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Project name: 6 Abandoned Dams
Bel Air Dam – Pittsfield, MA

Project ref: 60604936 Task 13

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Date: July 14, 2022

Memo

Subject: Bel Air Dam Recommended Sediment Management Plan and Cost Analysis

Background and Objective

The Bel Air Dam (MA1061), located in the City of Pittsfield in Berkshire County, Massachusetts, is classified as HIGH (Class I) Hazard Potential dam in accordance with Massachusetts Dam Safety Regulations (302 CMR 10). AECOM conducted a visual, structural, and geotechnical condition assessment in 2019 and found the dam to be UNSAFE and STRUCTURALLY DEFICIENT. AECOM presented these observations and conducted a preliminary alternatives evaluation to address the deficiencies (Refer to the Phase II Investigation and Alternatives Analysis Evaluation Report by AECOM, February 2020). The Phase II Report also included probable construction costs to remove the dam and manage the sediment that had collected in the impoundment behind the dam. For the preliminary alternatives and cost analysis, AECOM evaluated partial and full removal of the dam and estimated the volume of sediment that would need to be managed by using cross section profiles at stations along the river based on sediment depth probe data. A fixed transportation and disposal cost was assigned to the volume based on a limited set of sediment data from five (5) upstream and one (1) downstream sample locations.

In November 2021, AECOM conducted a field sampling event in which sediment samples from sixteen (16) locations upstream of the dam and one (1) downstream location were collected. The 2021 field event followed the Massachusetts Department of Environmental Protection (MassDEP) approved Field Sampling Plan (FSP), Bel Air Dam (AECOM, October 2021) with limited exceptions which are documented in the Field Report for Bel Air Dam Sediment Program- Pittsfield Massachusetts (AECOM, April 2022). The sediment sample results obtained from this investigation were used to obtain transportation and disposal costs which were in turn used to amend the preliminary alternatives and cost analysis summarized herein. In addition, the sediment sample results from the 2021 field sampling event were used to form a basis for developing a plan for the method and quantity of sediment removal and an opinion of probable construction costs for removing and disposing the exhumed materials.

This memorandum provides an overview of the 2021 sediment investigation results; the calculation method used to estimate the volume of sediment that may need to be removed during dam removal activities; the sediment management and disposal approach considered for cost estimation; and details supporting the updates to the construction cost estimate for dam removal (option 1) from the Phase II Report.

Sediment Investigation Results

Chemical Characterization

The objective of the FSP investigation was to identify a coring/sampling program that met the requirements under 314 CMR 9.07 Criteria for the Evaluation of Applications for Dredging and Dredged Material Management and to develop a cost estimate for implementing the proposed dredging and materials management. Specifically, the data would be used to provide an opinion on which sediments would require dredging rather than being allowed to naturally erode post-dam removal, as well as to evaluate potential offsite transportation and disposal options. Regulation 314 CMR 9.07 stipulates sampling and analysis requirements as follows:

- No chemical testing if dredged material contains less than 10% by weight of particles passing #200 sieve; and
- Chemical and physical testing for dredge material in excess of 10% particles passing #200 sieve which:
    1. considers available analytical information;
    2. ensures representative information is obtained relative to volume, grain size distribution and total organic carbon (TOC); and
    3. considers areas of potentially elevated contamination based on proximity to outfalls, tributaries, other discharges, etc.

Chemical testing includes volatile organic compounds (VOCs), metals (RCRA 8), polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), extractable petroleum hydrocarbons (EPH), TOC, solids content, grain size, and toxicity characteristic leaching procedure (TCLP). For projects >10,000 cubic yards (CY), chemical and physical testing is to be conducted according to a project-specific sampling and analysis plan subject to review and concurrence by the MassDEP. Approval of the FSP was granted by David Wong, 401 Water Quality Certification Program, on October 25, 2021. The approval was granted on the basis for the sample locations and depths outlined in the FSP and consisted of analyzing all samples for grain size and VOCs initially, with subsequent compositing for additional analyses for metals, PAHs, PCBs, EPH, and TOC based on the initial results. TCLP is typically performed for waste disposal considerations and is not required on the same frequency if the project is not expected to occur within one (1) year of sampling as the results for waste acceptance generally cannot be over a year old. The field team was mobilized, and samples collected in mid-November 2021. The laboratory was requested to analyze VOCs and grain size along with TCLP VOCs; all other samples were frozen for preservation so as not to exceed holding time while initial analyses were being conducted to aid in establishing a compositing program.

The laboratory results were received in January 2022 due to a delay in laboratory processing of grain size analyses. In addition to the grain size data and VOCs, the metals results on several samples were also received despite a hold indicated on the Chain of Custody (CoC). The sample results were compared to MassDEP's Massachusetts Contingency Plan (MCP) reportable concentrations (RCs) for soil categories S-1 and S-2 (RCS-1 and RCS-2) to evaluate potential contaminant impacts. AECOM reviewed all results and developed a compositing plan based on the grain size and apparent contaminant content primarily represented by the chromium (Cr), lead (Pb) and arsenic (As) results, as there were multiple exceedances of RCS-1 and in some cases RCS-2 criteria. It is noted that, since these criteria are applicable to soil and not sediment, the exceedances did not trigger any MCP notification requirements for the existing sediments. The subsequent compositing plan was approved by MassDEP in February 2022 and the laboratory moved forward with the compositing and analysis of samples. In addition, since the initial analysis of Cr was for total Cr and there are criteria for both trivalent and hexavalent concentrations, it was necessary to determine the approximate fractions to affirm that concentrations were not substantially attributed to hexavalent Cr as its toxicity is substantially higher than for trivalent. AECOM mobilized to the site and collected three (3) additional samples at locations where elevated Cr was observed and submitted these samples for analysis[1]. [1]

[1] As shown in Table 1 analytical results for total Cr ranged from 66-580 mg/kg while the hexavalent Cr results ranged from 1.03-1.34 mg/kg indicating that the majority of the Cr present is trivalent Cr.

Composite sample data for PAHs, PCBs, EPH and TOC as well as several individual samples for metals were received in March 2022. Results showed that there were a number of PAHs which exceeded RCS-1 standards as well as a limited number of EPH exceedances. It was noted that samples not included in the compositing plan by design had been omitted from individual analysis and the laboratory was requested to analyze these samples to complete the analytical program.

Table 1 shows a summary of all results compared to RCS-1 and RCS-2 criteria. Figure 1 shows a summary of all sample results which exceeded either the RCS-1 or RCS-2 criteria for soil. These data were used to assess the distribution of contaminants in the sediment both above and below the projected water elevation dividing the sediment that would be above the future water line after dam removal (and therefore potentially needing to be excavated) and the sediment that would remain below the water line after dam removal (and therefore not subject to MCP RCs). See Regulatory Considerations below. On the basis of these data, the volumetric estimate of sediment that may need to be removed as part of the dam deconstruction was established.

Volume

A sediment depth probe survey was conducted as part of the 2020 Phase II Report to generate an estimate of the sediment volume collected behind the dam. Site topographic and bathymetric surveys conducted in 2019 together with the sediment probe data were used to prepare an existing conditions plan and profile to aid in estimating the probable construction costs to remove the dam and manage the sediment collected behind it (AECOM, February 2020). Based on this information, it was estimated that approximately 50,000 CY of sediment was impounded behind the dam and up to 40,000 CY of sediment might need to be removed and disposed/reused if the dam was fully removed.

Sediment quantities generated in this memo used the same probe, topographic and bathymetric data as in 2019, however, the volume of sediment was estimated utilizing Autodesk Civil 3D (CAD) and Microsoft Excel, which permitted evaluating sediment quantities incrementally along the river. This more detailed approach permitted use of the chemical characterization data which varied upstream of the dam as shown in Figure 1. Cross sections were developed in CAD to acquire conceptual horizontal and vertical excavation extents. A proposed future stream water elevation was also included on the cross sections to identify how much sediment would lie above the proposed water elevation following the full removal of the dam. Sediment upstream of soil core SS BA009 (see Figure 1 for coring location), or station 10+85.54, above the proposed water elevation, will not be removed due to analytical data being below MCP criteria. Sediment volumes were calculated by taking the difference of the start and end stations, then multiplying by the average of the start and end station cross sectional excavation areas above the proposed water elevation. See Figures 2 through 4 for cross sections used for sediment volume calculations.

Based on this volumetric analysis, and using chemical results as summarized above and on Figure 1, it is estimated that about 35,500 cubic yards (CY) of sediment will need to be excavated following the removal of the Bel Air Dam. This estimate includes the impacted volume above the proposed water elevation as well as 6 inches of over dredge (which would include a limited amount of material beneath the design water elevation). This estimate is considered consistent with conceptual planning as final decisions for the dam have not been determined and finalized engineering design has not been completed. Removal volume may also be impacted by unexpected field encounters during construction activities.

Regulatory Coordination

As noted above, the MCP RC criteria are not directly applicable to sediment, and therefore, the exceedance of RCs does not trigger any MCP notification requirements for the existing sediments. Upon completion of the proposed dam removal activities, the sediments that are above the proposed water elevation will no longer meet the MCP definition of sediment and will instead be considered potentially accessible soils for which the RCs would apply. Sediments remaining above the proposed water elevation may typically be allowed to erode naturally post

dam-removal if below the RCs while the portion of these sediments that exceed RCs will require excavation and offsite management, thereby avoiding creating a “reportable condition” post-dam removal.

Sediment Management and Disposal Options

This section describes the sediment removal and management approach that is the basis of the revised cost estimate provided under Construction Cost Estimate section. It is the basis of design AECOM considers relevant to the site conditions based on constraints we know to be true today. Future review and consideration by others may establish alternative means and methods to execute the remedial program.

Construction Sequencing

Based on AECOM’s experience with similar projects the following construction sequence is suggested as one feasible way of executing construction activities within the site layout.

Pre-construction and Site Preparation

- Mobilization of crew, equipment, and materials
- Installation of erosion control barriers
  - Silt Fence
  - Straw Bales
  - Turbidity Controls
- Installation of polyethylene sheeting in sediment dewatering areas
- Clearing and grubbing activities.
- Installation of erosion control blankets on cleared embankment.

Dewatering and Excavation

- Swamp mat placement (as necessary) for access
- Sediment removal from upstream location:
  - Station 10+00 to 10+90
- Divert water to mill race by constructing a bypass channel
- Divert and dewater impoundment area via installation of a Portadam
- Excavate contaminated sediments between the dam and approximately station 10+00
- Construct proposed bank channel
- Confirm topographic survey
- Allow all exhumed sediments to gravity dewater
- Add a solidification reagent to dewatered sediment
- Load sediment for transportation and disposal

Backfill and Restoration

- Fill existing spillway with salvaged dam masonry stone
- Install rip rap and stone
- Seed the restoration areas
- Plant shrubs and trees in restoration areas

- Remove erosion control barriers
- Phase dam demolition
- Demobilization of crew, equipment, and materials.

Transportation and Disposal

AECOM solicited quotes for disposal of sediments based on the TCLP and other analytical data from the November 2021 investigation. The quotes were solicited from Green Rock, Waste Management, Clean Earth, and Clean Harbors. The quotes that were received are summarized in Table 2. Requirements cited for sediment transportation and disposal include:

- No free-draining liquids
- Unconfined compressive strength (ASTM D2166) of 1,000 psf
- Acceptance for beneficial reuse in Massachusetts is prohibited based on the concentrations observed; potential for acceptance in NY requires application for case-by-case review.

Based on this information, the concept for sediment management includes gravity dewatering to remove free-draining liquids and solidification reagent addition. Based on recent AECOM projects, Type 1 Portland Cement at a 10% addition rate was added to the cost estimate as a solidification reagent and disposal tonnages were increased accordingly. Transportation and disposal cost to High Acres Landfill ($110 per ton, option 5 from table 2) has been included in the cost estimate. The cost is distributed between sediment transportation and disposal cost (item number 21) and general contractor overhead and profit.

Construction Cost Estimate

AECOM has updated the dam removal (Option 1) construction cost estimate provided in the 2020 Phase II Investigation Report based on the concept described above and the estimated transportation and disposal costs provided in Table 2. Costs/quantities updated from the 2020 to 2022 Construction Cost Estimate are detailed below:

- All unit rates and material costs from the 2020 estimate were increased to estimate present cost and labor rates were adjusted based on the ENR Construction Cost Index of 13,004, which was the current index at the time of the estimate .
- Clearing and grubbing quantity and cost
- Volume of sediment to be excavated
- Transportation and disposal costs used option 5 from Table 2. Quantity for disposal is equal to the total weight of the dewatered sediment (tons) and the solidification reagent (tons). A sediment specific gravity of 1.5 was assumed and 7% weight loss was assumed via dewatering.
- Material unit cost of fill, rip rap, and stone based on recent AECOM projects
- Water control allowance changed to Portadam/cofferdam and water management

Costs/quantities added to the 2022 Construction Cost Estimate are detailed below provided:

- Mobilization/demobilization of crew, equipment, and material
- Turbidity controls
- Swamp mats to be used as necessary for access
- Polyethylene sheeting for dewatering areas
- Topographic surveys
- Gravity dewatering set down area and operations

- Solidification reagent material and addition
- Sediment offloading for transportation and disposal

The updated Construction Cost Estimate is provided as Table 3. For comparison, Table 3 also includes updated cost estimates for Options 2.1 (Dam Repair with Limited Sediment Removal) and 2.2 (Dam Repair with Full Sediment Removal), as described in the Phase II Report. The cost estimates for Options 2.1 and 2.2 were updated to reflect updated unit rates and material costs as well as updated information regarding sediment management/disposal. It should be noted that all costs included in Table 3 exclude future escalation.

References:

AECOM Technical Services, Inc. (AECOM), 2020. *Phase II Investigation and Alternatives Analysis Evaluation Report, Bel Air Dam, Pittsfield Massachusetts*. February 2020.

AECOM, 2021. *Field Sampling Plan, Bel Air Dam, Pittsfield Massachusetts*. October 2021

AECOM, 2022. *Field Report for Bel Air Dam Sediment Program- Pittsfield Massachusetts*. April 2022.

ASTM International, 2010. *D2166-06: Standard Test Method for Unconfined Compressive Strength of Cohesive Soil.* December 2010

Code of Massachusetts Regulations (CMR), 2017. Massachusetts Department of Conservation and Recreation, *302 CMR 10: Dam Safety*. February 2017.

CMR, 2018. Division of Water Pollution Control *314 CMR 9.00: 401 Water quality certification for discharge of dredged or fill material, dredging, and dredged material disposal in waters of the United States within the Commonwealth*. April 2018

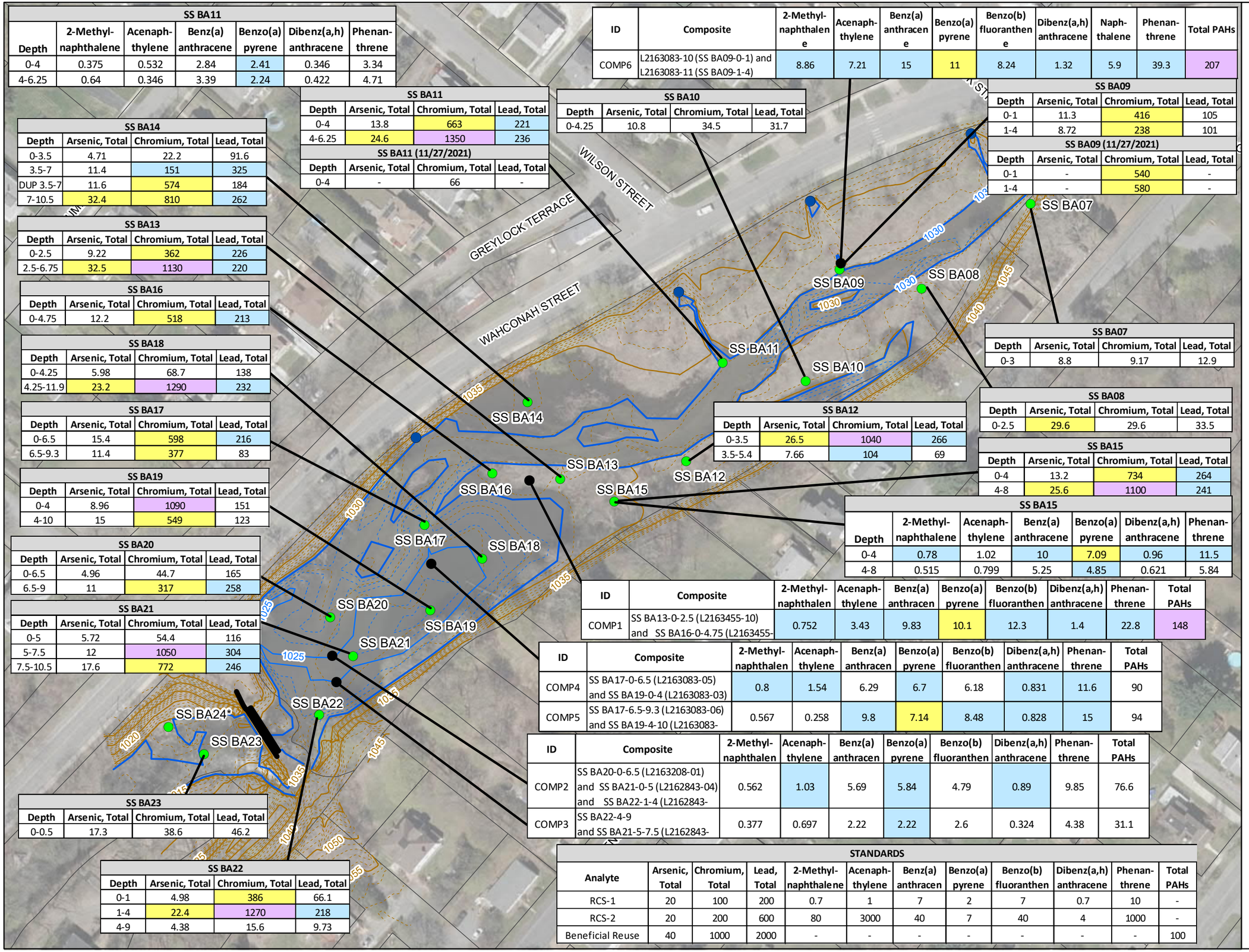
CMR, 2020. Massachusetts Department of Environmental Protection Agency, *310 CMR 40.00: Massachusetts Contingency Plan.* March 2020.

Attachments

Figure 1 Bel Air Dam Sediment Sample Results Exceeding MCP Criteria
Figure 2 Bel Air Dam Full Breach Plan, Profile, and Cross Sections
Figure 3 Bel Air Dam Full Breach Plan, Profile, and Cross Sections
Figure 4 Bel Air Dam Full Breach Plan, Profile, and Cross Sections

Table 1 Bel Air Dam Sediment Results
Table 2 Sediment Transportation and Disposal Quote Summary
Table 3 Bel Air Dam Construction Cost Estimate

Figure 1
CONTAMINANT CONCENTRATION BY LOCATION COMPARED TO APPLICABLE CRITERIA
BEL AIR DAM
PITTSFIELD, MA



SS BA11

Depth	2-Methyl-naphthalene	Acenaph-thylene	Benz(a) anthracene	Benzo(a) pyrene	Dibenz(a,h) anthracene	Phenan-threne
0-4	0.375	0.532	2.84	2.41	0.346	3.34
4-6.25	0.64	0.346	3.39	2.24	0.422	4.71

ID	Composite	2-Methyl-naphthalene	Acenaph-thylene	Benz(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Dibenz(a,h) anthracene	Naph-thalene	Phenan-threne	Total PAHs
COMP6	L2163083-10 (SS BA09-0-1) and L2163083-11 (SS BA09-1-4)	8.86	7.21	15	11	8.24	1.32	5.9	39.3	207

SS BA14

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-3.5	4.71	22.2	91.6
3.5-7	11.4	151	325
DUP 3.5-7	11.6	574	184
7-10.5	32.4	810	262

SS BA11

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-4	13.8	663	221
4-6.25	24.6	1350	236

SS BA11 (11/27/2021)

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-4	-	66	-

SS BA10

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-4.25	10.8	34.5	31.7

SS BA09

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-1	11.3	416	105
1-4	8.72	238	101

SS BA09 (11/27/2021)

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-1	-	540	-
1-4	-	580	-

SS BA13

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-2.5	9.22	362	226
2.5-6.75	32.5	1130	220

SS BA16

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-4.75	12.2	518	213

SS BA18

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-4.25	5.98	68.7	138
4.25-11.9	23.2	1290	232

SS BA17

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-6.5	15.4	598	216
6.5-9.3	11.4	377	83

SS BA19

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-4	8.96	1090	151
4-10	15	549	123

SS BA20

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-6.5	4.96	44.7	165
6.5-9	11	317	258

SS BA21

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-5	5.72	54.4	116
5-7.5	12	1050	304
7.5-10.5	17.6	772	246

SS BA12

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-3.5	26.5	1040	266
3.5-5.4	7.66	104	69

SS BA07

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-3	8.8	9.17	12.9

SS BA08

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-2.5	29.6	29.6	33.5

SS BA15

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-4	13.2	734	264
4-8	25.6	1100	241

SS BA15

Depth	2-Methyl-naphthalene	Acenaph-thylene	Benz(a) anthracene	Benzo(a) pyrene	Dibenz(a,h) anthracene	Phenan-threne
0-4	0.78	1.02	10	7.09	0.96	11.5
4-8	0.515	0.799	5.25	4.85	0.621	5.84

ID	Composite	2-Methyl-naphthalen	Acenaph-thylene	Benz(a) anthracen	Benzo(a) pyrene	Benzo(b) fluoranthen	Dibenz(a,h) anthracene	Phenan-threne	Total PAHs
COMP1	SS BA13-0-2.5 (L2163455-10) and SS BA16-0-4.75 (L2163455-	0.752	3.43	9.83	10.1	12.3	1.4	22.8	148

ID	Composite	2-Methyl-naphthalen	Acenaph-thylene	Benz(a) anthracen	Benzo(a) pyrene	Benzo(b) fluoranthen	Dibenz(a,h) anthracene	Phenan-threne	Total PAHs
COMP4	SS BA17-0-6.5 (L2163083-05) and SS BA19-0-4 (L2163083-03)	0.8	1.54	6.29	6.7	6.18	0.831	11.6	90
COMP5	SS BA17-6.5-9.3 (L2163083-06) and SS BA19-4-10 (L2163083-	0.567	0.258	9.8	7.14	8.48	0.828	15	94

ID	Composite	2-Methyl-naphthalen	Acenaph-thylene	Benz(a) anthracen	Benzo(a) pyrene	Benzo(b) fluoranthen	Dibenz(a,h) anthracene	Phenan-threne	Total PAHs
COMP2	SS BA20-0-6.5 (L2163208-01) and SS BA21-0-5 (L2162843-04) and SS BA22-1-4 (L2162843-	0.562	1.03	5.69	5.84	4.79	0.89	9.85	76.6
COMP3	SS BA22-4-9 and SS BA21-5-7.5 (L2162843-	0.377	0.697	2.22	2.22	2.6	0.324	4.38	31.1

SS BA23

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-0.5	17.3	38.6	46.2

SS BA22

Depth	Arsenic, Total	Chromium, Total	Lead, Total
0-1	4.98	386	66.1
1-4	22.4	1270	218
4-9	4.38	15.6	9.73

STANDARDS

Analyte	Arsenic, Total	Chromium, Total	Lead, Total	2-Methyl-naphthalene	Acenaph-thylene	Benz(a) anthracen	Benzo(a) pyrene	Benzo(b) fluoranthen	Dibenz(a,h) anthracene	Phenan-threne	Total PAHs
RCS-1	20	100	200	0.7	1	7	2	7	0.7	10	-
RCS-2	20	200	600	80	3000	40	7	40	4	1000	-
Beneficial Reuse	40	1000	2000	-	-	-	-	-	-	-	100

Legend

- Core Locations
- Outfalls
- Parcel Boundaries
- Dam and Footbridge
- River Edge

Elevation Contours (ft)
- Index
- Intermediate

Bathymetric Contours (ft)
- Index
- Intermediate

Exceedances
- Exceeds RCS-1
- Exceeds RCS-2
- Exceeds Beneficial Resuse

Notes:
1. The Massachusetts Contingency Plan (MA MCP) Method 1 Soil Standards consider both the potential risk of harm resulting from direct exposure to the oil and/or hazardous material in the soil and the potential impacts on the groundwater at the disposal site. The applicability of a specific numerical Standard is thus a function of both the soil and the groundwater category identified.
2. RCS-1: Reportable Concentration for Category 1 Soils
3. All concentrations are in mg/kg

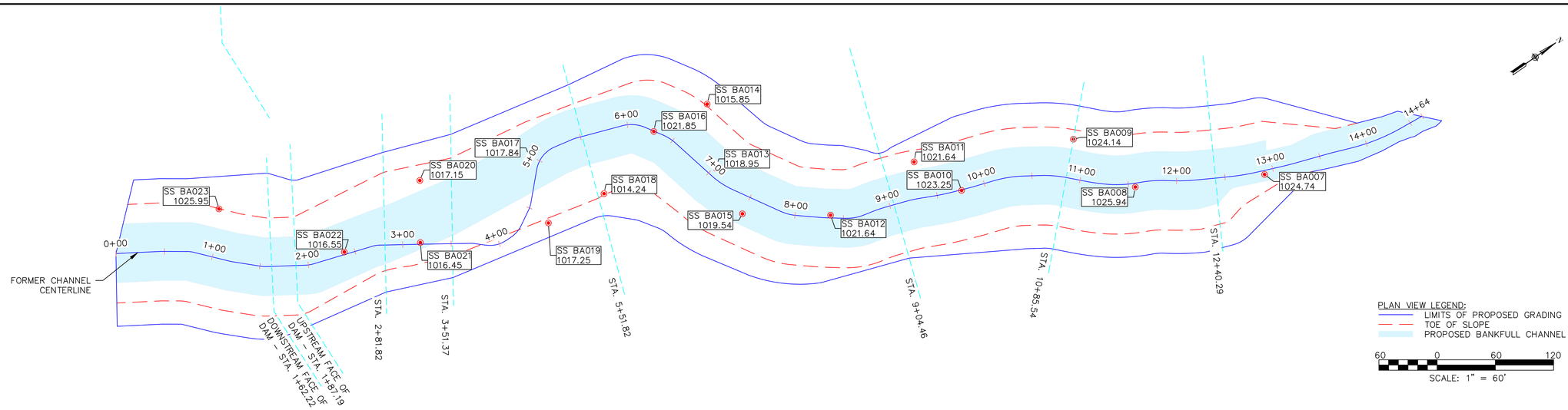
0 50 100 Feet

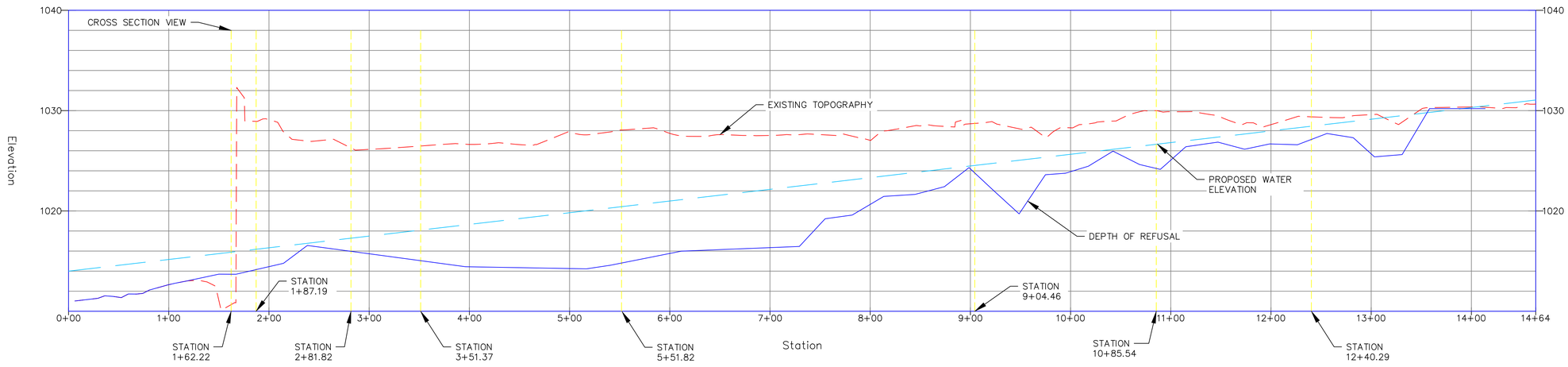
1 inch = 100 feet

AECOM

Date: 5/17/2022

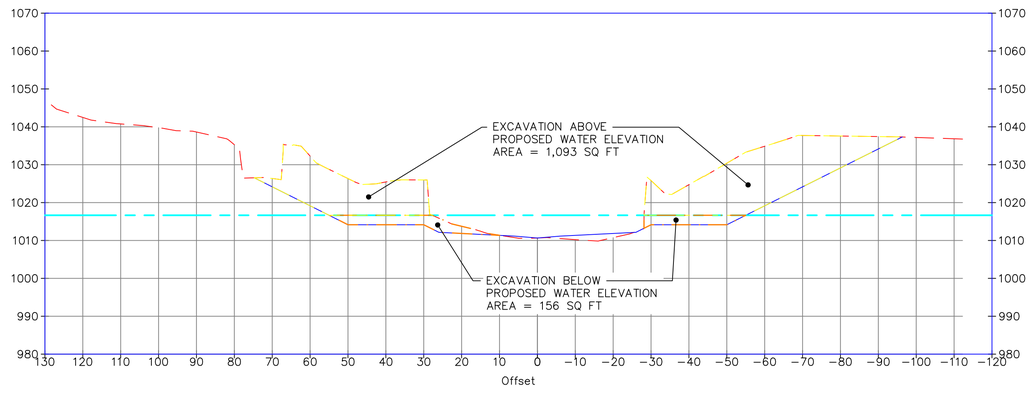
C:\Work\SixDams\Maps\Bel Air Soil Samples.mxd



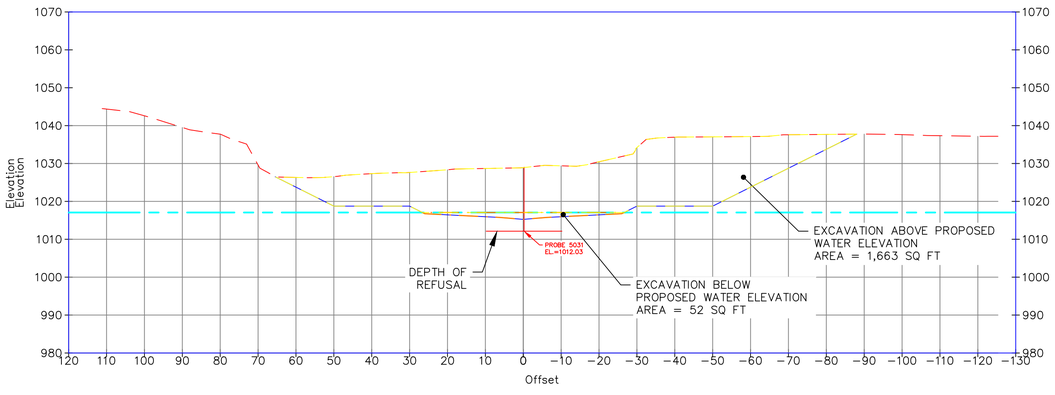


SECTION VIEW LEGEND:
- LIMITS OF PROPOSED EXCAVATION ABOVE PROPOSED WATER ELEVATION
- LIMITS OF PROPOSED EXCAVATION BELOW PROPOSED WATER ELEVATION (NOT INCLUDED IN SEDIMENT VOLUME CALCULATION)
- LIMITS OF OVER EXCAVATION ABOVE PROPOSED WATER ELEVATION
- LIMITS OF OVER EXCAVATION BELOW PROPOSED WATER ELEVATION (NOT INCLUDED IN SEDIMENT VOLUME CALCULATION)
- EXISTING GRADE
- PROPOSED WATER ELEVATION

SCALE: 1"=60' HORZ.
1"=6' VERT.



DOWNSTREAM FACE OF DAM
AT STATION 1+62.22



SCALE: 1"=20' HORZ.
1"=20' VERT.

UPSTREAM FACE OF DAM
AT STATION 1+87.19

AECOM

PROJECT

RESIDENTIAL PROPERTIES
REMEDIAL DESIGN
NYSDEC PROJECT ID 851046

CLIENT

CORNING INCORPORATED

CONSULTANT

AECOM
40 British American Blvd.
Latham, NY 12110
518.951.2200 tel 518.951.2300 fax
www.aecom.com

REGISTRATION

REFERENCE

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

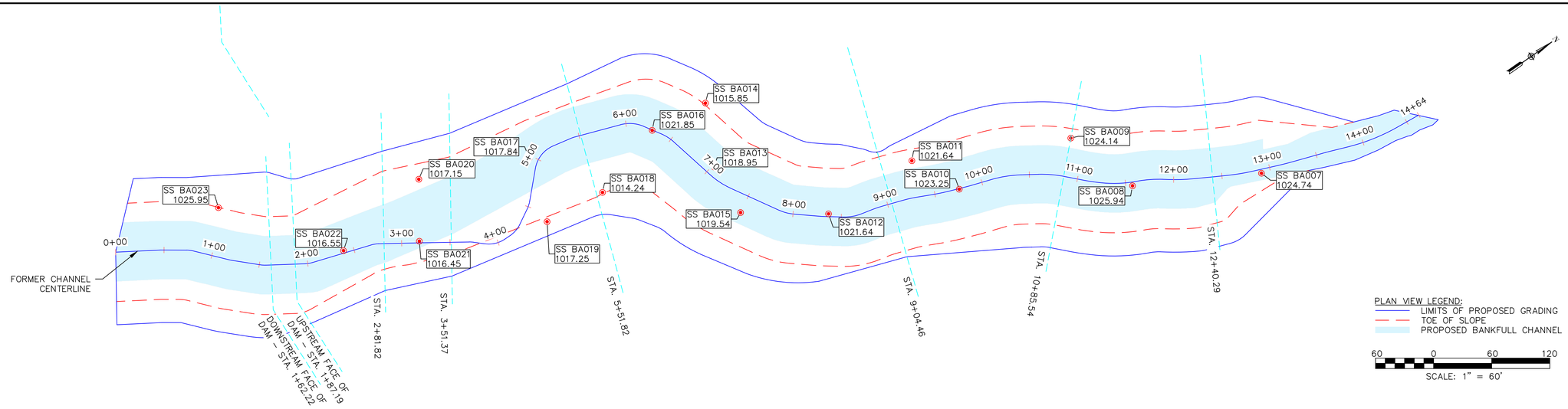
60649455

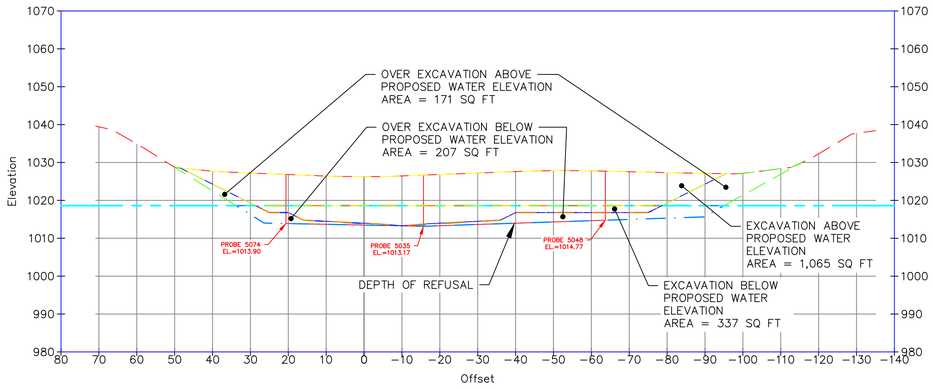
SHEET TITLE

BEL AIR DAM FULL BREACH PLAN, PROFILE, AND CROSS SECTIONS

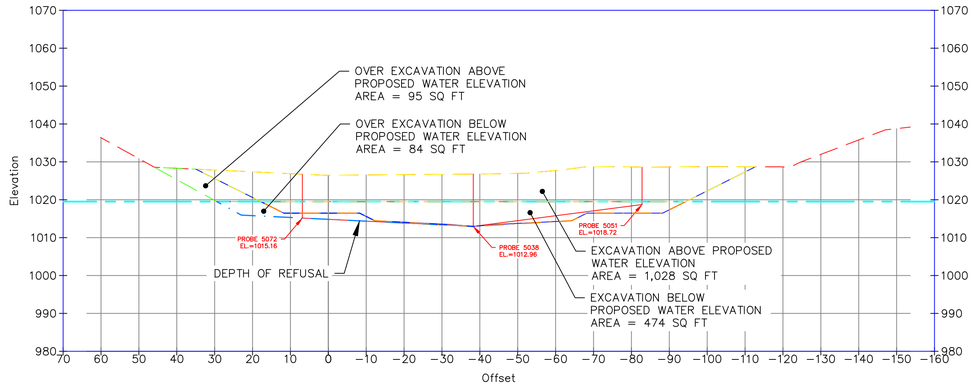
FIGURE NO.

FIGURE 2





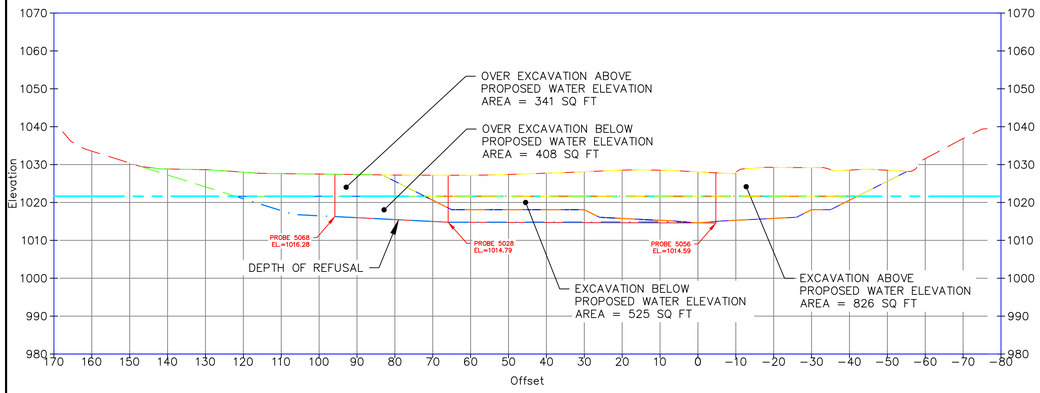
STATION 2+81.82



STATION 3+51.37

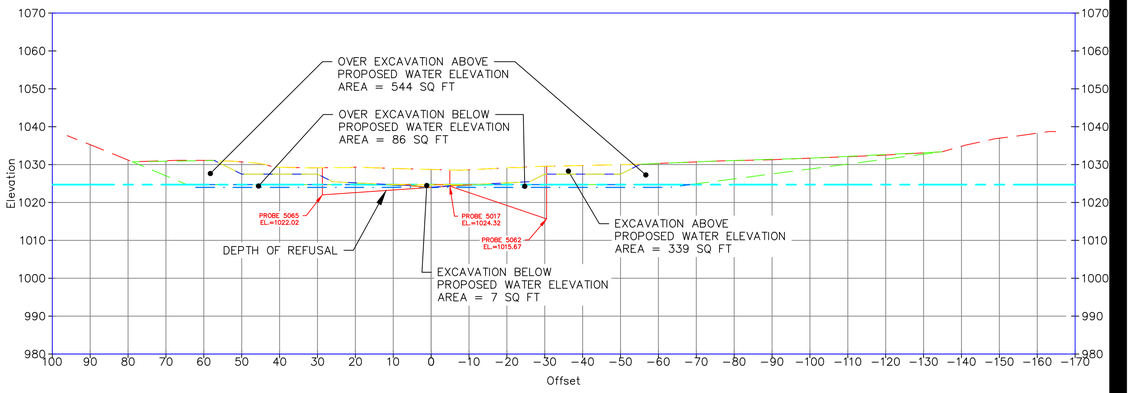
SCALE: 1"=20' HORZ.
1"=20' VERT.

SECTION VIEW LEGEND:
- LIMITS OF PROPOSED EXCAVATION ABOVE PROPOSED WATER ELELVATION
- LIMITS OF PROPOSED EXCAVATION BELOW PROPOSED WATER ELEVATION (NOT INCLUDED IN SEDIMENT VOLUME CALCULATION)
- LIMITS OF OVER EXCAVATION ABOVE PROPOSED WATER ELEVATION
- LIMITS OF OVER EXCAVATION BELOW PROPOSED WATER ELEVATION (NOT INCLUDED IN SEDIMENT VOLUME CALCULATION)
- EXISTING GRADE
- PROPOSED WATER ELEVATION



STATION 5+51.82

SCALE: 1"=20' HORZ.
1"=20' VERT.



STATION 9+04.46

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PROJECT

RESIDENTIAL PROPERTIES
REMEDIAL DESIGN
NYSDEC PROJECT ID 851046

CLIENT

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REGISTRATION

REFERENCE

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

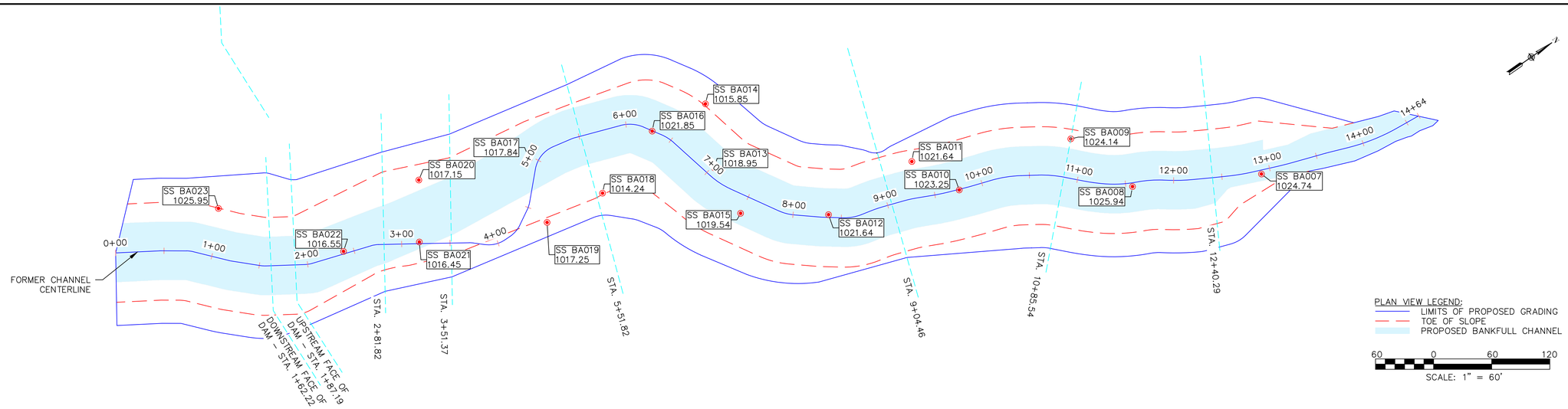
60649455

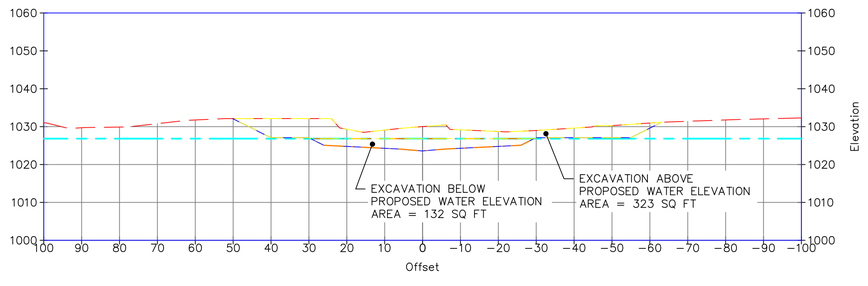
SHEET TITLE

BEL AIR DAM FULL BREACH PLAN, PROFILE, AND CROSS SECTIONS

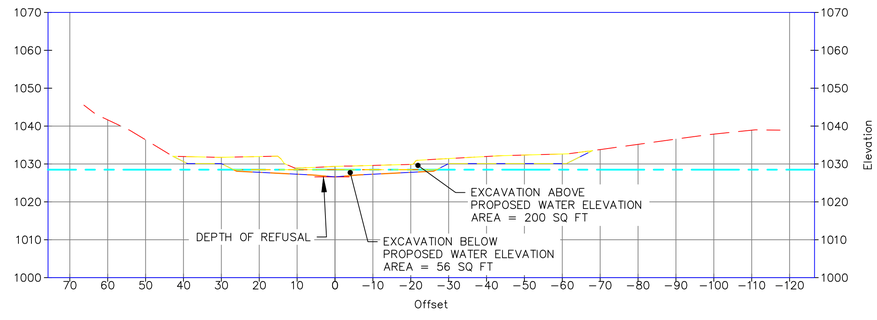
FIGURE NO.

FIGURE 3





DOWNSTREAM FACE OF DAM
AT STATION 10+85.54



DOWNSTREAM FACE OF DAM
AT STATION 12+40.29

SECTION VIEW LEGEND:
- LIMITS OF PROPOSED EXCAVATION ABOVE PROPOSED WATER ELEVATION
- LIMITS OF PROPOSED EXCAVATION BELOW PROPOSED WATER ELEVATION (NOT INCLUDED IN SEDIMENT VOLUME CALCULATION)
- LIMITS OF OVER EXCAVATION ABOVE PROPOSED WATER ELEVATION
- LIMITS OF OVER EXCAVATION BELOW PROPOSED WATER ELEVATION (NOT INCLUDED IN SEDIMENT VOLUME CALCULATION)
- EXISTING GRADE
- PROPOSED WATER ELEVATION

SCALE: 1"=20' HORZ.
1"=20' VERT.

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RESIDENTIAL PROPERTIES
REMEDIAL DESIGN
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ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60649455

SHEET TITLE

BEL AIR DAM FULL BREACH PLAN, PROFILE, AND CROSS SECTIONS

FIGURE NO.

FIGURE 4

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Table 1
Bel Air Dam Sediment Results

Method	SW7474		SW7470A		6020B																SW6010D							
Analyte	Mercury, Total		Mercury, TCLP		Arsenic, Total		Cadmium, Total		Chromium, Total	Chromium, Total 2/17/22		Chromium, Hexavalent 2/17/22		Copper, Total		Lead, Total		Nickel, Total		Zinc, Total	Arsenic, TCLP		Barium, TCLP		Cadmium, TCLP		Chromium, TCLP	
Unit	mg/kg		mg/l		mg/kg		mg/kg		mg/kg	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	mg/l		mg/l		mg/l		mg/l	
RCS-1	20				20		70		100	100		100		1000		200		600		1000								
RCS-2	30				20		100		200	200		200		10000		600		1000		3000								
EPA RCRA Standard			0.2																		5		100		1		5	
Beneficial Reuse					40				1000	1000		1000				2000												
COMP1																												
COMP2																												
COMP3																												
COMP4																												
COMP5																												
COMP6																												
DUPE 11/17/21	1.28				11.6		3.53		574					237		184		23.9		361								
SS BA07-0-3	0.052				8.8		0.344		9.17					16.6		12.9		19.5		59								
SS BA08-0-2.5	0.148				29.6		0.274	J	29.6					43.6		33.5		32.1		109								
SS BA09-0-1	7.87				11.3		0.627		416	540		1.34	U	618		105		20.4		159								
SS BA09-1-4	4.52				8.72		0.316	J	238	580		1.32	U	495		101		18.2		104								
SS BA10-0-4.25	0.145				10.8		0.292	J	34.5					90.7		31.7		18.3		78.4								
SS BA11-0-4	0.704				13.8		1.62		663	66		1.03	U	122		221		21.4		512								
SS BA11-4-6.25	1.01				24.6		0.814		1350					332		236		21.3		292								
SS BA12-0-3.5	1.39		0.001	U	26.5		1.96		1040					346		266		23.7		670	0.026	J	0.32	J	0.013	J	0.056	J
SS BA12-3.5-5.4	1.11				7.66		0.319	J	104					159		69		19.6		92.5								
SS BA13-0-2.5	0.795				9.22		10.7		362					101		226		18.9		321								
SS BA13-2.5-6.75	1.29				32.5		2.58		1130					308		220		22		459								
SS BA14-0-3.5	0.082				4.71		0.362		22.2					25.3		91.6		11.3		93								
SS BA14-3.5-7	0.839				11.4		4.66		151					86.9		325		25.9		287								
SS BA14-7-10.5	1.68				32.4		2.21		810					261		262		25.6		503								
SS BA15-0-4	0.808				13.2		1.5		734					157		264		25.2		868								
SS BA15-4-8	1.98				25.6		1.78		1100					325		241		21.7		461								
SS BA16-0-4.75	1.03				12.2		2.94		518					158		213		20.3		790								
SS BA17-0-6.5	0.957				15.4		3.47		598					158		216		23.7		546								
SS BA17-6.5-9.3	14.3				11.4		0.633		377					500		83		19.7		136								
SS BA18-0-4.25	0.302		0.001	U	5.98		1.14		68.7					48.6		138		15.5		164	1	U	0.239	J	0.01	J	0.2	U
SS BA18-4.25-11.9	1.94		0.001	U	23.2		2.16		1290					216		232		23.7		719	1	U	0.332	J	0.013	J	0.063	J
SS BA19-0-4	0.412				8.96		2.11		1090					65.5		151		13.9		580								
SS BA19-4-10	7.07				15		1.66		549					473		123		27.8		213								
SS BA20-0-6.5	0.316				4.96		0.924		44.7					33.8		165		12.7		131								
SS BA20-6.5-9	1.65				11		5.08		317					129		258		23.2		311								
SS BA21-0-5	0.259				5.72		0.666		54.4					42.4		116		15.5		142								
SS BA21-5-7.5	1.59		0.001	U	12		2.74		1050					119		304		23.6		465	0.022	J	0.316	J	0.1	U	0.048	J
SS BA21-7.5-10.5	1.33				17.6		1.89		772					344		246		21.2		500								
SS BA22-0-1	0.288				4.98		0.569		386					39.5		66.1		11		164								
SS BA22-1-4	6.16				22.4		2.15		1270					400		218		20.6		553								
SS BA22-4-9	0.078		0.001	U	4.38		0.082	J	15.6					26.7		9.73		16.9		46.4	1	U	0.181	J	0.1	U	0.2	U
SS BA23-0-0.5	0.153				17.3		0.425	J	38.6					77.3		46.2		47.4		218								

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Table 1
Bel Air Dam Sediment Results

Method							8270D-SIM/680(M)															
Analyte	Lead, TCLP		Selenium, TCLP		Silver, TCLP		2-Methylnaphthalene		Acenaphthene		Acenaphthylene		Anthracene		Benz(a)anthracene		Benzo(a)pyrene		Benzo(b)fluoranthene	
Unit	mg/l		mg/l		mg/l		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
RCS-1							700		4000		1000		1000000		7000		2000		7000	
RCS-2							80000		3000000		3000000		3000000		40000		7000		40000	
EPA RCRA Standard	5																			
Beneficial Reuse																				
COMP1							752		1910		3430		4120		9830		10100		12300	
COMP2							562		756		1030		1820		5690		5840		4790	
COMP3							377		219		697		832		2220		2220		2600	
COMP4							800		725		1540		2510		6290		6700		6180	
COMP5							567		994		258		6090		9800		7140		8480	
COMP6							8860		7210		485		17600		15000		11000		8240	
DUPE 11/17/21																				
SS BA07-0-3							5.2	U	5.2	U	5.2	U	2.7	J	10.1		6.62		8.02	
SS BA08-0-2.5																				
SS BA09-0-1																				
SS BA09-1-4																				
SS BA10-0-4.25																				
SS BA11-0-4							375		206		532		862		2840		2410		2240	
SS BA11-4-6.25							640		793		346		1060		3390		2240		2080	
SS BA12-0-3.5	0.311	J	0.5	U	0.1	U														
SS BA12-3.5-5.4																				
SS BA13-0-2.5																				
SS BA13-2.5-6.75																				
SS BA14-0-3.5																				
SS BA14-3.5-7																				
SS BA14-7-10.5																				
SS BA15-0-4							780		849		1020		3140		10000		7090		6080	
SS BA15-4-8							515		279		799		1830		5250		4850		3580	
SS BA16-0-4.75																				
SS BA17-0-6.5																				
SS BA17-6.5-9.3																				
SS BA18-0-4.25	0.32	J	0.5	U	0.1	U														
SS BA18-4.25-11.9	0.233	J	0.5	U	0.1	U														
SS BA19-0-4																				
SS BA19-4-10																				
SS BA20-0-6.5																				
SS BA20-6.5-9																				
SS BA21-0-5																				
SS BA21-5-7.5	0.249	J	0.5	U	0.1	U														
SS BA21-7.5-10.5																				
SS BA22-0-1																				
SS BA22-1-4																				
SS BA22-4-9	0.045	J	0.5	U	0.1	U														
SS BA23-0-0.5																				

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Table 1
Bel Air Dam Sediment Results

Method																				
Analyte	Benzo(ghi)perylene		Benzo(k)fluoranthene		Chrysene		Dibenz(a,h)anthracene		Fluoranthene		Fluorene		Indeno(1,2,3-cd)Pyrene		Naphthalene		Phenanthrene		Pyrene	
Unit	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
RCS-1	1000000		70000		70000		700		1000000		1000000		7000		4000		10000		1000000	
RCS-2	3000000		400000		400000		4000		3000000		3000000		40000		20000		1000000		3000000	
EPA RCRA Standard																				
Beneficial Reuse																				
COMP1	6570		5310		10900		1400		27400	E	2770		6500		1480		22800	E	20500	
COMP2	4060		6040		6050		890		12200		853		4100		1210		9850		10900	
COMP3	1410		1280		2500		324		5500		478		1410		330		4380		4300	
COMP4	4230		5310		7300		831		17100	E	1330		3990		2620		11600		10900	
COMP5	2720		2770		7700		828		14700		2140		2920		506		15000		11400	
COMP6	3800		8080		13000		1320		29200		9670		4760		5940		39300		23900	
DUPE 11/17/21																				
SS BA07-0-3	6.45		8.8		11.2		5.2	U	16.9		5.2	U	6.19		5.74		10.1		20.6	
SS BA08-0-2.5																				
SS BA09-0-1																				
SS BA09-1-4																				
SS BA10-0-4.25																				
SS BA11-0-4	1480		1910		3090		346		5560		338		1510		663		3340		4720	
SS BA11-4-6.25	1240		1770		3390		422		6260		1010		1270		869		4710		5920	
SS BA12-0-3.5																				
SS BA12-3.5-5.4																				
SS BA13-0-2.5																				
SS BA13-2.5-6.75																				
SS BA14-0-3.5																				
SS BA14-3.5-7																				
SS BA14-7-10.5																				
SS BA15-0-4	3740		5450		8760		960		15700		1070		4020		1290		11500		14400	
SS BA15-4-8	2700		3980		6540		621		12400		614		2660		1360		5840		9910	
SS BA16-0-4.75																				
SS BA17-0-6.5																				
SS BA17-6.5-9.3																				
SS BA18-0-4.25																				
SS BA18-4.25-11.9																				
SS BA19-0-4																				
SS BA19-4-10																				
SS BA20-0-6.5																				
SS BA20-6.5-9																				
SS BA21-0-5																				
SS BA21-5-7.5																				
SS BA21-7.5-10.5																				
SS BA22-0-1																				
SS BA22-1-4																				
SS BA22-4-9																				
SS BA23-0-0.5																				

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Table 1
Bel Air Dam Sediment Results

Method																															
Analyte		Total PAHs	Cl10-BZ#209		Cl2-BZ#8		Cl3-BZ#18		Cl3-BZ#28		Cl4-BZ#44		Cl4-BZ#49		Cl4-BZ#52		Cl4-BZ#66		Cl5-BZ#101		Cl5-BZ#105		Cl5-BZ#118		Cl5-BZ#87		Cl6-BZ#128		Cl6-BZ#138	
Unit		ug/kg	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
RCS-1																															
RCS-2																															
EPA RCRA Standard																															
Beneficial Reuse		100000																													
COMP1	E	148072	58.7		7.04	U	7.04	U	7.04	U	7.04	U	7.04	U	7.04	U	7.04	U	30.6		7.04	U	7.04	U	7.04	U	7.04	U	53.4	
COMP2		76641	14.8		8.16	U	8.16	U	8.16	U	8.16	U	8.16	U	8.16	U	8.16	U	7.68	J	8.16	U	8.16	U	8.16	U	8.16	U	23.9	
COMP3		31077	32.2		3	U	3	U	3	U	3	U	3	U	3	U	3	U	19.1		3	U	3	U	3	U	3	U	25.6	
COMP4		89956	69.4		7.52	U	7.52	U	7.52	U	7.52	U	7.52	U	7.52	U	7.52	U	35.8		7.52	U	7.52	U	7.52	U	7.52	U	60.1	
COMP5		94013	8.18	U	8.18	U	8.18	U	8.18	U	8.18	U	8.18	U	8.18	U	8.18	U	8.18	U	8.18	U	8.18	U	8.18	U	8.18	U	8.18	U
COMP6		207365	34.1	U	34.1	U	34.1	U	34.1	U	34.1	U	34.1	U	34.1	U	34.1	U	34.1	U	34.1	U	34.1	U	34.1	U	34.1	U	34.1	U
DUPE 11/17/21																															
SS BA07-0-3		139.42	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U
SS BA08-0-2.5																															
SS BA09-0-1																															
SS BA09-1-4																															
SS BA10-0-4.25																															
SS BA11-0-4		32422	143		7.16	U	7.16	U	7.16	U	7.16	U	7.16	U	32.4		7.16	U	31		11.1		33.5		13.9		6.84	J	36	
SS BA11-4-6.25		37410	6.86	U	6.86	U	6.86	U	6.86	U	6.86	U	6.86	U	10		7.8		6.86	U	6.86	U	11.7		6.86	U	6.86	U	6.86	U
SS BA12-0-3.5																															
SS BA12-3.5-5.4																															
SS BA13-0-2.5																															
SS BA13-2.5-6.75																															
SS BA14-0-3.5																															
SS BA14-3.5-7																															
SS BA14-7-10.5																															
SS BA15-0-4		95849	419		32.3	U	32.3	U	32.3	U	32.3	U	32.3	U	71.5		32.3	U	72.3		32.3	U	118		32.3	U	32.3	U	79	
SS BA15-4-8		63728	16.6	U	16.6	U	16.6	U	16.6	U	16.6	U	16.6	U	16.6	U	16.6	U	16.6	U	16.6	U	16.6	U	16.6	U	16.6	U	16.6	U
SS BA16-0-4.75																															
SS BA17-0-6.5																															
SS BA17-6.5-9.3																															
SS BA18-0-4.25																															
SS BA18-4.25-11.9																															
SS BA19-0-4																															
SS BA19-4-10																															
SS BA20-0-6.5																															
SS BA20-6.5-9																															
SS BA21-0-5																															
SS BA21-5-7.5																															
SS BA21-7.5-10.5																															
SS BA22-0-1																															
SS BA22-1-4																															
SS BA22-4-9																															
SS BA23-0-0.5																															

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Table 1
Bel Air Dam Sediment Results

Method															9060A						D6913/D7928			
Analyte	Cl6-BZ#153		Cl7-BZ#170		Cl7-BZ#180		Cl7-BZ#183		Cl7-BZ#184		Cl7-BZ#187		Cl8-BZ#195		Cl9-BZ#206		Total Organic Carbon (Average)		Total Organic Carbon (Rep1)		Total Organic Carbon (Rep2)		Cobbles		% Coarse Gravel	
Unit	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		%		%		%		%		%	
RCS-1																										
RCS-2																										
EPA RCRA Standard																										
Beneficial Reuse																										
COMP1	38.4		18.1		29.9		6.27	J	7.04	U	15		7.04	U	45.4		8.95		9.25		8.65					
COMP2	19.2		15.9		18.9		8.16	U	8.16	U	9.29		8.16	U	14.9		7.5		7.89		7.11					
COMP3	25		11		14.1		3.3		3	U	6.1		3	U	27		4.93		5.19		4.68					
COMP4	43.8		21.9		35.6		7.55		7.52	U	16.6		7.52	U	61.1		9.23		8.36		10.1					
COMP5	8.18	U	8.18	U	8.18	U	8.18	U	8.18	U	8.18	U	8.18	U	8.18	U	8.52		8.59		8.45					
COMP6	34.1	U	34.1	U	34.1	U	34.1	U	34.1	U	34.1	U	34.1	U	34.1	U										
DUPE 11/17/21																							0.1	U	0.1	U
SS BA07-0-3	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U	0.52	U							0.1	U	0.1	U
SS BA08-0-2.5																							0.1	U	0.1	U
SS BA09-0-1																							0.1	U	0.1	U
SS BA09-1-4																							0.1	U	0.1	U
SS BA10-0-4.25																							0.1	U	0.1	U
SS BA11-0-4	23.3		9.93		12		4.43	J	7.16	U	6.52	J	7.16	U	134								0.1	U	0.1	U
SS BA11-4-6.25	6.86	U	6.86	U	6.86	U	6.86	U	6.86	U	6.86	U	6.86	U	6.86	U							0.1	U	0.1	U
SS BA12-0-3.5																							0.1	U	0.1	U
SS BA12-3.5-5.4																							0.1	U	0.1	U
SS BA13-0-2.5																							0.1	U	0.1	U
SS BA13-2.5-6.75																							0.1	U	0.1	U
SS BA14-0-3.5																							0.1	U	0.1	U
SS BA14-3.5-7																							0.1	U	0.1	U
SS BA14-7-10.5																							0.1	U	0.1	U
SS BA15-0-4	62.2		20.3	J	28.5	J	32.3	U	32.3	U	17.1	J	32.3	U	407								0.1	U	0.1	U
SS BA15-4-8	16.6	U	16.6	U	16.6	U	16.6	U	16.6	U	16.6	U	16.6	U	16.6	U							0.1	U	0.1	U
SS BA16-0-4.75																							0.1	U	0.1	U
SS BA17-0-6.5																							0.1	U	0.1	U
SS BA17-6.5-9.3																							0.1	U	0.1	U
SS BA18-0-4.25																							0.1	U	0.1	U
SS BA18-4.25-11.9																							0.1	U	0.1	U
SS BA19-0-4																							0.1	U	0.1	U
SS BA19-4-10																							0.1	U	0.1	U
SS BA20-0-6.5																							0.1	U	0.1	U
SS BA20-6.5-9																							0.1	U	0.1	U
SS BA21-0-5																							0.1	U	0.1	U
SS BA21-5-7.5																							0.1	U	0.1	U
SS BA21-7.5-10.5																							0.1	U	2.1	
SS BA22-0-1																							0.1	U	2.4	
SS BA22-1-4																							0.1	U	0.2	
SS BA22-4-9																							0.1	U	6.9	
SS BA23-0-0.5																							0.1	U	0.1	U

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Table 1
Bel Air Dam Sediment Results

Method										EPH-19-2.1								SW7.3				SW8081B					
Analyte	% Coarse Sand		% Fine Gravel		% Fine Sand		% Medium Sand		% Total Fines	C11-C22 Aromatics		C11-C22 Aromatics, Adjusted		C19-C36 Aliphatics		C9-C18 Aliphatics		Cyanide, Reactive		Sulfide, Reactive		Chlordane		Endrin		Heptachlor	
Unit	%		%		%		%		%	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		ug/l		ug/l		ug/l	
RCS-1										1000		1000		3000		1000											
RCS-2										3000		3000		5000		3000											
EPA RCRA Standard																											
Beneficial Reuse																											
COMP1										565		511		1260		336		10	U	30							
COMP2										1230		804		953		106		10	U	10	U						
COMP3										218		208		800		102		10	U	220							
COMP4										418		386		737		127		10	U	65							
COMP5										130		110		171		16.2		10	U	10	U						
COMP6										396		311		87.2		14.5											
DUPE 11/17/21	2.7		1		35.5		20.7		40.1																		
SS BA07-0-3	5.3		11.9		41.2		12.7		28.9	8.91	U	8.91	U	8.91	U	8.91	U										
SS BA08-0-2.5	7.3		4.6		34.6		29.6		23.9																		
SS BA09-0-1	4.2		1.9		39.3		12		42.6																		
SS BA09-1-4	1.5		0.3		34.4		13.3		50.5																		
SS BA10-0-4.25	4.7		3.6		36.1		17.5		38.1																		
SS BA11-0-4	0.9		0.2		31.1		14.2		53.6	391		375		919		116											
SS BA11-4-6.25	2.6		1.1		36.6		11.6		48.1	662		649		2080		139											
SS BA12-0-3.5	3.1		0.5		31.6		15.7		49.1									10	U	25		1	U	0.2	U	0.1	U
SS BA12-3.5-5.4	2.4		0.1	U	34.1		19		44.5																		
SS BA13-0-2.5	4.7		1.9		38.4		17.5		37.5																		
SS BA13-2.5-6.75	4.9		1.6		30.1		14.7		48.7																		
SS BA14-0-3.5	8.6		1.8		39.2		43.6		6.8																		
SS BA14-3.5-7	1.4		1.3		36.5		13.5		47.3									10	U	20							
SS BA14-7-10.5	3.6		6.7		27.6		13.7		48.4																		
SS BA15-0-4	4.6		5.4		44		19.8		26.2	695		638		2660		202											
SS BA15-4-8	5.3		0.9		28.2		18.8		46.8	738		722		1970		223											
SS BA16-0-4.75	3		0.5		34.6		18.5		43.4																		
SS BA17-0-6.5	0.7		0.1	U	29.5		12.5		57.3																		
SS BA17-6.5-9.3	1.1		0.2		29.2		11.4		58.1																		
SS BA18-0-4.25	1		0.3		33.6		9.2		55.9									10	U	21		1	U	0.2	U	0.1	U
SS BA18-4.25-11.9	2.6		1		32.2		17.2		47									10	U	10	U	1	U	0.2	U	0.1	U
SS BA19-0-4	1.6		0.7		48.8		10.6		38.3																		
SS BA19-4-10	1		1.2		22.7		17.6		57.5																		
SS BA20-0-6.5	1.2		0.1		27		14.3		57.4																		
SS BA20-6.5-9	1.2		0.1		28.7		16.5		53.5																		
SS BA21-0-5	0.3		0.1	U	38.4		7.4		53.9									10	U	10	U						
SS BA21-5-7.5	3.3		0.1		29.1		20.7		46.8									10	U	120		1	U	0.2	U	0.1	U
SS BA21-7.5-10.5	19.1		2.1		18.6		18.7		39.4									10	U	10	U						
SS BA22-0-1	13.1		11.1		31		20.9		21.5									10	U	17							
SS BA22-1-4	2.1		0.1		31.5		14.9		51.2									10	U	10	U						
SS BA22-4-9	20		7		20.2		34.6		11.3									10	U	10	U	1	U	0.2	U	0.1	U
SS BA23-0-0.5	2.8		2.3		10.1		7.4		77.4																		

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Table 1
Bel Air Dam Sediment Results

Method									SW8151A				SW8260C													
Analyte	Heptachlor epoxide		Lindane		Methoxychlor		Toxaphene		2,4,5-TP (Silvex)		2,4-D		1,1-Dichloroethene		1,2-Dichloroethane		1,4-Dichlorobenzene		2-Butanone		Benzene		Carbon tetrachloride	
Unit	ug/l		ug/l		ug/l		ug/l		mg/l		mg/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
RCS-1																	700				2000			
RCS-2																					200000			
EPA RCRA Standard																			200000					
Beneficial Reuse																								
COMP1																								
COMP2																								
COMP3																								
COMP4																								
COMP5																								
COMP6																								
DUPE 11/17/21																								
SS BA07-0-3																								
SS BA08-0-2.5																								
SS BA09-0-1																								
SS BA09-1-4																								
SS BA10-0-4.25																								
SS BA11-0-4																								
SS BA11-4-6.25																								
SS BA12-0-3.5	0.1	U	0.1	U	1	U	1	U	0.005	U	0.025	U	5	U	5	U	25	U	22	J	5	U	5	U
SS BA12-3.5-5.4																								
SS BA13-0-2.5																								
SS BA13-2.5-6.75																								
SS BA14-0-3.5																								
SS BA14-3.5-7													5	U	5	U	25	U	50	U	5	U	5	U
SS BA14-7-10.5																								
SS BA15-0-4																								
SS BA15-4-8																								
SS BA16-0-4.75																								
SS BA17-0-6.5																								
SS BA17-6.5-9.3																								
SS BA18-0-4.25	0.1	U	0.1	U	1	U	1	U	0.005	U	0.025	U												
SS BA18-4.25-11.9	0.1	U	0.1	U	1	U	1	U	0.005	U	0.025	U	5	U	5	U	25	U	54		5	U	5	U
SS BA19-0-4																								
SS BA19-4-10																								
SS BA20-0-6.5																								
SS BA20-6.5-9																								
SS BA21-0-5													5	U	5	U	25	U	50	U	5	U	5	U
SS BA21-5-7.5	0.1	U	0.1	U	1	U	1	U	0.005	U	0.025	U	5	U	5	U	25	U	50	U	5	U	5	U
SS BA21-7.5-10.5													5	U	5	U	25	U	50	U	5	U	5	U
SS BA22-0-1													5	U	5	U	25	U	50	U	5	U	5	U
SS BA22-1-4													5	U	5	U	25	U	50	U	5	U	5	U
SS BA22-4-9	0.1	U	0.1	U	1	U	1	U	0.005	U	0.025	U	5	U	5	U	25	U	50	U	5	U	5	U
SS BA23-0-0.5																								

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Table 1
Bel Air Dam Sediment Results

Method										SW8260D							
Analyte	Chlorobenzene		Chloroform		Tetrachloroethene		Trichloroethene		Vinyl chloride	1,1,1,2-Tetrachloroethane		1,1,1-Trichloroethane		1,1,2,2-Tetrachloroethane		1,1,2-Trichloroethane	
Unit	ug/l		ug/l		ug/l		ug/l		ug/l	ug/kg		ug/kg		ug/kg		ug/kg	
RCS-1	1000																
RCS-2	3000																
EPA RCRA Standard																	
Beneficial Reuse																	
COMP1																	
COMP2																	
COMP3																	
COMP4																	
COMP5																	
COMP6																	
DUPE 11/17/21										0.5	U	0.5	U	0.5	U	1	U
SS BA07-0-3										0.27	U	0.27	U	0.27	U	0.54	U
SS BA08-0-2.5										0.21	U	0.21	U	0.21	U	0.42	U
SS BA09-0-1										69	U	69	U	69	U	140	U
SS BA09-1-4										64	U	64	U	64	U	130	U
SS BA10-0-4.25										0.62	U	0.62	U	0.62	U	1.2	U
SS BA11-0-4										68	U	68	U	68	U	140	U
SS BA11-4-6.25										53	U	53	U	53	U	110	U
SS BA12-0-3.5	5	U	7.5	U	5	U	5	U	10	U	0.36	U	0.36	U	0.36	U	0.73	U
SS BA12-3.5-5.4										66	U	66	U	66	U	130	U
SS BA13-0-2.5										61	U	61	U	61	U	120	U
SS BA13-2.5-6.75										85	U	85	U	85	U	170	U
SS BA14-0-3.5										0.37	U	0.37	U	0.37	U	0.75	U
SS BA14-3.5-7	5	U	7.5	U	5	U	5	U	10	U	66	U	66	U	66	U	130	U
SS BA14-7-10.5										96	U	96	U	96	U	190	U
SS BA15-0-4										0.73	U	0.73	U	0.73	U	1.5	U
SS BA15-4-8										110	U	110	U	110	U	210	U
SS BA16-0-4.75										61	U	61	U	61	U	120	U
SS BA17-0-6.5										53	U	53	U	53	U	110	U
SS BA17-6.5-9.3										0.51	U	0.51	U	0.51	U	1	U
SS BA18-0-4.25										52	U	52	U	52	U	100	U
SS BA18-4.25-11.9	5	U	7.5	U	5	U	5	U	10	U	73	U	73	U	73	U	150	U
SS BA19-0-4										64	U	64	U	64	U	130	U
SS BA19-4-10										1.1	U	1.1	U	1.1	U	2.2	U
SS BA20-0-6.5										1.1	U	1.1	U	1.1	U	2.2	U
SS BA20-6.5-9										1.3	U	1.3	U	1.3	U	2.6	U
SS BA21-0-5	5	U	7.5	U	5	U	5	U	10	U	1	U	1	U	1	U	2.1	U
SS BA21-5-7.5	2.1	J	7.5	U	5	U	5	U	10	U	110	U	110	U	110	U	220	U
SS BA21-7.5-10.5	5	U	7.5	U	5	U	5	U	10	U	89	U	89	U	89	U	180	U
SS BA22-0-1	5	U	7.5	U	5	U	5	U	10	U	0.68	U	0.68	U	0.68	U	1.4	U
SS BA22-1-4	5	U	7.5	U	5	U	5	U	10	U	0.92	U	0.92	U	0.92	U	1.8	U
SS BA22-4-9	5	U	7.5	U	5	U	5	U	10	U	0.54	U	0.54	U	0.54	U	1.1	U
SS BA23-0-0.5										1.6	U	1.6	U	1.6	U	3.2	U

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Table 1
Bel Air Dam Sediment Results

Method															
Analyte	1,1-Dichloroethane		1,1-Dichloroethene		1,1-Dichloropropene		1,2,3-Trichlorobenzene		1,2,3-Trichloropropane		1,2,4-Trichlorobenzene		1,2,4-Trimethylbenzene	
Unit	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
RCS-1													1000000	
RCS-2													10000000	
EPA RCRA Standard														
Beneficial Reuse														
COMP1														
COMP2														
COMP3														
COMP4														
COMP5														
COMP6														
DUPE 11/17/21	1	U	1	U	0.5	U	2	U	2	U	2	U	130	
SS BA07-0-3	0.54	U	0.54	U	0.27	U	1.1	U	1.1	U	1.1	U	1.1	U
SS BA08-0-2.5	0.42	U	0.42	U	0.21	U	0.84	U	0.84	U	0.84	U	0.84	U
SS BA09-0-1	140	U	140	U	69	U	270	U	270	U	270	U	63	J
SS BA09-1-4	130	U	130	U	64	U	250	U	250	U	250	U	710	
SS BA10-0-4.25	1.2	U	1.2	U	0.62	U	2.5	U	2.5	U	2.5	U	0.97	J
SS BA11-0-4	140	U	140	U	68	U	270	U	270	U	270	U	58	J
SS BA11-4-6.25	110	U	110	U	53	U	210	U	210	U	210	U	210	J
SS BA12-0-3.5	0.73	U	0.73	U	0.36	U	1.4	U	1.4	U	1.4	U	0.28	J
SS BA12-3.5-5.4	130	U	130	U	66	U	260	U	260	U	260	U	77	J
SS BA13-0-2.5	120	U	120	U	61	U	240	U	240	U	240	U	270	
SS BA13-2.5-6.75	170	U	170	U	85	U	340	U	340	U	340	U	340	U
SS BA14-0-3.5	0.75	U	0.75	U	0.37	U	1.5	U	1.5	U	1.5	U	1.5	U
SS BA14-3.5-7	130	U	130	U	66	U	260	U	260	U	260	U	12000	
SS BA14-7-10.5	190	U	190	U	96	U	380	U	380	U	380	U	2000	
SS BA15-0-4	1.5	U	1.5	U	0.73	U	2.9	U	2.9	U	2.9	U	2	J
SS BA15-4-8	210	U	210	U	110	U	430	U	430	U	430	U	430	J
SS BA16-0-4.75	120	U	120	U	61	U	240	U	240	U	240	U	1100	
SS BA17-0-6.5	110	U	110	U	53	U	210	U	210	U	210	U	40	J
SS BA17-6.5-9.3	1	U	1	U	0.51	U	2	U	2	U	2	U	1.5	J
SS BA18-0-4.25	100	U	100	U	52	U	210	U	210	U	210	U	210	J
SS BA18-4.25-11.9	150	U	150	U	73	U	290	U	290	U	290	U	290	J
SS BA19-0-4	130	U	130	U	64	U	250	U	250	U	250	U	250	U
SS BA19-4-10	2.2	U	2.2	U	1.1	U	4.3	U	4.3	U	4.3	U	2	J
SS BA20-0-6.5	2.2	U	2.2	U	1.1	U	4.4	U	4.4	U	4.4	U	7.2	
SS BA20-6.5-9	2.6	U	2.6	U	1.3	U	5.2	U	5.2	U	5.2	U	18	
SS BA21-0-5	2.1	U	2.1	U	1	U	4.1	U	4.1	U	4.1	U	0.83	J
SS BA21-5-7.5	220	U	220	U	110	U	440	U	440	U	440	U	160	J
SS BA21-7.5-10.5	180	U	180	U	89	U	360	U	360	U	360	U	96	J
SS BA22-0-1	1.4	U	1.4	U	0.68	U	2.7	U	2.7	U	2.7	U	0.98	J
SS BA22-1-4	1.8	U	1.8	U	0.92	U	3.7	U	3.7	U	3.7	U	0.64	J
SS BA22-4-9	1.1	U	1.1	U	0.54	U	2.2	U	2.2	U	2.2	U	0.36	J
SS BA23-0-0.5	3.2	U	3.2	U	1.6	U	6.5	U	6.5	U	6.5	U	6.5	U

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Table 1
Bel Air Dam Sediment Results

Method															
Analyte	1,2-Dibromo-3-chloropropane		1,2-Dibromoethane		1,2-Dichlorobenzene		1,2-Dichloroethane		1,2-Dichloroethene, Total		1,2-Dichloropropane		1,3,5-Trimethylbenzene	
Unit	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
RCS-1					9000								10000	
RCS-2					100000								100000	
EPA RCRA Standard														
Beneficial Reuse														
COMP1														
COMP2														
COMP3														
COMP4														
COMP5														
COMP6														
DUPE 11/17/21	3	U	1	U	1.2	J	1	U	1	U	1	U	0.46	J
SS BA07-0-3	1.6	U	0.54	U	1.1	U	0.54	U	0.54	U	0.54	U	1.1	U
SS BA08-0-2.5	1.3	U	0.42	U	0.84	U	0.42	U	0.42	U	0.42	U	0.84	U
SS BA09-0-1	410	U	140	U	270	U	140	U	140	U	140	U	31	J
SS BA09-1-4	380	U	130	U	250	U	130	U	130	U	130	U	210	J
SS BA10-0-4.25	3.7	U	1.2	U	2.5	U	1.2	U	1.2	U	1.2	U	2.5	U
SS BA11-0-4	410	U	140	U	100	J	140	U	140	U	140	U	270	U
SS BA11-4-6.25	320	U	110	U	210	U	110	U	110	U	110	U	210	J
SS BA12-0-3.5	2.2	U	0.73	U	1.4	U	0.73	U	0.73	U	0.73	U	0.25	J
SS BA12-3.5-5.4	400	U	130	U	260	U	130	U	130	U	130	U	57	J
SS BA13-0-2.5	370	U	120	U	25	J	120	U	120	U	120	U	52	J
SS BA13-2.5-6.75	510	U	170	U	340	U	170	U	170	U	170	U	340	J
SS BA14-0-3.5	2.2	U	0.75	U	1.5	U	0.75	U	0.75	U	0.75	U	1.5	U
SS BA14-3.5-7	400	U	130	U	260	U	130	U	130	U	130	U	52	J
SS BA14-7-10.5	580	U	190	U	380	U	190	U	190	U	190	U	55	J
SS BA15-0-4	4.4	U	1.5	U	0.5	J	1.5	U	1.5	U	1.5	U	0.58	J
SS BA15-4-8	640	U	210	U	430	U	210	U	210	U	210	U	430	J
SS BA16-0-4.75	370	U	120	U	77	J	120	U	120	U	120	U	410	J
SS BA17-0-6.5	320	U	110	U	210	U	110	U	110	U	110	U	210	J
SS BA17-6.5-9.3	3	U	1	U	2	U	1	U	1	U	1	U	0.68	J
SS BA18-0-4.25	310	U	100	U	210	U	100	U	100	U	100	U	210	J
SS BA18-4.25-11.9	440	U	150	U	290	U	150	U	150	U	150	U	290	J
SS BA19-0-4	380	U	130	U	250	J	130	U	130	U	130	U	250	J
SS BA19-4-10	6.5	U	2.2	U	4.3	U	2.2	U	2.2	U	2.2	U	1.1	J
SS BA20-0-6.5	6.6	U	2.2	U	4.3	J	2.2	U	2.2	U	2.2	U	0.86	J
SS BA20-6.5-9	7.7	U	2.6	U	6.5	U	2.6	U	2.6	U	2.6	U	3.8	J
SS BA21-0-5	6.2	U	2.1	U	4.1	U	2.1	U	2.1	U	2.1	U	4.1	U
SS BA21-5-7.5	670	U	220	U	440	U	220	U	220	U	220	U	440	J
SS BA21-7.5-10.5	530	U	180	U	360	U	180	U	180	U	180	U	82	J
SS BA22-0-1	4.1	U	1.4	U	1.1	J	1.4	U	1.4	U	1.4	U	2.7	U
SS BA22-1-4	5.6	U	1.8	U	3.7	U	1.8	U	1.8	U	1.8	U	3.7	U
SS BA22-4-9	3.2	U	1.1	U	2.2	U	1.1	U	1.1	U	1.1	U	2.2	U
SS BA23-0-0.5	9.7	U	3.2	U	6.5	U	3.2	U	3.2	U	3.2	U	6.5	U

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Table 1
Bel Air Dam Sediment Results

Method																			
Analyte	1,3-Dichlorobenzene		1,3-Dichloropropane		1,3-Dichloropropene, Total		1,4-Dichlorobenzene		1,4-Dioxane		2,2-Dichloropropane		2-Hexanone		Acetone		Benzene	
Unit	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
RCS-1	3000						700								6000		2000	
RCS-2	200000														50000		200000	
EPA RCRA Standard																		
Beneficial Reuse																		
COMP1																		
COMP2																		
COMP3																		
COMP4																		
COMP5																		
COMP6																		
DUPE 11/17/21	2	U	2	U	0.5	U	2	U	80	U	2	U	10	U	130		0.6	
SS BA07-0-3	1.1	U	1.1	U	0.27	U	1.1	U	43	U	1.1	U	5.4	U	13	U	0.27	U
SS BA08-0-2.5	0.84	U	0.84	U	0.21	U	0.84	U	34	U	0.84	U	4.2	U	10	U	0.21	U
SS BA09-0-1	270	U	270	U	69	U	270	U	11000	U	270	U	1400	U	840	J	69	U
SS BA09-1-4	250	U	250	U	64	U	250	U	10000	U	250	U	1300	U	630	J	64	U
SS BA10-0-4.25	2.5	U	2.5	U	0.62	U	2.5	U	100	U	2.5	U	12	U	190		0.44	J
SS BA11-0-4	270	U	270	U	68	U	81	J	11000	U	270	U	1400	U	790	J	68	U
SS BA11-4-6.25	210	U	210	U	53	U	210	U	8500	U	210	U	1100	U	1100	E	53	U
SS BA12-0-3.5	1.4	U	1.4	U	0.36	U	1.4	U	58	U	1.4	U	7.3	U	190		0.36	U
SS BA12-3.5-5.4	260	U	260	U	66	U	260	U	10000	U	260	U	1300	U	800	E	66	J
SS BA13-0-2.5	240	U	240	U	61	U	30	J	9800	U	240	U	1200	U	640	J	61	U
SS BA13-2.5-6.75	340	U	340	U	85	U	340	U	14000	U	340	U	1700	U	1700	E	85	U
SS BA14-0-3.5	1.5	U	1.5	U	0.37	U	1.5	U	60	U	1.5	U	7.5	U	24		0.37	U
SS BA14-3.5-7	260	U	260	U	66	U	27	J	11000	U	260	U	1300	U	1300	U	66	U
SS BA14-7-10.5	380	U	380	U	96	U	380	U	15000	U	380	U	1900	U	1900	E	96	U
SS BA15-0-4	2.9	U	2.9	U	0.73	U	0.52	J	120	U	2.9	U	15	U	130		0.73	U
SS BA15-4-8	430	U	430	U	110	U	430	U	17000	U	430	U	2100	U	2100	E	110	U
SS BA16-0-4.75	240	U	240	U	61	U	97	J	9800	U	240	U	1200	U	670	J	61	U
SS BA17-0-6.5	210	U	210	U	53	U	28	J	8500	U	210	U	1100	U	530	E	53	U
SS BA17-6.5-9.3	2	U	2	U	0.51	U	2	U	81	U	2	U	10	U	120		0.51	U
SS BA18-0-4.25	210	U	210	U	52	U	210	U	8300	U	210	U	1000	U	1000	U	52	U
SS BA18-4.25-11.9	290	U	290	U	73	U	290	U	12000	U	290	U	1500	U	820	E	73	U
SS BA19-0-4	250	U	250	U	64	U	250	U	10000	U	250	U	1300	U	1300	U	64	U
SS BA19-4-10	4.3	U	4.3	U	1.1	U	4.3	U	170	U	4.3	U	22	U	260		1.1	U
SS BA20-0-6.5	4.4	U	4.4	U	1.1	U	4.3	J	180	U	4.4	U	22	U	260		1.1	J
SS BA20-6.5-9	5.2	U	5.2	U	1.3	U	4.8	J	210	U	5.2	U	26	U	660		1.1	J
SS BA21-0-5	4.1	U	4.1	U	1	U	4.1	U	160	U	4.1	U	21	U	120		1	U
SS BA21-5-7.5	440	U	440	U	110	U	78	J	18000	U	440	U	2200	U	2200	E	110	U
SS BA21-7.5-10.5	360	U	360	U	89	U	360	U	14000	U	360	U	1800	U	1200	E	89	U
SS BA22-0-1	0.23	J	2.7	U	0.68	U	1.3	J	110	U	2.7	U	14	U	310		0.68	U
SS BA22-1-4	3.7	U	3.7	U	0.92	U	3.7	U	150	U	3.7	U	18	U	150		0.92	U
SS BA22-4-9	2.2	U	2.2	U	0.54	U	2.2	U	86	U	2.2	U	11	U	36		0.54	U
SS BA23-0-0.5	6.5	U	6.5	U	1.6	U	6.5	U	260	U	6.5	U	32	U	170		1.6	U

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Table 1
Bel Air Dam Sediment Results

Method																					
Analyte	Bromobenzene		Bromochloromethane		Bromodichloromethane		Bromoform		Bromomethane		Carbon disulfide		Carbon tetrachloride		Chlorobenzene		Chloroethane		Chloroform	
Unit	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
RCS-1											100000				1000					
RCS-2											1000000				3000					
EPA RCRA Standard																				
Beneficial Reuse																				
COMP1																				
COMP2																				
COMP3																				
COMP4																				
COMP5																				
COMP6																				
DUPE 11/17/21	2	U	2	U	0.5	U	4	U	2	U	1.2	J	1	U	4.7		2	U	1.5	U
SS BA07-0-3	1.1	U	1.1	U	0.27	U	2.1	U	1.1	U	5.4	U	0.54	U	0.27	U	1.1	U	0.8	U
SS BA08-0-2.5	0.84	U	0.84	U	0.21	U	1.7	U	0.84	U	4.2	U	0.42	U	0.21	U	0.84	U	0.63	U
SS BA09-0-1	270	U	270	U	69	U	550	U	270	U	1400	U	140	U	69	U	270	U	210	U
SS BA09-1-4	250	U	250	U	64	U	510	U	250	U	1300	U	130	U	64	U	250	U	190	U
SS BA10-0-4.25	2.5	U	2.5	U	0.62	U	5	U	2.5	U	3.1	J	1.2	U	0.62	U	2.5	U	1.9	U
SS BA11-0-4	270	U	270	U	68	U	550	U	270	U	1400	J	140	U	150		270	U	200	U
SS BA11-4-6.25	210	U	210	U	53	U	420	U	210	U	1100	J	110	U	53	U	210	U	160	U
SS BA12-0-3.5	1.4	U	1.4	U	0.36	U	2.9	U	1.4	U	1.7	J	0.73	U	0.36	U	1.4	U	1.1	U
SS BA12-3.5-5.4	260	U	260	U	66	U	530	U	260	U	1300	J	130	U	66	U	260	U	200	U
SS BA13-0-2.5	240	U	240	U	61	U	490	U	240	U	1200	U	120	U	140		240	U	180	U
SS BA13-2.5-6.75	340	U	340	U	85	U	680	U	340	U	1700	J	170	U	85	U	340	U	250	U
SS BA14-0-3.5	1.5	U	1.5	U	0.37	U	3	U	1.5	U	7.5	U	0.75	U	0.37	U	1.5	U	1.1	U
SS BA14-3.5-7	260	U	260	U	66	U	530	U	260	U	1300	U	130	U	65	J	260	U	200	U
SS BA14-7-10.5	380	U	380	U	96	U	770	U	380	U	1900	J	190	U	96	U	380	U	290	U
SS BA15-0-4	2.9	U	2.9	U	0.73	U	5.9	U	2.9	U	2.6	J	1.5	U	1.3		2.9	U	2.2	U
SS BA15-4-8	430	U	430	U	110	U	850	U	430	U	2100	J	210	U	110	U	430	U	320	U
SS BA16-0-4.75	240	U	240	U	61	U	490	U	240	U	1200	J	120	U	370	U	240	U	180	U
SS BA17-0-6.5	210	U	210	U	53	U	420	U	210	U	1100	J	110	U	99	U	210	U	160	U
SS BA17-6.5-9.3	2	U	2	U	0.51	U	4.1	U	2	U	2.2	J	1	U	0.51	U	2	U	1.5	U
SS BA18-0-4.25	210	U	210	U	52	U	410	U	210	U	1000	J	100	U	52	U	210	U	160	U
SS BA18-4.25-11.9	290	U	290	U	73	U	580	U	290	U	1500	J	150	U	73	J	290	U	220	U
SS BA19-0-4	250	U	250	U	64	U	510	U	250	U	1300	J	130	U	33	J	250	U	190	U
SS BA19-4-10	4.3	U	4.3	U	1.1	U	8.6	U	4.3	U	3.1	J	2.2	U	1.1	U	4.3	U	3.2	U
SS BA20-0-6.5	4.4	U	4.4	U	1.1	U	8.8	U	4.4	U	3.8	J	2.2	U	3	U	4.4	U	3.3	U
SS BA20-6.5-9	5.2	U	5.2	U	1.3	U	10	U	5.2	U	7.1	J	2.6	U	1.3	U	5.2	U	3.9	U
SS BA21-0-5	4.1	U	4.1	U	1	U	8.3	U	4.1	U	21	U	2.1	U	1	U	4.1	U	3.1	U
SS BA21-5-7.5	440	U	440	U	110	U	890	U	440	U	2200	J	220	U	170	U	440	U	330	U
SS BA21-7.5-10.5	360	U	360	U	89	U	710	U	360	U	1800	J	180	U	89	U	360	U	270	U
SS BA22-0-1	2.7	U	2.7	U	0.68	U	5.4	U	2.7	U	2.7	J	1.4	U	5.2		2.7	U	2	U
SS BA22-1-4	3.7	U	3.7	U	0.92	U	7.4	U	3.7	U	18	U	1.8	U	0.92	U	3.7	U	2.8	U
SS BA22-4-9	2.2	U	2.2	U	0.54	U	4.3	U	2.2	U	11	U	1.1	U	0.14	J	2.2	U	1.6	U
SS BA23-0-0.5	6.5	U	6.5	U	1.6	U	13	U	6.5	U	32	U	3.2	U	1.6	U	6.5	U	4.8	U

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Table 1
Bel Air Dam Sediment Results

Method																		
Analyte	Chloromethane		cis-1,2-Dichloroethene		cis-1,3-Dichloropropene		Dibromochloromethane		Dibromomethane		Dichlorodifluoromethane		Diethyl ether		Diisopropyl Ether		Ethylbenzene	
Unit	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
RCS-1																	40000	
RCS-2																	1000000	
EPA RCRA Standard																		
Beneficial Reuse																		
COMP1																		
COMP2																		
COMP3																		
COMP4																		
COMP5																		
COMP6																		
DUPE 11/17/21	4	U	1	U	0.5	U	1	U	2	U	10	U	2	U	2	U	1	
SS BA07-0-3	2.1	U	0.54	U	0.27	U	0.54	U	1.1	U	5.4	U	1.1	U	1.1	U	0.54	
SS BA08-0-2.5	1.7	U	0.42	U	0.21	U	0.42	U	0.84	U	4.2	U	0.84	U	0.84	U	0.42	
SS BA09-0-1	550	U	140	U	69	U	140	U	270	U	1400	U	270	U	270	U	140	
SS BA09-1-4	510	U	130	U	64	U	130	U	250	U	1300	U	250	U	250	U	130	
SS BA10-0-4.25	5	U	1.2	U	0.62	U	1.2	U	2.5	U	12	U	2.5	U	2.5	U	1.2	
SS BA11-0-4	550	U	140	U	68	U	140	U	270	U	1400	U	270	U	270	U	140	
SS BA11-4-6.25	420	U	110	U	53	U	110	U	210	U	1100	U	210	U	210	U	110	
SS BA12-0-3.5	2.9	U	0.73	U	0.36	U	0.73	U	1.4	U	7.3	U	1.4	U	1.4	U	0.73	
SS BA12-3.5-5.4	530	U	130	U	66	U	130	U	260	U	1300	U	260	U	260	U	130	
SS BA13-0-2.5	490	U	120	U	61	U	120	U	240	U	1200	U	240	U	240	U	120	
SS BA13-2.5-6.75	680	U	170	U	85	U	170	U	340	U	1700	U	340	U	340	U	26	
SS BA14-0-3.5	3	U	0.75	U	0.37	U	0.75	U	1.5	U	7.5	U	1.5	U	1.5	U	0.75	
SS BA14-3.5-7	530	U	130	U	66	U	130	U	260	U	1300	U	260	U	260	U	130	
SS BA14-7-10.5	770	U	190	U	96	U	190	U	380	U	1900	U	380	U	380	U	190	
SS BA15-0-4	5.9	U	1.5	U	0.73	U	1.5	U	2.9	U	15	U	2.9	U	2.9	U	1.5	
SS BA15-4-8	850	U	210	U	110	U	210	U	430	U	2100	U	430	U	430	U	35	
SS BA16-0-4.75	490	U	120	U	61	U	120	U	240	U	1200	U	240	U	240	U	120	
SS BA17-0-6.5	420	U	110	U	53	U	110	U	210	U	1100	U	210	U	210	U	110	
SS BA17-6.5-9.3	4.1	U	1	U	0.51	U	1	U	2	U	10	U	2	U	2	U	0.14	
SS BA18-0-4.25	410	U	100	U	52	U	100	U	210	U	1000	U	210	U	210	U	100	
SS BA18-4.25-11.9	580	U	150	U	73	U	150	U	290	U	1500	U	290	U	290	U	150	
SS BA19-0-4	510	U	130	U	64	U	130	U	250	U	1300	U	250	U	250	U	130	
SS BA19-4-10	8.6	U	2.2	U	1.1	U	2.2	U	4.3	U	22	U	4.3	U	4.3	U	0.95	
SS BA20-0-6.5	8.8	U	2.2	U	1.1	U	2.2	U	4.4	U	22	U	4.4	U	4.4	U	4	
SS BA20-6.5-9	10	U	2.6	U	1.3	U	2.6	U	5.2	U	26	U	5.2	U	5.2	U	4.1	
SS BA21-0-5	8.3	U	2.1	U	1	U	2.1	U	4.1	U	21	U	4.1	U	4.1	U	1.2	
SS BA21-5-7.5	890	U	220	U	110	U	220	U	440	U	2200	U	440	U	440	U	220	
SS BA21-7.5-10.5	710	U	180	U	89	U	180	U	360	U	1800	U	360	U	360	U	180	
SS BA22-0-1	5.4	U	1.4	U	0.68	U	1.4	U	2.7	U	14	U	2.7	U	2.7	U	0.72	
SS BA22-1-4	7.4	U	1.8	U	0.92	U	1.8	U	3.7	U	18	U	3.7	U	3.7	U	0.58	
SS BA22-4-9	4.3	U	1.1	U	0.54	U	1.1	U	2.2	U	11	U	2.2	U	2.2	U	0.77	
SS BA23-0-0.5	13	U	3.2	U	1.6	U	3.2	U	6.5	U	32	U	6.5	U	6.5	U	3.2	

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Table 1
Bel Air Dam Sediment Results

Method																	
Analyte		Ethyl-Tert-Butyl-Ether		Hexachlorobutadiene		Isopropylbenzene		Methyl ethyl ketone		Methyl isobutyl ketone		Methyl tert butyl ether		Methylene chloride		Naphthalene	
Unit		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
RCS-1						1000000		4000								4000	
RCS-2						10000000		50000								20000	
EPA RCRA Standard																	
Beneficial Reuse																	
COMP1																	
COMP2																	
COMP3																	
COMP4																	
COMP5																	
COMP6																	
DUPE 11/17/21	U	2	U	4	U	1.6		24		10	U	2	U	5	U	6.9	
SS BA07-0-3	U	1.1	U	2.1	U	0.54	U	5.4	U	5.4	U	1.1	U	2.7	U	2.1	U
SS BA08-0-2.5	U	0.84	U	1.7	U	0.42	U	4.2	U	4.2	U	0.84	U	2.1	U	1.7	U
SS BA09-0-1	U	270	U	550	U	140	U	1400	U	1400	U	270	U	690	U	700	
SS BA09-1-4	U	250	U	510	U	200		1300	U	1300	U	250	U	640	U	3400	
SS BA10-0-4.25	U	2.5	U	5	U	0.17	J	40		12	U	2.5	U	6.2	U	4.9	J
SS BA11-0-4	U	270	U	550	U	140	J	1400	U	1400	U	270	U	680	U	160	J
SS BA11-4-6.25	U	210	U	420	U	110	J	1100	U	1100	U	210	U	530	U	420	J
SS BA12-0-3.5	U	1.4	U	2.9	U	0.73	U	39		7.3	U	1.4	U	3.6	U	1.9	J
SS BA12-3.5-5.4	U	260	U	530	U	130	U	1300	U	1300	U	260	U	660	U	980	
SS BA13-0-2.5	U	240	U	490	U	120	U	1200	U	1200	U	240	U	610	U	160	J
SS BA13-2.5-6.75	J	340	U	680	U	170	J	1700	U	1700	U	340	U	850	U	330	J
SS BA14-0-3.5	U	1.5	U	3	U	0.75	U	7.5	U	7.5	U	1.5	U	3.7	U	3	U
SS BA14-3.5-7	U	260	U	530	U	400		1300	U	1300	U	260	U	660	U	320	J
SS BA14-7-10.5	U	380	U	770	U	60	J	1900	U	1900	U	380	U	960	U	200	J
SS BA15-0-4	U	2.9	U	5.9	U	0.18	J	24		15	U	2.9	U	7.3	U	2.7	J
SS BA15-4-8	J	430	U	850	U	210	U	2100	U	2100	U	430	U	1100	U	280	J
SS BA16-0-4.75	U	240	U	490	U	40	J	1200	U	1200	U	240	U	610	U	300	J
SS BA17-0-6.5	U	210	U	420	U	110	J	1100	U	1100	U	210	U	530	U	140	J
SS BA17-6.5-9.3	J	2	U	4.1	U	1	U	20		10	U	2	U	5.1	U	4.6	
SS BA18-0-4.25	U	210	U	410	U	100	U	1000	U	1000	U	210	U	520	U	410	J
SS BA18-4.25-11.9	U	290	U	580	U	150	J	1500	U	1500	U	290	U	730	U	120	J
SS BA19-0-4	U	250	U	510	U	130	J	1300	U	1300	U	250	U	640	U	510	J
SS BA19-4-10	J	4.3	U	8.6	U	2.2	U	49		22	U	4.3	U	11	U	5.2	J
SS BA20-0-6.5		4.4	U	8.8	U	2.1	J	61		22	U	4.4	U	11	U	2.1	J
SS BA20-6.5-9		5.2	U	10	U	39		140		26	U	5.2	U	13	U	9.7	J
SS BA21-0-5	J	4.1	U	8.3	U	2.1	U	21		21	U	4.1	U	10	U	1.9	J
SS BA21-5-7.5	U	440	U	890	U	70	J	2200	U	2200	U	440	U	1100	U	310	J
SS BA21-7.5-10.5	J	360	U	710	U	180	J	1800	U	1800	U	360	U	890	U	250	J
SS BA22-0-1	J	2.7	U	5.4	U	1.4	U	67		14	U	2.7	U	6.8	U	3.4	J
SS BA22-1-4	J	3.7	U	7.4	U	1.8	U	24		18	U	3.7	U	9.2	U	2.6	J
SS BA22-4-9	J	2.2	U	4.3	U	1.1	U	11	U	11	U	2.2	U	5.4	U	1.2	J
SS BA23-0-0.5	U	6.5	U	13	U	3.2	U	35		32	U	6.5	U	16	U	13	U

AECOM

Table 1
Bel Air Dam Sediment Results

Method																					
Analyte	n-Butylbenzene		n-Propylbenzene		o-Chlorotoluene		o-Xylene		p/m-Xylene		p-Chlorotoluene		p-Isopropyltoluene		sec-Butylbenzene		Styrene		tert-Butylbenzene	
Unit	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
RCS-1	N/A		100000				N/A		N/A				N/A		N/A				100000	
RCS-2			1000000																1000000	
EPA RCRA Standard																				
Beneficial Reuse																				
COMP1																				
COMP2																				
COMP3																				
COMP4																				
COMP5																				
COMP6																				
DUPE 11/17/21	14		1	U	2	U	3.9		0.77	J	2	U	1	U	30		1	U	3.8	
SS BA07-0-3	0.54	U	0.54	U	1.1	U	0.54	U	1.1	U	1.1	U	0.54	U	0.54	U	0.54	U	1.1	U
SS BA08-0-2.5	0.42	U	0.42	U	0.84	U	0.42	U	0.84	U	0.84	U	0.42	U	0.42	U	0.42	U	0.84	U
SS BA09-0-1	140	U	140	U	270	U	140	U	270	U	270	U	140	U	140	U	140	U	270	U
SS BA09-1-4	41	J	40	J	250	U	130	U	250	U	250	U	130	U	37	J	130	U	250	U
SS BA10-0-4.25	0.23	J	1.2	U	2.5	U	1.2	U	2.5	U	2.5	U	1.2	U	3.1		1.2	U	0.77	J
SS BA11-0-4	140	U	140	U	270	U	140	J	270	U	270	U	15	J	140	J	140	U	270	J
SS BA11-4-6.25	110	J	110	U	210	U	110	U	210	U	210	U	110	U	110	U	110	U	210	U
SS BA12-0-3.5	0.73	U	0.73	U	1.4	U	0.73	U	1.4	U	1.4	U	0.73	U	0.23	J	0.73	U	1.4	U
SS BA12-3.5-5.4	25	J	130	J	260	U	41	J	260	U	260	U	31	J	130	J	130	U	260	U
SS BA13-0-2.5	140		41	J	240	U	120	U	240	U	240	U	16	J	130		120	U	81	J
SS BA13-2.5-6.75	170	U	170	J	340	U	170	U	340	U	340	U	170	U	170	U	170	U	340	J
SS BA14-0-3.5	0.75	U	0.75	U	1.5	U	0.75	U	1.5	U	1.5	U	0.75	U	0.99		0.75	U	0.37	J
SS BA14-3.5-7	1200		580		260	U	130	U	130	J	260	U	400		1300		130	U	170	J
SS BA14-7-10.5	190		69	J	380	U	190	J	380	J	380	U	21	J	180	J	190	U	380	J
SS BA15-0-4	0.45	J	1.5	U	2.9	U	1.5	U	2.9	U	2.9	U	1.5	U	1.1	J	1.5	U	0.32	J
SS BA15-4-8	210	U	210	U	430	U	210	U	430	U	430	U	210	U	210	J	210	U	430	U
SS BA16-0-4.75	51	J	32	J	240	U	42	J	240	J	240	U	14	J	120		120	U	14	J
SS BA17-0-6.5	30	J	110	U	210	U	110	U	210	J	210	U	110	U	60	J	110	U	16	J
SS BA17-6.5-9.3	1	U	1	U	2	U	0.9	J	2	U	2	U	0.28	J	1	U	1	U	2	U
SS BA18-0-4.25	100	U	100	U	210	U	100	U	210	U	210	U	100	U	100	U	100	U	210	J
SS BA18-4.25-11.9	150	J	150	U	290	U	150	U	290	U	290	U	150	J	150	J	150	U	290	J
SS BA19-0-4	22	J	130	U	250	U	130	U	250	U	250	U	130	J	110	J	130	U	48	J
SS BA19-4-10	2.2	U	2.2	U	4.3	U	3		3.2	J	4.3	U	0.31	J	2.2	U	2.2	U	4.3	U
SS BA20-0-6.5	7		2.2	U	4.4	U	5.8		15		4.4	U	2.2	J	12		2.2	U	3	J
SS BA20-6.5-9	160	U	2.6	U	5.2	U	13		25		5.2	U	2.4	J	280	U	2.6	U	38	
SS BA21-0-5	2.1	U	2.1	U	4.1	U	1.2	J	3.5	J	4.1	U	2.1	U	2.1	U	2.1	U	4.1	U
SS BA21-5-7.5	300		220	U	440	U	220	U	440	U	440	U	220	U	520		220	U	72	J
SS BA21-7.5-10.5	36	J	180	U	360	U	180	J	360	J	360	U	26	J	46	J	180	U	360	J
SS BA22-0-1	0.9	J	1.4	U	2.7	U	1.5		2.8		2.7	U	0.15	J	1.2	J	1.4	U	0.2	J
SS BA22-1-4	1.8	U	1.8	U	3.7	U	0.67	J	1.7	J	3.7	U	1.8	U	1.8	U	1.8	U	3.7	U
SS BA22-4-9	1.1	U	1.1	U	2.2	U	0.86	J	2.7		2.2	U	1.1	U	1.1	U	1.1	U	2.2	U
SS BA23-0-0.5	3.2	U	3.2	U	6.5	U	3.2	U	6.5	U	6.5	U	3.2	U	3.2	U	3.2	U	6.5	U

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Table 1
Bel Air Dam Sediment Results

Method																			
Analyte	Tertiary-Amyl Methyl Ether		Tetrachloroethene		Tetrahydrofuran		Toluene		trans-1,2-Dichloroethene		trans-1,3-Dichloropropene		Trichloroethene		Trichlorofluoromethane		Vinyl chloride	
Unit	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
RCS-1							30000											
RCS-2							1000000											
EPA RCRA Standard																		
Beneficial Reuse																		
COMP1																		
COMP2																		
COMP3																		
COMP4																		
COMP5																		
COMP6																		
DUPE 11/17/21	2	U	0.5	U	4	U	1	U	1.5	U	1	U	0.5	U	4	U	1	U
SS BA07-0-3	1.1	U	0.27	U	2.1	U	0.54	U	0.8	U	0.54	U	0.27	U	2.1	U	0.54	U
SS BA08-0-2.5	0.84	U	0.21	U	1.7	U	0.42	U	0.63	U	0.42	U	0.21	U	1.7	U	0.42	U
SS BA09-0-1	270	U	69	U	550	U	130	J	210	U	140	U	69	U	550	U	140	U
SS BA09-1-4	250	U	64	U	510	U	130	U	190	U	130	U	64	U	510	U	130	U
SS BA10-0-4.25	2.5	U	0.62	U	5	U	1.2	U	1.9	U	1.2	U	0.62	U	5	U	1.2	U
SS BA11-0-4	270	U	68	U	550	U	180	U	200	U	140	U	68	U	550	U	140	U
SS BA11-4-6.25	210	U	53	U	420	U	200	J	160	U	110	U	53	U	420	U	110	U
SS BA12-0-3.5	1.4	U	0.3	J	2.9	U	0.73	U	1.1	U	0.73	U	0.36	U	2.9	U	0.73	U
SS BA12-3.5-5.4	260	U	66	U	530	U	130	U	200	U	130	U	66	U	530	U	130	U
SS BA13-0-2.5	240	U	61	U	490	U	200		180	U	120	U	61	U	490	U	120	U
SS BA13-2.5-6.75	340	U	85	U	680	U	770	U	250	U	170	U	85	U	680	U	170	U
SS BA14-0-3.5	1.5	U	0.37	U	3	U	0.75	U	1.1	U	0.75	U	0.37	U	3	U	0.75	U
SS BA14-3.5-7	260	U	66	U	530	U	120	J	200	U	130	U	66	U	530	U	130	U
SS BA14-7-10.5	380	U	96	U	770	U	820		290	U	190	U	96	U	770	U	190	U
SS BA15-0-4	2.9	U	0.73	U	5.9	U	1.5	U	2.2	U	1.5	U	0.73	U	5.9	U	1.5	U
SS BA15-4-8	430	U	110	U	850	U	700	U	320	U	210	U	110	U	850	U	210	U
SS BA16-0-4.75	240	U	61	U	490	U	220	U	180	U	120	U	61	U	490	U	120	U
SS BA17-0-6.5	210	U	53	U	420	U	110	U	160	U	110	U	53	U	420	U	110	U
SS BA17-6.5-9.3	2	U	0.51	U	4.1	U	1	U	1.5	U	1	U	0.51	U	4.1	U	1	U
SS BA18-0-4.25	210	U	52	U	410	U	100	U	160	U	100	U	52	U	410	U	100	U
SS BA18-4.25-11.9	290	U	73	U	580	U	230		220	U	150	U	73	U	580	U	150	U
SS BA19-0-4	250	U	64	U	510	U	130	U	190	U	130	U	64	U	510	U	130	U
SS BA19-4-10	4.3	U	1.1	U	8.6	U	2.2	U	3.2	U	2.2	U	1.1	U	8.6	U	2.2	U
SS BA20-0-6.5	4.4	U	1.1	U	8.8	U	2.2	U	3.3	U	2.2	U	1.1	U	8.8	U	2.2	U
SS BA20-6.5-9	5.2	U	1.3	U	10	U	1.9	J	3.9	U	2.6	U	1.3	U	10	U	2.6	U
SS BA21-0-5	4.1	U	1	U	8.3	U	2.1	U	3.1	U	2.1	U	1	U	8.3	U	2.1	U
SS BA21-5-7.5	440	U	110	U	890	U	220	J	330	U	220	U	110	U	890	U	220	U
SS BA21-7.5-10.5	360	U	89	U	710	U	260	U	270	U	180	U	89	U	710	U	180	U
SS BA22-0-1	2.7	U	0.68	U	5.4	U	1.4	U	2	U	1.4	U	0.68	U	5.4	U	1.4	U
SS BA22-1-4	3.7	U	0.92	U	7.4	U	1.8	U	2.8	U	1.8	U	0.92	U	7.4	U	1.8	U
SS BA22-4-9	2.2	U	0.54	U	4.3	U	1.1	U	1.6	U	1.1	U	0.54	U	4.3	U	1.1	U
SS BA23-0-0.5	6.5	U	1.6	U	13	U	3.2	U	4.8	U	3.2	U	1.6	U	13	U	3.2	U

AECOM

Table 1
Bel Air Dam Sediment Results

Method			SW8270D													
Analyte	Xylenes, Total		2,4,5-Trichlorophenol		2,4,6-Trichlorophenol		2,4-Dinitrotoluene		2-Methylphenol		3-Methylphenol/4-Methylphenol		Hexachlorobenzene		Hexachlorobutadiene	
Unit	ug/kg		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l		ug/l	
RCS-1	100000															
RCS-2	100000															
EPA RCRA Standard																
Beneficial Reuse																
COMP1																
COMP2																
COMP3																
COMP4																
COMP5																
COMP6																
DUPE 11/17/21	4.7	J														
SS BA07-0-3	0.54	U														
SS BA08-0-2.5	0.42	U														
SS BA09-0-1	140	U														
SS BA09-1-4	130	U														
SS BA10-0-4.25	1.2	U														
SS BA11-0-4	140	J														
SS BA11-4-6.25	110	U														
SS BA12-0-3.5	0.73	U	25	U	25	U	25	U	25	U	25	U	10	U	10	U
SS BA12-3.5-5.4	41	J														
SS BA13-0-2.5	120	U														
SS BA13-2.5-6.75	170	U														
SS BA14-0-3.5	0.75	U														
SS BA14-3.5-7	130	J														
SS BA14-7-10.5	190	J														
SS BA15-0-4	1.5	U														
SS BA15-4-8	210	U														
SS BA16-0-4.75	42	J														
SS BA17-0-6.5	110	J														
SS BA17-6.5-9.3	0.9	J														
SS BA18-0-4.25	100	U	25	U	25	U	25	U	25	U	25	U	10	U	10	U
SS BA18-4.25-11.9	150	U	25	U	25	U	25	U	25	U	25	U	10	U	10	U
SS BA19-0-4	130	U														
SS BA19-4-10	6.2	J														
SS BA20-0-6.5	21															
SS BA20-6.5-9	38															
SS BA21-0-5	4.7	J														
SS BA21-5-7.5	220	U	25	U	25	U	25	U	25	U	25	U	10	U	10	U
SS BA21-7.5-10.5	180	J														
SS BA22-0-1	4.3															
SS BA22-1-4	2.4	J														
SS BA22-4-9	3.6	J	25	U	25	U	25	U	25	U	25	U	10	U	10	U
SS BA23-0-0.5	3.2	U														

AECOM

Table 1
Bel Air Dam Sediment Results

Method								
Analyte	Hexachloroethane		Nitrobenzene		Pentachlorophenol		Pyridine	
Unit	ug/l		ug/l		ug/l		ug/l	
RCS-1								
RCS-2								
EPA RCRA Standard								
Beneficial Reuse								
COMP1								
COMP2								
COMP3								
COMP4								
COMP5								
COMP6								
DUPE 11/17/21								
SS BA07-0-3								
SS BA08-0-2.5								
SS BA09-0-1								
SS BA09-1-4								
SS BA10-0-4.25								
SS BA11-0-4								
SS BA11-4-6.25								
SS BA12-0-3.5	10	U	10	U	50	U	18	U
SS BA12-3.5-5.4								
SS BA13-0-2.5								
SS BA13-2.5-6.75								
SS BA14-0-3.5								
SS BA14-3.5-7								
SS BA14-7-10.5								
SS BA15-0-4								
SS BA15-4-8								
SS BA16-0-4.75								
SS BA17-0-6.5								
SS BA17-6.5-9.3								
SS BA18-0-4.25	10	U	10	U	50	U	18	U
SS BA18-4.25-11.9	10	U	10	U	50	U	18	U
SS BA19-0-4								
SS BA19-4-10								
SS BA20-0-6.5								
SS BA20-6.5-9								
SS BA21-0-5								
SS BA21-5-7.5	10	U	10	U	50	U	18	U
SS BA21-7.5-10.5								
SS BA22-0-1								
SS BA22-1-4								
SS BA22-4-9	10	U	10	U	50	U	18	U
SS BA23-0-0.5								

Table 2
Transportation and Disposal Cost Comparison

Disposal Option	Vendor	Landfill/Reuse Facility	Type	Unit	Unit Rate	Quantity	Total T&D Cost	Minimum Weight/Load[1]
1	Green Rock	LaFarge Holcim- Ravena, NY	Beneficial Reuse[2]	Tons	$58	53,708	$3,115,035	28
2	Green Rock	Seneca Meadows Landfill Waterloo, NY	Alternative Daily Cover[2]	Tons	$120	53,708	$6,444,900	28
3	Green Rock	Seneca Meadows Landfill	Disposal in Landfill	Tons	$150	53,708	$8,056,125	28
4	Waste Management	Turnkey Landfill Rochester, NH	Disposal in Landfill[3]	Tons	$125	53,708	$6,713,438	30
5	Waste Management	High Acres Landfill Rochester, NY	Disposal in Landfill[3]	Tons	$110	53,708	$5,907,825	30

Notes: Quotes based on end dump trailer.
1. For loads weighting less than the minimum weight/load listed the minimum charge will be issued (minimum weight/load x unit rate).
2. Acceptance of material for beneficial reuse is on a case by case basis.
3. To meet landfill requirements amended sediment shall have an average unconfined compressive strength value of 1,000 PSF via method ASTM D2166.

12:01 PM

JOB #: 60604936
DATE: July 12, 2022
LOCATION: Pittsfield, MA
PREPARED BY: R. Mastrogiacomo
CHECKED BY: J. Doyle-Breen

Table 3
AECOM - Water
Bel Air Dams, Pittsfield, MA
Bel Air Dam
Construction Cost Estimate
****
GRAND SUMMARY

CLIENT : MassDCR Office of
PROJECT : Bel Air Dam
ACCURACY: ± 25 %
ENR CCI: 13110.5

Option No.	DESCRIPTION	MANHOURS	MATERIAL	LABOR	EQUIPMENT	O&P	CONTINGENCY	ESCALATION (not considered)	TOTAL
						25%	35%	0.0%	
						25%	35%	0.0%	
1	Dam Removal	32,693	$1,680,335	$3,087,822	$5,809,779	$2,790,517	$4,883,405	$0	$18,835,992
2.1	Dam Repair - Limited Sediment Removal	39,722	$930,365	$3,751,669	$1,449,116	$1,532,788	$2,682,378	$0	$10,346,316
2.2	Dam Repair - Full Sediment Removal	61,013	$1,774,152	$5,762,600	$5,877,392	$3,353,536	$5,868,688	$0	$22,636,368

ACCOUNT NO.	ESTIMATE BASIS			MANHOURS MHR/ UNIT	MANHOURS TOTAL MH	MATERIAL UNIT COST	MATERIAL TOTAL MATL	LABOR WAGE RATE	LABOR TOTAL LABOR	EQUIPMENT UNIT RATE	EQUIPMENT TOTAL EQUIP	TOTAL DIRECT COST
	THIS CONSTRUCTION COST IS BASED ON:											
	1. 10% Concept											
	2. PRICING IS BASED ON 3rd QUARTER 2022											
	3. CONTINGENCY SHOWN IS CONTRACTOR CONTINGENCY BASED ON LEVEL OF DESIGN, OWNER CONTINGENCY NOT INCLUDED											
	4. THE SOILS AT THE SITE ARE SUITABLE FOR STANDARD EXCAVATING METHODS FOR THE WORK.											
	5. ESCALATION NOT CONSIDERED											
	6. IN PROVIDING OPINION OF PROBABLE CONSTRUCTION COST, THE CLIENT UNDERSTANDS THAT AECOM HAS NO CONTROL OVER THE COST OR AVAILABILITY OF LABOR, EQUIPMENT OR MATERIALS OR OVER MARKET CONDITIONS OR THE CONTRACTOR'S METHOD OF PRICING. AECOM MAKES NO WARRANTY, EXPRESS OR IMPLIED THAT THE BIDS WILL NOT VARY FROM THIS ESTIMATE.											
	7. Average wage rate calculated from 2021 Means Labor rates for Construction Industry (ENR 11,800). Used Pittsfield, MA ($67.29) escalated at to the time of the estimate and added 26.3% for:											11.1%
	Social Security Tax	7.65%										
	Workers Comp Insurance	12.00%										
	Builders Risk	0.44%										
	Other Negotiated Fringe	1.60%										
	Federal Unemployment Insurance	0.14%										
	State Unemployment Insurance	2.93%										
	General Liability Insurance	1.57%										
	TOTAL	26.3%										
	AVERAGE Labor Rate ---->	**$94.45**										

JOB #: 60604936
DATE: July 12, 2022
LOCATION: Pittsfield, MA
EPARED BY: R. Mastrogiacomo

AECOM - Water
Bel Air Dams, Pittsfield, MA
Bel Air Dam
Construction Cost Estimate

CLIENT : MassDCR Office of Dam Safety
PROJECT : Bel Air Dam
ACCURACY: ± 25 %
ENR. INDEX: 13110.5

Option NO.	DESCRIPTION	QUAN	UN	MANHOURS MHR/ UNIT	MANHOURS TOTAL MH	MATERIAL UNIT COST	MATERIAL TOTAL MATL	LABOR WAGE RATE	LABOR TOTAL LABOR	EQUIPMENT UNIT RATE	EQUIPMENT TOTAL EQUIP	TOTAL DIRECT COST
1	***Dam Removal***											
Direct Capital Costs												
Line Item #	**Pre-Construction and Site Preparation**											
1	Mobilization/Demobilization	1	LS									$559,133
2	Contractor Plans and Submittals	1	LS									$25,000
3	Erosion Control Blankets	104,178	SF	0.001	104.2	$0.50	$52,089.00	$94.45	$9,839.44			$61,928
4	Straw Bales and Silt Fence Erosion Control	2,700	LF	0.10	270.0	$4.52	$12,215.88	$94.45	$25,501.05	$1.13	$3,053.97	$40,771
5	Turbidity Control	80	LF	0.10	8.0	$175	$14,000	$94.45	$755.59			$14,756
6	Clearing and Grubbing	1.3	Acre	120.00	156.0			$94.45	$14,733.94	$1,131.10	$1,470.43	$16,204
7	Swamp Mat	2,685	SF			$5.00	$13,425.00					$13,425
8	Polyethylene Sheeting	17,200	SF	0.001	17.2	$0.40	$6,880.00	$94.45	$1,624.51			$8,505
	Dam Demolition											
9	Masonry Dam Removal	830	CY	2.00	1660.0			$94.45	$156,784.22	$56.56	$46,940.65	$203,725
10	Pedestrian Foot Bridge Removal	65	LF	5.00	325.0			$94.45	$30,695.71	$28.28	$1,838.04	$32,534
11	Metal Railing and Entrance Gate Removal	200	LF	3.00	600.0			$94.45	$56,669.00	$13.57	$2,714.64	$59,384
12	Haul & Disposal at Landfill	881	CY	0.50	440.5			$94.45	$41,604.49	$7.92	$6,975.49	$48,580
13	Salvaged Masonry Stone Placed on Site	664	CY	0.50	332.0			$94.45	$31,356.84	$16.97	$11,265.76	$42,623
	Excavation and Dewatering											
14	Topographic Survey	1	LS							$15,000.00	$15,000.00	$15,000
15	Right Embankment Soil Excavation	910	CY	0.30	273.0			$94.45	$25,784.39	$5.66	$5,146.51	$30,931
16	Middle Embankment Clearing	675	SF	0.020	13.5			$94.45	$1,275.05	$0.50	$337.50	$1,626
17	Impoundment Sediment Excavation	35,000	CY	0.50	17500.0			$94.45	$1,652,845.73	$5.66	$197,942.50	$1,850,788
18	Gravity Dewatering	35,000	CY	0.10	3500.0			$94.45	$330,569.15	$5.66	$197,942.50	$528,512
19	Solidification Reagent Material and Addition	4,883	Tons	0.03	146.5	$210.00	$1,025,325.00	$94.45	$13,834.32	$2.00	$9,765.00	$1,048,924
20	Sediment Loading	53,708	Tons	0.03	1611.2			$94.45	$152,177.51	$2.00	$107,415.00	$259,593
21	Sediment Transportation and Disposal	53,708	Tons							$90.20	$4,844,416.50	$4,844,417
	Backfill											
22	Bank Reconstruction	13200	CY	0.25	3300.0	$35.00	$462,000.00	$94.45	$311,679.48	$3.39	$44,791.56	$818,471
23	Revetment Rip Rap	126	CY	0.50	63.0	$50.00	$6,300.00	$94.45	$5,950.24	$22.62	$2,850.37	$15,101
24	Outfall Armoring Rip Rap	120	CY	0.60	72.0	$50.00	$6,000.00	$94.45	$6,800.28	$28.28	$3,393.30	$16,194
25	Outfall Armoring Stone	57	CY	0.60	34.2	$50.00	$2,850.00	$94.45	$3,230.13	$28.28	$1,611.82	$7,692
	Restoration											
26	Seed (Wetland)	11372	SY	0.005	56.9	$0.23	$2,572.62	$94.45	$5,370.43	$0.11	$1,286.31	$9,229
27	Seed (Access/Staging Areas)	1828	SY	0.005	9.1	$0.23	$413.53	$94.45	$863.26	$0.11	$206.77	$1,484
28	Loam (Access/Staging Areas)	305	CY	0.20	61.0	$28.28	$8,624.64	$94.45	$5,761.35	$7.92	$2,414.90	$16,801
29	Planting Trees	156	EA	2.00	312.0	$226.22	$35,290.32	$94.45	$29,467.88	$2.26	$352.90	$65,111
30	Planting Shrubs	572	EA	1.00	572.0	$56.56	$32,349.46	$94.45	$54,024.44	$1.13	$646.99	$87,021
	Water Diversion Control											
31	Portadam/Cofferdam and Water Management	1	AL							$300,000.00	$300,000.00	$300,000
	Police											
32	Police Detail Allowance	1	AL	1255.96	1256.0			$94.45	$118,623.32			$118,623
											Direct Capital Cost Subtotal	$11,162,083

Option NO.	DESCRIPTION	QUAN	UN	MANHOURS		MATERIAL		LABOR		EQUIPMENT		TOTAL DIRECT COST
				MHR/ UNIT	TOTAL MH	UNIT COST	TOTAL MATL	WAGE RATE	TOTAL LABOR	UNIT RATE	TOTAL EQUIP	
	General Contractor Overhead & Profit	25%	*percent*								General Contractor Overhead & Profit	$2,790,521
											General Contractor Subtotal	$13,952,604
	Contingency	35%	*percent*								Contingency	$4,883,411
											Construction Cost	$18,836,015

AECOM - Water
Bel Air Dams, Pittsfield, MA
Bel Air Dam
Construction Cost Estimate

CLIENT : MassDCR Office of Dam Safety
PROJECT : Bel Air Dam
ACCURACY ± 25 %
ENR. INDEX 13110.5

Option NO.	DESCRIPTION	QUAN	UN	MANHOURS		MATERIAL		LABOR		EQUIPMENT		TOTAL DIRECT COST
				MHR/ UNIT	TOTAL MH	UNIT COST	TOTAL MATL	WAGE RATE	TOTAL LABOR	UNIT RATE	TOTAL EQUIP	
2.1	***Dam Repair - Limited Sediment Removal***											
	Pre-Construction and Site Preparation											
	Mobilization/Demobilization	1	LS	0.00	-		0	$94.45	0	537,872.19	537,872	$537,872
	Contractor Plans and Submittals	1	LS	0.00	-		0	$94.45	0	25,000.00	25,000	$25,000
	Turbidity Control	80	LF	0.10	8	175.00	14,000	$94.45	756	0.00	0	$14,756
	Swamp Mat	2,685	CY	0.00	-	5.00	13,425	$94.45	0	0.00	0	$13,425
	Polyethylene Sheeting	17,200	CY	0.001	17	0.40	6,880	$94.45	1,625	0.00	0	$8,505
	Demolition											
	Upper Masonry Dam and Walls	410	CY	1.00	410		0	$94.45	38,724	25.00	10,250	$48,974
	Pedestrian Foot Bridge	65	LF	5.00	325		0	$94.45	30,696	25.00	1,625	$32,321
	Metal Railing and Entrance Gate	200	LF	3.00	600		0	$94.45	56,669	12.00	2,400	$59,069
	Haul & Disposal at Landfill	461	CY	0.50	231		0	$94.45	21,784	7.00	3,229	$25,013
	Dam Repair											
	New Section of Dam	895	CY	16.00	14,320	150.00	134,250	$94.45	1,352,500	150.00	134,250	$1,621,000
	Right Training Wall	231	CY	12.00	2,772	180.00	41,580	$94.45	261,811	140.00	32,340	$335,731
	Low Level Outlet Concrete Platform	20	CY	10.00	199	170.00	3,384	$94.45	18,802	75.00	1,493	$23,680
	Upstream Face Repair (Geomembrane)	2,160	SF	1.20	2,592	10.00	21,600	$94.45	244,810	1.00	2,160	$268,570
	Low Level Outlet											
	24" x 24" Gate, Stem, and Handwheel Operator	1	EA	40.00	40	15,000.00	15,000	$94.45	3,778	200.00	200	$18,978
	Excavation, Grading & Backfill											
	Topographic Survey	1	LS	0.00	-		0	$94.45	0	15,000.00	15,000	$15,000
	Right Embankment Soil Excavation	3,860	CY	0.30	1,158		0	$94.45	109,371	5.00	19,300	$128,671
	Right Embankment Soil Relocation and Placement	3,860	CY	0.75	2,895		0	$94.45	273,428	10.00	38,600	$312,028
	Impoundment Sediment Excavation	6,470	CY	0.50	3,235		0	$94.45	305,540	5.66	36,620	$342,161
	Impoundment Sediment Transport and Disposal	9,026	TON	0.00	-		0	$94.45	0	90.20	814,114	$814,114
	Right Embankment Reconstruction (impervious fill)	1,182	CY	0.40	473	25.00	29,550	$94.45	44,655	5.00	5,910	$80,115
	Right Embankment Reconstruction (bank-run)	2,680	CY	0.30	804	15.00	40,200	$94.45	75,936	4.00	10,720	$126,856
	Right Emankment Grouting	1	LS	2,000.00	2,000	150,000.00	150,000	$94.45	188,897	25,000.00	25,000	$363,897
	Right/Left Embankment Rip Rap	196	CY	0.50	98	50.00	9,800	$94.45	9,256	20.00	3,920	$22,976
	Toe and Upstream Rip Rap Armoring	316	CY	1.00	316	50.00	15,800	$94.45	29,846	50.00	15,800	$61,446
	Upstream Backfill of Overexcavated Area (gravel subbase)	530	CY	0.25	133		0	$94.45	12,514	3.00	1,590	$14,104

AECOM - Water
Bel Air Dams, Pittsfield, MA
Bel Air Dam
Construction Cost Estimate

CLIENT : MassDCR Office of Dam Safety
PROJECT : Bel Air Dam
ACCURACY ± 25 %
ENR. INDEX 13110.5

Option NO.	DESCRIPTION	QUAN	UN	MANHOURS		MATERIAL		LABOR		EQUIPMENT		TOTAL DIRECT COST
				MHR/ UNIT	TOTAL MH	UNIT COST	TOTAL MATL	WAGE RATE	TOTAL LABOR	UNIT RATE	TOTAL EQUIP	
	Middle Embankment Rock Removal	260	CY	1.00	260		0	$94.45	24,557	35.00	9,100	$33,657
	Gravity Dewatering	6,470	CY	0.10	647		0	$94.45	61,108	5.66	36,620	$97,728
	Solidification Reagent Material and Addition	903	Tons	0.03	27	210.00	189,539	$94.45	2,557	2.00	1,805	$193,901
	Sediment Loading	9,928	Tons	0.03	298		0	$94.45	28,131	2.00	19,856	$47,988
	Site Preparation and Restoration											
	Clearing	0.5	AC	120.00	60		0	$94.45	5,667	1,000.00	500	$6,167
	Seed (Access/Staging Areas)	2,350	SY	0.010	24	0.33	776	$94.45	2,220	0.50	1,175	$4,170
	Loam (Access/Staging Areas)	392	CY	0.25	98	35	13,708	$94.45	9,248	12.00	4,700	$27,656
	Plantings - Trees	54	EA	2.00	108	200.00	10,800	$94.45	10,200	2.00	108	$21,108
	Erosion Control Blankets	2,350	SF	0.010	24	0.50	1,175	$94.45	2,220		0	$3,395
	Straw Bales and Silt Fence Erosion Control	930	LF	0.10	93	4.52	4,204	$94.45	8,784	1.00	930	$13,917
	Water/Sediment Control											
	Sheeting	12,450	SF	0.10	1,245	20	249,000	$94.45	117,588	4.00	49,800	$416,388
	Water Control Allowance	1	AL		-		0	$94.45	0	150,000.00	150,000	$150,000
	Police											
	Police Detail Allowance	1	AL	627.98	628		0	$94.45	59,311	0.00	0	$59,311
	Sequence of Work											
	Sequencs of Work Allowance (on labor)	10%	%	36,110.84	3,611		0	$94.45	341,061	0.00	0	$341,061
	SUBTOTAL DIRECT COSTS				39,722		930,365		3,751,669		1,449,116	6,131,150
	GENERAL CONTRACTOR OVERHEAD&PROFIT	25.00%										$1,532,788
	SUBTOTAL GENERAL CONTRACTOR											$7,663,938
	CONTINGENCY	35.00%										$2,682,378
	UNESCALATED CONSTRUCTION COST											**$10,346,316**

AECOM - Water
Bel Air Dams, Pittsfield, MA
Bel Air Dam
Construction Cost Estimate

CLIENT : MassDCR Office of Dam Safety
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Option NO.	DESCRIPTION	QUAN	UN	MANHOURS		MATERIAL		LABOR		EQUIPMENT		TOTAL DIRECT COST
				MHR/ UNIT	TOTAL MH	UNIT COST	TOTAL MATL	WAGE RATE	TOTAL LABOR	UNIT RATE	TOTAL EQUIP	
2.2	***Dam Repair - Full Sediment Removal***											
	Pre-Construction and Site Preparation											
	Mobilization/Demobilization	1	LS	0.00	-		0	$94.45	0	863,136.73	863,137	$863,137
	Contractor Plans and Submittals	1	LS	0.00	-		0	$94.45	0	25,000.00	25,000	$25,000
	Turbidity Control	80	LF	0.10	8	175.00	14,000	$94.45	756	0.00	0	$14,756
	Swamp Mat	2,685	CY	0.00	-	5.00	13,425	$94.45	0	0.00	0	$13,425
	Polyethylene Sheeting	17,200	CY	0.001	17	0.40	6,880	$94.45	1,625	0.00	0	$8,505
	Demolition											
	Upper Masonry Dam and Walls	410	CY	1.00	410		0	$94.45	38,724	25.00	10,250	$48,974
	Pedestrian Foot Bridge	65	LF	5.00	325		0	$94.45	30,696	25.00	1,625	$32,321
	Metal Railing and Entrance Gate	200	LF	3.00	600		0	$94.45	56,669	12.00	2,400	$59,069
	Haul & Disposal at Landfill	461	CY	0.50	231		0	$94.45	21,784	7.00	3,229	$25,013
	Dam Repair											
	New Section of Dam	895	CY	16.00	14,320	150.00	134,250	$94.45	1,352,500	150.00	134,250	$1,621,000
	Right Training Wall	231	CY	12.00	2,772	180.00	41,580	$94.45	261,811	140.00	32,340	$335,731
	Low Level Outlet Concrete Platform	20	CY	10.00	199	170.00	3,384	$94.45	18,802	75.00	1,493	$23,680
	Upstream Face Repair (Geomembrane)	2,160	SF	1.20	2,592	10.00	21,600	$94.45	244,810	1.00	2,160	$268,570
	Low Level Outlet											
	24" x 24" Gate, Stem, and Handwheel Operator	1	EA	40.00	40	15,000.00	15,000	$94.45	3,778	200.00	200	$18,978
	Excavation, Grading & Backfill											
	Topographic Survey	1	LS	0.00	-		0	$94.45	0	15,000.00	15,000	$15,000
	Right Embankment Soil Excavation	3,860	CY	0.30	1,158		0	$94.45	109,371	5.00	19,300	$128,671
	Right Embankment Soil Relocation and Placement	3,860	CY	0.75	2,895		0	$94.45	273,428	10.00	38,600	$312,028
	Impoundment Sediment Excavation	35,000	CY	0.50	17,500		0	$94.45	1,652,846	5.00	175,000	$1,827,846
	Impoundment Sediment Transport and Disposal	53,708	TON	0.00	-		0	$94.45	0	90.20	4,844,462	$4,844,462
	Right Embankment Reconstruction (impervious fill)	1,182	CY	0.40	473	25.00	29,550	$94.45	44,655	5.66	6,690	$80,895
	Right Embankment Reconstruction (bank-run)	2,680	CY	0.30	804	15.00	40,200	$94.45	75,936	4.00	10,720	$126,856
	Right Embankment Grouting	1	LS	2,000.00	2,000	150,000.00	150,000	$94.45	188,897	25,000.00	25,000	$363,897
	Right/Left Embankment Rip Rap	196	CY	0.50	98	50.00	9,800	$94.45	9,256	20.00	3,920	$22,976
	Toe and Upstream Rip Rap Armoring	316	CY	1.00	316	50.00	15,800	$94.45	29,846	50.00	15,800	$61,446
	Upstream Backfill of Overexcavated Area (gravel subbase)	530	CY	0.25	133		0	$94.45	12,514	3.00	1,590	$14,104

AECOM - Water
Bel Air Dams, Pittsfield, MA
Bel Air Dam
Construction Cost Estimate

CLIENT : MassDCR Office of Dam Safety
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ACCURACY ± 25 %
ENR. INDEX 13110.5

Option NO.	DESCRIPTION	QUAN	UN	MANHOURS		MATERIAL		LABOR		EQUIPMENT		TOTAL DIRECT COST
				MHR/ UNIT	TOTAL MH	UNIT COST	TOTAL MATL	WAGE RATE	TOTAL LABOR	UNIT RATE	TOTAL EQUIP	
	Middle Embankment Rock Removal	260	CY	1.00	260		0	$94.45	24,557	35.00	9,100	$33,657
	Gravity Dewatering	35,000	CY	0.10	3,500		0	$94.45	330,569	5.66	198,100	$528,669
	Solidification Reagent Material and Addition	4,882.5	Tons	0.03	146	210.00	1,025,325	$94.45	13,834	2.00	9,765	$1,048,924
	Sediment Loading	53,707.5	Tons	0.03	1,611		0	$94.45	152,178	2.00	107,415	$259,593
	Site Preparation and Restoration											
	Clearing	0.5	AC	120.00	60		0	$94.45	5,667	1,000.00	500	$6,167
	Seed (Access/Staging Areas)	2,350	SY	0.010	24	0.33	776	$94.45	2,220	0.50	1,175	$4,170
	Loam (Access/Staging Areas)	392	CY	0.25	98	35	13,708	$94.45	9,248	12.00	4,700	$27,656
	Plantings - Trees	54	EA	2.00	108	200.00	10,800	$94.45	10,200	2.00	108	$21,108
	Erosion Control Blankets	2,350	SF	0.010	24	0.50	1,175	$94.45	2,220		0	$3,395
	Straw Bales and Silt Fence Erosion Control	2,700	LF	0.10	270	4.52	12,204	$94.45	25,501	1.00	2,700	$40,405
	Water/Sediment Control											
	Sheeting	12,450	SF	0.10	1,245	20	249,000	$94.45	117,588	4.00	49,800	$416,388
	Water Control Allowance	1	AL		-		0	$94.45	0	150,000.00	150,000	$150,000
	Police											
	Police Detail Allowance	1	AL	1,255.96	1,256		0	$94.45	118,623	0.00	0	$118,623
	Sequence of Work											
	Sequencs of Work Allowance (on labor)	10%	%	55,466.60	5,547		0	$94.45	523,873	0.00	0	$523,873
	SUBTOTAL DIRECT COSTS				61,013		1,774,152		5,762,600		5,877,392	13,414,144
	GENERAL CONTRACTOR OVERHEAD&PROFIT	25.00%										$3,353,536
	SUBTOTAL GENERAL CONTRACTOR											$16,767,680
	CONTINGENCY	35.00%										$5,868,688
	UNESCALATED CONSTRUCTION COST											**$22,636,368**