



Indiana Department of Environmental Management

Office of Water Quality

Waterways Section

Publication Date:
June 19, 2026

IDEM Permit Number:
WQC001483

PUBLIC NOTICE

Closing Date:
July 10, 2026

Corps of Engineers ID Number:
LRC-2022-00462

To all interested parties:

This letter shall serve as a formal notice of the receipt of an application for Section 401 Water Quality Certification by the Indiana Department of Environmental Management (IDEM). The purpose of the notice is to inform the public of active applications submitted for water quality certification under Section 401 of the Clean Water Act (33 U.S.C. § 1341) and to solicit comments and information on any impacts to water quality related to the proposed project. IDEM will evaluate whether the project complies with Indiana's water quality standards as set forth at 327 IAC 2.

- | | | | |
|---------------------------------|--|------------------|--|
| 1. Applicant: | John Fekete
East Chicago Waterway Management District
4444 Railroad Avenue
East Chicago, IN, 46312 | 2. Agent: | Carol Nissen
Tetra Tech, Inc.
1 South Wacker Drive
Chicago, IL, 60606 |
| 3. Project Location: | The Grand Calumet River (GCR) and Indiana Harbor Canal (IHC) between Kennedy Avenue and Indianapolis Avenue
East Chicago, IN, 46312
Latitude: 41.6177
Longitude: -87.4710 | | |
| 4. Affected Waterbodies: | The Grand Calumet River and the Indiana Harbor Canal
Junction Marsh – 20.8-acre emergent wetland
Wetland 3 – 1.5-acre emergent wetland | | |
| 5. Project Description: | The primary purpose of the project is to remove contaminated sediments from the Grand Calumet River (GCR), the Indiana Harbor Canal (IHC), and Junction Marsh (Marsh) providing improved habitat and aesthetics in a mixed-use corridor. The proposed project will also address the lack of suitable benthic habitat and poor substrate conditions in the river and adjacent wetlands through shallow dredging and capping. The GCR and IHC will be dredged and capped using clean active cap materials (organoclay mixed with granular material). The wetland shelf north of the GCR (wetland 3) will be restored with a sediment cap and a mix of seed and plantings. The proposed project includes invasive species treatment of the Marsh. The Marsh will be excavated and submergent plugs will be planted. For additional information visit the Regulatory ePortal at: https://waterquality.idem.in.gov | | |

Comment Period: Any person or entity who wishes to submit comments or information relevant to the aforementioned project may do so by the closing date noted above. Only comments or information related to water quality or potential impacts of the project on water quality can be considered by IDEM in the water quality certification review process.

Public Hearing: Any person may submit a written request that a public hearing be held to consider issues related to water quality in connection with the project detailed in this notice. The request for a hearing should be submitted within the comment period to be considered timely. The request should also state the reason for the public hearing as specifically as possible to assist IDEM in determining whether a public hearing is warranted.

Questions? Submit requests for additional information and written comments to WaterwaysComments@idem.IN.gov In the subject line of the email, please include the IDEM ID Number listed in the top right corner of the first page of this public notice. Indicate if you wish to receive a copy of IDEM's final decision. Comments and inquiries may also be forwarded to -

Office of Water Quality
Indiana Department of Environmental Management
100 North Senate Avenue, IGCN 1255
Indianapolis, Indiana 46204-2251

NOTES:

1. PROJECT LIMITS INCLUDE THE CITY OF EAST CHICAGO.
2. PROJECT TO BE COMPLETED IN PHASES.

LEGEND

	CAP ONLY
	DREDGE AND CAP
	EXCAVATE AND BACKFILL
	CONTRACTOR AREAS
	RIVER AND CANAL ACCESS - CRANE DEPLOYMENT REQUIRED

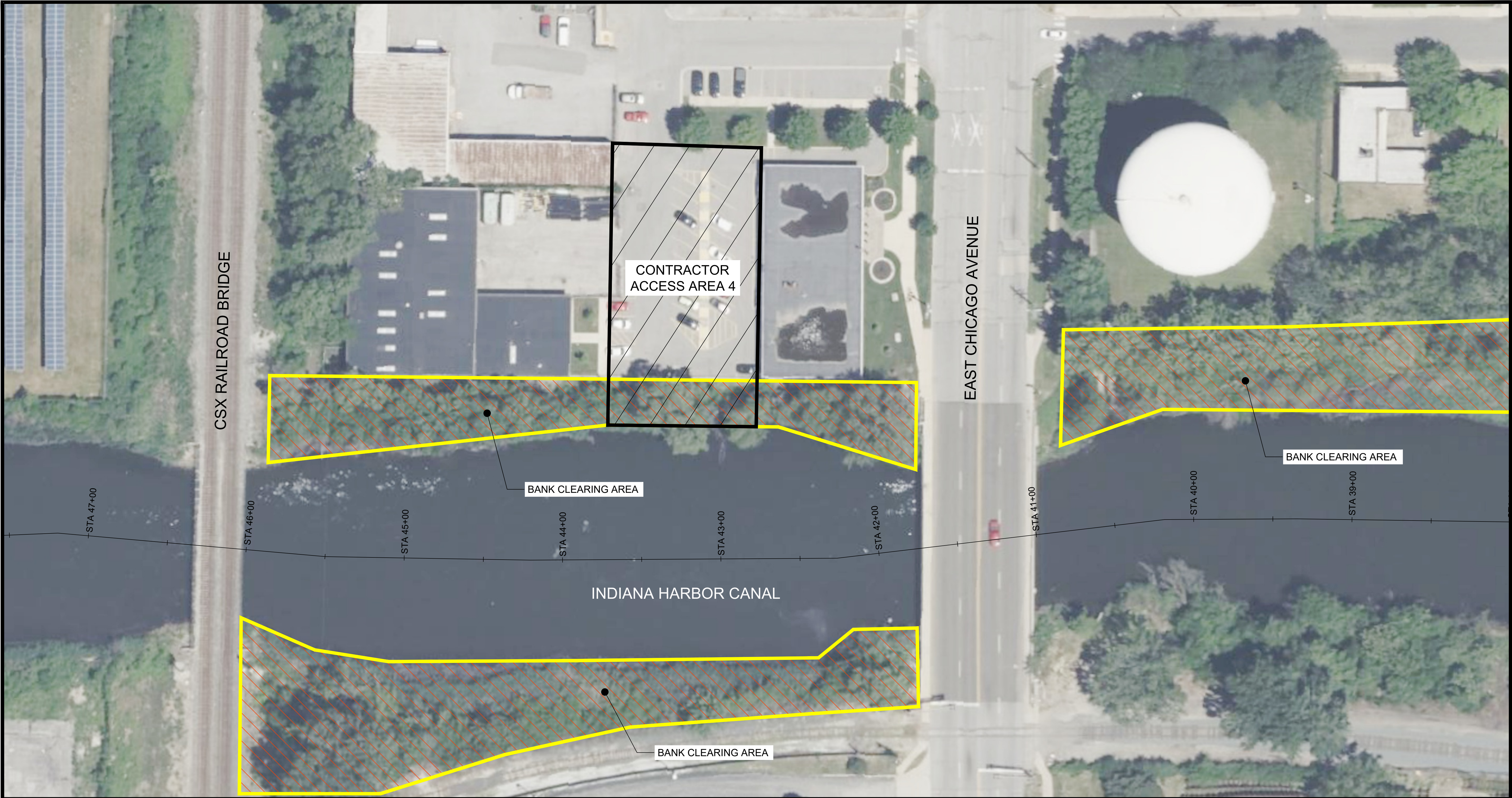
CAROL NISSEN
 REGISTERED
 No. 10707893
 STATE OF
 INDIANA
 PROFESSIONAL ENGINEER

Carol Nissen

 SIGNATURE

 DATE

D:\G\I\103S9780 - Junction Reaches 2025\dwg\Utility\2026-04\U-6



- NOTES:
1. CONTRACTOR TO COORDINATE ACCESS AREA WITH PROPERTY OWNER.
 2. CONTRACTOR MAY NEED TO BUILD AN ACCESS RAMP ALONG THE EXISTING RETAINING WALL BETWEEN THE PARKING LOT AND THE IHC BANK.
 3. CONTRACTOR WILL PERFORM BANK CLEARING FOR ACCESS. ADDITIONAL BANK CLEARING WILL BE PERFORMED ALONG THE PROPERTY BANKS AT THIS PROPERTY AND ALSO ALONG THE BANK OF THE WATER DEPARTMENT PROPERTY AS DIRECTED BY THE OWNER'S REPRESENTATIVE.

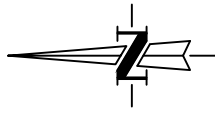


SIGNATURE DATE

REVISIONS			DESIGNED	CN
NO.	DATE	DESCRIPTION	DRAWN	MB
			CHECKED	SO
			DATE	4/27/2026



Tetra Tech Inc.
1 S. Wacker Dr. Ste. 3700
Chicago, Illinois 60606
(312) 201-7700



NORTH

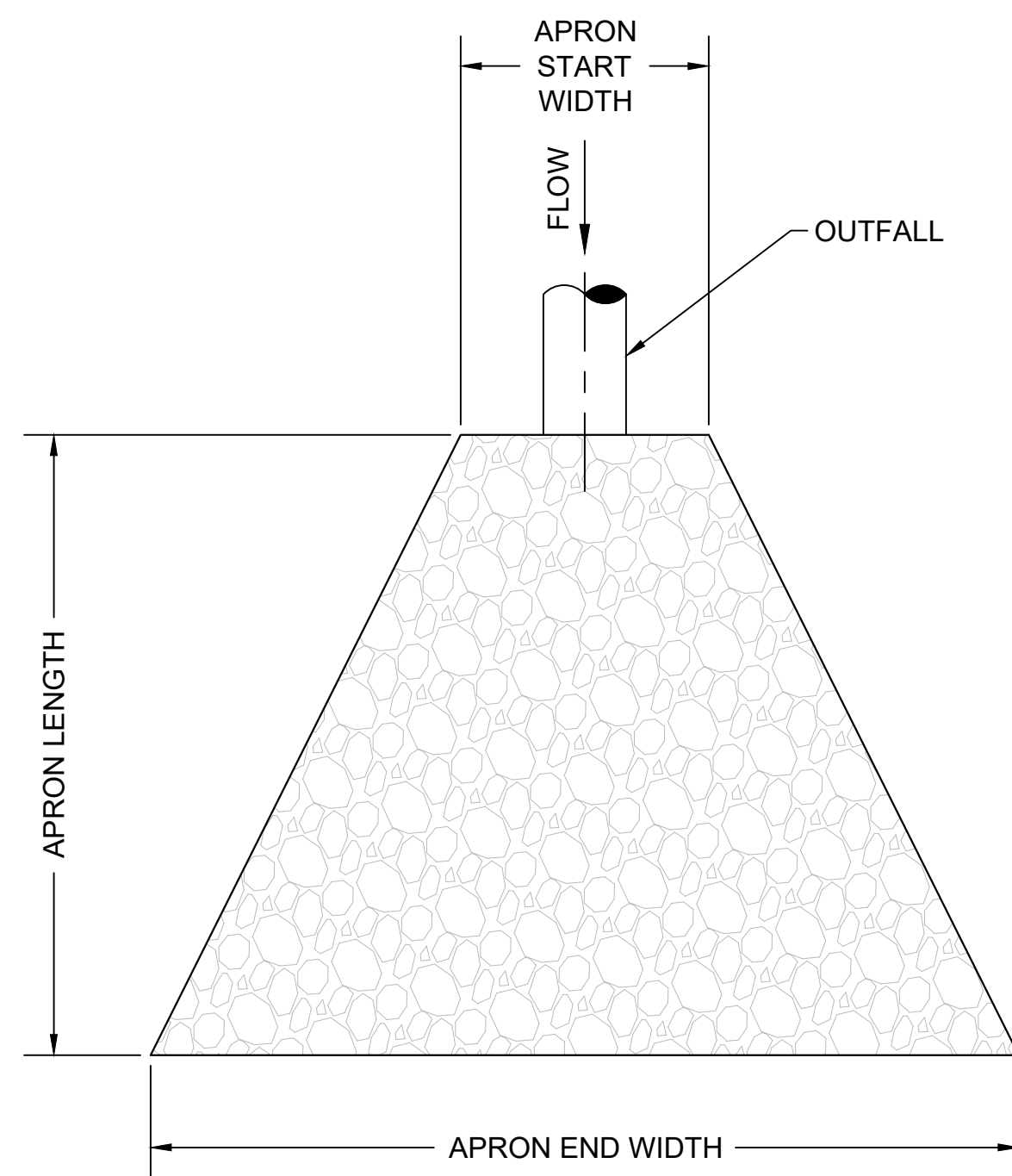
GRAND CALUMET and INDIANA HARBOR CANAL
REMEDIAL DESIGN
EAST CHICAGO WATERWAY MANAGEMENT DISTRICT
EAST CHICAGO, INDIANA 46312

VERIFY SCALE
BAR IS ONE (1) INCH ON
ORIGINAL DRAWING.
0 1"
IF NOT ONE (1) INCH ON THIS
SHEET, ADJUST SCALES
ACCORDINGLY.

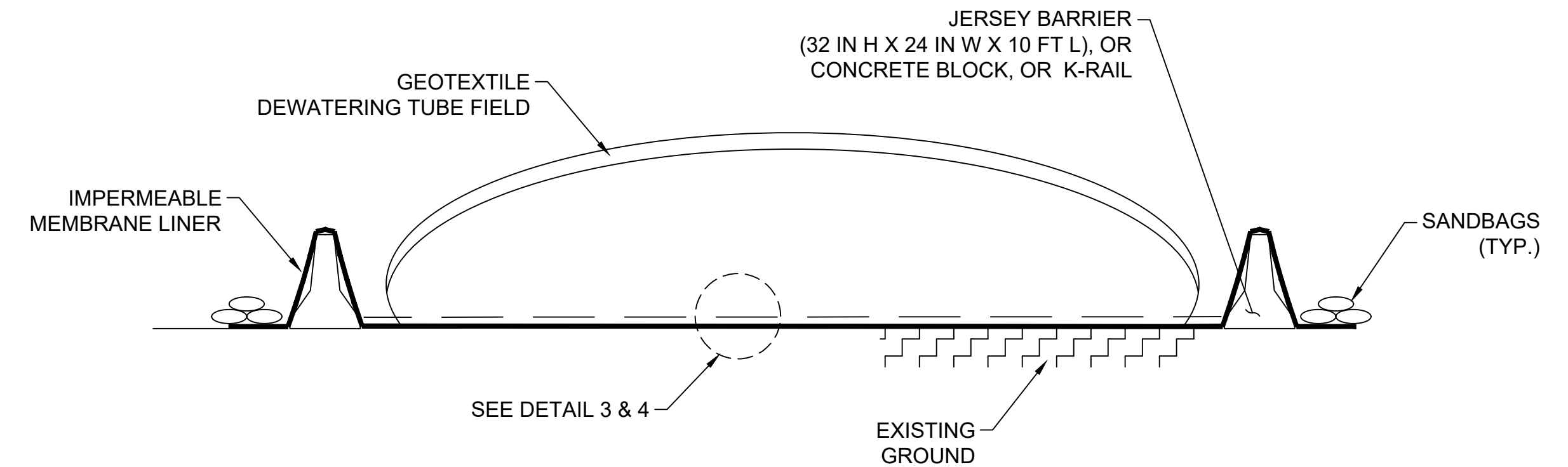
SCALES:
HORIZONTAL SCALE:
1" = 30'
VERTICAL SCALE:
NA

CONTRACTOR ACCESS AREA 4
GRAND CALUMET RIVER AND
INDIANA HARBOR CANAL
REMEDIAL DESIGN

PROJECT NO.
103S9780
DRAWING NO.
U-6
SHEET NO.
7 OF 13

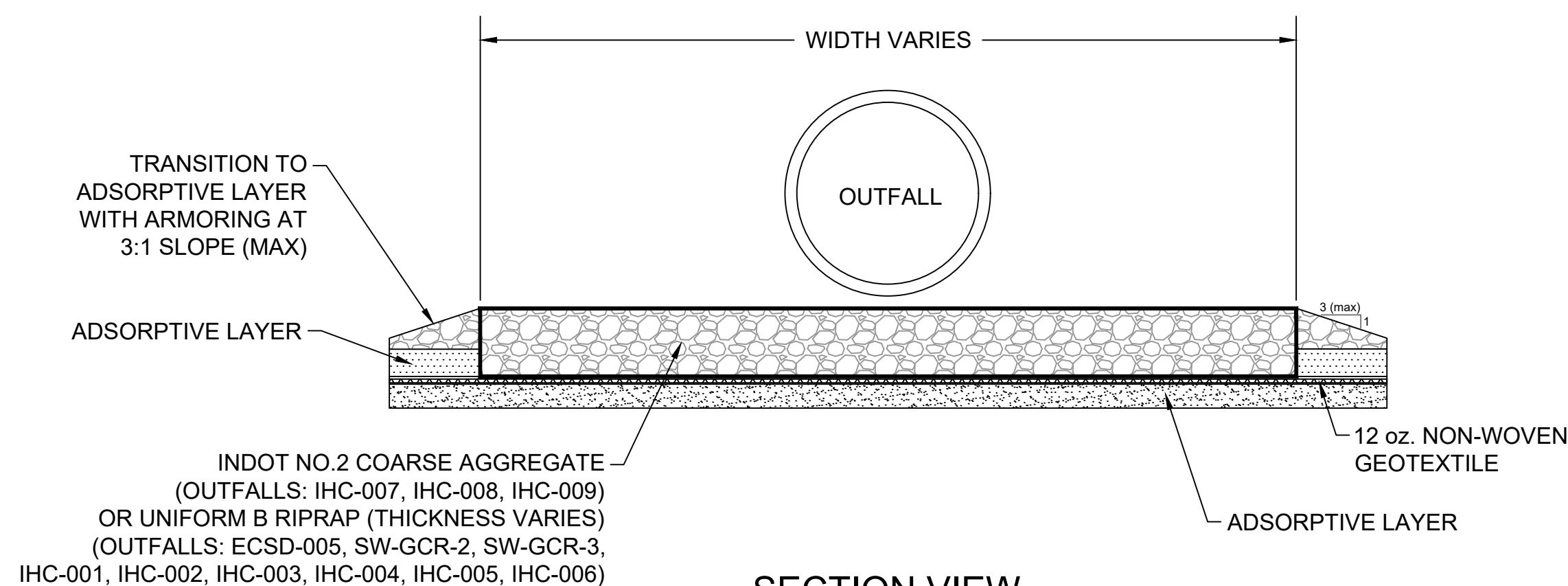


PLAN VIEW
NOT TO SCALE



2 SEDIMENT PROCESSING AREA CROSS-SECTION

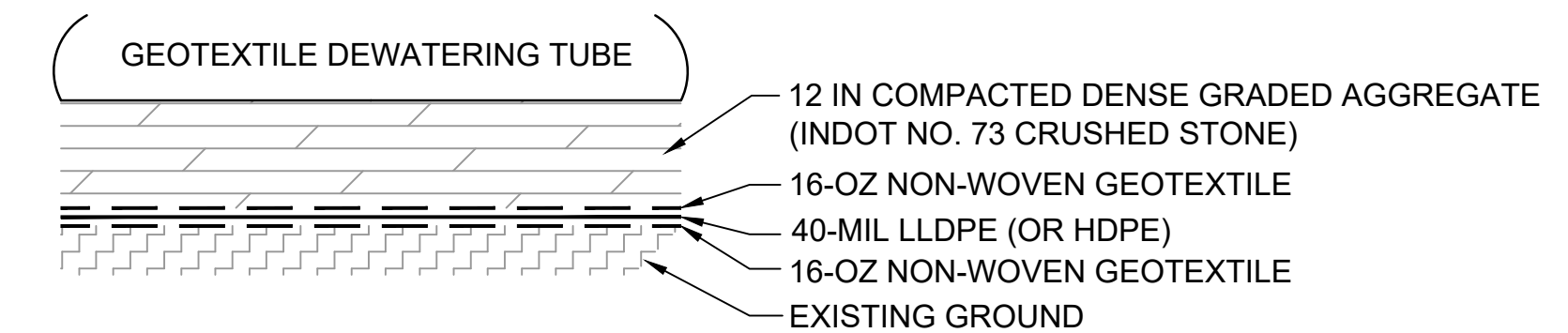
- NOTES:**
1. HYDRAULICALLY DREDGE MATERIAL WILL BE PUMPED INTO GEOTEXTILE DEWATERING TUBES.
 2. CONTAINMENT FLOOR WILL BE SLOPED TO PROVIDE LONGITUDINAL FLOW TOWARD THE WATER COLLECTION AREA.
 3. THE CONTRACTOR WILL DETERMINE THE NUMBER OF GEOTEXTILE TUBES AND THE LOCATION OF THE WATER COLLECTION AREA.
 4. WATER FROM THE SUMPS WILL BE PUMPED INTO HOLDING TANK FOR INITIAL SETTLEMENT AND THEN WATER TREATMENT SYSTEM UNTIL WATER IS TESTED AND CLEARED FOR DISCHARGE BACK TO THE GRAND CALUMET RIVER THROUGH NPDES PERMIT.



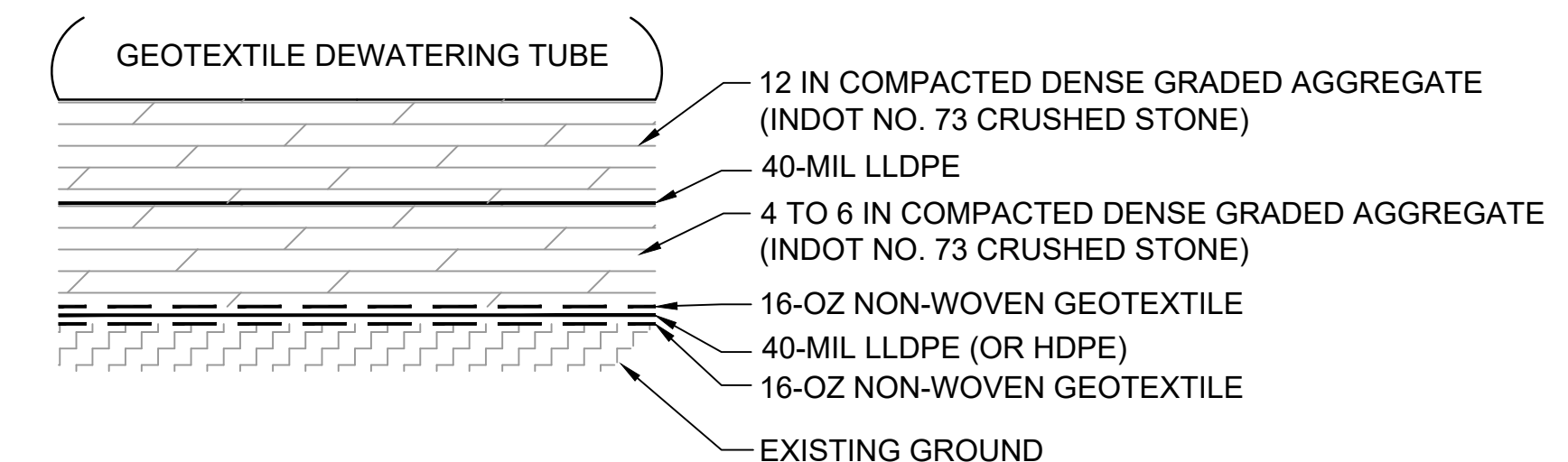
SECTION VIEW
NOT TO SCALE

- NOTES:**
1. OUTFALLS REQUIRING SCOUR PROTECTION: ECSD-005, SW-GCR 2, SW-GCR 3, IHC-001 THROUGH IHC-009.
 2. REFER TO PROJECT SPECIFICATIONS FOR OUTFALL SCOUR PROTECTION APRON DIMENSIONS AND MATERIAL TYPES FOR THE OUTFALLS REQUIRING SCOUR PROTECTION.
 3. CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES AND OUTFALLS.

1 TYPICAL OUTFALL SCOUR PROTECTION



3 **DETAIL (NON-TSCA SEDIMENT)**
NOT TO SCALE



4 **DETAIL (TSCA SEDIMENT)**
NOT TO SCALE

REVISIONS			DESIGNED	CN		Tetra Tech Inc. 1 S. Wacker Dr. Ste. 3700 Chicago, Illinois 60606 (312) 201-7700	 NORTH	GRAND CALUMET AND INDIANA HARBOR CANAL REMEDIAL DESIGN EAST CHICAGO WATERWAY MANAGEMENT DISTRICT EAST CHICAGO, INDIANA 46312	VERIFY SCALE BAR IS ONE (1) INCH ON ORIGINAL DRAWING. 0 1" IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	SCALES: HORIZONTAL SCALE: NA VERTICAL SCALE: NA	DETAILS GRAND CALUMET RIVER AND INDIANA HARBOR CANAL REMEDIAL DESIGN	PROJECT NO.
NO.	DATE	DESCRIPTION	DRAWN	MB								10359780
			CHECKED	SO								U-7
			DATE	4/27/2026								SHEET NO.
												8 OF 13

D:\G\103S9780 - Junction Reaches 2025\dwg\Utility\2026-04\U-8A



LEGEND

 INVASIVE CONTROL AREA (APPROX. 0.95 ACRE)

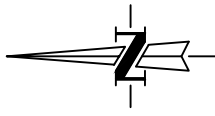


SIGNATURE DATE

REVISIONS			DESIGNED	CN
NO.	DATE	DESCRIPTION	DRAWN	MB
			CHECKED	SO
			DATE	4/27/2026



Tetra Tech Inc.
1 S. Wacker Dr. Ste. 3700
Chicago, Illinois 60606
(312) 201-7700



NORTH

GRAND CALUMET and INDIANA HARBOR CANAL
REMEDIAL DESIGN
EAST CHICAGO WATERWAY MANAGEMENT DISTRICT
EAST CHICAGO, INDIANA 46312

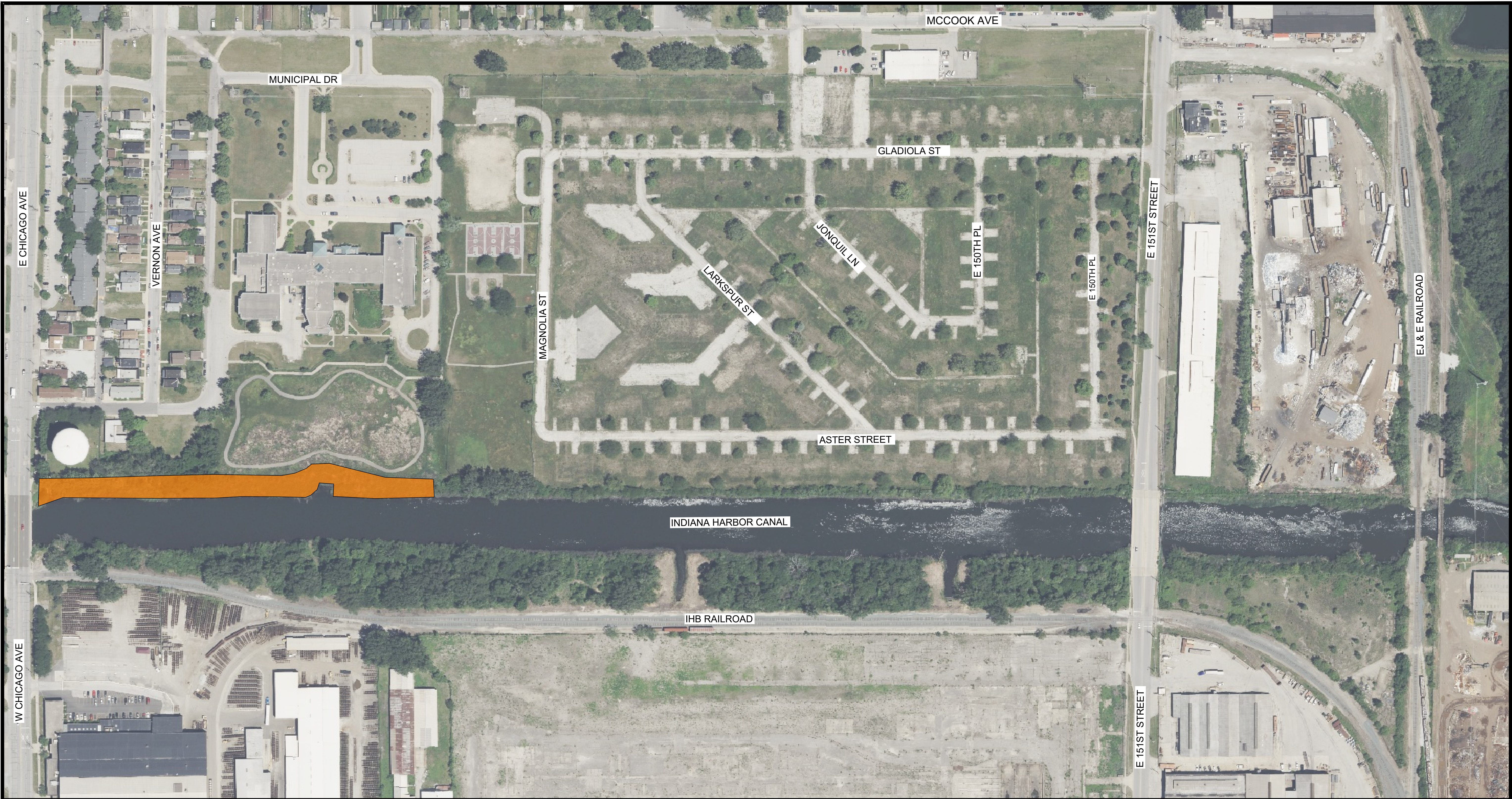
VERIFY SCALE
BAR IS ONE (1) INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE:
1" = 125'
VERTICAL SCALE:
NA

INVASIVE SPECIES TREATMENT AREAS
GRAND CALUMET RIVER AND
INDIANA HARBOR CANAL
REMEDIAL DESIGN

PROJECT NO.
103S9780
DRAWING NO.
U-8A
SHEET NO.
9 OF 13

D:\G\I\103S9780 - Junction Reaches 2025\dwg\Utility\2026-04\U-8B



LEGEND

 INVASIVE CONTROL AREA (APPROX. 1.41 ACRE)

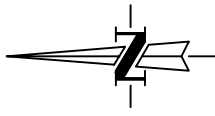


SIGNATURE DATE

REVISIONS			DESIGNED	CN
NO.	DATE	DESCRIPTION	DRAWN	MB
			CHECKED	SO
			DATE	4/27/2026



Tetra Tech Inc.
1 S. Wacker Dr. Ste. 3700
Chicago, Illinois 60606
(312) 201-7700



NORTH

GRAND CALUMET and INDIANA HARBOR CANAL
REMEDIAL DESIGN
EAST CHICAGO WATERWAY MANAGEMENT DISTRICT
EAST CHICAGO, INDIANA 46312

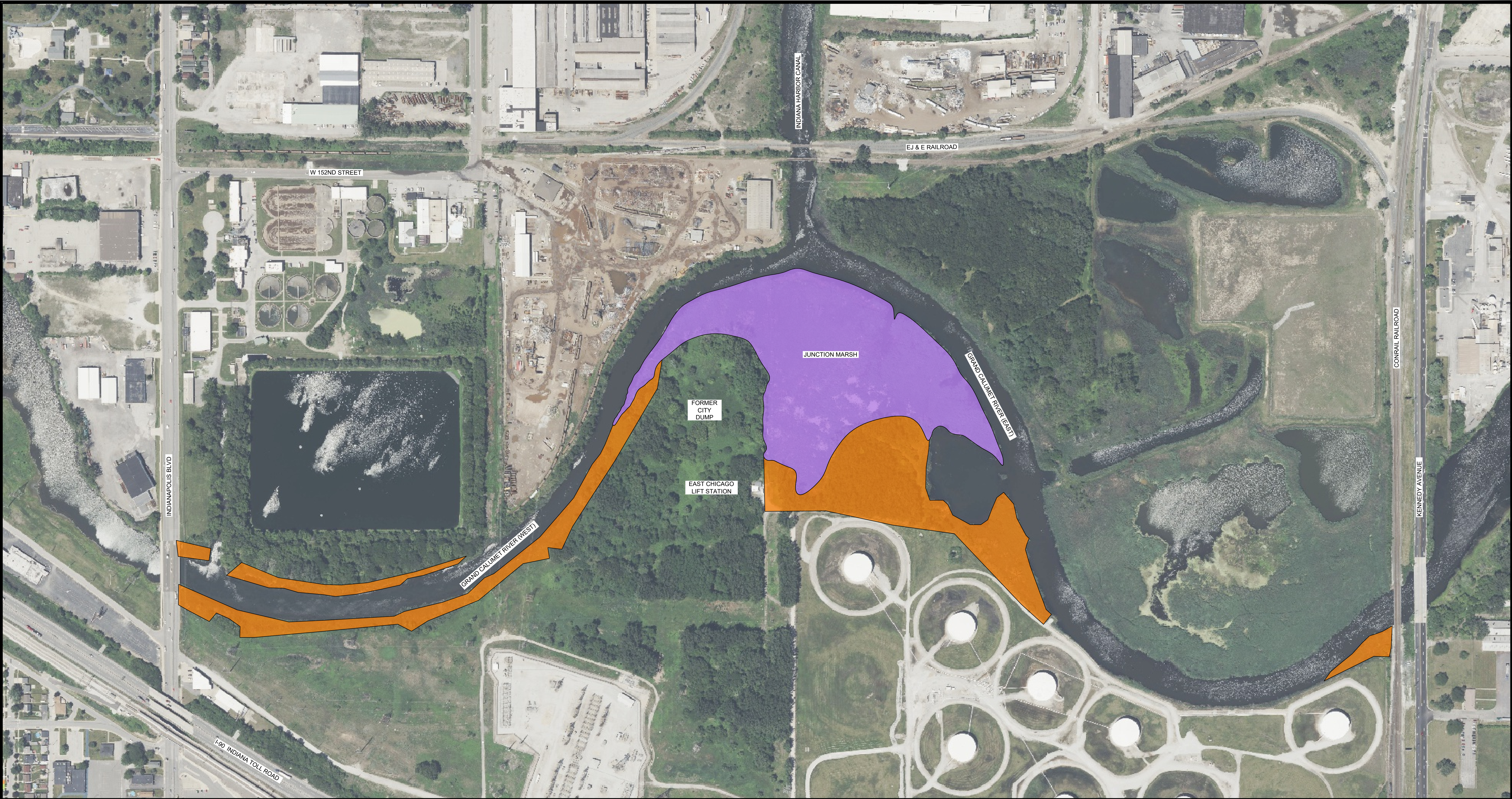
VERIFY SCALE
BAR IS ONE (1) INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE:
1" = 125'
VERTICAL SCALE:
NA

INVASIVE SPECIES TREATMENT AREAS
GRAND CALUMET RIVER AND
INDIANA HARBOR CANAL
REMEDIAL DESIGN

PROJECT NO.
103S9780
DRAWING NO.
U-8B
SHEET NO.
10 OF 13

D:\G\S\103S9780 - Junction Reaches 2025\dwg\Utility\2026-04\U-8C



LEGEND

- INVASIVE CONTROL AREA (APPROX. 12.19 ACRES)
- JUNCTION MARSH (APPROX. 14.45 ACRES)

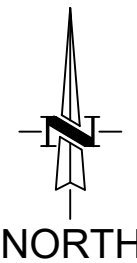


SIGNATURE DATE

REVISIONS			DESIGNED	CN
NO.	DATE	DESCRIPTION	DRAWN	MB
			CHECKED	SO
			DATE	4/28/2026



Tetra Tech Inc.
1 S. Wacker Dr. Ste. 3700
Chicago, Illinois 60606
(312) 201-7700



GRAND CALUMET and INDIANA HARBOR CANAL
REMEDIAL DESIGN
EAST CHICAGO WATERWAY MANAGEMENT DISTRICT
EAST CHICAGO, INDIANA 46312

VERIFY SCALE
BAR IS ONE (1) INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE:
1" = 200'
VERTICAL SCALE:
NA

INVASIVE SPECIES TREATMENT AREAS
GRAND CALUMET RIVER AND
INDIANA HARBOR CANAL
REMEDIAL DESIGN

PROJECT NO.
103S9780
DRAWING NO.
U-8C
SHEET NO.
11 OF 13



SUBMERGENT PLANT AND SEED LIST

Scientific Name	Common Name	Live Plants/Seed Rate
Nuphar advena	Yellow Water Lily	100 bare root stock /acre
Nymphaea odorata	White Water Lily	100 bare root stock /acre
Potamogeton natans	Common Pondweed	400 bare root stock /acre
Potamogeton nodosus	Long-leaved Pondweed	400 bare root stock /acre
Potamogeton pectinatus	Sago Pondweed	400 bare root stock /acre
Vallisneria americana	Eel Grass	100 bare root stock /acre
Zizania aquatica	Wild Rice	2 lb/acre
Total		1,500 bare root stock /acre & 2 lbs/acre

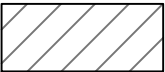
EMERGENT WETLANDS PLANT LIST

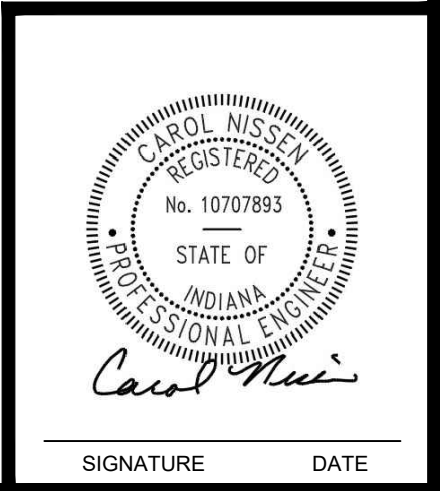
Scientific Name	Common Name	Live Plant Rate (plugs/acre)
Carex lacustris	Common Lake Sedge	150
Iris virginica	Blue Flag	400
Pontederia cordata	Pickerselweed	150
Sagittaria latifolia	Common Arrowhead	400
Scirpus acutus	Hard-stem bulrush	500
Scirpus validus	Great Bulrush	500
Sparganium americanum	American Bur Reed	300
Sparganium eurycarpum	Common Bur Reed	300
TOTAL		2,700 plugs/acre

WET-MESIC PRAIRIE (UPLAND) SEED LIST

SCIENTIFIC NAME	COMMON NAME	RATE (OZ/AC)
Andropogon gerardii	Big Bluestem	18
Anemone cylindrica	Thimbleweed	0.75
Aster Novae-angliae	New England Aster	0.75
Baptisia leucantha	White Wild Indigo	2
Coreopsis lanceolata	Sand Coreopsis	3.5
Coreopsis triperis	Tall Coreopsis	1.5
Dalea purpurea	Purple Prairie Clover	1.5
Elmymus canadensis	Canada Wild Rye	32
Koeleria cristata	June Grass	1
Lespedeza capitata	Round-Headed Bush Clover	2
Liatris aspera	Rough Blazing Star	1
Monarda fistulosa	Wild Bergamot	1
Monarda punctata	Horse Mint	1
Panicum virgatum	Switchgrass	2
Pycnanthemum virginianun	Common Mountain Mint	1
Rudbeckia hirta	Black-Eyed Susan	6
Schizachyrium scoparium	Little Bluestem	32
Solidago nemoralis	Old-Field Goldenrod	1
Sorghastrum nutans	Indian Grass	18
Tradescantia ohiensis	Common Spiderwort	1.25
Total		127.25 oz/ac

LEGEND

-  UPLAND
-  SUBMERGENT/EMERGENT

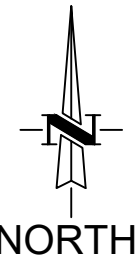


REVISIONS		
NO.	DATE	DESCRIPTION

DESIGNED	CN
DRAWN	MB
CHECKED	SO
DATE	4/27/2026



Tetra Tech Inc.
1 S. Wacker Dr. Ste. 3700
Chicago, Illinois 60606
(312) 201-7700



GRAND CALUMET and INDIANA HARBOR CANAL
REMEDIAL DESIGN
EAST CHICAGO WATERWAY MANAGEMENT DISTRICT
EAST CHICAGO, INDIANA 46312

VERIFY SCALE
BAR IS ONE (1) INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: N/A

HABITAT RESTORATION
GRAND CALUMET RIVER AND
INDIANA HARBOR CANAL
REMEDIAL DESIGN

PROJECT NO. 10359780
DRAWING NO. U-9
SHEET NO. 12 OF 13

**SUPPLEMENT TO SECTION 401 WQC REGIONAL GENERAL
PERMIT NOTIFICATION**

JUNCTION REACHES REMEDIAL ACTION

SUMMARY

The East Chicago Waterway Management District (ECWMD) is seeking a Section 401 Water Quality Certification (WQC) for the Junction Reaches remedial action which entails dredging of sediment and installing a reactive cap in sections of the Grand Calumet River (GCR) and Indiana Harbor Canal (IHC) in Lake County, East Chicago, Indiana.

On two occasions in the past, Tetra Tech submitted a Section 401 WQC for this project and received a permit. The project has not started and the permits have expired. On February 16, 2016, Tetra Tech submitted an application for a Section 401 WQC for similar work and received a permit on April 7, 2016, with IDEM No. 2016-082-45-MTM-A. On August 8, 2022, Tetra Tech submitted a Section 401 WQC for Phase 1 work and received a permit on December 16, 2022, with IDEM No. 2022-746-45-MTM-A. This permit expired and the project scope has slightly changed to include all phases of the project in one application and includes extension of the work area in the IHC north of East Chicago Avenue to Columbus Drive. Therefore, Tetra Tech is submitting a new application. The material that follows supplements the online submittal and provides additional information where space in the online form is limited.

Project Location

Driving directions:

From Interstate 90 (Indiana Tollway):

1. Take Exit US-20 W/Michigan St
2. Take Exit 8A from US-12 E and merge onto US-20 W/Michigan St
3. Take Exit 8 toward Kennedy Avenue
4. Turn right (north) onto Kennedy Avenue ¼ mile to GCR.

Project Purpose and Description

1.0 INTRODUCTION

The Junction Reaches Remedial Action project area is part of the Grand Calumet River (GCR) Area of Concern (AOC). The river system was designated as an AOC in 1987 because of legacy pollutants to include polychlorinated biphenyls (PCB), polycyclic aromatic hydrocarbons, heavy metals, oil, and grease. Beneficial Use Impairments (BUI) were designated for the AOC as overseen by the International Joint Commission (IJC) (IDEM and IDNR 2010). The GCR AOC is located in northwestern Indiana. The GCR and IHC watersheds fall under 71200030406 and 040400010603 of hydrologic unit code (HUC) 12, respectively, and are part of the 303(d) Category 5 of Indiana's Consolidated List in Appendix L of the 2024 Integrated Water Monitoring and Assessment Report (IDEM 2024).

The proposed Junction Reaches project includes sediment remediation of a portion of the GCR and IHC and remediation of the Junction Marsh and habitat restoration in East Chicago, Lake County, Indiana. The project site location is shown in Figure 1 and has been defined as follows:

- GCR Junction: A 1.3-mile portion of the GCR from Kennedy Avenue to Indianapolis Boulevard that includes the West Branch Grand Calumet River (WBGCR) and the East Branch Grand Calumet River (EBGCR).
- IHC: A 1.5-mile portion of the IHC from the junction of the East and West Branch GCR to Columbus Drive (U.S. Route 12).
- Junction Marsh: An approximately 15-acre wetland area at the confluence of the GCR and IHC.

The land surrounding the GCR, IHC, and Junction Marsh is primarily industrial and commercial, interspersed with residential areas. The area contains heavy manufacturing facilities associated with the steel industry, petroleum-related land uses, packaging operations, chemical processing plants, and other industrial land uses.

Construction of the Junction Reaches remedial action project areas is planned to begin in early 2027. The project is expected to be completed in 2029. This project includes dredging and capping parts of the GCR, IHC, and excavation and habitat restoration of the Junction Marsh.

The purpose of the proposed project is to address concerns related to contaminated sediments and restore the aquatic ecosystem in the GCR and IHC. Sediments in the GCR and IHC contain elevated concentrations of polycyclic aromatic hydrocarbons (PAHs), heavy metals, PCBs, semivolatile organic

compounds (SVOC), and pesticides. Table 1 is a summary of sediment sampling results from the Tetra Tech Feasibility Study (FS) Report (Tetra Tech 2015).

TABLE 1
MAXIMUM CONCENTRATIONS OF CONTAMINANTS IN JUNCTION REACHES
SEDIMENT

Contaminant	EBGCR		WBGCR		IHC	
	Surface (0-6’')	Subsurface (> 6’')	Surface (0-6’')	Subsurface (> 6’')	Surface (0-6’')	Subsurface (> 6’')
TPAH (mg/kg)	500	654	>1,000	>4,000	43	631
Total PCB (mg/kg)	10	6.38	<1	<1	81	44
AVS/SEM (μmoles/goc)	140		236		1,503	

Notes:

μmoles/goc Micromoles per gram of organic carbon
 AVS Acid-volatile sulfide
 EBGCR East Branch of the Grand Calumet River
 IHC Indiana Harbor Canal
 LGC Lake George Canal
 Mg/kg Milligram per kilogram
 TPAH Total Polycyclic aromatic hydrocarbon
 PCB Polychlorinated biphenyl
 SEM Simultaneously extracted metals
 WBGCR West Branch of the Grand Calumet River

Wetland soils in the Junction Marsh are expected to have little contamination. These soils are being excavated to remove the invasive species root mass that permeates the marsh. The contractor will collect a sample for waste characterization prior to disposal.

The Great Lakes National Program Office (GLNPO) and the East Chicago Waterway Management District (ECWMD) received Great Lakes Legacy Act (GLLA) funding to clean up the GCR and IHC project area. The removal of contaminated sediment is expected to lead to reduction of toxins released to the Great Lakes, reduction of human and ecological risk, improved aquatic habitat in the river, and improved water quality in the river. This project will enhance removing the GCR AOC BUIs, thus allowing the site to be delisted as an AOC. To address the risks to aquatic receptors associated with direct exposure to contaminated sediments, the following remedial action objectives (RAOs) were established: Minimize or prevent exposure to whole sediments that are sufficiently contaminated to pose intermediate or high risks, respectively, to the microbial or benthic invertebrate communities and that would affect the prey base for fish; and, minimize or prevent exposure to pore waters that are sufficiently contaminated to pose intermediate or high risks, respectively, to aquatic plant, benthic invertebrate, or fish communities (particularly for fish species that use sediment substrates for spawning).

The remaining sections of this document describe details of the proposed project and the surface area of wetland banks affected as a result of the proposed project. These sections supplement the information presented in the online submittal; various sections from this form are referenced in the headings throughout this document, as appropriate. A wetland impact summary table is included at the end of this supplement.

2.0 PROPOSED PROJECT

As discussed in Section 1.0, the selected restoration alternative for the proposed project consists of hydraulically dredging contaminated sediment and/or installing a cap to isolate any remaining contaminated sediment. This section provides details on the nature of activity based on the preliminary design, the purpose of the proposed project, and the reasons clean fill will be discharged into the river channel.

The overall goal for the project is to complete the above activities in a time frame that will allow ECWMD to initiate sediment remediation of the GCR, IHC, and Junction Marsh project area in 2027 and complete it by 2029. The major components of the selected remedy are shown on Drawings U-1 and U-2 and Figure 1 and include the following:

- Bridges, Utilities, and Shoreline Stability
 - Protecting existing utilities, structures, and shoreline.

- Installing a turbidity curtain upstream and downstream of the IHC dredge area, at the downstream end of the East Chicago Sanitary District (ECSD) outfall channel, downstream of the GCW dredge area in the WBGCR, and downstream of the GCE (U-1).
- Environmental Dredging and Excavation
 - Utilize existing access points to allow equipment to enter the river channel. Access to the GCR and Junction Marsh will be via an access area on the south bank of the East Branch on property owned by Buckeye Partners. Additional access areas are currently being evaluated and will be based on the Contractor's selected means and methods, and approvals by property owners. Access will not require construction along either bank. Access to the Junction Marsh will be from the south on property owned by NIPSCO and the City of East Chicago. Access to the ECSD outfall will be through the ECSD plant property and coordination with plant management will be required.
 - A staging area will be identified to dewater sediments from the river before off-site disposal. A staging area immediately south of the Junction Marsh is planned to be used to dewater and load wetland soils. All sediment will be disposed in a permitted landfill.
 - Excess water will be treated in an on-site water treatment plant and discharged to the GCR or IHC under a National Pollution and Discharge Elimination System (NPDES) permit or to the ECSD as a permitted user. The selected contractor will identify a location to construct the on-site water treatment plant.
 - Dredging approximately 20,621 cubic yards (yd³) of contaminated sediments from the WBGCR and 42,707 yd³ from the IHC. The quantity to be dredged from the IHC includes approximately 1,050 yd³ of sediment containing PCB concentrations exceeding Toxic Substances Control Act (TSCA) criteria.
 - Excavate approximately 48,122 yd³ of wetland soil from 12.15 acres of the Junction Marsh during the winter months or prior to April 1.
 - Removing debris from within the project area before and during dredging.
- Sediment Cap
 - Installing a 2-, 3- or 5-inch adsorptive cap layer to physically isolate the remaining contaminated sediment.
 - Installing a 3-,4- or 9-inch cap armoring over the adsorptive cap
 - Installing additional armoring adjacent to outfalls and culverts
 - Placing a soil cover on slopes between the initial dredge elevation and the top of the bank, as required
- Dewatering Contaminated Sediment
 - Sediment dewatering, including use of geotextile tubes or amendments, as necessary.

- Treating contaminated water and discharge to the canal under an NPDES permit or discharge to the ECSD via a permit.
- Transport and Disposal of Contaminated Sediment: Includes dredge material, treated water, and other remediation-related waste.
- Site Restoration, Demobilization, and Habitat Restoration of equipment staging, laydown, and river access areas.
 - Applying herbicide in the months of July, August, or September as recommended by IDNR prior to dredging
 - Placing a 2-foot layer of clean sand on the wetland shelf north of the West Bank GCR and installing submergent plugs
 - Install clean sand to restore the Junction Marsh.

2.1 PURPOSE OF PROJECT

As stated in Section 1.0, sediments throughout the Junction Reaches project areas are contaminated with heavy metals and various organic compounds that adversely affect a variety of ecological receptors, including benthic invertebrates, fish, and aquatic-dependent wildlife. The purpose of the proposed project is to address concerns related to contaminated sediments and restore the aquatic ecosystem in the Junction Reaches project area.

2.2 PROPOSED CONSTRUCTION ACTIVITIES

The selected restoration alternative for the proposed project consists of dredging or excavating contaminated sediment, backfilling the river channel with active cap materials (organoclay mixed with granular material) covered by a granular protective layer to isolate any remaining contaminated sediment, and backfilling wetland areas (the wetland shelf north of the GCR and Junction Marsh) with clean sand. This section provides details of that activity based on the purpose of the proposed project, the reasons clean fill will be placed into the river channel, and the remedial design. The overall goal for the project is to allow ECWMD to perform sediment remediation of the project area from early 2027 through 2029.

The general sequence of the proposed project is:

1. install a turbidity curtain upstream and downstream of the IHC dredge area;
2. dredge TSCA PCB sediment from the IHC;
3. dredge remaining non-TSCA PCB remediation waste in the IHC;
4. install a turbidity curtain at the downstream end of the ECSD outfall channel (this may begin concurrent with Step 1);
5. install sediment reactive cap and armor in IHC;
6. install outfall scour protection in IHC for outfalls requiring scour protection;
7. excavate sediment from ECSD outfall channel (this may begin concurrent with Step 1);
8. install outfall scour protection for outfall ECSD-005;
9. install turbidity curtain downstream of GCW dredge area;
10. dredge GCW;
11. install sediment reactive cap, armoring, and wetland shelf in GCW;
12. install outfall scour protection in GCW for the outfalls requiring scour protection;
13. install turbidity curtain at downstream of GCW;
14. install sediment reactive cap and armor in GCW;
15. install turbidity curtain downstream of GCE;
16. install sediment reactive cap and armor in GCE;
17. treat invasive species along banks on IHC, GCW, GCE, and Junction Marsh (to be completed between August 15 and September 15)
18. excavate sediment from Junction Marsh;
19. backfill Junction Marsh;
20. install seed and plantings in Junction Marsh; and
21. install planting in wetland shelf and restore bank along ECSD outfall if not already completed (this step may begin concurrent with step 2).

2.2.1 Construction Access

Access areas will allow marine construction equipment to reach the remediation areas. Low bridges and other obstacles will require more than one access area during remedial construction. The current plan uses existing access areas adjacent to the waterway where available. Equipment will utilize existing ramps or will be lowered into the waterway by crane. However, the contractor will need to perform bank clearing and may need to build a temporary access ramp along the existing retaining wall at Contractor Access Area 4 along the IHC (U-6). Additional clearing will be required along other access areas to be chosen by the contractor based on their means and methods and property access arrangements.

Staging and laydown areas used to prepare equipment and store materials will be located in the upland areas, including on the City of East Chicago and the Buckeye Partners North Terminal property on the EBGCR. Specific pathways to the river from these access areas will be identified during construction, using gaps in the tree line and avoiding impacts to larger, native tree species along the banks of the river to the extent possible. If trees need to be cut, then it would occur between October 1 through March 31 to

avoid impacts to bat species as required by the special condition in the USACE's nationwide permit (NWP 27) authorization.

2.2.2 Dredging and Excavating Contaminated Sediment

Contaminated sediment will be removed by environmental dredging within the project area limits from 2 feet below the mud line elevation. Removal of approximately 20,621 yd³ of contaminated sediment is expected in the West Branch GCR, and approximately 42,707 yd³ of contaminated sediment in the IHC. Excavation depths may be adjusted near the underground utilities, as necessary. The following four motor vehicle bridges cross the area of the dredging project:

- Kennedy Avenue Bridge (fixed bridge at east end of the EBGCR project area).
- Indianapolis Boulevard (fixed bridge that crosses the west end of the WBGCR)
- E 151st Street Bridge (fixed bridge at south end of IHC)
- Chicago Avenue Bridge (fixed bridge at midpoint of IHC)

The dredge limit does not approach within 25 feet of any of the fixed motor vehicle bridges nor does it extend beneath any of the fixed railroad bridges.

Hydraulic dredging will be used to remove the impacted sediment. The design drawings and specifications will provide the remediation goals and general framework for implementing the work, and the contractor will be allowed to choose methods that fit within that framework. The dredge contractor will be required to explain the means and methods proposed in pre-construction submittals. Dredging will not occur until the pre-construction submittals are approved. The dredging contractor will provide environmental dredge equipment and an operating data system to demonstrate the ability to achieve certain constraints and limitations as follows:

- Hydraulic dredging of contaminated sediments will be performed with equipment that employs a horizontal cutterhead, can provide an accurate and level cut, and minimizes resuspension.
- Spud anchors could be used for the dredge or barge equipment as long as their use does not interfere with pipelines beneath the sediment or result in non-compliance with water quality criteria.
- Debris encountered during excavation of the dredge prism will be removed and not left in place.

During all dredging, the contractor will monitor turbidity on a continuous basis within 250 feet downstream of each operating dredge, using automated monitoring equipment that records data at least once every 15 minutes. Methods and procedures to control sediment re-suspension, turbidity, and

downstream transport of sediment may also be used, as necessary. The contractor will also use oil absorbent booms to contain oil sheen generated during the dredge operation.

Dredging to the sediment removal limits will be confirmed from pre- and post-dredging bathymetric survey. Turbidity curtains will be installed upstream and downstream of the IHC dredge area, downstream of the ECSD outfall channel, and downstream of the GCR dredge area to raise the water level over a petroleum pipeline in this segment of the river during dredging. The top of the barrier elevation would be fixed at 583.0 feet NGVD29. The turbidity curtains would remain in place through capping and would be removed after the project is complete.

The Junction Marsh will be excavated using standard excavation equipment, or specialized marsh buggy excavators used in low density soils.

Sediment Removal Volumes

The proposed remedial action (RA) will remove approximately 20,621 yd³ of contaminated sediment from the WBGCR between Indianapolis Boulevard and the IHC, 42,707 yd³ from the IHC between the GCR and Columbus Drive, and approximately 48,122 yd³ of wetland soils from the Junction Marsh.

2.2.3 Capping

Contaminated sediment remaining after dredging of the WBGCR and of the IHC between East 151st Street and East Chicago Avenue will be covered with an engineered cap. An un-dredged area in the EBGCR and in the IHC between East Chicago Avenue and Columbus Drive will also be capped. The specific means and methods of cap placement will not be identified during design. Instead, the design drawings and specifications will provide the remediation goals and general framework for implementing the work, and the contractor will be allowed to choose methods that fit within that framework. Objectives of the cap design include the following:

- Physically isolate contaminated sediment from ecological receptors.
- Stabilize remaining contaminated sediments and minimize resuspension and transport to other locations.
- Prevent contamination of material in the bioturbation layer above risk-based levels for the life of the cap.
- Specify cap materials for a 100-year design life.
- Account for bioturbation, consolidation of the capping materials and underlying sediment, erosion, and stability.
- Construct from commercially available materials.

Capping will generally require placement of clean, coarse aggregate combined with amendments such as organoclay. Capping materials will be brought to the site by truck and placed directly on the underlying sediment in the GCR project areas by mechanical or hydraulic methods using floating equipment. The contractor shall develop a sediment dewatering area and a cap material stockpile area. Modifications to the cap in certain locations will be made, as follows:

- Petroleum pipelines cross the project site. These pipelines will be taken into consideration and the cap in these areas will be modified, as necessary, to avoid or minimize: (1) potential for disrupting pipeline service, (2) interference with maintenance and repair of pipelines, (3) overload of pipelines with cap material, and (4) impact of hazards to personnel during construction.
- Outfall armoring will be added adjacent to outfalls and culverts to protect against outfall scour. Energy from these discharge points must be dissipated sufficiently to protect the cap in the immediate vicinity of the outfall. Placement of cap materials adjacent to existing structures (such as bridge footings) within the project area will be evaluated on a case-by-case basis to avoid overloading or displacing the structures.
- Ice scour or gouging is not anticipated as a concern because of the water depths during winter months and the continuous discharge from the industrial and municipal wastewater sources along the GCR.
- Additional, small-diameter (less than 12 inches) outfalls currently buried or plugged may be encountered during construction. If additional outfalls are discovered during construction, the owner will be consulted and a decision made whether to (1) extend the outfall and provide outfall protection or (2) abandon the outfall. Any storm water drains encountered during construction will be avoided; any damaged storm water drains encountered will be replaced. Any necessary scour protection at the discharge points will be provided. Methods and procedures to control sediment re-suspension, turbidity, and downstream transport of sediment or cap material may also be used, as necessary.

2.2.4 Dewatering Activities

Contaminated sediment from the river channels will be transferred as a slurry in a sealed high density polyethylene pipe to a land-side dewatering facility for processing and disposal. The land side staging area will be identified and developed by the selected contractor. Sediment transferred to a dewatering pad will be dewatered until the material passes the Paint Filter Test and can be shipped to a permitted disposal facility. Although the sediment is contaminated with a variety of PAH, metals, and PCB compounds, none of the contaminants of concern exceeded the Resource Conservation and Recovery Act (RCRA) disposal limits. There is approximately 1,050 yd³ of sediment exceeding TSCA criteria in the IHC that would be disposed of separately in a TSCA-compliant permitted landfill. The TSCA sediment is not expected to exceed 100 mg/kg total PCBs, based on analytical data collected. Amendments such as Super

Absorbent Polymer (SAP), lime kiln dust, or other suitable absorbent may be added to the sediment to accelerate the drying process. Excess water generated during dewatering will be collected in a sump, treated in an on-site water treatment plant, and discharged back into the GCR or IHC in accordance with the NPDES permit or to the ECSD.

Wetland soils from the Junction Marsh will be dewatered in stockpiles at the south end of the Junction Marsh. Excess water will drain back into the marsh. Once the soil is dry, it will be loaded on to trucks for off-site disposal.

Once sediment passes the Paint Filter Test, the waste material will be transported to permitted disposal facilities selected by the dredge contractor and approved by ECWMD for both the TSCA and non-TSCA sediment. Debris removed with the sediment will be transported to the same facilities.

Trucks used to transport the sediment to the approved disposal facility will have sealed tail gates and solid side walls to prevent material from falling out of the bed. Once the sediment is loaded, the dump body will be tarped and the outside of the vehicle cleaned on a decontamination pad in the off-loading and dewatering area. Trucks departing the loading area will pass over a rumble strip or other tire cleaning method to knock material off the tires prior to entering the commercial roadway. Truck routes will be proposed by the dredge contractor and approved by ECWMD prior to off-site transport of sediment.

2.2.5 Site Restoration

Construction activities associated with this remediation project will alter existing conditions at the site. In general, properties will be restored in accordance with individual property access agreements. Properties that may be affected include site access or equipment staging areas on City of East Chicago properties, the Buckeye Partners North Terminal property on the EBGCR, and any other properties impacted by the dredging contractor's activities. Restoration would include disposal of wastes; removal of all temporary facilities (such as trailers); removal of temporary pads and sumps and storm water diversion berms; installation of any fencing removed at the start of the project unless otherwise preferred by the property owner; demolishing any temporary roads; and other activities to restore areas affected by the project. In addition, river access ramps would be re-graded, and all affected areas would be re-vegetated using a native seed mix.

The habitat within the wetland shelf north of the GCR will be restored to improve habitat by placing 2 feet of clean sand on the wetland shelves and installing submergent and emergent seed and plugs. Invasive species such as common reed (*Phragmites australis*) and cattail (*Typha* sp.) are present along the bank of the river and within the adjacent wetlands. Areas along the banks where *Phragmites* and *Typha*

are prevalent will be treated with herbicide for controlling these invasive plants (Drawings U-8A to U-8C). Improvements to the adjacent wetland will occur through the addition of clean sand and revegetation of the area with native plants after grading. Temporary wetland impacts are expected because of physical disruption of the wetland during dredging and capping. These impacts, however, will be beneficial in the long term because significant improvement to on-site open water and wetland habitat will result from the proposed project and associated restoration activities. Therefore, off-site wetland mitigation is not anticipated. Figure 1 shows the north wetland shelf to the GCR.

If property access is granted by the property owners and appropriate stakeholders, Junction Marsh will also be restored. Approximately 48,122 yd³ will be excavated in a 12.15-acre area of the Junction Marsh. The excavation depth will be approximately 2.5 feet. A 25-foot buffer will be maintained between the excavation and West Shore 10-inch pipeline and the toe of slope around the former city dump. A 10-foot buffer will be maintained around the NIPSCO power pole in the Junction Marsh. Prior to excavation, herbicide will be applied between August 15 and September 15. The sediment dewatering activities will be located south of the Junction Marsh on an existing accessway. Afterwards, a clean cap totaling approximately 11.71 acres will be applied to the Junction Marsh in December, January, February, or March. If dredging in Junction Marsh doesn't occur until April, then mowing will be conducted prior to dredging as recommended by IDNR to prevent nesting impacts. The Junction Marsh will then be restored with native submergent, emergent, and wet mesic seed and plugs.

At this time, it is not anticipated that trees greater than 10 inches diameter at breast height (dbh) or shrubs will need to be removed in the GCR or IHC. Additional tree removal will be determined by GLNPO. If trees are encountered, any cleared tree that has greater than or equal to 10 inches dbh will be replaced at 5:1 ratio (five new planted for each tree removed). Additionally, any tree clearing will occur between October 1 through March 31 to avoid impacts to bat species. More recently, the Information for Planning and Consultation (IPaC) tool of USFWS was used to determine that the Indiana bat (*Myotis sodalist*), Northern long-eared bat (*Myotis septentrionalis*), Piping Plover (*Charadrius melodus*), and Eastern Prairie Fringed Orchid (*Platanthera leucophaea*) may be in the range of the project. Based on the Indiana Determination Key by the USFWS and project activities, there will be no effect to the endangered piping plover and the project is not likely to adversely affect (NLAA) the Indiana bat. However, the eastern prairie fringed orchid and northern long-eared bat may be affected. The Indiana Ecological Services Field Office was contacted for consultation on the eastern prairie fringed orchid and northern long-eared bat and have not yet provided a determination. The Seinder Dunes and Roxana Marsh are south of the project area, which have rare insect and vascular plant occurrences. However, IDNR indicated since project

activities in the GCR and IHC will be outside of these species' habitats, thus, no impacts are expected on these occurrences.

2.3 REASONS FOR DISCHARGE

Removal or isolation (via capping) of contaminated sediment in the GCR and IHC would (1) eliminate the source of contaminants that have an extremely negative impact on water and aquatic habitat quality and (2) allow for the effective restoration of fish and wildlife communities and human recreational use of this area.

Placement of an active material cap over remaining contaminated sediment in the GCR will be necessary to (1) physically isolate contaminated sediment from ecological receptors and (2) stabilize remaining contaminated sediments and prevent resuspension and transport to other locations within these areas. Cap materials will be chosen that will not require replacement during a 100-year design life.

REFERENCES

IDEM. 2024. "Integrated Water Monitoring and Assessment Report." On-Line Address:
https://www.in.gov/idem/nps/files/ir_2024_report.pdf

Tetra Tech Inc (Tetra Tech). 2015. Feasibility Study Report Grand Calumet River and Indiana Harbor Canal in the Grand Calumet River Area of Concern, East Chicago, Indiana. June 12.

USACE. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*. ERDC/EL TR-12-1, Environmental Laboratory, U.S. Army Engineer Research and Development Center, Vicksburg, MS.

Avoidance, Minimization, and Mitigation Information

There are no other practical alternatives that would produce fewer adverse impacts to the aquatic habitat. The main goal of the restoration is to create a wetland habitat suitable for wildlife. The proposed project would result in approximately 14.45 acres of beneficial impacts to the submergent wetland shelf north of the GCR and Junction Marsh. The wetlands will be restored by importing clean sand suitable for planting with native submergent plugs. Junction Marsh will be dredged and restored as part of the project. There would be approximately 36.5 acres of impact to the open waters of the GCR and IHC. The impact would result from removal of contaminated sediment and placement of clean substrate (active cap materials) in the river channels. The contaminated sediment would be removed in wet conditions in the GCR and IHC. The GCR section of the project area will be covered with engineered cap materials after dredging is completed. An engineered reactive cap covered by a granular armor layer will be placed within the GCR portion of the project area. Additional armor materials will be placed adjacent to outfalls and culverts to protect against outfall scour. Energy from these discharge points must be dissipated sufficiently to protect the cap in the immediate vicinity of the outfall. Placement of cap materials adjacent to existing structures (such as bridge footings) within the project area will be evaluated on a case-by-case basis to avoid overloading or displacing the structures. Open water, wetland, and invasive species control impacts are listed in the impact summary table at the end of this supplement.

Currently, the lack of maintenance of the channelized river and contamination in the sediment have provided poor habitat for vegetation and wildlife in the area. In addition to removing contaminated sediment and placing clean reactive cap materials, project activities would include site restoration. These activities would greatly improve the habitat structure and vegetative quality of both the river channel and banks by providing a more suitable substrate and revegetating the area with native species. The following specific beneficial impacts would occur:

- The project will remove contaminated sediments from the river that currently have an adverse impact on wetland habitat and associated wildlife.
- The project will replace the contaminated sediment removed from the river with clean substrate that is more suitable for native vegetation.

- The project will improve the wetland on the adjacent bank of the West Branch GCR river by (1) placing clean sand that is more suitable for native vegetation, and (2) installing native submergent plugs.
- The Junction Marsh will be cleared of invasive species and restored to native habitat.
- If necessary, trees will be planted at a higher ratio to replace the trees that were removed.
- If necessary, the project will also provide bank stabilization after the capping is done by using bio-engineered materials.
- The project will spray herbicide on invasive plant species with a targeted application method like hack-and-squirt, basal bark injections, cut-stump, or spot-spraying (foliar spraying on individual herbaceous plants with no foliar spraying of deciduous tree leaves or Spanish moss) and a broad application where required.

The proposed project impacts to the wetland will be temporary because of physical disruption of the wetland during excavating/dredging and capping. These impacts will be short term and the project will realize long term benefits and significant improvement to on-site open water and wetland habitats. Therefore, off-site wetland mitigation is not anticipated.

Consultation with the IDNR indicates that Seinder Dunes and Roxana Marsh are south of the project area, which have rare insect occurrences. As such, the work in Junction Marsh will be completed outside of the peak wildlife nesting season, which is May through July according to IDNR. The activities in the GCR and IHC will be in the river and outside of these species' habitats.

Drawing/Plan Requirements

Project figures and remedial design drawings included in the "Figures" attachment are listed below.

FIGURES AND DRAWINGS

Figure #	Description
1	Site Location Map & Wetland Impacted Areas

Drawing #	Description	Comment
G-1	Title Sheet	List of Drawings
U-1	Work Sequence Plan	Shows the location of each planned activity.
U-2	Site Access Plan	Shows construction access areas.
U-3 to U-6	Contractor Staging Areas	Shows locations of each construction access and contractor staging area.
U-7	Details	Shows typical outfall scour protection, sediment processing area cross-section, and dewatering tubes.
U-8A to U-8C	Invasive Species Treatment Areas	Shows the location where invasive species will be sprayed.
U-9	Habitat Restoration	Shows the WBGCR submergent and upland planting.
U-10	Utilities Overview (South Area)	Shows storm sewer line, sanitary sewer line, overhead lines, pipelines, and water utility line.
GCE-001 to GCE-005	Existing Site Conditions	Identifies existing condition and topography for project areas.
GCE-201 to GCE-205	River Cap and Cover Plan	Shows the extent of capping and cover for the WBGCR.
GCE-301 to GCE-303	River Cross-Sections	Shows the cross section of stations in the EBGCR.
GCW-001 to GCW-006	Existing Site Conditions	Identifies existing condition and topography for project areas.

GCW-101 to GCW-106	River Dredge Plan	Shows the extent of dredging of the sediments in the project area.
GCW-201 to GCW-205	River Cap and Cover Plan	Shows the extent of capping and cover for the WBGCR.
GCW-301 to GCW-303	River and Canal Cross Sections	Shows the cross section of stations in the WBGCR.
IHC-001 to IHC-009	Existing Site Conditions	Identifies existing condition and topography for project areas.
IHC-100 to IHC-109	Canal Dredging Plan	Shows the extent of excavation and dredging of the sediments in the project area.
IHC-201 to IHC-209	Canal Cap and Cover Plan	Shows the extent of capping and cover for the IHC.
IHC-301 to IHC-307	Canal Cross-Sections	Shows the cross section of stations in the IHC.
JM-001 to JM-002	Existing Site Conditions	Identifies existing condition and topography for project areas.
JM-101	Excavation Plan	Shows the extent of excavation and dredging of the sediments in the project area.
JM-201	Capping and Cover Plan	Shows the extent of capping and cover for Junction Marsh.
JM-301	Habitat Restoration Plan	Shows the restoration plans at Junction Marsh.
JM-401	Cross Section	Shows the cross section of the sections in the Junction Marsh.

Project Documents

Wetland Delineation

A wetland delineation was completed for the project area by Tetra Tech on October 6, 2021. The delineation was conducted in accordance with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0 (USACE 2012).

On October 6, 2021, the GCR Junction and IHC were investigated to evaluate the presence and extent of wetlands in the area. A wetland along the north bank of the EBGCR could not be accessed; therefore, it was assumed to be entirely wetland as mapped by the USFWS National Wetlands Inventory.

Additionally, the wetland shelf north of the WBGCR could not be accessed and is assumed to be wetland based on visual assessment from across the GCR. Total wetland area within the project site is 79.1 acres. Total stream area is 38.5 acres and 13,873.1 linear feet of stream. No isolated wetlands are present at the project site.

Prior USACE Permits

A permit compliance certification was received from the USACE Chicago District on 3/5/2024 for the nationwide permit (NWP) 27 and is currently being modified. The compliance certification does not require mitigation or monitoring. However, it does require that tree clearing (trees greater than 3 inches diameter at breast height) only occur between October 1 and March 31 of any construction year. Another pre-construction notification for nationwide permit 27 will be submitted for the additional restoration impacts from East Chicago Avenue to Columbus Drive.

The submergent wetland along the north side of WBGCR will be dredged and restored as part of the project. Habitat restoration details for the wetlands are also provided in Drawing U-9. The main goal of the restoration is to create a wetland habitat suitable for wildlife. In addition, the recommended measure to avoid potential impacts on marsh birds by conducting project activities in Junction Marsh outside of the nesting period from May to July will be implemented based on comments from IDNR's Early Coordination/Environmental Assessment.

Additional Information

Table 1 in the Project Purpose and Description section above summarizes the maximum concentrations of contaminants in the GCR and IHC sediment. As noted in the summary section, Tetra Tech submitted an application for a Section 401 WQC for similar work and received a permit on April 7, 2016, with IDEM No. 2016-082-45-MTM-A. Again, a Section 401 WQC for the same work was received on December 16, 2022, with IDEM No. 2022-746-45-MTM-A. The permits expired and the project scope has slightly changed. Unlike the prior 401 WQC, this project also includes the area between East Chicago Avenue and Columbus Drive.

Worksheet – Summary of On-site Water Resources and Project Impacts

An engineered reactive cap covered by a granular protective layer will be placed within the GCR portion of the project area. Additional armor capping materials will be placed adjacent to outfalls and culverts to protect against outfall scour. Energy from these discharge points must be dissipated sufficiently to protect the cap in the immediate vicinity of the outfall. Placement of cap materials adjacent to existing structures (such as bridge footings) within the project area will be evaluated on a case-by-case basis to avoid overloading or displacing the structures. Open water, wetland, and invasive species control impacts are listed in the impact summary table below.

Phase 1 Impact Summary Table
Grand Calumet River and Indiana Harbor Canal

Impact #	Type of Impact	Impact (feet or acreage)	Impact Description	Drawings
1	Open Water Impact	34.82	Removal of approximately 64,000 cubic yards of contaminated sediment and placement of approximately 31.3 acres of clean substrate (sand or reactive cap materials) in the river channel and on the banks	GCE-201 through GCE-205; GCW-101 through GCW-106; GCW-201 through GCW-203; IHC-100 through IHC-105; IHC 201 through 209
2	Wetland Impact	15.37	Removal of approximately 6,020 cubic yards of contaminated sediment and placement of approximately 40,100 square feet of clean sand in the wetland shelf along the GCR. Removal of approximately 48,122 cubic yards of contaminated sediment in Junction Marsh. Submergent and emergent seed and plugs will be installed.	JM-001 and JM-002; JM-101 and JM-102; JM-301; GCW-203 through GCW-205
3	Turbidity Curtain Installation	320 feet	A turbidity curtain will be installed upstream and downstream of the IHC dredge area, downstream of the ECSD outfall channel, and downstream of the GCR west dredge area and downstream of the GCR east.	U-1
4	Invasive Species Control - Spray Only	14.55	Native and non-native invasive species along the shore will be sprayed with herbicide.	U-8A through U-8C