Spa Road Environmental Summary

City of Annapolis
932 and 935 Spa Road, Annapolis, Maryland

July 23, 2025

Agenda

1. Site Background and Phase I ESA Summary
2. Remedial Standards
3. Phase II ESA Findings
4. Planned Future Use
5. Remedial Options
6. EPA Brownfields Grant
7. Costing Variables and Timeline

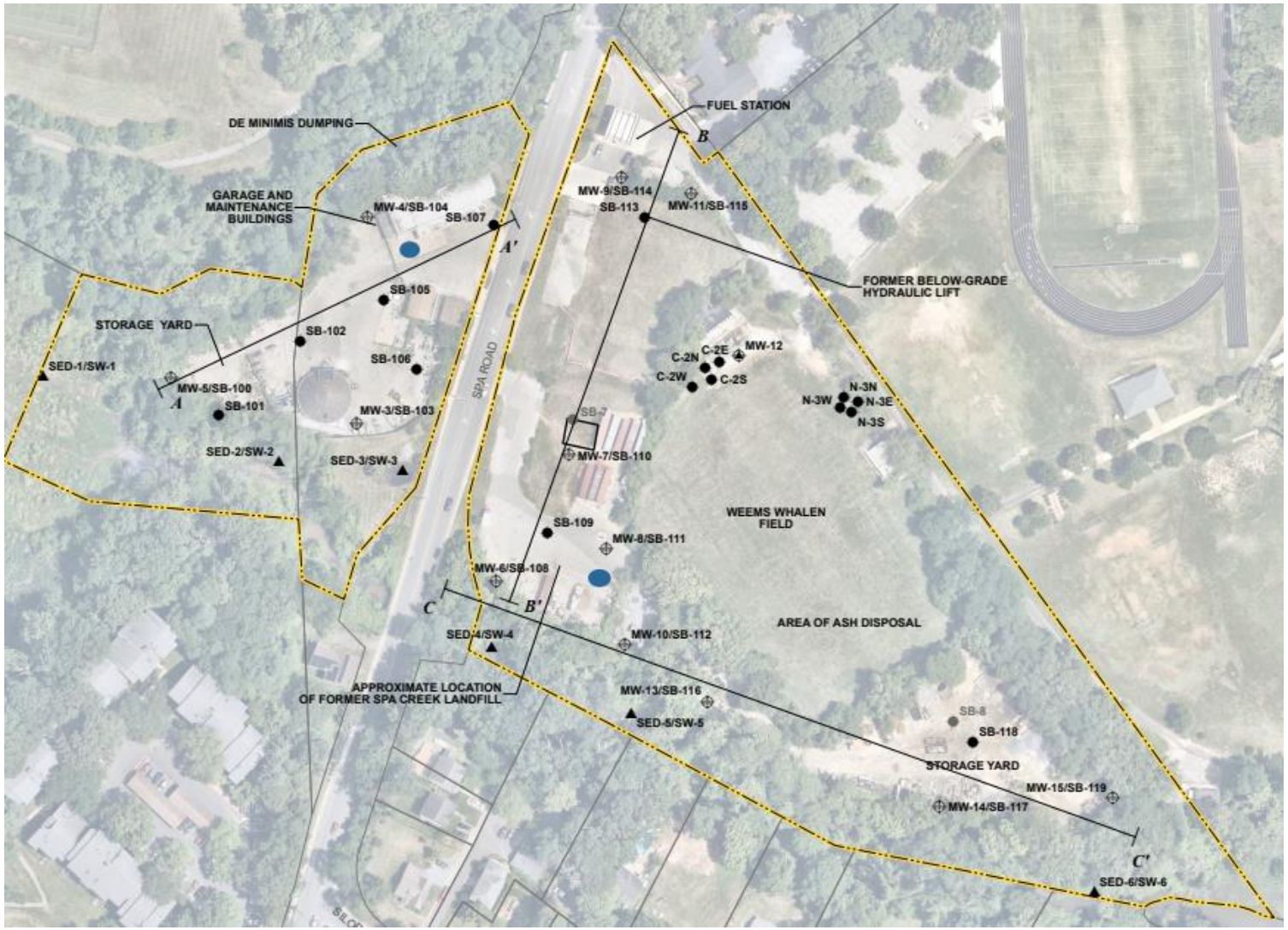
Site Background

- From mid-1910s until 1934, the southwestern corner of the eastern portion of the subject property was used as a landfill.
- In 1934, an incinerator facility was constructed in the vicinity of the former landfill and was in operation until 1949.
- In 1949, the City of Annapolis leased the eastern parcel of the subject property to the Annapolis Athletic Association to develop an athletic field. Weems-Whalen athletic field was completed in 1954 and was in use until approximately 2021.
- The western parcel was undeveloped until approximately 1970 when it was improved with a Department of Public Works automotive garage.
- Automotive garages and offices were present on the eastern portion of the subject property from approximately 1970 until approximately 2018, when the buildings were demolished.

Phase I Environmental Site Assessment, Haley & Aldrich, January 2024

- Completed by Haley & Aldrich for the City of Annapolis Department of Public Works.
- The Phase I ESA identified the following RECs:
  - **REC #1:** Former Landfill and Incinerator Facility with On-Site Disposal
  - **REC #2:** Historical and Current Subject Property Operations
    - Identified areas of concern include:
      - Former and current USTs
      - Former hydraulic lifts
      - Storage yards
      - Oil/water separators

Phase II ESA Sampling Locations



Remedial Standards

- **Soil:**
  - Maryland Department of the Environment (MDE) Residential Cleanup Standards (RCS)
  - Anticipated Typical Concentrations (ATCs) for select metals
- **Groundwater:**
  - MDE Type I and II Aquifer Standards
- **Sediment:**
  - MDE RCS
  - U.S. Environmental Protection Agency (EPA) Regions 3 and 4, Regional Screening Levels, Freshwater Sediment Screening Values (to be incorporated into the Screening Level Ecological Risk Assessment - SLERA)
- **Surface Water:**
  - MDE Type I and II Aquifer Standards
  - Code of Maryland Regulations Water Quality Standards (to be incorporated into the SLERA)
  - EPA Region 3, Regional Screening Levels, Freshwater Screening Benchmarks (to be incorporated into the SLERA)

Phase II ESA Findings - Spa Road

Soil Sampling

Vicinity of the historical landfill and incinerator

- Exceedances of RCS and/or ATCs for select metals and two semi-volatile organic compounds (SVOCs)

Western side (932 Spa Road)

- Exceedances of RCS and/or ATCs for select metals and five SVOCs

Vicinity of the current and former USTs and below-grade lift areas

- Exceedances of RCS for total petroleum hydrocarbons (TPH-DRO/GRO) and two VOCs

Groundwater Sampling

- Exceedances of the MDE Type I and Type II Standard for select metals in total concentrations and manganese in dissolved concentrations.

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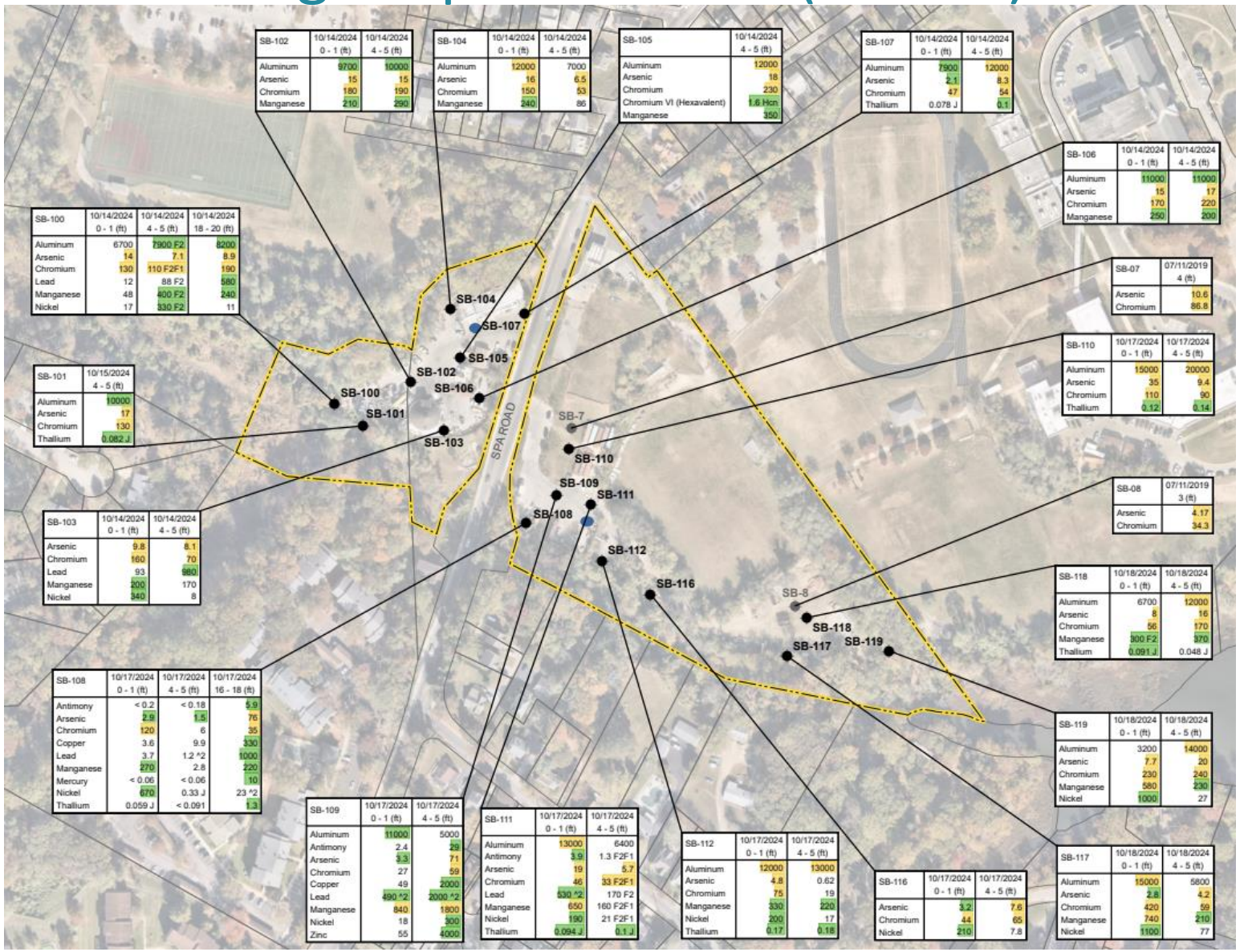
Phase II ESA Findings - Spa Road Soil (Metals)



SB-102	10/14/2024 0 - 1 (ft)	10/14/2024 4 - 5 (ft)
Aluminum	9700	10000
Arsenic	15	15
Chromium	180	190
Manganese	210	290

SB-104	10/14/2024 0 - 1 (ft)	10/14/2024 4 - 5 (ft)
Aluminum	12000	7000
Arsenic	16	6.5
Chromium	150	53
Manganese	240	86

SB-105	10/14/2024 4 - 5 (ft)
Aluminum	12000
Arsenic	18
Chromium	230
Chromium VI (Hexavalent)	1.6 Hcn
Manganese	350

SB-107	10/14/2024 0 - 1 (ft)	10/14/2024 4 - 5 (ft)
Aluminum	7900	12000
Arsenic	2.1	8.3
Chromium	47	54
Thallium	0.078 J	0.1

SB-106	10/14/2024 0 - 1 (ft)	10/14/2024 4 - 5 (ft)
Aluminum	11000	11000
Arsenic	15	17
Chromium	170	220
Manganese	250	200

SB-100	10/14/2024 0 - 1 (ft)	10/14/2024 4 - 5 (ft)	10/14/2024 18 - 20 (ft)
Aluminum	6700	7900 F2	8200
Arsenic	14	7.1	8.9
Chromium	130	110 F2F1	190
Lead	12	88 F2	580
Manganese	48	400 F2	240
Nickel	17	330 F2	11

SB-07	07/11/2019 4 (ft)
Arsenic	10.6
Chromium	86.8

SB-101	10/15/2024 4 - 5 (ft)
Aluminum	10000
Arsenic	17
Chromium	130
Thallium	0.082 J

SB-110	10/17/2024 0 - 1 (ft)	10/17/2024 4 - 5 (ft)
Aluminum	15000	20000
Arsenic	35	9.4
Chromium	110	90
Thallium	0.12	0.14

SB-08	07/11/2019 3 (ft)
Arsenic	4.17
Chromium	34.3

SB-103	10/14/2024 0 - 1 (ft)	10/14/2024 4 - 5 (ft)
Arsenic	9.8	8.1
Chromium	160	70
Lead	93	980
Manganese	200	170
Nickel	340	8

SB-118	10/18/2024 0 - 1 (ft)	10/18/2024 4 - 5 (ft)
Aluminum	6700	12000
Arsenic	8	16
Chromium	56	170
Manganese	300 F2	370
Thallium	0.091 J	0.048 J

SB-108	10/17/2024 0 - 1 (ft)	10/17/2024 4 - 5 (ft)	10/17/2024 16 - 18 (ft)
Antimony	< 0.2	< 0.18	5.9
Arsenic	2.9	1.5	76
Chromium	120	6	35
Copper	3.6	9.9	330
Lead	3.7	1.2 ^2	1000
Manganese	270	2.8	220
Mercury	< 0.06	< 0.06	10
Nickel	670	0.33 J	23 ^2
Thallium	0.059 J	< 0.091	1.3

SB-119	10/18/2024 0 - 1 (ft)	10/18/2024 4 - 5 (ft)
Aluminum	3200	14000
Arsenic	7.7	20
Chromium	230	240
Manganese	580	230
Nickel	1000	27

SB-109	10/17/2024 0 - 1 (ft)	10/17/2024 4 - 5 (ft)
Aluminum	11000	5000
Antimony	2.4	29
Arsenic	3.3	71
Chromium	27	59
Copper	49	2000
Lead	490 ^2	2000 ^2
Manganese	840	1800
Nickel	18	300
Zinc	55	4000

SB-111	10/17/2024 0 - 1 (ft)	10/17/2024 4 - 5 (ft)
Aluminum	13000	6400
Antimony	3.9	1.3 F2F1
Arsenic	19	5.7
Chromium	46	33 F2F1
Lead	530 ^2	170 F2
Manganese	650	160 F2F1
Nickel	190	21 F2F1
Thallium	0.094 J	0.1 J

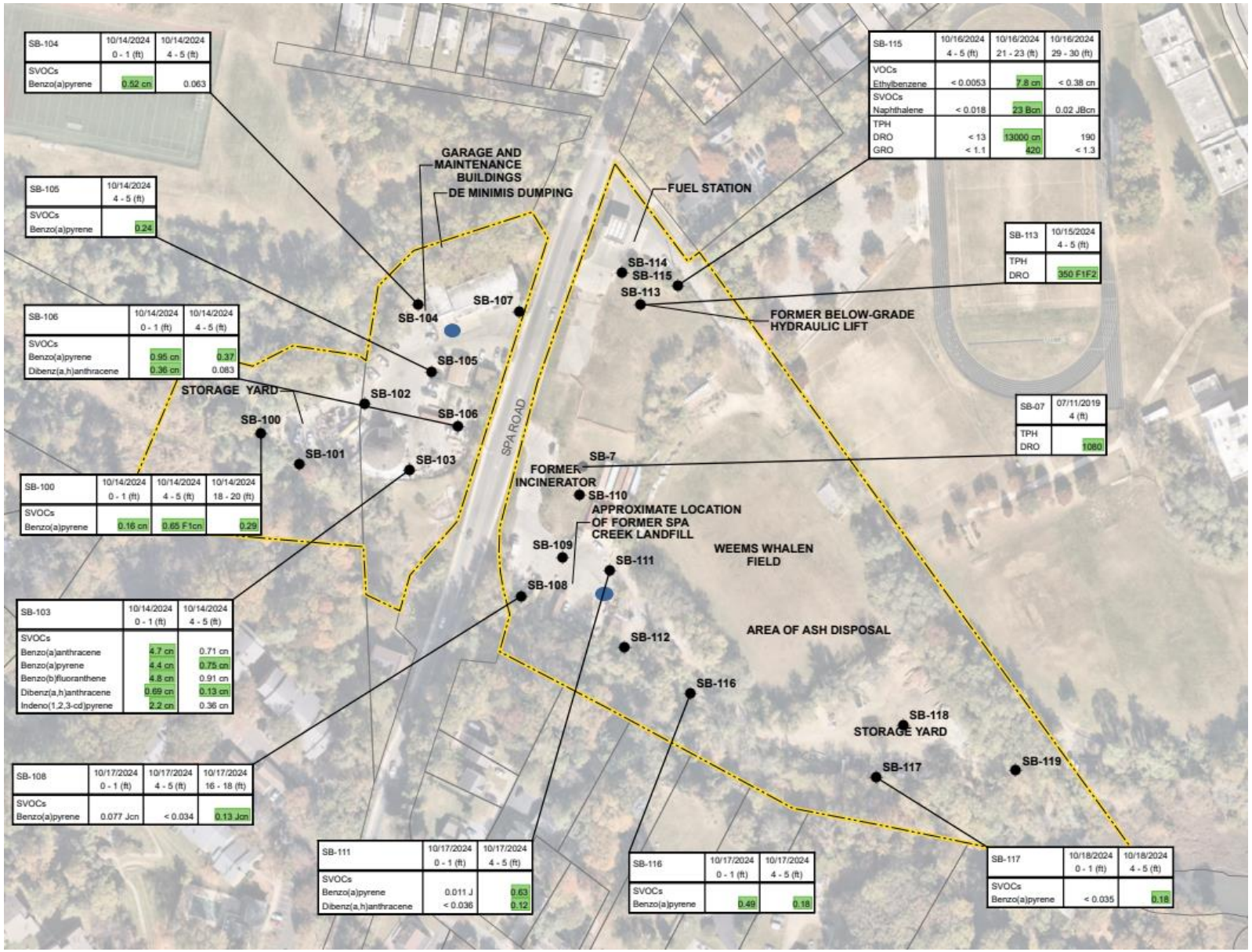
SB-112	10/17/2024 0 - 1 (ft)	10/17/2024 4 - 5 (ft)
Aluminum	12000	13000
Arsenic	4.8	0.62
Chromium	75	19
Manganese	330	220
Nickel	200	17
Thallium	0.17	0.18

SB-116	10/17/2024 0 - 1 (ft)	10/17/2024 4 - 5 (ft)
Arsenic	3.2	7.6
Chromium	44	65
Nickel	210	7.8

SB-117	10/18/2024 0 - 1 (ft)	10/18/2024 4 - 5 (ft)
Aluminum	15000	5800
Arsenic	2.8	4.2
Chromium	420	59
Manganese	740	210
Nickel	1100	77

All results reported in milligrams per kilogram (mg/kg).
Exceedances of the RCS are highlighted in green. Exceedances of the RCS and ATC are highlighted in yellow.

Phase II ESA Findings - Spa Road Soil (VOCs, SVOCs, TPH DRO/GRO)



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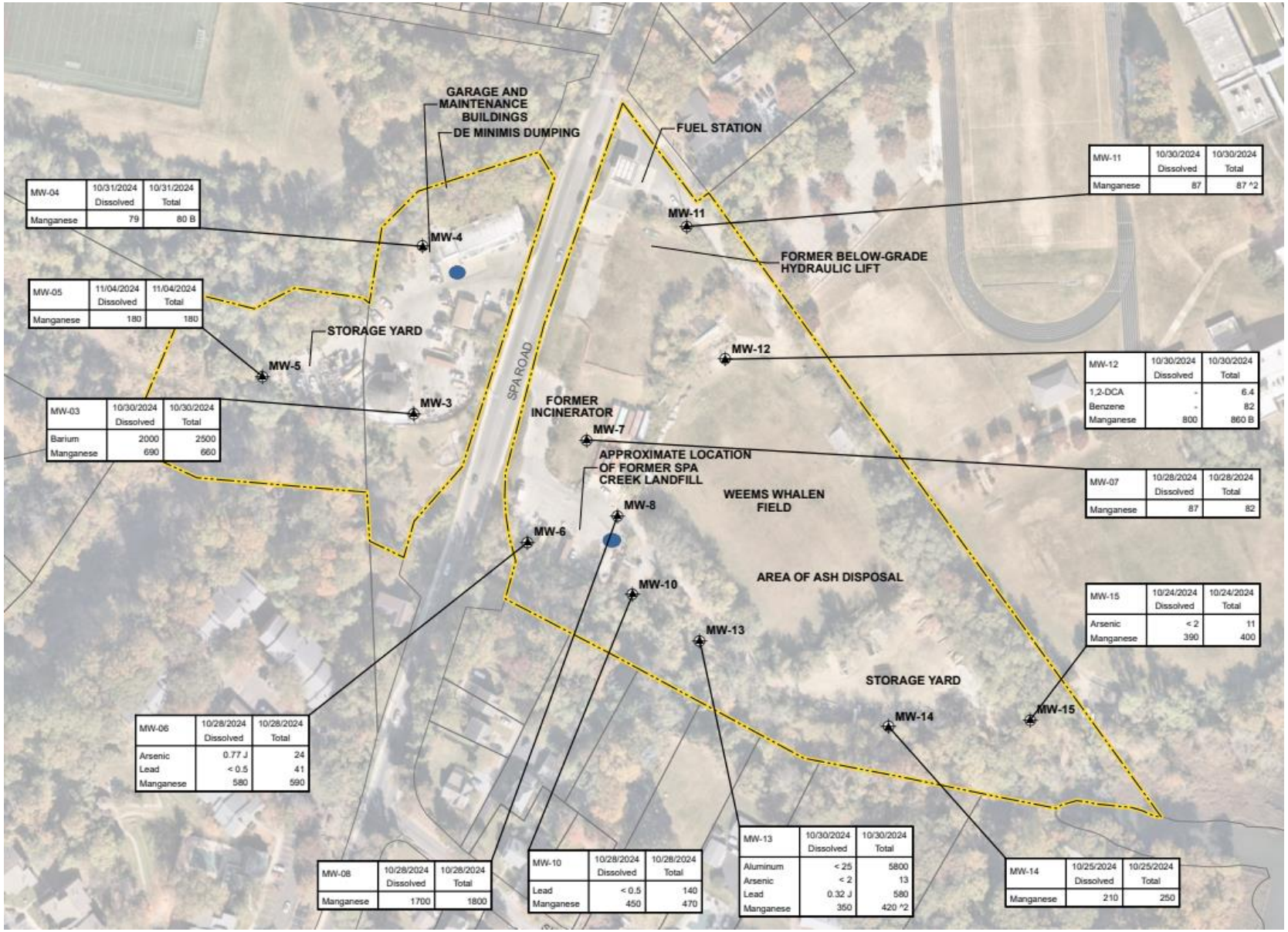
Phase II ESA Findings - Groundwater



MW-04	10/31/2024 Dissolved	10/31/2024 Total
Manganese	79	80 B

MW-05	11/04/2024 Dissolved	11/04/2024 Total
Manganese	180	180

MW-03	10/30/2024 Dissolved	10/30/2024 Total
Barium	2000	2500
Manganese	690	660

MW-06	10/28/2024 Dissolved	10/28/2024 Total
Arsenic	0.77 J	24
Lead	< 0.5	41
Manganese	580	590

MW-08	10/28/2024 Dissolved	10/28/2024 Total
Manganese	1700	1800

MW-10	10/28/2024 Dissolved	10/28/2024 Total
Lead	< 0.5	140
Manganese	450	470

MW-11	10/30/2024 Dissolved	10/30/2024 Total
Manganese	87	87 ^2

MW-12	10/30/2024 Dissolved	10/30/2024 Total
1,2-DCA	-	6.4
Benzene	-	82
Manganese	800	860 B

MW-13	10/30/2024 Dissolved	10/30/2024 Total
Aluminum	< 25	5800
Arsenic	< 2	13
Lead	0.32 J	580
Manganese	350	420 ^2

MW-14	10/25/2024 Dissolved	10/25/2024 Total
Manganese	210	250

MW-15	10/24/2024 Dissolved	10/24/2024 Total
Arsenic	< 2	11
Manganese	390	400

MW-07	10/28/2024 Dissolved	10/28/2024 Total
Manganese	87	82

All results reported in micrograms per liter (µg/L). Exceedances of the Type I & II Aquifer Standards are shown.

Phase II ESA Findings

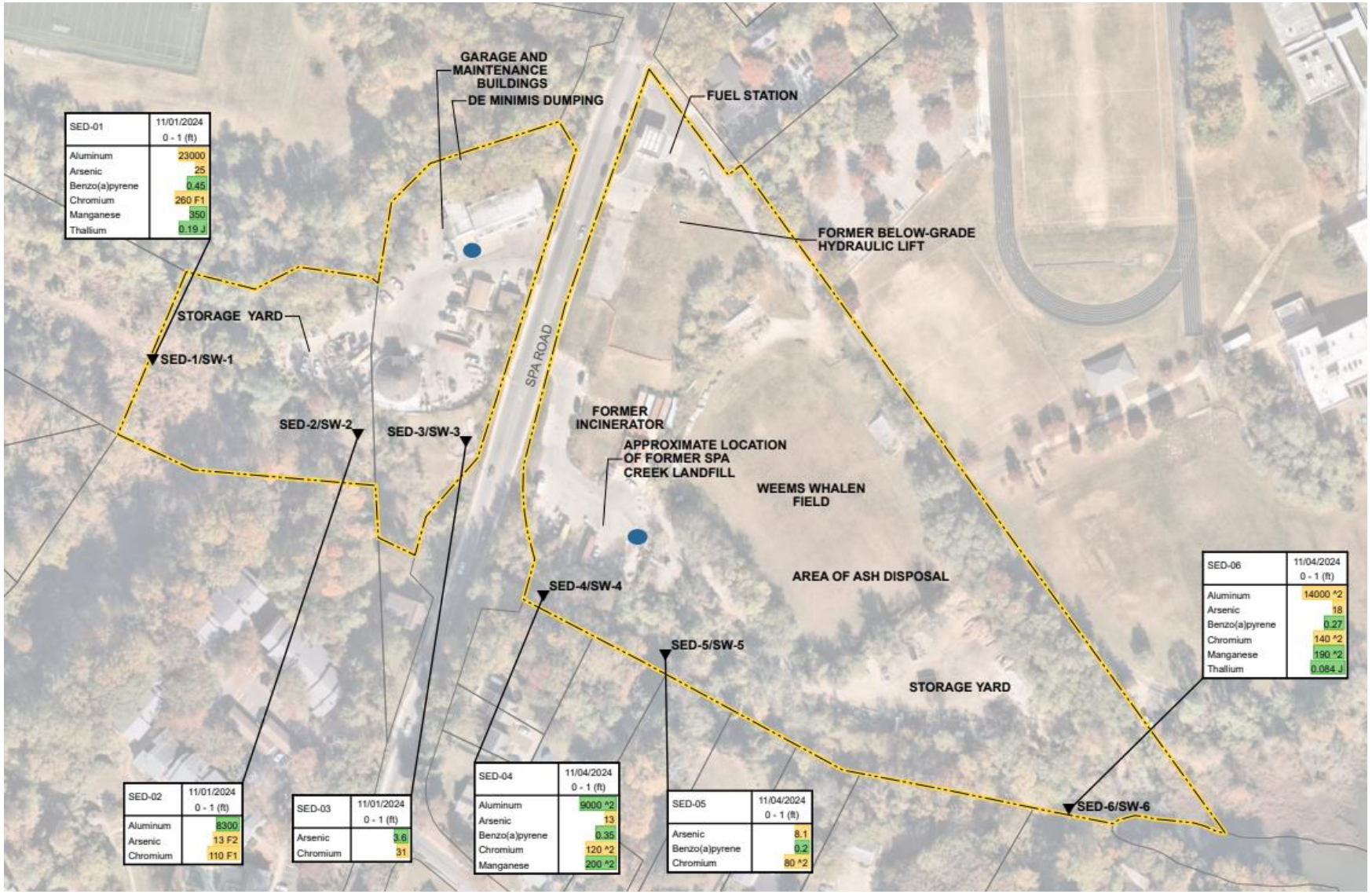
Sediment Sampling

- Exceedances of Ecological Screening Levels for metals and SVOCs.
- Most SVOC exceedances were marginal.

Surface Water Sampling

- Exceedances of Ecological Screening Levels for select metals (dissolved concentrations) and SVOCs.

Phase II ESA Findings - Sediment



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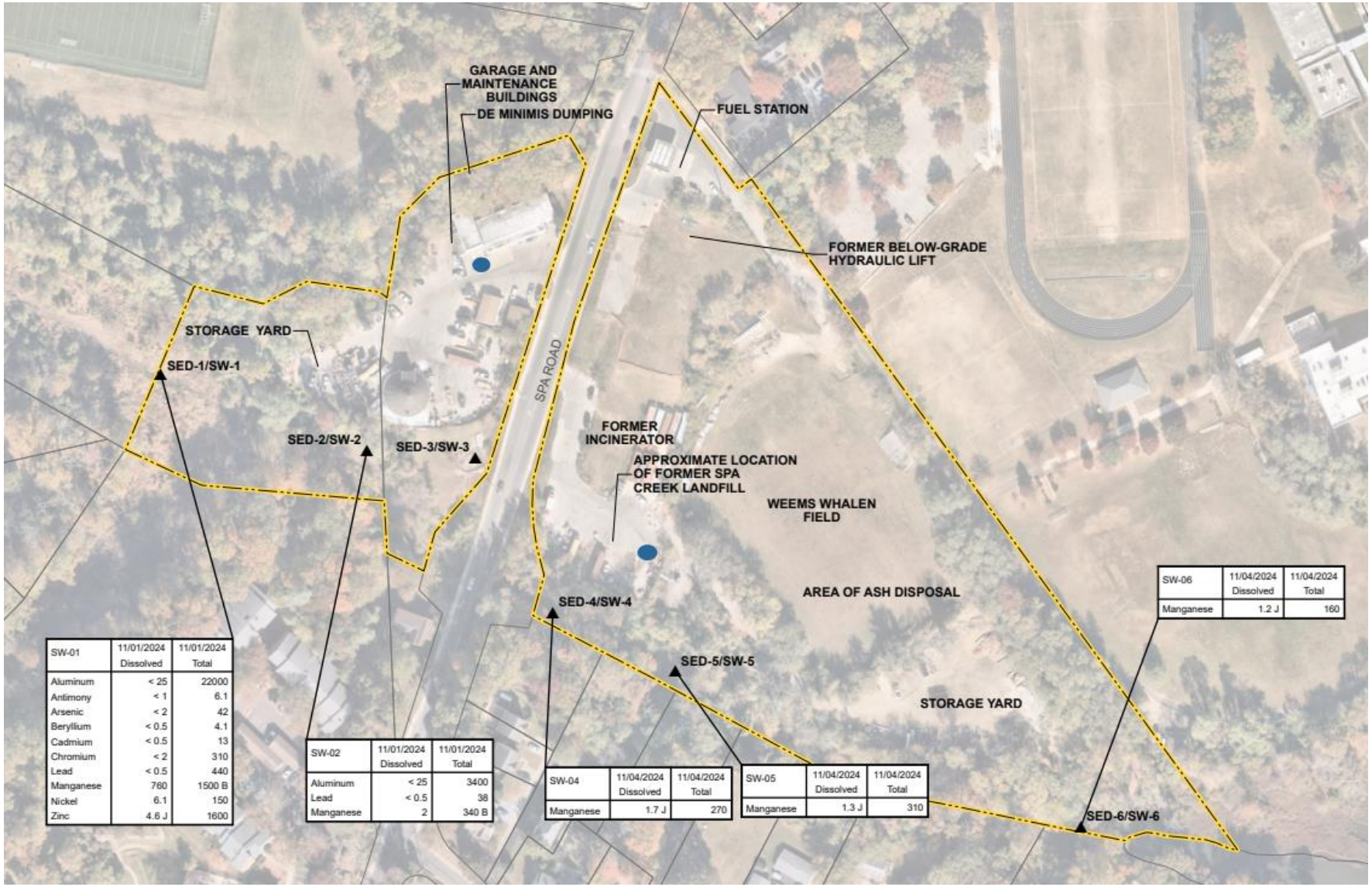
Phase II ESA Findings – Surface Water



SW-01	11/01/2024 Dissolved	11/01/2024 Total
Aluminum	< 25	22000
Antimony	< 1	6.1
Arsenic	< 2	42
Beryllium	< 0.5	4.1
Cadmium	< 0.5	13
Chromium	< 2	310
Lead	< 0.5	440
Manganese	760	1500 B
Nickel	6.1	150
Zinc	4.6 J	1600

SW-02	11/01/2024 Dissolved	11/01/2024 Total
Aluminum	< 25	3400
Lead	< 0.5	38
Manganese	2	340 B

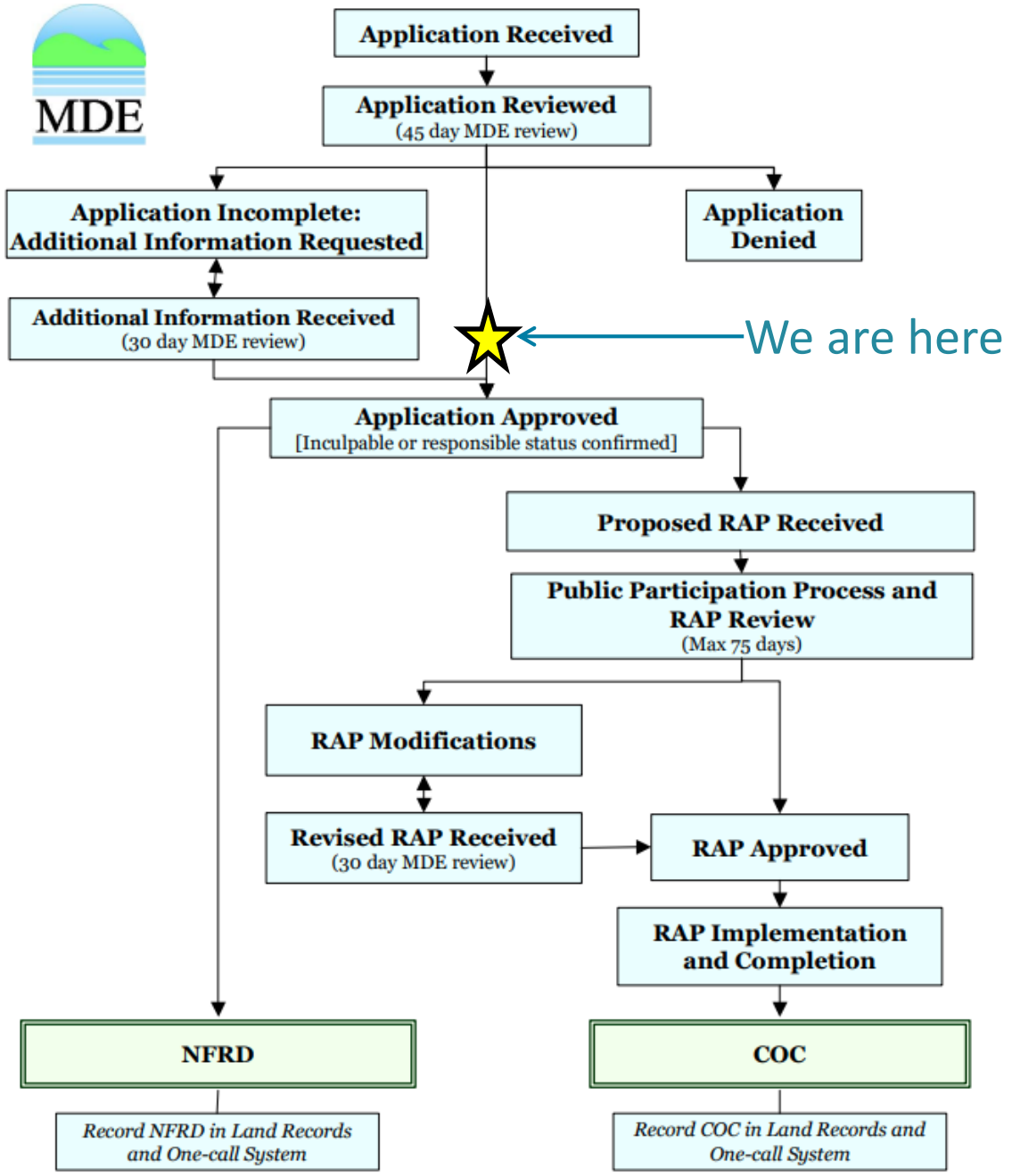
SW-04	11/04/2024 Dissolved	11/04/2024 Total
Manganese	1.7 J	270

SW-05	11/04/2024 Dissolved	11/04/2024 Total
Manganese	1.3 J	310

SW-06	11/04/2024 Dissolved	11/04/2024 Total
Manganese	1.2 J	160

All results reported in micrograms per liter (µg/L). Exceedances of the Type I & II Aquifer Standards are shown.

MDE Regulatory Process



Anticipated Future Use (Preliminary)

Remedial Options

Remediation Types

- Soil Management Plan (SMP) for appropriate soil disposal
- Capping (earthen and asphalt/concrete)
- Hot spot removal
- Vapor barrier beneath all future occupied buildings
- Stream restoration, dependent on additional sediment sampling and results of the Screening-Level Ecological Risk Assessment.

Land Use Controls

- Goal to eliminate pathways to exposure through institutional and engineering controls.
- Groundwater use prohibition.
- Future excavation/intrusive activities to follow site-specific Health and Safety Plan (HASP) and SMP.
- Maintenance of cap, vapor barriers, etc. in the future.

EPA Brownfields Grant

- Subdivide Weems-Whalen Field – City retains ownership and redevelopment.
- Transfer remainder of property for access to EPA Brownfields grant funding.
- Cleanup funding available, potentially up to $4M.
- Notice of Funding Opportunity anticipated in September; application likely due mid-November.
- If awarded, can be used for remediation costs, such as soil disposal, construction of engineered caps and vapor barriers, etc.

Costing Variables and Timeline

- Costing is based on:
  - The final design (area of capping, footprint of buildings, depth of excavations, parking garages)
  - Volume of soil anticipated to be removed
  - Transportation and disposal costs
- Based on the Phase II ESA findings, no active remedial systems are anticipated to be required.
- Input for remedial options in the design phase is critical.
- Timeline of remedy is closely integrated and follows the redevelopment timeline.