



SWL&P MGP SITE Superior, Wisconsin

**GLLA RAOR Monthly Meeting
March 7, 2022**

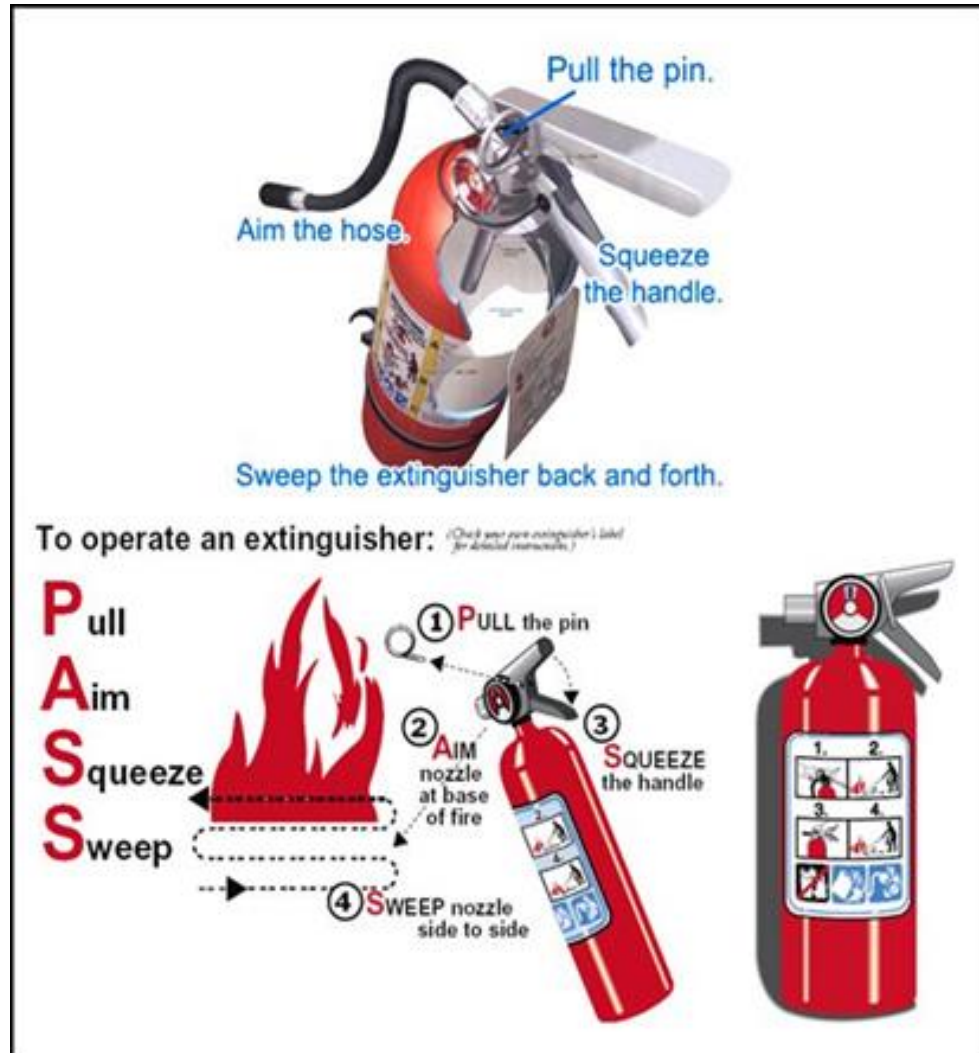


Agenda

No.	Description	Facilitator	Involvement	Duration
1.	Safety	Jill	Information	2 minutes
2.	Appendix B – PDI Memo	Jill	Information	20 minutes
3.	RAOR update	Steve/Jill	Information	20 minutes
4.	Review Schedule	Steve	Information/ Input	5 minutes
5.	Next Steps/Action Items	Steve/All	Input	5 minutes

Safety

Fire Extinguishers



Types of Fire Extinguishers

- ◆ **Class A:** Regular combustibles such as wood, cloth and paper (Think of “A” for leaves and “Ash”)
- ◆ **Class B:** Flammable liquids such as gasoline, oil and certain paints (Think of “B” for comes in a “Barrel or Bottle”)
- ◆ **Class C:** Electrical fire such as over- heating electrical wires (Think of “C” for “Circuit”)
- ◆ **Class D:** Combustible metals such as titanium, sodium or magnesium (Think of “D” for materials that “Dent”)
- ◆ **Class K:** Food products such as certain cooking oils and animal fats (Think of “K” for “Kitchen”)

Types of Fire Extinguishers

National Fire Protection Association (NFPA) requires inspection of your extinguisher every month. During this check visually inspection of the unit, clean, check pull pin as well as provide documentation of the inspection. Annual inspection of each of extinguishers is required by NFPA.

Appendix B – PDI Summary Memo

Pre-Design Investigation

- ◆ SIR approved by WDNR on June 26, 2019
- ◆ PDI Work Plan approval granted April 3, 2020
- ◆ Upland and In-Water Areas to be addressed by independent RAORs
- ◆ Implemented PDI Work Plan June - July 2020
 - Bathymetric Survey completed by Brennan
 - 2 Geotechnical in-water borings
 - 2 Geotechnical upland borings
 - 14 environmental sediment cores, including reoccupation of SW15-SB06

Appendix B – Summary Memo Outline

Memo Narrative

Tables

- ◆ Table B-1 Target vs Actual Sediment Location
- ◆ Table B-2 PDI Sediment Core Collection Table
- ◆ Table B-3 Sediment Physical Result Summary
- ◆ Table B-4 Shoreline and Sediment Probing Investigation
- ◆ Table B-5 Sediment Analytical Results

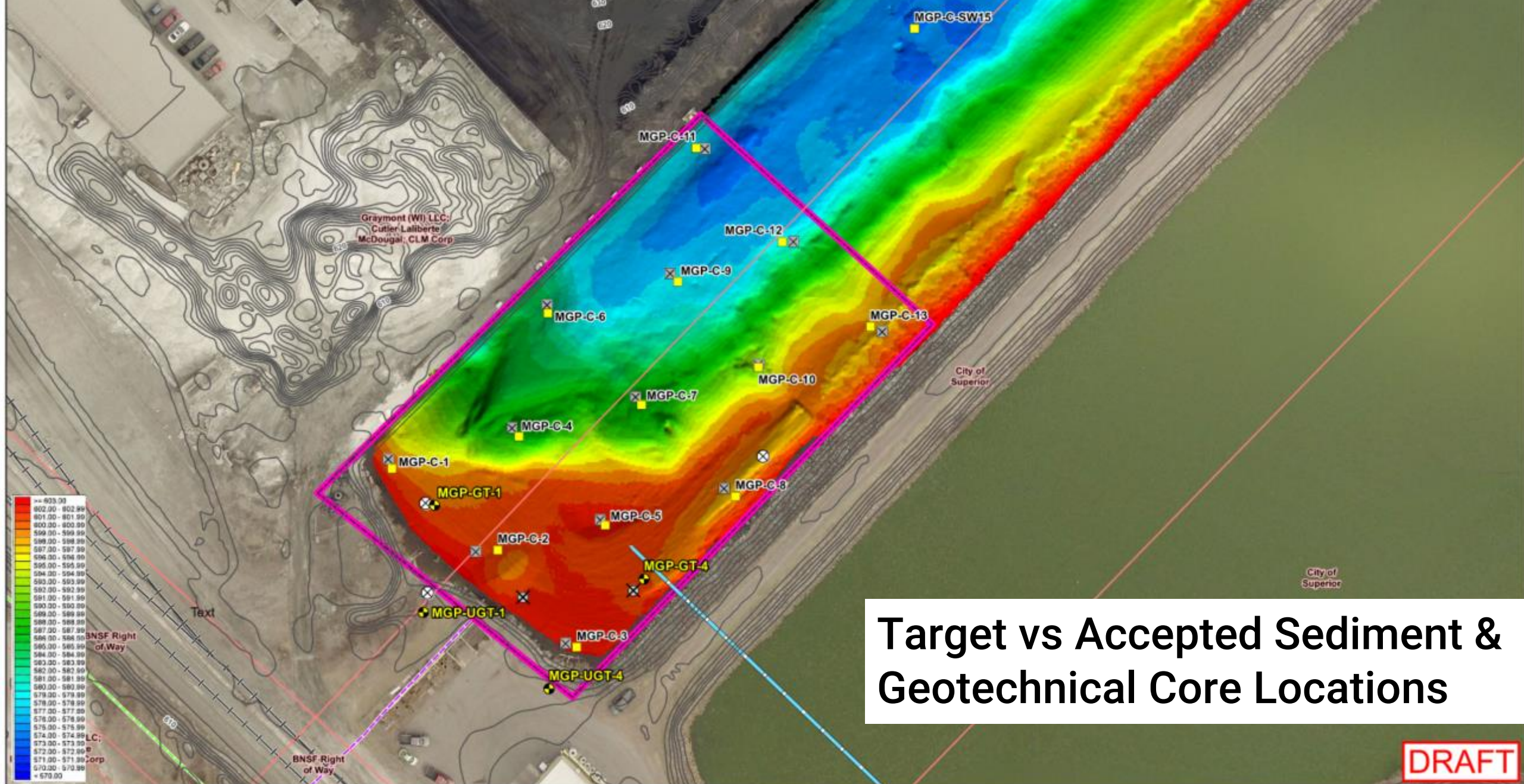
Figures

- ◆ Figure B-1 Target vs Actual Sediment Core Locations
- ◆ Figure B-2 Shoreline Assessment
- ◆ Figure B-3 Total PAH Results

Appendix B – Summary Memo Outline (cont.)

Attachments

- ◆ Appendix B-1 2020 Brennan Bathymetry Report
- ◆ Appendix B-2 PDI Sediment Core gINT Log
- ◆ Appendix B-3 PDI Geotechnical Core gINT Log
- ◆ Appendix B-4 PDI Sediment & Geotechnical Core Photographic Log
- ◆ Appendix B-5 PDI Geotechnical Laboratory Results
- ◆ Appendix B-6 PDI Shoreline Inspection Photographic Log
- ◆ Appendix B-7 PDI Sediment Validation & Lab Report
- ◆ Appendix B-8 PDI Waste Characterization Analytical Report
- ◆ Appendix B-9 PDI Work Plan Modification Letter



Target vs Accepted Sediment & Geotechnical Core Locations

DRAFT

- NOTES:**
1. 2019 - 3" resolution air photo from Douglas County.
 2. Horizontal coordinate system: NAD 1983 Douglas County, units in feet.
 3. 2019 topographic contours from Douglas County.
 4. Bathymetric survey supplied by J.F. Brennan Co., Inc.

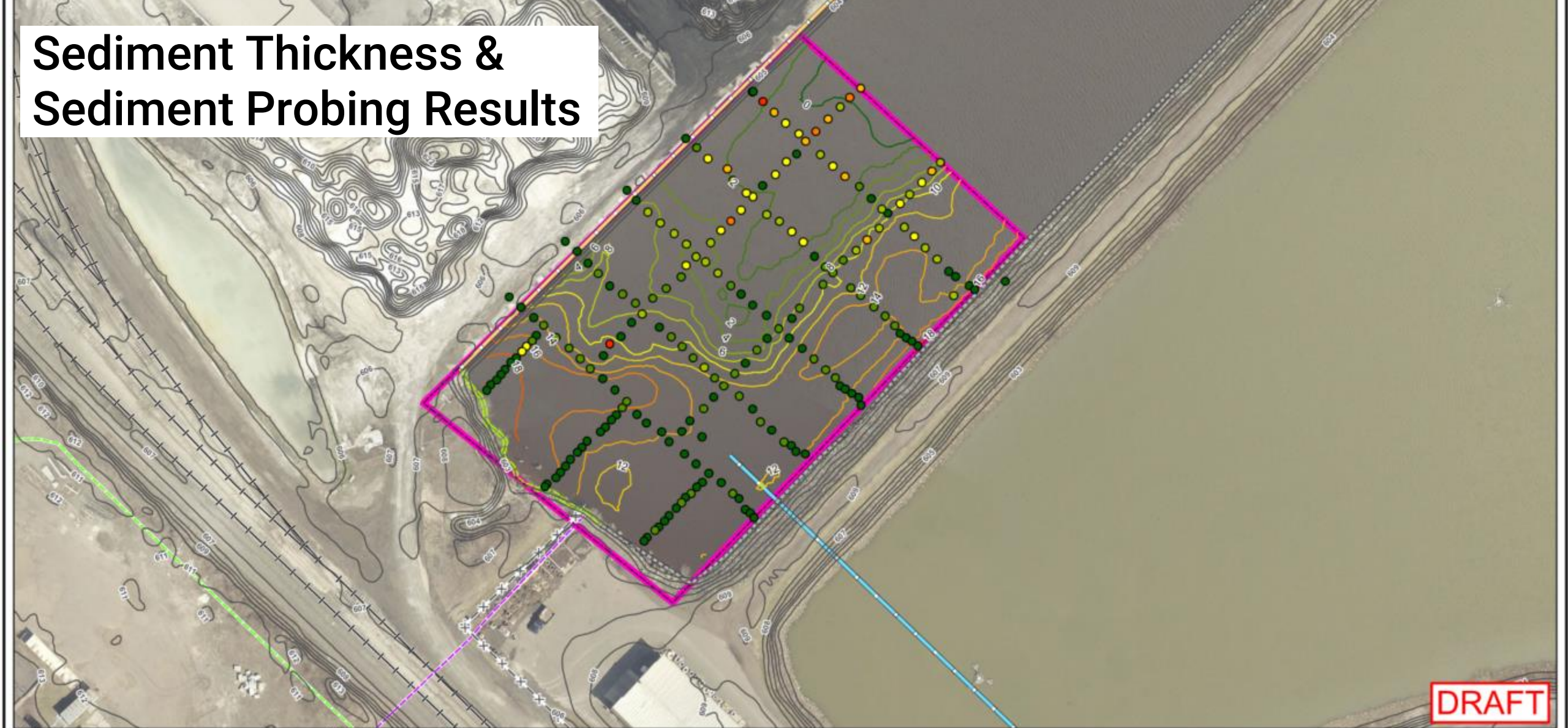
- LEGEND**
- PDI Environmental Sediment Core
 - ⊗ Proposed Environmental Sediment Core
 - ⊗ Proposed Geotechnical Core
 - 1' Topographic Contour
 - 10' Topographic Index Contour
 - CSTP#2 Outfall
 - Railroad
 - Storm Sewer
 - Sanitary Sewer



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FIGURE B-1
TARGET VESUS ACCEPTED SEDIMENT AND GEOTECHNICAL CORE LOCATIONS

Sediment Thickness & Sediment Probing Results

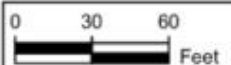


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- NOTES:**
1. 2019 - 3" resolution air photo from Douglas County.
 2. Horizontal coordinate system: NAD 1983 Douglas County, units in feet.
 3. Contours represents sediment thickness between the Top of Miller Creek vs 6-20-2020 bathymetric survey.
 4. 2019 topographic contours from Douglas County.

LEGEND

Total Push Probe Sediment Depth (ft)	Sediment Thickness (ft) ³				
● 0 - 1	— 0	— 10	✕ — Fenceline	— 1' Topographic Contour	
● 1 - 2	— 2	— 12	▣ Rip-Rap	— 10' Topographic Index Contour	
● 2 - 3	— 4	— 14	— Shoreline Wall	— Railroad	
● 3 - 4	— 6	— 16	— Vegetation and Debris	— CSTP#2 Outfall	
● 4 - 5	— 8	— 18	— Storm Sewer	— Approximate Sediment Boundary	
● 5 - 6		— 20	— Sanitary Sewer		
● 6 - 7					



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FIGURE B-2
 SEDIMENT THICKNESS, SEDIMENT PROBING RESULTS,
 AND SHORELINE ASSESSMENT
 SEDIMENT REMEDIAL ACTION OPTIONS REPORT
 SUPERIOR, WISCONSIN

Date: FEBRUARY 2022	Revision Date:
Drawn By: DAT	Checked By: ECH1
Project: 18S024	

This drawing is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only.

Total PAH

Sample Interval (ft bml)		Total PAH (mg/kg)
C-9		
0	1	4.68
1	2	11.5
2	3	0.050
3	3.6	Archived
5	6	Archived
6	7	Archived
7	7.4	Archived

Sample Interval (ft bml)		Total PAH (mg/kg)
C-6		
0	1	6.35
1	2	22.0
2	3	12.0
3	3.8	50.0
5	6	0.042
6	7	9.01
7	8	0.626
10	11	Archived

Sample Interval (ft bml)		Total PAH (mg/kg)
C-4		
0	1	126
1	2	29.6
2	3	30.0
5	6	43.8
6	7	49.2
7	7.8	3.85
10	10.8	6.74
10.8	11.4	0.735
11.4	12.4	0.091
12.4	13.4	0.026

Sample Interval (ft bml)		Total PAH (mg/kg)
C-1		
0	1	10.2
1	2	250
2	3	73.6
3	3.5	44.2
5	6	44.2
6	7	34.9
7	8.3	67.7
10	11	53.0
11	12	70.4
12	13	11.7
13	13.8	0.318
15	16	0.054
16.5	17.5	< 0.028
17.5	18.5	< 0.028
20	21	0.032
21	22	Archived

Sample Interval (ft bml)		Total PAH (mg/kg)
C-2		
0	1	10.7
1	2	0.066
2	3	20.7
3	3.6	30.5
5	6	148
6	7	5.03
7	8	0.159
8	8.7	0.134
10	11	0.037
11	12	< 0.024
12	13.2	< 0.024
13.2	13.5	< 0.028
15	16	Archived
16	17	Archived

Sample Interval (ft bml)		Total PAH (mg/kg)
C-3		
0	1	32.4
1	2	63.4
2	3	168
3	4	0.144
5	6	0.077
6	7	0.039
7	8	0.053
8	9	0.187
10	11	0.034
11	11.8	0.044
11.8	12.8	< 0.025
12.8	13.8	< 0.031
13.8	14.8	Archived

Sample Interval (ft bml)		Total PAH (mg/kg)
C-11		
0	1	2.74
1	2	7.98
2	3	0.163

Sample Interval (ft bml)		Total PAH (mg/kg)
C-12		
0	0.65	6.51
0.65	1.65	2.89
1.65	2.4	< 0.027

Sample Interval (ft bml)		Total PAH (mg/kg)
C-5		
0	1	3.45
1	2	3.38
2	3	8.42
3	3.7	0.048
5	6	< 0.028
6	7	< 0.024
7	8	< 0.025
8	9	< 0.025
10	11.3	0.038
11.3	12.3	< 0.026
12.3	13.3	0.157
13.3	14.3	0.041
15	16	Archived

Sample Interval (ft bml)		Total PAH (mg/kg)
GT-1		
6	7	0.850

Sample Interval (ft bml)		Total PAH (mg/kg)
GT-4		
12	13.5	0.075

Sample Interval (ft bml)		Total PAH (mg/kg)
C-8		
0	1	3.60
1	2	0.839
2	2.4	11.1
5	6	6.25
6	7	5.30
7	8	8.34
8	8.9	3.31
10	11.3	0.166
11.3	12.3	0.254
12.3	13.3	0.073
13.3	13.9	Archived
15	16	Archived
16	17	Archived

Sample Interval (ft bml)		Total PAH (mg/kg)
C-10		
0	1	0.071
1	2	< 0.032
2	3	0.078
3	3.8	0.048
5	6	< 0.029
6	7	< 0.032
7	8	0.039
8	8.4	< 0.026
10	10.8	0.028
10.8	11.8	< 0.028
11.8	12.8	Archived

Sample Interval (ft bml)		Total PAH (mg/kg)
C-7		
0	0.2	2.47
0.2	0.85	0.094
0.85	1.85	0.071
1.85	2.85	Archived
2.85	3.5	Archived
5	6	Archived
6	7	Archived

Sample Interval (ft bml)		Total PAH (mg/kg)
C-13		
0	1	7.44
1	2	1.22
2	2.8	0.160
5	6	0.078
6	7	0.053
7	8	0.038
8	9	0.195
10	11	0.035
11	12	0.038
12	13	0.031
13	14	N/A

Sample Interval (ft bml)		Total PAH (mg/kg)
C-SW15		
0	1	5.60
1	1.6	Archived
1.6	2.6	6.93
2.6	3.5	0.045
5	6	0.027

Orange shaded cells represent sediment samples with results above the MEC (12,205 mg/kg).
 Reddish shaded cells represent samples collected within the Miller Creek Clay Unit.

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NOTES:
 1. 2018, 31 resolution air photo from Douglas County

LEGEND

UTILITIES

S.W.P.

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Appendix B – Summary Memo Outline - Conclusions

- ◆ The highest tPAH concentration of 250 mg/kg was detected in sample MGP-C-1 within the 1 to 2 feet interval bml.
- ◆ The deepest tPAH concentration > MEC (70.4 mg/kg) was found at MGP-C-1 within the 11 to 12 feet interval bml.
- ◆ PAH impacts were not found in the Miller Creek Formation nor in the several intervals above the Miller Creek Formation.
- ◆ 8 of 13 core locations showed no intervals of tPAH concentrations above the MEC: MGP-C-5, MGP-C-7, MGP-C-8, MGP-C-9, MGP-C-10, MGP-C-11, MGP-C-12, and MGP-C-13.
- ◆ Reoccupation of SW15-SB06 found no tPAH concentration above the MEC.
- ◆ Confirmed the mudline elevation from the bathymetric survey supporting the spatial interpolation model.
- ◆ Determined geotechnical conditions in the boat slip critical for maintaining stability of existing structures and shoreline.
 - Laboratory testing for geotechnical parameters are underway.

RAOR Update

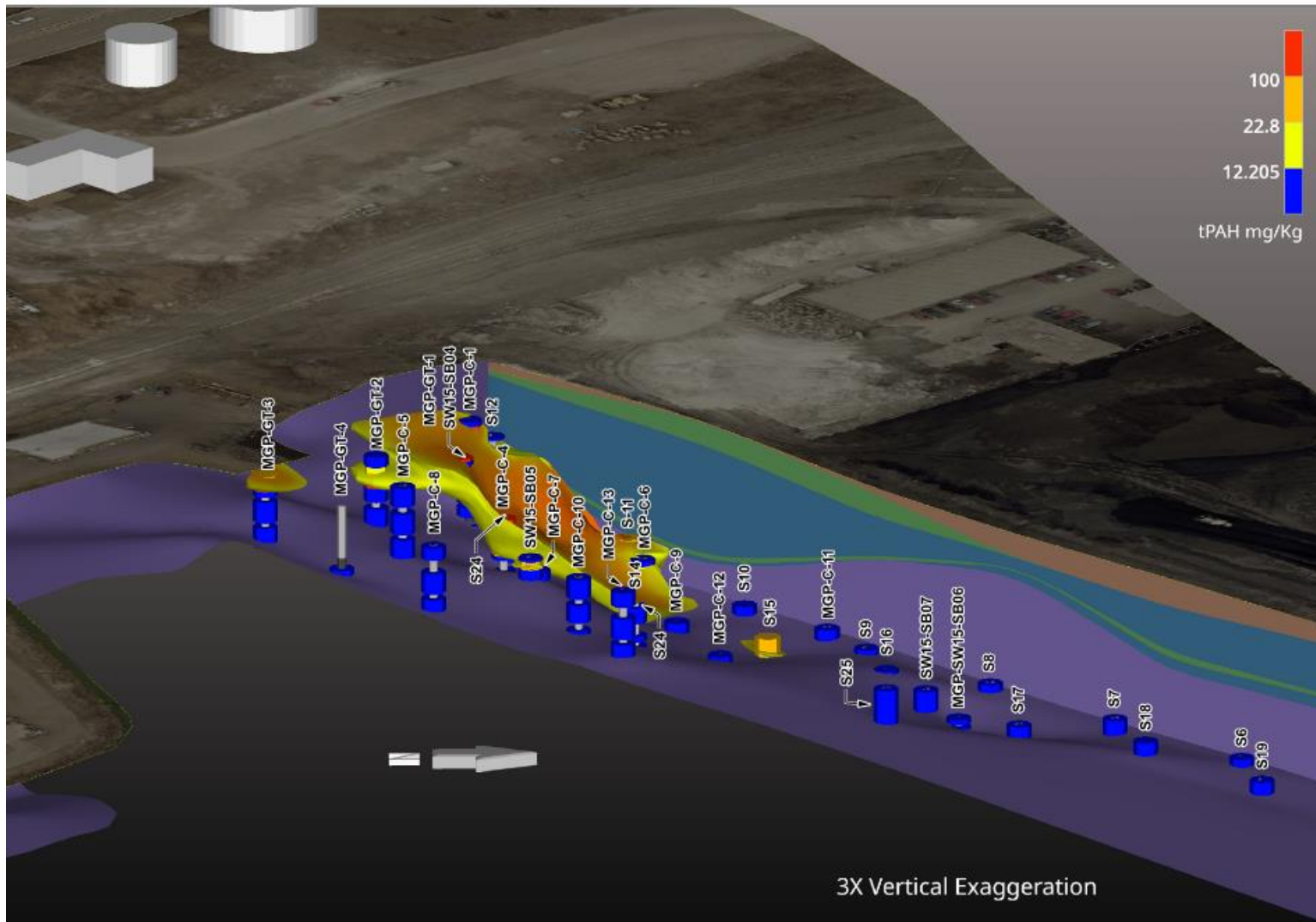
Site Specific Remedial Action Objectives (RAOs)

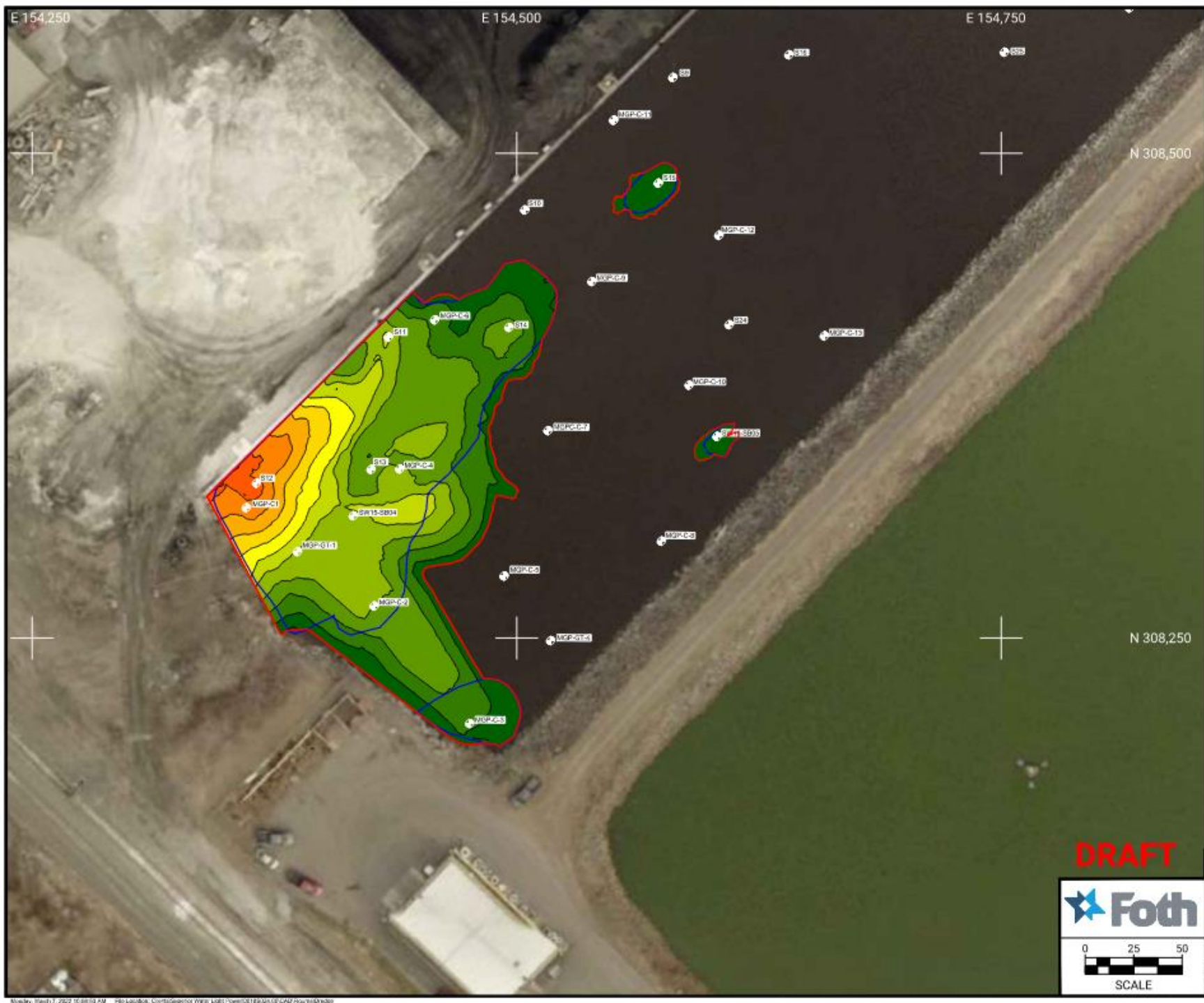
- ◆ RAO 1 – Reduce the PAH concentrations in sediment to protect aquatic receptors from exposure to Site-related PAH.
- ◆ RAO 2 – Reduce the potential for contaminated sediment within the Site to act as a source contamination outside the boat slip to support the delisting of the St. Louis Estuary AOC.

Selection of Cleanup Values

- ◆ Considered:
 - CBSQGs- TEC, MEC, PEC
 - Precedents at sites in St. Louis River AOC
 - Precedents at sites in Wisconsin and other Great Lakes States
 - Expected continuing industrial waterway use and discharges
- ◆ Discussed tPAH PEC of 22.8 mg/kg vs. MEC of 12.2 mg/kg
- ◆ Delineation revealed little difference in remedial footprint
- ◆ SIR Approval Letter established use of MEC (June 2019)
- ◆ Remedial area delineated using Cleanup Value = 12.2 mg/kg tPAH

Updated tPAH Results





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- MODELED DELINEATED EXTENT OF REMOVAL AREA
- DESIGN DREDGE LIMITS
- S24 EVS MODEL SAMPLE LOCATION

ISOPACH COLORS

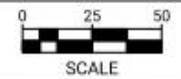
ISOPACH MAP REPRESENTS DIFFERENCE BETWEEN JUNE 8, 2020 BATHYMETRIC SURVEY AND DESIGN DREDGE ELEVATIONS

- 0' - 2' DREDGE CUT
- 2' - 4' DREDGE CUT
- 4' - 6' DREDGE CUT
- 6' - 8' DREDGE CUT
- 8' - 10' DREDGE CUT
- 10' - 12' DREDGE CUT
- 12' - 14' DREDGE CUT
- 14' - 16' DREDGE CUT
- 16' - 18' DREDGE CUT
- 18' - 20' DREDGE CUT
- 20' - 22' DREDGE CUT

NOTES:

1. EXISTING AERIAL FROM 2016
3" RESOLUTION AIR PHOTO FROM DOUGLAS COUNTY.
2. HORIZONTAL COORDINATE SYSTEM IS NAD 88 DOUGLAS COUNTY, UNITS IN SURVEY FEET. VERTICAL ELEVATIONS REFERENCED TO IGLD85.

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FIGURE 2-10
SEDIMENT DREDGE ISOPACH MAP
SEDIMENT REMEDIAL ACTION OPTIONS REPORT
SUPERIOR, WISCONSIN

Date Completed: MARCH, 2022	Revision Date:
Drawn By: JRB2	Checked By: JAD
Project No: 018S024	

Technology Screening & Remedial Options

List of Possible Technologies

- ◆ No Action
- ◆ Monitored Natural Recovery (MNR)
- ◆ Sediment Removal
 - Dredging
 - Dewatering
 - Off-site disposal
- ◆ Sediment Containment
- ◆ In-situ treatment
- ◆ Ex-situ treatment
- ◆ Thermal Treatment
- ◆ Activity Use Limitations (AUL)

Remedial Options Evaluated

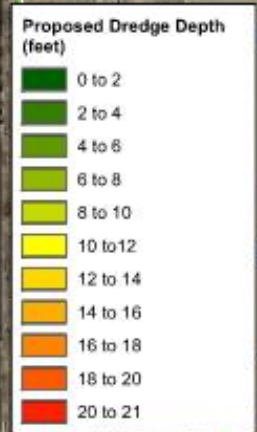
Remedial Option B

- Mechanical Dredging of target area where total PAH concentration exceed the MEC of 12.2 mg/kg.
- Approximate volume of sediment removed is 6,000 cy.
- Installation of a vertical sheet pile at the back of the boat slip so that sediment in front of the wall can be removed

Remedial Option C

- Mechanical Dredging of target area where total PAH concentration exceed the MEC of 12.2 mg/kg.
- Approximate volume of sediment removed is 5,300 cy.
- Capping along the back end of the boat slip, approximately 700 cy of impacted sediment would remain in place

Remedial Option B



NOTES:
 1. 2019 - 3" resolution air photo from Douglas County.
 2. Utility data from City of Superior, 2016.
 3. Horizontal coordinate system: NAD 1983 Douglas County, units in feet.

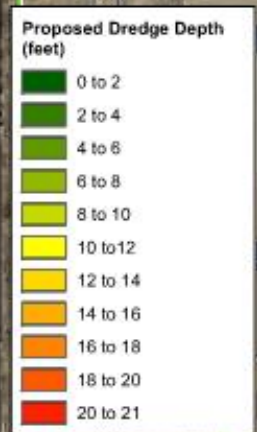
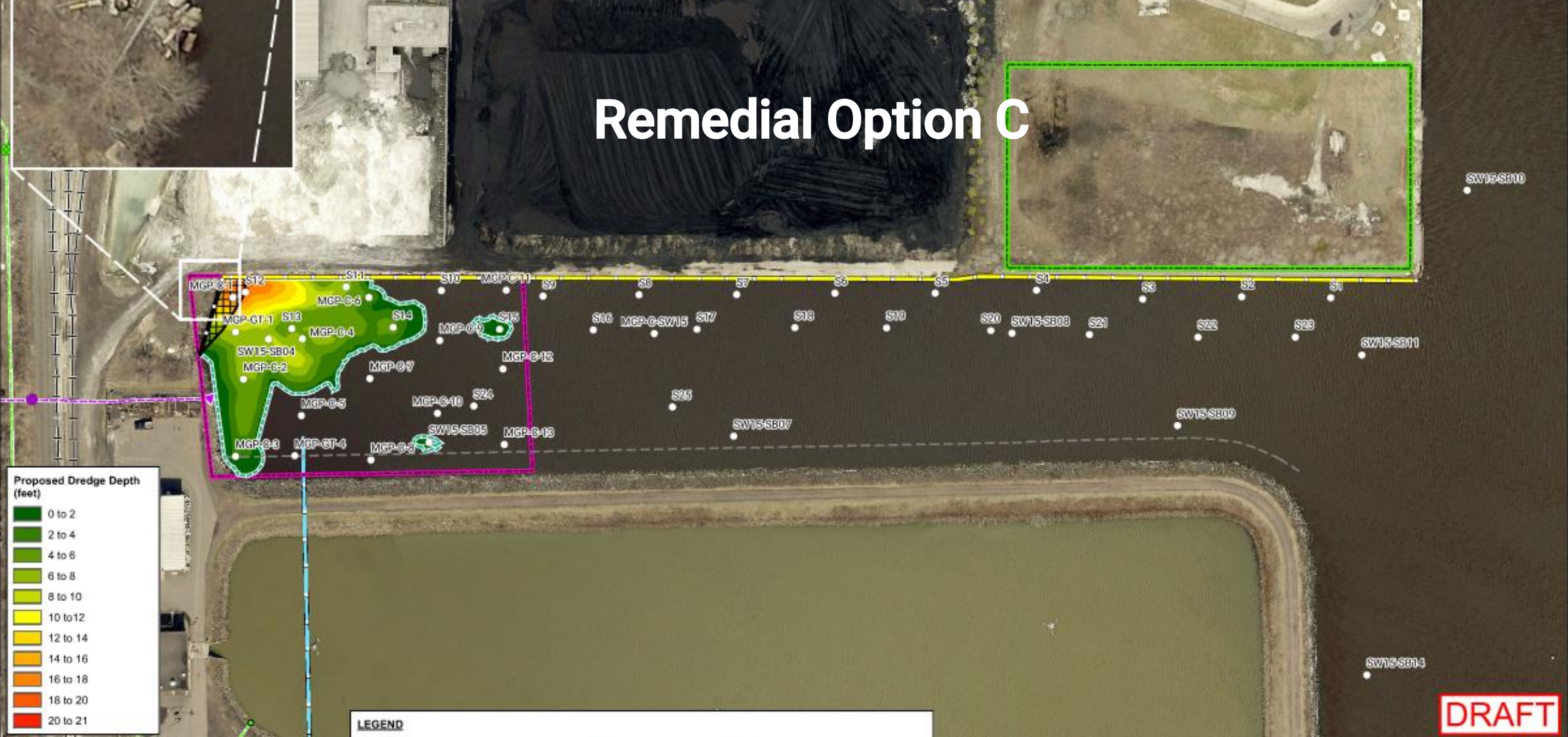
LEGEND			
	Sediment Sample Location within EVS Model		Diversion Chamber
	Proposed Dredge Limits		Manhole
	Existing Graymont Wall		Outfall
	Proposed Sheetpile Wall		Treatment Facility
	Toe of WWTP Berm		Manhole
			Outfall
			Storm Sewer
			Sanitary Sewer
			Railroad
			Discharge Pipe
			Dredged Material Staging Area
			Approximate Sediment Boundary

SW&P
Foth

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FIGURE 4-1		
REMEDIAL ACTION OPTION B - DREDGE AND OFFSITE DISPOSAL WITH SHEETPILE WALL		
SEDIMENT REMEDIAL ACTION OPTIONS REPORT		
SUPERIOR, WISCONSIN		
Date: FEBRUARY 2022	Revision Date:	
Drawn By: DAT	Checked By: ECH1	Project: 18S024

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Remedial Option C



NOTES:
 1. 2019 - 3" resolution air photo from Douglas County.
 2. Utility data from City of Superior, 2016.
 3. Horizontal coordinate system: NAD 1983 Douglas County, units in feet.

LEGEND			
	Sediment Sample Location within EVS Model		Storm Sewer
	Proposed Dredge Limits		Sanitary Sewer
	Existing Graymont Wall		Railroad
	Proposed Sheetpile Wall		Discharge Pipe
	Toe of WWTP Berm		Dredged Material Staging Area
	Diversion Chamber		Cap Limits
	Manhole		Approximate Sediment Boundary
	Outfall		
	Treatment Facility		
	Manhole		
	Outfall		



SUPERIOR WATER, LIGHT & POWER		
FIGURE 4-2		
REMEDIAL ACTION OPTION C - TARGET DREDGING/CAPPING AND OFFSITE DISPOSAL SEDIMENT REMEDIAL ACTION OPTIONS REPORT SUPERIOR, WISCONSIN		
Date: FEBRUARY 2022	Revision Date:	
Drawn By: DAT	Checked By: ECH1	Project: 18S024

Review Schedule

In-Water Review Schedule

April 4, 2022	Target date for start of Agency review of Draft RAOR
April 25, 2022	Comments received
May 9, 2022	Final RAOR Submitted for Approval
May 23, 2022	RAOR approval

Next Steps

Next Steps

- ◆ April meeting
 - Detailed discussion of RAOR- workshop?

- ◆ Feedback needed
 - Appendix B – PDI Summary

- ◆ Web portal is set up- emails with instructions sent