabilized. The area of remedial construction, sediment and soil removals and restoration is the topographically lowest point of the active construction work area. This area will be subject to remedial activities until restoration and stabilization is complete. The remediation areas will be cordoned off and UNT water flow bypassed around the active sections to enable the excavation work to be performed "in the dry". Therefore, critical point for sediment control and monitoring will be at the downstream extent of the Area III UPOU2 remediation project or approximate Sta. 53+50. Inspection of the UNT flow for turbidity at this location is considered adequate and appropriate for evaluation potential downstream impacts. If excessive turbidity is noted at this location, the Contractor will be instructed to take additional measures to minimize turbid discharge.

If a breach in construction area containment occurs resulting in a release of excessive turbidity and sediment, sampling of the active channel downstream of the work area will be performed. Samples will be collected of sediment depositional areas within the active channel at 50 foot intervals for a distance of 250 feet downstream. Samples will be analyzed for total PCBs by method 8082A. Arconic notes that additional characterization of the lower portion of Area III is planned prior to remedial design for that section such that the limited contingency sampling proposed is considered sufficient in case of a breach in the upper portion construction containment.

Maintenance measures include repairs of erosion measures as well as sediment removal from roadways. Control devices in need of repair will be repaired promptly after identification. Erosion control devices will be maintained until all disturbed earth has been vegetated, at which time they will be removed. After removal, areas disturbed by these devices will be regraded and seeded as necessary. The Contractor is to maintain a log of all sediment and erosion control measure repairs and corrective actions. The following summarizes the maintenance requirements for various BMPs that the Contractor may use in the construction of the Staging Area site.

Straw Bales. Sediment will be removed and legally disposed periodically from behind the straw bales; in no case will the accumulated sediment be allowed to rise above the mid-height of the straw bale (design capacity reduced by 50 percent). Straw bales, which deteriorate or have otherwise lost their effectiveness during the course of the work, will be removed and replaced with new straw bales

Silt/Sediment Fence. Sediment will be removed and legally disposed periodically within fenced areas; and in no case will the accumulated sediment be allowed to rise above one-third the height of the silt/sediment fence. The installation(s) of the silt/sediment fence will be maintained or replaced, when it becomes ineffective, until it is no longer necessary, and then it shall be removed.

Slopes. Any indication of slope erosion should be addressed immediately. If necessary, additional slope stabilization materials will be placed on the slope, or an additional diversion should be implemented.

Outlet Structures. Outlet structures will be inspected after all rainfall events that generate storm flows that attain an elevation above the outlet orifice. All debris or other material that affects the operation of the outlet orifice will be removed.

5.3.3 Site Inspections

To ensure proper functioning of the soil erosion and sediment control measures described in the previous section, the Contractor will be required to have a qualified inspector, knowledgeable in the principles and practices of erosion and sediment control, such as a Professional Engineer (PE) licensed in the State of New York, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect (RLA), qualified soil scientist, or qualified Soil and Water Conservation District staff, conduct and perform a site inspection at least every seven (7) calendar days and within twenty-four (24) hours of the end of a storm event of one-half inch per twenty-four hour period or greater. A qualified inspector may also be someone working under the direct supervision of, and at the same company as, the licensed PE or RLA, provided that person has had four (4) hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC-endorsed entity. The qualified inspector shall inspect all erosion and sediment control practices to ensure integrity and effectiveness.

The inspection will include, at a minimum, the following areas:

- Stabilization and structural erosion and sedimentation control measures;
- Disturbed areas of the site that have not been permanently stabilized;
- The staging areas and material storage areas that are exposed to precipitation; and
- All points of discharge that may discharge to natural surface water bodies located within, or immediately adjacent to, the limits of the construction work.

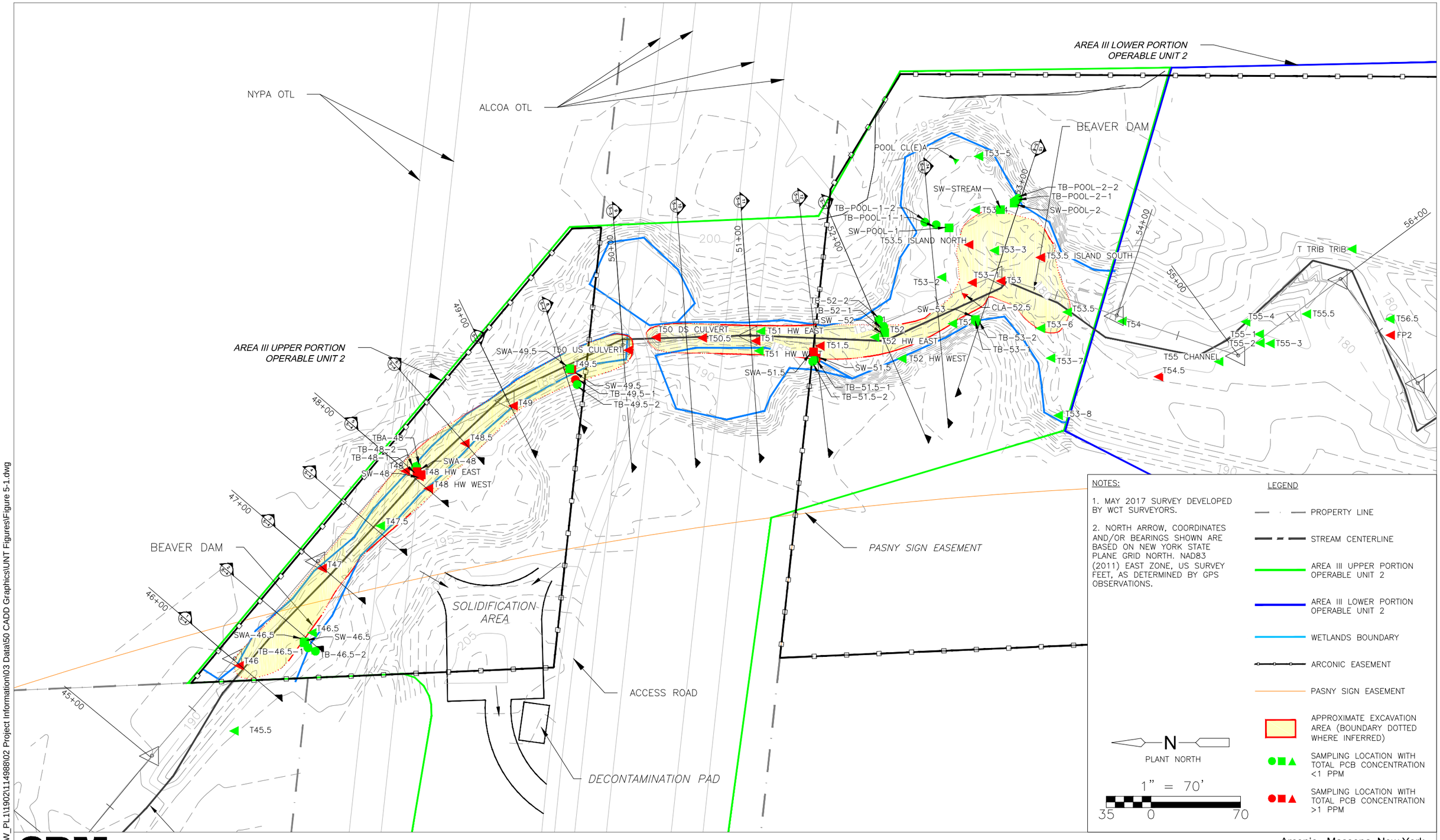
Areas that are stabilized at the end of each construction phase shall be inspected two weeks after stabilization. Inspections will be performed after site preparation, on-site construction, and final site restoration. Following commencement of construction, site inspections of soil and sediment erosion control measures shall be conducted at least once every seven (7) calendar days. If the inspections reveal the need for additional control measures to prevent erosion and sedimentation, the Contractor will immediately install additional measures within seven days of the related inspection. Records of inspections and repairs will be prepared and maintained on the site by the on-site construction manager.

The inspection reports will contain at a minimum:

- Date and time of inspection;
- Name and title of person(s) performing inspection;
- A description of the weather and soil conditions (e.g., dry, wet, saturated) at the time of the inspection;

- A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. Include discharges from conveyance systems (i.e., ditches, etc.) and overland flow;
- A description of the condition of all natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any discharges of sediment to the surface water body;
- Identification of all erosion and sediment control practices that need repair or maintenance;
- Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
- Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;
- Identification of all construction that is not in conformance with the RAWP and technical standards; and
- Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices.

If no incidents of non-compliance are found, the report will contain a statement that the work areas are in compliance with the RAWP and the intent of the General Permit (GP 0-015-002), which will be included in the Stormwater Pollution Prevention Plan.

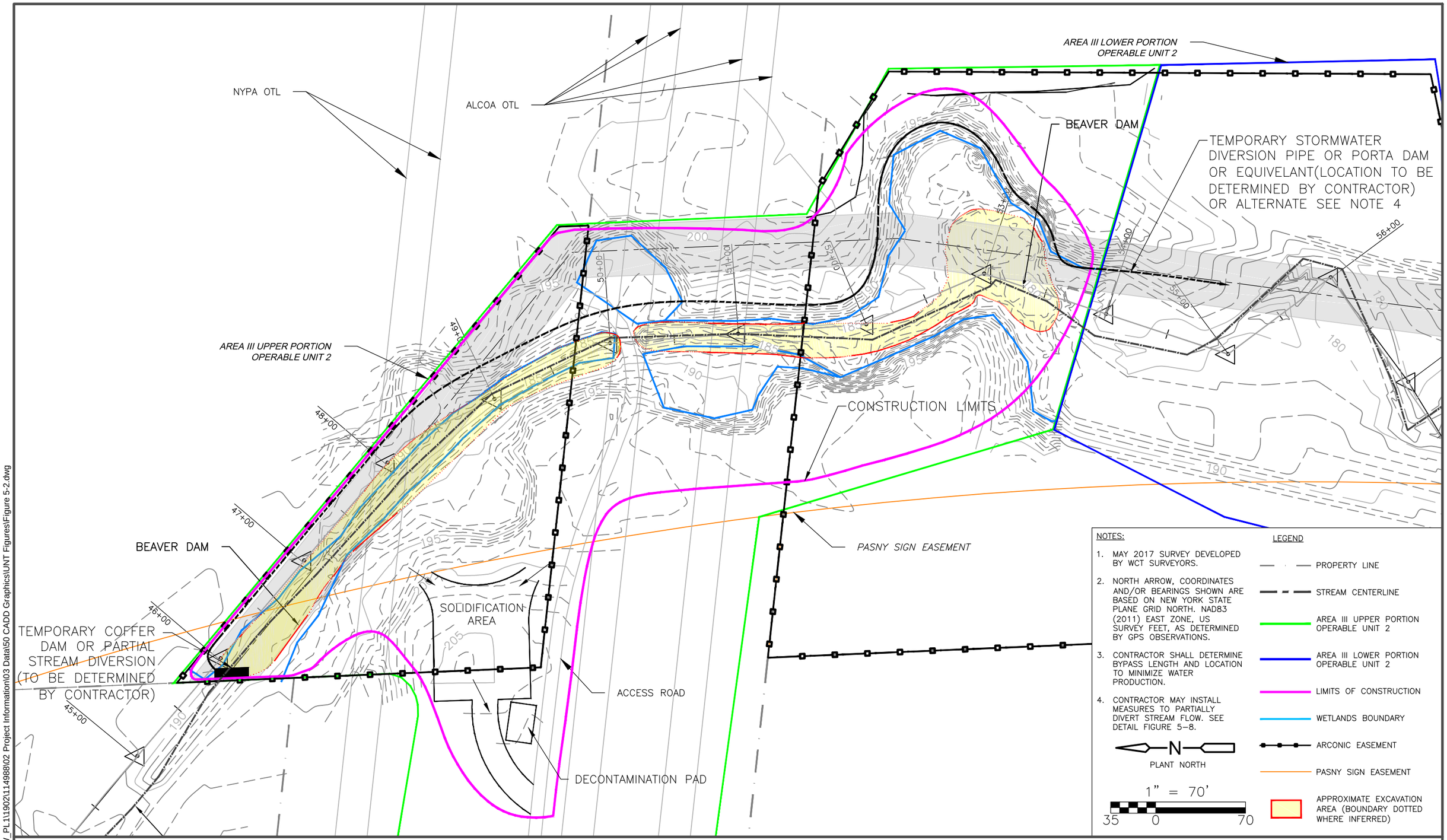


CDM Smith

Arconic - Massena, New York

UNNAMED TRIBUTARY (UNT) AREA III
EXCAVATION PLAN - AREA III UPPER PORTION OPERABLE UNIT 2
FIGURE 5-1

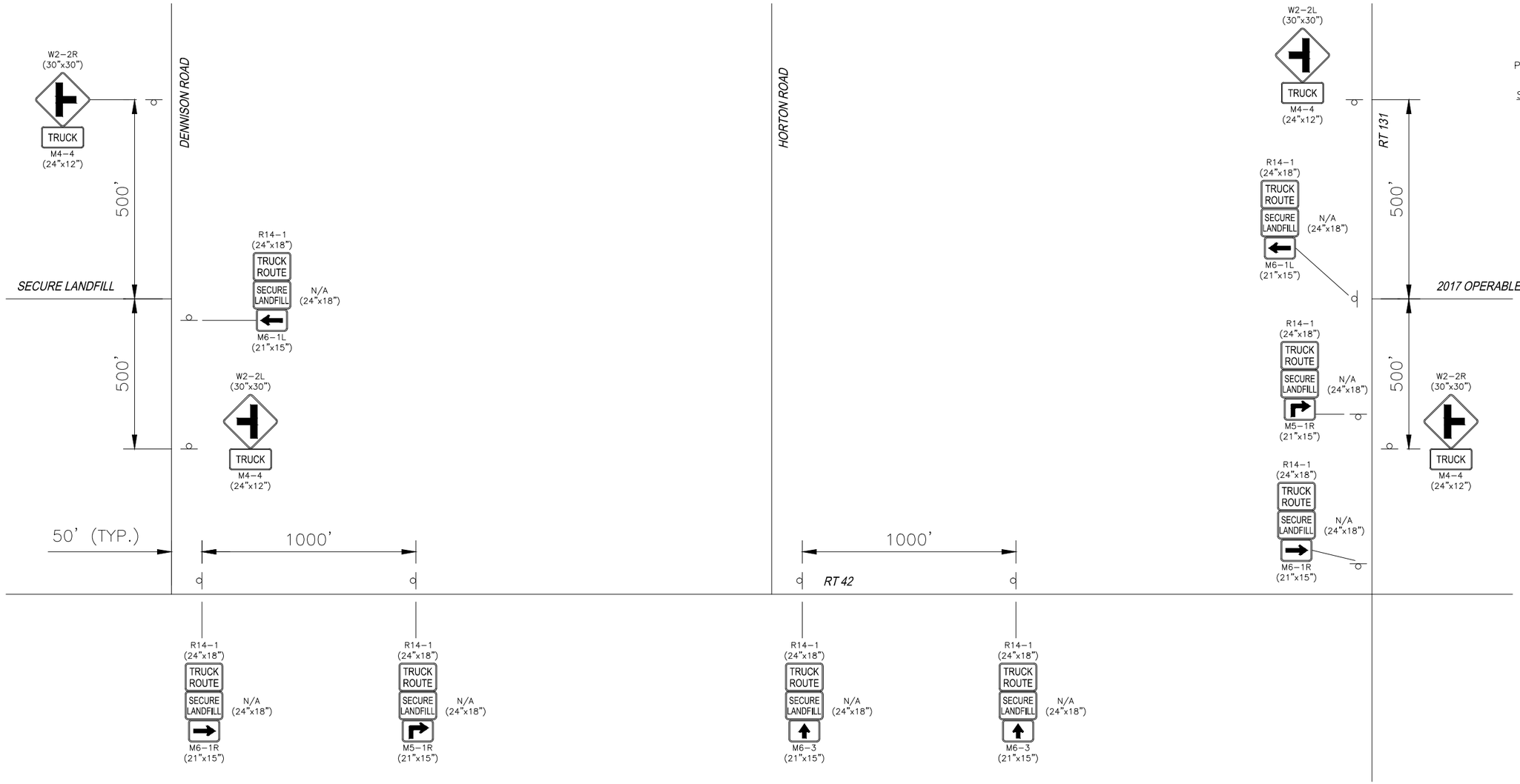
XREFs: [F11X17, CEP002ST] Images: []
Last saved by: DOWDJT Time: 6/29/2017 5:53:06 PM
pw:\\DACPWAPP2:PW_PL11\902111498\02 Project Information\03 Data\50 CADD Graphics\UNT Figures\Figure 5-1.dwg



CDM Smith

Arconic - Massena, New York

UNNAMED TRIBUTARY (UNT) AREA III
CONSTRUCTION SITE PLAN - AREA III UPPER PORTION OPERABLE UNIT 2
FIGURE 5-2

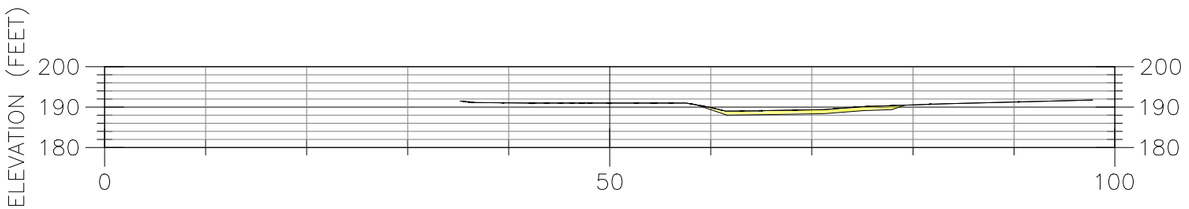


NOTE: PLACEMENT OF SIGNAGE TO BE COORDINATED W/ STAGING AREA AND CELL 3 OPERATIONS BY CONTRACTOR.

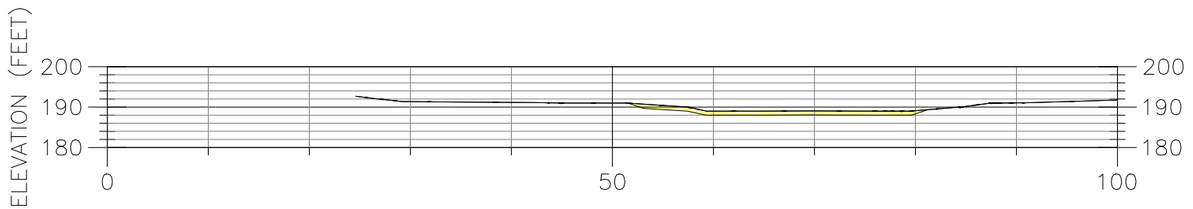
CDM Smith

Arconic - Massena, New York

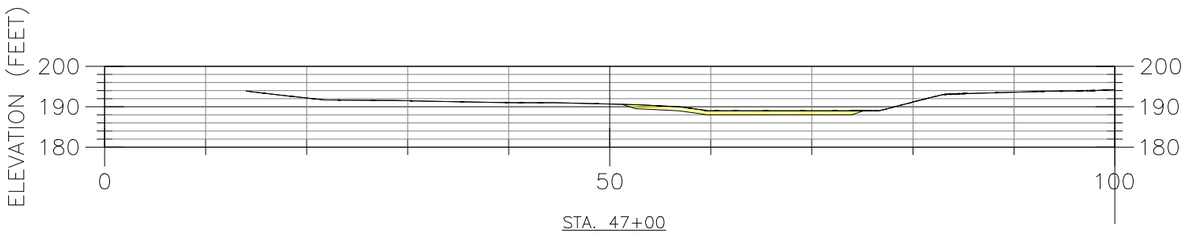
UNNAMED TRIBUTARY (UNT) AREA III UPPER PORTION OPERABLE UNIT 2
MATERIALS TRANSPORTATION ROUTE AND SIGNAGE PLAN
FIGURE 5-3



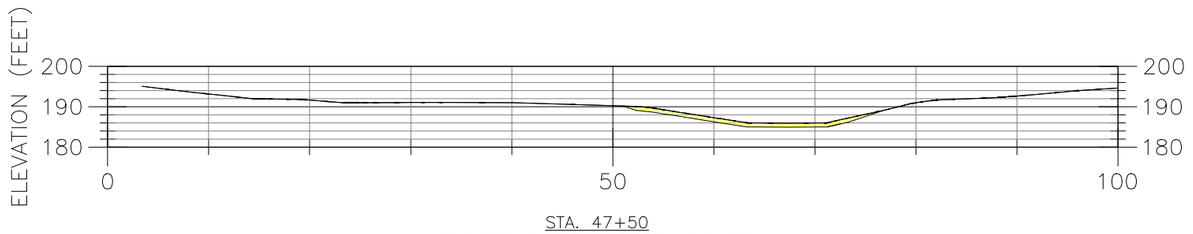
STA. 46+00
SECTION 1 – STA. 0+00 TO 1+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL



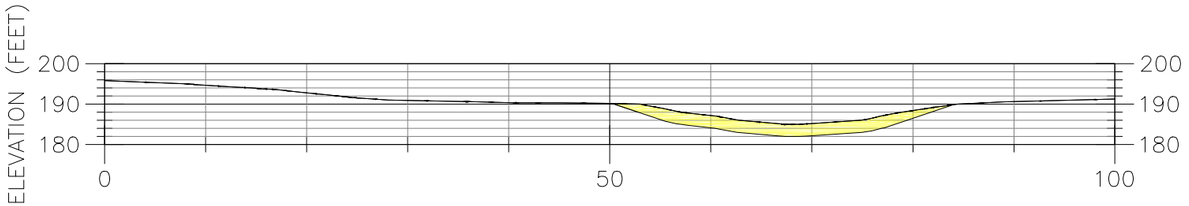
STA. 46+50
SECTION 2 – STA. 0+00 TO 1+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL



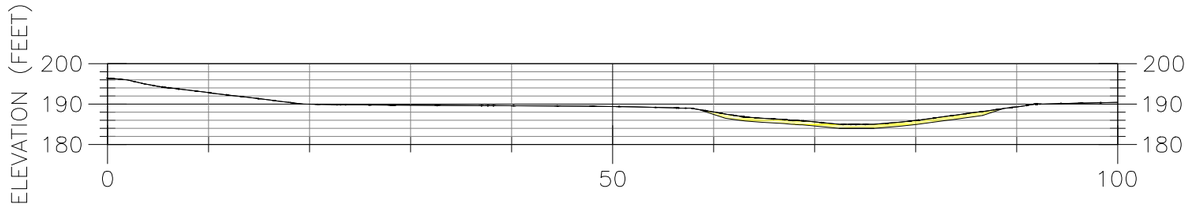
STA. 47+00
SECTION 3 – STA. 0+00 TO 1+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL



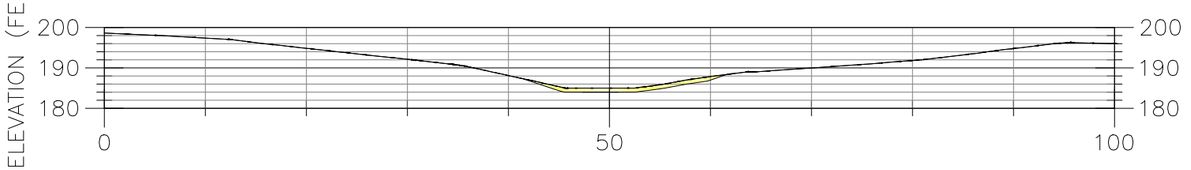
STA. 47+50
SECTION 4 – STA. 0+00 TO 1+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL



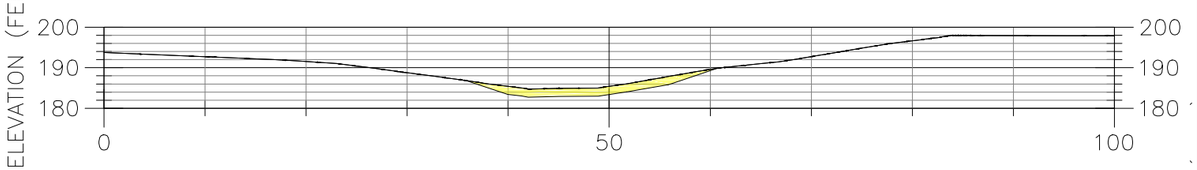
STA. 48+00
SECTION 5 – STA. 0+00 TO 1+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL



STA. 48+50
SECTION 6 – STA. 0+00 TO 1+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL



STA. 49+00
SECTION 7 – STA. 0+00 TO 1+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL



STA. 49+50
SECTION 8 – STA. 0+00 TO 1+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL

NOTE:

EXCAVATION SHOWN TO BOTTOM OF RECORDED SAMPLE.

LEGEND:

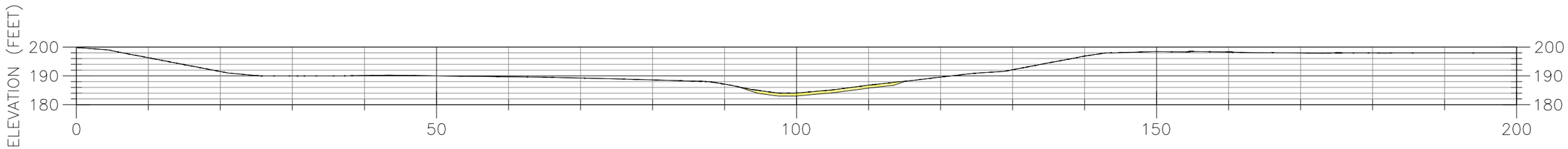
EXISTING GRADE

MATERIAL TO BE REMOVED AND BACKFILLED WITH CLEAN MATERIAL

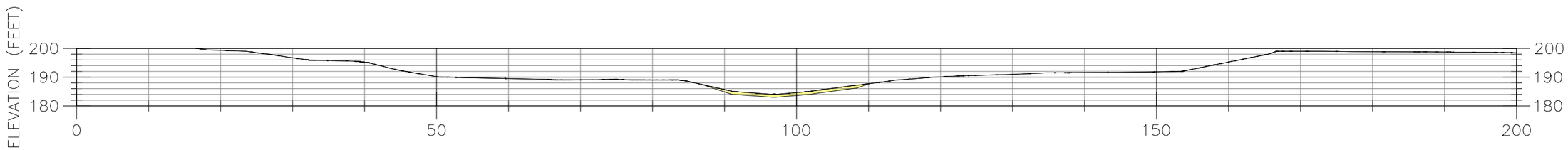
CDM Smith

Arconic - Massena, New York

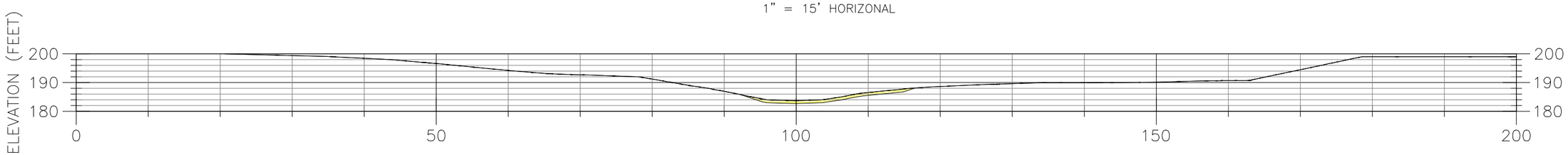
UNNAMED TRIBUTARY (UNT) AREA III UPPER PORTION OPERABLE UNIT 2
EXCAVATION PLAN SECTIONS
FIGURE 5-4



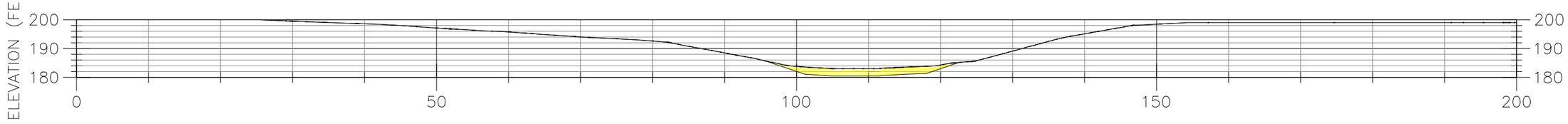
STA. 50+00
SECTION 9 – STA. 0+00 TO 2+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL



STA. 50+50
SECTION 10 – STA. 0+00 TO 2+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL



STA. 51+00
SECTION 11 – STA. 0+00 TO 2+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL



STA. 51+50
SECTION 12 – STA. 0+00 TO 2+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL

LEGEND:

EXISTING GRADE

MATERIAL TO BE REMOVED AND BACKFILLED WITH CLEAN MATERIAL

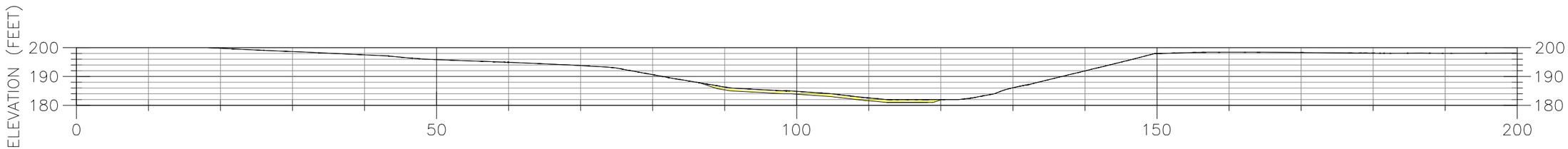
NOTE:

EXCAVATION SHOWN TO BOTTOM OF RECORDED SAMPLE.

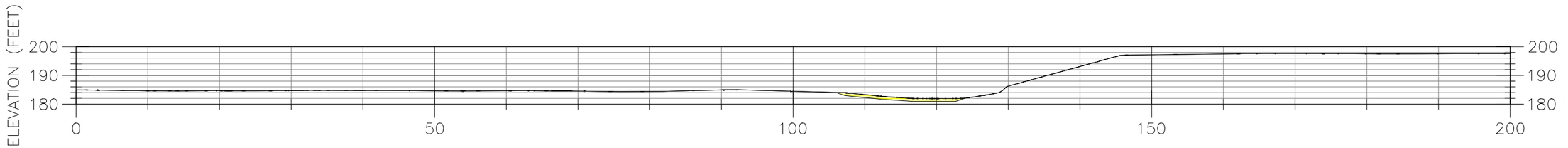
CDM Smith

Arconic - Massena, New York

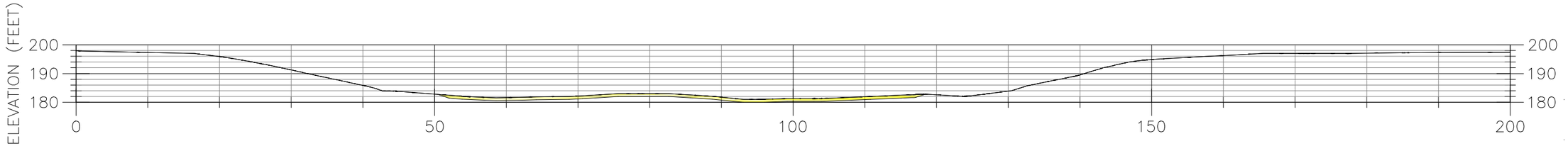
UNNAMED TRIBUTARY (UNT) AREA III UPPER PORTION OPERABLE UNIT 2
EXCAVATION PLAN SECTIONS (CONTINUED)
FIGURE 5-5



STA. 52+00
SECTION 13 – STA. 0+00 TO 2+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL



STA. 52+50
SECTION 14 – STA. 0+00 TO 2+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL



STA. 53+00
SECTION 15 – STA. 0+00 TO 2+00
SCALE: 1" = 40' VERTICAL
1" = 15' HORIZONAL

LEGEND:

EXISTING GRADE

MATERIAL TO BE REMOVED AND BACKFILLED WITH CLEAN MATERIAL

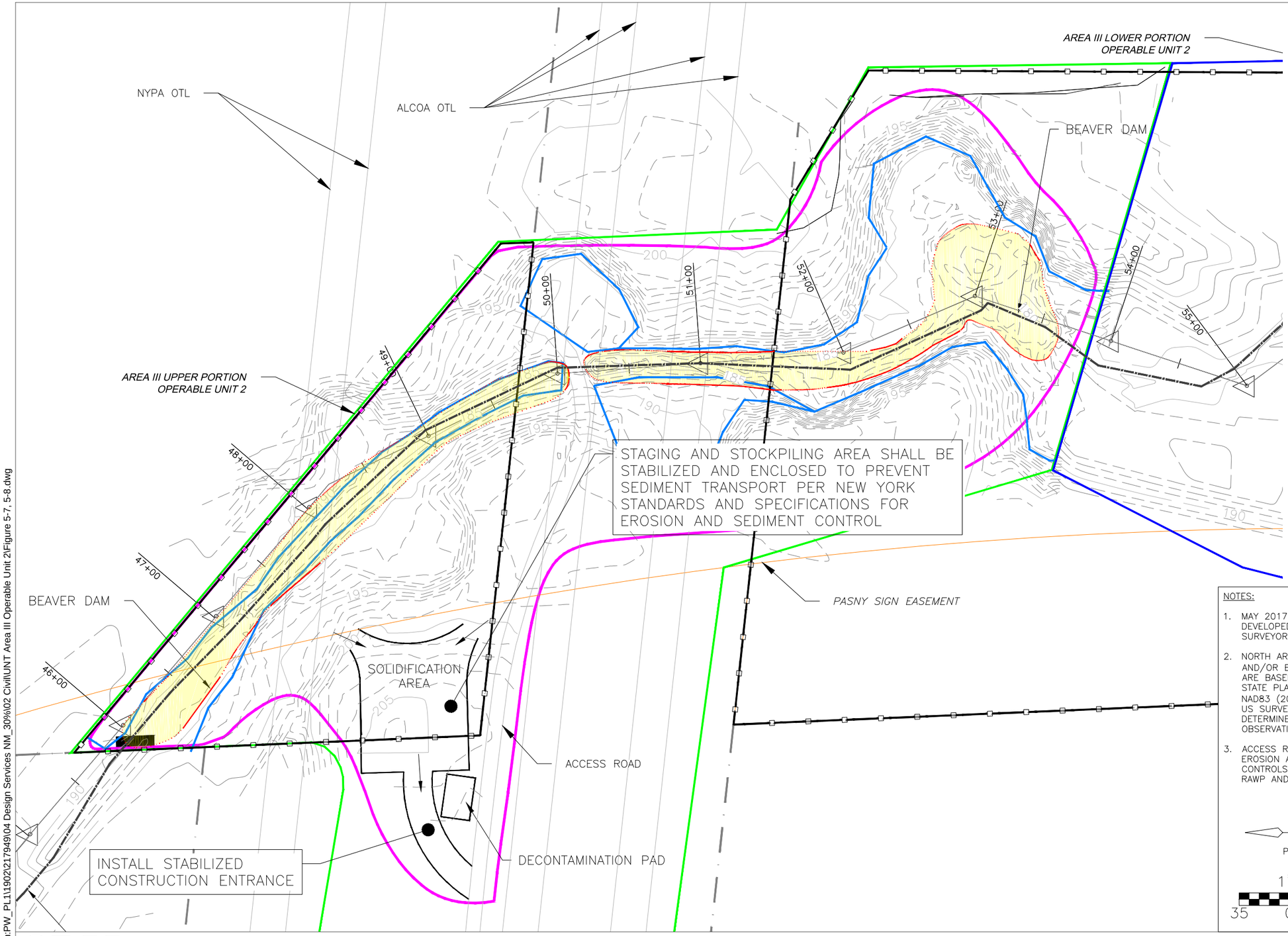
NOTE:

EXCAVATION SHOWN TO BOTTOM OF RECORDED SAMPLE.

CDM Smith

Arconic - Massena, New York

UNNAMED TRIBUTARY (UNT) AREA III UPPER PORTION OPERABLE UNIT 2
EXCAVATION PLAN SECTIONS (CONTINUED)
FIGURE 5-6



EROSION AND SEDIMENT CONTROL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SURFACE AND GROUNDWATER CONTROL DURING THE WORK.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY EROSION AND SEDIMENT CONTROL DURING THE WORK. TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE AT A MINIMUM: TURBIDITY CURTAINS, SILT FENCE/STRAW WATTLES/STRAW BALES, AND SLOPE STABILIZATION. ALL CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE 2016 NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.
3. WORK SHALL BE DONE IN ACCORDANCE WITH THE NYSDEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGE FROM CONSTRUCTION ACTIVITY PERMIT NUMBER GP-0-15-002.
4. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE MAINTAINED.
5. A STABILIZED CONSTRUCTION ENTRANCE SHALL BE INSTALLED WHERE A DISTURBED AREA MEETS AN IMPERVIOUS SURFACE. CONSTRUCTION INGRESS/EGRESS SHALL BE MAINTAINED TO PREVENT DEPOSITION OF MATERIAL ON PUBLIC THOROUGHFARES.
6. DUST SHALL BE CONTROLLED VIA THE APPLICATION OF UNCONTAMINATED WATER.
7. CLEARING SHALL BE LIMITED TO AREAS REQUIRED FOR IMMEDIATE CONSTRUCTION ACTIVITIES.
8. ACTIVE WORK ZONE WILL BE SLOPED TO THE CENTERLINE OF THE UNT. SURFACE WATER WILL BE MANAGED FROM A CENTRAL LOCATION. EROSION CONTROL MEASURES WILL BE IN PLACE TO HELP PREVENT SEDIMENT FROM LEAVING THE WORK AREA.

NOTES:

1. MAY 2017 SURVEY DEVELOPED BY WCT SURVEYORS.
2. NORTH ARROW, COORDINATES AND/OR BEARINGS SHOWN ARE BASED ON NEW YORK STATE PLANE GRID NORTH. NAD83 (2011) EAST ZONE, US SURVEY FEET, AS DETERMINED BY GPS OBSERVATIONS.
3. ACCESS ROAD WETLANDS – EROSION AND SEDIMENT CONTROLS SHALL ADHERE TO RAWP AND SPECIFICATIONS.

LEGEND

- PROPERTY LINE
- STREAM CENTERLINE
- AREA III UPPER PORTION OPERABLE UNIT 2
- AREA III LOWER PORTION OPERABLE UNIT 2
- LIMITS OF CONSTRUCTION
- WETLAND BOUNDARY
- ARCONIC EASEMENT
- PASNY SIGN EASEMENT
- APPROXIMATE EXCAVATION AREA (BOUNDARY DOTTED WHERE INFERRED)

N
PLANT NORTH

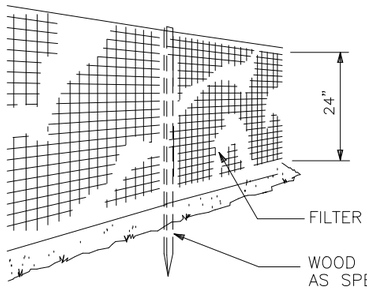
1" = 70'
35 0 70

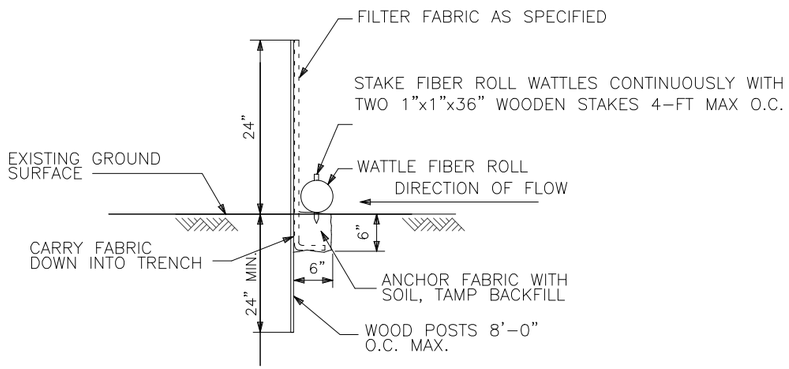
CDM Smith

Arconic - Massena, New York

UNNAMED TRIBUTARY (UNT) AREA III UPPER PORTION OPERABLE UNIT 2
EROSION & SEDIMENT CONTROL PLAN
FIGURE 5-7

XREFs: [F11X17, Figure 5-2, CEP002ST] Images: []
Last saved by: DOWDJT Time: 7/31/2017 12:57:15 PM
pw:\\pw.cdmsmith.com:PW_PL111902\217949\04 Design Services NM_30%\02 Civil\UNT Area III Operable Unit 2\Figure 5-7, 5-8.dwg

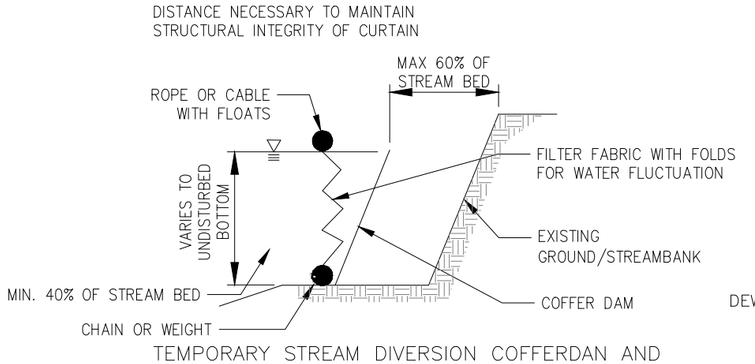




SEDIMENT FENCE

DETAIL -

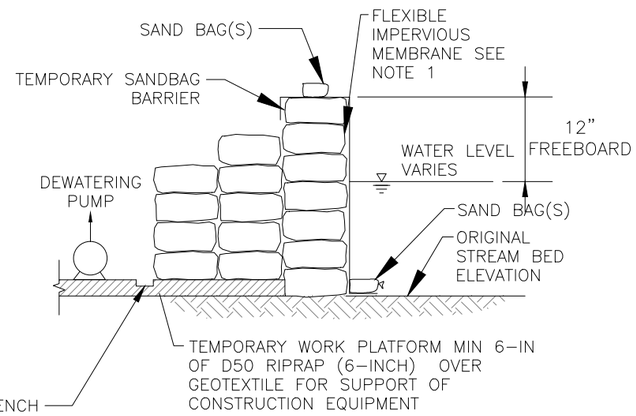
NOT TO SCALE –



TEMPORARY STREAM DIVERSION COFFERDAN AND TURBIDITY CURTAIN

DETAIL -

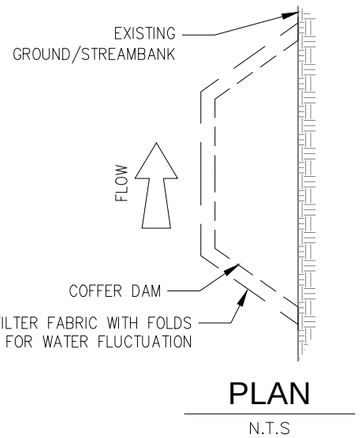
NOT TO SCALE –



TEMPORARY COFFER DAM SAND BAG(S)

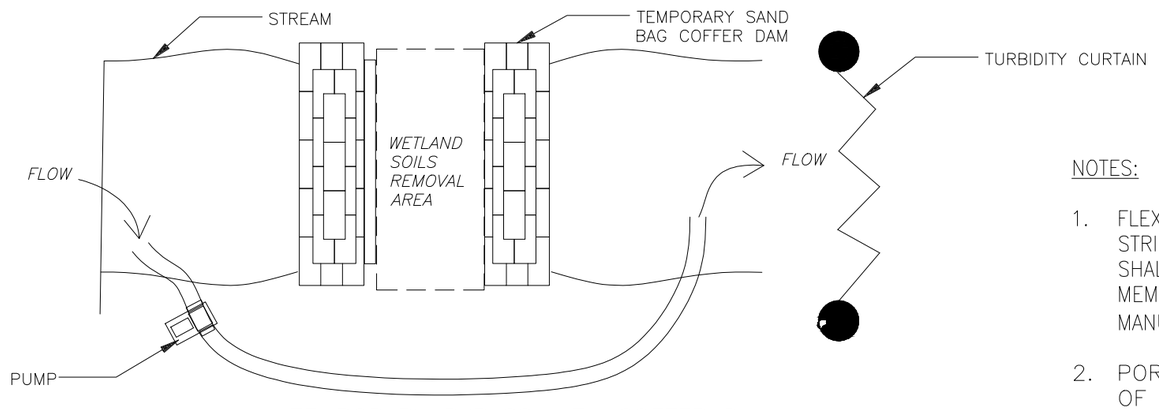
DETAIL -

NOT TO SCALE –



PLAN

N.T.S



TEMPORARY BYPASS WITH COFFER DAM

DETAIL -

NOT TO SCALE –

NOTES:

1. FLEXIBLE IMPERVIOUS MEMBRANE WITH INTEGRAL ADHESIVE STRIP FOR SEALING JOINTS IN THE MEMBRANE. MEMBRANE SHALL BE SIKAPROOF A12 OR APPROVED EQUAL. DAMAGE TO MEMBRANE TO BE REPAIRED IMMEDIATELY PER MEMBRANES MANUFACTURER'S INSTRUCTIONS.
2. PORTADAM OR EQUIVALENT MAY BE USED IN PLACE OF SAND BAGS.
3. TEMPORARY COFFER DAM SHALL DIVERT ALL FLOW THROUGH A MINIMUM OF 40 PERCENT OF THE STREAM BED OF THE UNT.
4. RESTORE STREAM BED AND BANK PER RAWP AND FIGURE 7-1.

CDM Smith

Arconic - Massena, New York

UNNAMED TRIBUTARY (UNT) AREA III UPPER PORTION OPERABLE UNIT 2
EROSION & SEDIMENT CONTROL EXAMPLE DETAILS
FIGURE 5-8

Section 6

Verification Sampling and Contingencies

This section describes the criteria, verification sampling approach, data/results analysis, communication and contingencies associated with documenting the successful accomplishment of planned remediation.

6.1 Sampling Rationale

Cleanup verification sampling is intended to provide a robust documentation of the average concentration of the remediated surfaces. Sampling grids will be established that will incorporate the basin, sidewalls and confirm the adequacy of the extents of removal. Sampling is intended and designed to verify the bulk contamination of the remediated surface is less than or equal to the cleanup criterion of 1 ppm total PCBs. Sampling and analyses will be coordinated with removal activities so that the work can efficiently proceed from upstream to downstream.

6.2 Sampling Methodology

Following excavation, verification samples will be collected. Slightly different sampling patterns are proposed for the channel portion of Area III UPOU2 (approximately 46+00 to 52+00) and the wider ponded area (approximately 52+00 to 53+50) to provide complete coverage of Area III UPOU2. In both instances samples will be collected at approximate 50' intervals along the length of the Area III UPOU2. Centerline, sidewall and top of bank samples will be collected every 50'. An overview plan of the proposed locations is shown on **Figure 6-1**.

In the pond area, the same general approach of a centerline (bottom), sidewall, and top of bank sample will be used, however multiple transects across the pond are proposed using that sampling pattern to account for full coverage and adequate verification samples. Samples will be collected following the initial excavation activities, collected from 0- 6" and 6-12" below ground surface (bgs) of the new post-excavation grade. Samples will be collected from the proposed sample locations using clear plastic Lexan tubes to the extent practicable. Alternative methods of sample collection may be used as necessary depending on the sediment and/or soils present (i.e., via trowles or shovels if collection with Lexan tubes proves to be impractical).

6.3 Sample Analyses

Sediment samples collected from the UNT will be analyzed for PCBs. Each sample will be visually examined and described. The sample will be homogenized and put into the laboratory supplied sample containers for transportation to the laboratory for analysis.

Sediment samples for laboratory analysis will be submitted to a New York State certified laboratory for analysis of PCB Aroclors using USEPA Method 8082A. Samples will be relinquished to the laboratory at the end of each day, and coordination with a laboratory courier will be set up to courier the samples between the project site and laboratory every day. Samples for laboratory analysis will be submitted for rapid turnaround time, to ensure data is expeditated.

6.4 Data Management and Communication

To coordinate and manage the laboratory logistics and data management, communication with the laboratory and a logistics plan will be established before the start of sampling. A courier schedule will be set up to ensure that samples are transported to the laboratory at the end of each day, results will be delivered to CDM Smith in an electronic data deliverable, and lab reports will be provided in a consistent format to facilitate the evaluation and quick turnaround of the preliminary analysis in order to inform those in the field whether or not an area has been fully removed.

Upon initial receipt of verification sampling results, the data will receive a rapid data usability evaluation for consistency to ensure data is acceptable, and then communicated to the team in the field and the NYSDEC. The results will be used to determine if additional removal, via an additional cleanup pass per excavation management unit (i.e., the grid area associated with each sample) is necessary. If no additional removal is necessary, restoration will be initiated. A formal data usability summary report (DUSR) will be submitted with the final cleanup verification report.

Quality assurance and quality control (QA/QC) procedures will be followed during all sampling activities and data management. QA/QC procedures will be consistent with DER-10, Appendix 2B requirements.

One blind duplicate sample and one matrix spike/matrix spike duplicate (MS/MSD) will be collected for every 20 samples. Laboratory quality control data associated with these samples will be reviewed in accordance with the Quality Assurance Project Plan (QAPP) (CDM, March 2008). A Data Quality Assessment (DQA) will be performed on the samples to evaluate the overall quality of the data package based on the QA/QC samples.

6.5 Additional Removal Contingencies

Each sample collected for verification purposes will represent an excavation area based on the proposed grid and sampling density. If the results of the verification sample are greater than 1ppm, then additional removal will occur in the associated grid. An initial removal of an additional 6", with an allowable 6" over excavation will take place if needed. Additional samples may be collected 25 feet upstream and downstream to potentially limit the area requiring additional removal.

Verification sampling will be repeated with an additional two (2) verification samples for each excavation management unit subject to over excavation. Removal will not be considered complete until all verification results are less than 1ppm.

NYPA OTL

ALCOA OTL

AREA III LOWER PORTION OPERABLE UNIT 2

AREA III UPPER PORTION OPERABLE UNIT 2

BEAVER DAM

POOL CL(E)A

SW-STREAM

TB-POOL-2-2

TB-POOL-2-1

SW-POOL-2

TB-POOL-1-1

TB-POOL-1-2

SW-POOL-1

ISLAND NORTH

ISLAND SOUTH

53+00

54+00

55+00

50+00

51+00

52+00

49+00

48+00

47+00

46+00

CLA-52.5

SW-53

TB-52-2

TB-52-1

SW-52

TB-53-2

TB-53-1

SWA-49.5

SW-49.5

TB-49.5-1

TB-49.5-2

SWA-51.5

SW-51.5

TB-51.5-1

TB-51.5-2

TBA-48

TB-48-2

TB-48-1

SWA-48

SW-48

SWA-46.5

SW-46.5

TB-46.5-1

TB-46.5-2

T55 CHANNEL

T55

T54.5

T45.5

SOLIDIFICATION AREA

ACCESS ROAD

DECONTAMINATION PAD

PASNY SIGN EASEMENT

NOTES:

1. MAY 2017 SURVEY DEVELOPED BY WCT SURVEYORS.

2. NORTH ARROW, COORDINATES AND/OR BEARINGS SHOWN ARE BASED ON NEW YORK STATE PLANE GRID NORTH. NAD83 (2011) EAST ZONE, US SURVEY FEET, AS DETERMINED BY GPS OBSERVATIONS.

PROPOSED VERIFICATION SAMPLES:

- TOP OF BANK SAMPLE (TB)
- SIDEWALL SAMPLE (SW)
- CENTERLINE/BOTTOM SAMPLE (CL)

LEGEND

- PROPERTY LINE
- STREAM CENTERLINE
- AREA III UPPER PORTION OPERABLE UNIT 2
- AREA III LOWER PORTION OPERABLE UNIT 2
- WETLANDS BOUNDARY
- EDGE OF WATER
- ARCONIC EASEMENT
- PASNY SIGN EASEMENT
- APPROXIMATE EXCAVATION AREA (BOUNDARY DOTTED WHERE INFERRED)
- SAMPLING LOCATION WITH TOTAL PCB CONCENTRATION <1 PPM
- SAMPLING LOCATION WITH TOTAL PCB CONCENTRATION >1 PPM

N

PLANT NORTH

1" = 60'

30 0 60

CDM Smith

Arconic - Massena, New York

UNNAMED TRIBUTARY (UNT) AREA III UPPER PORTION OPERABLE UNIT 2 VERIFICATION SAMPLING PLAN FIGURE 6-1

Section 7
Site and Stream Restoration

This section presents a summary of the environmental functions and values of the UNT and the plans for restoration after removal of contaminated sediment.

7.1 UNT Functions and Values

This Wetland Functions and Values Assessment evaluates the Unnamed Tributary (UNT) and associated vegetated wetlands (delineated April 2017) located in Massena, NY. This assessment follows the procedures prescribed in the U.S. Army Corps of Engineers New England District manual titled *"The Highway Methodology Workbook Supplement Wetland Functions and Values"* (USACE 1999).

This is a descriptive, rather than numerical or weighted approach to assess wetland functions and values. Wetland systems are likely to support multiple functions or values to a certain degree, but it is important to identify those functions and values that are most important or most strongly supported by a particular system, (i.e., principal function/value). Eight functions and five values are recognized by the USACE, identified in Table 7-1.

Table 7-1: Wetland Functions and Values

Functions	Values
Groundwater Recharge/Discharge	Recreation (Consumptive and Non-Consumptive)
Floodflow Alteration (Storage and Desynchronization)	Educational/Scientific Value
Fish and Shellfish Habitat	Uniqueness/Heritage
Sediment/Toxicant/Pathogen Retention	Visual Quality/Aesthetics
Nutrient Removal/Retention/Transformation	Federally Threatened or Endangered Species Habitat
Production Export (Nutrient)	
Sediment/Shoreline Stabilization	
Wildlife Habitat	

The USACE (1999) provides the following definitions of functions and values:

Functions are self-sustaining properties of a wetland ecosystem that exist in the absence of society. Functions result from both living and non-living components of a specific wetland. These include all processes necessary for the self-maintenance of the wetland ecosystem such as Primary production and nutrient cycling. Therefore, functions relate to the ecological significance of wetland properties without regard to subjective human values.

Values are benefits that derive from either one or more functions and the physical characteristics associated with the wetland. Most wetlands have corresponding societal values. The value of a particular wetland function, or combination thereof, is based on human judgment of the worth, merit, quality or importance attributed to those functions.

Based on the Wetland Function Evaluation Worksheet completed for the UNT project area, the primary functions of the UNT are sediment/toxicant/pathogen retention and sediment/shoreline stabilization. The UNT also provides and supports groundwater recharge, detains flood waters, and wildlife and fish habitat. Due to the lack of deep organic soils nutrient removal/retention/transformation is limited, some nutrient production export occurs but primarily from higher trophic users. The UNT has very low recreation and educational/scientific value due to lack of public access.

7.2 Restoration

Channel and Bank Restoration

The proposed restoration design will make use of natural matting and rolls that require seeding and plantings to establish ground cover including coir fascines/rolls and erosion control blankets to replicate existing conditions (i.e., vegetated banks). The banks are well exposed to sunlight which will enable seed to germinate and shrubs to thrive. Maximum velocities in the UNT are well below 10 feet per second which makes the use of coir fascines/rolls a feasible restoration option. HydroCAD modelling shows that the maximum velocities during a 25-yr storm event is approximately 6.6 cfs.

Removal of PCB-impacted soil will alter both the stream channel and banks, and federal jurisdictional vegetated wetlands (see **Figure 7-1**). All disturbed areas will be restored with no loss of Waters of the U.S. The channel bottom will be restored to preconstruction grades within the channel and to pre-beaver dam grades in the ponded area, using clean common fill to 6 inches below final grade. Stream bed material consisting of 50% loam, 25% coarse sand and 25% washed round stone will be installed with a minimum thickness of 6 inches to restore the excavated channel bottom to final grade. Disturbance to the banks of the UNT channel is unavoidable. Altered banks along the channel will be restored per Detail 1 on **Figure 7-2** using reinforced soil slopes (coir rolls and erosion control blanket) and vegetative soil surface stabilization to protect the bank from future erosion with coir fascines/rolls, tubelings, and shrub plantings, see Detail 1 on Figure 7-2). This approach will stabilize the slope for the long-term to protect from washouts. Additional plantings of shrubs such as Nannyberry (*Viburnum lentago*) and red-osier dogwood (*Cornus alterniflora*) above the coir rolls will generate future cover along the riparian corridor. These proposed natural stabilization techniques are expected to reestablish the bank similar to current natural condition. Detail 5 on Figure 7-2 provides additional and more specific bank restoration details representative of the area around Sta. 53, where the stream channel is wider and has lower banks than the upstream section.

Snags will be installed using minimum 12 inch by 12 inch logs every 50 feet staggered on each side of the channel and installed within the restored bank toe per Detail 2 on Figure 7-2. Existing observed pool/riffle habitat along the channel at approximately Sta. 47+25 and Sta. 50+75 will be replaced per Detail 3 shown on Figure 7-2. The restored banks will be seeded with Northeast Upland Wildflower/Restoration Erosion Mix, or equivalent, available from Southern Tier Consulting Inc. (http://www.southerntierconsulting.com/). This erosion control mix includes fast growing grasses and native and naturalized pasture wildflowers. This seed mix will provide plant diversity to support wildlife. Plant materials are selected native plants which will provide shade, cover, and serve as a food source for wildlife. The plants will be nursery grown under

climatic conditions similar to those in the locality of the project and will conform to the variety and sizes indicated on the Planting Schedule Detail 6 on Figure 7-2.

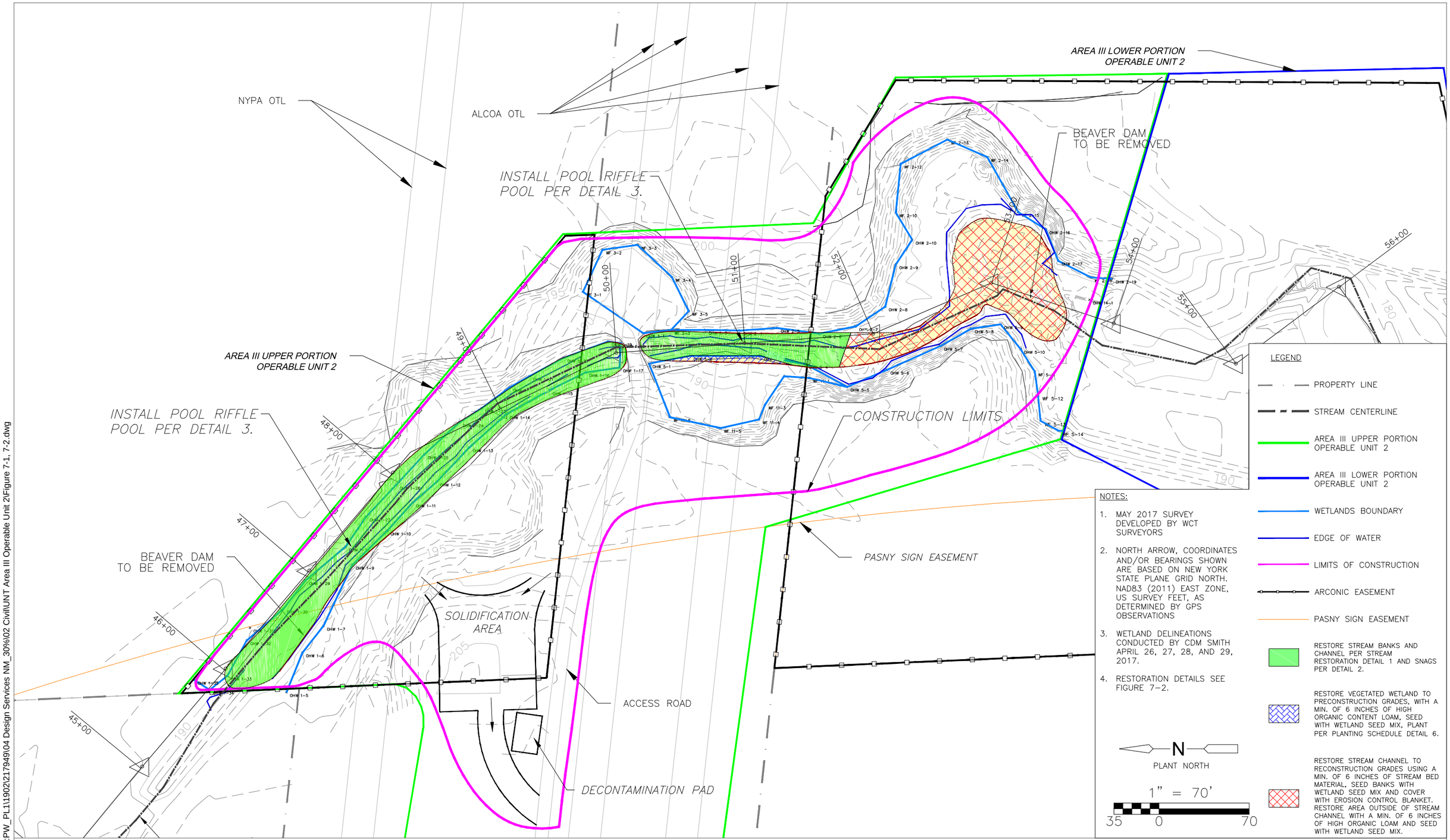
A ponded area is present above the existing beaver pond at approximately Sta. 53+00. The ponded water will be removed as part of the PCB soil remediation work. The existing channel from approximately Sta. 50+75 to Sta. 53+00 will be restored to pre-beaver dam grades using clean common fill to 6 inches below final grade, and the streambed will be allowed to return to its natural conditions and flow.

Upland Restoration

The proposed restoration of the uplands construction staging area and the solidification areas consists primarily of loam and seeding to restore the vegetative areas to their pre-construction condition. Upon completion of the remediation work, restoration would consist of the following; finish grades (if applicable), place loam, apply lime and fertilizer, seed and mulch, and maintain the areas to ensure full restoration. All restorations will be conducted in accordance with the project specifications.

7.3 Wetland Restoration Plan

The proposed PCB soil removal will result in approximately 6,900 square feet of temporary alteration to Vegetated Wetlands consisting of palustrine scrub-shrub broad-leaved deciduous habitat (PSS1). Excavation areas will be backfilled to original grades using imported high organic content loam, seeded with Northeast Wetland Shrub/Herb Mix available from Southern Tier Consulting Inc. (http://www.southerntierconsulting.com/), and planted with wetland shrubs as shown on the planting schedule (Detail 6) on Figure 7-2.



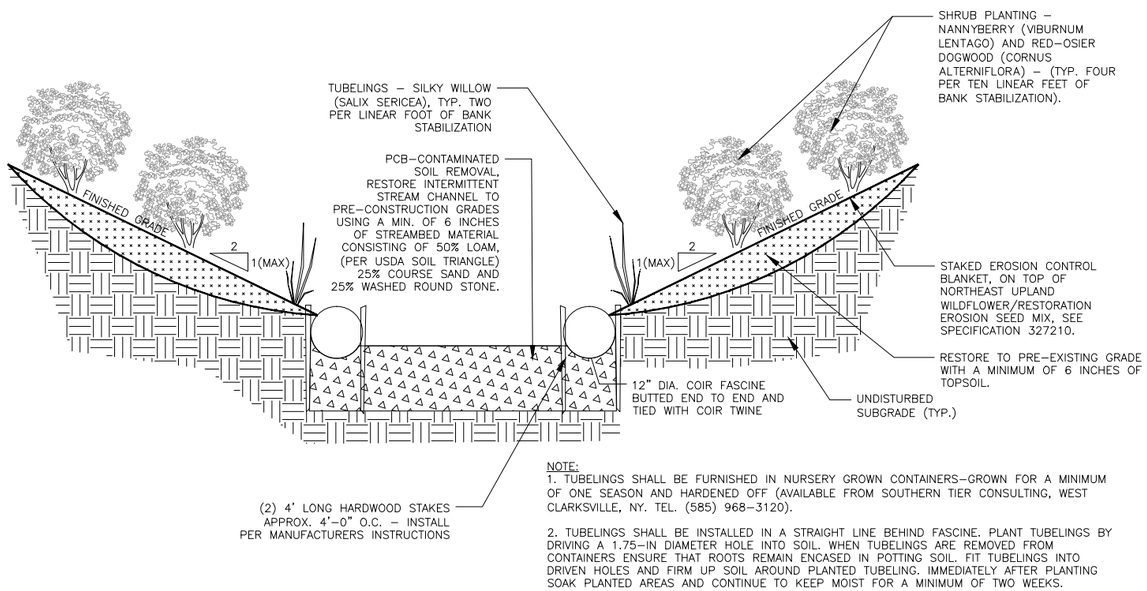
NOTES:

1. MAY 2017 SURVEY DEVELOPED BY WCT SURVEYORS
2. NORTH ARROW, COORDINATES AND/OR BEARINGS SHOWN ARE BASED ON NEW YORK STATE PLANE GRID NORTH. NAD83 (2011) EAST ZONE, US SURVEY FEET, AS DETERMINED BY GPS OBSERVATIONS
3. WETLAND DELINEATIONS CONDUCTED BY CDM SMITH APRIL 26, 27, 28, AND 29, 2017.
4. RESTORATION DETAILS SEE FIGURE 7-2.

CDM Smith

Arconic - Massena, New York

UNNAMED TRIBUTARY (UNT) AREA III UPPER PORTION OPERABLE UNIT 2
RESTORATION PLAN
FIGURE 7-1

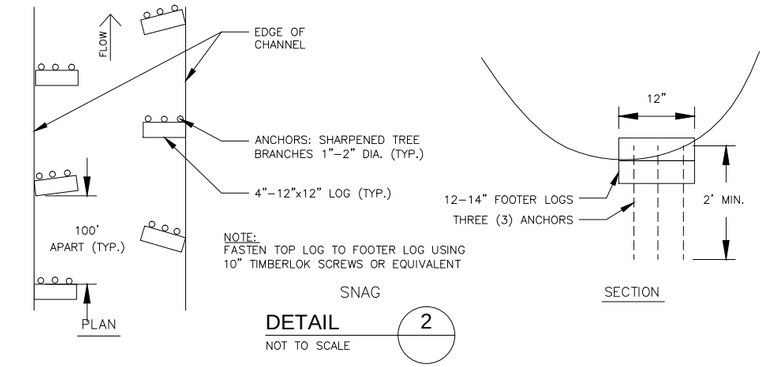


NOTE:
1. TUBELINGS SHALL BE FURNISHED IN NURSERY GROWN CONTAINERS–GROWN FOR A MINIMUM OF ONE SEASON AND HARDENED OFF (AVAILABLE FROM SOUTHERN TIER CONSULTING, WEST CLARKSVILLE, NY. TEL. (585) 968–3120).

2. TUBELINGS SHALL BE INSTALLED IN A STRAIGHT LINE BEHIND FASCINE. PLANT TUBELINGS BY DRIVING A 1.75–IN DIAMETER HOLE INTO SOIL. WHEN TUBELINGS ARE REMOVED FROM CONTAINERS ENSURE THAT ROOTS REMAIN ENCASED IN POTTING SOIL. FIT TUBELINGS INTO DRIVEN HOLES AND FIRM UP SOIL AROUND PLANTED TUBELING. IMMEDIATELY AFTER PLANTING SOAK PLANTED AREAS AND CONTINUE TO KEEP MOIST FOR A MINIMUM OF TWO WEEKS.

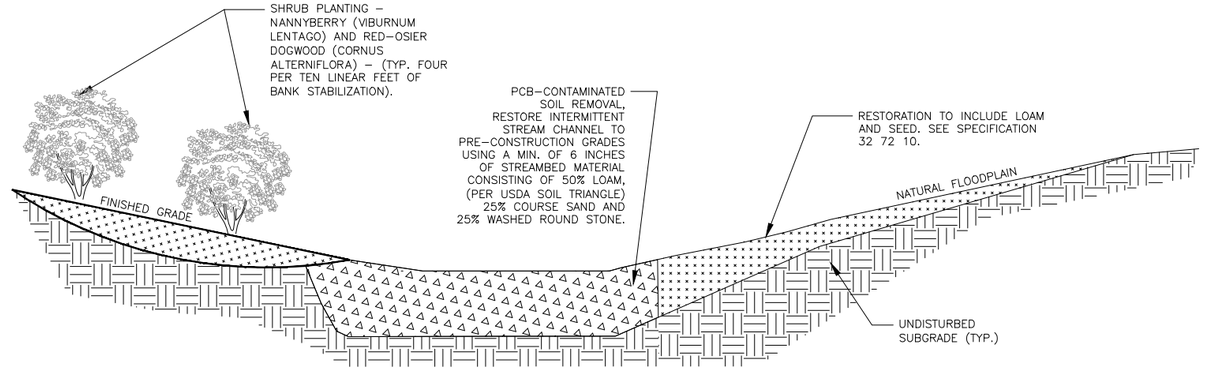
BANK STABILIZATION WITH COIR FASCINE, TUBELINGS AND SHRUB PLANTINGS

DETAIL 1
NOT TO SCALE



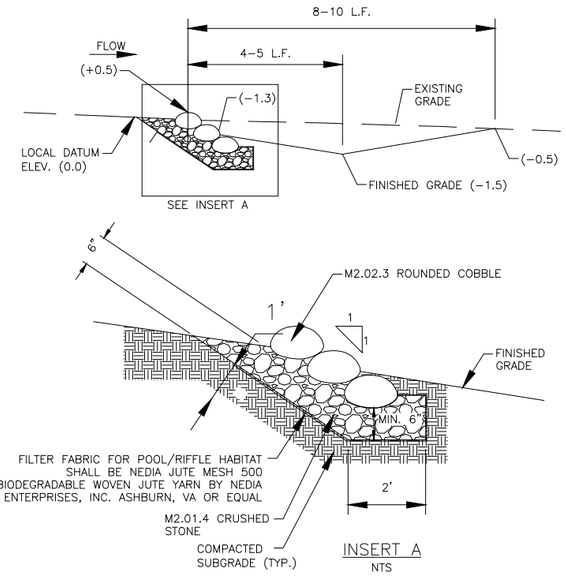
NOTE:
FASTEN TOP LOG TO FOOTER LOG USING 10" TIMBERLOK SCREWS OR EQUIVALENT

DETAIL 2
NOT TO SCALE



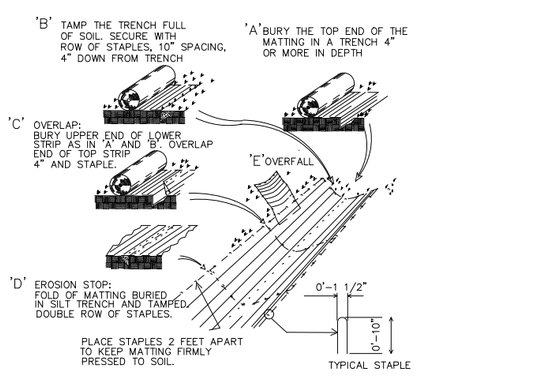
BANK STABILIZATION AT STATION 53+00

DETAIL 5
NOT TO SCALE



POOL/RIFFLE HABITAT

DETAIL 3
NOT TO SCALE



EROSION CONTROL BLANKET

DETAIL 4
NOT TO SCALE

NOTE:
1. APPLY ON ALL NEW LOAM AND SEEDED SLOPES STEEPER THAN 4(H):1(V).

2. BIONET® S150BN® SHORT–TERM BIODEGRADEABLE DOUBLE–NET STRAW BLANKET, OR EQUIVALENT.

NOTE:

NO SYNTHETIC GEOTEXTILE OR PHOTO–DEGRADEABLE PLASTICS. ONLY 100% NATURAL/BIODEGRADEABLE MATERIALS SHALL BE USED.

PLANT SCHEDULE FOR VEGETATED WETLANDS

COMMON NAME	LATIN NAME	CONTAINER	APP. HEIGHT	PLANT DENSITY
SILKY WILLOW	SALIX SERICEA	#2	2–3'	8' ON CENTER
SILKY DOGWOOD	CORNUS AMOMUM	#2	2–3'	8' ON CENTER
NORTHERN WILD RAISIN	VIBURNUM CASSINOIDES	#2	2–3'	8' ON CENTER
COMMON ELDERBERRY	SAMBUCUS NIGRA	#2	2–3'	8' ON CENTER

PLANT SCHEDULE

DETAIL 6
NOT TO SCALE

NOTE:

1. BYPASS FLOW TO DISCHARGE UPSTREAM OF TURBIDITY CURTAIN.
2. CONTRACTOR TO UTILIZE ENERGY DISSIPATION MEASURES AS REQUIRED TO PREVENT TURBID CONDITIONS FROM DISCHARGE.
3. TURBIDITY CURTAIN IS TO ANCHORED TO STREAM BANK IN ACCORDANCE WITH MANUFACTURES REQUIREMENTS.

CDM Smith

Arconic - Massena, New York

UNNAMED TRIBUTARY (UNT) AREA III UPPER PORTION OPERABLE UNIT 2
RESTORATION DETAILS
FIGURE 7-2

Section 8
Health and Safety

A Health and Safety Plan for the protection of onsite workers, and a Community Health and Safety Plan complete with Community Air Monitoring Plan, to address the health and safety of the public living and working near the site, will be prepared for the project site prior to the start of work. These plans will be prepared by the Contractor selected to perform the work, and will be prepared in accordance with all relevant OSHA and DER-10 guidance. Section 8.1 and 8.2 present the minimum requirements of the these plans.

8.1 Health and Safety Plan

A site health and safety plan will be prepared in accordance with OSHA 1910.120, as detailed in Section 1.9 of DER-10. All health and safety plans submitted in response to Section 1.9 are to be prepared, signed and implemented by a certified industrial hygienist by the American Board of Industrial Hygiene, a certified safety professional by the Board of Certified Safety Professionals or other qualified person pursuant to 29 CFR1910.120. This site-specific health and safety plan will be adhered to by all personnel involved in the remedial activities detail in this RAWP. For the protection of all onsite workers and personnel, the health and safety plan will identify known and potential hazards, and provide information on how to avoid and/or mitigate risk. The health and safety plan will include the following components:

- Basic site information (i.e., location, name, address), objectives of the field work, and personnel and responsibilities
- A detailed figure showing the site location, any exclusions zones, evacuation point, decontamination areas or other relevant site health and safety features
- Site history, hazards of concerns, work zones, and waste characteristics
- Descriptions of the site and surrounding features, the surrounding population (i.e. residential, industrial, commercial), and a summary of the known hazardous materials and their quantity
- Summary of the known contaminates, their highest observed concentrations, and signs, symptoms and effects of acute exposure to those contaminates are also included
- Details on the tasks to be performed in the field and if the will disturb waste, what their specific hazards are, and their level of risk (i.e., low, moderate, medium, high)
- The personal protective equipment necessary based on which of the lists task are being performed, as well as decontamination procedures
- Emergency contact for CDM Smith Health and Safety Managers as well as local, state, and poison control contract information.

This health and safety plan will be prepared by a qualified person in accordance with the most recently adopted and applicable general industry and construction standards. A copy of the health and safety plan will always be present and available at the site while applicable activities are being conducted.

8.2 Community Air Monitoring Plan

In addition to the health and safety plan for the protection of onsite workers, a community air monitoring plan (CAMP) will be established to protect the public living and working near the project site. A CAMP requires real-time monitoring for volatile organic compounds and/or particulates at the downwind perimeter of each of the designated work areas when certain activities are in progress. This CAMP will be consistent with the one already established for the Grasse River. At a minimum, the CAMP must meet the requirements identified by the NYSDOH for a site, as detailed in Appendix 1A of the DER-10 technical guidance.

A CAMP includes the following components:

- Continuous monitoring. Continuous monitoring will be required for all ground intrusive activities. Ground intrusive activities for this project include, but are not limited to, soil/sediment/waste excavation, and handling. Continuous monitoring will be conducted for particulates. Volatile organic compounds are not constituents of concern in the UNT.
- Periodic monitoring. Periodic monitoring for particulates will be required during non - intrusive activities such as collection of soil and sediment samples and the transport of material from the site to the Secure Landfill.

A fugitive dust/particulate monitoring program will be required to be protective during intrusive activities. Guidance for establishing a fugitive dust/particulate monitoring program as included in Appendix 1B of the DER-10.

A fugitive dust suppression and particulate monitoring program should be employed at sites during construction and intrusive activities. Components include:

- Reasonable fugitive dust suppression techniques must be employed during all activities which may generate fugitive dust.
- Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil.
- Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10).
- QA/QC measures must be taken to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.
- The action level will be established at 150 µg/m3 (15 minutes average), as per Appendix 1B of the DER-10. Should the action level of 150 µg/m3 continue to be exceeded work must

stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

Techniques that can be used for the control of the generation and migration of dust include:

- Applying water on haul roads
- Wetting equipment and excavation faces
- Spraying water on buckets during excavation and dumping
- Hauling materials in properly tarped or water tight containers
- Restricting vehicles speeds to 10 mph
- Covering excavated areas and materials after excavation activity ceases
- Reducing the excavation size and/or number of excavations.

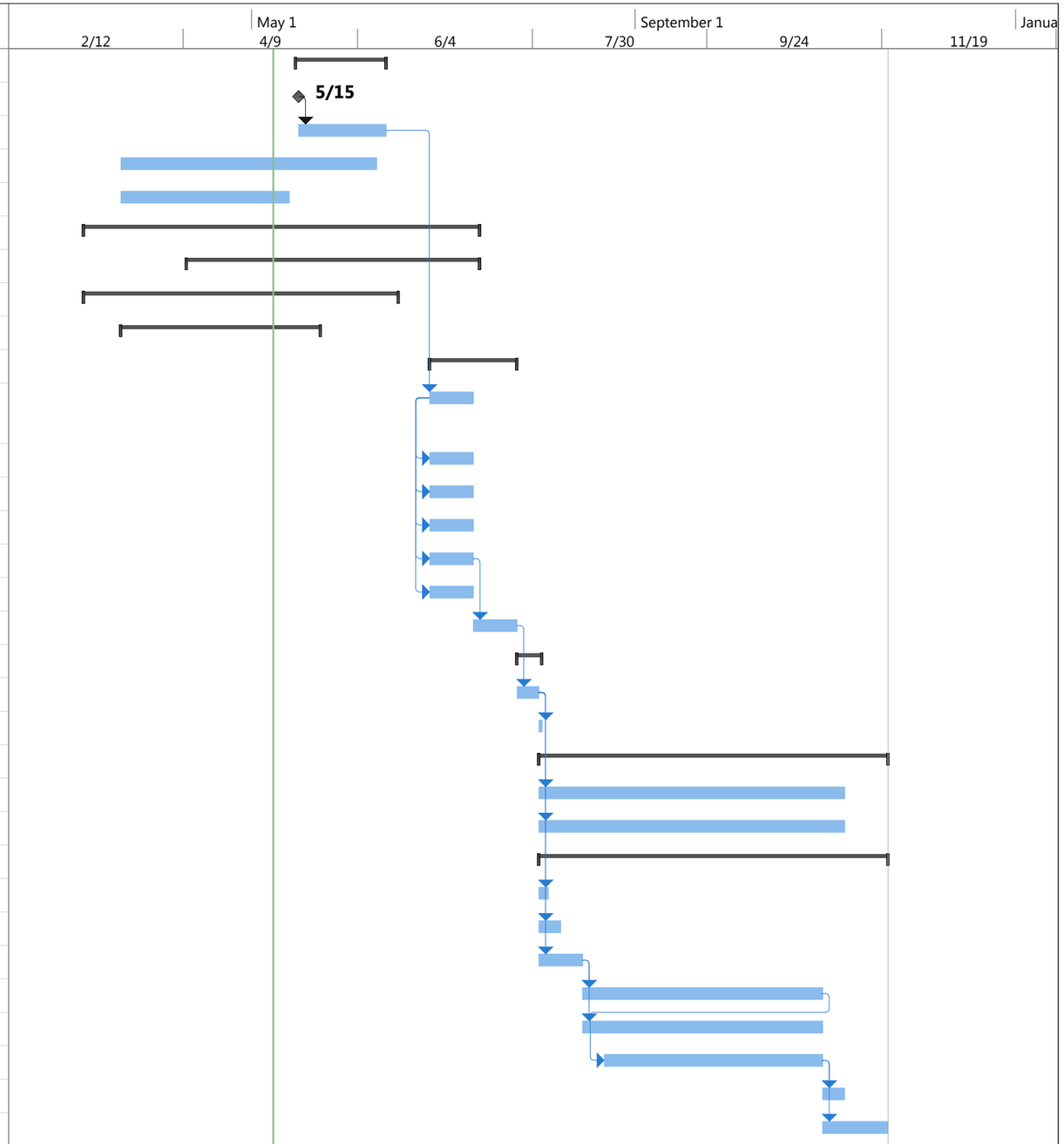
Section 9
Construction Schedule

Remedial construction of Area III for the UNT is proposed to take place in two phases. Phase 1 will include Area III UPOU2, Sta. 46+00 to Sta. 53+50, which is planned to be conducted in 2017. Phase II will include Area III LPOU2, Sta. 53+50 to Country Route 42, which is planned to be conducted in 2018.

The schedule to begin construction of Phase 1 relies upon several key milestone and restriction dates. Construction start is based upon the submittal and approval of this RAWP, submittal and approval of several key permitting submittals, submittal and approval of several key work plan submittals and obtaining access from surrounding properties. Additionally, PCB-impacted material will be transported to the Secure Landfill for disposal. The Secure Landfill has an approximate seasonal closure of October 31st and typically will not accept waste past this date. **Figure 9-1** depicts the sequencing and schedule for construction related dates as well as supporting tasks for the planning and construction of Area III UPOU2, from the submittal of the RAWP to the submittal of as-builts, post construction. Once selected the Contractor shall be required to develop a detailed construction schedule, until such time dates presented are approximate and will also be dependent on weather conditions.

RAWP approval, permit approval, access and work plans are scheduled to be completed in July to allow for a construction mobilization prior to August 2017. Major mobilization components will be completed in the first five days, followed by initial site preparation work. Site preparation work will include initial survey, erosion and sediment control development, access road preparation and vegetation clearing. Site preparation will be completed on August 14, 2017 to allow for excavation, processing, transportation and disposal of contaminated material. Remaining verification sampling will be completed as work progresses; analysis of these samples will be completed via an expedited turn-around time. Site restoration sequencing will likely follow the excavation of contaminated material from the north to south. Restoration will be completed as the remedial work progresses, at which time the site will be winterized. Construction is scheduled to be completed on October 30, 2017 to meet the anticipated Secure Landfill closure date. Demobilization and as-builts will be completed by November 6, 2017 and November 20, 2017, respectfully. An Area III UPOU2 Construction Completion Report will be submitted to NYSDEC by the end of calendar year 2017.

ID	Task Mode	Task Name	Duration	Start	Finish
1		**Remedial Action Work Plan**	**21 days**	**Mon 5/15/17**	**Mon 6/12/17**
2		Submittal to NYSDEC	1 day	Mon 5/15/17	Mon 5/15/17
3		NYSDEC review	20 days	Tue 5/16/17	Mon 6/12/17
4		**Site Access**	60 days	Mon 3/20/17	Fri 6/9/17
5		**Survey - Third Party**	40 days	Mon 3/20/17	Fri 5/12/17
6		**Permits**	**91 days**	**Wed 3/8/17**	**Wed 7/12/17**
7		**Joint Permit Application**	**68 days**	**Mon 4/10/17**	**Wed 7/12/17**
13		**Cultural Resources Assessment**	**73 days**	**Wed 3/8/17**	**Fri 6/16/17**
18		**SWPPP**	**46 days**	**Mon 3/20/17**	**Mon 5/22/17**
24		**Work Plans and Submittals w/Review**	**20 days**	**Tue 6/27/17**	**Mon 7/24/17**
25		Site Specific Heath and Safety Plan (HASP) To Agencies	10 days	Tue 6/27/17	Mon 7/10/17
26		Community Air Monitoring Plan	10 days	Tue 6/27/17	Mon 7/10/17
27		Contractor Safe Work Plan (CSWP)	10 days	Tue 6/27/17	Mon 7/10/17
28		Construction Work Plan to Agencies	10 days	Tue 6/27/17	Mon 7/10/17
29		Waste Management Plan to Agencies	10 days	Tue 6/27/17	Mon 7/10/17
30		CQA Plan To Contractor and Agencies	10 days	Tue 6/27/17	Mon 7/10/17
31		Agency Review	10 days	Tue 7/11/17	Mon 7/24/17
32		**SITE MOBILIZATION**	**6 days**	**Tue 7/25/17**	**Tue 8/1/17**
33		Site Mobilization	5 days	Tue 7/25/17	Mon 7/31/17
34		Temporary Toilet Facilities	1 day	Tue 8/1/17	Tue 8/1/17
35		**CONSTRUCTION ACTIVITY**	**80 days**	**Tue 8/1/17**	**Mon 11/20/17**
36		Construction Management	70 days	Tue 8/1/17	Mon 11/6/17
37		Survey - Contractor	70 days	Tue 8/1/17	Mon 11/6/17
38		**SITE WORK**	**80 days**	**Tue 8/1/17**	**Mon 11/20/17**
39		Sediment Fence Install/Surface Water Controls	3 days	Tue 8/1/17	Thu 8/3/17
40		Vegetation Clearing	5 days	Tue 8/1/17	Mon 8/7/17
41		Roadway and Access Improvements	10 days	Tue 8/1/17	Mon 8/14/17
42		Excavation, Processing, Transport and Disposal	55 days	Tue 8/15/17	Mon 10/30/17
43		Confirmation Sampling	55 days	Tue 8/15/17	Mon 10/30/17
44		Restoration/Winterize	50 days	Tue 8/22/17	Mon 10/30/17
45		Demobilization	5 days	Tue 10/31/17	Mon 11/6/17
46		As-Builts	15 days	Tue 10/31/17	Mon 11/20/17



UNT Area III, Operable Unit 1
2017 Construction Schedule

Task	Project Summary	Manual Task	Start-only	Deadline	
Split	Inactive Task	Duration-only	Finish-only	Progress	
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress	
Summary	Inactive Summary	Manual Summary	External Milestone		

Arconic - Massena, New York
UNNAMED TRIBUTARY (UNT) AREA III
SEQUENCING AND SCHEUDLE - OPERABLE UNIT (OU-1)
FIGURE 9-1

Section 10
Reporting

This section describes the documentation and reporting for remedy construction of the UNT Area III UPOU2 and ultimately the UNT as a whole.

10.1 Construction Completion Report

At the conclusion of remedy construction in UNT Area III UPOU2, a Construction Completion Report (CCR) will be prepared for submittal to NYSDEC in accordance with DER-10 Section 5.8. This document will describe the activities completed in accordance with the approved RAWP, and provide data to document the successful completion of construction activities. As appropriate it will include:

- A description of the remedy, as constructed, pursuant to the RAWP
- A description of any problems encountered during construction and a description of their resolution
- Quantities and concentrations of contaminants removed
- A listing of the waste streams, quantities and locations of materials disposed
- Restoration actions.

The document will include verification sampling results, data usability summary reports and as-built drawings. Each as-built drawing will bear the stamp and signature of a NYS professional engineer. The CCR will be prepared, stamped, certified and signed by an individual licensed in accordance with article 145 of the Education Law to practice the profession of engineering using the appropriate certification.

Prior to the completion of remedy construction, monthly progress reports will be submitted to NYSDEC, detailing progress towards the conclusion of the construction.

10.2 Final Engineering Report

At the conclusion of remedy construction in UNT Area III (Area III UPOU2 and LPOU2) a final Engineering Report (FER) will be prepared. The FER is prepared to document implementation of the complete remedial program and will serve as the basis for NYSDEC to issue a certificate of completion or closure letter for the UNT. The FER will include the CER described above and the *Certification Report for the Unnamed Tributary* and the *Cleanup Verification Sampling and Analysis Report for the Unnamed Tributary* (CDM, February 1999) as appendices. Remediation of the UNT and preparation and submittal of the FER is expected to be completed by the end of 2018. Remediation is expected to remove the constituents of concern, PCBs, to established cleanup criteria such that institutional controls and/or a site management plan will not be required.

Appendix A

Agency Correspondence

PO Box 150
Massena, NY 13662

March 28, 2017

Mr. Lincoln B. Fancher
Engineering Geologist II
New York State Department of Environmental Conservation
Division of Environmental Remediation – Region 6
317 Washington Street, 7th Floor
Watertown, New York 13601-3787

Re: Arconic – Massena Operations, Site# 645019, Unnamed Tributary (UNT)
2017/2018 Project Activities – Phased Approach

Dear Mr. Fancher:

As a follow up to our meeting on March 22, 2017 and subsequent conversation on Friday, March 24 regarding the Unnamed Tributary (UNT), Arconic Inc. (Arconic) has decided to modify its proposed remedial schedule of the UNT. It is Arconic's intent to divide the UNT into two "operable" units.

The northern operable unit will begin at transect T46+00 and extend to the beaver dam located just beyond transect T53+00. This area is depicted on the attached Figure 2. It is Arconic's intent to remediate and restore this operable unit in 2017. The southern operable unit will begin at transect T53+00, on the southern side of the beaver dam, and extend to transect T72+00. This area is depicted on the attached Figures 3, 4 and 5. Arconic will develop a remedial plan for this portion of the UNT in 2017 and complete remediation and restoration in 2018.

As previously discussed, the scheduled remediation and restoration of the UNT in 2017 is very aggressive. The intent of this change is to "streamline" project activities in 2017 by focusing remediation and restoration on the well-defined, less complex northern operable unit and allowing for further delineation, as necessary, of the southern operable unit. Please note that this schedule change has no impact to the Grasse River Remediation project.

If you have any questions, please contact me at (315) 212-9069

Sincerely,

Todd J. Furnia
Environmental and Security Manager

cc: P. Taylor (NYSDEC)
C. Gosier (NYSDEC)
S. McLaughlin (NYSDOH)
K. Gribben (Arconic)
R. Morosky (Alcoa)
E. Ashley (CDM Smith)
J. Welch (CDM Smith)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 6
Dulles State Office Building, 317 Washington Street, Watertown, NY 13601-3787
P: (315) 785-2513 | F: (315) 785-2422
www.dec.ny.gov

April 13, 2017

Mr. Todd Furnia
Environmental and Security Manager
Arconic, Inc.
P.O. Box 150
Massena, NY 13662

RE: Unnamed Tributary, Site# 645019
2017-2018 Project Activities – Phased Approach

Dear Mr. Furnia:

The Department is in general concurrence with the proposal by Arconic, Inc., iterated in your letter of March 28, 2017, to phase the remediation of Area III of the Unnamed Tributary (UNT) in two segments over the 2017 and 2018 construction seasons. As described in your letter, the upstream portion (from transect T46 to the vicinity of T53) would take place in 2017; the lower section above the County Route 42 culvert (from transect T53 to T72) would be addressed in 2018. This will allow the development of remedial designs/ work plans for the two segments to follow independent tracks.

Based on the discussions of our meeting on March 22, 2017, we understand Arconic is planning to address remediation of sediments in the vicinity of the confluence of the UNT with the Grasse River (sample FP-16, between transect T76 and T-END), in conjunction with remediation in the Grasse River. This may require adjustment of remedial design elements associated with that project.

Comments on the March 1, 2017 Supplemental Remedial Investigation Sampling Report (Technical Memorandum prepared on behalf of Arconic by CDM Smith) are pending, and will follow in separate correspondence.

Please contact me if there are any questions or concerns.

Sincerely,

Lincoln B. Fancher
Engineering Geologist 2/ Project Manager
Region 6 – Division of Environmental Remediation

ec: Peter Taylor (NYSDEC, Region 6 Remediation Engineer)
Kevin Farrar (NYSDEC, DER, Bureau D, Section A - Chief)
David Tromp (NYSDEC, DER, Bureau D, Section A)
Corbin Gosier (NYSDEC, DF&W, Bureau of Habitat)
Scarlett McLaughlin (NYSDOH)

cc: Young S. Chang (USEPA, Region 2)

CDM Smith

cdmsmith.com