AGENDA

Oakland-Macomb Interceptor Drain Drainage Board
Macomb and Oakland Counties

October 19, 2022 – 11:30 a.m.
Office of the Macomb County Public Works Commissioner
21777 Dunham Road, Clinton Township, Michigan, and Microsoft Teams

1. Call meeting to order

   Board Members:
   Michael Gregg, Chair, Michigan Department of Agriculture and Rural Development
   Candice Miller, Macomb County Public Works Commissioner
   Jim Nash, Oakland County Water Resources Commissioner

2. Motion to approve the meeting agenda for October 19, 2022

3. Motion to approve the Drainage District Board Meeting Minutes from September 21, 2022

4. Public Comment

5. Present Memorandum from Clark Hill regarding the proposed Cost Share Agreement with Great Lakes Water Authority

6. Approval of Plans and Specifications for OMID NI-EA Contract No. 2 PCI-18 and PCI-19 Rehabilitation

7. Approval of Revised Agreement Between Kone and OMIDDD for Elevator Maintenance Services

8. Motion to approve the following Change Orders:

   a) Walsh Construction Change Order No. 4 (Final) for the Control Structure No. 9 Gate Installation for a net decrease in the amount of $26,426.85 and an increase in 498 calendar days for contract completion

   b) Walsh Construction Change Order No. 27 for the NESPS Pump & Electrical Upgrades Project for a net increase in the amount of $47,230.88

9. Motion to approve the following Construction Estimates:

   a) Construction Estimate No. 24 for Walsh Construction for NESPS Pump & Electrical Upgrades Project (GMP Phase) in the amount of $344,871.82 with a transfer to the Oakland County Treasurer in the amount of $13,736.34

   b) Construction Estimate No. 19 for Marra Services for NI-EA Contract No. One for PCI 4 Rehabilitation in the amount of $47,130.00

10. Status of OMID Repairs Project

a) Report of OMID Repairs Project

11. Financial Reports – General Financial Report and Status of State Revolving Fund Financing and Other Financing

12. Motion to approve the following invoices:

a) Reimbursement			
1) Labor/Fringes/Non-Direct Labor Factor			
• Segment 5 NI-EA Construction		$	2,964.60
• Segment 5 NESPS Mech./Elect. Construction		$	8,468.41
2) Equipment Charges			
• Segment 5 NI-EA Construction		$	141.26
• Segment 5 NESPS Mech./Elect. Construction		$	451.62
b) ASI			
Invoice No.43-8250	O&M	$	2,448.00
	NESPS	$	84,070.19
c) Clark Hill			
1) Invoice No. 1238427	O&M	$	306.00
2) Invoice No. 1238561	O&M	$	3,483.00
3) Invoice No. 1238584	NI-EA	$	2,268.00
d) CSM			
Invoice No. 21OMIDD006	O&M	$	455.00
e) Dickinson Wright			
1) Invoice No. 1732227	O&M	$	4,068.50
2) Invoice No. 1732229	O&M	$	276.50
f) Hesco			
1) Invoice No. 2213887	O&M	$	52,720.28
2) Invoice No. 2213888	O&M	$	5,938.90
g) Kennedy Industries			
1) Invoice No. 632164	O&M	$	891.00
2) Invoice No. 632852	O&M	$	341.00
3) Invoice No. 632859	O&M	$	1,056.00
4) Invoice No. 633230	O&M	$	775.50
h) Meadowbrook Insurance			
Invoice No. 10986	NESPS	$	51,255.00
i) Metco			
Invoice No. 1811-45	O&M	$	80,700.34
j) Motor City Electric Company			
1) Invoice No. 94693	O&M	$	151.59
k) NTH Consultants, Ltd			
1) Engineering Design Services Rehabilitation of NI-EA Sections PCI-4			
Invoice No. 630787	NI-EA	$	24,093.82
2) Contract No. 1 PCI-4			
Invoice No. 630771	NI-EA	$	70,531.44
3) Eng./Consulting Services NESPS Upgrade			
Invoice No. 630774	NESPS	$	2,236.42
4) Additional NESPS Maintenance Eng. Services			
Invoice No. 630775	O&M	$	820.10
l) PM Technologies			
Invoice No. 168014	O&M	$	1,755.82

m) PMA Consultants
Invoice No. 03559.01-27 NI-EA $ 19,575.27

11. Other Business

12. Adjourn

Next Regular Meeting: November 9, 2022, 11:30 a.m., Eastern Standard Time.

Agenda Item No. 3

Board Meeting Minutes from September 21, 2022

MINUTES OF THE REGULAR MEETING OF THE DRAINAGE BOARD FOR THE OAKLAND-MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT

September 21, 2022

Minutes of the regular meeting of the Drainage Board of the Oakland-Macomb Interceptor Drain Drainage District held at the Office of the Macomb County Public Works Commissioner, 21777 Dunham Road, Clinton Township Michigan on the 21st day of September at 11:30 a.m. Eastern Standard Time and via Microsoft Teams.

PRESENT:

Michael Gregg, Chairperson and Deputy for Gary McDowell, Director of the Michigan Department of Agriculture and Rural Development; Candice Miller, Member and Macomb County Public Works Commissioner; Jim Nash, Secretary and Oakland County Water Resources Commissioner.

OTHERS PRESENT:

Representing the office of the Macomb County Public Works Commissioner: Brian Baker, and Stephen Downing. Representing the office of the Oakland County Water Resources Commissioner: Anne Vaara, Steve Korth, Brian Coburn, Sid Lockhart, Joel Brown, Megan Koss, and Stephanie Lajdziak. Others in attendance: John Michalski, MDARD; Fritz Klingler, FK Engineering; Terry Moore, Metco; Jeff Ragle, OC Fiscal Services; Saju Sachidanandan, Larry Gilbert and Michelle Kitzinger, NTH Consultants; Jason Matteo, Jacobs; Dave Pauline, Walsh Construction

1. Call meeting to order.
   Chairperson Gregg called the meeting to order at 11:34 a.m.

2. Agenda.
   Motion by Nash, supported by Miller, to approve the September 21, 2022, agenda as presented.

   ADOPTED: Yeas - 3
   Nays - 0

3. Minutes.
   Motion by Nash, supported by Miller, to approve the minutes of the August 17, 2022, meeting.

   ADOPTED: Yeas - 3
   Nays - 0

4. Public Comment.
   None.

5. Engineering Work Order.
   The following Engineering Work Order was submitted to the Board for approval:

a) Jacobs Engineering Work Order No. SS-164 for additional investigation and design services related to the Odor and Corrosion Control System Project and the revised budget increase by $139,000 for a total not-to-exceed amount of $1,169,000. Motion by Nash, supported by Miller, to approve the Engineering Work Order and the revised budget increase as presented.

ADOPTED: Yeas - 3
Nays - 0

6. Change Order.
The following Change Orders were submitted to the Board for approval:

a) Walsh Construction Change Order No. 26 for the NESPS Pump & Electrical Upgrades Project for a net increase in the amount of $274,726.89. Motion by Miller, supported by Nash, to approve the Change Order as presented.

ADOPTED: Yeas - 3
Nays - 0

7. Construction Pay Estimates.
The following Construction Pay Estimates were submitted to the Board for approval:

a) Construction Estimate No. 23 for Walsh Construction for NESPS Pump & Electrical Upgrades Project (GMP Phase) in the amount of $671,981.94 with a transfer to the Oakland County Treasurer in the amount of $14,033.22. Motion by Nash, supported by Miller, to approve the Construction Pay Estimate as presented.

ADOPTED: Yeas - 3
Nays - 0

b) Construction Estimate No. 18 for Marra Services for NI-EA Contract No. One for PCI-4 Rehabilitation in the amount of $648,703.89 with a transfer to the Oakland County Treasurer in the amount of $11,113.82. Motion by Miller, supported by Nash, to approve the Construction Pay Estimate as presented.

ADOPTED: Yeas - 3
Nays - 0

8. Report/Update – Status of OMI Project, Segments 1 through 4, NESPS and NI-EA.

a) Joel Brown advised the Board that on August 23rd Walsh Construction was preforming work on new electrical equipment and an unexpected power surge from and ARC flash event damaged new transformer #3. This serious event briefly impacted pump station operations. Due to this incident, transformer #3 will need to be replaced. This work is estimated to be completed within 6 weeks. Mr. Brown furthered that the cause of the failure was due to improper use of the disconnect switch, which did not have proper signage. He also advised that this is a contractor/subcontractor issue, and the damage will be assessed under their builder's risk policy. An insurance claim from Walsh Construction has been submitted and the coverage from the policy is currently under review. Discussion ensued regarding an

arc flash study and why the trip affected the DTE substation and did not happen prior. Sid Lockhart also noted that there was no damage to the substation or DTE's line due to the incident and no injuries were reported.

b) Fritz Klingler of FK Engineering presented the Project Progress Update to the Board and summarized the status of various projects. Motion by Miller, supported by Nash, to receive and file the report and summary.

ADOPTED: Yeas - 3
Nays - 0

9. Financial Reports.
The financial reports for NI-EA and the NESPS were presented. Motion by Miller, supported by Nash, to receive and file the financial reports.

ADOPTED: Yeas - 3
Nays - 0

10. Invoices.
The following invoices were submitted to the Board for approval:

a) Reimbursement of Oakland County WRC-Incurred Expenses and Costs

1) Labor/Fringes/Non-Direct Labor Factor			
• Segment 5 NI-EA Construction		$	5,855.32
• Segment 5 NESPS Mech./Elect. Construction		$	8,953.37
2) Equipment Charges			
• Segment 5 NI-EA Construction		$	150.47
• Segment 5 NESPS Mech./Elect. Construction		$	295.96
b) ASI			
Invoice No. 42-8222	NESPS	$	108,801.84
c) CH2M			
Invoice No. 705773CH040	O&M	$	3,396.95
d) Clark Hill			
1) Invoice No. 1220371	O&M	$	1,479.00
2) Invoice No. 1233162	NI-EA	$	7,016.00
3) Invoice No. 1231003	NI-EA	$	270.00
4) Invoice No. 1231002	O&M	$	5,184.00
5) Invoice No. 1230903	O&M	$	1,147.50
e) CSM			
Invoice No. 21OMIDD014	O&M	$	455.00
f) Dickinson Wright			
1) Invoice No. 1703947	O&M	$	1,327.50
2) Invoice No. 1724822	O&M	$	553.00
3) Invoice No. 1724824	O&M	$	1,142.60
g) East Jordan Iron Works			
Invoice No. 110220061418	O&M	$	1,021.05
h) Hesco			
1) Invoice No. 2213832	O&M	$	4,523.00
2) Invoice No. 2213847	O&M	$	3,788.00

	3) Invoice No. 2213848	O&M	$	2,220.00
i)	International Transmission Company			
	Invoice Easement Application	O&M	$	500.00
j)	Jacobs			
	Invoice No. C6A19900-03	O&M	$	57,841.64
k)	Kennedy Industries			
	1) Invoice No. 626222	O&M	$	4,798.59
	2) Invoice No. 626438	O&M	$	2,608.30
	3) Invoice No. 627423	O&M	$	913.00
	4) Invoice No. 627564	O&M	$	402.50
	5) Invoice No. 629779	O&M	$	1,089.00
l)	Konecranes			
	Invoice No. 154711993	O&M	$	4,150.00
m)	Metco			
	Invoice No. 1811-44	O&M	$	76,346.93
n)	Motor City Electric Company			
	1) Invoice No. 94624	O&M	$	90.00
	2) Invoice No. 94525	O&M	$	90.00
o)	NTH Consultants, Ltd			
	1) Engineering Design Services Rehabilitation of NI-EA Sections PCI-4.			
	Invoice No. 630565	NI-EA	$	1,735.44
	2) Contract No. 1 PCI-4			
	Invoice No. 630567	NI-EA	$	86,964.76
	3) Eng./Consult. Services NESPS Upgrade			
	Invoice No. 630570	NESPS	$	2,601.99
	4) Consulting Services – System Inspection			
	Invoice No. 630571	O&M	$	2,102.54
	5) Rehabilitation Program 2021 Closeout Services			
	Invoice No. 630572	O&M	$	229.08
	6) Additional NESPS Maintenance Eng. Services			
	Invoice No. 630573	O&M	$	2,916.82
p)	PM Technologies			
	1) Invoice No. 63543133	O&M	$	675.22
	2) Invoice No. 63543149	O&M	$	1,050.00
	3) Invoice No. 63551141	O&M	$	1,050.00
	4) Invoice No. 63551332	O&M	$	1,050.00
	5) Invoice No. 63895473	O&M	$	595.00
q)	PMA Consultants			
	Invoice No. 03559.01-26	NI-EA	$	13,136.04

Motion by Nash, supported by Miller, to approve the invoices as presented.

ADOPTED: Yeas - 3
Nays - 0

11. Other Business.
None.

12. Adjourn.

Motion by Nash, supported by Miller, to adjourn the September 21, 2022, meeting at 12:50 p.m.

ADOPTED:	Yeas	-	3
	Nays	-	0

Next Regular Meeting: *Office of the Macomb County Public Works Commissioner, 21777 Dunham Road, Clinton Township, Michigan* and electronically at 11:30 a.m., Eastern Standard Time on October 19, 2022.

I hereby certify that the foregoing constitutes the minutes of the Drainage Board for the Oakland-Macomb Interceptor Drain Drainage District, at a meeting held on September 21, 2022, and that the meeting was conducted and public notice was given in compliance with the Open Meetings Act being Act 267, Public Acts of Michigan, 1976, as amended, and that the minutes were kept and will be or have been made available to the public as required by the Act.

IN WITNESS WHEREOF, I have hereunto affixed my official signature on this 21st day of September 2022.

Jim Nash, Secretary
Oakland-Macomb Interceptor Drain Drainage Board

Agenda Item No. 4

Public Comment

Agenda Item No. 5

OMIDDD/GLWA Cost Share Agreement

Clark Hill

MEMORANDUM

TO: Drainage Board, Oakland-Macomb Interceptor Drain Drainage District

FROM: Douglas R. Kelly
Joseph W. Colaianne

DATE: October 14, 2022

SUBJECT: **Approval – OMIDDD/GLWA Cost Share Agreement (Contract 2A and 2B)**

Background: Over the last year, the OMIDDD Project Team has been negotiating with the GLWA regarding potential cost sharing for the rehabilitation of the PCI-18 and PCI-19 portions of the North Interceptor East Arm sewer (NI-EA) (OMIDD Contracts 2A and 2B). At this time, GLWA's administration has agreed to a cost sharing arrangement for the new flow control structures that will facilitate this work (Contract 2A) but has declined to have OMIDDD extend its sewer lining work (in connection with Contract 2B) within the portion of the NI-EA located downstream of the Meldrum Sewer (this portion of the NI-EA is operated and maintained by GLWA and it is about 600 linear feet).

We were requested to negotiate and prepare a cost-sharing agreement between the OMIDDD and GLWA in connection with construction costs associated with Contract 2A. The agreement proposes that the parties share in the Contract 2A construction costs as adjusted based on the final bids received for the Project according to the following percentages: OMIDDD will be responsible for and pay 57% of the Contract 2A construction costs, as well as 100% of Contract 2A administration and design costs; and GLWA will be responsible for and pay 43% of the Contract 2A construction costs only. GLWA will not be responsible for costs associated with Contract 2B. GLWA estimated share of the Contract 2A construction costs is $3,172,720 which includes a 20% contingency. A more detailed breakdown of the project costs is set forth in Exhibit A to the Agreement. The agreement proposes to invoice GLWA for reimbursement during the project following each contract pay estimates that are approved by the Drainage Board. Attached is a draft of the proposed Cost Share Agreement.

The attached agreement will need to proceed to GLWA's legal counsel for final review before presenting same to the GLWA Board for approval. It is anticipated that there may a few changes. However, the OMIDDD Project Team requested that the matter come before the Drainage Board for discussion, and if desired, approval of the agreement in substantial form and substance as presented.

Recommended Action: Approve the proposed Cost Share Agreement in substantial form and substance, as presented by counsel, and authorize the Chairperson to execute the same on behalf of the Drainage District.

OAKLAND-MACOMB INTERCOUNTY DRAIN DRAINAGE DISTRICT AND GREAT LAKES WATER AUTHORITY

COST-SHARING AGREEMENT

North Interceptor-East Arm, OMID Contract No. 2
PCI-18 & PCI-19 Rehabilitation Project

THIS AGREEMENT is made and entered into as of the _____ day of October, 2022, by and between the OAKLAND-MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT ("OMIDDD"), a Michigan public body corporate, c/o Office of the Oakland County Water Resources Commissioner, One Public Works Drive, Building 95 West, Waterford, MI, 48328-1907 and the GREAT LAKES WATER AUTHORITY ("GLWA"), a Michigan public body corporate, c/o Chief Executive Officer, 735 Randolph, Suite 1900 Detroit, MI 48226. In this Agreement, either OMIDDD and/or GLWA may also be referred to individually as a "Party" or jointly as "Parties."

Recitals:

WHEREAS, the OMIDDD is a Michigan public body corporate established in accordance with Chapter 21 of Michigan Public Act 40 of the Public Acts of 1956, as amended (the "Drain Code"), MCL 280.511 *et seq.*, under the jurisdiction of a statutory drainage board; and,

WHEREAS, GLWA is a Michigan municipal Authority and public body corporate organized pursuant to the provisions of Act 233, Public Acts of Michigan, 1955, as amended, MCL 124.281 et seq. ("Act 233"), and is authorized, among other things, to acquire, finance, construct, improve, operate, maintain, and repair sewage disposal systems; and,

WHEREAS, pursuant to Amendment #1 to the 2009 Wastewater Contract, OMIDDD is authorized to finance, construct and improve the North Interceptor East Arm (NI-EA) from downstream of North East Sewage Pumping Station to the Meldrum connection in the NI-EA PCI-19 reach which is portion of the NI-EA interceptor sewer that is a component of the regional wastewater conveyance and treatment system; and,

WHEREAS, OMIDDD will be undertaking certain improvements to the NI-EA, and in particular rehabilitation of PCI-18 and PCI-19 as further described in this Agreement and Exhibits to this Agreement (the "Project"); and,

WHEREAS, the Parties agree that the Project will benefit both OMIDDD and GLWA, and the Parties have concluded that the Project can be constructed most economically and efficiently by OMIDDD through the exercise of the powers conferred by the Drain Code; and,

WHEREAS, the draft Plans and Specifications for the Project and an estimate of costs thereof, herein referred to as the Estimated Cost of the Project, have been prepared and reviewed by OMIDDD and GLWA, said Estimated Cost being set forth in **Exhibit A (NI-EA OMID Contract 2A and NI-EA OMID Contract 2B)**; and,

WHEREAS, in accordance with the terms and conditions set forth in this Agreement, the Parties have agreed to share in the cost of the Project for the Contract 2A portion only of the Project.

NOW, THEREFORE, in consideration of these premises and the mutual promises, representations, and agreements set forth in this Agreement, and for other good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, OMIDDD and GLWA mutually agree as follows:

Article I. Statement of Authority and Purpose; Project and Estimated Cost.

1.1 Authority. Pursuant to the Drain Code, specifically 280.523, and Act 233, and any other applicable laws of the State of Michigan, GLWA and OMIDDD enter into this Agreement to establish terms and conditions for the Project. Each Party agrees to take all actions reasonably necessary to effectuate the objectives set forth in this Agreement.

1.2 Purpose; the "Project". The Parties approve the Project, as described and provided herein, and approve the designation of the "NI-EA OMID Contract No. 2, PCI-18 & PCI-19 Rehabilitation Project" as the name of the Project. The Project is described in the Plans and Specifications which are incorporated by referenced and on file with the OMIDDD**;** the Project Design Map is attached as **Exhibit B**; and the Hydraulic Report for the North Interceptor-East Arm – PCI-18 and PCI-19 Rehabilitation Program dated April 16, 2021 is attached as **Exhibit C**:

- **NI-EA OMID Contract 2A** - Scope of the Project is generally described as follows:
  - Construction of an access and gate structure with a flap gate on the existing 7 Mile Adit Tunnel located south of 7 Mile Road and west of Van Dyke Road
  - Modification of existing PC-663 gate structure including installation and automation of a new sluice gate at PC-663.
  - Performance of maintenance including debris removal, in-tunnel cementitious/chemical grouting, and as needed structural repairs along PCI-18 and PCI-19 upstream of the Meldrum Connection.
  - Replacement of limited manhole cones/covers along PCI-18 and PCI-19 alignment used by the Contractor for access and restore work areas as identified in the contract documents.
  - Obtain necessary permits, perform traffic control measures during construction, and restore site(s) as identified in the contract documents.

- **NI-EA OMID Contract 2B (This portion of the Project is not included in the Cost-share with GLWA)** . Scope of this portion of the Project is generally described as follows:

- Perform spray-on lining from manhole PCI-19-103 to approximately 100 linear feet. downstream of Conant-Mt. Elliott sewer drop connection. (PCI-19 sta. 26+05 to PCI-19 sta. 24+05, approximately 200 linear feet)
- Perform miscellaneous debris removal within the lining area as identified in contract documents.
- NI-EA Contract 2B will include the implementation of Lining Pilot Study Inspection and Monitoring Protocols as detailed in Memorandum dated April 7, 2021 and attached hereto as **Exhibit D**.
- Obtain necessary permits, perform traffic control measures during construction, and restore site(s) as identified in the contract documents.

1.3 Project and Estimated Cost of the Project; Final Plans and Specifications; Variations. The Project shall consist of the work as described and specified in the Plans and Specifications for NI-EA OMID Contract 2A and NI-EA OMID Contract 2B. The Project shall be constructed substantially in accordance with the final Plans and Specifications, prepared and submitted by OMIDDD's consulting engineers, with the understanding of the Parties that variations therefrom that do not materially change the location, capacity or overall design of the Project, and do not require an increase in the total Estimated Cost of the Project, may be permitted on the sole authority of the OMIDDD. Other variations or changes may be made if approved by OMIDDD and GLWA in accordance with Section 2.2. The Estimated Cost of NI-EA OMID Contract 2A, is set forth in **Exhibit A**.

Article II. OMIDDD Responsibilities.

2.1 The OMIDD shall proceed to:

(a) Enter into construction contract(s) for the Project;
(b) Procure from the contractor(s) all necessary and proper bonds;
(c) Cause the Project to be constructed in accordance with the Plans and Specifications;
(d) Facilitate and coordinate flow control as necessary to accomplish the construction as provided in the Plans and Specifications; and
(e) Do all other things required by this Agreement and Michigan law and regulations;
(f) Provide construction observation and quality control testing services during construction.

2.2 Project Variations and Change Orders. OMIDDD shall have sole authority to approve variations or changes during construction that do not materially change the location, capacity or overall design of the Project, and further, falls within the contingency set forth in Estimated Cost (**Exhibit A**). Except as otherwise provided herein, in the event that it shall be necessary to increase the Estimated Cost of the Project such that GLWA's share exceeds Five Million dollars ($5,000,000), whether as the result of variations or changes made in the approved plans or otherwise, then GLWA shall not be obligated to pay such increase or excess cost unless the Chief Executive Officer for GLWA shall have approved such increase or excess and agreeing that the same (or such part thereof as is not available from other sources) shall be defrayed by increased or additional payments agreed to be made by the GLWA in the manner as hereinafter provided.

2.3 Contract Administration. OMIDDD will be responsible for contract administration. OMIDDD is authorized, but not required to utilize Oakland and/or Macomb County personnel and/or retain the services of a third-party engineering firm to perform contract administration for the Project. All certificates required for payments to contractors shall be approved by the consulting engineers before presentation to OMIDDD, and OMIDDD shall be entitled to rely on such approval in making payments.

2.4 Contractor Insurance. OMIDDD shall require all contractors engaged for the Project to provide commercial general liability, umbrella or excess coverage, workers' compensation, insurance with required limits of liability not less than **Exhibit E**.

2.5 Property Access. To the extent the Project requires access rights, GLWA will cooperate and assist OMIDDD with obtaining and securing the right of access to all public and private property necessary for the Project.

2.6 Permits. GLWA will cooperate and assist OMIDDD with obtaining and securing all licenses, permits, certificates, and governmental authorizations necessary to perform all of its obligations under this Agreement.

2.7 Compliance with Laws and Regulations. The Parties will comply with all federal and state laws, regulations, and requirements applicable to the obligations under this Agreement.

Article III. Consideration and Payment of Project Costs; Project Coordination.

3.1 Consideration and Payment of Project Costs; Cost Share. The Parties agree to share in the Contract 2A construction costs as adjusted based on the final bids received for the Project according to the following percentages: OMIDDD will be responsible for and pay 57% of the Contract 2A construction costs, as well as 100% of Contract 2A administration and design costs; and GLWA will be responsible for and pay 43% of the Contract 2A construction costs only. GLWA shall not be responsible for costs associated with Contract 2B. During construction, OMIDDD will be making progress payments to its contractor in accordance with the construction contract. OMIDDD will provide its contractor's request of payment that is approved by the OMIDDD's board along with the invoice to GLWA for its share of the construction costs as provided in this Agreement. GLWA agrees to reimburse OMIDDD for its share of the construction costs within thirty (30) days following invoice and payment shall not be unreasonably withheld by GLWA. In the event of Project Variations and Change Orders, and to the extent such Project Variation and Change Orders affect the portion of the Project described herein exceed the amount of contingency as identified in **Exhibit A**, GLWA agrees to reimburse OMIDDD in the same manner as provided herein.

3.2 Project Administration. OMIDDD will be responsible for paying the Project administration costs.

3.3 Liability and Claims; Selection of Legal Counsel. The Parties agree the costs and expenses of any lawsuits or claims arising out of the construction of the control structures are construction costs and shall be shared in accordance with the cost share percentages set forth in Section 3.1.

3.4 Debris and Sediment Removal. In connection with Contract 2B, it is anticipated that there will be debris and sediment within PCI-19 downstream of Meldrum Sewer Connection (Station 24+00 approx.) which is under GLWA's control and responsibility. After the contract has been awarded, OMIDDD will undertake a pre-inspection of PCI-19, and if the inspection shows there is debris and/or sediment downstream of the Meldrum Connection in the PCI-19 sewer (that is under GLWA's control and responsibility) and further, determines that the debris and/or sediment will obstruct flow and/or prevent OMIDDD from performing sewer lining and related repairs, OMIDDD will notify GLWA to address and remove the debris and/or sediment. GLWA shall have 60 days following notification to remove the debris and sediment. GLWA may use its own contractor(s) or have OMIDDD's contractor remove the debris and/or sediment. GLWA agrees to pay all costs associated with the debris and sediment removal within PCI-19 downstream of Meldrum Sewer Connection, whether such debris and sediment is removed by their own forces or removed under the terms of this agreement by OMIDDD forces. The cost to remove debris and sediment within GLWA's portion of the PCI-19 has not been included in the cost-share percentages set forth in this Agreement.

3.4 Wastewater Flow Control During Construction. During construction and implementation of the Project, GLWA agrees to Flow Control Protocols set forth in **Exhibit F**. Specifically, GLWA agrees to accommodate and commit to flow diversion during PCI-19 sewer lining work for the period beginning September 27, 2024 through completion and during the pilot study program detailed in **Exhibit D**. For purposes of flow diversion, GLWA agrees to keep the wet well elevation at the Water Resource Recovery Facility Pump Station 2A below elevation as set forth in the Plans and Specifications.

3.5 Ownership, Operation and Maintenance. After completion of the Project and acceptance by GLWA, GLWA shall be the owner of the Project, but governed in accordance with Amendment #1 to the 2009 Wastewater Contract and the operations protocols set forth in **Exhibit F**. It is understood that OMIDDD shall have the right, upon approval by GLWA, to utilize the Access and Gate Structure at the 7 Mile Adit Tunnel and PC-663 for future improvements, construction and maintenance repairs to PCI-18 and PCI-19 including conducting liner pilot study and to inspect the system for ongoing maintenance.

Article IV. Effective Date; and Term.

4.1 Effective Date. This Agreement shall become effective upon the approval by resolutions of the governing body for OMIDDD and GLWA; and execution by each Party.

4.2. Term. This Agreement shall terminate upon completion of the Project. However, the conditions set forth in Section 3.5 shall survive, and the Parties agree to the PC-663 Control Gate Structure Operating Protocols set forth in **Exhibit F**.

Article V. General Provisions.

5.1 Governing Law. This Agreement is made and entered into in the State of Michigan and shall in all respects be interpreted, enforced and governed under the laws of the State of Michigan. The language of all parts of this Agreement is intended to and, in all cases, shall be construed according to its fair meaning, and not construed strictly for or against any party. As used in this Agreement, the singular or plural number, possessive or non-possessive shall be deemed to include the other whenever the context so suggests or requires.

5.2 Reservation of Rights; Governmental Function. This Agreement does not, and is not intended to impair, divest, delegate, or contravene any constitutional, statutory, and/or other legal right, privilege, power, obligation, duty, or immunity of the Parties. In addition, the Parties maintain that the obligations set forth in this Agreement will be in the exercise or discharge of a governmental function. Nothing in this Agreement shall be construed as a waiver of governmental immunity for either Party.

5.3 Severability. If any provision of this Agreement or the application to any person or circumstance is, to any extent, judicially determined to be invalid or unenforceable, the remainder of the Agreement, or the application of the provision of persons or circumstances other than those as to which it is invalid or unenforceable, is not affected and is enforceable, provided the invalid provision does not substantially alter the Agreement or make execution impractical.

5.4 Binding Agreement; Assignment; and Amendments. This Agreement will be binding upon and for the benefit of the Parties hereto and their respective successors and assigns, subject to any assignment requiring the prior written consent of the non-assigning Party by an amendment to this Agreement signed by both Parties, and the assignor binding the assignee to the terms and provisions of this Agreement.

5.5. Counterparts. This Agreement may be executed in any number of counterparts, and each counterpart shall be considered a valid original.

5.6 Captions. The section headings or titles and/or all section numbers contained in this Agreement are intended for the convenience of the reader and not intended to have any substantive meaning and are not to be interpreted as part of this Agreement.

5.7 Notices. All correspondence and written notices shall conform the process set forth in Amendment #1 to the 2009 Wastewater Contract.

5.8 Notice of Claims; Cooperation. The Parties agree that they shall promptly deliver to the other Party written notice and copies of any claims, complaints, charges, or any other accusations or allegations of negligence or other wrongdoing, whether civil or criminal in nature, that the other Party becomes aware of which involves, in any way, the Project. Unless otherwise provided by law and/or the Michigan Court Rules, the Parties agree to

cooperate with one another in any investigation conducted by the other party of any acts or performances of the obligations under this Agreement.

5.9 Recitals. The recitals shall be considered an integral part of the Agreement.

IN WITNESS WHEREOF, this Agreement if executed by the Parties on the date hereafter set forth in the opening paragraph of this Agreement.

OAKLAND-MACOMB INTERCOUNTY DRAIN DRAINAGE DISTRICT

By: _____ Date: _____

Michael Gregg
Its: Chairperson, Oakland-Macomb Intercounty Drain Drainage Board

GREAT LAKES WATER AUTHORITY

By: _____ Date: _____

Suzanne R. Coffey, P.E.
Its: Chief Executive Officer

Approved as to form:

For OMIDDD:

_____
Joseph W. Colaianne
OMIDDD Legal Counsel

For GLWA:

_____
Randal M. Brown
GLWA General Counsel

EXHIBIT A

Estimated Cost

ENGINEER'S OPINION OF PROBABLE COST FOR BASE BID NI-EA CONTRACT 2

8/31/2022 **DRAFT**

CONTRACT 2A SCOPE: CONTRACT 2A GENERALLY CONSISTS OF THE INSTALLATION AND EXCAVATION OF A TERS SYSTEM AND FINAL STRUCTURE WITH FLAP GATE LOCATED OVER THE EXISTING 7-MILE ADIT SEWER. CONTRACT 2A ALSO INCLUDES THE REMOVAL OF AN EXISTING GATE AT PC-663 AND THE INSTALLATION AND AUTOMATION OF A NEW GATE AT PC-663. MISCELLANEOUS REPAIRS TO NI-EA PCI-18 AND PCI-19 ARE ALSO INCLUDED IN CONTRACT 2A. COST ESTIMATE IS AS FOLLOWS:

	Item No.	Description	Quantity	Unit	Unit Price	Amount
A. GENERAL CONDITIONS - **CONTRACT 2A**						
	BB-1	Mobilization	1	LS	$ 294,925.00	$ 294,925.00
	BB-2	Estimated Permit Fees Allowance	1	LS	$ 30,000.00	$ 30,000.00
	BB-3	Pre and Post Construction Ground Surface Videos in Work Areas	1	LS	$ 10,000.00	$ 10,000.00
	BB-4	Ventilation and Odor Control for Access Structures and Interceptor				
	BB-4a	Access Structures and Interceptor Ventilation	1	LS	$ 100,000.00	$ 100,000.00
	BB-4b	Odor Control Units	2	Ea	$ 50,000.00	$ 100,000.00
	BB-4c	Odor Control Filter Media Replacement	2	Ea	$ 5,000.00	$ 10,000.00
	BB-5	Utility Relocation, Support, and Protection				
	BB-5a	Utility Relocation by Contractor	1	LS	$ 100,000.00	$ 100,000.00
	BB-5b	Utility Support and Protection	1	LS	$ 50,000.00	$ 50,000.00
	BB-5c	Allowance for Utility Relocation by Third party (as Approved by Engineer	1	LS	$ 50,000.00	$ 50,000.00
	BB-6	Removal and Disposal of Existing Sludge, Debris, and Sediments from Areas within 7-Mile Adit, PCI-18 and PCI-19 Interceptor	205	TONS		
	BB-6a	Debris/Sludge/Sediment Removal from Within OMID-Only Portion	205	TONS	$ 1,000.00	$ 205,000.00
	BB-7	Labor and Equipment Support for Geotechnical Instrumentation	1	LS	$ 25,000.00	$ 25,000.00
	BB-8	Manhole Steps, Cone, and Cover Replacement: PCI-18 and PCI-19 (All assumed to be located in OMID Only Portion)				
	BB-8a	Manholes PCI-18 (OMID Only)	1	LS	$ 80,000.00	$ 80,000.00
	BB-8b	Manholes PCI-19 (OMID Only)	1	LS	$ 80,000.00	$ 80,000.00
	BB-9	Coordination of Work with other OMIDDD, WRC, MID, DWSD and GLWA Contractors	1	LS	$ 175,000.00	$ 175,000.00
	NOTES:				**Total w/o Mob**	**$ 1,015,000.00**
	Lines 1, 2, 3, and 9 will be split between GLWA and OMID base on repective ratios of 2A construction cos				**Total w/ Mob**	**$ 1,309,925.00**
	Lines 4a, 4b, 4c, 5a, 5b, 5c and 7 will be split 50-50 between GLWA and OMID				**OMID Share:**	**$ 874,741.26**
	Lines 6a, 8a, and 8b will be covered 100% by OMID				**GLWA Share:**	**$ 435,183.74**

B. SEVEN MILE ADIT GATE STRUCTURE - **CONTRACT 2A**						
	BB-10	Site Civil Work	1	LS	$ 403,000.00	$ 403,000.00
	BB-11	Maintenance of Traffic (MOT)	1	LS	$ 50,000.00	$ 50,000.00
	BB-12	Temporary Earth Retention System (TERS), Complete	1	LS	$ 1,000,000.00	$ 1,000,000.00
	BB-13	Flap gate, Furnish and Install, Complete	1	LS	$ 130,000.00	$ 130,000.00
	BB-14	Seven Mile Adit Gate Structure, Complete	1	LS	$ 262,500.00	$ 262,500.00
	BB-15	Engineer Directed Work	1	LS	$ 150,000.00	$ 150,000.00
					Total Cost:	**$ 1,995,500.00**
					OMID Share:	**$ 997,750.00**
		Agreed upon 50-50 split for work related to Seven Mile Adit Gate Structure			**GLWA Share:**	**$ 997,750.00**

C. Existing PC-663 Gate Structure Modification - **CONTRACT 2A**						
	BB-16	Site Civil Work	1	LS	$ 250,000.00	$ 250,000.00
	BB-17	Maintenance of Traffic (MOT)	1	LS	$ 50,000.00	$ 50,000.00
	BB-18	Temporary Earth Retention System (TERS), Complete	1	LS	$ 100,000.00	$ 100,000.00
	BB-19	Existing Bulkhead gate Dismantling and Disposal, Complete	1	LS	$ 50,000.00	$ 50,000.00
	BB-20	New Bulkhead Gate and Sluice Gates, Furnish and Install, Complete	1	LS	$ 270,000.00	$ 270,000.00
	BB-21	Underground Power and Control Conduits including Road Crossing and Conduit Structures (Jack and Bore)	1	LS	$ 200,000.00	$ 200,000.00
	BB-22	Gate Automation (Electrical, Process, Instrumentation)	1	LS	$ 1,102,000.00	$ 1,102,000.00
	BB-23	Allowance for SCADA Integration, Ovation, and Related Communication Work	1	LS	$ 100,000.00	$ 100,000.00
	BB-24	PC-663 Interior Concrete Surface Coating with Coal Tar Epoxy	3000	SF	$ 50.00	$ 150,000.00
	BB-25	PC-663 Gate Structure Modification, Complete	1	LS	$ 150,000.00	$ 150,000.00
					Total Cost:	**$ 2,422,000.00**
					OMID Share:	**$ 1,211,000.00**
		Agreed upon 50-50 split for work related to PC-663 Gate Structure			**GLWA Share:**	**$ 1,211,000.00**

D. INTERCEPTOR REPAIRS: PCI-18 AND PCI-19 - **CONTRACT 2A**						
	BB-26	Chemical Grouting for Leak Repairs	800	GAL		
	BB-26a	Chemical Grouting for Leak Repairs (OMID Only Portion)	800	GAL	$ 225.00	$ 180,000.00
	BB-27	Cementitious Grouting				
	BB-27a	Cementitious Grout of Areas with Potential Voids Surrounding the Interceptor	900	CF	$ 250.00	$ 225,000.00
	BB-27b	Installation of Grout Packers Needed for Cementitious Grouting of Areas with Potential Voids Surrounding the Interceptor	90	Ea	$ 400.00	$ 36,000.00
	BB-28	Localized Crack/Fracture Repairs Using Epoxy Grouting (As Directed by Engineer)	100	LF	$ 250.00	$ 25,000.00
					Total Cost:	**$ 466,000.00**
	NOTES:				**OMID Share:**	**$ 466,000.00**
	Lines 26a, 27a, 27b, and 28 will be covered 100% by OMID				**GLWA Share:**	**$ -**

Total Contract 2A OMID Share:	**$ 3,549,491.26**
Total Contract 2A GLWA Share:	**$ 2,643,933.74**
Total Contract 2A OMID Share Percentage:	**57%**
Total Contract 2A GLWA Share Percentage:	**43%**
Total Contract 2A:	**$ 6,193,425.00**
Total Contract 2A OMID Share w/ 20% contingency:	**$ 4,259,389.51**
Total Contract 2A GLWA Share w/ 20% contingency:	**$ 3,172,720.49**
Total Contract 2A w/ 20% contingency:	**$ 7,432,110.00**
Admin costs (40% of Total contract 2A w/ 20% contingency) (Paid Entirely by OMID):	**$ 2,972,844.00**
Grand Total Contract 2A OMID Share:	**$ 7,232,233.51**
Grand Total Contract 2A GLWA Share:	**$ 3,172,720.49**
Grand Total Contract 2A:	**$ 10,404,954.00**
NOTE: Contingency increased from 10% to 20% to account for volatility in marke	

CONTRACT 2B SCOPE: CONTRACT 2B GENERALLY CONSISTS OF THE INSTALLATION OF FOUR DIFFERENT LINER TYPES WITHIN PCI-19, EACH AT A LENGTH OF 50 FEET. APPROXIMATELY 200 TOTAL FEET OF LINING WILL BE PERFORMED WITHIN THE "OMID ONLY" PORTION OF PCI-19. CONTRACT 2B ALSO INCLUDES ADDITIONAL MISCELLANEOUS REPAIRS IN PCI-19 THAT MAY BE NECESSARY FOR THE APPLICATION OF LINING. COST ESTIMATE IS AS FOLLOWS:

	Item No.	Description	Quantity	Unit	Unit Price	Amount
E. GENERAL CONDITIONS - **CONTRACT 2B**						
	BB-29	Mobilization	1	LS	$ 38,128.88	$ 38,128.88
	BB-30	Estimated Permit Fees Allowance	1	LS	$ 10,000.00	$ 10,000.00
	BB-31	Pre and Post Construcion Ground Surface Videos	1	LS	$ 5,000.00	$ 5,000.00
	BB-32	Ventilation and Odor Control for Interceptor				
	BB-32a	Interceptor Ventilation	1	LS	$ 25,000.00	$ 25,000.00
	BB-32b	Odor Control Unit	1	Ea	$ 50,000.00	$ 50,000.00
	BB-32c	Odor Control Filter Media Replacement	1	Ea	$ 5,000.00	$ 5,000.00
	BB-33	Removal and Disposal of Additional Sludge, Debris, and Sediments from Areas within PCI-19 Interceptor Lining Area	12.5	TONS		
	BB-33a	Removal and Disposal of Additional Sludge, Debris, and Sediments (OMID Only Portion)	12.5	TONS	$ 1,000.00	$ 12,500.00
	BB-34	Coordination of Work with other OMIDDD, WRC, MID, DWSD and GLWA contractors	1	LS	$ 70,000.00	$ 70,000.00
	BB-35	Manhole Steps, Cone, and Cover Replacement: PCI-19				
	BB-35a	Manholes PCI-19 (OMID Only)	1	LS	$ 16,000.00	$ 16,000.00
	BB-35b	Manholes PCI-19 (Common to All)	1	LS	$ 16,000.00	$ 16,000.00
	BB-36	Maintenance of Traffic (MoT)	1	LS	$ 50,000.00	$ 50,000.00
					Total Cost w/o Mob:	$ 259,500.00
					OMID Share:	**$ 297,628.88**

F. INTERCEPTOR LINING - **CONTRACT 2B**						
	BB-37	Segment #1 Lining Material & Installation, Complete (Geotree)	50	LF	$ 2,889.50	$ 144,475.00
	BB-38	Segment #2 Lining Material & Installation, Complete (Permacast)	50	LF	$ 2,169.60	$ 108,480.00
	BB-39	Segment #3 Lining Material & Installation, Complete (Sauereisen)	50	LF	$ 2,435.25	$ 121,762.50
	BB-40	Segment #4 Lining Material & Installation, Complete (Warren)	50	LF	$ 2,398.45	$ 119,922.50
					OMID Share:	**$ 494,640.00**

F. INTERCEPTOR REPAIRS: PCI-19 - **CONTRACT 2B**						
	BB-41	Additional Chemical Grouting for Leak Repairs	37.5	GAL		
	BB-41a	Additional Chemical Grouting for Leak Repairs (OMID Only Portion)	37.5	GAL	$ 225.00	$ 8,437.50
					Total Cost:	**$ 8,437.50**
					OMID Share:	**$ 8,437.50**

Total Contract 2B OMID Share:	**$**	**800,706.38**
Total Contract 2B GLWA Share:	**$**	**-**
Total Contract 2B OMID Share Percentage:		**100%**
Total Contract 2B GLWA Share Percentage:		**0%**
Total Contract 2B:	**$**	**800,706.38**
Total Contract 2B OMID Share w/ 20% contingency:	**$**	**960,847.65**
Admin costs (40% of Total contract 2B w/ 20% contingency) (Paid Entirely by OMID):	**$**	**384,339.06**
Grand Total Contract 2B OMID Share:	**$**	**1,345,186.71**

NOTE: Contingency increased from 10% to 20% to account for volatility in marke

GRAND TOTAL NI-EA CONTRACT 2 COSTS		
Total Contract 2 OMID Construction Share:	**$**	**4,350,197.64**
Total Contract 2 GLWA Construction Share:	**$**	**2,643,933.74**
Total Contract 2 OMID Share Percentage:		**62%**
Total Contract 2 GLWA Share Percentage:		**38%**
Total Construction Cost:	**$**	**6,994,131.38**
Total Contract 2 OMID Share w/ 20% contingency:	**$**	**5,220,237.16**
Total Contract 2 GLWA Share w/ 20% contingency:	**$**	**3,172,720.49**
Total Contract 2 w/ 20% contingency:	**$**	**8,392,957.65**
Admin costs (40% of Total Contract 2 w/ 20% contingency) (Paid Entirely by OMID):	**$**	**3,357,183.06**
Grand Total Contract 2 OMID Share:	**$**	**8,577,420.22**
Grand Total Contract 2 GLWA Share:	**$**	**3,172,720.49**
Grand Total Contract 2:	**$**	**11,750,140.71**

EXHIBIT B

Project Design Map

NORTH INTERCEPTOR – EAST ARM (NI-EA)
NI-EA OMID CONTRACT No. 2 PCI-18 AND PCI-19 REHABILITATION

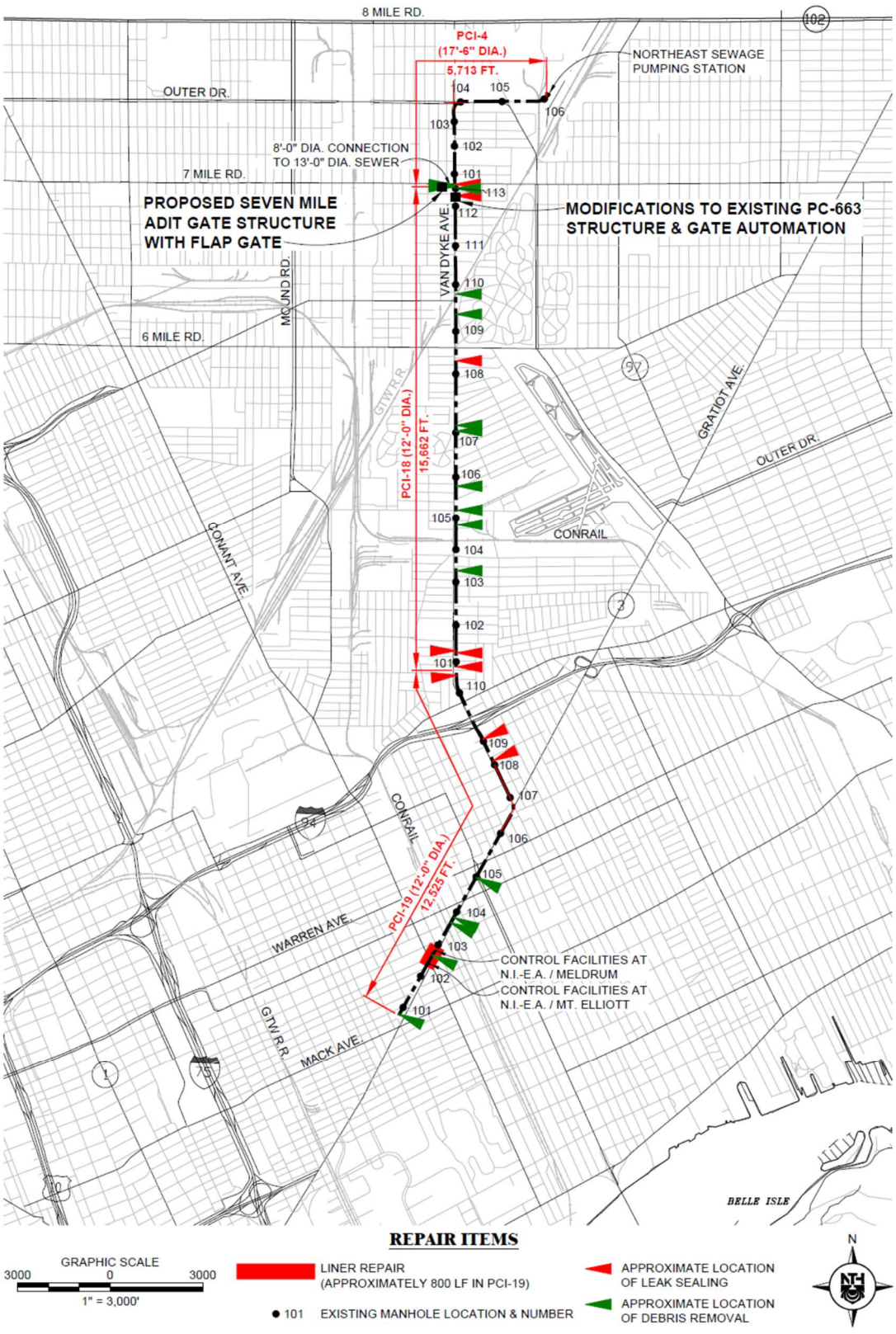


EXHIBIT C

Hydraulic Report for North Interceptor
East Arm, PCI-18 and PCI-19 Rehabilitation Program

North Interceptor-East Arm (NIEA)
PCI-18 and PCI-19 Rehabilitation Program

DRAFT Hydraulic Report

April 16, 2021

Applied Science, Inc.
300 River Place Suite 5400 Detroit, MI 48207
Phone: (313) 567-3990 Fax: (313) 567-3750
www.asi-detroit.com

Introduction

Work is being proposed by the Oakland-Macomb Interceptor Drain Drainage District (OMIDDD) that includes rehabilitation of the PC-663 gate structure and cleaning, spray-on coating, and spot repairs in the PCI-18 and PCI-19 reaches of the North Interceptor-East Arm (NIEA). The extent of the spray-on coating is approximately 797 lineal feet of interceptor between Manholes 102 and 103 of PCI-19.

The NIEA interceptor runs from the Northeast Sewage Pumping Station (NESPS) to the wet well of Pump Station 2 (PS-2) at the Great Lakes Water Authority (GLWA) Water Resource Recovery Facility (WRRF) and is shown on Figure 1 along with the proposed extent and locations of the rehabilitation. Figure 2 presents a profile of the NIEA.

Wastewater is discharged to the NIEA at the following four locations:

1. The discharge chamber of the NESPS,
2. A drop connection with remote gate VR-13 from the First-Hamilton sewer,
3. A drop connection with remote gate VR-15 from the Conant-Mt. Elliott sewer, and
4. A drop connection with remote gate VR-16 from the Meldrum sewer.

The gated drop connections are operated by GLWA and discharge dry weather and low wet weather flow rates from the GLWA sewers to the NIEA via remotely operable gates. When these remote gates are closed, the wastewater continues downstream to the Detroit River Interceptor (DRI) of the GLWA system.

The Clinton-Oakland Sewage Disposal System (COSDS) and the Macomb Interceptor Drain Drainage District are tributary to the OMIDDD which discharges wastewater into the NESPS. The Evergreen-Farmington Sewage Disposal System (EFSDS) discharges wastewater into the First-Hamilton sewer. The Southeast Oakland County Sewage Disposal System (SEOSDS) discharges wastewater into the Conant-Mt. Elliot sewer.

The rehabilitation work of the PC-663 stop gate includes replacing the cable operator with a new operating system. This also includes the removal of an existing bulkhead on the 8-foot diameter adit tunnel and the installation of a new flap gate structure. These items will allow the closure of the rehabilitated gate to divert all flow into the Seven Mile Relief Sewer. The NIEA adit sewer connects to the Seven Mile Relief Sewer just west of a high point at Van Dyke Avenue and flows to the Conner Creek Sewer east of the high point and to the Conant-Mt. Elliott Sewer west of the high point. An existing 2.85-foot-high diversion dam also exists near the high point to provide some additional directing of flows towards the Conant-Mt. Elliott sewer.

Flow control and hydraulic calculations are presented in this report for the proposed rehabilitation work. Figures 3 through 6 present marked-up record drawings showing the recommended modifications to the existing structures to accommodate any hydraulic considerations.

Flow Control for Rehabilitation of the PC-663 Gate

While the PC-663 gate is being rehabilitated, flows may be stored in the upstream OMID and MID systems using the existing flow control structures and discharges at the NESPS can be temporarily stopped. Figure 7 presents an overview map of the MID and OMID control structures (CS). Control Structure No. 5, 6, 7, and 8 (CS-5, 6, 7 and 8) are in the OMID interceptor system. CS-3 is in the MID interceptor system. There is an existing CS-9 shaft in the OMID interceptor system downstream of the CS-5 shaft and is also shown on Figure 7. A stop gate with hydraulically operated sluice gates is proposed to be added to the CS-9 shaft under a separate construction contract prior to the start of this project.

The control structures were designed so that wastewater can be stored in the upstream interceptor system by remotely closing hydraulically operated sluice gates that are tied to a SCADA system. The sluice gates are mounted on a larger stop gate or bulkhead gate. At the end of the storage period, the sluice gates are gradually opened to release the stored wastewater in a controlled and coordinated manner. Upon release, the stored wastewater will be discharged to the NESPS and pumped into the NIEA and will result in elevated flow rates that may be about two to three times the normal dry weather flow rates.

In addition to the control structures, a wastewater flow rate of about 15.5-cfs can be diverted from the COSDS at the Perry Street Pump Station (PSPS). The PSPS discharges wastewater to the Clinton River WRRF. Diverting wastewater in dry weather at the PSPS significantly reduces the wastewater flow rates in the OMID interceptor system and increases the storage times at the downstream OMID control structures. Therefore, diversions at the PSPS are recommended to be utilized for any flow control plans.

Also, the Clintondale Pump Station (CPS) in the MID also can also be turned off so that wastewater is stored in the upstream Lakeshore Interceptor. This provides additional storage time at CS-3.

Rehabilitation work in the Romeo Arm Interceptor (RAI) is proposed to occur from about August 2020 to August 2022. The time frame for this project is from about October 2020 to October 2022. Coordination of the flow control measures between these two projects is required. During the RAI rehabilitation work the use of the new CS-9 gates is proposed to be used for flow control instead of the CS-5 gates.

The available storage times in the interceptors upstream of the NESPS vary daily, seasonally, and with preceding rainfall and snowmelt events. The lowest dry weather flow rates are typically in the late summer and fall and the highest dry weather flow rates are in the springtime. When work is planned for consecutive days, the storage times range between 9 and 11 hours if storage is occurring at all possible control structures, the PSPS is diverting wastewater, and the CPS is turned off. When work is planned for alternating days under the same conditions, the storage

times will increase to 12 to 14 hours if work is also being performed in the RAI and 15 to 20 hours if no work is being performed in the RAI.

Flow Control for Coating and Spot Repairs in the PCI-18 and PCI-19 Reaches

While performing spot repairs and applying the spray-on coating to the PCI-18 and PCI-19 reaches of the NIEA downstream of the PC-663 gate, it is proposed that the rehabilitated PC-663 stop gate structure be closed and wastewater to be entirely diverted from the NIEA into the Seven Mile Relief Sewer. This will allow complete isolation of the NIEA downstream of the PC-663 gate and continuous diversion so long as dry weather conditions persist.

Work at the downstream end of PCI-19 will be impacted by the wastewater flow rates from the drop connections at Meldrum and Conant-Mt. Elliott. The VR-15 and VR-16 must be closed by GLWA when work is occurring to allow these flows to continue to the DRI. Work at the downstream end of PCI-19 will also be affected by backwater conditions from the wet well at PS-2 of the GLWA WRRF. In dry weather, the PS-2 wet well level may vary between 75 and 80 ft-Detroit Datum.

Flow must be reestablished in the NIEA before wet weather occurs. The stop gate will be opened in advance of wet weather and must be reopened in a slow and controlled manner. The VR-13, 15, and 16 gates may be opened by GLWA.

Hydraulic Considerations

Diverting flow from the NIEA to the Seven Mile Relief Sewer requires the following additional modifications to provide satisfactory hydraulic conditions. A Transient Analysis Program (TAP) hydraulic model of the NIEA and Seven Mile Relief Sewer was developed and run to determine these modifications.

1. Stop Gate Wall Elevation at PC-663 Gate Structure

The top of the stop gate wall at the existing PC-663 gate structure is currently at 125 feet. While the stop gate is closed and all flow is being diverted to the Seven Mile Relief Sewer, this elevation is predicted to be overtopped by discharges at the NESPS should the NESPS discharge its contract capacity of 423 cfs. Raising the height of the top of wall at the existing PC-663 gate structure by four feet to 129 feet will allow diversion of flow rates up to and including the NESPS maximum contract capacity of 423 cfs without overtopping the stop gate wall.

2. Temporary Flashboards in Seven Mile Relief Sewer

Diverting flow into the Seven Mile Relief Sewer will result in the flow splitting east towards the Conner Creek Sewer and west towards the Conant-Mt. Elliott Sewer. GLWA has requested that all flow be diverted to the Conant-Mt. Elliott Sewer. The model was run using a range of flow rates loaded at the NIEA adit sewer connection to determine necessary height at the existing dam

versus the diverted flow rate. Figure 8 presents the results of this analysis. From this it was determined that a 2-foot extension on the existing diversion dam will divert all flow up to the peak hourly dry weather flow rate at the NESPS of 180 cfs. With this extension, the total dam height will become about 4.85-feet in the 13-foot diameter sewer. The temporary flashboards are hydraulically acceptable because:

1. The dam is close to the highpoint at Van Dyke Road and the peak flow rates in the Seven Mile Relief Sewer are expected to be minimal at this location;
2. The Seven Mile and Seven Mile Relief Sewers have numerous interconnections on either side of the highpoint to convey wet weather flow rates around the diversion dam as shown on Figure 9; and
3. Only about 34% of the flow area of the 13-feet diameter sewer will be blocked by the higher diversion dam and the additional head loss across the dam would be minimal even with a high wastewater flow rate.

3. Partial-Height Bulkhead with Flap Gate at the Downstream End of PCI-19 Reach

To protect against backwater conditions from PS-2 of the GLWA WRRF, a partial-height bulkhead is proposed to be designed, furnished, and installed by the contractor in Manhole PCI-19-102 downstream of the section of the NIEA to be lined with a spray-on coating. A flap gate will be installed in the partial-height bulkhead to allow wastewater to drain by gravity if downstream levels are low. If backwater occurs from the PS-2 wet well, temporary dewatering pumps may be required to fully drain the upstream NIEA.

Figure 10 presents a detail of the partial-height bulkhead with flap gate. The flow control necessary for installing this gate would include diverting flows using the rehabilitated PC-663 gate, closing gates VR-15 and VR-16, and a drawdown of the PS-2 wet well level to an elevation below 75-feet.

The partial-height bulkhead with flap gate may be left in-place during wet weather. The cross-sectional area of the 12-foot diameter NIEA interceptor is 113.1 feet^2. The open area of the bulkhead with flap gate is about 90.8 feet^2. The expected additional head loss at a peak flow rate of 800-cfs is about 0.2-feet and not significant. Upon completion of the rehabilitation work, the partial height bulkhead shall be removed.

4. NESPS Operations During Diversions to the Seven Mile Relief Sewer

The Seven Mile Relief Sewer is at a higher elevation than the NIEA. Therefore, for flow to enter the Seven Mile Relief Sewer, the NIEA upstream of the PC-663 gate structure must become surcharged. This surcharging will reach the discharge chamber at the NESPS and can affect pump operation depending on the flow rate being discharged by the NESPS. Each pump

discharges into a header with a crossover discharge pipe. If the hydraulic grade line (HGL) elevations at the discharge header get too high, reverse flow and recirculation can occur through the crossover discharge pipe between an idle and in-service pump.

Table 1 below presents the expected pumping capacities at the NESPS. Future Pump 3 and existing Pump 4 have lower crossover discharge pipe invert elevations of 121.22-feet. Pumps 1, 2, 5, and 6 have higher crossover discharge pipe invert elevations of 132.22-feet.

Table 1. Expected Pumping Capacities at the Northeast Sanitary Pump Station

Pump	Type	Discharge (cfs)	
		Wet Well = 525 ft-NAVD88	Wet Well = 529 ft-NAVD88
#1	CS	163.9	169.7
#2 (93% Speed)	VFD	134.8	144.0
#2 (100% Speed)	VFD	173.2	180.9
#4 (80% Speed)	VFD	28.5	38.2
#4 (100% Speed)	VFD	97.6	101.6
#5	CS	121.6	127.3
#6	CS	163.9	169.7

CS = Constant Speed
VFD = Variable Frequency Drive

The model was run with a range of dry weather flow rates to predict the HGL elevations at the NESPS discharge header when the Seven Mile Relief Sewer interconnection is being used. The model results are shown on Figure 11. The predicted HGL is about equal to the Pump 4 crossover pipe invert elevation with a flow rate of 110-cfs from the NESPS into the NIEA and Seven Mile Relief Sewer.

The average daily dry weather flow rates at the NESPS are expected to vary from about 92 to 118-cfs and the peak hour dry weather flow rate is expected to be about 180-cfs. Therefore, it is recommended that Pump 4 (and future Pump 3) be turned off, isolated, and taken out-of-service by closing the suction side knife gate valve whenever the Seven Mile Relief Sewer interconnection is being used to convey dry weather flow rates from the NIEA.

The remaining pumps at the NESPS will have a firm capacity of about 483-cfs with future Pump 3 and existing Pump 4 out-of-service. This firm capacity is more than enough for the expected range of dry weather flow rates at the NESPS.

Hydraulic Impact of Spray-on Coating

The proposed spray-on coating will reduce the interior diameter of the interceptor from 12’-0” to 11’-8”. A hydraulic model of the NIEA was created using the TAP and ran with the contract

capacity of the NESPS loaded at the discharge point of the NESPS. The predicted hydraulic grade line at Manhole 103 was 84.12 ft-Detroit Datum under existing conditions and 84.17 ft-Detroit Datum with the proposed spray-on coating in place. Both predicted HGLs are within the interceptor pipe of the NIEA and this predicted increase of 0.05 feet to the depth is considered acceptable and will not impact operations of the NESPS or the NEIA.

Figure 1. NIEA Plan View Map with Flow Inputs and Rehabilitation Work Extents

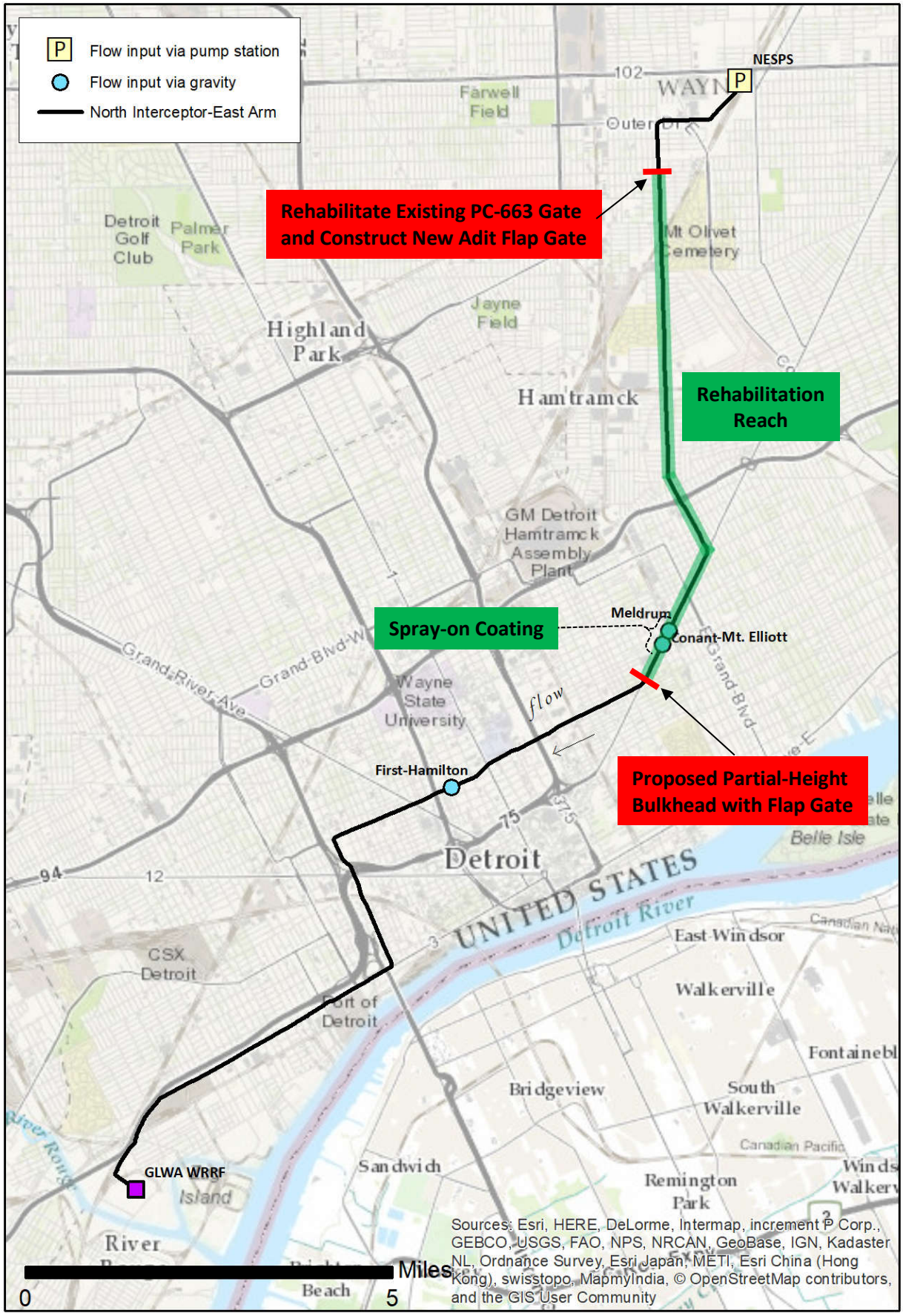


Figure 2. Profile of the North Interceptor-East Arm

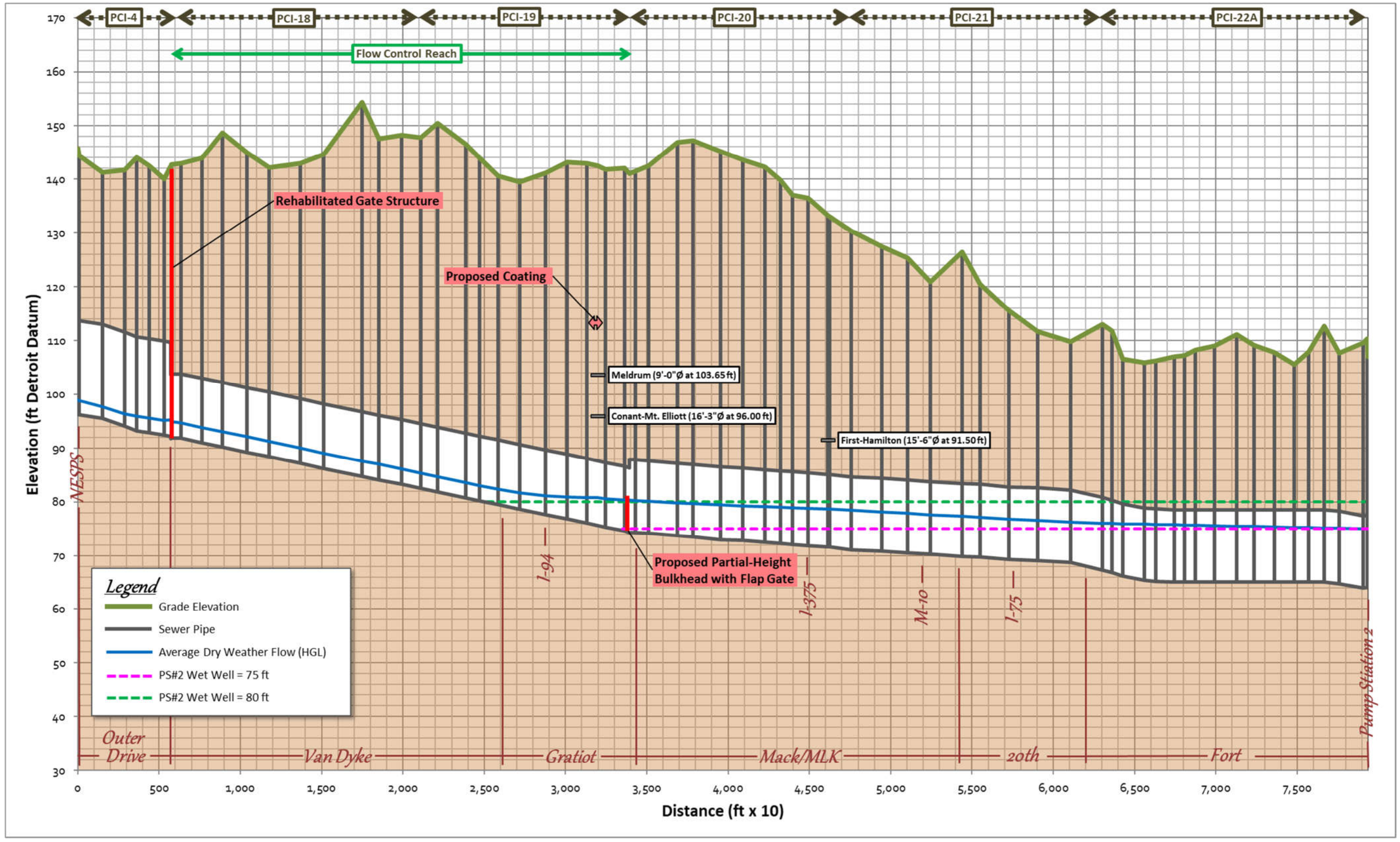


Figure 3. Location of Structures to be Rehabilitated or Modified

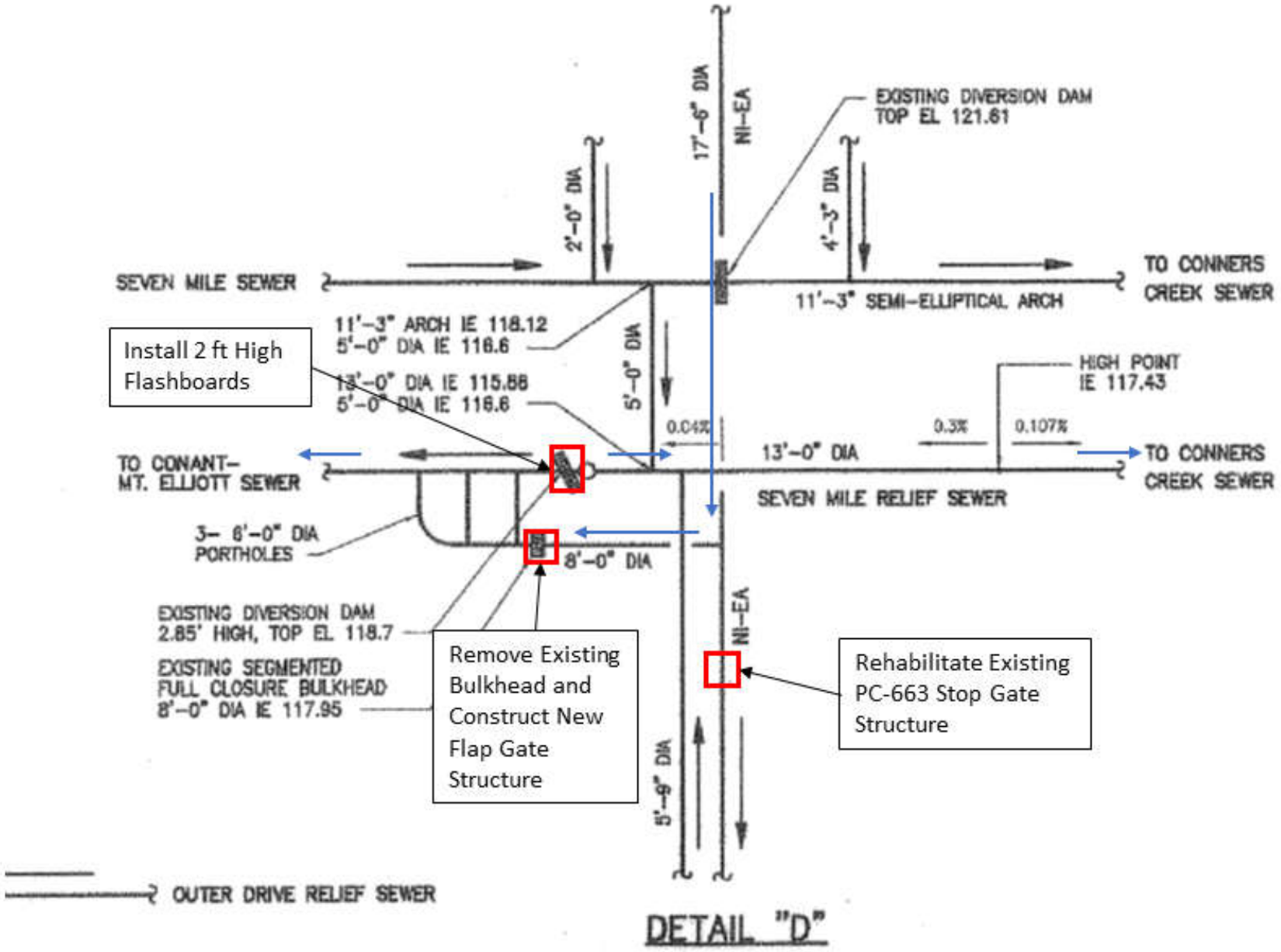


Figure 4. Existing PC-663 Control Gate Structure – Cross Section

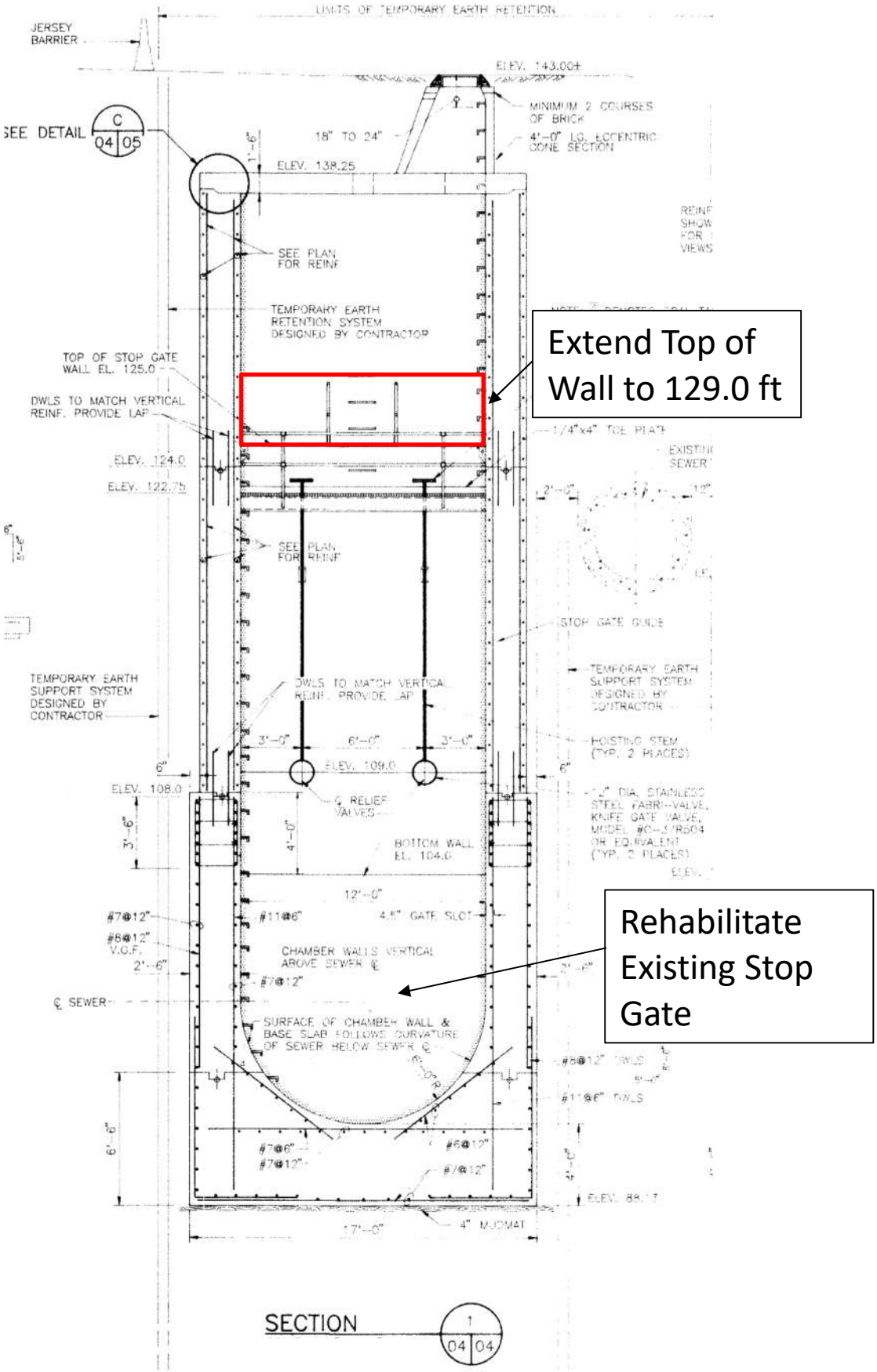


Figure 5. Existing PC-663 Control Gate – Profile View

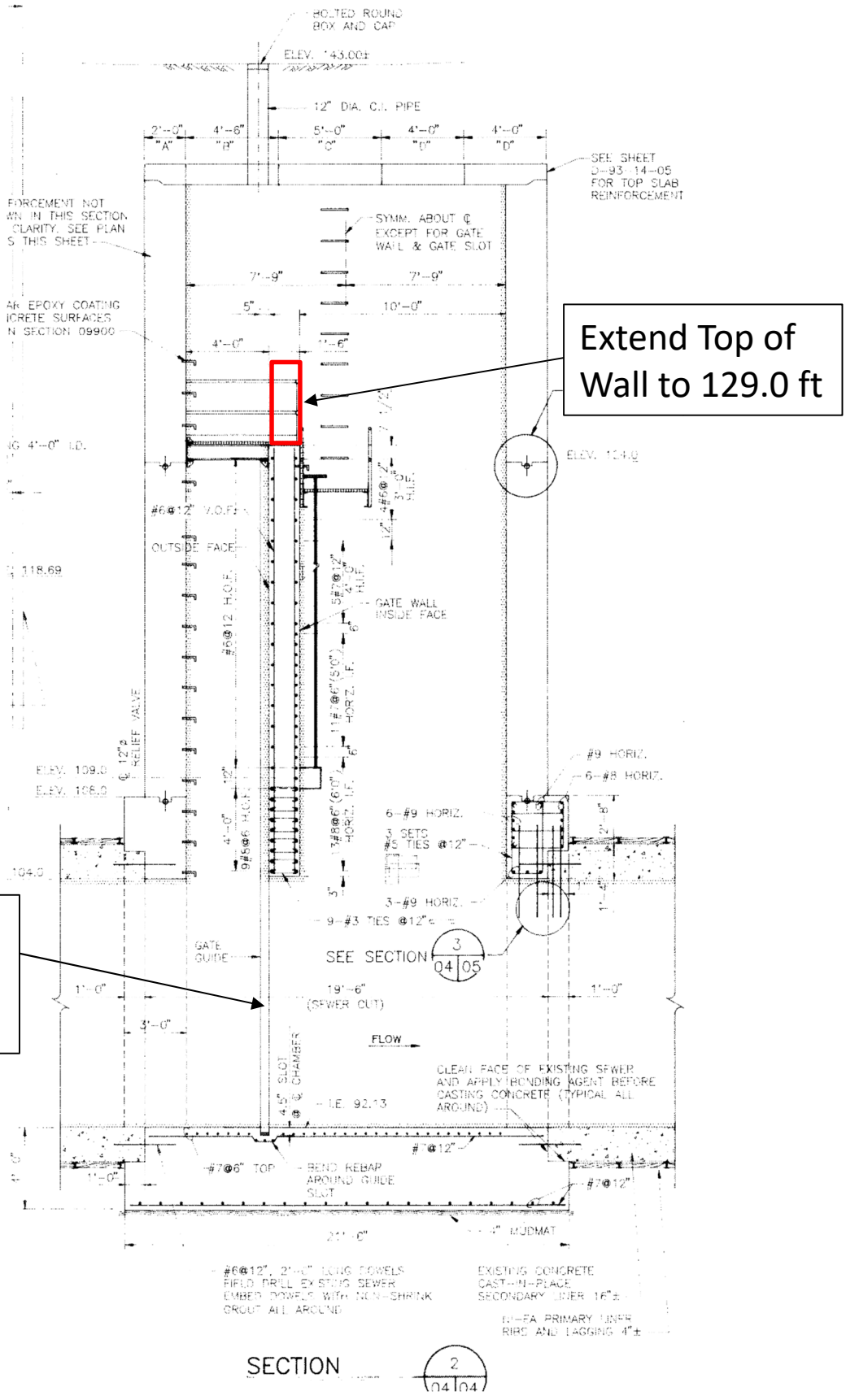


Figure 6. Proposed Seven Mile Adit Flap Gate Chamber

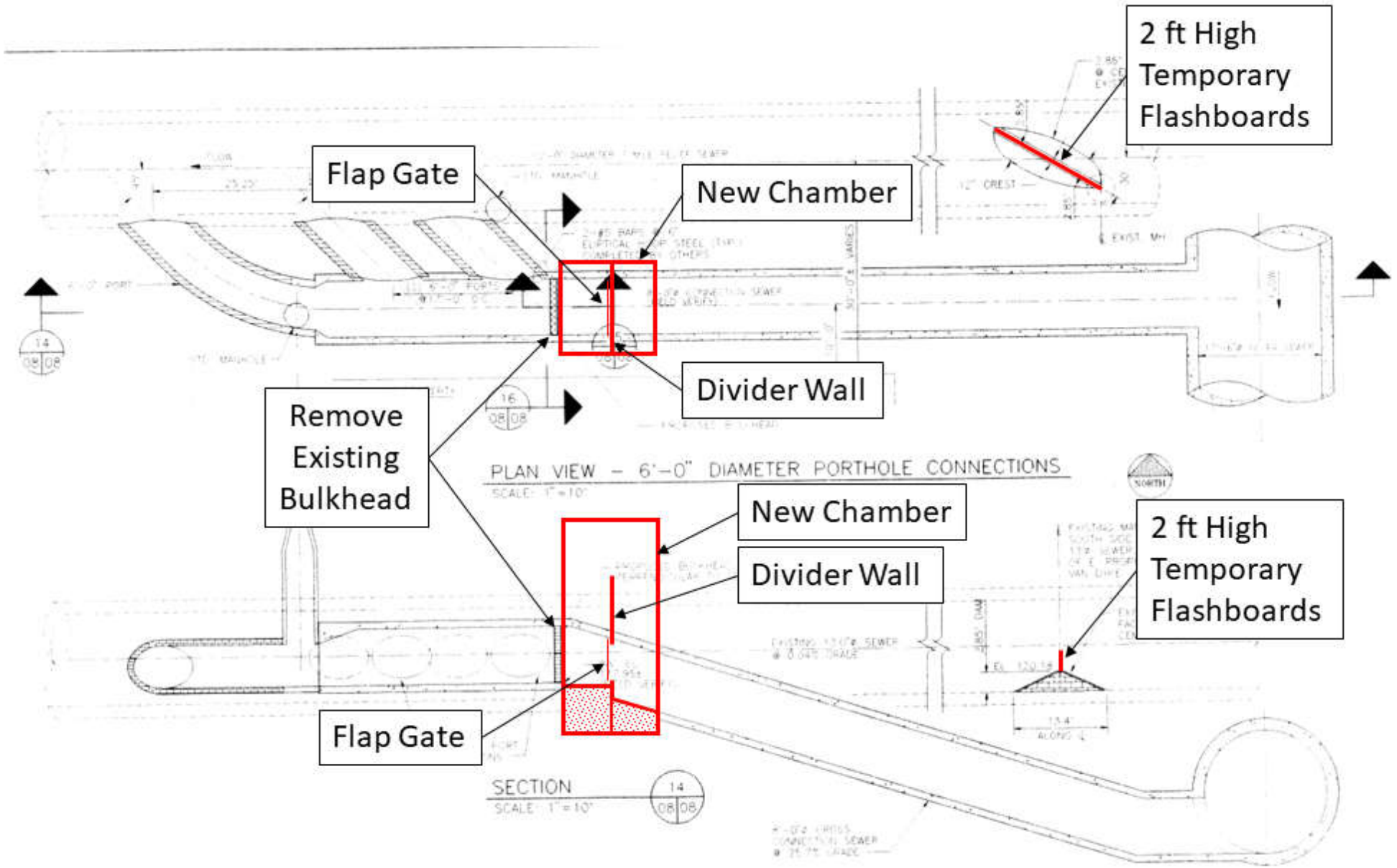


Figure 7. OMID and MID Control Structures

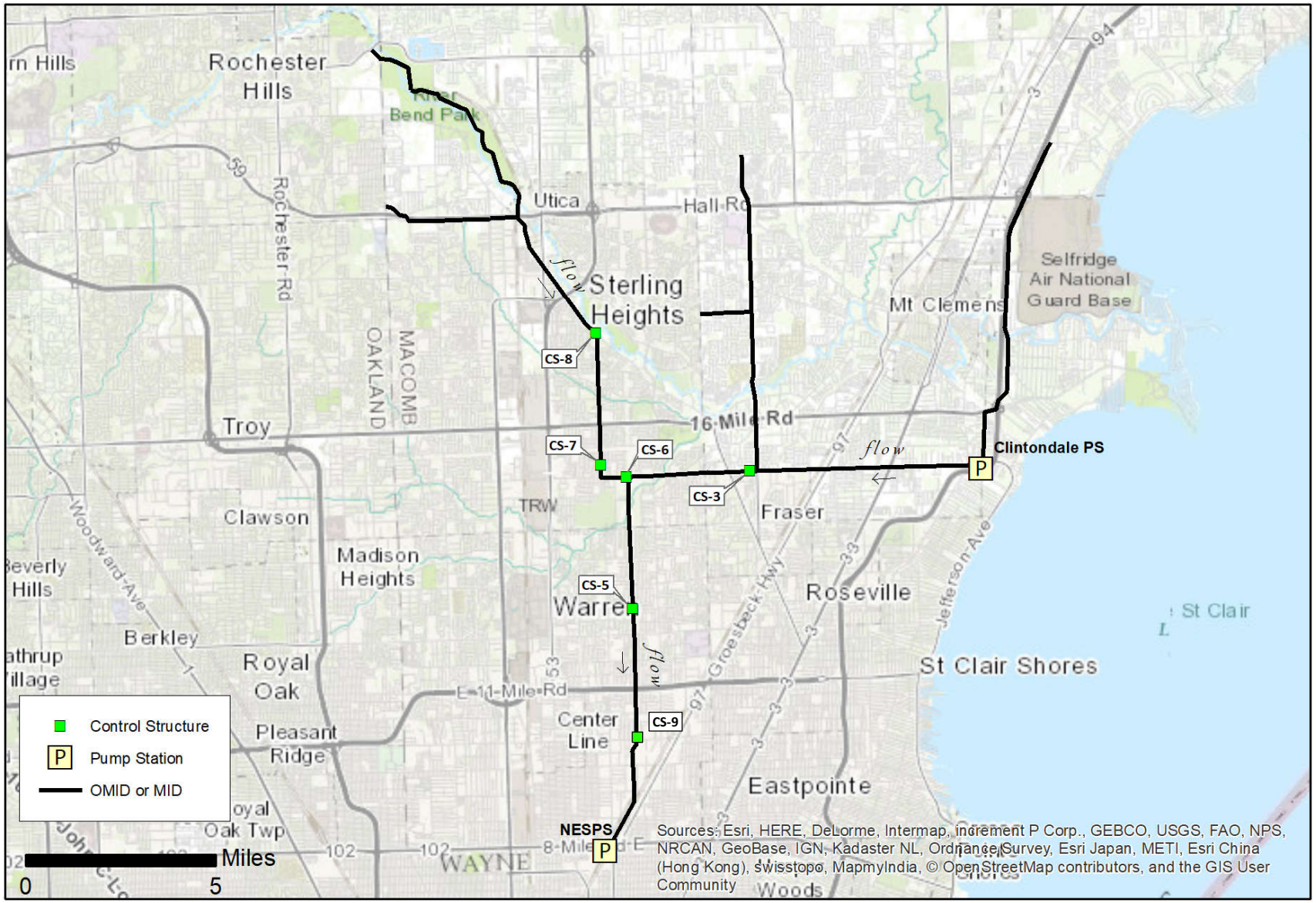


Figure 8. Seven Mile Relief Sewer NESPS Discharge Flow Rate Versus Diversion Dam Height

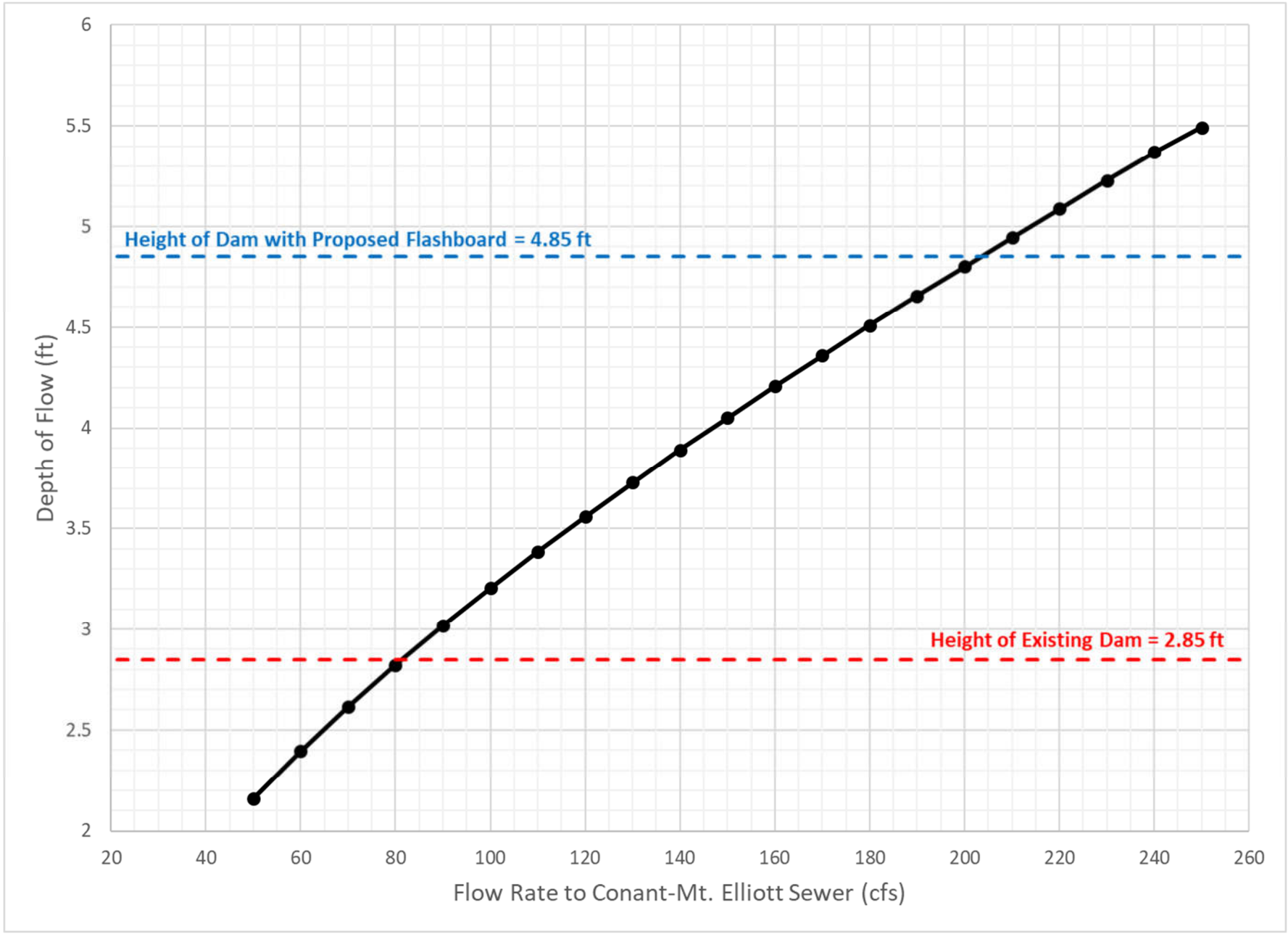
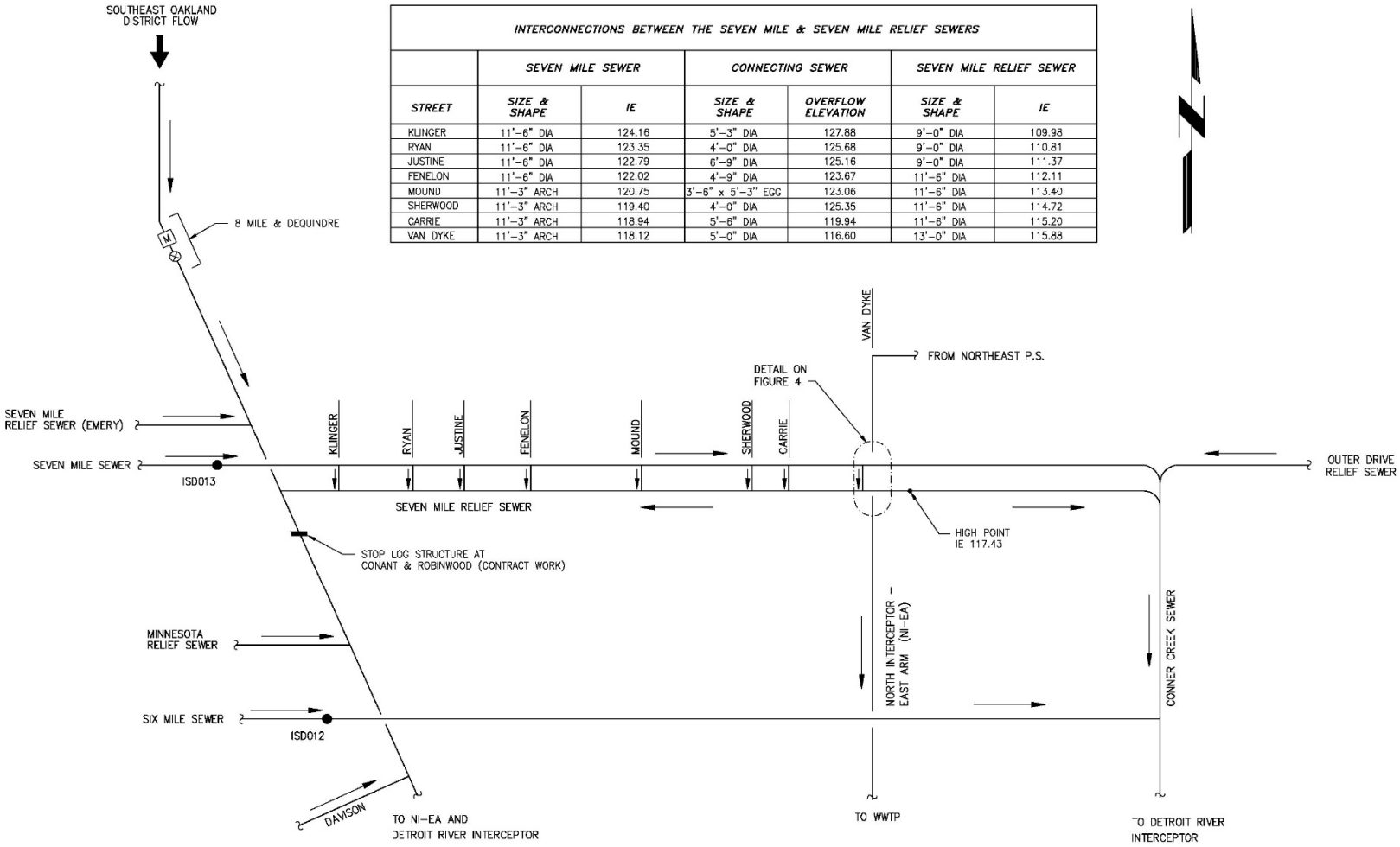


Figure 9. Seven Mile and Seven Mile Relief Sewer Interconnections



INTERCONNECTIONS BETWEEN THE SEVEN MILE & SEVEN MILE RELIEF SEWERS						
	SEVEN MILE SEWER		CONNECTING SEWER		SEVEN MILE RELIEF SEWER	
STREET	SIZE & SHAPE	IE	SIZE & SHAPE	OVERFLOW ELEVATION	SIZE & SHAPE	IE
KLINGER	11'-6" DIA	124.16	5'-3" DIA	127.88	9'-0" DIA	109.98
RYAN	11'-6" DIA	123.35	4'-0" DIA	125.68	9'-0" DIA	110.81
JUSTINE	11'-6" DIA	122.79	6'-9" DIA	125.16	9'-0" DIA	111.37
FENELON	11'-6" DIA	122.02	4'-9" DIA	123.67	11'-6" DIA	112.11
MOUND	11'-3" ARCH	120.75	3'-6" x 5'-3" EGG	123.06	11'-6" DIA	113.40
SHERWOOD	11'-3" ARCH	119.40	4'-0" DIA	125.35	11'-6" DIA	114.72
CARRIE	11'-3" ARCH	118.94	5'-6" DIA	119.94	11'-6" DIA	115.20
VAN DYKE	11'-3" ARCH	118.12	5'-0" DIA	116.60	13'-0" DIA	115.88

Figure 10. Proposed Partial Height Bulkhead

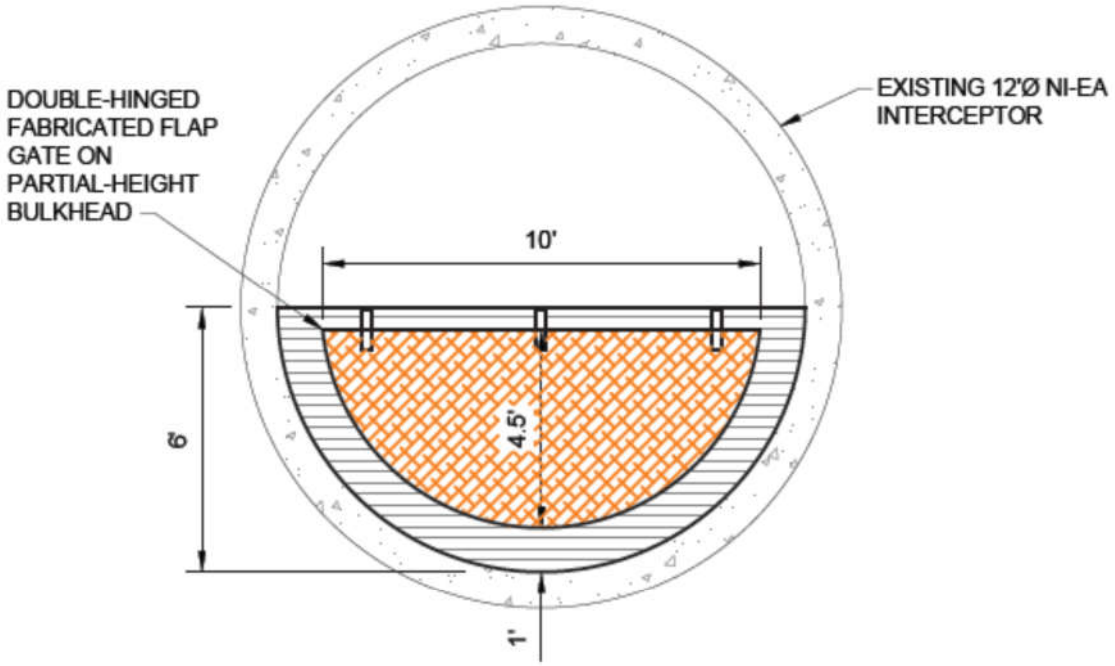


Figure 11. Hydraulic Grade Line versus NESPS Discharge Flow Rate

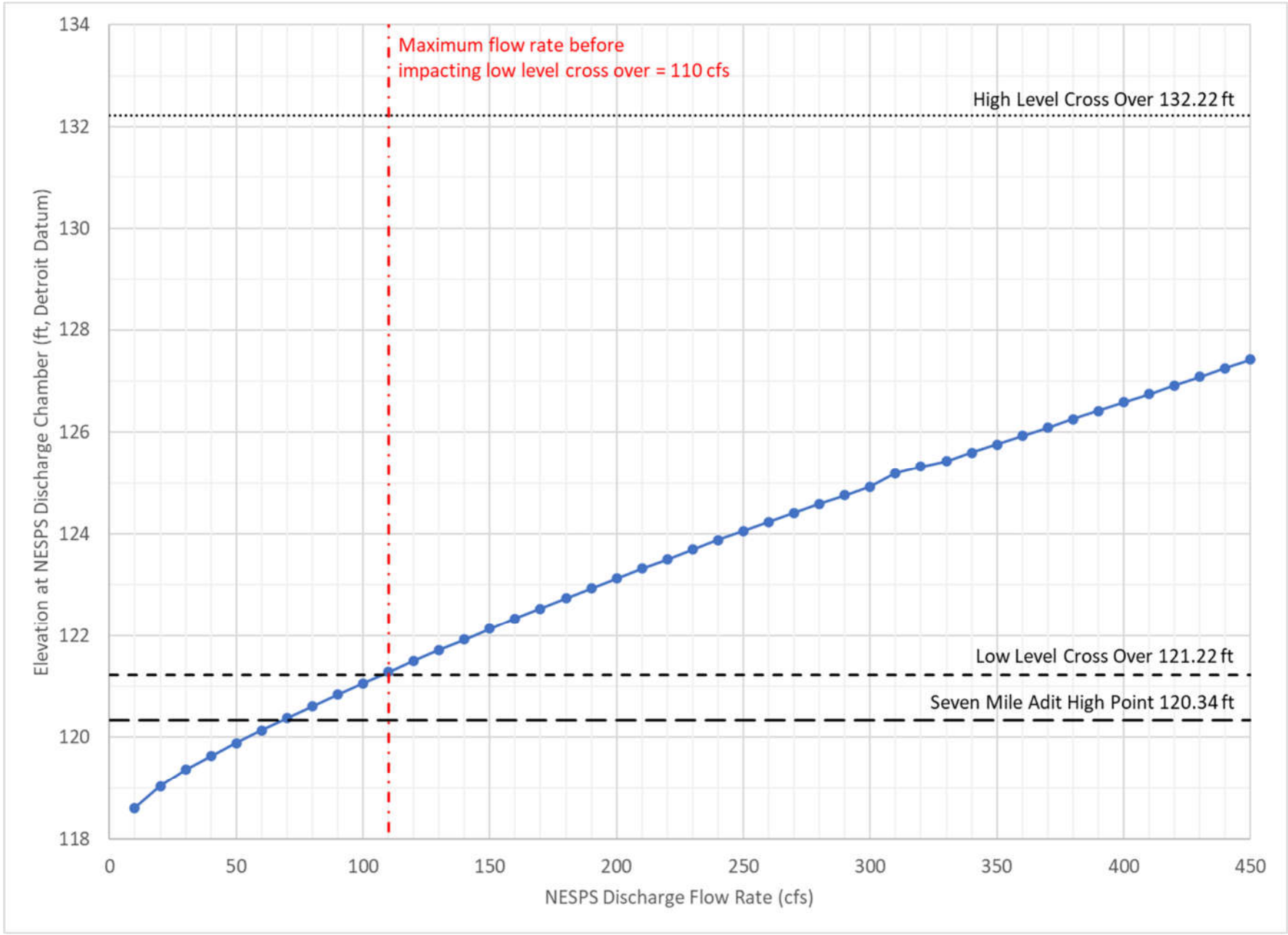


EXHIBIT D

Lining Pilot Study Inspection and Monitoring Protocols

Oakland Macomb Interceptor Drain
NI-EA Contract 2 Design Memo

DRAFT MEMORANDUM

To:	OMID Design Team	DATE: October 21, 2021
FROM:	B. Kelly, F. Klingler, S. Sachidanandan	
SUBJECT:	Lining Pilot Study Inspection and Monitoring Protocol	

The purpose of this memorandum is to provide a summary of the proposed protocols for monitoring, inspection, and evaluation of different spray-on lining products that will be installed as part of a pilot study conducted under NI-EA OMID Contract No. 2 PCI-18 and 19 Rehabilitation Project. This effort is to be paired with an inspection, monitoring, and evaluation effort in PCI-4, which is currently under contract to be lined with multiple sliplining products in a rehabilitation effort scheduled for completion in 2022.

1.0 PROJECT BACKGROUND

The Oakland Macomb Interceptor Drain Drainage District (OMIDDD) is currently developing a rehabilitation design for 800 feet of the NI-EA PCI-19 Interceptor, between the Mt. Elliot and Meldrum connections. This reach of sewer has experienced excessive corrosion compared to other system reaches of similar size, function, and construction. As such, OMIDDD intends to use this rehabilitation project as a pilot study to evaluate multiple spray-on lining materials in a highly corrosive environment subject to elevated levels of gaseous hydrogen sulfide (H_2S)—a known contributor to microbially induced corrosion (MIC). Flows in PCI-19, as modeled in VR-15 at the Mt. Elliott control facility, range from up to 500 cfs for a 10-year event (with 125 cfs being a minimum during dry weather). This volume of flow makes PCI-19 a critical component of the regional sewer system.

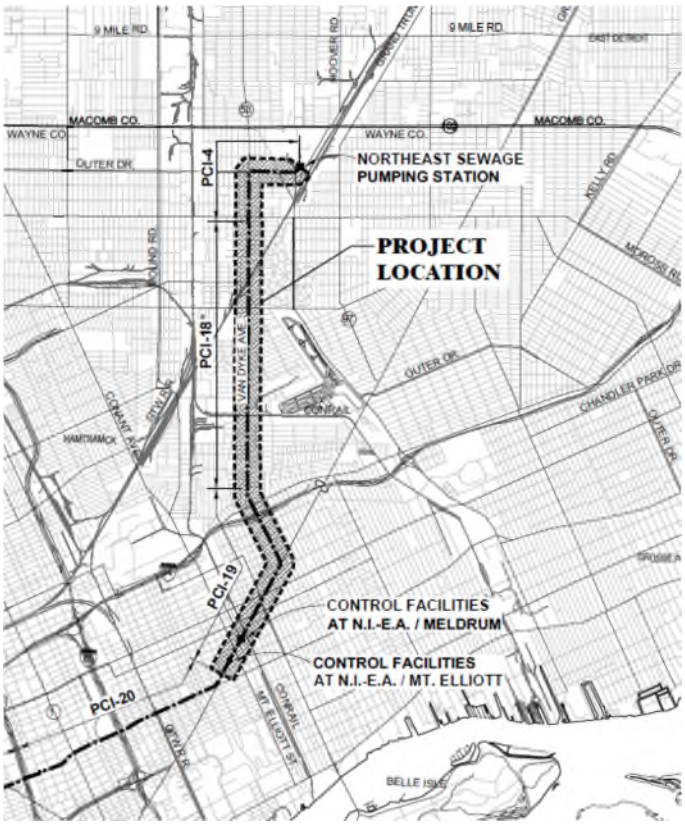


Figure 1: NI-EA Overview – PCI-4, PCI-18 & PCI-19

Additionally, the sewer designated as PCI-4 (shown in Figure 1) was lined in 2017 using a spray-applied cementitious mortar. Since that time, the lining has deteriorated rapidly (as shown in Figures 4 and 5 and discussed in Section 2.0). The majority of degradation in PCI-4 took place prior to the implementation of the NESPS BioTrickling Filter. This biotrickling filter extracts odorous air from the NESPS discharge chamber and wet well and treats that air to reduce H_2S. Wastewater flows discharge into PCI-4, which can affect air flow rates that are extracted and treated according to operational protocols. As

this facility was put into service on April 21, 2020, the full impact on H_2S levels in downstream sewer reaches is not yet been field verified; however, it is anticipated based on sewer process modeling that the zone of influence is downstream in PCI-4, with lesser impacts on PCI-18 and PCI-19.

A future evaluation of the BioTrickling Filter is planned. As such, the location of measurement, and scheduled inspections included in the Lining Pilot Study discussed herein should be strategically planned to facilitate evaluation of interceptor system impacts by the BioTrickling Filter.

1.1 Pilot study

The proposed pilot study for lining materials will include two epoxy-based spray-applied liners and two geopolymer mortar-based spray-applied liners, each applied in adjacent 200 foot sections at the downstream end of PCI-19 (see Figures 1 and 2). In addition to providing much needed rehabilitation of the sewer reach, the performance of these liners will factor into the design of future rehabilitation efforts throughout the system. Recent sampling following completion of the BioTrickling Filter indicates that high levels of H2S remain only near the discharge structure and rapidly decline further downstream (approaching PCI-19). As such, H_2S levels in PCI-19 may not be high enough to incur corrosion; however, a baseline sampling will provide a necessary datapoint as turbulence at the Meldrum and Mt. Elliot control facilities could contribute to elevated H_2S levels.

To optimize the value of this pilot study, and provide the most useful insights for future design efforts, OMIDDD has requested that we develop a plan for monitoring corrosion of this 800-foot reach (PCI-19) once lining has taken place. Monitoring of effective factors and corrosion in PCI-4 will provide data to determine the effectiveness of both the lining efforts currently underway and the BioTrickling Filter. Further, upstream (PCI-4) and downstream (PCI-19) monitoring will aid in determining the BioTrickling Filter's range of influence.

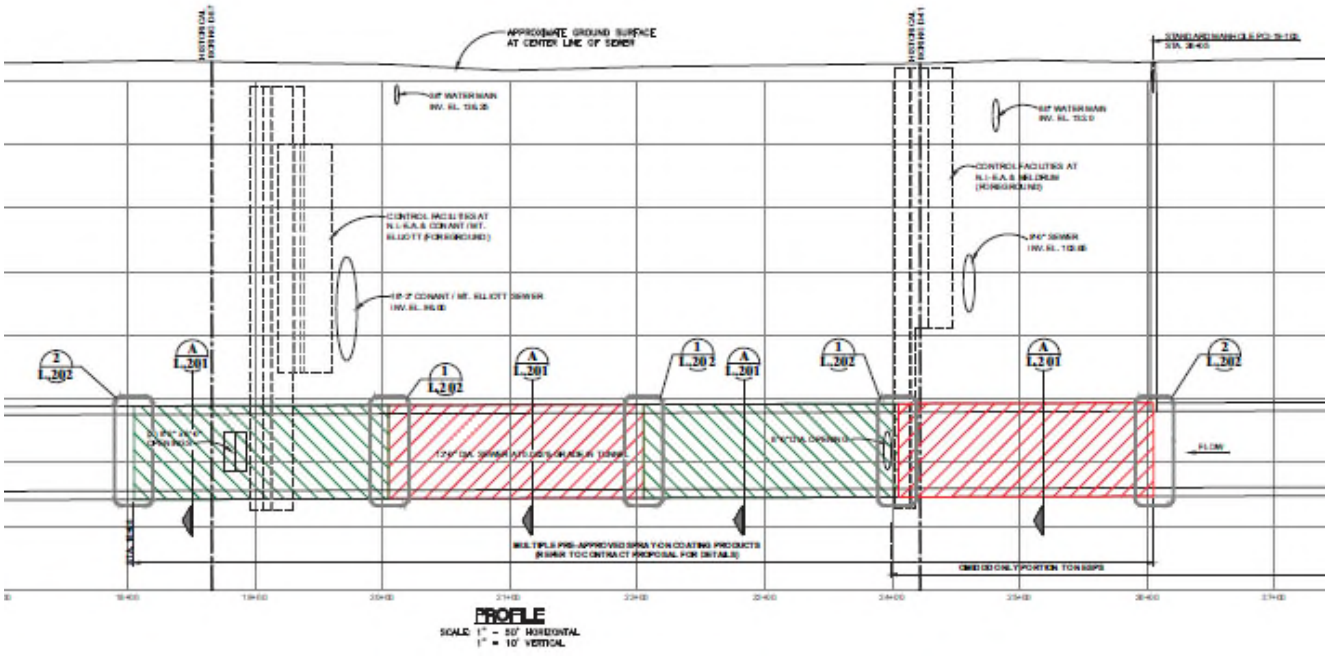


Figure 2: Profile of proposed PCI-19 lining

Figure 3: Stills from PCI-4 inspections (previously rehabilitated section)

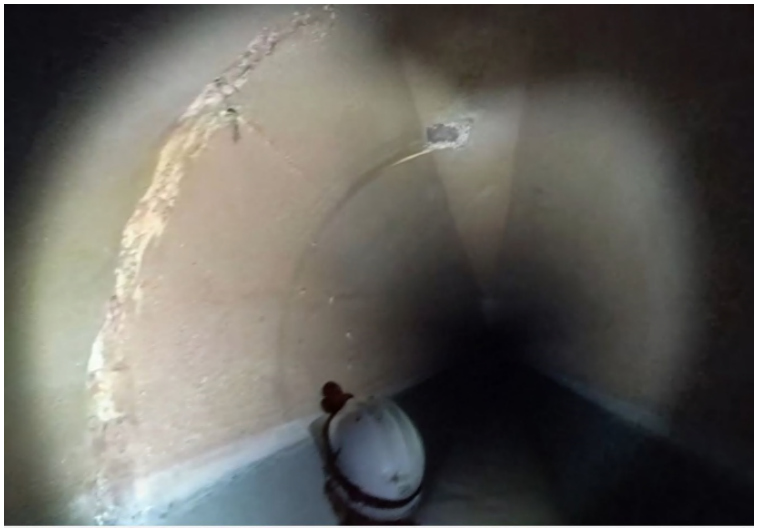


Figure 4: Stills from PCI-18 inspection in 2019, showing typical conditions

Figure 5: Stills from PCI-19 inspection in 2019, showing typical conditions

2.0 CORROSION IN PCI-4

The primary contributor to deterioration in this reach is believed to be H_2S, through a process as shown in Figure 7. In summary, species of sulfate-reducing bacteria (typically strains of thiobacillus) in influent wastewater or the biofilm (slime) layer convert sulfates in wastewater into aqueous H_2S. Aqueous H_2S radiates as gaseous H_2S into the freeboard air above the flow line (a process accelerated by turbulence in the flow). On contact with the porous concrete surfaces of the sewer, sulfur-oxidizing bacteria convert this gaseous H_2S into sulfuric acid. The sulfuric acid chemical degrades the exposed surfaces of the pipe. When this outer layer of concrete is sufficiently degraded to slough free, the process continues on deeper layers of concrete, leading to exposed aggregate, then section loss, then exposed reinforcing steel, and so forth.

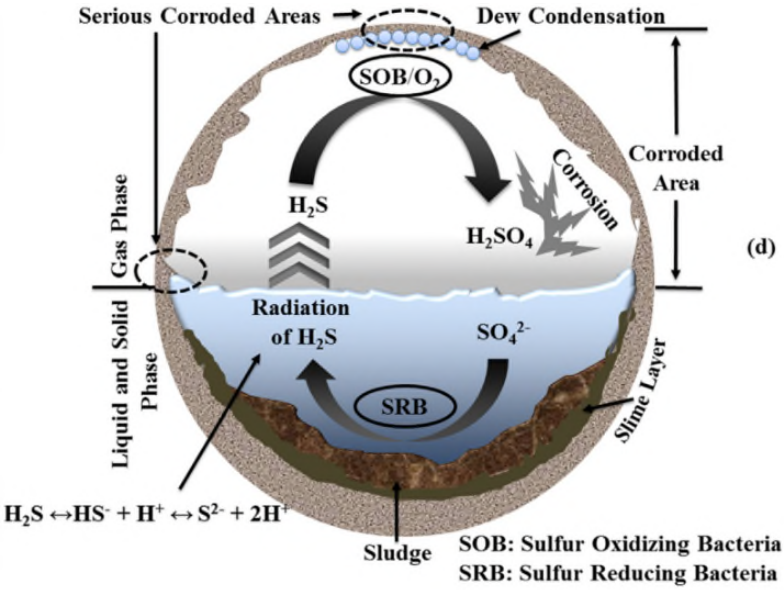


Figure 6: H_2S corrosion process in sewer

While H_2S is the primary contributor to MIC, other environmental factors can accelerate the growth of sulfur-oxidizing bacteria and thus the rate of concrete deterioration. Research[1] indicates that humidity, temperature, and pH levels are all effective factors in MIC. In summary, an environment where flows rich in H_2S are disturbed, where temperature and humidity are high, and where pH levels are low (acidic), creates ideal growing conditions for corrosive microbes. Conceivably, an environment with neutral or high pH, low temperatures, and low humidity would experience dramatically reduced MIC relative to an environment with ideal conditions for microbial growth. These effective factors can be monitored with devices currently available on the market.

Figure 7: Side by side comparison of unaffected concrete and concrete undergoing H_2S corrosion

The repair for the first 110 feet downstream of NESPS using a 3-inch thick EcoCast (geopolymer) liner was performed on an emergency basis as part of OMID NI-EA Rehabilitation Project in 2017. However, a recent inspection in 2021 February revealed excessive deterioration of the relined section (See Figure No.

3). Further investigation is ongoing to evaluate the cause of deterioration. In any case, PCI-4 is scheduled for rehabilitation with Channeline glass-reinforced plastic sections in 2021-2022.

3.0 MONITORING EFFECTIVE FACTORS OF MICROBIAL GROWTH

The levels of H_2S and most of the effective factors outlined above can hypothetically be measured on an ongoing basis with fixed sensors installed within the sewer. However, due to high levels of corrosive H_2S, fixed sensors have been deemed unsuitable within the NIEA. The following sections discuss measurements of each effective factor of microbial growth, with the intervals and overall plan detailed in Section 5.

3.1 H_2S measurement

For the purposes of this study, personnel would enter the NIEA at regular intervals (see Section 5 for further details on the inspection and monitoring plan) and take H_2S readings using portable sensors. For a fair comparison between lining products, an H_2S reading will be taken within each 200-foot liner section. H_2S measurements would also be taken in PCI-4

3.2 Humidity and Temperature measurement

For the purposes of this study, personnel would enter the NIEA at regular intervals (see Section 5 for further details on the inspection and monitoring plan) and take humidity and temperature readings using portable sensors. For a fair comparison between lining products, readings will be taken within each 200-foot liner section and within PCI-4.

3.3 pH measurement

While there are a number of commercially available sensors for monitoring aqueous pH, of primary interest for tracking effective factors is the pH level at the concrete or lining surface. Fresh concrete has a pH as high as 13, which can decrease due to chloride ingress, carbonation, and acid attack. While multiple factors contribute to the durability of concrete and lining materials, a reduced pH of material (water, slime, etc) on concrete or lining surfaces is indicative of ongoing corrosion (MIC). Concrete and lining materials will have differing baseline pH levels, due to the alkalinity of concrete. This study should coordinate with lining manufacturers to determine the anticipated pH level of their material relative to concrete.

For the purposes of this study, inspectors could conduct pH testing on samples from the surface of lining materials at regular intervals (see the table in Section 5.0) along each lining reach in PCI-19 and within PCI-4.

4.0 LINING DEGRADATION MONITORING

For the purpose of systematic evaluation of the performance of the four lining systems applied for this pilot study, it will be necessary to conduct a regular inspection and testing cycle for the subject area. In addition to monitoring of effective factors as described in Section 3, the following section will discuss observations and measurements associated with lining degradation to track the operational performance of each lining alternative.

4.1 Man-Entry Inspections

Due to the large sewer size, relatively easy access to the pilot-study area of the sewer, and available flow controls, man-entry inspection is the obvious choice for regular inspection of the study area. Such man-

entry inspections could include both non-destructive testing and monitoring, and destructive testing. All necessary tests could be conducted from a ladder, with no requirement to erect scaffolding.

In either case, the testing should be designed to monitor for the typical failure mechanisms of the subject lining types. Typical failure mechanisms for polymer mortar lining are delamination of the spray applied lining from the host pipe, or between layers of applied product; or through hydrogen sulfide corrosion, as discussed above. Abrasion may also be observed and documented using standardized abrasion measures provided by the International Concrete Repair Institute (ICRI). Epoxy coat linings are typically not significantly impacted by MIC, with the typical failure mechanism related to delamination (bond failure) from the host pipe and sometimes damage to the lining or reduction in liner thickness due to abrasion. Approaches for monitoring for these types of failure are summarized as follows:

4.1.1 Pins (geopolymer-based and/or epoxy-based spray-applied liner sections)

The straight-forward "low-tech" means of monitoring corrosion or section loss within polymer mortar lined areas would include the placement of an array of 316 L stainless steel pins within the proposed lining areas. Pins of this nature are a conventional inspection strategy for verifying adequate spray-applied lining thickness during installation, and only minor modifications would be required for use in corrosion monitoring. Once in place, inspectors entering to monitor corrosion would take measurements of the protruding pin, giving an accurate measurement of section loss local to the pin.

Figure 8: Spray application of a geopolymer lining

For the purposes of corrosion monitoring, the stainless steel pins should be embedded three inches into the concrete host pipe with one inch protruding from the newly-applied liner. They should be placed at the crown, springline, and upper and lower quarter points, with these sets spaced at 50 feet on center along the sewer reach. This test is considered entirely non-destructive.

4.1.2 Tabs (epoxy-based spray-applied liner sections)

As discussed above, epoxy-based linings do not typically degrade under acid-attack, with the typical failure mechanism involving delamination (i.e., bonding failure) from the host pipe. Similar to the stainless steel pins discussed above, epoxy-based lining operations often use pull-tabs to provide an inspection check on the integrity of the lining-to-host-pipe bond. Once in place, inspectors entering to monitor corrosion would pull on the tabs and document the measured force required to remove the tab (approximate psi of pull to fail). A relatively easy removal of a tab would be indicative of reduced bonding of the lining material to the host pipe. Also, the test allows for confirmation of failure through the concrete, and not at the epoxy-concrete interface, as would occur if there were a bond failure.

For the purposes of corrosion monitoring, the tabs should be placed through the entire thickness of the lining. They should be placed at the crown, springline, and upper and lower quarter points, with these sets space at 25 feet on center along the sewer reach. The interval of the pull-testing could be six months to a year, depending on their status during the first follow-up entry. Pull-test tabs would be placed (glued) immediately prior to the test, and tested areas would be immediately repaired (re-coated with epoxy) to

prevent future peeling of the test area. If performed and repaired properly, the pull-tab test is considered only moderately destructive.

4.1.3 Hardness Testing (geopolymer-based spray-applied liner sections)

This approach would use an ASTM-standardized Swiss (Rebound) Hammer test of surface hardness within each lining section. The Swiss Hammer measures the rebound of a spring-loaded mass impacting against the surface of concrete or other materials.

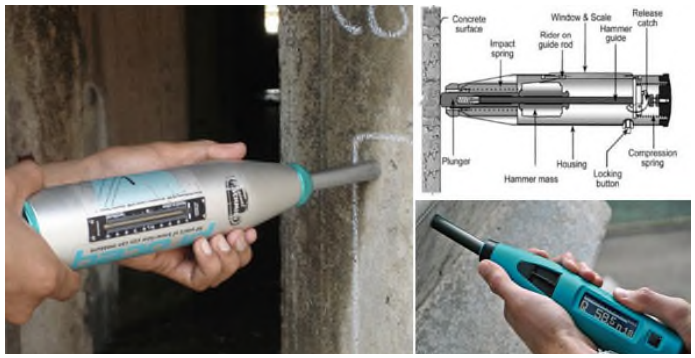


Figure 9: Swiss or Rebound Hammer testing for surface hardness

For the purposes of corrosion monitoring, inspectors would perform Swiss Hammer testing and documentation at springline, upper and lower quarter points, and crown at 50foot intervals within a given lining reach. Additionally, Swiss Hammer testing would be conducted in any area that exhibits elevated corrosion relative to the rest of the lining section. The Swiss Hammer testing conducted on polymer mortar surfaces may result in a small chip at the surface, but is essentially non-destructive.

4.1.4 Abrasion

During manned-entry inspection, personnel would document abrasion in multiple locations within each lining segment of PCI-19 as well as PCI-4. For continuity and consistency, inspectors would evaluate areas of lining based on the International Concrete Repair Institutes standards for abrasion, which includes 10 levels of surface roughness and provides visual examples in the form of molded rubber comparator chips. The expected surface roughness of lining at application would be provided by the manufacturer.

4.1.5 Coring (polymer mortar-based spray-applied lining and epoxy linings that include mortar base)

Non-destructive methods of measuring corrosion will, in general, provided limited insight into the subsurface integrity of the materials under study. For a comprehensive picture of the status of a lining material, core samples should be taken of polymer mortar spray-applied lining sections (including epoxy coatings that require application of a mortar base) five years after lining operations or earlier, if any indication of delamination failure through sounding of the lining during regular inspections. These samples would indicate the depth to the delamination, and determine if there were delamination between the host pipe and first application of spray lining, or between spray-lining layers. Cores could also be subjected to petrographic and other suitable analyses to determine the degree of corrosion and chemical changes through the thickness of the lining.

For the purposes of corrosion monitoring, cores would be taken at a limited number of locations in each geopolymer-lined section during year 5 of the study, with a focus on those areas exhibiting the most severe corrosion. The core would be performed to the surface of the host pipe and the hole filled with “like” material following recommendations of the liner manufacturer.

4.2 Profiling and Measuring Technology

Several forms of profiling and measurements are available to monitor the linings, all of which are

considered non-destructive.

4.2.1 Laser or Direct Measurements

Simple lining diameter measurements at regular intervals (using either a tape or laser) may be the most simple means of measuring lining loss, but is limited, in that it is difficult to measure at the exact same spot each time.

4.2.2 LiDAR profiling

Initial research did not identify any suitable 3D LiDAR-scan units for a fixed-in-place application; however, mobile 3D laser scan units have been used for periodic mapping of pipe surfaces throughout the OMID system. Despite some reliability concerns over the accuracy and fidelity of LiDAR scan data, conducting repeated scans would likely provide useful insights into corrosion patterns from scan to scan. Of note, 3D laser scans cannot provide reliable profile data below flow. Additionally, confined space LiDAR scans are expensive relative to manned-entry inspections using less specialized equipment.

4.2.3 Sonar profiling

Sonar scanning technology, mounted to floats or crawlers, can be used to derive sewer profiles comparable to LiDAR scanning. One advantage to sonar scanning is that it can provide data about conditions below the flow surface.

5.0 PILOT STUDY

In consideration of available technologies and methods, we propose a multi-pronged approach to monitor both environmental conditions and ongoing corrosion rate. The following table provides an overview of a five-year study to monitor corrosion and effective factors. Such a study can be extended beyond five years, depending on the results.

Date	Corrosion Monitoring	Effective Factor Monitoring
0 months	Pins and tabs installed during lining. Initial LiDAR/Sonar scan and Swiss Hammer hardness testing, video documentation*	Establish baseline H_2S, pH, humidity, and temperature.
6 months	Enter to perform pull test on tabs or document monitoring pins. Document abrasion to ICRI standards. Video documentation, hardness testing, sounding, and other measurements*	Enter to document H_2S, pH, humidity, and temperature.
12 months	Enter to perform pull test on tabs or document monitoring pins. Document abrasion to ICRI standards. Video documentation, hardness testing, sounding, LiDAR/sonar scan*	Enter to document H_2S, pH, humidity, and temperature.

18 months	Enter to perform pull test on tabs or document monitoring pins. Document abrasion to ICRI standards. Video documentation, hardness testing, sounding, and other measurements*	Enter to document H_2S, pH, humidity, and temperature.
24 months	Enter to perform pull test on tabs or document monitoring pins. Document abrasion to ICRI standards. Video documentation, hardness testing, sounding, LiDAR/sonar scan*	Enter to document H_2S, pH, humidity, and temperature.
30 months	Enter to perform pull test on tabs or document monitoring pins. Document abrasion to ICRI standards. Video documentation, hardness testing, sounding, and other measurements*	Enter to document H_2S, pH, humidity, and temperature.
36 months	Enter to monitor pins/tabs, video documentation, hardness testing, standard measurements, hardness testing, sounding, LiDAR/sonar scan*	Enter to document H_2S, pH, humidity, and temperature.
42 months	Enter to monitor pins/tabs, video documentation, hardness testing, sounding, measurements*	Enter to document H_2S, pH, humidity, and temperature.
48 months	Enter to monitor pins/tabs, video documentation, hardness testing, standard measurements, sounding, LiDAR/sonar scan*	Enter to document H_2S, pH, humidity, and temperature.
54 months	Enter to monitor pins/tabs, video documentation, sounding, measurements*	Enter to document H_2S, pH, humidity, and temperature.
60 months	Enter to monitor pins/tabs, video documentation, hardness testing, standard measurements, sounding, LiDAR/sonar scan, core samples for delamination and petrographic analysis*	Enter to document H_2S, pH, humidity, and temperature.

*During each entry, measure extent (SF) of delaminated areas through sounding and consider coring to determine depth of delamination, if present

5.1 Final Reporting

The final report would document the extent and progress of deterioration for each of the lining types, and compare overall performance. Differences in measured environmental factors, such as humidity, pH, and hydrogen sulfide concentrations would be considered in evaluation of performance.

References:

1. **Concrete & the Challenge of Microbial Induced Corrosion** by Situ Biosciences. https://www.situbiosciences.com/2012/08/07/concrete-microbial-induced-corrosion/

2. **A practical methodology to assess corrosion in concrete sewer pipes** by Shima Taheri, Martin Ams, et al. *Matec Web of Conferences.* 2018 https://www.matec-conferences.org/articles/matecconf/pdf/2018/58/matecconf_iccrrr2018_06010.pdf

3. **Recent Advances in Sensing and Assessment of Corrosion in Sewage Pipelines** Sahar Foorginezhada et al, Process Safety An Environmental Protection, September 2020

EXHIBIT E

Project Insurance Requirements

Contractor Insurance: OMIDDD shall require all contractors engaged for the Project to provide commercial general liability, automobile liability, umbrella or excess liability, workers' compensation, and when applicable, professional liability and unmanned aerial vehicle liability insurance with required limits of liability not less than the following:

Coverage	Project Required Limit	Required from Contractor	Required from Subcontractor	Provided by the Owner/OCIP
Workers Compensation				
Coverage A – Compensation	Statutory	Statutory	Statutory	Not Provided (NP)
Coverage B – Employer's Liability (each accident)	$100,000	$1,000,000	$500,000	NP
Employer's Liability (disease policy limit)	$500,000	$1,000,000	$500,000	NP
Employer's Liability (disease – each employee)	$100,000	$1,000,000	$500,000	NP
Commercial General Liability				
General Aggregate	$5,000,000	$2,000,000	$1,000,000	$4,000,000
Products-Completed/Ops Aggregate	$5,000,000	$2,000,000	$1,000,000	$4,000,000
Personal & Advertising Injury	$1,000,000	$2,000,000	$1,000,000	$2,000,000
Each Occurrence	$1,000,000	$2,000,000	$1,000,000	$2,000,000
Fire Damage	$50,000	$50,000	$50,000	$100,000
Medical Expenses	$5,000	$5,000	$5,000	-
Comprehensive Automobile Liability				
Combined Single Limit	$1,000,000	$2,000,000	$1,000,000	NP
Owner's Protective				
Each Occurrence	$2,000,000	Not Required – Provided by Owner/OCIP		$10,000,000
General Aggregate	$5,000,000			$10,000,000
Builder's Risk				
Policy Limit	$98,226,400	Not Required – Provided by Owner/OCIP		$98,226,400
Property In-Transit	$5,000,000			$5,000,000
Temporary Off-Site Storage	$5,000,000			$5,000,000
Delay in Opening	$15,190,400			$15,190,400
Flood	$25,000,000			$25,000,000
Earth Movement	$25,000,000			$25,000,000
Valuation	Replacement Cost			Replacement Cost
Excess Liability				

Each Occurrence	$5,000,000	$10,000,000	$2,000,000	$50,000,000
Aggregate	$5,000,000	$10,000,000	$2,000,000	$50,000,000
Pollution Liability				
Each Loss	$10,000,000	Not Required – Provided by Owner/OCIP		$10,000,000
Aggregate	$10,000,000			$10,000,000
Professional Liability (If Applicable)				
Each Claim	$1,000,000	$1,000,000	$1,000,000	NP
Aggregate	$2,000,000	$2,000,000	$2,000,000	NP
Unmanned Aerial Vehicle Liability (If Applicable)				
Each Occurrence	$1,000,000	$1,000,000	$1,000,000	NP
Aggregate	$2,000,000	$2,000,000	$2,000,000	NP

OMIDDD shall require the contractors to name or provide an endorsement naming the following parties as additional insureds under the required insurance:

- Oakland-Macomb Interceptor Drain Drainage District
  - One Public Works Drive, Building 95 West, Waterford, MI 48328
- Office of Macomb County Public Works Commissioner
  - 21777 Dunham Road, Clinton Township, Michigan 48036
- Office of the Oakland County Water Resources Commissioner
  - One Public Works Drive, Building 95 West, Waterford, Michigan 48328
- Macomb County Department of Roads
  - 117 S. Groesbeck, Mount Clemens, Michigan 48043
- Road Commission of Oakland County
  - 2420 Pontiac Lake Road, Waterford, Michigan 48328
- Great Lakes Water Authority
  - 735 Randolph, Suite 1900, Detroit, Michigan 48226
- City of Detroit
  - 2 Woodward Avenue, Detroit, Michigan 48226
- NTH Consultants, Ltd.
  - 41780 Six Mile Road, Suite 200, Northville, Michigan 48168
- FK Engineering Associates
  - 30425 Stephenson Highway, Madison Heights, Michigan 48071
- Applied Science, Inc.
  - 300 River Place Dr. #5400, Detroit, Michigan 48207
- METCO
  - 535 Griswold Street #540, Detroit, Michigan 48207
- State of Michigan
- County of Macomb
- County of Oakland
- Macomb Interceptor Drainage District (MIDDD)
- Consolidated Rail Corporation (Conrail)
  - 1717 Arch Street, 13th Floor, Philadelphia, PA 19103
- International Transmission Company

    - 27175 Energy Way, Novi, Michigan 48377
- City of Warren
    - One City Square, Warren, MI 48093
- Anderson, Eckstein and Westrick
    - 51301 Schoenherr Road, Shelby Township, MI 48315
- Michigan Department of Agriculture and Rural Development
- Michigan Department of Transportation
- Detroit Water and Sewerage Department, and their respective elected officials, officers and employees

In lieu of requiring contractor provided insurance, OMIDDD is authorized to utilize an Owners' Controlled Insurance Program ("OCIP"), or other project specific insurance that provides the insurance coverage set forth herein. Any increase in cost of insurance that results from delays by either party shall be borne, to the extent of each party's fault for the delay, by that respective party.

EXHIBIT F

PC-663 Control Gate Structure Operating Protocols

Applied Science, Inc.

M E M O R A N D U M

To: OMIDDD

From: John Michalski, P.E., ASI

Project: NIEA Repairs Contract 2

Subject: PC-663 Control Gate Structure Operating Protocols

Date: November 29, 2021

The purpose of this memorandum is to establish protocols and control logic for the sequence of operations of the reconstructed control gate at the PC-663 structure location. This gate structure is to be operated by GLWA for OMIDDD use during repair and inspection work in the North Interceptor-East Arm (NIEA), proposed to be conducted under OMIDDD NIEA Contracts 2A and 2B. The use of this gate will divert all of the Northeast Sanitary Pump Station (NESPS) flow out of the NIEA to the Seven Mile Relief Sewer. This operation will create a surcharged condition in the upper end of the NIEA back to the NESPS and therefore, operation of the gate must be coordinated with operations of the pump and valves at the NESPS and within the OMIDDD system. Details of the gate configurations, layout, electrical, and I/O details are made part of the NIEA Repairs Contracts 2A and 2B Contract Documents. The information below is part of the Contract 2A and 2B. These protocols and control logic for the sequence of operations of the reconstructed control gate at the PC-663 will need to be adhered to in the future by GLWA operations for any operation that involves use of the PC-663 Gate.

CONTROL STRUCTURES – PC 663
GATE OPEARTION - CONTROL STRATEGY

- **REFERENCE DRAWING:** E- 300 thru E-318
- **DESCRIPTION:** The proposed rehabilitation of the existing Control Structure (PC-663) over the existing North Interceptor Sewer- East Arm at Vandyke includes following gates and level sensor to control the diversion and dewatering of the flow.

  PC-663 Structure – Three (3) Slide gates and one level sensor

  - One (1) – Control Gate – on the bulkhead
  - Two (2) - High Level Gates – on the divider wall

  Each gate is controlled by an electric actuator equipped with the remote position control capabilities. Each control structure is provided with Radar Level Sensor/Transmitter to continuously monitor the sewer level upstream of the gate(s).

  The gate operator controls are located remote from the structures at a Local Control Panel (LCP). The Control panel is provided with Control Logix- PLC to enable Local control and remote interface with the OVATION System by GLWA Cellular Network link.

Under normal operation, the system is set on “REMOTE” mode of operation and the Gates at PC-663 Control Structures shall be maintained in the following status:

- Control Gate – Full “Open”
- High Level Gates – Full “Closed”

The gates can be operated either at the Local or at the Remote mode as below:

- **LOCAL CONTROLS:** Local control for each Gate operator is located at the Control Panel remote from the Gate structures. When the LOCAL/OFF/REMOTE selector switch at the Local Control Panel is switched to the LOCAL mode, the Gate can be opened or closed by the operator from the Control panel.

- **LOCAL AUTOMATIC CONTROL MODE:** There is no Local Automatic Control mode for the Gate operation.

- **OVATION MANUAL CONTROL MODE:** When the LOCAL/OFF/REMOTE switch for each Gate is placed in REMOTE mode at the Control Panel, the OVATION system receives an IN REMOTE status input from the Local Control Panel for indication at the System Control Center – Ovation HMI. The Gate can be manually controlled by SCC Operator from the Ovation System by toggling the OPEN/CLOSE/HOLD switch at the HMI.

- **OVATION AUTOMATIC CONTROL MODE:** There is no Automatic Control mode at the Ovation System for the Gate operation.

- **SEQUENCE OF OPERATION:** The Gate operation shall satisfy the following sequence operation for the various operational conditions.

  A. Flow Diversion To 7-Mile Sewer

  The following permissive interlocks shall be satisfied prior to executing the operation of the Control Gate:

  The knife gate valve at the suction side of Sanitary Pumps No.3 and No. 4 (NESPS) shall be in “closed” position and these pumps shall not be operational.

  The upstream level at PC-663 structures shall be lower than 8’ in depth (ELV-100)

  These permissive interlocks will be programmed in the OVATION System and in the PLC at the Control Panel. The interlock at PLC will be activated under both Local and Remote operation modes.

  Upon satisfying these permissive, the Control Gate can be operated to CLOSE.

  B. Dewatering

  During the dewatering, the following sequence shall be followed to operate the two (2) high level gates:

- If the Upstream water level is between 112’-0”and 127’-0” open the two high level gates
- Once the upstream level reaches 112’-0” open the Control Gate to 3 inches and Hold
- Once the upstream level reaches 111’-0” open the Control Gate to 6 inches and Hold
- Once the upstream level reaches 110’-0” open the Control Gate to 12 inches and Hold
- Once the upstream level reaches 107’-0” open the Control Gate to 15 inches and Hold
- Once the upstream level reaches 104’-0” open the Control Gate to 18 inches and Hold
- Once the upstream level reaches 100’-0” open the Control Gate to 24 inches and Hold
- Once the upstream level reaches 98’-0” open the Control Gate to 36 inches
- Once the upstream level reaches 97’-0” open the Control Gate fully.

The Gate operators are designed to hold last position upon power or signal loss.

ALARMS:

High Level Alarm at upstream elevation of 128 ft.

Agenda Item No. 6

Plans and Specifications for OMID NI-EA Contract No. 2
PCI-18 and PCI-19 Rehabilitation

OAKLAND-MACOMB INTERCEPTOR DRAIN (OMID)

NORTH INTERCEPTOR - EAST ARM (NI-EA)
NI-EA OMID CONTRACT No. 2
(CONTRACT 2A AND CONTRACT 2B)
PCI-18 & PCI-19 REHABILITATION
WAYNE COUNTY, MICHIGAN

NORTH INTERCEPTOR - EAST ARM (NI-EA) SYSTEM PLAN SCALE: NONE

PREPARED FOR OAKLAND-MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT

WRC WATER RESOURCES COMMISSIONER
Jim Nash

CANDICE S. MILLER
Public Works Commissioner
Macomb County, Michigan

MICHAEL GREGG
State of Michigan
Department of Agriculture
and Rural Development

PREPARED BY:

NTH Consultants, Ltd.
Infrastructure Engineering and Environmental Services
41780 Six Mile Road, Suite 200
Northville, MI 48168

SAJU SACHIDANANDAN, P.E.

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road, Shelby Township, Michigan 48315
Phone: 586 726 1234, Fax: 586 726 8700, www.aewinc.com

LOUIS J. URBAN, P.E.

FK ENGINEERING ASSOCIATES
30425 STEPHENSON HWY.
MADISON HEIGHTS, MI 48071

FRITZ J. KLINGLER, P.E.

Applied Science, Inc. Consulting Engineering
APPLIED SCIENCE, INC.
300 RIVER PLACE, SUITE 5400
DETROIT, MI 48207

JOHN MICHALSKI, P.E.

METCO SERVICES, INC
12835 Stephens Road, Warren, MI 48089
TEL - (313) 961-4560 * FAX (313) 961-1698
www.metcoservices.com

RAJ VIJAYENDRAN, P.E.

EGLE PERMIT No. XXXXXXX

EGLE USE ONLY

FOR GLWA REVIEW

100% DESIGN SUBMITTAL
DECEMBER 17, 2021

DECEMBER 17, 2021

SHEET REFERENCE NUMBER:
G.001

NI-EA OMID CONTRACT No. 2

GENERAL	
SHEET No.	DESCRIPTION
G.001	COVER SHEET
G.002	DRAWING INDEX
G.003	GENERAL PROJECT OVERVIEW
G.004	NOT USED
G.005	GENERAL NOTES
G.006	ABBREVIATIONS AND LEGEND
G.007	FLOW CONTROL AND MANAGEMENT INFORMATION (1 OF 2)
G.008	FLOW CONTROL AND MANAGEMENT INFORMATION (2 OF 2)

CIVIL	
SHEET No.	DESCRIPTION
C.001	CIVIL NOTES AND MISCELLANEOUS DETAILS
C.002	TEMPORARY AND PERMANENT CONSTUCTION EASEMENTS
C.003-006	NOT USED
C.007	PCI-18 ALIGNMENT DRAWING AND NOTES
C.007A	PCI-18 EXISTING MANHOLES TEMPORARILY MODIFIED FOR ACCESS - SOIL EROSION AND SEDIMENTATION PLAN
C.008	PCI-18 PLAN AND PROFILE STA. 137+00 TO STA. 157+00
C.009	PCI-18 PLAN AND PROFILE STA. 115+00 TO STA. 137+00
C.010	PCI-18 PLAN AND PROFILE STA. 94+00 TO STA. 115+00
C.011	PCI-18 PLAN AND PROFILE STA. 71+00 TO STA. 94+00
C.012	PCI-18 PLAN AND PROFILE STA. 47+00 TO STA. 71+00
C.013	PCI-18 PLAN AND PROFILE STA. 23+00 TO STA. 47+00
C.014	PCI-18 PLAN AND PROFILE STA. 0+00 TO STA. 23+00
C.015	NOT USED
C.016	PCI-19 ALIGNMENT DRAWING AND NOTES
C.016A	PCI-19 EXISTING MANHOLES TEMPORARILY MODIFIED FOR ACCESS - SOIL EROSION AND SEDIMENTATION PLAN
C.017	PCI-19 PLAN AND PROFILE STA. 100+00 TO STA. 125+23
C.018	PCI-19 PLAN AND PROFILE STA. 75+00 TO STA. 100+00
C.019	PCI-19 PLAN AND PROFILE STA. 50+00 TO STA. 75+00
C.020	PCI-19 PLAN AND PROFILE STA. 25+00 TO STA. 50+00
C.021	PCI-19 PLAN AND PROFILE STA. 0+00 TO STA. 25+00
C.200	SEVEN MILE ADIT GATE STRUCTURE - TOPOGRAPHIC SURVEY / EXISTING CONDITIONS
C.201	SEVEN MILE ADIT GATE STRUCTURE - SITE PLAN
C.201A	SEVEN MILE ADIT GATE STRUCTURE - UTILITY PLAN
C.201B	SEVEN MILE ADIT GATE STRUCTURE - WATERMAIN PLAN AND PROFILE
C.201C	SEVEN MILE ADIT GATE STRUCTURE - DWSD HISTORICAL RECORD OF EXISTING WATERMAINS AND APPURTENANCES
C.201D	SEVEN MILE ADIT GATE STRUCTURE - EXISTING UTILITY CROSS SECTION
C.202	SEVEN MILE ADIT GATE STRUCTURE - SOIL EROSION AND SEDIMENTATION PLAN
C.203	SEVEN MILE ADIT GATE STRUCTURE - SITE RESTORATION PLAN
C.204	SEVEN MILE ADIT GATE STRUCTURE - TRAFFIC CONTROL PLAN (1 OF 2)
C.205	SEVEN MILE ADIT GATE STRUCTURE - TRAFFIC CONTROL PLAN (2 OF 2)
C.206	DETOUR PLAN
C.300	EXISTING PC-663 GATE STRUCTURE - TOPOGRAPHIC SURVEY / EXISTING CONDITIONS
C.301	EXISTING PC-663 GATE STRUCTURE - SITE PLAN
C.301A	EXISTING PC-663 GATE STRUCTURE - VAN DYKE CROSSING PROFILE
C.302	EXISTING PC-663 GATE STRUCTURE - SOIL EROSION AND SEDIMENTATION PLAN
C.303	EXISTING PC-663 GATE STRUCTURE - SITE RESTORATION PLAN
C.304	EXISTING PC-663 GATE STRUCTURE - TRAFFIC CONTROL PLAN (1 OF 2)
C.305	EXISTING PC-663 GATE STRUCTURE - TRAFFIC CONTROL PLAN (2 OF 2)

TEMPORARY EARTH RETENTION SYSTEM	
SHEET No.	DESCRIPTION
T.001	TEMPORARY EARTH RETENTION SYSTEM GEOTECHNICAL INSTRUMENTATION STANDARDS
T.200	SEVEN MILE ADIT GATE STRUCTURE TEMPORARY EARTH RETENTION SYSTEM (1 OF 2)
T.201	SEVEN MILE ADIT GATE STRUCTURE TEMPORARY EARTH RETENTION SYSTEM (2 OF 2)
T.202	SEVEN MILE ADIT GATE STRUCTURE TEMPORARY EARTH RETENTION SYSTEM DETAILS
T.203	SEVEN MILE ADIT GATE STRUCTURE TEMPORARY EARTH RETENTION SYSTEM - GEOTECHNICAL INSTRUMENTATION PLAN
T.300	PC-663 GATE STRUCTURE TEMPORARY EARTH RETENTION SYSTEM - GEOTECHNICAL INSTRUMENTATION PLAN

STRUCTURAL	
SHEET No.	DESCRIPTION
S.001	GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS
S.200	SEVEN MILE ADIT GATE STRUCTURE PLAN, SECTION, AND DETAILS (1 OF 2)
S.201	SEVEN MILE ADIT GATE STRUCTURE PLAN, SECTION, AND DETAILS (2 OF 2)
S.300	PC-663 GATE STRUCTURE EXISTING CONDITIONS (1 OF 2)
S.301	PC-663 GATE STRUCTURE EXISTING CONDITIONS (2 OF 2)
S.302	PC-663 GATE STRUCTURE MODIFICATIONS
S.303	PC-663 GATE STRUCTURE CONTROL CABINET SLAB AND CABLE VAULT

LINING	
SHEET No.	DESCRIPTION
L.200	PCI-19 LINING PLAN AND PROFILE - BASE BID
L.200A	PCI-19 LINING PLAN AND PROFILE - ALTERNATE BID
L.201	PCI-19 LINING DETAILS (1 OF 2)
L.202	PCI-19 LINING DETAILS (2 OF 2)

REPAIR	
SHEET No.	DESCRIPTION
R.001	REPAIR DETAILS (1 OF 3)
R.002	REPAIR DETAILS (2 OF 3)
R.003	REPAIR DETAILS (3 OF 3)

ELECTRICAL, PROCESS, & INSTRUMENTATION	
SHEET No.	DESCRIPTION
E.001	GENERAL ELECTRICAL ABBREVIATIONS AND SYMBOLS
E.002	GENERAL ELECTRICAL NOTES AND AREA CLASSFICATIONS
E.003	GENERAL ELECTRICAL DETAILS - I
E.004	GENERAL ELECTRICAL DETAILS - II
E.005	GENERAL INSTRUMENTATION ABBREVIATIONS, SYMBOLS, AND NOTES - I
E.006	GENERAL INSTRUMENTATION ABBREVIATIONS, SYMBOLS, AND NOTES - II
E.300	ELECTRICAL SITE PLAN
E.301	ENLARGED ELECTRICAL SITE PLAN
E.302	PC-663 GATE STRUCTURE ELECTRICAL SECTION PLAN
E.303	ONE LINE DIAGRAM & POWER DISTRIBUTION
E.304	ELECTRICAL RISER DIAGRAM
E.305	NOT USED
E.306	PC-663 PLC - PROCESS AND INSTRUMENTATION DIAGRAM
E.307	240VAC THREE PHASE POWER DISTRUBUTION
E.308	PLC - CONTROL SCHEMATIC (1 OF 8)
E.309	PLC - CONTROL SCHEMATIC (2 OF 8)
E.310	PLC - CONTROL SCHEMATIC (3 OF 8)
E.311	PLC - CONTROL SCHEMATIC (4 OF 8)
E.312	PLC - CONTROL SCHEMATIC (5 OF 8)
E.313	PLC - CONTROL SCHEMATIC (6 OF 8)
E.314	PLC - CONTROL SCHEMATIC (7 OF 8)
E.315	PLC - CONTROL SCHEMATIC (8 OF 8)
E.316	COMMUNICATION NETWORK SCHEMATIC
E.317	POWER & CONTROL PANEL ENCLOSURE EXTERIOR ELEVATIONS
E.318	CONTROL PANEL EXTERIOR ENCLOSURE

MECHANICAL	
SHEET No.	DESCRIPTION
M.300	7 MILE ADIT GATE STRUCTURE AND PC-663 GATE STRUCTURE - GATE DETAILS
M.301	PC-663 GATE STRUCTURE - GATE SECTIONS

STANDARD	
SHEET No.	DESCRIPTION
SD.001	TRAFFIC CONTROL TYPICAL DETAILS AND NOTES (1 OF 2)
SD.002	TRAFFIC CONTROL TYPICAL DETAILS AND NOTES (2 OF 2)
SD.003	MANHOLE COVER DETAILS - MDOT
SD.004	DRAINAGE STRUCTURE DETAILS - MDOT
SD.005	CONCRETE PAVEMENT REPAIRS DETAILS - MDOT
SD.005A	SIDEWALK RAMP AND DETECTABLE WARNING DETAILS - MDOT
SD.005B	DRIVEWAY OPENING AND APPROACHES, AND CONCRETE SIDEWALKS - MDOT
SD.005C	LONGITUDINAL PAVEMENT JOINTS - MDOT
SD.005D	UTILITY TRENCHES - MDOT
SD.006	SOIL EROSION AND SEDIMENTATION CONTROL DETAILS - MDOT
SD.007	SOIL EROSION AND SEDIMENTATION CONTROL DETAILS - CITY OF DETROIT (1 OF 2)
SD.008	SOIL EROSION AND SEDIMENTATION CONTROL DETAILS - CITY OF DETROIT (2 OF 2)
SD.009	STANDARD DETAILS - CITY OF DETROIT (1 OF 5)
SD.010	STANDARD DETAILS - CITY OF DETROIT (2 OF 5)
SD.011	STANDARD DETAILS - CITY OF DETROIT (3 OF 5)
SD.012	STANDARD DETAILS - CITY OF DETROIT (4 OF 5)
SD.013	STANDARD DETAILS - CITY OF DETROIT (5 OF 5)

HISTORICAL	
SHEET No.	DESCRIPTION
HD.001	PCI-18 HISTORICAL DRAWINGS (1 OF 29)
HD.002	PCI-18 HISTORICAL DRAWINGS (2 OF 29)
HD.003	PCI-18 HISTORICAL DRAWINGS (3 OF 29)
HD.004	PCI-18 HISTORICAL DRAWINGS (4 OF 29)
HD.005	PCI-18 HISTORICAL DRAWINGS (5 OF 29)
HD.006	PCI-18 HISTORICAL DRAWINGS (6 OF 29)
HD.007	PCI-18 HISTORICAL DRAWINGS (7 OF 29)
HD.008	PCI-18 HISTORICAL DRAWINGS (8 OF 29)
HD.009	PCI-18 HISTORICAL DRAWINGS (9 OF 29)
HD.010	PCI-18 HISTORICAL DRAWINGS (10 OF 29)
HD.011	PCI-18 HISTORICAL DRAWINGS (11 OF 29)
HD.012	PCI-18 HISTORICAL DRAWINGS (12 OF 29)
HD.013	PCI-18 HISTORICAL DRAWINGS (13 OF 29)
HD.014	PCI-18 HISTORICAL DRAWINGS (14 OF 29)
HD.015	PCI-18 HISTORICAL DRAWINGS (15 OF 29)
HD.016	PCI-18 HISTORICAL DRAWINGS (16 OF 29)
HD.017	PCI-18 HISTORICAL DRAWINGS (17 OF 29)
HD.018	PCI-18 HISTORICAL DRAWINGS (18 OF 29)
HD.019	PCI-18 HISTORICAL DRAWINGS (19 OF 29)
HD.020	PCI-18 HISTORICAL DRAWINGS (20 OF 29)
HD.021	PCI-18 HISTORICAL DRAWINGS (21 OF 29)
HD.022	PCI-18 HISTORICAL DRAWINGS (22 OF 29)
HD.023	PCI-18 HISTORICAL DRAWINGS (23 OF 29)
HD.024	PCI-18 HISTORICAL DRAWINGS (24 OF 29)
HD.025	PCI-18 HISTORICAL DRAWINGS (25 OF 29)
HD.026	PCI-18 HISTORICAL DRAWINGS (26 OF 29)
HD.027	PCI-18 HISTORICAL DRAWINGS (27 OF 29)
HD.028	PCI-18 HISTORICAL DRAWINGS (28 OF 29)
HD.029	PCI-18 HISTORICAL DRAWINGS (29 OF 29)

HISTORICAL (CONT'D)	
SHEET No.	DESCRIPTION
HD.030	PCI-19 HISTORICAL DRAWINGS (1 OF 18)
HD.031	PCI-19 HISTORICAL DRAWINGS (2 OF 18)
HD.032	PCI-19 HISTORICAL DRAWINGS (3 OF 18)
HD.033	PCI-19 HISTORICAL DRAWINGS (4 OF 18)
HD.034	PCI-19 HISTORICAL DRAWINGS (5 OF 18)
HD.035	PCI-19 HISTORICAL DRAWINGS (6 OF 18)
HD.036	PCI-19 HISTORICAL DRAWINGS (7 OF 18)
HD.037	PCI-19 HISTORICAL DRAWINGS (8 OF 18)
HD.038	PCI-19 HISTORICAL DRAWINGS (9 OF 18)
HD.039	PCI-19 HISTORICAL DRAWINGS (10 OF 18)
HD.040	PCI-19 HISTORICAL DRAWINGS (11 OF 18)
HD.041	PCI-19 HISTORICAL DRAWINGS (12 OF 18)
HD.042	PCI-19 HISTORICAL DRAWINGS (13 OF 18)
HD.043	PCI-19 HISTORICAL DRAWINGS (14 OF 18)
HD.044	PCI-19 HISTORICAL DRAWINGS (15 OF 18)
HD.045	PCI-19 HISTORICAL DRAWINGS (16 OF 18)
HD.046	PCI-19 HISTORICAL DRAWINGS (17 OF 18)
HD.047	PCI-19 HISTORICAL DRAWINGS (18 OF 18)
HD.048	PC-662 A/B HISTORICAL DRAWINGS (1 OF 8)
HD.049	PC-662 A/B HISTORICAL DRAWINGS (2 OF 8)
HD.050	PC-662 A/B HISTORICAL DRAWINGS (3 OF 8)
HD.051	PC-662 A/B HISTORICAL DRAWINGS (4 OF 8)
HD.052	PC-662 A/B HISTORICAL DRAWINGS (5 OF 8)
HD.053	PC-662 A/B HISTORICAL DRAWINGS (6 OF 8)
HD.054	PC-662 A/B HISTORICAL DRAWINGS (7 OF 8)
HD.055	PC-662 A/B HISTORICAL DRAWINGS (8 OF 8)
HD.056	PC-663 HISTORICAL DRAWINGS (1 OF 3)
HD.057	PC-663 HISTORICAL DRAWINGS (2 OF 3)
HD.058	PC-663 HISTORICAL DRAWINGS (3 OF 3)
HD.059	ADIT TUNNEL HISTORICAL DRAWINGS (1 OF 3)
HD.060	ADIT TUNNEL HISTORICAL DRAWINGS (2 OF 3)
HD.061	ADIT TUNNEL HISTORICAL DRAWINGS (3 OF 3)
HD.062	SEVEN MILE ROAD RELIEF SEWER

REVISIONS

REV	DESCRIPTION	DATE	BY
	CONCEPTUAL DESIGN FOR GLWA REVIEW	1/29/2021	SS
	90% DESIGN SUBMITTAL	4/16/2021	SS
	100% DESIGN SUBMITTAL		SS

DESIGNED BY: JDS
DRAWN BY: DET
CHECKED BY: LTG
PROJECT MANAGER: SS

NTH Consultants, Ltd.
Infrastructure Engineering and Environmental Services
Detroit, MI • Northville, MI
Lansing, MI • Grand Rapids, MI
Cleveland, OH

SEAL:

NORTH INTERCEPTOR - EAST ARM
NI-EA OMID CONTRACT No. 2 PCI-18 & PCI-19 REHABILITATION

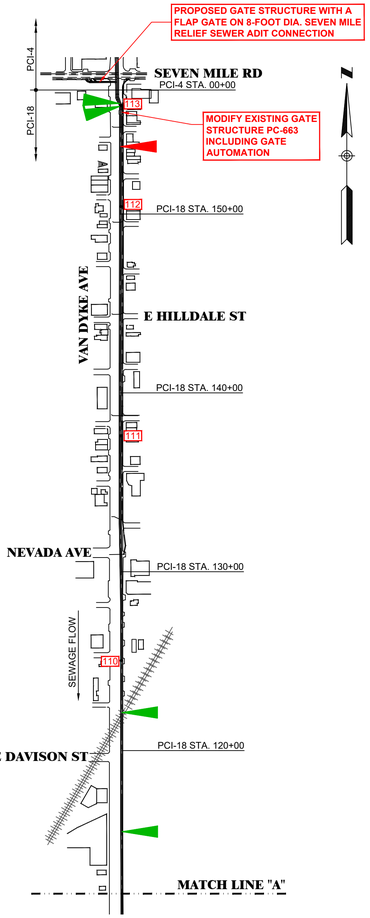
OAKLAND-MACOMB INTERCEPTOR DRAIN (OMID)
NORTH INTERCEPTOR - EAST ARM (NI-EA)
WAYNE COUNTY, MICHIGAN

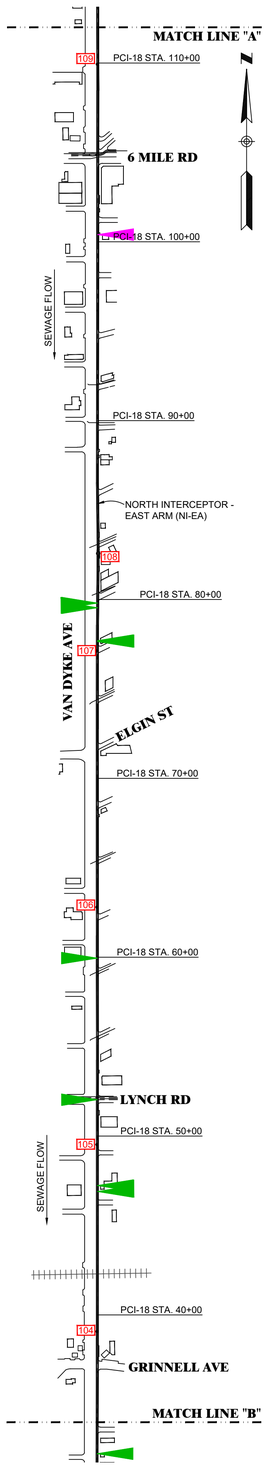
DRAWING INDEX

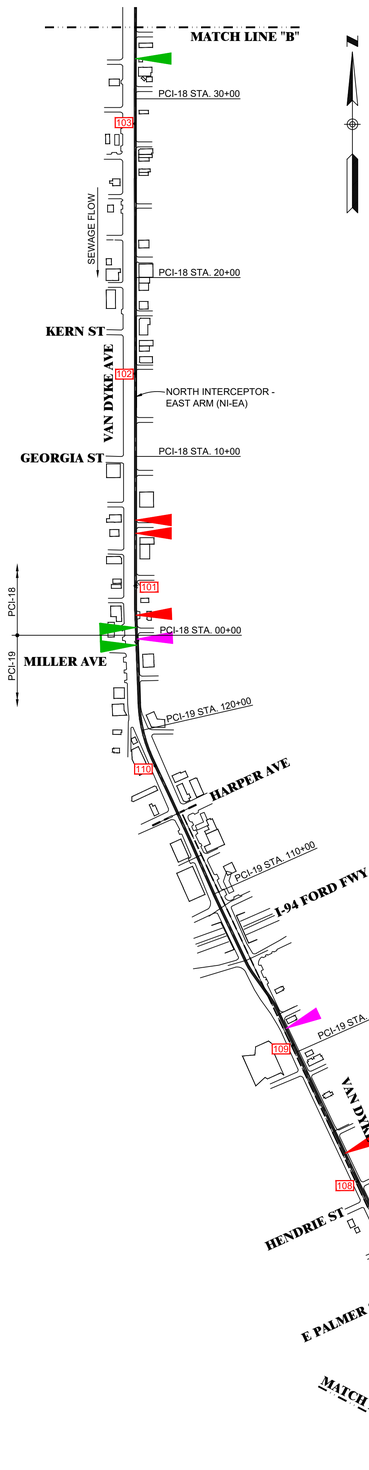
WRC WATER RESOURCES COMMISSIONER Jim Nash
MACOMB COUNTY MICHIGAN 1818

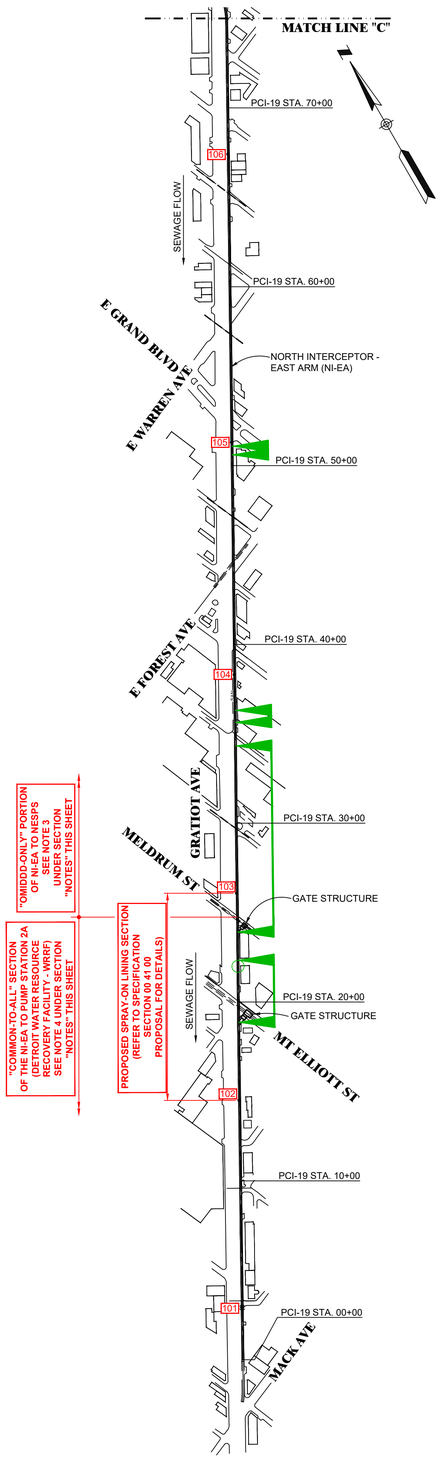
CAD FILE NAME: NTH-NIEA-G002
DRAWING SCALE: NONE
INCEP DATE: 28-Apr-20
PLOT DATE: 8-Dec-21
SHEET REFERENCE NUMBER: G.002

12/8/2021 1:22:55 PM









SUMMARY OF WORK UNDER THIS CONTRACT

PROJECT NARRATIVE

THE NORTH INTERCEPTOR EAST ARM (NI-EA) EXTENDS SOUTH FROM THE NORTHEAST SEWAGE PUMP STATION (NESPS), ABOUT 12 MILES TO THE GREAT LAKES WATER AUTHORITY (GLWA) WATER RESOURCE RECOVERY FACILITY (WRRF) IN SOUTHWEST DETROIT. AT ITS UPSTREAM END AT THE NESPS, THE NI-EA RECEIVES SANITARY SEWER FLOWS FROM THE OAKLAND AND MACOMB COUNTY COMMUNITIES SERVICED BY THE OAKLAND MACOMB INTERCEPTOR DRAIN (OMID) DRAINAGE DISTRICT (OMIDDD) AND UPSTREAM TRIBUTARY SEWERS FLOWING INTO THE NI-EA FROM NORTHERN PORTIONS OF THE CITY OF DETROIT.

THE PROPOSED NI-EA OMID CONTRACT NO. 2 PCI-18 AND PCI-19 REHABILITATION PROJECT IS LOCATED ON SEVEN MILE RD. JUST WEST OF VAN DYKE AVE. AND EXTENDING ALONG VAN DYKE AVE. AND GRATIOT AVE. FROM SEVEN MILE RD. TO JUST SOUTH OF MT. ELLIOT ST. IN THE CITY OF DETROIT. THE PROJECT COMPRISES CONSTRUCTION OF A NEW FLOW CONTROL STRUCTURE WITH FLAP GATE ASSEMBLY ON SEVEN MILE RD. OVER THE EXISTING NI-EA ADIT SEWER, REHABILITATION OF EXISTING PCI-663 GATE STRUCTURE ON THE PCI-18 INTERCEPTOR WHICH INCLUDES REMOVAL OF AN EXISTING BULKHEAD GATE ASSEMBLY AND REPLACEMENT WITH A NEW BULKHEAD GATE AND INCLUDING INTERNAL AUTOMATED SLUICE GATES, INTERCEPTOR CLEANING, LEAK SEALING, AND REPAIRS IN THE PCI-18 AND PCI-19 REACHES OF THE NI-EA. THE PROJECT ALSO INCLUDES LINING OF A SECTION OF THE PCI-19 INTERCEPTOR ON GRATIOT AVE. NEAR MELDRUM ST. AND MT. ELLIOT ST. USING MULTIPLE LINING PRODUCTS AS PART OF A PILOT STUDY. THESE LINED SECTIONS WILL BE MONITORED IN THE FUTURE TO EVALUATE LONG-TERM PERFORMANCE OF THE VARIOUS INDIVIDUAL LINED SECTIONS. THE CONSTRUCTION OF THE TWO FLOW CONTROL STRUCTURES WILL PROVIDE AS-NEEDED FLOW CONNECTIVITY BETWEEN THE EXISTING NI-EA PCI-18 INTERCEPTOR AND THE EXISTING SEVEN MILE RD. SEWER AND OFFERS DRY WEATHER FLOW MANAGEMENT (DIVERSION) DURING THE PROPOSED LINING OF THE PCI-19 INTERCEPTOR.

SUMMARY OF WORK

THE NI-EA OMID CONTRACT NO. 2 PCI-18 & PCI-19 REHABILITATION PROJECT CONSISTS OF TWO SUB-PROJECTS: CONTRACT 2A AND CONTRACT 2B. REFER TO SPECIFICATIONS SECTION 00 41 00, PROPOSAL FOR PROJECT BID BREAKDOWN DETAILS OF EACH SUB-PROJECT. A GENERAL SUMMARY OF WORK FOR CONTRACT 2A AND CONTRACT 2B IS GIVEN BELOW:

CONTRACT 2A

- CONSTRUCT ONE (1) GATE STRUCTURE WITH A FLAP GATE ON THE 8-FOOT DIA. SEVEN MILE ADIT TUNNEL AND MODIFY THE EXISTING PC-663 GATE STRUCTURE ON THE PCI-18 INTERCEPTOR TO INSTALL AN AUTOMATED GATE INCLUDING CONTROL CABINETRY WITH CONDUIT VAULTS AND A CONTROL / POWER CONDUIT CROSSING UNDER VAN DYKE AVE., AS SHOWN IN THE CONTRACT DOCUMENTS.
- PERFORM PLACEMENT OF CHEMICAL GROUT TO STOP LEAKS WITHIN THE SEWER AND LOCALIZED CEMENTITIOUS GROUTING WITHIN PCI-18 AND PCI-19 AS IDENTIFIED IN CONTRACT DOCUMENTS.
- PERFORM CLEANING AND DEBRIS REMOVAL AS WELL AS MISCELLANEOUS REPAIRS WITHIN PCI-18 AND PCI-19 AS IDENTIFIED IN CONTRACT DOCUMENTS.
- REPLACE MANHOLE RISER CONES AND FRAMES/COVERS ALONG THE PCI-18 AND PCI-19 ALIGNMENT (ONLY THE MANHOLES USED BY CONTRACTOR FOR INTERCEPTOR ACCESS IN ADDITION TO MANHOLE PCI-18-108) AND RESTORE WORK AREAS AS IDENTIFIED IN THE CONTRACT DOCUMENTS.
- OBTAIN NECESSARY PERMITS, PERFORM TRAFFIC CONTROL MEASURES DURING CONSTRUCTION, AND RESTORE SITE(S) AS IDENTIFIED IN THE CONTRACT DOCUMENTS.

CONTRACT 2B

- INSTALL LINING IN PCI-19 REACH. THE LINING FOOTAGE REQUIREMENTS FOR BASE AND ALTERNATE BIDS ARE BELOW:
  - BASE BID - INSTALL LINING FROM MANHOLE PCI-19-103 TO APPROXIMATELY 100 L.F. DOWNSTREAM OF CONANT-MT. ELLIOTT SEWER DROP CONNECTION. (PCI-19 STA. 26+05 TO PCI-19 STA. 18+05, APPROXIMATELY 800 L.F.) USING FOUR (4) DIFFERENT PRE-APPROVED LINER PEODUCTS. REFER TO LINING DRAWINGS AND SPECIFICATIONS FOR CONTRACT REQUIREMENTS.
  - ALTERNATE BID - INSTALL LINING FROM MANHOLE PCI-19-103 TO APPROXIMATELY 200 L.F. DOWNSTREAM OF MANHOLE PCI-19-103 USING FOUR (4) DIFFERENT PRE-APPROVED LINER PEODUCTS. REFER TO LINING DRAWINGS AND SPECIFICATIONS FOR CONTRACT REQUIREMENTS.
- REPLACE MANHOLE RISER CONES AND FRAMES/COVERS ON PCI-19 ALIGNMENT (ONLY THE MANHOLES USED BY CONTRACTOR FOR INTERCEPTOR ACCESS) AND RESTORE WORK AREAS AS IDENTIFIED IN THE CONTRACT DOCUMENTS.
- OBTAIN NECESSARY PERMITS, PERFORM TRAFFIC CONTROL MEASURES DURING CONSTRUCTION, AND RESTORE SITE(S) AS IDENTIFIED IN THE CONTRACT DOCUMENTS.

SCHEDULE OF WORK

1. SUBMIT A SCHEDULE THAT COMPLIES WITH THE CONTRACT REQUIREMENTS.
2. REFER TO SPECIFICATION SECTION 00 52 00 "THE AGREEMENT" FOR DETAILS.
3. WORK DAYS ARE DEFINED IN SPECIFICATION SECTION 01 11 13 "WORK CONTROLS".
4. FLOW CONTROL AND WET WEATHER DAYS ARE DEFINED IN SPECIFICATION SECTION 01 57 24 "FLOW CONTROL AND MANAGEMENT".

NOTES

1. THE LEAK SEALING/REPAIR/DEBRIS LOCATIONS SHOWN IN THIS DRAWING ARE APPROXIMATE AND MAY VARY. THE LOCATION INFORMATION PROVIDED HERE IS OBTAINED FROM AN INSPECTION CONDUCTED BY NTH CONSULTANTS, LTD. IN THE SUMMER OF 2019. REFER TO THE SPECIFICATION APPENDIX FOR DETAILS OF THE INSPECTION.
2. REFER TO SHEET NO. R.001 FOR ADDITIONAL REPAIR AND LOCATION DETAILS.
3. "OMIDDD-ONLY" SECTION OF THE NI-EA - OWNED BY GREAT LAKES WATER AUTHORITY (GLWA); OPERATED AND MAINTAINED BY OAKLAND MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT (OMIDDD).
4. "COMMON-TO-ALL" SECTION OF THE NI-EA - OWNED, OPERATED, AND MAINTAINED BY GLWA.

LEGEND

- 101 — MANHOLE NUMBER (TYPICAL)
- LEAK SEALING USING CHEMICAL GROUT
- LEAK SEALING USING CHEMICAL GROUTING AND CEMENTITIOUS GROUTING
- DEBRIS REMOVAL / CLEANING - SPOT LOCATIONS
- DEBRIS REMOVAL / CLEANING - RANGE
- PCI-4 / PCI-18 / PCI-19 — NI-EA REACH DESIGNATIONS (OLD DWSD CONTRACT NUMBERS)

GRAPHIC SCALE
0 400 800
1" = 400'

REVISIONS

REV	DESCRIPTION	DATE	BY
	CONCEPTUAL DESIGN FOR GLWA REVIEW	1/29/2021	SS
	90% DESIGN SUBMITTAL	4/16/2021	SS
	100% DESIGN SUBMITTAL		SS

DESIGNED BY: JDS
DRAWN BY: DET
CHECKED BY: SS
PROJECT MANAGER: SS

NTH Consultants, Ltd.
Infrastructure Engineering and Environmental Services
Detroit, MI • Northville, MI
Lansing, MI • Grand Rapids, MI
Cleveland, OH

SEAL:

NORTH INTERCEPTOR - EAST ARM
NI-EA OMID CONTRACT No. 2 PCI-18 & PCI-19 REHABILITATION

OAKLAND-MACOMB INTERCEPTOR DRAIN (OMID)
NORTH INTERCEPTOR - EAST ARM (NI-EA)
WAYNE COUNTY, MICHIGAN

GENERAL PROJECT OVERVIEW

WRC WATER RESOURCES COMMISSIONER Jim Nash
MACOMB COUNTY MICHIGAN

CAD FILE NAME: NTH-NIEA-G003
DRAWING SCALE: AS SHOWN
INCEP DATE: 08-Jan-20
PLOT DATE: 19-Nov-21
SHEET REFERENCE NUMBER: G.003

11/19/2021 10:24:17 AM

NOTES

1. GENERAL

A. THIS SECTION OF SEWER UNDER THIS CONTRACT IS LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY ALONG VAN DYKE AVENUE, 7 MILE ROAD, AND GRATIOT AVENUE. PROTECT PROPERTY OUTSIDE OF WORK AREAS AT ALL TIMES DURING CONSTRUCTION.

B. PROTECT THE PUBLIC FROM WORK ACTIVITIES AT ALL TIMES. NOTIFY THE LOCAL FIRE AND POLICE DEPARTMENTS AT LEAST 72 HOURS IN ADVANCE OF IMPLEMENTING PROPOSED TRAFFIC CONTROL MEASURES. REFER TO TRAFFIC CONTROL DRAWINGS, SPECIFICATIONS, AND PERMIT REQUIREMENTS FOR ADDITIONAL DETAILS.

C. MAINTAIN ACCESS TO ALL PROPERTIES AFFECTED BY THE PERFORMANCE OF THE WORK.

D. ACCESS FOR LINING, GROUTING AND REPAIR WILL BE THROUGH THE EXISTING MANHOLES OR ACCESS STRUCTURES. PERMISSION AND COORDINATION WILL BE REQUIRED WITH GLWA AND OMIDDD PRIOR TO USING THESE STRUCTURES.

E. OBTAIN ALL RIGHT-OF-WAY PERMITS FROM THE JURISDICTIONAL AUTHORITIES PRIOR TO BEGINNING WORK WITHIN ANY PUBLIC RIGHT-OF-WAY.

F. EXISTING SITE INFORMATION SHOWN ON THESE DRAWINGS IS FROM SURVEYS PERFORMED BY THE ENGINEER IN 2019. THIS INFORMATION HAS BEEN PRESUMED TO BE AN ACCURATE REPRESENTATION OF THE CONDITIONS AT THE SITE. WORK PERFORMED AT EACH SITE OR WITHIN PUBLIC RIGHT-OF-WAY SINCE THE DATE OF THE SURVEY MAY NOT BE SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AT EACH SITE AND REPORT SIGNIFICANT DIFFERENCES, IF ANY, IMMEDIATELY TO THE ENGINEER.

G. ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR AND/OR WITH THE EQUIPMENT AND MATERIALS MANUFACTURERS TO CONFORM TO THE DESIGN REQUIREMENTS AND SUIT THE CONTRACTOR'S MEANS AND METHODS.

H. THE CONTRACTOR SHALL PRESERVE, PROTECT AND REPLACE AT HIS OWN EXPENSE, ALL EXISTING MATERIALS / PROPERTIES NOT SCHEDULED FOR REMOVAL AND REPLACEMENT, BUT THAT ARE REMOVED FOR THE CONTRACTOR'S CONVENIENCE OR THAT ARE DAMAGED BY CONTRACTOR'S INADVERTANT OPERATIONS.

I. THE CONTRACTOR SHALL DISPOSE OF ALL EXCAVATED MATERIAL OFF SITE. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH THE LOCATION OF THE DISPOSAL SITE AND WRITTEN PERMISSION FOR USE OF THE SITE FROM THE PROPERTY OWNER. THE COST FOR SECURING AND MAINTAINING THE DISPOSAL SITE SHALL BE INCIDENTAL TO THE TOTAL PROJECT COST. REFER TO "CONTAMINATED SOIL AND HAZARDOUS WASTE" SECTION, THIS SHEET, FOR ADDITIONAL DETAILS.

J. QUALITY OF CONSTRUCTION REQUIRED, PERFORMANCE LEVELS OF WORKMANSHIP, MANUFACTURING AND INDUSTRY STANDARDS, STRENGTH AND PHYSICAL REQUIREMENTS OF MATERIALS, CONFORMANCE TO CODES AND REGULATIONS, GUARANTEES AND OTHER PROJECT REQUIREMENTS ARE PROVIDED IN THE SPECIFICATIONS.

K. WATER DISCHARGE TO THE SANITARY AND/OR STORM SEWER SYSTEM IS PROHIBITED EXCEPT WITH THE WRITTEN PERMISSION OF THE AUTHORITY HAVING JURISDICTIONAL AUTHORITY. THE CONTRACTOR SHALL OBTAIN NECESSARY PERMITS FROM AGENCIES HAVING JURISDICTIONAL AUTHORITY PRIOR TO START OF DISCHARGE ACTIVITY.

L. CONTRACTOR SHALL PROVIDE EROSION CONTROL AND STORMWATER POLLUTION PREVENTION PLAN (SWPPP) MEASURES TO CONTROL EROSION AND SEDIMENTATION AT ALL LOCATIONS DISTURBED ON THIS PROJECT PER CONTRACT REQUIREMENTS.

M. CONTRACTOR TO PROVIDE CONTINUOUS DUST CONTROL INCLUDING PICK-UP TYPE STREET SWEEPING, PER CONTRACT REQUIREMENTS.

N. CONTRACTOR SHALL SECURE ALL OPEN EXCAVATIONS AND TRENCHES AT ALL TIMES DURING NON-WORK HOURS. COVERS AND/OR BARRICADES/FENCING SHALL BE SUFFICIENTLY CONSTRUCTED AND PROPERLY SECURED TO PREVENT ENTRY WHEN NOT IN USE. THIS WORK SHALL BE INCIDENTAL TO THE TOTAL PROJECT COST.

O. PROTECT EXCAVATIONS FROM FLOODING UNTIL ALL WALLS AND STOP LOGS AND MANHOLE ACCESS STRUCTURES ARE IN PLACE AND BACKFILLING HAS BEEN COMPLETED.

P. DURING CONSTRUCTION, STRUCTURES MAY BECOME BUOYANT WHEN EMPTY. IN THE EVENT THAT THE EXCAVATION OR PIPE BECOMES FLOODED OR THE SURROUNDING GROUND BECOMES SATURATED, ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO PREVENT FLOTATION OF THE STRUCTURE(S) AND/OR PIPE.

Q. MAINTAIN ALL GROUNDWATER DEWATERING WELLS (IF ANY) UNTIL ALL FINISHED STRUCTURE CONCRETE HAS REACHED DESIGN COMPRESSIVE STRENGTH; BACKFILL IS COMPLETE, AND UPON RECEIVING WRITTEN APPROVAL FROM THE ENGINEER.

R. THE ENGINEER SHALL BE RESPONSIBLE FOR MONITORING AND INTERPRETATION OF ALL GEOTECHNICAL INSTRUMENTATION. THE DATA WILL BE SHARED WITH THE CONTRACTOR PER THE REQUIREMENTS OF THE SPECIFICATIONS. LOCATIONS OF ALL TEST BORINGS AND INSTRUMENTATION ARE SHOWN ON THE CONTRACT DOCUMENTS. CONTRACTOR SHALL PROTECT ALL INSTRUMENTATION IN ACCORDANCE WITH THE SPECIFICATIONS.

S. REFER TO GEOTECHNICAL REPORT FOR SUBSURFACE EXPLORATION DATA OBTAINED AND/OR AVAILABLE AS PART OF THIS CONTRACT.

T. CONTRACTOR SHALL REPLACE OR REPAIR ANY EXISTING TRAFFIC SIGNS DAMAGED BY HIS OPERATION DURING CONSTRUCTION, AT HIS OWN COST. SIGNS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF MMUTCD OR JURISDICTIONAL AUTHORITY STANDARDS.

2. UTILITIES

A. ALL UTILITIES SHOWN ON DRAWINGS ARE BASED ON RECORD DRAWINGS PROVIDED BY THE UTILITY COMPANIES OR THE LOCAL JURISDICTIONAL AUTHORITY. AS SUCH, THE LOCATIONS OF THESE UTILITIES SHOULD BE CONSIDERED APPROXIMATE. ALL UTILITIES PRESENT AT THE SITES MAY OR MAY NOT BE SHOWN ON THE PLANS.

B. CONTACT MISS DIG A MINIMUM OF 3 WORKING DAYS (EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS) PRIOR TO PERFORMING ANY EXCAVATIONS, SOIL INVESTIGATIONS, OR OTHER SUBSURFACE WORK.

C. FIELD LOCATE ALL UTILITIES. PROTECT THE UTILITIES REGARDLESS IF THEY ARE SHOWN OR NOT SHOWN ON THE PLANS. REFER TO CONTRACT DRAWINGS FOR RELOCATION OF EXISTING GAS MAIN AND WATER MAIN ALONG 7 MILE RD., AND PROTECTION / SUPPORT REQUIREMENTS FOR THE ATT DUCT NEAR PROPOSED 7 MILE ADIT GATE STRUCTURE. COORDINATE WITH THE UTILITY COMPANIES IN ADVANCE OF CONSTRUCTION MEETING THE REQUIREMENTS OF THE CONTRACT AND PERMITS. REFER TO SHEET No. C.001 FOR CONTACT INFORMATION.

D. EXERCISE EXTREME CAUTION WHEN WORKING IN CLOSE PROXIMITY TO GAS MAINS, PUBLIC LIGHTING, ELECTRICAL UTILITIES, AND ANY OTHER UTILITIES LOCATED IN WORK AREAS.

E. DAMAGE TO EXISTING UTILITIES OCCURRING DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF UTILITY OWNER, AS DIRECTED BY THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.

F. VERIFY UTILITY CLEARANCE WITHIN WORK AREA. SUPPORT AND/OR RELOCATE UTILITIES AS REQUIRED AFTER OBTAINING APPROVAL FROM THE UTILITY OWNER AND MEETING THEIR REQUIREMENTS.

3. EXISTING INTERCEPTOR DATA

A. THE LOCATIONS OF INFILTRATIONS AND DISTRESSED AREAS WERE MAPPED USING MANNED-ENTRY INSPECTION AND VISUAL ASSESSMENT; AS SUCH, LOCATIONS SHOWN ARE APPROXIMATE. ACTUAL LOCATIONS MAY VARY AND SHOULD BE LOCATED IN THE FIELD BY THE CONTRACTOR IN CONJUNCTION WITH THE ENGINEER. PACP INSPECTION REPORTS AND TYPICAL DEFECT PHOTOGRAPHS WILL BE MADE AVAILABLE BY THE ENGINEER UPON REQUEST. REFER TO CONTRACT SPECIFICATION APPENDIX FOR CONDITION ASSESMENT DETAILS. THE 3D SCAN DATA OF THE 7 MILE ADIT TUNNEL AT THE STRUCTURE LOCATION IS AVAILABLE UPON REQUEST.

B. PIPE TYPE AND INSTALLATION METHOD SHOWN ON CONTRACT DRAWINGS ARE FROM HISTORICAL RECORDS AND HAVE NOT BEEN FIELD VERIFIED BY ENGINEER.

4. VENTILATION

A. HYDROGEN SULFIDE, METHANE, AND LOW OXYGEN CONCENTRATION HAVE BEEN ENCOUNTERED DURING PREVIOUS WORK ON THE NORTH INTERCEPTOR - EAST ARM AND SHOULD BE EXPECTED TO BE PRESENT IN THE SEWER SYSTEM.

B. AS A MINIMUM, PROVIDE VENTILATION SYSTEM THAT IS CAPABLE OF HANDLING AN AIR FLOW AS REQUIRED BY MIOSHA REQUIREMENTS FOR VELOCITY, MANPOWER, AND OPERATING EQUIPMENT.

C. MAINTAIN THE AIRBORNE HYDROGEN SULFIDE GAS LEVELS AT ADJACENT RESIDENCES AND BUSINESSES AT LESS THAN A ONE HOUR TIME WEIGHTED AVERAGE OF 0.2 PARTS PER MILLION.

D. PROVIDE SOUND BAFFLES OR MUFFLERS AS REQUIRED TO MINIMIZE THE DISRUPTION TO ADJACENT PROPERTY OWNERS. FOR VENTILATION NOISE LIMITATIONS, REFER TO "NOISE" THIS SHEET.

E. REFER TO "VENTILATION" SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

5. ILLUMINATION

A. PROVIDE ILLUMINATION IN THE WORK AREAS IN ACCORDANCE WITH THE MIOSHA REQUIREMENTS FOR UNDERGROUND CONSTRUCTION.

B. MAINTAIN A MINIMUM INTENSITY OF 10-FOOT CANDLES IN WORK AREAS AND 5-FOOT CANDLES IN WALKWAYS.

C. IN ABOVE GROUND AREAS, PROVIDE A MINIMUM INTENSITY OF 5-FOOT CANDLES IN TRAVEL AREAS.

D. PROVIDE SHIELDING AS REQUIRED TO MINIMIZE IMPACTS ON ADJACENT PROPERTIES.

6. FIRST AID

A. PROVIDE A MINIMUM OF TWO FIRST AID AND CPR TRAINED INDIVIDUALS PER SHIFT AND COMPLY WITH THE FIRST AID REQUIREMENTS OF THE MIOSHA STANDARDS.

B. PROVIDE A SUITABLE FIRST AID WORK AREA WITH A MINIMUM LIGHT INTENSITY OF 50-FOOT CANDLES.

7. AIR MONITORING

A. PROVIDE AIR MONITORING IN THE SEWER, SHAFT, AND ACCESS LOCATIONS IN ACCORDANCE WITH MIOSHA REQUIREMENTS.

B. PROVIDE AND DOCUMENT AIR MONITORING AT THE PERIMETER OF THE WORK AREA(S). RECORD RESULTS AT A MINIMUM FREQUENCY OF ONCE PER DAY. PROVIDE COPIES OF THE AIR MONITORING RESULTS TO THE ENGINEER EVERY DAY. REFER TO "VENTILATION" SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

8. FLOW MANAGEMENT

A. MAINTAIN UNINTERRUPTED SANITARY SEWERAGE SERVICE TO ALL COMMUNITIES WITHIN THE OMID DRAINAGE DISTRICT AND OTHERS AT ALL TIMES.

B. FLOW MANAGEMENT MEASURES AND WET WEATHER DAYS ARE DETAILED IN THE FLOW CONTROL SPECIFICATION SECTION 01 57 24.

9. TRAFFIC CONTROL

A. PROVIDE TRAFFIC CONTROL IN ACCORDANCE WITH THE LATEST MICHIGAN MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES AND FOLLOWING THE REQUIREMENTS OF TRAFFIC CONTROL PLANS INCLUDED IN THIS DRAWING SET.

B. PROVIDE CONSTRUCTION TRAFFIC PLANS ACCEPTABLE TO THE JURISDICTIONAL AUTHORITIES FOR ALL WORK AREAS.

C. OBTAIN ALL PERMITS FROM THE JURISDICTIONAL AUTHORITIES PRIOR TO WORKING WITHIN OR ADJACENT TO THE RIGHT-OF-WAY.

10. NOISE

A. COMPLY WITH LOCAL NOISE ORDINANCES. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH VIOLATIONS OF THE NOISE ORDINANCES.

B. PROVIDE NOISE BARRIERS TO REDUCE THE IMPACT OF OPERATIONS TO ADJACENT PROPERTY OWNERS. AT THE PROPERTY LINE, NOISE LEVELS MAY NOT EXCEED THE MORE RESTRICTIVE OF LOCAL ORDINANCES OR 45dba AT NIGHT AND 70dba DURING THE DAY.

11. SITE RESTORATION

A. RESTORE CONSTRUCTION AREAS AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

B. RESTORE ALL SURFACES SUCH AS PAVEMENTS, CURBS, SIDEWALKS, LAWNS, LANDSCAPED AREAS, AND ANY OTHER RELATED LANDSCAPE ELEMENTS, WHICH ARE NOT INDICATED TO BE REMOVED BUT ARE DISTURBED BY CONTRACTOR'S OPERATIONS TO THEIR ORIGINAL CONDITION OR BETTER AND IN A MANNER PRESCRIBED BY AUTHORITIES HAVING JURISDICTION. THIS INCLUDES ALL SURFACES WHICH ARE OPENED UP FOR INSTALLATION OF UNDERGROUND UTILITIES AND OTHER INDICATED WORK.

C. REFER TO CONTRACT DRAWINGS FOR MDOT, WAYNE COUNTY, AND CITY OF DETROIT STANDARD DETAILS.

12. COORDINATION WITH OTHER CONTRACTORS

A. THE PROPOSED WORK WILL REQUIRE COORDINATION WITH POTENTIAL WORK OCCURRING AT THE UPSTREAM NORTHEAST SEWAGE PUMPING STATION, MAINTENANCE WORK WITHIN THE UPSTREAM NI-EA PCI-4 INTERCEPTOR, OAKLAND-MACOMB INTERCEPTOR DRAIN SYSTEM, MACOMB INTERCEPTOR DRAIN, AND DOWNSTREAM GLWA WATER RESOURCE RECOVERY FACILITY.

B. COORDINATION OF THE ABOVE-MENTIONED PROJECTS SHALL BE THROUGH THE OMIDDD REPRESENTATIVE IDENTIFIED ON SHEET NO. C.001 AND THROUGH THE PROJECT FLOW CONTROL MANAGER.

13. CONTAMINATED SOIL AND HAZARDOUS WASTE

A. DURING EXCAVATION OF SHAFTS, MANHOLE RESTORATION, OR ANY OTHER EARTH WORK, CONTAMINATED SOILS OR HAZARDOUS WASTE MATERIALS MAY BE ENCOUNTERED.

B. CONSIDER ALL FILL/EXCAVATED SOILS WITHIN FIFTEEN FEET OF THE GROUND SURFACE TO BE CONTAMINATED NON-HAZARDOUS WASTE. DISPOSE OF EXCESS FILL/EXCAVATED MATERIAL AT A LICENSED TYPE II LANDFILL. REFER TO CONTRACT SPECIFICATIONS AND "GENERAL NOTES", THIS SHEET, FOR ADDITIONAL REQUIREMENTS.

14. SAFETY

A. THE CONTRACTOR SHALL HAVE THE COMPLETE AND SOLE RESPONSIBILITY FOR THE JOB SITE INCLUDING THE SAFETY OF THE GENERAL PUBLIC, CONSTRUCTION EMPLOYEES, PROPERTY, AND VEHICULAR TRAFFIC.

B. THE ENGINEER'S JOB SITE OBSERVATION IS TO DETERMINE COMPLIANCE WITH THE PLANS AND SPECIFICATIONS AND DOES NOT INCLUDE A REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES OR THE CONTRACTOR'S MEANS AND METHODS. THE CONTRACTOR SHALL INITIATE, INSTALL, MAINTAIN, AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS, AND PROGRAMS IN CONNECTION WITH THE WORK.

C. CONTRACTOR SHALL FURNISH ADEQUATE LIGHTS, SIGNS, AND BARRICADES AS MAY BE NECESSARY FOR THE WORK, INCLUDING BUT NOT LIMITED TO, AREAS OF OPEN EXCAVATIONS THROUGHOUT THE PROJECT. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

15. SEVEN MILE ADIT & PC-663 GATE STRUCTURE TERS - ODOR CONTROL AND SECURITY PROTECTIVE COVER

A. THE SEVEN MILE ADIT AND PC-663 GATE STRUCTURES TEMPORARY EARTH RETENTION SYSTEMS (TERS) ARE LOCATED IN AN AREA DENSELY POPULATED BY COMMERCIAL AND RESIDENTIAL DEVELOPMENT, AND THE AVOIDANCE OF NUISANCE ODORS IS OF PRIMARY CONCERN.

B. THE CONTRACTOR IS REQUIRED TO DESIGN, FABRICATE, AND UTILIZE A TEMPORARY PROTECTIVE TERS COVER (FOR EACH STRUCTURE) INTENDED TO CONTROL ODOR EMISSIONS FROM THE INTERCEPTOR AND ALSO PROVIDE OFF-HOUR SECURITY TO PREVENT UNAUTHORIZED ENTRY INTO THE TERS OR THE INTERCEPTOR. THE TERS COVER WILL REQUIRE A DETAILED DESIGN BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MICHIGAN, AND SHALL INCORPORATE DESIGN CRITERIA THAT ADDRESSES SEALED AND GASKETED ODOR CONTROL JOINT DETAILS AND ALSO THE STRUCTURAL CAPACITY TO WITHSTAND LOADING CONDITIONS IMPOSED BY NORMAL LOADING CONDITIONS, INCLUDING AIR CURRENT UPLIFT CONDITIONS FROM THE INTERCEPTOR BELOW. THE CONTRACTOR WILL BE REQUIRED TO DEPLOY AND MAINTAIN THE TEMPORARY COVER INTEGRITY DURING ALL NON-WORKING CONDITIONS.

C. THE DESIGN, FURNISHING, AND ROUTINE DEPLOYMENT/REMOVAL OF THE TERS COVER IS CONSIDERED INCIDENTAL TO THE TERS CONSTRUCTION.

D. REFER TO TERS DRAWINGS (SHEET Nos. T.001 THROUGH T.003) FOR ADDITIONAL DETAILS.

REVISIONS

REV	DESCRIPTION	DATE	BY
	CONCEPTUAL DESIGN FOR GLWA REVIEW	1/29/2021	SS
	90% DESIGN SUBMITTAL	4/16/2021	SS
	100% DESIGN SUBMITTAL		SS

DESIGNED BY: JDS
DRAWN BY: DET
CHECKED BY: LTG
PROJECT MANAGER: SS

NTH Consultants, Ltd.
Infrastructure Engineering and Environmental Services
Detroit, MI • Northville, MI
Lansing, MI • Grand Rapids, MI
Cleveland, OH

SEAL:

NORTH INTERCEPTOR - EAST ARM
NI-EA OMID CONTRACT No. 2 PCI-18 & PCI-19 REHABILITATION

OAKLAND-MACOMB INTERCEPTOR DRAIN (OMID)
NORTH INTERCEPTOR - EAST ARM (NI-EA)
WAYNE COUNTY, MICHIGAN

GENERAL NOTES

WRC WATER RESOURCES COMMISSIONER Jim Nash
MACOMB COUNTY MICHIGAN 1818

CAD FILE NAME: NTH-NIEA-G005
DRAWING SCALE: NONE
INCEP DATE: 28-Aug-19
PLOT DATE: 19-Nov-21
SHEET REFERENCE NUMBER: G.005

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ABBREVIATIONS

@	AT
°	DEGREE
Ø	DIAMETER
'	FOOT, FEET
"	INCH(ES)
%	PERCENT
±	PLUS OR MINUS
ABS	ACRYLONITRILE BUTADIENE STYRENE
AC	ACRE(S)
ALT	ALTERNATE
APPROX	APPROXIMATE
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AVG	AVERAGE
B/	BOTTOM OF
BIT	BITUMINOUS
BLDG	BUILDING
BM	BENCH MARK
BO	BLOW OFF
BOT	BOTTOM
BSMT	BASEMENT
C	CALCULATED
CB	CATCH BASIN
C/C	CENTER TO CENTER
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CJ	CONSTRUCTION JOINT
CL	CENTER LINE, CLASS
CLR	CLEAR
cm/sec	CENTIMETERS PER SECOND
CO	CLEAN OUT
COL	COLUMN
COMB	COMBINED
CONC	CONCRETE
CONST	CONSTANT
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
COR	CORNER
CORP	CORPORATION
CMP	CORRUGATED METAL PIPE
CSO	COMBINED SEWER OUTFALL
CTV	CABLE TELEVISION
CY	CUBIC YARD
D	DEEP
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIAM	DIAMETER
DIP	DUCTILE IRON PIPE
DISC	DISCONTINUOUS
DIST	DISTRICT, DISTANCE
DL	DOOR LEDGE (ELEVATION)
DWLS	DOWELS
DWSD	DETROIT WATER & SEWERAGE DEPARTMENT
E	EAST
EA	EACH
EF	EACH FACE
EGL	ENERGY GRADE LINE
EJ	EXPANSION JOINT
EJIW	EAST JORDAN IRON WORKS
EL	ELEVATION
EM	EDGE OF METAL (ELEVATION)
EMH	EXISTING MANHOLE
ENG	ENGINEER(S)
ES	EACH SIDE
EW	EACH WAY
EX	EXISTING
EXCAV	EXCAVATE(D)
EXT	EXTERIOR, EXTENSION
FD	FLOOR DRAIN
FF	FINISHED FLOOR, FAR FACE
FG	FINISHED GRADE
FH	FIRE HYDRANT
FI	FOUND IRON
FIN	FINISH
FJ	FLANGED JOINT
FL	FLOOR
FM	FORCE MAIN
F.M.	FOUND MONUMENT
FND	FOUNDATION
FO	FIBER OPTIC
FPK	FOUND P.K. NAIL
FS	FAR SIDE
FT	FEET, FOOT
ft/sec	FEET PER SECOND
FWY	FREEWAY
G	GUTTER (ELEVATION)
GA	GAUGE
GALV	GALVANIZED
GMP	GROUND MONITORING POINT
GMPA	GROUND MONITORING POINT ARRAY
GR	GROUND (ELEVATION), GRADE
GS	GROUND SURFACE
GV	GATE VALVE
GV&W	GATE VALVE & WELL
GW	GATE WELL
H	HIGH
HEF	HORIZONTAL EACH FACE
HGL	HYDRAULIC GRADE LINE
HIF	HORIZONTAL INSIDE FACE
HK	HOOK
HOF	HORIZONTAL OUTSIDE FACE
HOR	HORIZONTAL
HP	HIGH POINT, HIGH PRESSURE
HT	HEIGHT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IF	INSIDE FACE
IN	INCH(ES)
INC	INCLINOMETER
INT	INTERIOR
INV	INVERT
JT	JOINT
KB	KNEE BRACE
KIP	THOUSAND POUNDS
L	LONG
LBS	POUNDS
LFT	LINEAL FEET
LGTH	LENGTH
LP	LOW POINT
LS	LANDSCAPED
m	METER
M	MEASURED
MAG	SET MAGNETIC NAIL
MAG/TAG	SET MAGNETIC NAIL WITH TAG
MATL	MATERIAL
MAX	MAXIMUM
MDOT	MICHIGAN DEPARTMENT OF TRANSPORTATION
MH	MANHOLE
MJ	MECHANICAL JOINT
MIN	MINIMUM
mm	MILLIMETER
MW	MONITORING WELL
MWELL	MONITORING WELL
N	NORTH
NB	NORTH BOUND
NCPI	NATIONAL CLAY PIPE INSTITUTE
NE	NORTHEAST
N.I.C.	NOT IN CONTRACT
No.	NUMBER
Nos.	NUMBERS
NS	NEAR SIDE
NTS	NOT TO SCALE
NW	NORTHWEST
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OMID	OAKLAND-MACOMB INTERCEPTOR DRAIN
OPNG	OPENING
OPP	OPPOSITE
PC	POINT OF CURVATURE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PERM	PERMANENT
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
PROP	PROPOSED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT
P.T.	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PZ	PNUEMATIC PIEZOMETER
R	RADIUS, RECORD
RCE	REINFORCED CONCRETE ENCASEMENT
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RE:	REFER TO
REINF	REINFORCED, REINFORCEMENT
REQD	REQUIRED
ROW	RIGHT-OF-WAY
RR	RAILROAD
SAN	SANITARY
SB	SOIL BORING, SOUTH BOUND
SCH	SCHEDULE
SE	SOUTHEAST
SF	SQUARE FEET
SHT	SHEET
SHTS	SHEETS
SI	SET IRON
SJ	SLAB CONTROL JOINT
SIM	SIMILAR
SMP	STRUCTURAL MONITORING POINT
SPA	SPACE, SPACING
SPE	STEEL PIPE ENCASEMENT
SPK	SET P.K. NAIL
SPK/TAG	SET P.K. NAIL WITH TAG
SQ	SQUARE
SS	STAINLESS STEEL
SSP	STEEL SHEET PILE
STA	STATION
STD	STANDARD
STIR	STIRRUPS
STM	STORM
STRUCT	STRUCTURAL
SUR	SURFACE
SW	SIDEWALK, SOUTHWEST
SY	SQUARE YARD(S)
T	TEE
T/	TOP OF
TB	TEST BORING, THRUST BLOCK
T&B	TOP AND BOTTOM
TC	TOP OF CURB (ELEVATION)
TEMP	TEMPORARY
TERS	TEMPORARY EARTH RETENTION SYSTEM
THK	THICK
TOPO	TOPOGRAPHIC(AL)
TOS	ELEVATION TOP OF STRUCTURAL STEEL
TP	TOP OF PAVEMENT (ELEVATION), TURNING POINT
TSV&W	TEE, STOP VALVE & WELL
TT	TELL-TALE
TW	TOP OF WALK (ELEVATION)
TYP.	TYPICAL
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
V	VERTICAL
VCP	VITRIFIED CLAY PIPE
VEF	VERTICAL EACH FACE
VER	VERTICAL
VIF	VERTICAL INSIDE FACE
VOF	VERTICAL OUTSIDE FACE
W	WIDE
W/	WITH
WALL	TOP OF WALL (ELEVATION)
WD	WIDE
WM	WATER MAIN
WP	WORK POINT
WWF	WELDED WIRE FABRIC
YR	YEAR

AGENCIES / FACILITIES

CPS	CLINTONDALE PUMP STATION
DWSD	DETROIT WATER AND SEWERAGE DEPARTMENT
GLWA	GREAT LAKES WATER AUTHORITY
MDOT	MICHIGAN DEPARTMENT OF TRANSPORTATION
MID	MACOMB INTERCEPTOR DISTRICT
OMID	OAKLAND MACOMB INTERCEPTOR DRAIN
OMIDDD	OAKLAND MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT
NESPS	NORTHEAST SEWAGE PUMPING STATION
NI-EA	NORTH INTERCEPTOR - EAST ARM
PSPS	PERRY STREET PUMP STATION
WRRF	WATER RESOURCE RECOVERY FACILITY

LEGEND

- AIR CONDITION UNIT
- ALIGNMENT VERIFICATION PROBE
- BASKETBALL HOOP
- BENCH
- BILLBOARD OR LARGE SIGN
- BOULDER
- CABLE TV RISER
- CATCH BASIN
- CONIFEROUS SHRUB
- CONIFEROUS TREE
- DECIDUOUS SHRUB
- DECIDUOUS TREE
- DEWATERING WELL
- ELECTRIC RISER OR METER
- ELECTRICAL TOWER
- FIRE HYDRANT
- FLAG POLE
- GAS METER
- GAS SHUT OFF VALVE
- GATE VALVE & WELL
- GROUND LEVEL OR DECORATIVE LIGHTING
- GUY POLE
- GUY WIRE
- HAND HOLE
- HISTORICAL TEST BORING
- LAWN SPRINKLER HEAD
- LIGHT POLE
- LIGHT POLE WITH LAMP EXTENSION
- MAILBOX
- MANHOLE
- METAL OR CONC. POST
- MONITORING WELL
- PARKING METER
- PHONE OR PHONE BOOTH
- POINT No.
- POLE WITH TRAFFIC SIGNAL (OVER ROAD)
- SEWER CLEAN OUT
- SECTION CORNER
- SIGN
- SPOT ELEVATION
- SPRINKLER VALVE BOX
- STATUE OR SCULPTURE
- STRUCTURE NUMBER
- STUMP
- TELEPHONE RISER
- TEST BORING
- TRAFFIC SIGNAL
- TRAVERSE POINT
- UTILITY POLE
- UTILITY POLE WITH TRANSFORMER
- UTILITY POLE W/ LAMP EXTENSION (ARROW INDICATES DIRECTION OF ARM)
- VALVE BOX
- WATER FOUNTAIN
- WATER SHUT OFF VALVE
- CENTERLINE OF DITCH
- CHAIN LINK FENCE (C.L.)
- CULVERT
- DITCH BANK/TOP OF SLOPE
- NATURAL GAS MAIN OR SERVICE
- GUARD RAIL
- PROPERTY LINES
- OVERHEAD WIRE OR LIMITS OF OUTSIDE WIRES
- SANITARY SEWER (SAN)
- SILT FENCE
- SNOW FENCE
- STORM SEWER (STM)
- UNDERGROUND CABLE (CBL)
- UNDERGROUND ELECTRIC (ELEC.)
- UNDERGROUND PHONE (PH)
- WATERMAIN (WM)
- WOVEN WIRE FENCE (W.W.)

REVISIONS

REV	DESCRIPTION	DATE	BY
	CONCEPTUAL DESIGN FOR GLWA REVIEW	1/29/2021	SS
	90% DESIGN SUBMITTAL	4/16/2021	SS
	100% DESIGN SUBMITTAL		SS

DESIGNED BY: JDS
DRAWN BY: DET
CHECKED BY: LTG
PROJECT MANAGER: SS

NTH Consultants, Ltd.
Infrastructure Engineering and Environmental Services
Detroit, MI • Northville, MI
Lansing, MI • Grand Rapids, MI
Cleveland, OH

SEAL:

NORTH INTERCEPTOR - EAST ARM
NI-EA OMID CONTRACT No. 2 PCI-18 & PCI-19 REHABILITATION

OAKLAND-MACOMB INTERCEPTOR DRAIN (OMID)
NORTH INTERCEPTOR - EAST ARM (NI-EA)
WAYNE COUNTY, MICHIGAN

ABBREVIATIONS AND LEGENDS

WRC WATER RESOURCES COMMISSIONER Jim Nash
MACOMB COUNTY MICHIGAN

CAD FILE NAME: NTH-NIEA-G006
DRAWING SCALE: NONE
INCEP DATE: 08-Jan-20
PLOT DATE: 15-Nov-21
SHEET REFERENCE NUMBER: G.006

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FLOW CONTROL PROCEDURE DESIGN CRITERIA

AVERAGE DAILY DRY WEATHER FLOW RATES AT NESPS WITHOUT DIVERSION AT THE PERRY STREET PUMP STATION (PSPS)

- SUMMER/FALL CONDITION = 97 CFS
- SPRINGTIME CONDITION = 118 CFS

EXPECTED PUMPING CAPACITIES AT THE NORTHEAST SEWAGE PUMP STATION

	TYPE	WET WELL = 525 FT-NAVD88	WET WELL = 529 FT-NAVD88
PUMP #1	CS	163.9	169.7
PUMP #2 (93% SPEED)	VFD	134.8	144.0
PUMP #2 (100% SPEED)	VFD	173.2	180.9
PUMP #5	CS	121.6	127.3
PUMP #6	CS	163.9	169.7

CS = CONSTANT SPEED
VFD = VARIABLE FREQUENCY DRIVE

NOTE: THE KNIFE GATES ON THE SUCTION LINES OF PUMPS #3 AND #4 MUST BE CLOSED WHEN DISCHARGE IS OCCURRING TO THE SEVEN MILE RELIEF SEWER. IF NOT, REVERSE FLOW THROUGH THE PUMPS WILL OCCUR.

FLOW CONTROL PROCEDURE FOR REHABILITATION OF EXISTING PC-663 GATE STRUCTURE AND CONSTRUCTION OF NEW SEVEN MILE ADIT FLAP GATE STRUCTURE AND SPOT REPAIRS (CONTRACT 2A)

1. THIS WORK INCLUDES REHABILITATION OF THE EXISTING PC-663 GATE STRUCTURE AT VAN DYKE AND CONSTRUCTION OF THE NEW SEVEN MILE ADIT FLAP GATE STRUCTURE AT 7 MILE RD.
2. THE FLOW CONTROL MANAGER WILL DETERMINE IF DRY WEATHER FLOW CONDITIONS EXIST IN THE OMID AND GLWA SYSTEMS AND NOTIFY THE CONTRACTOR IF WORK CAN BE ACCOMPLISHED IN THE NI-EA ON ANY GIVEN DAY. WORK IN THE NI-EA IS ONLY ALLOWED ON DRY WEATHER DAYS.
3. ON DRY WEATHER WORKDAYS, THE FLOW CONTROL MANAGER WILL REMOTELY CLOSE THE LOW FLOW SLUICE GATES AT THE OMID FLOW CONTROL STRUCTURES (CS-6, 7, 8 AND 9). THE FLOW CONTROL MANAGER WILL COORDINATE CLOSURE OF THE LOW FLOW SLUICE GATES AT THE MID FLOW CONTROL STRUCTURE (CS-3) AND TURNING OFF THE CLINTONDALE PUMP STATION (CPS) WITH THE MCPWO. THESE ACTIONS WILL STORE WASTEWATER IN THE UPSTREAM INTERCEPTORS AND REDUCE THE FLOW RATES TO THE NESPS. THE PUMPS AT THE NESPS WILL BE TURNED OFF BY OMID AND GLWA AS FLOW RATES RECEDE.
4. THE FLOW CONTROL MANAGER WILL COORDINATE THE OPERATIONS OF THE CS-3, CPS, PERRY STREET PUMP STATION (PSPS) AND THE NESPS WITH THE OPERATING ENTITIES OF THESE FACILITIES. THE CPS AND CS-3 ARE OPERATED BY THE MACOMB COUNTY PUBLIC WORKS OFFICE (MCPWO), THE PSPS IS OPERATED BY THE OAKLAND COUNTY WATER RESOURCES COMMISSIONER (OCWRC) AND THE NESPS IS OPERATED BY GREAT LAKES WATER AUTHORITY (GLWA).
5. PRIOR TO ENTRANCE INTO THE NI-EA EACH WORKDAY, THE CONTRACTOR SHALL COORDINATE WITH THE FLOW CONTROL MANAGER AND THE OWNER TO APPROPRIATELY LOCKOUT / TAGOUT (LOTO) ANY UTILIZED FLOW CONTROL STRUCTURES.
6. THE FLOW CONTROL MANAGER WILL NOTIFY GLWA THAT THE WET WELL ELEVATION AT PUMP STATION NO. 2 MUST BE MAINTAINED BELOW ELEVATION 80 FEET WHEN WORK IS OCCURRING IN THE NI-EA. THE GLWA IS REQUIRED TO IMMEDIATELY NOTIFY THE FLOW CONTROL MANAGER IF THIS IS NOT POSSIBLE. IF THIS OCCURS, THE FLOW CONTROL MANAGER WILL NOTIFY THE CONTRACTOR OF THE NEED TO EVACUATE PERSONNEL FROM THE NI-EA AND REMOVE AND SAFELY STORE EQUIPMENT AND MATERIALS.
7. THE FLOW CONTROL MANAGER WILL REMOTELY MONITOR THE WASTEWATER LEVELS AND FILLING OF THE INTERCEPTORS AND THE WEATHER. IF SIGNIFICANT WET WEATHER OCCURS WHEN WORK IN THE INTERCEPTORS IS OCCURRING, THE FLOW CONTROL MANAGER WILL NOTIFY THE CONTRACTOR OF THE NEED TO EVACUATE PERSONNEL FROM THE NI-EA AND REMOVE AND SAFELY STORE EQUIPMENT AND MATERIALS.
8. AT THE END OF EACH WORKDAY, OR AS NEEDED FOR WET WEATHER, AFTER PERSONNEL, EQUIPMENT AND MATERIALS HAVE BEEN REMOVED FROM THE NI-EA, THE FLOW CONTROL MANAGER WILL REMOTELY OPEN THE LOW FLOW SLUICE GATES AT THE OMID CONTROL STRUCTURES. THE FLOW CONTROL MANAGER WILL COORDINATE TURNING ON THE CPS AND OPENING OF THE CS-3 LOW FLOW SLUICE GATES WITH MCPWO. THE FLOW CONTROL MANAGER WILL NOTIFY GLWA THAT DEWATERING OF THE STORED WASTEWATER HAS COMMENCED AND TO PREPARE FOR PUMPING AT THE NESPS.
9. THE CONTRACTOR IS REQUIRED TO FOLLOW THE REQUIREMENTS IN THE 01 57 24 - FLOW CONTROL AND MANAGEMENT SPECIFICATION.

FLOW CONTROL PROCEDURE FOR INSTALLATION OF PARTIAL HEIGHT BULKHEAD WITH FLAP GATE DOWNSTREAM OF PCI-19 LINING (CONTRACT 2B)

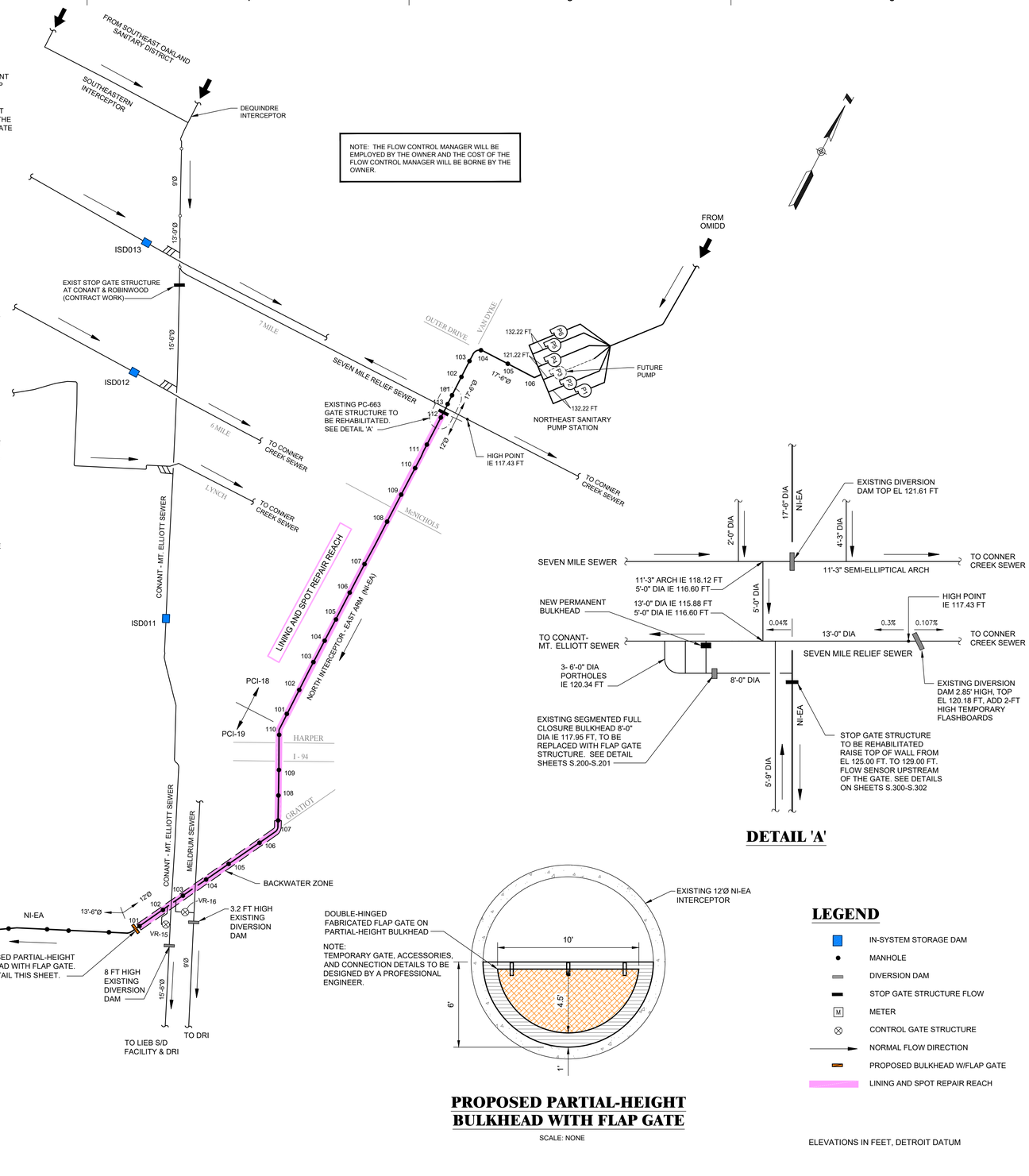
1. THE CONTRACTOR SHALL DESIGN, FURNISH AND INSTALL A PARTIAL-HEIGHT BULKHEAD WITH A FABRICATED DOUBLE HINGED FLAP GATE IMMEDIATELY DOWNSTREAM OF MANHOLE 101 IN THE NI-EA DURING DRY WEATHER CONDITIONS.
2. THE PARTIAL-HEIGHT BULKHEAD SHALL BE INSTALLED IN THE NI-EA AFTER COMPLETION OF THE REHABILITATION OF THE EXISTING PC-663 GATE STRUCTURE AND THE CONSTRUCTION OF THE NEW SEVEN MILE ADIT FLAP GATE STRUCTURE.
3. THE FLOW CONTROL MANAGER WILL DETERMINE IF DRY WEATHER FLOW CONDITIONS EXIST IN THE OMID AND GLWA SYSTEMS AND NOTIFY THE CONTRACTOR IF WORK CAN BE ACCOMPLISHED IN THE NIEA ON ANY GIVEN DAY.
4. ON DRY WEATHER WORKDAYS, THE FLOW CONTROL MANAGER WILL COORDINATE THE OPERATIONS OF THE PUMPS AT THE NESPS WITH THE GLWA. THE KNIFE GATES ON THE SUCTION LINES OF PUMP #3 (IF EXISTING) AND PUMP #4 SHALL BE CLOSED, AND NO MORE THAN TWO PUMPS OF PUMPS #1, 2, 5 AND 6 SHALL OPERATE SIMULTANEOUSLY.
5. ON DRY WEATHER WORKDAYS, THE FLOW CONTROL MANAGER WILL COORDINATE THE CLOSURE OF THE GATES VR-15 AND VR-16 WITH THE GLWA.
6. ON DRY WEATHER WORKDAYS, THE FLOW CONTROL MANAGER WILL COORDINATE WITH THE OWNER TO CLOSE THE NI-EA STOP GATE IN THE REHABILITATED PC-663 GATE STRUCTURE.
7. THE FLOW CONTROL MANAGER WILL NOTIFY GLWA THAT THE WET WELL ELEVATION AT PUMP STATION NO. 2 MUST BE MAINTAINED BELOW ELEVATION 75 FEET DURING THE INSTALLATION OF THE PARTIAL-HEIGHT BULKHEAD. THE GLWA IS REQUIRED TO IMMEDIATELY NOTIFY THE FLOW CONTROL MANAGER IF THIS IS NOT POSSIBLE. IF THIS OCCURS, THE FLOW CONTROL MANAGER WILL NOTIFY THE CONTRACTOR OF THE NEED TO EVACUATE PERSONNEL FROM THE NI-EA AND REMOVE AND SAFELY STORE EQUIPMENT AND MATERIALS.
8. PRIOR TO ENTRANCE INTO THE NI-EA EACH WORKDAY, THE CONTRACTOR SHALL COORDINATE WITH THE FLOW CONTROL MANAGER AND THE OWNER TO APPROPRIATELY LOTO ANY UTILIZED FLOW CONTROL STRUCTURES.
9. THE FLOW CONTROL MANAGER WILL REMOTELY MONITOR THE WASTEWATER LEVELS AND THE WEATHER. IF SIGNIFICANT WET WEATHER OCCURS WHEN WORK IN THE INTERCEPTORS IS OCCURRING, THE FLOW CONTROL MANAGER WILL NOTIFY THE CONTRACTOR OF THE NEED TO EVACUATE PERSONNEL FROM THE NI-EA AND REMOVE AND SAFELY STORE EQUIPMENT AND MATERIALS.

FLOW CONTROL PROCEDURE FOR INSTALLATION OF PARTIAL HEIGHT BULKHEAD WITH FLAP GATE DOWNSTREAM OF PCI-19 LINING (CONTRACT 2B) (CONT.)

10. AT THE END OF EACH WORKDAY, THE FLOW CONTROL MANAGER WILL NOTIFY GLWA WHEN PERSONNEL, EQUIPMENT AND MATERIALS HAVE BEEN REMOVED FROM THE NI-EA AND THERE IS NO LONGER A NEED TO MAINTAIN THE PUMP STATION NO. 2 WET WELL LEVEL BELOW ELEVATION 75 FEET OR TO KEEP THE GATES VR-15 AND VR-16 CLOSED.
11. AS NEEDED FOR WET WEATHER OR AFTER THE FINAL COMPLETION OF THE WORK, AFTER PERSONNEL, EQUIPMENT AND MATERIALS HAVE BEEN REMOVED FROM THE NI-EA, THE FLOW CONTROL MANAGER WILL COORDINATE WITH THE OWNER TO GRADUALLY OPEN THE NI-EA STOP GATE IN A CONTROLLED MANNER ON THE REHABILITATED PC-663 GATE STRUCTURE.
12. THE CONTRACTOR IS REQUIRED TO FOLLOW THE REQUIREMENTS IN THE 01 57 24 - FLOW CONTROL AND MANAGEMENT SPECIFICATION.

FLOW CONTROL PROCEDURE FOR NI-EA PCI-19 LINING AND SPOT REPAIR REACH (CONTRACT 2B)

1. WORK INCLUDES LINING OF THE NI-EA IN THE PCI-19 REACH.
2. WORK IN THIS REACH SHALL BE UNDERTAKEN AFTER THE COMPLETION OF THE REHABILITATION OF THE EXISTING PC-663 GATE STRUCTURE AND THE CONSTRUCTION OF THE NEW SEVEN MILE ADIT FLAP GATE STRUCTURE.
3. WORK IN BACKWATER ZONE AT THE DOWNSTREAM END OF THIS REACH SHALL BE UNDERTAKEN AFTER THE INSTALLATION OF THE PARTIAL-HEIGHT BULKHEAD WITH FLAP GATE IN THE NI-EA DOWNSTREAM OF PCI-19 MANHOLE 101.
4. THE FLOW CONTROL MANAGER WILL DETERMINE IF DRY WEATHER FLOW CONDITIONS EXIST IN THE OMID AND GLWA SYSTEMS AND NOTIFY THE CONTRACTOR IF WORK CAN BE ACCOMPLISHED IN THE NI-EA ON ANY GIVEN DAY.
5. ON DRY WEATHER WORKDAYS, THE FLOW CONTROL MANAGER WILL COORDINATE THE OPERATIONS THE PUMPS AT THE NESPS WITH THE GLWA. THE KNIFE GATES ON THE SUCTION LINES OF PUMP #3 (IF EXISTING) AND PUMP #4 SHALL BE CLOSED, AND NO MORE THAN TWO PUMPS OF PUMPS #1, 2, 5 AND 6 SHALL OPERATE SIMULTANEOUSLY.
6. ON DRY WEATHER WORKDAYS, THE FLOW CONTROL MANAGER WILL COORDINATE THE CLOSURE OF THE GATES VR-15 AND VR-16 WITH THE GLWA.
7. ON DRY WEATHER WORKDAYS, THE FLOW CONTROL MANAGER WILL COORDINATE WITH THE OWNER TO CLOSE THE NI-EA STOP GATE ON THE REHABILITATED PC-663 GATE STRUCTURE.
8. PRIOR TO ENTRANCE INTO THE NI-EA EACH WORKDAY, THE CONTRACTOR SHALL COORDINATE WITH THE FLOW CONTROL MANAGER AND THE OWNER TO APPROPRIATELY LOTO ANY UTILIZED FLOW CONTROL STRUCTURES.
9. THE FLOW CONTROL MANAGER WILL NOTIFY GLWA THAT THE WET WELL ELEVATION AT PUMP STATION NO. 2 MUST BE MAINTAINED BELOW ELEVATION 80 FEET DURING WORK. THE GLWA IS REQUIRED TO IMMEDIATELY NOTIFY THE FLOW CONTROL MANAGER IF THIS IS NOT POSSIBLE. IF THIS OCCURS, THE FLOW CONTROL MANAGER WILL NOTIFY THE CONTRACTOR OF THE NEED TO EVACUATE PERSONNEL FROM THE NI-EA AND REMOVE AND SAFELY STORE EQUIPMENT AND MATERIALS.
10. WHILE WORKING IN THE BACKWATER ZONE, THE CONTRACTOR SHALL FURNISH, INSTALL AND OPERATE TEMPORARY BYPASS PUMPING ACROSS THE PARTIAL-HEIGHT BULKHEAD WITH FLAP GATE AT MANHOLE 101. THIS PUMPING WILL DEWATER THE UPSTREAM NI-EA AND HANDLE LEAKAGE AND GROUNDWATER INFILTRATION.
11. THE FLOW CONTROL MANAGER WILL REMOTELY MONITOR THE WASTEWATER LEVELS AND THE WEATHER. IF SIGNIFICANT WET WEATHER OCCURS WHEN WORK IN THE INTERCEPTORS IS OCCURRING, THE FLOW CONTROL MANAGER WILL NOTIFY THE CONTRACTOR OF THE NEED TO EVACUATE PERSONNEL FROM THE NI-EA AND REMOVE AND SAFELY STORE EQUIPMENT AND MATERIALS.
12. AT THE END OF EACH WORKDAY, THE FLOW CONTROL MANAGER WILL NOTIFY GLWA WHEN PERSONNEL, EQUIPMENT AND MATERIALS HAVE BEEN REMOVED FROM THE NI-EA AND THERE IS NO LONGER A NEED TO MAINTAIN THE PUMP STATION NO. 2 WET WELL LEVEL BELOW ELEVATION 80 FEET OR TO KEEP THE GATES VR-15 AND VR-16 CLOSED.
13. AFTER PERSONNEL, EQUIPMENT AND MATERIALS HAVE BEEN REMOVED FROM THE NI-EA, THE FLOW CONTROL MANAGER WILL COORDINATE WITH THE OWNER TO GRADUALLY OPEN THE NI-EA STOP GATE IN A CONTROLLED MANNER ON THE REHABILITATED PC-663 GATE STRUCTURE.
14. THE CONTRACTOR IS REQUIRED TO FOLLOW THE REQUIREMENTS IN THE 01 57 24 - FLOW CONTROL AND MANAGEMENT SPECIFICATION.



DETAIL 'A'

PROPOSED PARTIAL-HEIGHT BULKHEAD WITH FLAP GATE

SCALE: NONE

LEGEND

- IN-SYSTEM STORAGE DAM
- MANHOLE
- DIVERSION DAM
- STOP GATE STRUCTURE FLOW
- METER
- CONTROL GATE STRUCTURE
- NORMAL FLOW DIRECTION
- PROPOSED BULKHEAD W/FLAP GATE
- LINING AND SPOT REPAIR REACH

ELEVATIONS IN FEET, DETROIT DATUM

REVISIONS

REV	DESCRIPTION	DATE	BY
	CONCEPTUAL DESIGN FOR GLWA REVIEW	1/29/2021	JRM
	90% DESIGN SUBMITTAL	4/16/2021	JRM
	100% DESIGN SUBMITTAL		JRM

DESIGNED BY: PJS
DRAWN BY: DAH-J
CHECKED BY: KER
PROJECT MANAGER: JRM

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Lansing, MI • Grand Rapids, MI
Cleveland, OH

SEAL:

NORTH INTERCEPTOR - EAST ARM
NI-EA OMID CONTRACT No. 2 PCI-18 & PCI-19 REHABILITATION

OAKLAND-MACOMB INTERCEPTOR DRAIN (OMID)
NORTH INTERCEPTOR - EAST ARM (NI-EA)
WAYNE COUNTY, MICHIGAN

FLOW CONTROL AND MANAGEMENT INFORMATION (1 OF 2)

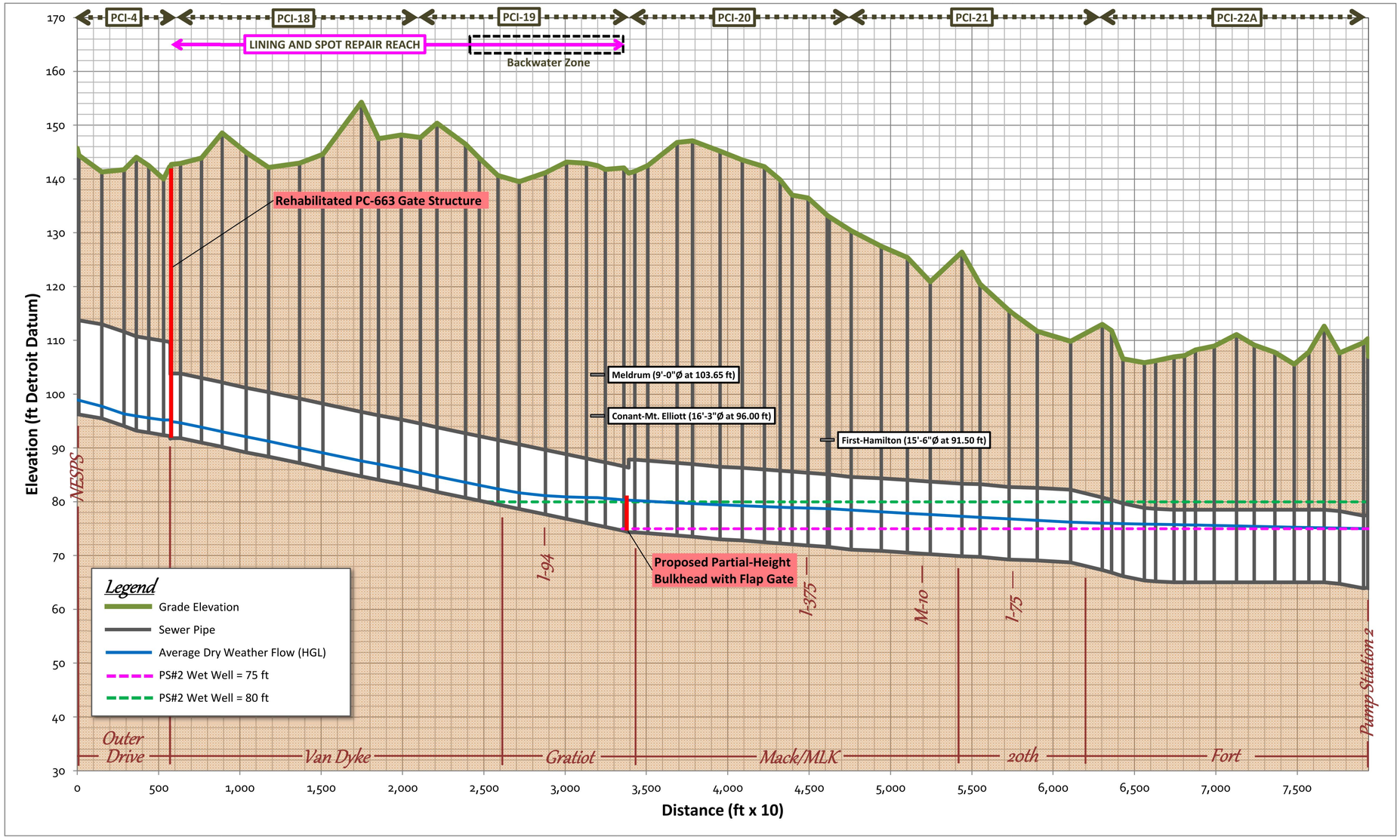
WRC WATER RESOURCES COMMISSIONER Jim Nash
MACOMB COUNTY MICHIGAN

CAD FILE NAME:	DRAWING SCALE:
ASI-NIEA-G007	NONE
INCEP DATE: 02-26-20	PLOT DATE: 29-Nov-21

SHEET REFERENCE NUMBER: **G.007**

11/29/2021 3:06:40 PM

North Interceptor-East Arm Profile



ELEVATIONS IN FEET, DETROIT DATUM

REVISIONS			
REV	DESCRIPTION	DATE	BY
	CONCEPTUAL DESIGN FOR GLWA REVIEW	1/29/2021	JRM
	90% DESIGN SUBMITTAL	4/16/2021	JRM
	100% DESIGN SUBMITTAL		JRM

DESIGNED BY: PJS
DRAWN BY: DAH-J
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PROJECT MANAGER: JRM

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Cleveland, OH

SEAL:

NORTH INTERCEPTOR - EAST ARM
NI-EA OMID CONTRACT No. 2 PCI-18 & PCI-19 REHABILITATION

OAKLAND-MACOMB INTERCEPTOR DRAIN (OMID)
NORTH INTERCEPTOR - EAST ARM (NI-EA)
WAYNE COUNTY, MICHIGAN

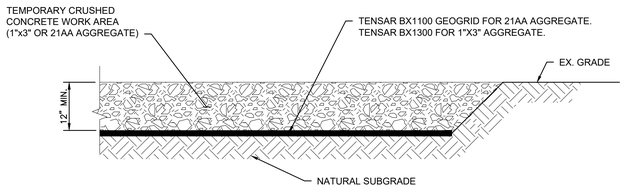
FLOW CONTROL AND
MANAGEMENT INFORMATION
(2 OF 2)

WRC WATER RESOURCES COMMISSIONER Jim Nash
MACOMB COUNTY MICHIGAN

CAD FILE NAME:	DRAWING SCALE:
ASI-NIEA-G008	NONE
INCEP DATE: 02-26-20	PLOT DATE: 29-Nov-21

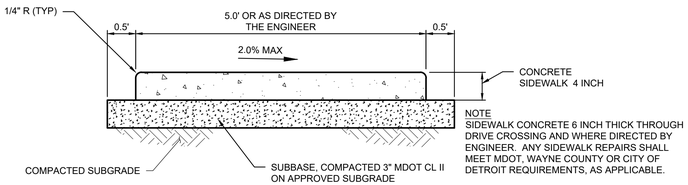
SHEET REFERENCE NUMBER: **G.008**

11/29/2021 1:39:42 PM



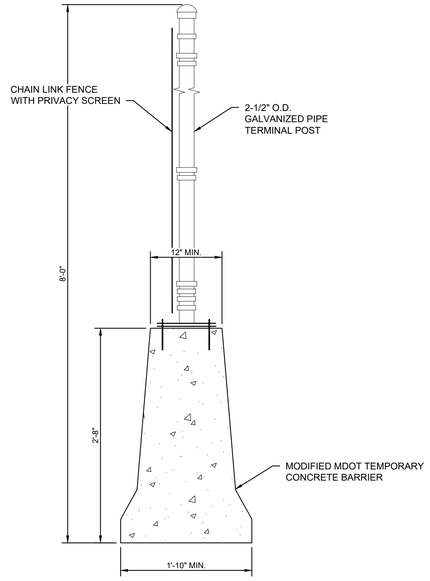
TYPICAL SECTION FOR TEMPORARY ACCESS APPROACH AND WORKING AREA

SCALE: NONE



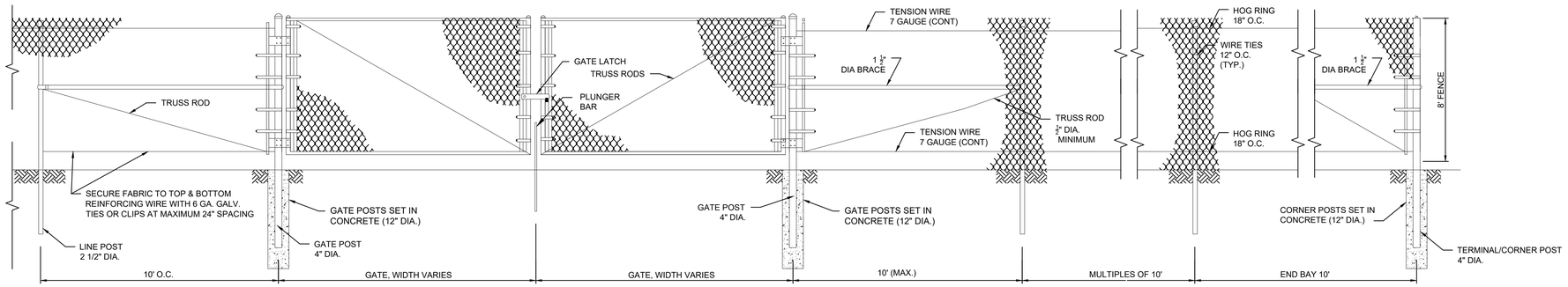
NEW CONCRETE SIDEWALK DETAIL

SCALE: NONE



JERSEY BARRIER WITH FENCE DETAIL

SCALE: NONE



NOTES

1. PROVIDE SCREENING TO LIMITS SHOWN ON PLAN. NO SCREENING IS REQUIRED AT THE ACCESS GATES.
2. POST SECURITY AND USE OF HARD HATS SIGNS AS REQUIRED BY MIOSHA

8' TALL CONSTRUCTION FENCE

SCALE: NONE

PUBLIC UTILITIES

AT&T
OSP ENGINEERING & DESIGN
MR. RAYMOND BALICK
(586) 466-1040
RB2481@ATT.COM

DETROIT EDISON
MR. TOM KOCH
(313) 235-4432

DTE ENERGY/MICHCON
MS. BARBARA SAUNDERS, SUPERVISOR
(313) 235-5132

DTE ENERGY
CORPORATE & GOVERNMENTAL AFFAIRS
MS. JULIE JOZWIAK
(313) 600-3725
JULIE.JOZWIAK@DTEENERGY.COM

DTE ENERGY GAS
BASEL DJAZMATI, PE, SENIOR CAPITAL MANAGER
(248) 825-4636
BASEL.DJAZMATI@DTEENERGY.COM

CABLE COMMUNICATIONS COMMISSION
SHELLY MCDERMOTT
(313) 224-2200

INTERNATIONAL TRANSMISSION COMPANY (ITC)
ERIN KEELER, P.E.
(248) 946-3298

DWSD UTILITY INFORMATION
GEORGE HABERER
(313) 964-9519

DWSD ENGINEERING
MOHAMMAD SIDDIQUE, PE
(313) 964-9245
MOHAMMAD.SIDDIQUE@DETROITMI.GOV

PERMITTING AND STORMWATER MANAGEMENT GROUP (PSMG)
DETROIT WATER AND SEWERAGE DEPARTMENT
MOHAMMED BOUDALI, PE
(313) 267-1375

WATER / SEWER
DETROIT WATER AND SEWERAGE DEPARTMENT
LESHAWN SAMUEL
(313) 964-9519

MUNICIPALITIES AND GOVERNMENT AGENCIES

ENVIRONMENT, GREAT LAKES AND ENERGY (EGLE)
MS. HALA BAROUDI, P.E.
(586) 753-3700

OAKLAND MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT
MR. SID LOCKHART, P.E.
(248) 858-0958

MACOMB COUNTY PUBLIC WORKS COMMISSIONER
MR. STEPHEN DOWNING
(586) 696-0236

OAKLAND COUNTY WATER RESOURCES COMMISSIONER
MR. JOEL BROWN, P.E.
(248) 452-8681

NORTHEAST SEWAGE PUMPING STATION
GREAT LAKES WATER AUTHORITY
MR. BIREN SAPARIA, P.E.
(313) 267-8977

MICHIGAN DEPARTMENT OF TRANSPORTATION
TRANSPORTATION SERVICES CENTER
MR. GARY PHILLIPS
(586) 978-1935

MDOT ROW
MS. STACY PERCELL
(313) 643-0852

MDOT SIGNAL HEAD ADJUSTMENT
MR. JAMES HATCHER
(248) 867-0234

WAYNE COUNTY R.O.W.
MR. HIKMAT KASSEM
(734) 858-2757

CITY OF DETROIT
BUILDINGS, SAFETY, ENGINEERING AND ENVIRONMENTAL DEPARTMENT
MS. ANITA HARRINGTON
(313) 628-2459
HARRINGTONA@DETROITMI.GOV

DETROIT DEPARTMENT OF TRANSPORTATION (DDOT)
GEENA SCHOFIELD, TRANSPORTATION OPERATIONS ASSISTANT
(313) 833-7973
GEESCH@DETROITMI.GOV

SUBURBAN MOBILITY & REGIONAL TRANSPORTATION (SMART)
GREG LORENZ
(248) 419-7904
GLORENZ@SMARTBUS.ORG

DANA HILTHON
(248) 419-7905
DHILTHON@SMARTBUST.ORG

CIVIL NOTES

1. CONSTRUCTION ACTIVITIES

A. PREVENT MUD TRANSFER TO LOCAL STREETS OR PAVED SURFACES AND PROVIDE DUST CONTROL MEASURES IN ACCORDANCE WITH APPLICABLE CODES AND THE SPECIFICATIONS.

B. CLEANUP OF MUD TRACKED ONTO ADJACENT STREETS, PAVED SURFACES AND/OR ACCESS ROADS FROM VEHICLES LEAVING THE JOB SITE DAILY AND TO THE FULL SATISFACTION OF THE JURISDICTIONAL AUTHORITIES AND THE ENGINEER.

C. DISPOSE OF ALL REMOVED MATERIALS OFF SITE IN ACCORDANCE WITH APPLICABLE CODES AND AS APPROVED.

D. IDENTIFY AND OBTAIN ALL PERMITS AND APPROVALS NECESSARY TO PERFORM THE WORK WHERE SUCH WORK IS WITHIN OR ADJACENT TO EXISTING RIGHTS-OF-WAY AND EASEMENTS.

E. CONSIDER ALL FILL SOILS WITHIN FIFTEEN FEET OF THE GROUND SURFACE TO BE CONTAMINATED NON-HAZARDOUS WASTE. DISPOSE OF EXCESS FILL AT A LICENSED TYPE II LANDFILL.

2. DEWATERING

A. PERFORM SITE DEWATERING NECESSARY TO MAINTAIN A SAFE AND EFFICIENT WORKING ENVIRONMENT IN ACCORDANCE WITH CONTRACT DRAWINGS AND SPECIFICATIONS.

3. MANHOLE

A. PROVIDE AN GLWA STANDARD MANHOLE COVER AND FRAME AT THE PROPOSED / OPTIONAL ACCESS STRUCTURE LOCATIONS AS INDICATED WITHIN THE STANDARD DETAILS (SD.010).

B. PROVIDE WRAPIDSEAL OR ENGINEER APPROVED EQUIVALENT ON ALL NEW OR MODIFIED MANHOLES. REFER TO STANDARD DETAILS.

4. STAGING AREA / ACCESS ROADS

A. OBTAIN ANY ADDITIONAL STAGING AREA FOR LAY-DOWN AREA, IF NECESSARY, FROM PRIVATE PROPERTY OWNERS AND PROVIDE DOCUMENTATION OF THE AGREEMENT TO THE ENGINEER FOR RECORD PRIOR TO MOBILIZATION ONTO SAID PROPERTY AT NO COST TO THE PROJECT.

B. ALL AGGREGATE LIMESTONE USED ON THIS PROJECT SHALL BE CLEAN AND FREE OF METAL, WIRE, BRICK, WOOD, AND OTHER DEBRIS.

C. MEET MDOT STANDARD DETAIL R-29-I, CONCRETE DRIVEWAY OPENING DETAIL L, OR THE REQUIREMENTS OF WAYNE COUNTY OR CITY OF DETROIT, AS APPLICABLE.

D. CONTRACTOR SHALL MAKE APPLICATION AND OBTAIN RIGHT OF ENTRY PERMIT FROM CITY OF DETROIT, BUILDINGS, SAFETY, ENGINEERING AND ENVIRONMENTAL DEPARTMENT FOR USE OF THE PROPOSED LAYDOWN YARD AT 19015 VAN DYKE.

5. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

A. REFER TO CONTRACT STANDARD DRAWINGS FOR SESC DETAILS. STANDARD DETAILS FOR SESC MEASURES AT EXISTING INTERCEPTOR MANHOLES ARE ALSO SHOWN ON C-007A AND C-016A.

6. RESTORATION

A. AT THE COMPLETION OF WORK, RESTORE THE WORK SITES AS INDICATED ON THE PLANS AND AS REQUIRED BY THE JURISDICTIONAL AUTHORITIES AND / OR PROPERTY OWNERS.

7. UTILITY PROTECTION AND RELOCATION NOTES

A. MAINTAIN UNINTERRUPTED SANITARY SEWAGE AND STORM FLOWS IN ALL EXISTING SEWERS DURING CONSTRUCTION. METHODS OF REROUTING OF FLOWS, PUMPING, OR TEMPORARY BLOCKING SHALL BE SUBMITTED BY THE CONTRACTOR FOR REVIEW AND APPROVAL BY THE ENGINEER AND THE JURISDICTION HAVING AUTHORITY PRIOR TO CONSTRUCTION. REFER TO CONTRACT DRAWINGS FOR RELOCATION OF EXISTING GAS MAIN AND WATER MAIN ALONG 7 MILE ROAD, AND PROTECTION/SUPPORT REQUIREMENTS FOR THE AT&T DUCT NEAR THE PROPOSED 7 MILE ADIT GATE STRUCTURE. COORDINATE WITH THE UTILITY COMPANIES IN ADVANCE OF CONSTRUCTION MEETING THE REQUIREMENTS OF THE CONTRACT AND PERMITS. REFER TO THIS SHEET FOR CONTACT INFORMATION.

B. PROTECT ALL EXISTING UTILITIES AND IMPROVEMENTS, WHICH ARE NOT INDICATED TO BE REMOVED AGAINST DAMAGE DURING CONSTRUCTION.

C. MAINTAIN ACCESS ROADS AND STAGING AREAS IN A WELL GRADED LEVEL CONDITION THROUGH OUT THE DURATION OF THIS PROJECT AS DIRECTED BY THE ENGINEER.

REVISIONS

REV	DESCRIPTION	DATE	BY
	CONCEPTUAL DESIGN FOR GLWA REVIEW	01/29/2021	LJU
	90% DESIGN REVIEW	04/16/2021	LJU
	100% DESIGN REVIEW		LJU

DESIGNED BY: LJU
DRAWN BY: MJS
CHECKED BY: CRF
PROJECT MANAGER: LJU

ANDERSON, ECKSTEIN AND WESTRICK, INC.
Civil Engineers
Surveyors
Architects

NTH Consultants, Ltd.
Infrastructure Engineering and Environmental Services
Detroit, MI • Northville, MI
Lansing, MI • Grand Rapids, MI
Cleveland, OH

SEAL: STATE OF MICHIGAN · LOUIS J. URBAN, III · ENGINEER · No. 52342 · LICENSED PROFESSIONAL ENGINEER

NORTH INTERCEPTOR - EAST ARM
NI-EA OMID CONTRACT No. 2 PCI-18 & PCI-19 REHABILITATION

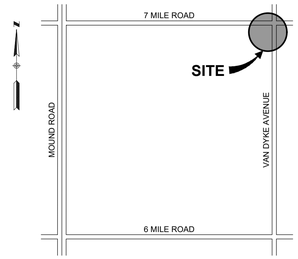
OAKLAND-MACOMB INTERCEPTOR DRAIN (OMID)
NORTH INTERCEPTOR - EAST ARM (NI-EA)
WAYNE COUNTY, MICHIGAN

CIVIL NOTES AND MISCELLANEOUS DETAILS

WRC WATER RESOURCES COMMISSIONER Jim Nash
MACOMB COUNTY MICHIGAN 1818

CAD FILE NAME: C001_Notes
DRAWING SCALE: AS NOTED
INCEP DATE: 18-Jan-21
PLOT DATE: 18-Nov-21
SHEET REFERENCE NUMBER: C.001

11/24/2021 8:53:41 AM



LOCATION MAP
NOT TO SCALE

EASEMENT PLAN
SCALE: 1" = 20'

LEGEND

- PROPOSED TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED PERMANENT UTILITY EASEMENT
- LIMITS OF PERMANENT UTILITY EASEMENT

REVISIONS

REV	DESCRIPTION	DATE	BY
	CONCEPTUAL DESIGN FOR GLWA REVIEW	01/29/2021	LJU
	90% DESIGN REVIEW	04/16/2021	LJU
	100% DESIGN REVIEW		LJU

DESIGNED BY: LJU
DRAWN BY: MJS
CHECKED BY: CRF
PROJECT MANAGER: LJU

ANDERSON, ECKSTEIN AND WESTRICK, INC.
Civil Engineers
Surveyors
Architects

NTH Consultants, Ltd.
Infrastructure Engineering and Environmental Services
Detroit, MI • Northville, MI
Lansing, MI • Grand Rapids, MI
Cleveland, OH

SEAL: STATE OF MICHIGAN · LOUIS J. URBAN, III · ENGINEER · No. 52542 · LICENSED PROFESSIONAL ENGINEER

NORTH INTERCEPTOR - EAST ARM
NI-EA OMID CONTRACT No. 2 PCI-18 & PCI-19 REHABILITATION

OAKLAND-MACOMB INTERCEPTOR DRAIN (OMID)
NORTH INTERCEPTOR - EAST ARM (NI-EA)
WAYNE COUNTY, MICHIGAN

TEMPORARY AND PERMANENT
CONSTRUCTION EASEMENTS

WRC WATER RESOURCES COMMISSIONER Jim Nash
MACOMB COUNTY MICHIGAN 1818

CAD FILE NAME: C002_Easement Plan
DRAWING SCALE: 1" = 20'
INCEP DATE: 6-Apr-20
PLOT DATE: 18-Nov-21
SHEET REFERENCE NUMBER: **C.002**

11/18/2021 10:13:08 AM

Agenda Item No. 7

Revised Agreement Between
Kone and OMIDDD for Elevator Maintenance Services

Oakland-Macomb Interceptor Drain Drainage District

TO: **Michael Gregg, Chairperson**
Oakland-Macomb Interceptor Drain Drainage Board

FROM: **Joel Brown, P.E. Oakland County Water Resources Commissioner's Office**
Stephen Downing Macomb County Public Works Commissioner's Office

SUBJECT: **Approval of Revised Detroit Elevator Co. Service Maintenance Contract Change Order to Formally Transfer the Contract to Kone, Extend Contract Time to Allow for Continued Elevator Maintenance Services**

DATE: **October 19, 2022**

On July 20, 2022, the OMIDDD Board authorized the completion of the change order with Kone to extend the DEC NESPS elevator maintenance service contract time by one year, to August 1, 2023 and formally transfer the contract to Kone, Inc. Since that authorization, we have been working with Kone to finalize terms and conditions (T&Cs) of that extension. In the most current version of the proposed change order, which is attached to this memo, Kone has limited indemnification coverage to negligence, and despite repeated requests, will not add us as an additional insured to their policies. In lieu of the additional insured, Kone has offered to take out an Owner's and Contractors Protective Liability Insurance Policy that would only provide coverage on claims where Kone is negligent. As part of OMIDDD contracts, we typically request full indemnification by the Contractor and that we be added as additional insured to their policies (typically general liability and pollution at a minimum). I have added comments to the change order that are reflective of these positions.

It is increasingly becoming unlikely that Kone is willing to change their position on these issues and it is plausible we will encounter similar resistance by other elevator contractors within this niche industry. In addition, the lack of a contract being in place is now starting to affect required elevator maintenance operations at the NESPS. I have consulted with OMIDDD's insurance agent, Meadowbrook Insurance Group (MIG), regarding our coverage options in the event we have a loss due to elevator operations. MIG did confirm that the operations policy we have in place at the NESPS would provide coverage in the absence of Kone's insurance subject to applicable deductibles. While we will try to work with Kone in changing some of the language in the change order as proposed in the track changes of the document, we request that the OMIDDD Board authorize the approval of this change order with the option of limiting Contractor indemnification to negligence.

RECOMMENDED ACTION: Authorize the completion of the revised change order with Kone with the option to limit Contractor indemnification to negligence and extend the DEC-Kone NESPS elevator maintenance service contract time by one year, to August 1, 2023. Further, authorize the OMIDDD Board Secretary to sign the change order when complete.

ASSIGNMENT AND AMENDMENT
TO ELEVATOR SERVICE CONTRACT
(Change Order No. 1)

Customer/Owner:	Oakland-Macomb Interceptor Drain Drainage District ("Customer")
Assignee/Contractor:	KONE Inc. ("KONE" or "Contractor")
Assignor:	Detroit Elevator Company ("DECO")
Title of Contract:	Professional Services Contract ("Contract")
Date of Contract:	August 1, 2019
Service Location:	Northeast Pump Station, 11000 East 8 Mile Road, Detroit, Michigan

DECO and KONE entered into a certain Asset Purchase Agreement dated May 11, 2021 ("Agreement"). Under the Agreement, KONE agreed to Purchase from DECO certain assets, including elevator service contracts, and agreed to assume DECO's executory obligations under those contracts. Effective June 1, 2021 ("Effective Date"), KONE agreed to perform DECO's future obligations under the contracts it assumed, and DECO retained liability for its past acts or omissions in connection with the contracts.

Customer and Contractor consent to the following:

1. ASSIGNMENT OF CONTRACT: Assignment of the Contract from DECO to KONE and acceptance of KONE's performance as contractor thereunder in place of DECO from and after the Effective Date.

2. AMENDMENT TO THE CONTRACT: Customer and KONE agree to amend the Contract, as follows ("Amendment"):

   Extension of Term: Effective August 1, 2022, contract term shall be extended one year. Contract expiration date shall be August 1, 2023.

   Contractor's Agreement to Indemnify: As of the Effective Date, Section 6.1 in the Contract regarding indemnification applies only to the extent that such claims including damage to property, personal injuries, bodily injuries or death are caused by the Contractor's ~~acts, performances, errors, omissions or~~ negligence, and not to the extent caused by others. Contractor shall not be responsible for any act, omission, or negligence attributable to an indemnified party described in the Contract or to any other party not subordinated to Contractor.

   ~~**Insurance:** As of the Effective Date, in lieu of any additional insured requirement of the Contract, Contractor may provide an Owners and Contractor's Protective Liability Policy.~~

   Damages: As of the Effective Date, notwithstanding anything to the contrary in the Contract, in no event shall either party be liable to the other party for any consequential, special, punitive, exemplary, liquidated, incidental, or indirect damages (including, but not limited to, loss of

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profits or revenue, loss of goodwill, loss of use, increase in financing costs) (collectively, "Consequential Damages") that arise out of or relate to this Contract, even if such party has been advised of the possibility of such Consequential Damages. The limitation set forth in this section shall apply whether the claim is based on contract, tort, or other theory. The limitation set forth in this section shall not, however, apply to: (i) any indemnification obligations for third-party claims or suits for bodily injury or property damage due to Contractor's acts, performances, errors, omissions or negligence.~~where Contractor is negligent; or (ii) any breaches by either party of confidentiality obligations.~~

Contractor and Customer further agree:

3. CONFLICT BETWEEN CONTRACT AND AMENDMENT. If the terms contained in this Amendment conflict with terms contained in the Contract, the terms contained in this Amendment shall supersede and prevail. Notwithstanding the delineated amendments to the contract, Customer and KONE agree that a~~A~~ll other terms contained in the Contract shall remain in full force and effect.

~~3.~~

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Dated:_____	Dated:_____
Customer: Oakland-Macomb Interceptor Drain Drainage District	**Contractor:** KONE Inc.
By: _____ I have authority to bind the Company	By: _____ I have authority to bind the Company
Name: _____	Name: _____
Title: _____	Title: _____

Agenda Item No. 8

Change Orders

CHANGE ORDER NO. FOUR (FINAL)

Oakland Macomb Interceptor Drain, Drainage District (OMIDDD)
Control Structure Nine (CS-9); OMID PCI-5 Interceptor
For Construction of the Control Structure 9 (CS-9) Gate Installation
Located in the City of Warren, Macomb County, Michigan

Authorization for:

1.) Grading and Landscape Improvements to the CS-9 site area; 2.) Balance SOV Line Item 3 (Light Stands); 3.) Balance SOV line Item 4 (Davit Arm/ Radius System; 4.) Balance DTE provisionary allowance; 5.) Balance SOV Item 999 (Walsh CMAR Fee); 6.) Adjust date of Substantial and Final Completion.

CONST. MANAGER: **Walsh Construction Co. II, LLC**

Address: 3031 West Grand Blvd., Suite 640
Detroit, MI 48202

Date: October 5, 2022

No.	Location-Description-Reason	Unit	Est. Qty.	Unit Price	Amount Increase	Amount Decrease
	LOCATION: Control Structure Nine (CS-9) is located in the ITC Corridor, north of Ten Mile Rd. in the City of Warren, Macomb County, MI. ***Commentary on Change Order Identification:*** *While administratively a part of the overall" Construction Manager at Risk" agreement for the "Northeast Sewage Pumping Station, Pump & Electrical Upgrades Project", changes to the Contract Cost and/ or Times specifically involving Control Structure 9 (CS-9) will typically be identified in this supplemental Change Order documentation.* *Procedurally, the CS-9 changes will be included in a "Change Order Appendage" with the main NESPS Pump & Electrical Upgrades Project Change Orders and will be identified accordingly.* *The reason for this change order identification is primarily for purposes of accounting and payment application clarity.*					

No.	Location-Description-Reason	Unit	Est. Qty.	Unit Price	Amount Increase	Amount Decrease
CS9 4-1	**DESCRIPTION (Extra/ Add):** Perform site grading and landscape improvements to improve site drainage and final landscape restoration. **REASON:** The CS-9 site is located in the ITC Corridor and has experienced various changes in the original topography as a result of several OMID shaft construction and access road projects. Used previously for project laydown space and shaft construction, the original Corridor drainage patterns have been altered resulting in wet weather runoff that occasionally affected the residential areas west of the CS-9 work site. This additional site grading will correct these conditions and also provide improved overall site turf establishment and appearance. Attachment: Walsh Construction PCI No. 970162	1	LS	$28,173.92	$28,173.92	-0-
CS9 4-2	**DESCRIPTION (Change/ Decrease):** Balance SOV Line Item # 3 (CS-9 Light Stands/ Temporary Lights). SOV Line Item # 3; $2,500.00 Final Value : 1,168.16 Credit Value: ($1,331.84) **REASON:** The full value of this item was not required, with the unused balance returned to the project:	1	LS	(1,331.84)	-0-	-$1,331.84
CS9 4-3	**DESCRIPTION (Change/ Decrease):** Balance SOV Line Item 4 (Davit Arm/ Radius System) SOV Line Item #4 : $7,500.00 Final Value: -0- Credit Value: ($7,500.00)	1	LS	($7,500.00)	-0-	($7,500.00)

No.	Location-Description-Reason	Unit	Est. Qty.	Unit Price	Amount Increase	Amount Decrease
CS9 4-3	**REASON:** This equipment was not required for the work on site, with the unused balance returned to the project.					
CS9 4-4	**DESCRIPTION (Change/ Decrease):** Balance SOV Line item 13 (DTE Allowance) SOV Line Item # 13: $45,000.00 Final Value : ($ 2,200.00) Credit Value: ($42,800.00) **REASON:** The final charges from DTE were less than the allowance value, and the unused balance is returned to the project.	1	LS	(42,800.00)	-0-	($42,800.00)
CS9 4-5	**DESCRIPTION (Change/ Decrease):** Balance SOV Line Item 999 (Walsh CMAR Fee) SOV Line Item 999: $ 176,774.72 Final Value: $ 173,805.89 Credit Value: $ (2,968.83) **REASON:** The Walsh CMAR Fee is adjusted to reflect the final Base cost of the CS-9 Gate Installation (Less Change Order Items).	1	LS	($2,968.83)	-0-	($ 2,968.83)
CS9 4-6	**DESCRIPTION: CHANGE/ ADD** Adjust the Contract Times to reflect the final date of Final Completion for the CS-9 Gate Installation Project. Notice to Proceed Date: Nov. 12, 2020 Original Date of Final Completion: July 22, 2021 Adjusted Date of Final Completion: Dec. 2, 2022	Day	Ea.	498 days	498 days	-0-

OMID DD Control Structure 9 Gate Installation; C.O. # 4 Final

No.	Location-Description-Reason	Unit	Est. Qty.	Unit Price	Amount Increase	Amount Decrease
CS9 4-6	The adjusted increase in Contract Times equates to an increase of 498 Calendar Days to achieve Final Completion. **REASON:** The increase in Contract Time for Final Completion reflects the additional time required to complete the Builder's Risk Insurance Claim adjustment, and additionally the final site grading work performed to improve adjacent drainage conditions and the final site landscaping scope. *(Noted further for informational purposes is the date of "Substantial Completion" being achieved on Nov. 9, 2021.)* ******* **End of Change Order # 4 (Final), Control Structure 9**					
					Amount Increase	Amount Decrease
				Totals	$28,173.82	($54,600.67)
				Net Changes :	-0-	($26,426.85)
				Days (Cal.)	498	-0-

OMID DD Control Structure 9 Gate Installation; C.O. # 4 Final

Prepared By: Lawrence T. Gilbert Date: 10-11-2022
Lawrence T. Gilbert, P.E.
NTH Consultants, Ltd.

Recommended By: Saju Sachi/AyA Date: 10/11/2022
Saju Sachidanandan, P.E.
Engineer of Design, NTH Consultants, Ltd.

Approved By: _____ Date: _____
Joel Brown, P.E.
Project Manager, WRC

Approved By: _____ Date: _____
Stephen Downing
Construction and Maintenance Manager, Macomb County Public Works

Approved By: _____ Date: _____
Sid Lockhart, P.E.
Manager of Special Projects, WRC

Approved by: Steven Korth Date: October 19, 2022
Steve Korth, P.E.
Manager, WRC

All of Contractor's contractual obligations remain in place and are applicable to all work and payments identified herein. No adjustment to contract time or price shall be made for these issues except as set out in this, or by a subsequent related, Change Order.

The Contractor agrees to do the work described above and agrees to accept Contract time adjustments in full on the basis indicated.

Accepted by: DocuSigned by: Joshua Bopanon 5B8F73D8AD9D445... Date Oct-11-2022 | 5:42 AM CDT
Title Vice President

of: Walsh Construction Co. II, Inc.

The Contractor is hereby authorized and instructed to do the Work described above in accordance with the terms of the Contract, as amended.

This Change Order No. 4 was approved by the Drainage Board on: Date: _____

OMID DD Control Structure No. Nine - Bulkhead Gates
PCI- 5 Interceptor
October 05, 2022

Attachment No. 1 to Change Order No. Four (FINAL) (CS-9)

The Engineer has reviewed the items included in this Change Order and confirms that these adjustments to the Contract are reasonable and in accordance with industry standards and the requirements of the Contract.

Contract Status Summary
Change Order No. Four (Final)

OMID Control Structure No. 9

Construction Manager: Walsh Construction Co.

Project Award Date (Pre-Construction Services)	December 16, 2019
Notice to Proceed Date (Construction Phase)	November 12, 2020
Contract Substantial Completion Date	November 09, 2021
Contract Final Completion Date	July 22, 2021
Final Completion Date (Adjusted by C.O. # 4)	December 02, 2022
Original GMP Contract Value (Control Structure 9)	$ 3,251,117.72
Previous Change Order Values (CS-9 Only):	$ 38,331.23
Change Order Value, this C.O. # 4 (Deductive)	$ ($ 26,426.65)
Adjusted CS-9 Contract Value, including C.O.# 1, 2, 3 &4.	**$ 3,263,022.30**

CHANGE ORDER NO. TWENTY-SEVEN

Oakland Macomb Interceptor Drain, Drainage District (OMIDDD)

For Construction of the Pump and Electrical Upgrades Project

Northeast Sewage Pumping Station (NESPS)

Located in the City of Detroit, Wayne County, Michigan

CONSTRUCTION MANAGER,
AT RISK (CMAR)
Walsh Construction Co. II, LLC

Authorization for:

1.) Replacement Conduit for Sanitary Pumps Magnetic Flow Meters; 2.) Provide conduit and wiring for 120v circuit from LP # 1 to Purafil Filter Unit

****

Address: Walsh Construction Co. II LLC
3031 West Grand Blvd., Suite 640
Detroit, MI 48202

Change Order No. 27 Date: October 7, 2022

	Location-Description-Reason	Unit	Est. Qty.	Unit Price	Amount Increase	Amount Decrease
	LOCATION: The Northeast Sewage Pumping Station; Detroit, Wayne County, Michigan					
27-1	**DESCRIPTION (Extra/ Add):** Provide new conduit runs from the existing main floor (motor room) to each of the sanitary pump magnetic flow meters on NESPS Level 4. **REASON:** Wiring for the new magnetic flow meters ("Mag-Meters") was originally intended to occupy the existing conduit runs that serve this purpose. However, efforts to proceed with this plan encountered existing wiring that could not be removed, as well as other wiring that was not being replaced. It was then determined that new dedicated conduit runs were necessary for the Mag Meter wiring, noting that this installation also required coring holes in intermediate floors for the 1-1/2" dia. conduit penetrations. Attachment: Walsh Construction PCI No. 970154	LS	1 ea.	$42,592.12	$42,592.12	-0-

	Location-Description-Reason	Unit	Est. Qty.	Unit Price	Amount Increase	Amount Decrease
27 -2	**DESCRIPTION: (Extra/ Add)** Provide ¾" conduit and wiring for a 120v circuit to power the damper motor for the Purafil Filter Unit originating at a spare circuit in LP-2. **REASON:** The contract electrical drawings did not provide power to the damper unit that will provide an interlock with the filter unit damper and damper power. This additional work, which includes wiring and terminations, will resolve that omission. Attachment: Walsh Construction PCI No. 970159 ********** **End of Change Order No. 27 Line Items**	LS	ea.	$4,638.76	$4,638.76	-0-

Summary, Change Order # 27 Line Items		Amount Increase	Amount Decrease
	Totals	$47,230.88	-0-
	Net Changes (Increase)	$47,230.88	-------

OMID DD NESPS; Pump & Electrical Upgrades Project; C.O. # 27

Prepared By: Date: 10-07-2022
Lawrence T. Gilbert, P.E.
NTH Consultants, Ltd.

Recommended By: Date: 10/12/2022
John Michalski, P.E.
Engineer of Design, Applied Science, Inc.

Approved By: Date:
Joel Brown, P.E.
Project Manager, WRC

Approved By: Date:
Stephen Downing
Construction and Maintenance Manager, Macomb County Public Works

Approved By: Date:
Sid Lockhart, P.E.
Manager of Special Projects, WRC

Approved by: Steven Korth Date: October 19, 2022
Steve Korth, P.E.
Manager, WRC

All of Construction Manager's contractual obligations remain in place and are applicable to all work and payments identified herein. No adjustment to contract time or price shall be made for these issues except as set out in this, or by a subsequent related, Change Order.

The Construction Manager agrees to do the work described above and agrees to accept Contract time adjustments in full on the basis indicated.

Accepted by: DocuSigned by: Joaquin Bejarano 5B8F73D8AD9D445... Date Oct-12-2022 | 9:58 AM CDT
Title Vice President

of: Walsh Construction Co. II, Inc.

The Construction Manager is hereby authorized and instructed to do the Work described above in accordance with the terms of the Contract, as amended.

This Change Order No. 27 was approved by the Drainage Board on: Date:

Attachment No. 1 to Change Order No. Twenty-Seven

The Engineer has reviewed the items included in this Change Order and confirms that these adjustments to the Contract are reasonable and in accordance with industry standards and the requirements of the Contract.

Contract Status Summary
Change Order No. Twenty-Seven
OMID NESPS Pump & Electrical Upgrades Project

Construction Manager at Risk: Walsh Construction Co. II

Project Award Date (Pre-Construction Services)	December 16, 2019
Notice to Proceed Date (Construction Phase)	October 23, 2020
Contract Substantial Completion Date	March 24, 2023
Contract Final Completion Date	June 23, 2023
Original GMP Contract Value (Including Control Structure 9)	$ 42,863,185.19
Pre-Construction Phase, Unused Budget	$ 70,196.70
C.O. Values, # 7, 8, 9, 10, 11, 12, 13, 14, 15,16, 17,18, 19, 20, 21,22, 23, 24, 25, and # 26 (Not Including CS-9 C.O. total of $ 63,100.29)	$ 4,315,879.10
Change Order Value, including this C.O. # 27	$ 4,363,109.98
***Adjusted GMP* Contract Value, Pump & Electrical Upgrades (incl. this C.O. # 27)**	**$ 47,296,491.87**

Agenda Item No. 9

Construction Estimates

OAKLAND MACOMB INTERCEPTOR DRAIN DRAINAGE BOARD
Northeast Sewage Pumping Station- Pump and Electrical Upgrades Project
Located in the City of Detroit, Wayne County, Michigan

Regular Construction Estimate No. Twenty-Four **September 01, 2022 through September 30, 202**

Department No.:	6010101	Account No.:	731472
Fund No.:	84917	Program No.:	149015
Project No.: 1-3309		Activity:	FAC

Construction Manager at Risk: Vendor # 23191 LI 43331; exp. 12/16/22

Walsh Construction Co. Date of Contract: Dec. 16, 2019

3031 West Grand Boulevard, Suite 640 (Adjusted) Final Completion Date: July 28, 2023

Detroit, MI 48202 Contract No. 5977

Orig. GMP amount for Pump & Elec. Upgrades Project, not including CS-9 and Pre-Const. Balance	$44,107,745.18
Expended Pre-Construction Phase Amount	($1,174,363.30)
Unused Pre-Construction Phase Budget	($70,196.70)
CS-9 Budget from GMP	($3,251,117.72)
NESPS Pump & Elec. Upgrades Original Contract Budget	$39,612,067.46
Change Orders, This Estimate: C.O. No. 25	$278,972.37
Previous C.O.s: (C.O.# 7, 8, 9, 10, 11,12, 13, 14, 15, 16, 17, 18, 19, 29, 21, 22, 23, and 24)	$3,762,179.84
Unused Pre-Construction Phase Budget	$70,196.70
Adjusted Construction Contract Amount: (N/I CS-9)	$43,999,835.30
Sub-Total To Date: (CS-9 Costs are Not included on this Estimate)	$28,961,773.88
Less Deductions:	None
Gross Estimate: (Work in Place) Value Complete = 65.8 %	$28,961,773.88
Less Amount Reserved (S/V Retain. @ $2,365,702.66- CS-9 @122,530.96 = $2,243,171.70	$2,243,171.70
Total Amount Allowed To Date:	$26,718,602.17
Less Previous Estimates:	$26,373,730.35
Current Payment Due	$344,871.82
Reserve Pay to Contractor:	$0.00
Balance to Finish: $15,036,369.38 (N/I CS-9) Accounting Auditor:	
Amount To Be Reserved (10% of 1/2 S.V., less CS-9 retention)	$2,243,171.70
Less Previous Transfers To Reserve (N/I CS-9 Contract Retention)	$2,229,435.36
Amount of Current Transfer	$13,736.34

OAKLAND MACOMB INTERCEPTOR DRAIN DRAINAGE BOARD
Northeast Sewage Pumping Station- Pump and Electrical Upgrades Project
Located in the City of Detroit, Wayne County, Michigan
Walsh Construction Co. II; Construction Manager at Risk

Regular Construction Estimate No. Twenty-Four **9/01/ 2022 through 9/30/ 2022**

Prepared by: _____ Date: 10-06-2022

Lawrence T. Gilbert, P.E.; NTH Consultants Ltd.

Recommended by: _____ Date: 10/12/2022

John Michalski, P.E., ASI

Recommended by: _____ Date: _____

Joel Brown, P.E. Oakland County WRC

Recommended by: _____ Date: _____

Stephen Downing; Macomb County OPWC

Approved for Payment by: _____ Date: _____

Sid Lockhart, P.E.; Special Projects Manager, Oakland County WRC

Regular Construction Estimate No. 24 (September, 2022) **Approved By Board On:** _____

OAKLAND MACOMB INTERCEPTOR DRAIN DRAINAGE BOARD
For Construction of the NI-EA OMID Contract 1 - PCI 4 Rehabilitation
Located in the City of Detroit, Wayne, Michigan
Project ID 1-00000003308

Regular Construction Estimate No. 19 — Period: 9/01/22 through 9/30/22

Department No.:	6010101	Account No.:	731472
Fund No.:	84917	Program No.:	149015
Project No.:	100000003308	Activity:	FAC

Contractor:
Marra Services, Inc.
700 E. 73 rd. Street
Cleveland, OH 44103

Vendor # 29656 Contract # 6323
LI # 44838 exp. 1/20/23

Date of Contract:	January 21, 2021
Final Completion Date:	September 9, 2022
Adj. Final Completion:	February 7, 2023

Original Construction Contract Amount		$14,732,510.00
Previous Change Orders: No. One, Two, and Three		$1,030,475.29
Change Orders This Estimate: None		$0.00
Total Net Change Orders:		$1,030,475.29
Adjusted Contract Amount:		$15,762,985.29
Sub-Total To Date		$10,301,102.49
Less Deductions: None		$0.00
Gross Estimate, Work in Place	(65.3% Complete)	$10,301,102.49
Less Amount Reserved (Max. at 10% of 50% of adjusted C.V.)		$788,149.26
Total Amount Allowed To Date:		$9,512,953.23
Less Previous Estimates		$9,465,823.23
Net Payment Request To Be Paid To Contractor:		$47,130.00
Reserve Payment to Contractor:		$0.00
Balance to Finish: $5,461,882.80	Accounting Auditor:	
Amount to be Reserved from Above		$788,149.26
Less Previous Transfers To Reserve:		$788,149.26
Amount of Current Transfer		$0.00

Prepared by: _____
Lawrence T. Gilbert, P.E.; NTH Consultants Ltd. Date: 10-7-22

Recommended by: _____
Saju Sachidanandan, P. E.; NTH Consultants Ltd. Date: 10/6/22

Recommended by: _____
Joel Brown, P.E. Oakland County WRC Date: _____

Recommended by: _____
Stephen Downing; Macomb County OPWC Date: _____

Approved for Payment by: _____
Sid Lockhart, P.E.; Special Projects Manager, Oakland County WRC Date: _____

Regular Pay Estimate No. 19: September, 2022 Approved By Board On: _____

Agenda Item No. 10

Report/Update – Status of OMID Project, Segments 1 through 4, NESPS, NI-EA

October 19, 2022 OMIDDD Board Meeting

The following provides a status update as of the writing of this report (October 10, 2022) for the work completed for the Oakland-Macomb Interceptor Drain Repair Program (SRF Segments 1-4; Contract 7 PCI-4 repairs; Maintenance Repairs in PCI-5 through PCI-11A; Control Structure Modifications; NIEA Repairs; NESPS Upgrades; Odor/ Corrosion Control System, and other related work):

SRF Segment 1 Status:

Contracts 1&2: Complete

System-wide Odor/Corrosion Study: Complete

Odor and Corrosion Control Design

Project Budget Summary:

- Project Budget: $963,222.90
- Total Spent (through September 2022): $324,652.88

Status of Major Project Tasks:

- Task 1 Additional Investigations and Modeling
    - Jacobs is conducting noise abatement and air dispersion modeling of the proposed odor control equipment at CS-12/CS-6
    - Jacobs is drafting a technical memo regarding the periodic high pressure events that occur at CS-5/CS-9; the memo will include recommendations for pressure relief improvements
    - Jacobs has developed a manhole/structure survey plan to document opening sizes in the system between CS-8 and the NESPS; this survey will take place in October 2022
    - Jacobs has reviewed the draft construction ventilation specification developed by NTH, and will provide written comments to NTH and OMIDDD
- Task 2 Basis of Design
    - Jacobs has advanced the sizing and layout of the replica house at ST-S-3 that will enclose the proposed odor control equipment, and are currently studying alternatives for the transfer and hoisting of the activated carbon that will be used in the odor control equipment

SRF Segment 2 Status:

Contract 3 (Base Contract & C.O. 2E-2J): Complete

SRF Segment 3 Status:

Contract 4: Complete

SRF Segment 4 Status:

Contract 5A/5B: Complete

- City of Utica Use Agreement for access paths is pending; awaiting final authorization.

Contract 6: Complete

Contract 7 (NIEA 110 feet of Emergency Rehab): Complete

NESPS Odor/Corrosion Control System (No Segment or Contract No.):

Construction Complete

- Warranty period through December 2022. Final warranty inspection/walk-through to be scheduled in fall 2022.

NESPS & OMID Maintenance, Operations & Upgrades Status:

Status of Emergency Contingency Plan for pumping during total power loss or other catastrophic system failure:

- Mersino Dewatering is under contract for standby emergency bypass pumping.
- The OMIDDD Project Team has finalized an approach for keeping the 15 Mile Road bypass pumping arrangement (initially constructed in summer 2021) intact. Plans are now in place for the existing bypass piping remaining on site as a proposed below grade installation pending final agreement with ITC.
- Remaining items in the final emergency plan include punch-list and optimization steps for electrification, the modification of one manhole, modifications at the 15-Mile Road Site, and overall optimization of the Emergency Plan per above. Final plan document will be revised after final installation of the emergency pumping bypass.

Additional work being performed under Metco Maintenance Contract for NESPS:

- Flow control operations related to OMID/MID/NIEA sewer repair and upgrade projects are ongoing.
- Mechanical and Electrical corrective/preventative maintenance schedules continue.
- Coordination between GLWA, MID, NESPS, and Pump/Electrical Upgrade Project is ongoing and has not impacted station operations or abilities to meet demands.
- The Dry well (Main Elevator) **final** inspection is pending, date to be determined.
- Existing disabled Wet Well Elevator cleaning/inspections as part of its restoration is in progress.

- Wet well sediment inspection and bar screen cleaning are now quarterly tasks, most recently performed on September 30, 2022 (see photos). Minor changes from last quarter, with very little barscreen debris. Report on file.
- Options for future automated and/or optimized cleaning of wet well/bar screens are being researched and considered.
- A NESPS Controls Workshop with the OMID team and GLWA is an ongoing process, designed around new operational parameters and control strategies.

Bar screen cleaning in progress

Overall NESPS Station Performance Report:

- Sanitary Pumps #2 #4, #5, and #6 ready for duty. Total pump capacity equals 500-cfs. The wet well dewatering pump is also ready for duty. NO changes from previous report.
- Specific data logging software has been installed within the Sanitary Pump #2 VFD drive PLC. Siemens maintains the ability to monitor VFD performance and fault/trip conditions. No faults or trips to report. P2 VFD Pump and Motor continues to perform well since 2021 power cell restoration.
- Rotor integrated the existing Eaton Power Expert (Quality Power Monitoring Meter) located on the VFD Sanitary Pump #4 switchgear into the OMID SCADA system. No faults, voltage sags or spikes reported. Incoming power data is collected daily with the data kept on file.
- As reported last month, new transformer (T3) received an unexpected power surge from an ARC flash event on new electrical equipment on August 23, 2022. This serious event briefly impacted NESPS pump operations. Sanitary Pump #2 was in service and tripped on a “low voltage” fault. A quick response to isolate away from any potential damage was made and Sanitary Pump #2 was placed back in service. New electrical gear safely isolated from old operational switch gear which continues feed the station.
- Stand-by Generator remains ready for back-up if required. All preventative maintenance requirements current.
- NEXGEN asset management in use. Monthly status meetings are being held with OMID. Contractors are fulfilling their requirements and no outstanding issues to

report.

- Gas detection in use. Rounds are conducted daily. Unit filters restocked and changed as required. Last filter change occurred August 19, 2022. No issues to report.
- Bio Filter performance normal with no odor complaints or issues to report. Parameters checked daily and unit continues to perform well.
- HVAC preventative maintenance tasks completed. Complete filter change-out September 23, 2022.
- Standby Generator preventative maintenance tasks complete. No issues to report.
- Overall General Housekeeping tasks in order. Minor maintenance activities all addressed in a timely manner.

Control Structures Performance Report (CS-5, CS-6, CS-7, CS-8):

- Daily flow control operations now support MID/OMID/NIEA repair and improvement projects.
- All LOTO protocols are in-place with no major issues to report.
- System-wide communications are good.
- CS-6 gate has been restored and is currently operational with limited abilities. A limit switch and position indicator must be ordered and installed to fully complete restoration. HESCO is still waiting on equipment
- Preventative maintenance tasks are ongoing.
- CS-7 in stand-by mode ready for service.
- CS-8 in stand-by mode ready for service.
- CS-5 in stand-by mode ready for service; installation of lower limit switch is pending but does not impact operation.
- CS-9 in stand-by mode ready for service.
- Routine daily rounds and inspection made with no major maintenance issues to report.

Other System Operation Issues

- O&M Manual currently being revised to include new structures, recently modified structures, new monitoring equipment, and recent inspection and repair status.
- EGLE has informally agreed to consent to use of all flow control structures for long term flow control. Request for formal consent is promised but not yet received.

OMID Control Structure Upgrades Status:

- ASI is now contracted for design of major upgrades to control structures that considers long-term operability. Initial planning in process.

OMID System 3-Year Spot Repairs Status:

- Remaining 3-year spot repair work consists of step removal at one manhole in PCI-8, delayed due to access issues and timing of other work.

OMID System 6-Year Inspection Status:

- The 6-Year inspection began July 8, 2021. Flow Control delays have hampered inspections. Inspections of portions of PCI-7 were performed on June 21, 2022 and additional inspections resumed September 2022; expected to be complete early November 2022.
- Some damage noted to the CIPP Liner installed in 42" section of PCI-11A. Current plan is for Doetsch to remove the damaged section, grind the edges, and assess if anything more is necessary. Work has been delayed due to permit and access issues, as well as availability of work crews.

NIEA Repairs (Design/Construction)

Contract 1 (PCI-4 Rehabilitation): In Construction

Amt Invoiced: Construction cost to date is $10,301,102.49 representing 65.3 % of the Contract value.

Schedule Status: Current adjusted Substantial Completion date is January 8,2023. Contractor is operating approximately 10 weeks behind the adjusted schedule, but anticipates this shortfall can be partially made up with productive lining and grouting work.

Contract 1 (PCI-4 Rehabilitation) Construction Status:

- Currently, 100% of the Channeline segments are now on site and being assembled, and 100% of the Rockhard SCP segments have been manufactured and also delivered to the jobsite. IN addition, 100% of the QuakeWrap lining pipe is complete at the Hastings, MI manufacturing facility.
- Regular Channeline lining installation continues with approximately 400 linear feet of lining installed out of a total of 1,327 feet. Contractor has now advanced out of the curved section of interceptor and has increased production through the straight section. A current industry-wide shortage of cement necessary for grout filling of the annular space surrounding the liner has adversely affected both liner installation and grouting work. This shortage is projected by the cement grout suppliers to extend into November when the active highway construction season ends. The Contractor is seeking other sources of supply, as yet with no success.
- Approximately 160 feet of installed pipe has been grouted in place.
- Geotechnical monitoring of construction activities at the access shaft location indicates continuing stable conditions.

Topside staging of Channeline pipe segment

Looking upstream at progress of Channeline installation through September 2022

Looking downstream at Channeline segments installed in curve

QuakeWrap pipe in storage

Contract 2 (PCI-18/19 Rehabilitation): Design Complete

Amt Invoiced: $2,251,913.82 out of currently projected study/design budget of $2,400,570.

Schedule Status: Contract 2: 100% design work complete; expected to bid in 2022 Q4 pending permit and easement acquisition resolution and coordination with GLWA.

Contract 2 (PCI -18/19 Rehabilitation) Design Status:

- NI-EA OMID Contract No. 2 PCI-18 & 19 Rehabilitation 100% drawing set complete. Design documents will be issued by the end of October 2022 for Contractor Pick-up.
- Flow control measures necessary to complete Contract 2 work may impact a downstream GLWA project (DB-226), although it appears at this time that both project schedules align.
- Working with GLWA to develop cost sharing agreement; Draft agreement is currently being negotiated.

The **draft** line item schedule and budgets for OMID NIEA Contracts 1 and 2 are summarized:

Work Item/ Milestone	Estimated Budget Expenditure (Engineering)	Estimated Budget Expenditure (Contractor)	Estimated Delivery Date
Lining Study Final Report	**$126,744**		**10/30/2019**
90%, 100% Design Package			**3/20/2020 and 4/28/2020 (Contract 1) 4/16/2021* and TBD* (Contract 2)**
MDEQ Submittal (Part 41)			**4/28/2020 (Contract 1) Pending* (Contract 2)**
Issued for Bid			**6/10/2020 (Contract 1) TBD* (Contract 2)**
Bid Opening			**9/30/2020 (Contract 1) TBD* (Contract 2)**
Contract Award and NTP			**12/16/2020 and 1/04/2021 (Contract 1) TBD* (Contract 2)**
Subtotal - Design	**$2,400,570**		
Final Completion of Construction	**$3,500,000**	**$35,000,000**	**2/2/2023 (Contract 1) 9/30/2024 (Contract 2, estimated)**

NESPS Pump and Electrical Upgrades Project

Budget Status: $1,280,139 billed out of current Design Budget of $1,382,430; $968,018 out of the current CCA Budget of $2,443,262. Total construction budget currently established as $47,296,491.87, including contingencies, through proposed C.O. #26. The total construction amount invoiced to date as of Sept. 30, 2022, is $28,961,773.88 (not including the now completed and operational Control Structure 9 Bulkhead Gate facility, and adjusted for stored material inclusion in major work activities), representing 66% of the Pump & Electrical Upgrades Project. A Final Balancing (Deductive)Change Order has been prepared for the Control Structure 9 Project, and will be submitted at the October, OMIDDD Board Meeting.

Schedule Status: Currently work is substantially delayed, resulting from a combination of supply chain issues as well as the recent "Arc-Flash" Electrical problem that occurred in the motor control cabinetry. Contractor is working on an enhanced schedule to make up time but will be unable to meet the scheduled completion date. As noted, an unexpected major electrical problem occurred on August 23, 2022 in the Motor Control Center panel. While still in preliminary diagnostic review, it is likely this event may further delay the completion schedule by a minimum 4 months, and

potentially longer. The Construction Manager has filed a claim on the OCIP Builder's Risk insurance coverage for this event. Discussions for additional time and/or schedule adjustments are pending but will be heavily influenced by this delay.

The following Design Team and Construction Services Effort is active:

- The new Sewage Pump # 3 and Motor have now been delivered to the NESPS and the combined assembly is substantially installed. Factory performance tests have been conducted with each separate component, and the pump and motor assembly are being re-tested in place at the NESPS. Pump 3 began start up "wet" testing in mid-July. While the pump and motor performed satisfactorily, special componentry of the motor "exciters" was determined to require replacement; parts have arrived and been installed to allow testing to resume, However, the event of August 23 effectively delays this activity.
- Sewage Pump and Motor No. 1 is following closely behind Pump 3 and near substantially installed. Start-up "wet" testing commenced in mid-August, although testing remains delayed, as previously noted.
- The concrete encased underground conduit for the new Fiber Optics communication line is complete from the NESPS to the GLWA Chemical Building termination. Work on the cable installation and tie-ins will now commence.
- A review of alternative energy saving methods and pump sequence remains ongoing, incorporating GLWA SCC comments.
- Construction Phase services (RFIs, Submittals) are ongoing, and the engineering team is reviewing and responding.
- Chemical injection to seal groundwater infiltration at the existing discharge pipe wall penetrations is substantially complete, with final efforts on hold to observe the initial stages of grouting and determine if further measures may be required for final leak control.
- Small diameter conduit runs and wiring are being installed in the existing NESPS building with favorable progress, now approaching substantial completion for this activity.
- Steel discharge piping for Pumps 5 and 6 is now at the Toledo, OH facility for sand blast preparation and painting, with segment already received on site.
- The **draft** line item schedule and budget are summarized:

Work Item/ Milestone		Design/CCA Budget	Const Budget	Estimated Delivery Date
2	**Final Basis of Design**			**5/31/2019**
7	**MDEQ Submittal (Part 41 Permit)**			**4/8/2020 (initial pkg)**
8	**90% Design Submittal**			**6/30/20**
9	**Final Package Development**			**8/14/2020**
	Subtotal	**$3,826,000**	**$44,100,000**	
10	**Substantial Completion**	**$2,500,000 (est.)**	**$44,100,000 (est.)**	**9/22/2023 (late)**
11	**Final Completion**			**12/21/2023 (late)**

NESPS Refurbishment
Project Location

Landscaping over new fiber optic runs

Sixth Floor lighting efforts

Replacing Transformer #3

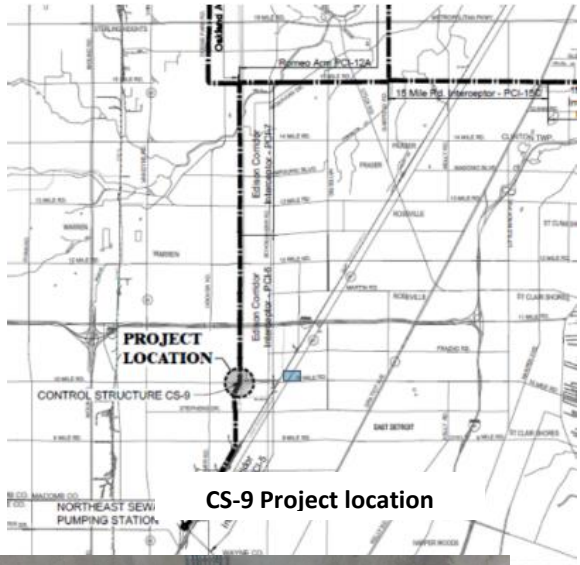
CS-9 Gate Installation

Budget Status: Total construction budget currently established as approximately $3,314,218.01

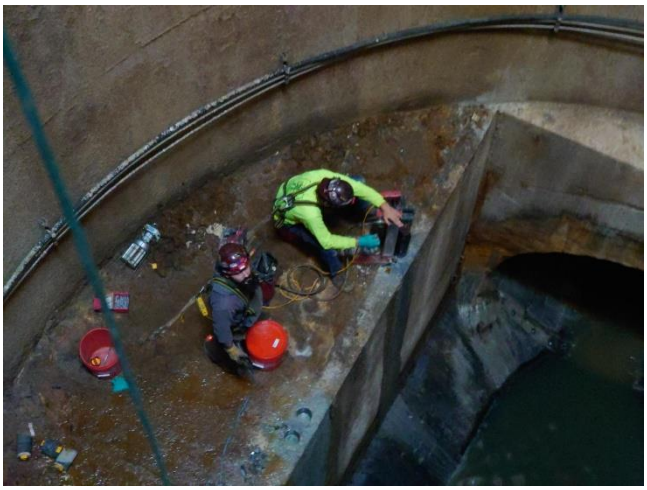
Schedule Status: Construction complete; Repairs pending

The following work is active:

- All major work is complete and the Hydrogate gate is in regular use for flow control management.
- Repairs to the Hobas liner are complete, and work is in progress for removal and replacement of the damaged FRP grating and handrail sections.
- Work will commence in mid-October to perform minor re-grading and site landscaping to improve drainage and overall site appearance issues.
- A Final Balancing Change Order for the CS-9 Work has been prepared and will be submitted for review and approval.



CS-9 Project location

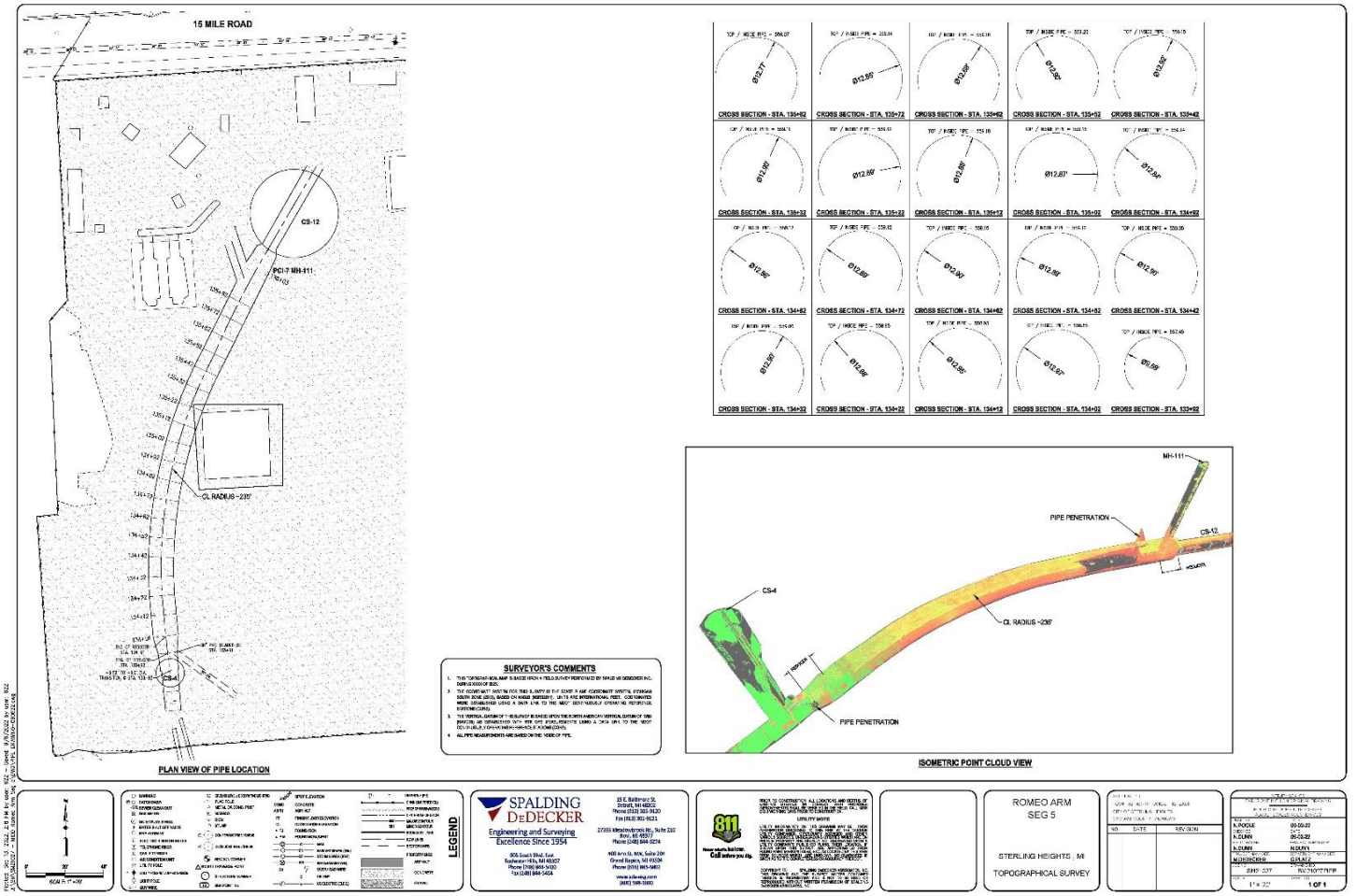


CS-9 handrail replacement underway

OMID Improvements at CS-6 Site

As part of ongoing MIDDD Segment 5 rehabilitation efforts, the Contractor performed an in-tunnel survey of PCI-7 in advance of Hobas and taper installation (see the following graphic)

October 19, 2022 OMIDDD Board Meeting

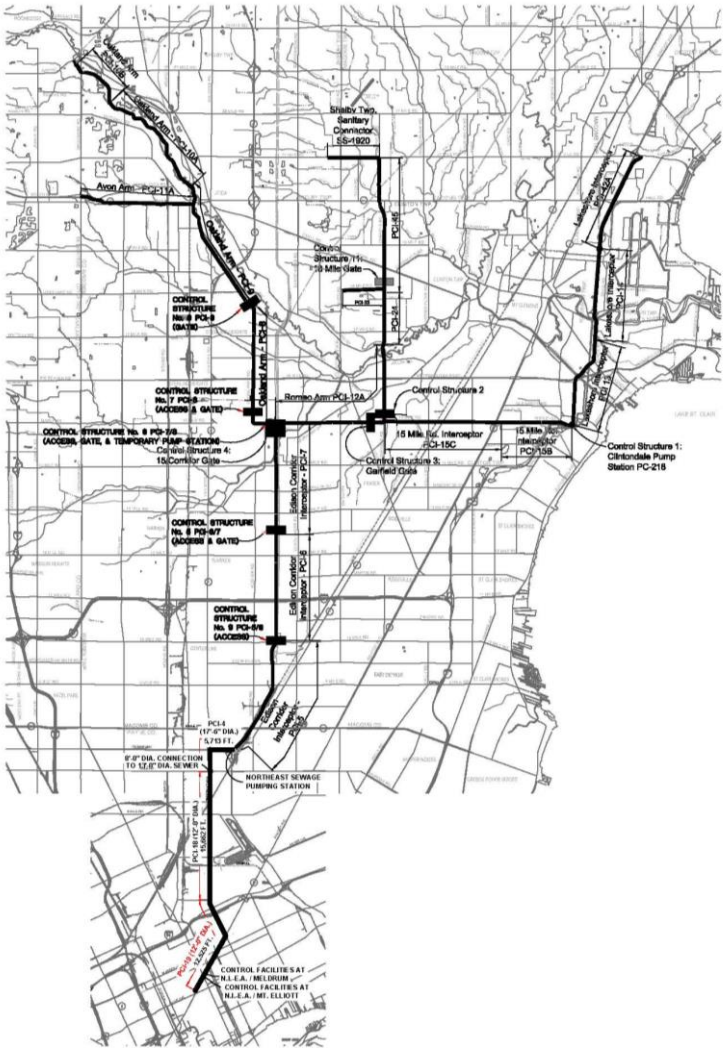


October 19, 2022 OMIDDD Board Meeting

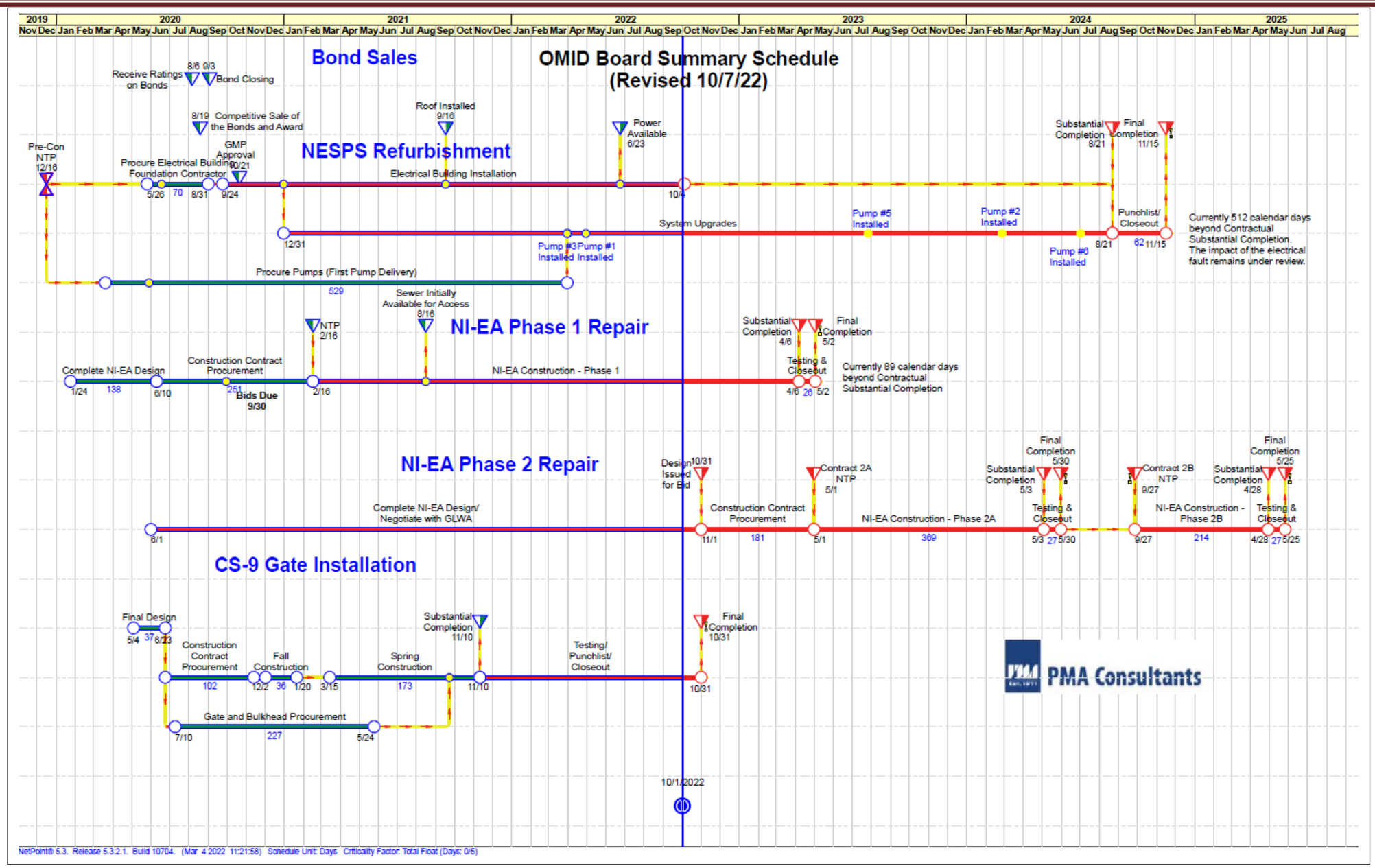
Summary of OMID Design and Construction Status:

Work In Construction Since 2009							
Seg. No	Contract No. (Description)	Contractor	Const. Comp?	As-Builts Final?	Balancing Change Order?	Contractor Closed Out?	Easements Settled?
1	Contract 1 (CS-9, 5, 3)	Ric-Man	Y	Y	Y	Y	Y
1	Contract 2 (CS-6, 7, 8)	Ric-Man	Y	Y	Y	Y	Y
2	Contract 3-2E (Gatehouse)	IWPC (Weiss)	Y	Y	Y	Y	N/A
2	Contract 3 (Grouting PCI-5 thru 8)	IWPC	Y	Y	Y	Y	Y
3	Contract 4 (Lining PCI-5 thru 8)	Jay Dee Cont.	Y	Y	Y	Y	Y
4	Contract 5 (Lining PCI-9, 10A/B)	Lanzo	Y	Y	Y	Y	N
4	Contract 6 (Lining PCI-11A)	Lanzo	Y	Y	Y	Y	Y
N/A	Contract 7 (Lining 110' of NIEA)	IWPC	Y	Y	Y	Y	N/A
N/A	Odor/Corrosion Control System	CSM	Y	Y	Y	Y	N/A
N/A	Control Structure Modifications	CSM/Hesco/MCE	Y/Y/Y	Y/Y/N	Y/Y/N	Y/Y/N	N/A
N/A	OMID Maintenance Repairs	Doetsch	Y	N	N	N	N/A
N/A	CS-9 Gate Modifications	Walsh as CMR	Y	N	N	N	Y
N/A	NESPS Pump & Electrical Upgrade	ASI;Walsh as CMAR	N	N	N	N	Y
N/A	NIEA-OMIDDD Contract 1 (PCI-4)	Marra	N	N	N	N	N

Work Currently in Design/Study/Engineering		
Description	Design Consultant	Status
System-wide Odor/Corrosion Design	Jacobs	Study Complete, Design Ongoing
NESPS & OMID Maintenance & Repairs	Metco	Engineering/Maintenance Ongoing
NIEA-OMIDDD Contract 2 (PCI-18/19)	NTH	Design Complete; pursuing cost sharing w/ GLWA
Emergency Pumping Plan	ASI/FKE	Draft Plan to be modified following ITC bypass pumping modifications



Overview of OMID System in Oakland, Macomb, and Wayne County


2019
2020
2021
2022
2023
2024
2025
Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug
Bond Sales
OMID Board Summary Schedule
(Revised 10/7/22)
Receive Ratings on Bonds
8/6
9/3
Bond Closing
8/19
Competitive Sale of the Bonds and Award
Roof Installed
9/16
Power Available
6/23
Substantial Completion
8/21
Final Completion
11/15
NESPS Refurbishment
Pre-Con NTP
12/16
GMP Approval
10/21
Procure Electrical Building Foundation Contractor
5/26
70
8/31
9/24
Electrical Building Installation
10/4
System Upgrades
Pump #5 Installed
Pump #2 Installed
Pump #6 Installed
8/21
Punchlist/ Closeout
62
11/15
Currently 512 calendar days beyond Contractual Substantial Completion.
The impact of the electrical fault remains under review.
12/31
Pump #3 Installed
Pump #1 Installed
Procure Pumps (First Pump Delivery)
529
Sewer Initially Available for Access
8/16
NI-EA Phase 1 Repair
NTP
2/16
Substantial Completion
4/6
Final Completion
5/2
Complete NI-EA Design
1/24
138
6/10
Construction Contract Procurement
251
Bids Due
9/30
2/16
NI-EA Construction - Phase 1
Testing & Closeout
4/6
26
5/2
Currently 89 calendar days beyond Contractual Substantial Completion
NI-EA Phase 2 Repair
Design Issued for Bid
10/31
Contract 2A NTP
5/1
Final Completion
5/30
Substantial Completion
5/3
Testing & Closeout
5/3
27
5/30
Contract 2B NTP
9/27
Substantial Completion
4/28
Final Completion
5/25
Testing & Closeout
4/28
27
5/25
Complete NI-EA Design/ Negotiate with GLWA
6/1
Construction Contract Procurement
11/1
181
5/1
NI-EA Construction - Phase 2A
369
NI-EA Construction - Phase 2B
214
CS-9 Gate Installation
Final Design
5/4
37
6/23
Construction Contract Procurement
102
Fall Construction
12/2
36
1/20
3/15
Spring Construction
173
Substantial Completion
11/10
Testing/ Punchlist/ Closeout
Final Completion
10/31
11/10
10/31
Gate and Bulkhead Procurement
227
7/10
5/24
10/1/2022
PMA Consultants
NetPoint® 5.3. Release 5.3.2.1. Build 10704. (Mar 4 2022 11:21:58) Schedule Unit: Days Criticality Factor: Total Float (Days: 0/5)

MID/OMID Construction Schedule

Project	Work Location	Owner	Lead Engineer	Contractor	2022			2023											2024											MID/OMID Control Devices Required to Store Flow										Concurrent Work Notes
					O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	CS-2	CS-3	CS-5	CS-6	CS-6 PS	CS-7	CS-8	CS-9	CS-12	CPS	
MID Grouting Garfield Interceptor	Lakeshore Interceptor (LSI)	MID	AEW	Doetsch																											-	-	-	-	-	-	-	-	*n/a*	**N**	**Work is Random** - If other work requires CS-3 closure, then LSI work will be concurrent. CPS can not be used for storage. Schedule duration is TBD based on grout takes. Present work in in the Garfield.
MID Inspection	Routine Inspection of MID Manholes & Interceptors	MID	Fishbeck	Doetsch																											-	-	-	-	-	-	-	-	*n/a*	-	Work may require brelef flow control to inspect certain reaches. Work will be coordinated around active construction.
Segment 6 Lining	15 Mile upstream of Garfield (15 Mile Interceptor)	MID	FKE	Ric-Man																											-	-	-	-	-	-	-	-	-	Y	Flow control on pause but upcoming. May work concurrent with Segment 5 or NIEA rehabilitation. Schedule is preliminary.
	15 Mile upstream of Garfield & between CS-2/CS-3 (Romeo Arm)	MID	FKE	Ric-Man																											Y	Y	N	-	-	-	-	-	Y	Y	May work concurrent with Segment 5 or NIEA rehabilitation. Flow control conditions at the CS gates is similar with the exception of utilizing CS-2. Schedule is preliminary.
Segment 5 Lining*	15 Mile between ITC Corridor & Eberlein	MID	FKE	OR																											-	Y	N	Y	-	Y	Y	-	Y	*H*	If work is concurrent with NIEA rehabilitation; CS-9 is required. Flow control dates may change depending on sediment removal means and methods. Current projected finish is 2 months late.
NIEA Rehabilitation (Downstream of NESPS)	PCI-4 Shaft & Lining (Contract 1)	OMID	NTH	MARRA																											-	Y	N	Y	-	Y	Y	Y	-	*H*	If work is concurrent with Segments 5 & 6 Lining; CS-9 is required.
	PCI-18/19 Flow Control Structures (Contract 2A)	OMID	NTH	TBD																											-	Y	N	Y	-	Y	Y	Y	-	*H*	Shaft construction. MID/OMID flow control may be required depending on 7-Mile Relief Inter-Connection and PC-663 Gate status. Coordination with GLWA and downstream system when flow is diverted to 7 Mile Relief.
	PCI-18/19 Spot Repairsand Linings (Contract 2B)	OMID	NTH	TBD																											-	-	-	-	-	-	-	-	-	-	PC-663 Gate closure will divert flow to 7 Mile Relief Sewer. Coordination with GLWA and downstream system when flow is diverted to 7 Mile Relief. NESPS should operate normally to pass DWF rates. (9/2024 to 3/2025)
OMID CCTV Inspection	Throughout System	OMID	NTH	Doetsch																											-	Y	Y	Y	-	Y	Y	-	*n/a*	*H*	Present work is in upstream manholes so limited flow control necessary. Flow control will be required within certain reaches to facilitate.
CS-9 Gate Installation & Hobas Repair	CS-9	OMID	NTH	Walsh																											-	Y	Y	Y	-	Y	Y	Y	*n/a*	*H*	Hobas Repair timing still under review.
NESPS Improvements	NESPS Pump Replacement	OMID	ASI	Walsh																											-	Y	-	Y	-	Y	Y	Y	-	*H*	Will require brief flow control for pump installation, gate installation, and electrical work.
DB-226 DRI Repairs	GLWA - DRI	GLWA	FKE	Jay Dee																											-	-	-	-	-	-	-	-	-	-	Can be effected by flows rerouted from the NIEA to the DRI. Project status changes in late 2024 during Reach 3B and 3C.
Rigid Seal Study	NESPS Discharge Chamber	OMID	NTH	TBD																											-	Y	Y	Y	-	Y	Y	Y	*n/a*	*H*	Schedule to be confirmed. Reuires 2-3 Days
Inspection and Repair of Discharge Chamber Riser	NESPS Discharge Chamber	OMID	NTH	TBD																											-	Y	Y	Y	-	Y	Y	Y	*n/a*	*H*	Schedule to be confirmed.
Flow Control Strucutre Rehabilitation	CS-5, CS-6, CS-7, CS-8	OMID	ASI	TBD																											**N**	**N**	-	-	-	-	-	**N**	**N**	**N**	Work will take CS Strucutres out of Service during Gate and Operator modifications.
PSPS / COSDS Work (PSPS Shutdown)	PSPS	WRC	n/a	n/a																											-	-	-	-	-	-	-	-	-	-	Diversion to PSPS is 5MGD (May increase to 10MGD this Fall). Scheduled shut down of PSPS in September; no flow diversion to Pontiac WWTP (CRWRRF). Will significantly impact storage capabilities on the Oakland Arm CS gates.

Table updated on 10/1/2022. Estimates to be updated as necessary.

* Flow control will be required for sewer cleaning, currently estimated in 2022. Flow control requirements are TBD based on contractor means & methods, not reflected in "Control Devices Required to Store Flow" section.
* Flow control will be required for sewer lining (Schedule TBD). Flow control CS requirements are defined in the "Control Devices Required to Store Flow" section.
PSPS and ELPS operations can significantly impact storage times upstream of CS-6, 7 & 8 and subsequently downstream control structures. Coordination & alerting for ELPS, PSPS, WRC Meters 1222/1223 & 1000 required.

Y = Required to store
N = Required to not store
H = Helpful to extend work times. *If available when not required for concurrent work.*
- = Irrelevant

Estimated Project Window
Flow Control Required
Flow Control May Be Required

Summary of OMID Flow Control Requirements for Ongoing and Future Projects

Agenda Item No. 11

Financial Reports – General Financial Report and Status of State Revolving Fund Financing and Other Financing

YTD Trial Balance Fund: 84917 Oakland Macomb InterceptorSeg5 As of Fiscal Period: Month 12, 2022		YTD Balance No Project	OMID Segment 5 100000003252	OMID NI-EA CONSTRUCTION 100000003308	NESPS MECH-ELEC CONSTRUCTION 100000003309	YTD Balance
100100	Cash - Operating		1,548,995.29	12,782,268.59	23,089,281.46	**37,420,545.34**
104100	Accrued Interest on Investment		(173,438.14)			**(173,438.14)**
143100	PrepaidExpemses			104,166.66		**104,166.66**
	ASSETS	**0.00**	**1,375,557.15**	**12,886,435.25**	**23,089,281.46**	**37,351,273.86**
201210	Vouchers Payable AP Cont			(757,826.13)	(781,891.77)	**(1,539,717.90)**
222300	Unearned Revenues		(208,809.66)	(4,224,457.35)	(8,046,142.99)	**(12,479,410.00)**
	LIABILITIES	**0.00**	**(208,809.66)**	**(4,982,283.48)**	**(8,828,034.76)**	**(14,019,127.90)**
605000	Special Assessments Revenue					**0.00**
655000	Income From Investments		(198,735.63)			**(198,735.63)**
670000	Other Revenues		113,994.03			**113,994.03**
	REVENUES	**0.00**	**(84,741.60)**	**0.00**	**0.00**	**(84,741.60)**
730000	Contractual Services			7,149,752.40	14,438,072.12	**21,587,824.52**
770000	Internal Support Expenditures			62,419.21	249,565.93	**311,985.14**
	EXPENSES	**0.00**	**0.00**	**7,212,171.61**	**14,687,638.05**	**21,899,809.66**
381315	FB Restricted Debt		(47,288,433.00)			**(47,288,433.00)**
382100	FB Committed for Capital Proj		46,206,427.11	(15,116,323.38)	(28,948,884.75)	**2,141,218.98**
	Fund Balance	**0.00**	**(1,082,005.89)**	**(15,116,323.38)**	**(28,948,884.75)**	**(45,147,214.02)**
		0.00	**(0.00)**	**0.00**	**0.00**	**0.00**

Cash as of 09/30/2022 $ 37,420,545.34

Invoices/Reimbursements for NIEA Construction on Current Agenda impacting Cash Balance (116,468.53)

Invoices/Reimbursements for NESPS Mech / Electrical Construction on Current Agenda impacting Cash Balance (8,920.03)

Total Net Cash Balance $ 37,295,156.78

OCM Project Work In Progress

Company Oakland County
Projects and Project Hierarchies PRJ-13308 OMID NI-EA CONSTRUCTION
Budget Structure Project Task
Period FY2022 - Sep

	Original Budget	Actuals MTD	Obligations YTD	Actuals YTD	Total Spend YTD	Actuals LTD	Variance
Project Expenses	28,395,600.00	782,462.48	49,846.33	16,266,990.88	16,316,837.21	16,266,990.88	12,128,609.12
1 > Administration	584,000.00	0.00	0.00	0.00	0.00	0.00	584,000.00
1 > Contingency	2,581,000.00	0.00	0.00	0.00	0.00	0.00	2,581,000.00
1 > Engineering	478,000.00	3,105.86	0.00	120,690.12	120,690.12	120,690.12	357,309.88
1 > Engineering Consultants	4,913,000.00	101,836.24	0.00	2,781,851.88	2,781,851.88	2,781,851.88	2,131,148.12
1 > Facility Acquisition	17,983,600.00	648,703.89	0.00	12,918,108.35	12,918,108.35	12,918,108.35	5,065,491.65
1 > Inspection	260,000.00	0.00	0.00	0.00	0.00	0.00	260,000.00
1 > Legal and Financial	1,259,000.00	7,286.00	0.00	111,955.50	111,955.50	111,955.50	1,147,044.50
1 > Right of Way	265,000.00	0.00	0.00	76,496.02	76,496.02	76,496.02	188,503.98
1 > Standard	40,000.00	21,530.49	49,846.33	257,889.01	307,735.34	257,889.01	(217,889.01)
1 > Survey	32,000.00	0.00	0.00	0.00	0.00	0.00	32,000.00
Project Revenues	0.00	0.00	0.00	24,171,142.65	(24,171,142.65)	24,171,142.65	
RC605572 - Special Assessments Revenue	0.00	0.00	0.00	2,206,043.00	(2,206,043.00)	2,206,043.00	
RC697551 - Issuance of Bonds	0.00	0.00	0.00	21,965,099.65	(21,965,099.65)	21,965,099.65	
Revenue Over/ (Under) Expenses						**7,904,151.77**	

OCM Project Work In Progress

Company Oakland County
Projects and Project Hierarchies PRJ-13309 NESPS MECH-ELEC CONSTRUCTION
Budget Structure Project Task
Period FY2022 - Sep

	Original Budget	Actuals MTD	Actuals YTD	Actuals LTD	Variance
Project Expenses	54,086,000.00	804,845.02	31,778,610.31	31,778,610.31	22,307,389.69
1 > Administration	620,000.00	0.00	44,200.00	44,200.00	575,800.00
1 > Contingency	4,917,000.00	0.00	0.00	0.00	4,917,000.00
1 > Engineering	446,000.00	8,920.03	187,617.54	187,617.54	258,382.46
1 > Engineering Consultants	3,987,000.00	109,909.83	2,103,970.26	2,103,970.26	1,883,029.74
1 > Facility Acquisition	40,857,000.00	671,981.94	28,278,065.21	28,278,065.21	12,578,934.79
1 > Inspection	285,000.00	0.00	340,432.89	340,432.89	(55,432.89)
1 > Legal and Financial	2,417,000.00	0.00	179,800.00	179,800.00	2,237,200.00
1 > Right of Way	393,000.00	0.00	0.00	0.00	393,000.00
1 > Standard	130,000.00	14,033.22	644,524.41	644,524.41	(514,524.41)
1 > Survey	34,000.00	0.00	0.00	0.00	34,000.00
Project Revenues	0.00	0.00	46,039,857.01	46,039,857.01	
RC605572 - Special Assessments Revenue	0.00	0.00	4,202,235.00	4,202,235.00	
RC697551 - Issuance of Bonds	0.00	0.00	41,837,622.01	41,837,622.01	
Revenue Over/ (Under) Expenses				**14,261,246.70**	

OCM Project Work In Progress

Company
Projects and Project Hierarchies PRJ-13252 OMID Segment 5
Budget Structure Project Task
Period FY2022 - Sep

	Actuals MTD	Actuals YTD	Total Spend YTD	Actuals LTD
Project Expenses	0.00	757,136.57	757,136.57	757,136.57
1 > Administration	0.00	242,201.57	242,201.57	242,201.57
1 > Legal and Financial	0.00	514,935.00	514,935.00	514,935.00
1 > Standard	0.00	0.00	0.00	0.00
Project Revenues	0.00	2,239,707.58	(2,239,707.58)	2,239,707.58
PRJ-13252 OMID Segment 5	0.00	2,239,707.58	(2,239,707.58)	2,239,707.58
RC605572 - Special Assessments Revenue	0.00	108,835.74	(108,835.74)	108,835.74
RC655077 - Accrued Interest Adjustments	0.00	(190,971.60)	190,971.60	(190,971.60)
RC655385 - Income from Investments	0.00	834,628.56	(834,628.56)	834,628.56
RC670513 - Prior Years Revenue	0.00	402,211.79	(402,211.79)	402,211.79
RC697219 - Premiums on Bonds Sold	0.00	7,672,724.75	(7,672,724.75)	7,672,724.75
RC697551 - Issuance of Bonds	0.00	(6,587,721.66)	6,587,721.66	(6,587,721.66)
Revenue Over/ (Under) Expenses				**1,482,571.01**

Oakland County - Water Resources Commissioner's Office
Fund Equity: Schedule of Reserves and Dedicated Funds
As of Date: September 30, 2022

Fund	Description	Major Maintenance	Emergency Maintenance Reserve	Capital Improvement	Undesignated	Committed for Capital Projects	Total Equity
82912	OMIDD Maintenance Fund	3,837,874.76	1,579,863.15	2,980,916.31	7,922,338.77		16,320,992.99
84917	OMIDD Seg 5						
	- Project 1-3252 Interceptor Seg 5					1,482,571.01	
	- Project 1-3308 NI - EA Construction					7,904,151.77	
	- Project 1-3309 NESPS Construction					14,261,246.70	23,647,969.48
Total Equity in Maintenance and Construction Funds							39,968,962.47

NOTE: This report presents pre-closing figures and as such are subject to change

County of Oakland
OMIDD Maintenance Fund
Statement of Net Position
September 30, 2022

ASSETS		
Current assets:		
Cash	$	22,953,839.25
Accrued interest receivable		81,002.48
Due from municipalities		4,364,430.08
Due from other funds		500.00
Prepaid Expenses		905,387.67
Total assets	$	28,305,159.48
LIABILITIES		
Current liabilities:		
Vouchers payable	$	6,087,712.09
Due To Municipalities		5,892,204.40
Deposits		4,250.00
Total liabilities	$	11,984,166.49
NET POSITION		
FB Major Maint Reserve		3,837,874.76
FB Capital Improvement Reserve		2,980,916.31
FB Restricted Programs		7,922,338.77
FB Emergency Maint Reserve		1,579,863.15
Total net position	$	16,320,992.99

NOTE: This report presents pre-closing figures and as such are subject to change

County of Oakland
Oakland Macomb InterceptorCh21 Fund
Statement of Revenues, Expenses, and Changes in Net Position
For the Twelve Months Ended September 30, 2022
100% of The Year Complete

	Amended Budget	Actual	(Unfavorable) Variance	TYD % of Budget
Operating revenues				
Sewage Disposal Services	75,350,030.00	75,754,160.04	404,130.04	100.54%
Inspection Fees	170.00	0.00	$ (170.00)	0.00%
Plan Review Fees	250.00	0.00	(250.00)	0.00%
Prior Years Adjustments	0.00	187.50	187.50	No Budget
Total operating revenue:	75,350,450.00	75,754,347.54	403,897.54	100.54%
Operating expenses				
Salaries	0.00	0.00	0.00	No Budget
Fringe benefits	0.00	0.00	0.00	No Budget
Contractual services				
Contracted Services	10,023,300.00	1,020,505.01	$ 9,002,794.99	10.18%
Electrical Service	806,340.00	825,944.17	(19,604.17)	102.43%
Engineering Services-Other	41,390.00	343,149.60	(301,759.60)	829.06%
Equipment Maintenance	665,000.00	403,432.70	261,567.30	60.67%
Equipment Repair	416,830.00	860,364.41	(443,534.41)	206.41%
Insurance	804,110.00	238,993.59	565,116.41	29.72%
Legal Services	68,080.00	53,052.30	15,027.70	77.93%
Licenses and Permits	0.00	420.00	(420.00)	No Budget
Natural Gas	80,000.00	22,822.91	57,177.09	28.53%
Prof Svc-Consultant	0.00	87,665.00	(87,665.00)	No Budget
Professional Services	0.00	35,235.09	(35,235.09)	No Budget
Project Construction and Impr	0.00	(55,000.00)	55,000.00	No Budget
Public Services	25,000.00	45,776.78	(20,776.78)	183.11%
Right of Way	0.00	2,626.50	(2,626.50)	No Budget
Sewage Disposal Services	69,709,800.00	69,851,983.30	(142,183.30)	100.20%
Testing Services	0.00	1,940.11	(1,940.11)	No Budget
Water and Sewage Charges	150,000.00	102,288.53	47,711.47	68.19%
Workshops and Meeting	1,500.00	1,037.45	462.55	69.16%
Prior Year Adjustments	0.00	9,076.00	(9,076.00)	No Budget
Total contractual services	82,791,350.00	73,851,313.45	8,940,036.55	89.20%
Commodities				
Material and Supplies	8,000.00	0.00	8,000.00	0.00%
Total commodities	8,000.00	0.00	8,000.00	0.00%
Depreciation				
Total depreciation				
Internal services				
Drain Equip Materials	840.00	0.00	$ 840.00	0.00%
Drain Equip Labor	59,100.00	53,519.32	5,580.68	90.56%
Drain Equipment	1,260.00	2,266.95	(1,006.95)	179.92%
Total internal services	61,200.00	55,786.27	5,413.73	91.15%
Total operating expense	82,860,550.00	73,907,099.72	8,953,450.28	89.19%
Operating income (loss)	(7,510,100.00)	1,847,247.82	9,357,347.82	-24.60%
Nonoperating revenues (expenses)				
Income from investments	200,000.00	130,515.82	(69,484.18)	65.26%
Insurance Recoveries	0.00	5,626.00	5,626.00	No Budget
Total nonoperating revenues (expenses)	200,000.00	136,141.82	(63,858.18)	68.07%
Income (loss) before transfer	(7,310,100.00)	1,983,389.64	9,293,489.64	68.07%
Transfers in	0.00	0.00	0.00	No Budget
Transfers out	0.00	0.00	0.00	No Budget
Change in net position	(7,310,100.00)	1,983,389.64	9,293,489.64	-27.13%
Net Position - beginning		14,401,894.43		
Net Position - ending		16,385,284.07		

NOTE: This report presents pre-closing figures and as such are subject to change

OAKLAND MACOMB INTERCEPTOR DRAINAGE BOARD - APPROVAL OF INVOICES/REIMBURSEMENTS

OMI DD Meeting Date 10/19/2022

		84917	84917	82912	
		1-3308	1-3309		
Payable To	Invoice #	Segment 5 NIEA Construction	Segment 5 NESPS Mech / Electric Construction	Operations & Maintenance	Total
Oakland County *	WRC Labor/Fringes/Non-direct Labor (08/27/22 - 09/23/22)	2,964.60	8,468.41		$11,433.01
Oakland County *	WRC Equipment (08/27/22 - 09/23/22)	141.26	451.62		$592.88
Applied Science, Inc	Invoice # 43 (ASI Inv. #8250) Services 09/04/22 to 10/01/22		2,448.00	84,070.19	$86,518.19
Clark Hill PLC	Invoice # 1238427 Matter 438991 Services Through 08/31/2022			306.00	$306.00
Clark Hill PLC	Invoice # 1238561 Matter 424741 Services Through 08/31/2022			3,483.00	$3,483.00
Clark Hill PLC	Invoice # 1238584 Matter 404547 Services Through 08/31/2022	2,268.00			$2,268.00
Comerica - P Card Reimbursement	Panera Bread OMIDD Meeting Catering 4/20/2022			204.06	$204.06
Comerica - P Card Reimbursement	Panera Bread OMIDD Meeting Catering 5/18/2022			216.00	$216.00
Comerica - P Card Reimbursement	Panera Bread OMIDD Meeting Catering 6/15/2022			262.37	$262.37
CSM Mechanical, LLC	Invoice # 21OMIDD006 Water Supply Investigation Date 12/07/2021			455.00	$455.00
Dickinson Wright PLLC	Invoice # 173227 Matter 012840-00451 Service through 08/31/2022			4,068.50	$4,068.50
Dickinson Wright PLLC	Invoice # 173229 Matter 012840-00436 Service through 08/31/2022			276.50	$276.50
HESCO	Invoice # 2213887 OMIDD Flow Control Structures 8/31 - 9/2/22			52,720.28	$52,720.28
HESCO	Invoice # 2213888 Emergency Repair Hose on Gate 2 - 08/29/2022			5,938.90	$5,938.90
Kennedy Industries	Invoice # 632164 - NESPS Field Service 07/20/21			891.00	$891.00
Kennedy Industries	Invoice # 632852 - NESPS Field Service 07/05/21			341.00	$341.00
Kennedy Industries	Invoice # 632859 - NESPS Field Service 08/31/21			1,056.00	$1,056.00
Kennedy Industries	Invoice # 633230 - NESPS Field Service 09/26/21			775.50	$775.50
Meadowbrook Insurance Agency	Invoice # 10986 1st Quarterly Installment and OMIDD CSC Overtime Dates 7/1/22 - 7/1/23		51,255.00		$51,255.00
METCO	Invoice # 1811-45 08/29/2022 Through 10/02/22			80,700.34	$80,700.34
Motor City Electric Technologies	Invoice # 94693 NESP SCADA Cut Over Service Date 08/10/22			151.59	$151.59
NTH Consultants	Invoice # 630787 Engineering Design NI-EA PCI-4 Through 09/23/2022	24,093.82			$24,093.82
NTH Consultants	Invoice # 630771 (D-425) Engineering Services Through 09/23/2022	70,531.44			$70,531.44
NTH Consultants	Invoice # 630774 (D-421) Engineering Design NESPS Through 09/23/2022		2,236.42		$2,236.42
NTH Consultants	Invoice # 630775 (D-439) Engineering Design NESPS Through 09/23/2022			820.10	$820.10
PM Technologies	Invoice # 0000168014 NESPS Generator 1 repair 06/24/22			1,755.82	$1,755.82
PMA Consultants	Invoice # 03559.01 - 27 Professional Services Through 08/31/22	19,575.27			$19,575.27
	Total Invoices/Reimbursements for Approval	$119,574.39	$64,859.45	$238,492.15	$422,925.99
	* Less WRC Charges already paid from OMI Fund	(3,105.86)	(8,920.03)	0.00	(12,025.89)
Total Invoices/Reimbursements that will impact Cash Balance listed on Current Trial Balance submitted to OMI Drain Board		$116,468.53	$55,939.42	$238,492.15	$410,900.10

Revised 10/14/2022 4:41 PM

Agenda Item No. 12

Invoices

OMI Segment 5 NESP Mech - Elect Construction Project - WRC Labor/Fringes/Non-Direct Labor Factor for Trans Dates - 08/27/2022 - 09/23/2022									
WOID	**Date Entered**	**Date Worked**	**Name/Description**	**Hours/Units**	**Cost**	**Cost Category**	**Assign Equipment**	**Project**	**Activity**
1094849	09/12/22	08/29/22	BROWN, JOEL	1.00	125.45	REGULAR	WRCCON	PRJ-13309	ENGINEERING
1094849	09/12/22	08/31/22	BROWN, JOEL	1.00	125.45	REGULAR	WRCCON	PRJ-13309	ENGINEERING
1094849	09/12/22	09/01/22	BROWN, JOEL	3.00	376.35	REGULAR	WRCCON	PRJ-13309	ENGINEERING
1094849	09/12/22	09/02/22	BROWN, JOEL	3.50	439.08	REGULAR	WRCCON	PRJ-13309	ENGINEERING
1094849	09/12/22	09/06/22	BROWN, JOEL	2.50	313.63	REGULAR	WRCCON	PRJ-13309	ENGINEERING
1094849	09/12/22	09/07/22	BROWN, JOEL	0.50	62.73	REGULAR	WRCCON	PRJ-13309	ENGINEERING
1094849	09/12/22	09/08/22	BROWN, JOEL	5.00	627.25	REGULAR	WRCCON	PRJ-13309	ENGINEERING
1094849	09/12/22	09/09/22	BROWN, JOEL	1.00	125.45	REGULAR	WRCCON	PRJ-13309	ENGINEERING
			BROWN, JOEL Total		**2,195.39**				
1094849	08/29/22	08/15/22	LOCKHART, SIDNEY	2.00	272.74	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	08/29/22	08/16/22	LOCKHART, SIDNEY	2.00	272.74	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	08/29/22	08/17/22	LOCKHART, SIDNEY	2.00	272.74	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	08/29/22	08/18/22	LOCKHART, SIDNEY	2.00	272.74	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	08/29/22	08/23/22	LOCKHART, SIDNEY	2.00	272.74	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	08/29/22	08/24/22	LOCKHART, SIDNEY	2.00	272.74	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	08/29/22	08/25/22	LOCKHART, SIDNEY	2.00	272.74	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	09/09/22	08/29/22	LOCKHART, SIDNEY	4.00	545.48	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	09/09/22	08/30/22	LOCKHART, SIDNEY	3.00	409.11	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	09/09/22	08/31/22	LOCKHART, SIDNEY	3.00	409.11	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	09/09/22	09/01/22	LOCKHART, SIDNEY	3.00	409.11	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	09/09/22	09/07/22	LOCKHART, SIDNEY	3.00	409.11	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	09/09/22	09/08/22	LOCKHART, SIDNEY	3.00	409.11	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	09/19/22	09/12/22	LOCKHART, SIDNEY	2.00	272.74	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	09/19/22	09/13/22	LOCKHART, SIDNEY	2.00	272.74	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	09/19/22	09/14/22	LOCKHART, SIDNEY	2.00	272.74	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	09/19/22	09/15/22	LOCKHART, SIDNEY	1.00	136.37	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	09/19/22	09/19/22	LOCKHART, SIDNEY	2.00	272.74	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	09/19/22	09/20/22	LOCKHART, SIDNEY	1.00	136.37	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	09/19/22	09/21/22	LOCKHART, SIDNEY	1.00	136.37	REGULAR	WRCADM	PRJ-13309	ENGINEERING
1094849	09/19/22	09/22/22	LOCKHART, SIDNEY	2.00	272.74	REGULAR	WRCADM	PRJ-13309	ENGINEERING
			LOCKHART, SIDNEY Total		**6,273.02**				
			Grand Total		**8,468.41**				

OMI Segment 5 NESP Mech - Elect Construction Project - WRC Labor/Fringes/Non-Direct Labor Factor for Trans Dates - 08/27/2022 - 09/23/2022									
WOID	**Date Entered**	**Date Worked**	**Name/Description**	**Hours/Units**	Cost	**Cost Category**	**Assign Equipment**	**Project**	**Activity**
1094849	09/12/22	08/29/22	BROWN, JOEL	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/12/22	08/29/22	BROWN, JOEL	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/12/22	08/29/22	BROWN, JOEL	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/12/22	08/31/22	BROWN, JOEL	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/12/22	08/31/22	BROWN, JOEL	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/12/22	08/31/22	BROWN, JOEL	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/12/22	09/01/22	BROWN, JOEL	3.00	7.02	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/12/22	09/01/22	BROWN, JOEL	3.00	0.75	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/12/22	09/01/22	BROWN, JOEL	3.00	1.20	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/12/22	09/02/22	BROWN, JOEL	3.50	8.19	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/12/22	09/02/22	BROWN, JOEL	3.50	0.88	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/12/22	09/02/22	BROWN, JOEL	3.50	1.40	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/12/22	09/06/22	BROWN, JOEL	2.50	5.85	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/12/22	09/06/22	BROWN, JOEL	2.50	0.63	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/12/22	09/06/22	BROWN, JOEL	2.50	1.00	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/12/22	09/07/22	BROWN, JOEL	0.50	1.17	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/12/22	09/07/22	BROWN, JOEL	0.50	0.13	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/12/22	09/07/22	BROWN, JOEL	0.50	0.20	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/12/22	09/08/22	BROWN, JOEL	5.00	11.70	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/12/22	09/08/22	BROWN, JOEL	5.00	1.25	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/12/22	09/08/22	BROWN, JOEL	5.00	2.00	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/12/22	09/09/22	BROWN, JOEL	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/12/22	09/09/22	BROWN, JOEL	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/12/22	09/09/22	BROWN, JOEL	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
			BROWN, JOEL Total		**52.34**				
1094849	08/29/22	08/15/22	LOCKHART, SIDNEY	2.00	0.80	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	08/29/22	08/15/22	LOCKHART, SIDNEY	2.00	4.68	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	08/29/22	08/15/22	LOCKHART, SIDNEY	2.00	0.50	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	08/29/22	08/15/22	LOCKHART, SIDNEY	2.00	11.38	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	08/29/22	08/16/22	LOCKHART, SIDNEY	2.00	0.80	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	08/29/22	08/16/22	LOCKHART, SIDNEY	2.00	4.68	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	08/29/22	08/16/22	LOCKHART, SIDNEY	2.00	0.50	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	08/29/22	08/16/22	LOCKHART, SIDNEY	2.00	11.38	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	08/29/22	08/17/22	LOCKHART, SIDNEY	2.00	0.80	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	08/29/22	08/17/22	LOCKHART, SIDNEY	2.00	4.68	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	08/29/22	08/17/22	LOCKHART, SIDNEY	2.00	0.50	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	08/29/22	08/17/22	LOCKHART, SIDNEY	2.00	11.38	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	08/29/22	08/18/22	LOCKHART, SIDNEY	2.00	0.80	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	08/29/22	08/18/22	LOCKHART, SIDNEY	2.00	4.68	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	08/29/22	08/18/22	LOCKHART, SIDNEY	2.00	0.50	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	08/29/22	08/18/22	LOCKHART, SIDNEY	2.00	11.38	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	08/29/22	08/23/22	LOCKHART, SIDNEY	2.00	0.80	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	08/29/22	08/23/22	LOCKHART, SIDNEY	2.00	4.68	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	08/29/22	08/23/22	LOCKHART, SIDNEY	2.00	0.50	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	08/29/22	08/23/22	LOCKHART, SIDNEY	2.00	11.38	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	08/29/22	08/24/22	LOCKHART, SIDNEY	2.00	0.80	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	08/29/22	08/24/22	LOCKHART, SIDNEY	2.00	4.68	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	08/29/22	08/24/22	LOCKHART, SIDNEY	2.00	0.50	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	08/29/22	08/24/22	LOCKHART, SIDNEY	2.00	11.38	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	08/29/22	08/25/22	LOCKHART, SIDNEY	2.00	0.80	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	08/29/22	08/25/22	LOCKHART, SIDNEY	2.00	4.68	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	08/29/22	08/25/22	LOCKHART, SIDNEY	2.00	0.50	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	08/29/22	08/25/22	LOCKHART, SIDNEY	2.00	11.38	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	09/09/22	08/29/22	LOCKHART, SIDNEY	4.00	1.60	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/09/22	08/29/22	LOCKHART, SIDNEY	4.00	9.36	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/09/22	08/29/22	LOCKHART, SIDNEY	4.00	1.00	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/09/22	08/29/22	LOCKHART, SIDNEY	4.00	22.76	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	09/09/22	08/30/22	LOCKHART, SIDNEY	3.00	1.20	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/09/22	08/30/22	LOCKHART, SIDNEY	3.00	7.02	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/09/22	08/30/22	LOCKHART, SIDNEY	3.00	0.75	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/09/22	08/30/22	LOCKHART, SIDNEY	3.00	17.07	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	09/09/22	09/01/22	LOCKHART, SIDNEY	3.00	1.20	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/09/22	09/01/22	LOCKHART, SIDNEY	3.00	7.02	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/09/22	09/01/22	LOCKHART, SIDNEY	3.00	0.75	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/09/22	09/01/22	LOCKHART, SIDNEY	3.00	17.07	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	09/09/22	09/07/22	LOCKHART, SIDNEY	3.00	1.20	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/09/22	09/07/22	LOCKHART, SIDNEY	3.00	7.02	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/09/22	09/07/22	LOCKHART, SIDNEY	3.00	0.75	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/09/22	09/07/22	LOCKHART, SIDNEY	3.00	17.07	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	09/09/22	09/08/22	LOCKHART, SIDNEY	3.00	1.20	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/09/22	09/08/22	LOCKHART, SIDNEY	3.00	7.02	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/09/22	09/08/22	LOCKHART, SIDNEY	3.00	0.75	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/09/22	09/08/22	LOCKHART, SIDNEY	3.00	17.07	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	09/09/22	08/31/22	LOCKHART, SIDNEY	3.00	1.20	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/09/22	08/31/22	LOCKHART, SIDNEY	3.00	7.02	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/09/22	08/31/22	LOCKHART, SIDNEY	3.00	0.75	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING

1094849	09/09/22	08/31/22	LOCKHART, SIDNEY	3.00	17.07	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	09/19/22	09/12/22	LOCKHART, SIDNEY	2.00	0.80	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/19/22	09/12/22	LOCKHART, SIDNEY	2.00	0.50	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/19/22	09/12/22	LOCKHART, SIDNEY	2.00	4.68	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/19/22	09/12/22	LOCKHART, SIDNEY	2.00	11.38	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	09/19/22	09/13/22	LOCKHART, SIDNEY	2.00	0.80	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/19/22	09/13/22	LOCKHART, SIDNEY	2.00	0.50	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/19/22	09/13/22	LOCKHART, SIDNEY	2.00	4.68	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/19/22	09/13/22	LOCKHART, SIDNEY	2.00	11.38	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	09/19/22	09/14/22	LOCKHART, SIDNEY	2.00	0.80	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/19/22	09/14/22	LOCKHART, SIDNEY	2.00	0.50	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/19/22	09/14/22	LOCKHART, SIDNEY	2.00	4.68	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/19/22	09/14/22	LOCKHART, SIDNEY	2.00	11.38	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	09/19/22	09/15/22	LOCKHART, SIDNEY	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/19/22	09/15/22	LOCKHART, SIDNEY	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/19/22	09/15/22	LOCKHART, SIDNEY	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/19/22	09/15/22	LOCKHART, SIDNEY	1.00	5.69	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	09/19/22	09/19/22	LOCKHART, SIDNEY	2.00	0.80	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/19/22	09/19/22	LOCKHART, SIDNEY	2.00	0.50	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/19/22	09/19/22	LOCKHART, SIDNEY	2.00	4.68	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/19/22	09/19/22	LOCKHART, SIDNEY	2.00	11.38	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	09/19/22	09/20/22	LOCKHART, SIDNEY	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/19/22	09/20/22	LOCKHART, SIDNEY	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/19/22	09/20/22	LOCKHART, SIDNEY	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/19/22	09/20/22	LOCKHART, SIDNEY	1.00	5.69	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	09/19/22	09/21/22	LOCKHART, SIDNEY	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/19/22	09/21/22	LOCKHART, SIDNEY	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/19/22	09/21/22	LOCKHART, SIDNEY	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/19/22	09/21/22	LOCKHART, SIDNEY	1.00	5.69	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
1094849	09/19/22	09/22/22	LOCKHART, SIDNEY	2.00	0.80	ASSIGNED	Cell Phone	PRJ-13309	ENGINEERING
1094849	09/19/22	09/22/22	LOCKHART, SIDNEY	2.00	0.50	ASSIGNED	Tablet/iPad	PRJ-13309	ENGINEERING
1094849	09/19/22	09/22/22	LOCKHART, SIDNEY	2.00	4.68	ASSIGNED	PC/Computer	PRJ-13309	ENGINEERING
1094849	09/19/22	09/22/22	LOCKHART, SIDNEY	2.00	11.38	ASSIGNED	Blazer/Suburbans	PRJ-13309	ENGINEERING
			LOCKHART, SIDNEY Total		**399.28**				
			Grand Total		**451.62**				

OMI Segment 5 NI-EA Construction Project - WRC Labor/Fringes/Non-Direct Labor Factor for Trans Dates -08/27/2022 - 09/23/2022									
WOID	**Date Entered**	**Date Worked**	**Name/Description**	**Hours/Units**	Cost	**Cost Category**	**Assign Equipment**	**Project**	**Activity**
1094815	8/29/22	8/26/22	BROWN, JOEL	2.50	313.63	REGULAR	WRCCON	PRJ-13308	ENGINEERING
1094815	9/12/22	8/30/22	BROWN, JOEL	1.00	125.45	REGULAR	WRCCON	PRJ-13308	ENGINEERING
1094815	9/12/22	9/1/22	BROWN, JOEL	1.00	125.45	REGULAR	WRCCON	PRJ-13308	ENGINEERING
1094815	9/12/22	9/6/22	BROWN, JOEL	2.50	313.63	REGULAR	WRCCON	PRJ-13308	ENGINEERING
1094815	9/12/22	9/7/22	BROWN, JOEL	1.00	125.45	REGULAR	WRCCON	PRJ-13308	ENGINEERING
1094815	9/12/22	9/8/22	BROWN, JOEL	0.50	62.73	REGULAR	WRCCON	PRJ-13308	ENGINEERING
1094815	9/12/22	9/9/22	BROWN, JOEL	1.00	125.45	REGULAR	WRCCON	PRJ-13308	ENGINEERING
			BROWN, JOEL Total		**1,191.79**				
1094815	8/29/22	8/15/22	LOCKHART, SIDNEY	1.00	136.37	REGULAR	WRCADM	PRJ-13308	ENGINEERING
1094815	8/29/22	8/17/22	LOCKHART, SIDNEY	1.00	136.37	REGULAR	WRCADM	PRJ-13308	ENGINEERING
1094815	8/29/22	8/18/22	LOCKHART, SIDNEY	1.00	136.37	REGULAR	WRCADM	PRJ-13308	ENGINEERING
1094815	8/29/22	8/23/22	LOCKHART, SIDNEY	1.00	136.37	REGULAR	WRCADM	PRJ-13308	ENGINEERING
1094815	8/29/22	8/25/22	LOCKHART, SIDNEY	1.00	136.37	REGULAR	WRCADM	PRJ-13308	ENGINEERING
1094815	9/9/22	8/31/22	LOCKHART, SIDNEY	1.00	136.37	REGULAR	WRCADM	PRJ-13308	ENGINEERING
1094815	9/9/22	9/1/22	LOCKHART, SIDNEY	1.00	136.37	REGULAR	WRCADM	PRJ-13308	ENGINEERING
1094815	9/19/22	9/12/22	LOCKHART, SIDNEY	1.00	136.37	REGULAR	WRCADM	PRJ-13308	ENGINEERING
1094815	9/19/22	9/14/22	LOCKHART, SIDNEY	2.00	272.74	REGULAR	WRCADM	PRJ-13308	ENGINEERING
1094815	9/19/22	9/15/22	LOCKHART, SIDNEY	1.00	136.37	REGULAR	WRCADM	PRJ-13308	ENGINEERING
1094815	9/19/22	9/20/22	LOCKHART, SIDNEY	1.00	136.37	REGULAR	WRCADM	PRJ-13308	ENGINEERING
1094815	9/19/22	9/23/22	LOCKHART, SIDNEY	1.00	136.37	REGULAR	WRCADM	PRJ-13308	ENGINEERING
			LOCKHART, SIDNEY Total		**1,772.81**				
			Grand Total		**2,964.60**				

OMI Segment 5 NI-EA Construction Project - WRC Labor/Fringes/Non-Direct Labor Factor for Trans Dates - 08/27/2022 - 09/23/2022									
WOID	**Date Entered**	**Date Worked**	**Name/Description**	**Hours/Units**	**Cost**	**Cost Category**	**Assign Equipment**	**Project**	**Activity**
1094815	8/29/22	8/26/22	BROWN, JOEL	2.50	5.85	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	8/29/22	8/26/22	BROWN, JOEL	2.50	1.00	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	8/29/22	8/26/22	BROWN, JOEL	2.50	0.63	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	9/12/22	8/30/22	BROWN, JOEL	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	9/12/22	8/30/22	BROWN, JOEL	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	9/12/22	8/30/22	BROWN, JOEL	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	9/12/22	9/1/22	BROWN, JOEL	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	9/12/22	9/1/22	BROWN, JOEL	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	9/12/22	9/1/22	BROWN, JOEL	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	9/12/22	9/6/22	BROWN, JOEL	2.50	5.85	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	9/12/22	9/6/22	BROWN, JOEL	2.50	0.63	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	9/12/22	9/6/22	BROWN, JOEL	2.50	1.00	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	9/12/22	9/7/22	BROWN, JOEL	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	9/12/22	9/7/22	BROWN, JOEL	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	9/12/22	9/7/22	BROWN, JOEL	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	9/12/22	9/8/22	BROWN, JOEL	0.50	1.17	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	9/12/22	9/8/22	BROWN, JOEL	0.50	0.13	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	9/12/22	9/8/22	BROWN, JOEL	0.50	0.20	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	9/12/22	9/9/22	BROWN, JOEL	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	9/12/22	9/9/22	BROWN, JOEL	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	9/12/22	9/9/22	BROWN, JOEL	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
			BROWN, JOEL Total		**28.42**				
1094815	8/29/22	8/15/22	LOCKHART, SIDNEY	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	8/29/22	8/15/22	LOCKHART, SIDNEY	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	8/29/22	8/15/22	LOCKHART, SIDNEY	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	8/29/22	8/15/22	LOCKHART, SIDNEY	1.00	5.69	ASSIGNED	Blazer/Suburbans	PRJ-13308	ENGINEERING
1094815	8/29/22	8/17/22	LOCKHART, SIDNEY	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	8/29/22	8/17/22	LOCKHART, SIDNEY	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	8/29/22	8/17/22	LOCKHART, SIDNEY	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	8/29/22	8/17/22	LOCKHART, SIDNEY	1.00	5.69	ASSIGNED	Blazer/Suburbans	PRJ-13308	ENGINEERING
1094815	8/29/22	8/18/22	LOCKHART, SIDNEY	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	8/29/22	8/18/22	LOCKHART, SIDNEY	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	8/29/22	8/18/22	LOCKHART, SIDNEY	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	8/29/22	8/18/22	LOCKHART, SIDNEY	1.00	5.69	ASSIGNED	Blazer/Suburbans	PRJ-13308	ENGINEERING
1094815	8/29/22	8/23/22	LOCKHART, SIDNEY	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	8/29/22	8/23/22	LOCKHART, SIDNEY	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	8/29/22	8/23/22	LOCKHART, SIDNEY	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	8/29/22	8/23/22	LOCKHART, SIDNEY	1.00	5.69	ASSIGNED	Blazer/Suburbans	PRJ-13308	ENGINEERING
1094815	8/29/22	8/25/22	LOCKHART, SIDNEY	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	8/29/22	8/25/22	LOCKHART, SIDNEY	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	8/29/22	8/25/22	LOCKHART, SIDNEY	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	8/29/22	8/25/22	LOCKHART, SIDNEY	1.00	5.69	ASSIGNED	Blazer/Suburbans	PRJ-13308	ENGINEERING
1094815	9/9/22	8/31/22	LOCKHART, SIDNEY	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	9/9/22	8/31/22	LOCKHART, SIDNEY	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	9/9/22	8/31/22	LOCKHART, SIDNEY	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	9/9/22	8/31/22	LOCKHART, SIDNEY	1.00	5.69	ASSIGNED	Blazer/Suburbans	PRJ-13308	ENGINEERING
1094815	9/9/22	9/1/22	LOCKHART, SIDNEY	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	9/9/22	9/1/22	LOCKHART, SIDNEY	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	9/9/22	9/1/22	LOCKHART, SIDNEY	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	9/9/22	9/1/22	LOCKHART, SIDNEY	1.00	5.69	ASSIGNED	Blazer/Suburbans	PRJ-13308	ENGINEERING
1094815	9/19/22	9/12/22	LOCKHART, SIDNEY	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	9/19/22	9/12/22	LOCKHART, SIDNEY	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	9/19/22	9/12/22	LOCKHART, SIDNEY	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	9/19/22	9/12/22	LOCKHART, SIDNEY	1.00	5.69	ASSIGNED	Blazer/Suburbans	PRJ-13308	ENGINEERING
1094815	9/19/22	9/14/22	LOCKHART, SIDNEY	2.00	0.80	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	9/19/22	9/14/22	LOCKHART, SIDNEY	2.00	0.50	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	9/19/22	9/14/22	LOCKHART, SIDNEY	2.00	4.68	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	9/19/22	9/14/22	LOCKHART, SIDNEY	2.00	11.38	ASSIGNED	Blazer/Suburbans	PRJ-13308	ENGINEERING
1094815	9/19/22	9/15/22	LOCKHART, SIDNEY	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	9/19/22	9/15/22	LOCKHART, SIDNEY	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	9/19/22	9/15/22	LOCKHART, SIDNEY	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	9/19/22	9/15/22	LOCKHART, SIDNEY	1.00	5.69	ASSIGNED	Blazer/Suburbans	PRJ-13308	ENGINEERING
1094815	9/19/22	9/20/22	LOCKHART, SIDNEY	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	9/19/22	9/20/22	LOCKHART, SIDNEY	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	9/19/22	9/20/22	LOCKHART, SIDNEY	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	9/19/22	9/20/22	LOCKHART, SIDNEY	1.00	5.69	ASSIGNED	Blazer/Suburbans	PRJ-13308	ENGINEERING
1094815	9/19/22	9/23/22	LOCKHART, SIDNEY	1.00	0.40	ASSIGNED	Cell Phone	PRJ-13308	ENGINEERING
1094815	9/19/22	9/23/22	LOCKHART, SIDNEY	1.00	0.25	ASSIGNED	Tablet/iPad	PRJ-13308	ENGINEERING
1094815	9/19/22	9/23/22	LOCKHART, SIDNEY	1.00	2.34	ASSIGNED	PC/Computer	PRJ-13308	ENGINEERING
1094815	9/19/22	9/23/22	LOCKHART, SIDNEY	1.00	5.69	ASSIGNED	Blazer/Suburbans	PRJ-13308	ENGINEERING
			LOCKHART, SIDNEY Total		**112.84**				
			Grand Total		**141.26**				

Applied Science, Inc.
21455 Melrose Ave. Bldg R Suite 12 Southfield, MI 48075
Phone: (313) 567-3990 Fax: (313) 567-3750
www.asi-detroit.com

October 6, 2022

Project Invoice #43 (ASI Inv. #8250)

Joel Brown, P.E.
Civil Engineer III
Oakland County Water Resources Commissioner's Office
One Public Works Drive, Building 95 West
Waterford, MI 48328

Re: Northeast Sanitary Pump Station
Contract #5470
(ASI Job No. 1815)

li# 41133 v#352

Invoice Period: 9/4/22-10/1/22

Task No.	Task Description	Total This Invoice
1	**Transition & Basis of Design**	
	Total:	**$ -**
Task No.	**Task Description**	**Total This Invoice**
2	**Design Services for Pump & Electrical Upgrades**	
	Total Due This Invoice:	**$ -**
Task No.	**Task Description**	**Total This Invoice**
3	**Additional Special Services**	
	Total Due This Invoice:	**$ -**
Task No.	**Task Description**	**Total This Invoice**
5	**Construction Services**	
	Total:	$ 32,124.00
	Subconsultants:	
	NTH Consultants	$ 23,937.81
	Metco Services	$ 20,441.00
	FK Engineering:	$ 5,093.75
	ASI Markup 5%:	$ 2,473.63
	Total Due This Invoice:	**$ 84,070.19**
Task No.	**Task Description**	**Total This Invoice**
6	**Control Structure Rehab**	
	Total:	$ 2,448.00
	Subconsultants:	
	NTH Consultants	$ -
	Metco Services	$ -
	ASI Markup 5%:	$ -
	Total Due This Invoice:	**$ 2,448.00**

JTB 10-12-2022
84917-149015-730639-1-3309 engcon

JTB 10-12-2022
82912-149667-730639-PRJ-17060 engcon

Summary		
	Total Due This Invoice-All Tasks:	**$ 86,518.19**
	Previous Amount Invoiced:	$ 3,445,920.24
	Total Invoiced To-Date	$ 3,532,438.43
	Original Contract Task Total:	$ 4,198,380.00
	Additional Budget-Task 5:	$ 284,076.60
	Additional Budget-Task 6:	$ 220,326.00
	Current Contract Task Total:	$ 4,702,782.60
	Amount Remaining:	$ 1,170,344.17

Clark Hill

SBR

Contract No. 5087
Speedtype: 61M8291248
Fund:82912
Program: 149139
Account: 731661

10/12/2022

Oakland County Water Resources Commissioner, MI
Attn: Megan Koss, Esq.
One Public Works Drive
Waterford, MI 48328-1907
WRCLegalInvoices@oakgov.com

Invoice:	1238427
Date:	09/13/2022
Client:	30164
Matter:	438991

Matter Name: Bypass Pumping Easement

LEGAL SERVICES RENDERED AND COSTS ADVANCED THROUGH AUGUST 31, 2022

Total Fees:	$	306.00
Total Due This Invoice:	**$**	**306.00**

SBR

Clark Hill

Oakland-Macomb Interceptor Drain Drainage District
Attn: Megan Koss, Esq.
1 Public Works Drive
Waterford, MI 48328
WRClegalinvoices@oakgov.com

Invoice:	1238561
Date:	09/13/2022
Client:	58434
Matter:	424741

82912-6010101-149030-731073-5113-v#2788

Matter Name: GLWA Model Wastewater Contract

10/12/2022

LEGAL SERVICES RENDERED AND COSTS ADVANCED THROUGH AUGUST 31, 2022

Total Fees:	$	3,483.00
Total Due This Invoice:	**$**	**3,483.00**

SBR

Clark Hill

84917-6010101-149015-731073-2603- 1-3308-LEGAL- Ch. 21
v#4716 - li#24138 - exp. 12/31/23

10/12/2022

Oakland-Macomb Interceptor Drain Drainage District
Attn: Megan Koss, Esq.
1 Public Works Drive
Waterford, MI 48328
WRClegalinvoices@oakgov.com

Invoice:	1238584
Date:	09/13/2022
Client:	58434
Matter:	404547

Matter Name: Northeast Interceptor East Arm Improvements

LEGAL SERVICES RENDERED AND COSTS ADVANCED THROUGH AUGUST 31, 2022

Total Fees:	$	2,268.00
Total Due This Invoice:	**$**	**2,268.00**

CSM Mechanical, LLC
1235 Holden Ave.
Milford, MI 48381
Phone # (248) 302-2078
Fax # (248) 856-2370

Invoice

Date	Invoice #
12/7/2021	21OMIDD006

82912 - 149090 - 730660 - 5817 - Ch. 21 - v# 15750 - exp. 6/28/22 - li# 42697

Bill To	Ship To
OMIDD One Public Works Drive Building 95 West Waterford, MI 48328	OMIDD 11010 E. State Fair St. Detroit, MI

10/12/2022

P.O. Number	Terms	Due Date
	Net 60	2/5/2022

Description	Amount
Investigate south side water supply of pump station	
Labor	380.00
Vehicle/Tool Allowance	75.00

TM 1-31-22

Total	**$455.00**
Payments/Credits	$0.00
Balance Due	**$455.00**

WE ACCEPT MASTER CARD, VISA, AND DISCOVER CARD

IN ACCOUNT WITH

DICKINSON WRIGHT PLLC

2600 W. BIG BEAVER ROAD, SUITE 300
TROY, MI 48084-3312
TELEPHONE: (248) 433-7200
http://www.dickinsonwright.com
FEDERAL I.D. #38-1364333

INVOICE DATE: SEPTEMBER 15, 2022
INVOICE NO.: 1732227

OAKLAND COUNTY WATER RESOURCES COMMISSIONER
ATTORNEY & INSURANCE ADMINISTRATOR
ONE PUBLIC WORKS DRIVE, #95
WATERFORD, MI 48328

ATTN: Kelsey Cooke

CLIENT/MATTER NO.: 012840-00451

RE: AMICUS BRIEF

82912-155010-731073

10/12/2022

PRIVILEGED AND CONFIDENTIAL

FOR PROFESSIONAL SERVICES THROUGH AUGUST 31, 2022 *USD*

TOTAL FEES CURRENT INVOICE	$	4,068.50
TOTAL CURRENT INVOICE	**$**	**4,068.50**

OUTSTANDING INVOICES ON THE MATTER BILLED ON THIS CURRENT INVOICE AS OF SEPTEMBER 15, 2022

INVOICE	DATE	BILLED VALUE	PAYMENTS	OUTSTANDING
1703947	06/16/22	1,327.50	(0.00)	1,327.50
1724824	08/17/22	1,142.60	(0.00)	1,142.60

TOTAL OUTSTANDING FROM PRIOR INVOICES	$	2,470.10
TOTAL AMOUNT DUE	**$**	**6,538.60**

KC 09/22/22

Remittance Instructions		
*****Terms: Due and Payable Upon Receipt*****		
Mail To:	***ACH Instructions:***	***Wire Instructions:***
Dickinson Wright PLLC *2600 W. Big Beaver* *Suite 300* *Troy, MI 48084*	*JP Morgan Chase Bank N.A.* *28660 Northwestern Highway* *Southfield, MI 48034* *ABA Number: 072 000 326* *Account# 38852* ***(Please Reference Invoice Numbers)***	*JP Morgan Chase Bank N.A.* *28660 Northwestern Highway* *Southfield, MI 48034* *ABA Number: 021 000 021* *Swift Code: CHASUS33 (International)* *Account# 38852* ***(Please Reference Invoice Numbers)***

IN ACCOUNT WITH

DICKINSON WRIGHT PLLC

2600 W. BIG BEAVER ROAD, SUITE 300
TROY, MI 48084-3312
TELEPHONE: (248) 433-7200
http://www.dickinsonwright.com
FEDERAL I.D. #38-1364333

INVOICE DATE: SEPTEMBER 15, 2022
INVOICE NO.: 1732229

OAKLAND COUNTY WATER RESOURCES COMMISSIONER
ATTORNEY & INSURANCE ADMINISTRATOR
ONE PUBLIC WORKS DRIVE, #95
WATERFORD, MI 48328

10/12/2022

ATTN: STEVE KORTH

CLIENT/MATTER NO.: 012840-00436

82912 - 6010101 - 149030 - 731073 - 5089 - Ch. 21 - v# 4978 - li# 39111

RE: PREPARE BOARD MEMORANDUM RE LOCKOUT-TAGOUT (LOTO) ISSUE

PRIVILEGED AND CONFIDENTIAL

FOR PROFESSIONAL SERVICES THROUGH AUGUST 31, 2022 — *USD*

TOTAL FEES CURRENT INVOICE	$	276.50
TOTAL CURRENT INVOICE	**$**	**276.50**

OUTSTANDING INVOICES ON THE MATTER BILLED ON THIS CURRENT INVOICE AS OF SEPTEMBER 15, 2022

INVOICE	DATE	BILLED VALUE	PAYMENTS	OUTSTANDING
1724822	08/17/22	553.00	(0.00)	553.00

TOTAL OUTSTANDING FROM PRIOR INVOICES	$	553.00
TOTAL AMOUNT DUE	**$**	**829.50**

KC 09/22/22

Remittance Instructions		
*****Terms: Due and Payable Upon Receipt*****		
Mail To:	***ACH Instructions:***	***Wire Instructions:***
Dickinson Wright PLLC *2600 W. Big Beaver* *Suite 300* *Troy, MI 48084*	*JP Morgan Chase Bank N.A.* *28660 Northwestern Highway* *Southfield, MI 48034* *ABA Number: 072 000 326* *Account# 38852* ***(Please Reference Invoice Numbers)***	*JP Morgan Chase Bank N.A.* *28660 Northwestern Highway* *Southfield, MI 48034* *ABA Number: 021 000 021* *Swift Code: CHASUS33 (International)* *Account# 38852* ***(Please Reference Invoice Numbers)***

HESCO

Knowledgeable • Professional • Attentive • Likeable

29770 Hudson Drive Novi, MI 48377
Phone: (586) 978-7200
hesco-mi.com

Invoice No. 2213887

Date: 09/13/2022

82912 - 149130 - 730660 - 5819 - Ch. 21 - v#3091 - exp. 6/30/25 - li#42703

JTB 10/12/2022

Billed To: OMID Drainage District
1 Public Works Drive
Waterford MI 48328

Contract ID: 5819
HESCO Project: 2019807S OMID Flow Control Structures

Contact: Terry Moore **P.O.#** WO#00723 CS-6 **Salesperson:** Kevin Livingston **Due Date:** 10/13/2022

Description	Unit	Qty	Rate	Amount
CS-6 Cylinder Replacement and Gate Refurbishment				
8/31/22 ✓				
Senior Tech	Hours	10.00	195.00	1,950.00
Tech 1	Hours	10.50	185.00	1,942.50
9/1/22 ✓				
Senior Tech	Hours	10.00	195.00	1,950.00
Tech 1	Hours	10.50	185.00	1,942.50
9/2/22 ✓				
Senior Tech	Hours	10.00	195.00	1,950.00
Tech 1 TM-9-14-22	Hours	10.50	185.00	1,942.50
Parts/Equipment				
Rodney Hunt - Glydaseal Disc & Invert Seals	Each	1.00	287.50	287.50
Rodney Hunt - Bronze Guide Bars	Each	2.00	1,046.50	2,093.00

Non-Taxable Amount:	11,677.50
Taxable Amount:	41,042.78
Sales Tax:	0.00
Total Invoice	52,720.28
Payments/Credits:	0.00
Amount Due	**52,720.28**

HESCO
Knowledgeable • Professional • Attentive • Likeable
29770 Hudson Drive Novi, MI 48377
Phone: (586) 978-7200
hesco-mi.com

Invoice No. 2213888

Date: 09/13/2022

82912-149130-730660-5819-Ch. 21- v#3091- exp. 6/30/25 - li#42703

Billed To: OMID Drainage District
1 Public Works Drive
Waterford MI 48328

10/12/2022

Contract ID: 5819
HESCO Project: 2019807S OMID Flow Control Structures

Contact: Terry Moore **P.O.#** WO#00702 CS-9 **Salesperson:** Kevin Livingston **Due Date:** 10/13/2022

Description	Unit	Qty	Rate	Amount
8/29/2022 Emergency Investigation and Repair				
Senior Tech	Hours	9.00	195.00	1,755.00
Tech 1	Hours	10.00	185.00	1,850.00
Tech 2	Hours	9.00	175.00	1,575.00
Parts				
Hose Assembly	Each	1.00	758.90	758.90

Notes:
Discovered Failed Hose on Gate #2, Rod End. Replaced.

TM 9-14-22 ✓

Non-Taxable Amount:	5,180.00
Taxable Amount:	758.90
Sales Tax:	0.00
Total Invoice	5,938.90
Payments/Credits:	0.00
Amount Due	**5,938.90** ✓

KENNEDY INDUSTRIES
INNOVATE
SOLVE
MONITOR
REPAIR

INVOICE		
DATE	NUMBER	PAGE
7/22/2022	632164	1 of 1

BILL TO
OMI100
OAKLAND MACOMB INTERCEPTOR DRA
1 PUBLIC WORKS DR.
SUBMIT INVOICES TO NEXGEN
WATERFORD, MI 48328

SHIP TO
NORTH EAST PUMPING STATION
8598 E. STATE FAIR AVE
DETROIT, MI 48234

82912-6010101-149090-730660-5825-
CH. 21- v # 239 exp 6/30/25

10/12/2022

ATTENTION:
TERRY MOORE 313-8297207 TMOORE@METCOSERVICES.COM

CUSTOMER REF/PO #	JOB #	JOB TITLE	SLP	SHIPPING TYPE	TERMS
	0105960	NORTHEAST PUMP STATION, FIELD SERVICE, SANITARY	KES/PM	FIELD SERVICE	NET 60

QUANTITY B/O	QUANTITY Ship	PART NO.	DESCRIPTION	UNIT PRICE	EXTENDED
0.00	7.50	GRE550NORTHEASTPS	GLWA, NORTHEAST PUMP STATION KENNEDY INDUSTRIES PROVIDED (2) FIELD SERVICE TECHNICIAN(S) ONSITE ON 7/20/2022. PLEASE SEE THE ATTACHED SERVICE REPORT.	$110.00	$825.00
0.00	1.00	TRAVEL	SERVICE TRUCK	$66.00	$66.00

TM 9-12-22

PLEASE REMIT TO:
KENNEDY INDUSTRIES, INC.
P.O. BOX 930079
WIXOM, MI 48393

This invoice is subject to and incorporates by reference Kennedy Industries, Inc.'s ("Kennedy") Terms & Conditions (Rev'd 4/2019) and Customer Warranty available at www.kennedyind.com which will be provided by email upon written request. Buyer expressly agrees to the provisions set forth in the Terms & Conditions and Customer Warranty posted on Kennedy's website

***TERMS OF PAYMENT ARE NET 30 DAYS FROM DATE OF INVOICE *A 7% PER ANNUM SERVICE CHARGE SHALL BE APPLIED TO ANY BALANCE *CREDIT CARD PAYMENTS ARE SUBJECT TO AN ADDITIONAL 3% CHARGE**

SUBTOTAL:	$891.00
TAX:	$0.00
TOTAL:	$891.00

KENNEDY INDUSTRIES
INNOVATE
SOLVE
MONITOR
REPAIR

INVOICE		
DATE	NUMBER	PAGE
9/6/2022	632852	1 of 1

BILL TO
OMI100
OAKLAND MACOMB INTERCEPTOR DRA
1 PUBLIC WORKS DR.
SUBMIT INVOICES TO NEXGEN
WATERFORD, MI 48328

SHIP TO
NORTH EAST PUMPING STATION
11001 E. STATE FAIR AVE
DETROIT, MI 48234

82912-6010101-149090-730660-5825-
ch.21- v#239 exp. 6/30/25

10/12/2022

ATTENTION:
TERRY MOORE 313-8297207 TMOORE@METCOSERVICES.COM

CUSTOMER REF/PO #	JOB #	JOB TITLE	SLP	SHIPPING TYPE	TERMS
	0116592	GREAT LAKES WATER AUTHORITY, NEPS, FIELD SERVICE, SANITARY	KES/KTT	FIELD SERVICE	NET 60

QUANTITY B/O	QUANTITY Ship	PART NO.	DESCRIPTION	UNIT PRICE	EXTENDED
0.00	2.50	GRE550NORTHEASTPS	GLWA, NORTHEAST PUMP STATION KENNEDY INDUSTRIES PROVIDED (1) FIELD SERVICE TECHNICIAN(S) ONSITE ON 07/05/2022. PLEASE SEE THE ATTACHED SERVICE REPORT.	$110.00	$275.00
0.00	1.00	TRAVEL		$66.00	$66.00

TM 9-12-22

PLEASE REMIT TO:
KENNEDY INDUSTRIES, INC.
P.O. BOX 930079
WIXOM, MI 48393

***TERMS OF PAYMENT ARE NET 30 DAYS FROM DATE OF INVOICE *A 7% PER ANNUM SERVICE CHARGE SHALL BE APPLIED TO ANY BALANCE *CREDIT CARD PAYMENTS ARE SUBJECT TO AN ADDITIONAL 3% CHARGE**

SUBTOTAL:	$341.00
TAX:	$0.00
TOTAL:	$341.00

KENNEDY INDUSTRIES | INNOVATE SOLVE MONITOR REPAIR

INVOICE		
DATE	NUMBER	PAGE
9/6/2022	632859	1 of 1

BILL TO
OMI100
OAKLAND MACOMB INTERCEPTOR DRA
1 PUBLIC WORKS DR.
SUBMIT INVOICES TO NEXGEN
WATERFORD, MI 48328

SHIP TO
NORTH EAST PUMPING STATION
8598 E. STATE FAIR AVE
DETROIT, MI 48234

82912-6010101-149090-730660-5825-Ch.21- v#239
exp 6/30/25
10/12/2022

ATTENTION: TERRY MOORE 313-8297207 TMOORE@METCOSERVICES.COM

CUSTOMER REF/PO #	JOB #	JOB TITLE	SLP	SHIPPING TYPE	TERMS
	0105960	NORTHEAST PUMP STATION, FIELD SERVICE, SANITARY	KES/PM	FIELD SERVICE	NET 60

QUANTITY B/O	QUANTITY Ship	PART NO.	DESCRIPTION	UNIT PRICE	EXTENDED
0.00	1.00	GRE550NORTHEASTPS	GLWA, NORTHEAST PUMP STATION KENNEDY INDUSTRIES PROVIDED (2) FIELD SERVICE TECHNICIAN(S) ONSITE ON 8/31/2022. PLEASE SEE THE ATTACHED SERVICE REPORT. THIS INVOICE REFLECTS: (9) HOURS OF LABOR AT STANDARD RATES - $110.00/HOUR MILEAGE: $66.00	$1,056.00	$1,056.00

TM 9-12-22

PLEASE REMIT TO:
KENNEDY INDUSTRIES, INC.
P.O. BOX 930079
WIXOM, MI 48393

***TERMS OF PAYMENT ARE NET 30 DAYS FROM DATE OF INVOICE *A 7% PER ANNUM SERVICE CHARGE SHALL BE APPLIED TO ANY BALANCE *CREDIT CARD PAYMENTS ARE SUBJECT TO AN ADDITIONAL 3% CHARGE**

SUBTOTAL:	$1,056.00
TAX:	$0.00
TOTAL:	$1,056.00

KENNEDY INDUSTRIES
INNOVATE
SOLVE
MONITOR
REPAIR

INVOICE		
DATE	NUMBER	PAGE
9/29/2022	633230	1 of 1

BILL TO
OMI100
OAKLAND MACOMB INTERCEPTOR DRA
1 PUBLIC WORKS DR.
SUBMIT INVOICES TO NEXGEN
WATERFORD, MI 48328

SHIP TO
NORTH EAST PUMPING STATION
8598 E. STATE FAIR AVE
DETROIT, MI 48234

82912-6010101-149090-730660-5825-
CH. 21- v # 239 exp 6/30/25

10/12/2022

ATTENTION:
TERRY MOORE 313-8297207 TMOORE@METCOSERVICES.COM

CUSTOMER REF/PO #	JOB #	JOB TITLE	SLP	SHIPPING TYPE	TERMS
	0105960	NORTHEAST PUMP STATION, FIELD SERVICE, SANITARY	KES/PM	FIELD SERVICE	NET 60

QUANTITY B/O	QUANTITY Ship	PART NO.	DESCRIPTION	UNIT PRICE	EXTENDED
0.00	1.00	GRE550NORTHEASTPS	GLWA, NORTHEAST PUMP STATION KENNEDY INDUSTRIES PROVIDED (2) FIELD SERVICE TECHNICIAN(S) ONSITE ON 9/26/2022. PLEASE SEE THE ATTACHED SERVICE REPORT. THIS INVOICE REFLECTS: (6) HOURS OF LABOR. MILEAGE: $66.00 FUEL SURCHARGE: $49.50	$775.50	$775.50

TM 10-3-22

PLEASE REMIT TO:
KENNEDY INDUSTRIES, INC.
P.O. BOX 930079
WIXOM, MI 48393

SUBTOTAL:	$775.50
TAX:	$0.00
TOTAL:	$775.50

MEADOWBROOK INSURANCE AGENCY
MEMBER OF AMERITRUST GROUP

16142 Collection Center Drive
Chicago, IL 60693-0002
(877) 759-4365

Invoice # 10986	Page 1 of 1
Account Number	Date
OAKLINT-01	9/22/2022
BALANCE DUE ON	
10/30/2022	
AMOUNT PAID	Amount Due
	$51,255.00

84917 - 6010101 - 149015 - 730940 - 4724 - 1-3309 - Ch. 21 - li# 37406 exp. 6/1/26

JTB 10/12/2022

Oakland-Macomb Interceptor Drain **Drainage District (OMIDD)**
Attn: Joel Brown
Building 95 West, One Public Works Dr
Waterford, MI 48328

Project: Northeast Sewage Pump Station & North Interceptor East Arm Project

Payment Methods:

ACH/Wire Information
Bank of America
Acct Name: Meadowbrook Inc.
Acct Number: 5401978514
ACH: Acct ABA #: 071000039
Wire: Acct ABA #: 026009593

Make checks payable to:
Meadowbrook Insurance Agency

NESPS Safety Consultant & Administration Policy Number **OCIPNESPSADMIN22** Effective: **7/1/22** to **7/1/23**

Item #	Trans Eff Date	Due Date	Trans	Description	Amount
256106	9/20/2022	10/30/2022	RENB	1st of 4 Quarterly Installments	$46,410.00
268496	9/20/2022	10/30/2022	RENB	OMIDD CSC - Overtime from January 2, 2022 to July 2, 2022 (57 Hrs @ Standard Rate $85.00/Hr)	$ 4,845.00

Total Invoice Balance: **$51,255.00**

Payment due upon receipt.

METCO CONSULTING ENGINEERS
12835 Stephens Road · Warren · Michigan · 48089 · (586) 920-2620 · Fax (586) 510-4433

INVOICE NO. 1811-45 DATE: October 4, 2022

METCO PROJECT NO. 1811 INVOICE PERIOD: 8/29 thru 10/2/22

Contract ID 00000000000000000000005517

Vendor ID 0000020486

TO: OMIDD
Water Resources Commissioner
One Public Works Drive
Waterford, MI 48328
Attn: Mr. Sid Lockhart, PE
Deputy Chief Engineer/Special Projects Manager

TITLE: OMID & NESPS Operation and Maintenance

Operational Plan

OMID Operations - Fund 82912, Program 149130, Account 730373 (3.1-3.4A & 3.4B)

Name	Title	Hrs.	Rate/Hr.	Amount
Raj Vijayendran, PE	Principal Engineer	0.0	$ 215.00	$ -
Terry Moore	Operations Manager	48.0	$ 145.00	$ 6,960.00
Terry Moore	Operations Manager (Overtim	10.0	$ 195.00	$ 1,950.00
Darrin Green	Staff Engineer	48.0	$ 90.00	$ 4,320.00
Darrin Green	Staff Engineer-(Overtime)	10.5	$ 135.00	$ 1,417.50
Anthony Vozza	Staff Engineer	68.0	$ 90.00	$ 6,120.00
Anthony Vozza	Staff Engineer-(Overtime)	10.0	$ 135.00	$ 1,350.00
Rosana Santos	Administrative Assoc.	0.0	$ 73.79	$ -
		Subtotal OMID Operatons:		**$ 22,117.50**

681.5

JTB 10/12/2022

NEPS Operations - Fund 82912, Program 149090, Account 730373 (3.1-3.4A & 3.4B)

Name	Title	Hrs.	Rate/Hr.	Amount
Raj Vijayendran, PE	Principal Engineer	8.0	$ 215.00	$ 1,720.00
Terry Moore	Operations Manager	48.0	$ 145.00	$ 6,960.00
Terry Moore	Operations Manager (Overtim	11.0	$ 195.00	$ 2,145.00
Darrin Green	Staff Engineer	48.0	$ 90.00	$ 4,320.00
Darrin Green	Staff Engineer-(Overtime)	7.0	$ 135.00	$ 945.00
Anthony Vozza	Staff Engineer	0.0	$ 90.00	$ -
Anthony Vozza	Staff Engineer-(Overtime)	0.0	$ 135.00	$ -
Rosana Santos	Administrative Assoc.	4.0	$ 73.79	$ 295.16
		Subtotal NEPS Operations		**$ 16,385.16**
		Subtotal Operations		**$ 38,502.66**

JTB 10/12/2022

Maintenance & Asset Management

OMID Maintenance – Fund 82912, Program 149130, Account 730646 (3.2-3.3-3.4C & ALLOWANCE)

Name	Title	Hrs.	Rate/Hr.	Amount
Terry Moore	Operations Manager	48.0	$ 145.00	$ 6,960.00
Terry Moore	Operations Manager (Overtim	0.0	$ 195.00	$ -
Anthony Vozza	Staff Engineer	0.0	$ 90.00	$ -
Darrin Green	Staff Engineer	0.0	$ 90.00	$ -
		Subtotal OMID Maintenance:		**$ 6,960.00**

JTB 10/12/2022

NEPS Maintenance – Fund 82912, Program 149090, Account 730646 (3.2-3.3-3.4C & ALLOWANCE)

Name	Title	Hrs.	Rate/Hr.	Amount
Raj Vijayendran, PE	Principal Engineer	8.0	$ 215.00	$ 1,720.00
Terry Moore	Operations Manager	48.0	$ 145.00	$ 6,960.00
Terry Moore	Operations Manager (Overtim	1.0	$ 195.00	$ 195.00
Daniel Martel	Sr. Project Coordinator	0.0	$ 145.00	$ -
Sean Grant	Sr. Project Engineer	0.0	$ 145.00	$ -

Travis Ford	Sr. Project Engineer	0.0	$ 145.00	$	-
Shailesh Patel	Sr. Project Engineer	0.0	$ 145.00	$	-
Darrin Green	Staff Engineer	48.0	$ 90.00	$	4,320.00
Darrin Green	Staff Engineer-(Overtime)	0.0	$ 135.00	$	-
Anthony Vozza	Staff Engineer	68.0	$ 90.00	$	6,120.00
Anthony Vozza	Staff Engineer-(Overtime)	3.0	$ 135.00	$	405.00
Brandon Brochue	Designer/Drafter	0.0	$ 85.00	$	-
			Subtotal:	**$**	**19,720.00**
			Maintenance Services (see attached invoices):	**$**	**1,842.68**
			Subtotal NEPS Maintenance:	**$**	**21,562.68**
			Subtotal Maintenance:	**$**	**28,522.68**

JTB 10/12/2022

NEXGEN Asset Management Implementation Services – Fund 82912, Program 149090, Account 730646

Name	Title	Hrs.	Rate/Hr.	Amount
Raj Vijayendran, PE	Principal Engineer	0.0	$ 215.00	$ -
Terry Moore	Operations Manager	0.0	$ 145.00	$ -
Terry Moore	Operations Manager (Overtim	0.0	$ 195.00	$ -
Sean Grant	Sr. Project Engineer	13.0	$ 145.00	$ 1,885.00
Darrin Green	Staff Engineer	0.0	$ 90.00	$ -
Darrin Green	Staff Engineer-(Overtime)	0.0	$ 135.00	$ -
Anthony Vozza	Staff Engineer	0.0	$ 90.00	$ -
Abhishek Shah	Staff Engineer	131.0	$ 90.00	$ 11,790.00
Brandon Brochue	Designer/Drafter	0.0	$ 85.00	$ -
		Subtotal Maintenance:	**$**	**13,675.00**

JTB 10/12/2022

Task 12.0 - As-Needed Services

Additional General/Excess Liability Insurance Fee:	**$**	**-**
Subtotal 12.0:	**$**	**-**
TOTAL AMOUNT DUE THIS INVOICE:	**$**	**80,700.34**

MOTOR CITY ELECTRIC TECHNOLOGIES INC.
AUTOMATION AND CONTROLS SOLUTIONS
9440 GRINNELL
DETROIT, MI 48213-1151
PHONE (313) 921-5300 FAX (313) 921-5310
"AN EQUAL OPPORTUNITY EMPLOYER"

INVOICE

OMID
ONE PUBLIC WORKS DRIVE, BUILDING 95
WATERFORD, MI 48328-

SID LOCKHART

Customer PO Number

Job Number	Sub Job	Contract Number	Date Performed	Application Date	Application Number
922567	0	001	8/10/2022	9/8/2022	94693

Item No	Description of Work	Contract Amount	Previous Billings	Current Amount	To Date Complete & Stored	Balance To Finish	Current Retainage
001	NESP SCADA CUTOVER	$151.59		$151.59	$151.59		
	Totals:	**$151.59**		**$151.59**	**$151.59**		
	Less Retained:						
	Invoice Total:			**$151.59**			

AS NEEDED ELECTRICAL AND ENGINEERING SERVICE

SEE ATTACHED INVOICE SUMMARY AND FIELD REPORT

TM 9-12-22

WORK ORDER #00690 - WORK PERFORMED 8/10/2022

82912 - 6010101 - 149090- 730660 - 5469 - Ch. 21 - v# 7755 - li# 41132 - exp. 12/31/23

10/12/2022

complete electrical construction

"We herby certify that the articles and services covered by this invoice were produced and performed in compliance with all applicable requirements of Section 6, 7 and 12 of the Fair Labor Standards Act, as amended, and of regulations and orders of the United States Department of Labor issued under Section 14 thereof."

NTH Consultants, Ltd.
Infrastructure Engineering
and Environmental Services

84917 -6010101 -149015 -731444 - 2603 -1-3308- ch 21
v#4716 - li#24138 - exp. 12/31/23

JTB 10/12/2022

OMI Drain Drainage District
One Public Works Drive
Building 95 West
Waterford, MI 48328

Invoice # : 630771
Project : 61-200186
Invoice Group : **
Invoice Date : 10/5/2022

Attentior Sid Lockhart

For Professional Services Rendered from **8/27/2022 - 9/23/2022**

Provide Engineering Services for OMID NI-EA Contract No.1 PCI-4 Rehabilitation Project and CS-9 Gate Installation Project D-425

Task 01	**NI-EA OMID Contract No. 1 CCA**	**$2,262,847.00**
Task 02	**OMID CS-9 Gate CCA**	**$217,468.00**
	Preliminary Budget Amount	**$2,480,315.00**
	Percent Complete:	69.97%

Analysis of Costs		**This Invoice**	**Cumulative**
Direct Salaries		$ 19,227.95	$ 353,521.67
Overhead %	188.00	36,148.55	664,620.75
Total Regular Labor Expense		55,376.50	1,018,142.42
Total Direct Labor		55,376.50	1,018,142.42
Profit / Fixed Fee %	12.00	6,645.18	122,177.12
Direct Expenses Charge		2,268.86	22,884.88
Expense Multiplier %	5.00	113.44	1,144.24
Direct Subcontractor Charge		5,780.62	538,797.09
Subcontractor/Subconsultant Multiplier %	6.00	346.84	32,327.89
Direct Unit Rate Charge		0.00	0.00
Total Other Direct Charges Reimbursables		8,509.76	595,154.10
Total Costs:		**70,531.44**	**1,735,473.64**
Total Due This Invoice		**$ 70,531.44**	**$ 1,735,473.64**

NTH Consultants, Ltd.
Infrastructure Engineering
and Environmental Services

84917- 6010101 - 149015 - 731458 - 2603 - 1-3309-
ch 21 - engcon v#4716 - li#24138 - exp. 12/31/23

OMI Drain Drainage District
One Public Works Drive
Building 95 West
Waterford, MI 48328

10/12/2022

Invoice # : 630774
Project : 61-200280
Invoice Group : CMT
Invoice Date : 10/5/2022

Attentior Sid Lockhart

For Professional Services Rendered from **8/27/2022 - 9/23/2022**

Provide Engineering and Consulting Services regarding NESPS Pumping and Electrical System Upgrade (D-421)

Task 01	**CMT Services**	**$130,138.00**
Task 02	**Tnemec Coating Observation**	**$0.00**
	Preliminary Budget Amount	**$130,138.00**
	Percent Complete:	88.80%

Analysis of Costs		**This Invoice**	**Cumulative**
Direct Salaries		$ 606.22	$ 30,759.47
Overhead %	188.00	1,139.69	57,827.83
Total Regular Labor Expense		1,745.91	88,587.30
Total Direct Labor		**1,745.91**	88,587.30
Profit / Fixed Fee %	12.00	**209.51**	10,630.48
Direct Expenses Charge		267.62	15,557.79
Expense Multiplier %	5.00	13.38	777.89
Direct Subcontractor Charge		0.00	10.00
Subcontractor/Subconsultant Multiplier %	6.00	0.00	0.60
Direct Unit Rate Charge		0.00	0.00
Total Other Direct Charges Reimbursables		**281.00**	16,346.28
Total Costs:		**2,236.42**	**115,564.06**
Total Due This Invoice		**$ 2,236.42**	**$ 115,564.05**

NTH Consultants, Ltd.
Infrastructure Engineering
and Environmental Services

OMI Drain Drainage District
One Public Works Drive
Building 95 West
Waterford, MI 48328

Invoice # : 630775
Project : 61210495
Invoice Group :
Invoice Date : 10/5/2022

Attentior Sid Lockhart

For Professional Services Rendered from **8/27/2022 - 9/23/2022**

Authorization per Engineering Work Order D 439 date 12/03/2021
82912-149662-730639-Cont#1-2603 Exp (12/31/21-Rev)
82912- 6010101- 149662-730639- 2603 - Ch.21 - v# 4716 - li #24138 - exp. 12/31/23

10/12/2022

Additional OMID NESPS Maintenance Engineering Services

Task 01	**NESPS Health and Safety Audit**	**$16,137.00**
Task 02	**Control Structure 6 (CS-6) Emergency Bypass System Design**	**$39,643.00**
Task 03	**Wet Wall Screen Cleaning Equipment**	**$17,069.00**
Task 04	**Control Structure Gate Inspection**	**$10,022.00**

Preliminary Budget Amount		**$82,871.00**
Percent Complete:		72.91%

Analysis of Costs		**This Invoice**	**Cumulative**
Direct Salaries		$ 251.46	$ 14,108.86
Overhead %	188.00	472.74	26,524.65
Total Regular Labor Expense		724.20	40,633.51
Total Direct Labor		**724.20**	40,633.51
Profit / Fixed Fee %	12.00	**86.90**	4,876.02
Direct Expenses Charge		8.57	334.22
Expense Multiplier %	5.00	0.43	16.72
Direct Subcontractor Charge		0.00	13,738.10
Subcontractor/Subconsultant Multiplier %	6.00	0.00	824.29
Total Other Direct Charges Reimbursables		**9.00**	**14,913.33**
Total Costs:		**820.10**	**60,422.86**
Total Due This Invoice		**$ 820.10**	**$ 60,422.86**

NTH Consultants, Ltd.
Infrastructure Engineering
and Environmental Services

84917 - 6010101 - 149015 - 730639 - 2603 - 1-3308 - Ch.21 v#4716 - li#24138 - exp. 12/31/23

10/12/2022

OMI Drain Drainage District
One Public Works Drive
Building 95 West
Waterford, MI 48328

Invoice # : 630787
Project : 61-190078
Invoice Group : NI-EA
Invoice Date : 10/5/2022

Attention: Sid Lockhart

For Professional Services Rendered from **8/27/2022** - **9/23/2022**

Engineering Design Services for Rehabilitation of NI-EA Sections PCI-4

Task 01	**Project Management**	**$276,159.00**
Task 02	**Condition Assessment**	**$241,609.00**
Task 03	**Subsurface Utility Engineering**	**$65,579.00**
Task 04	**Basemap Survey**	**$89,327.00**
Task 05	**Geotechnical Investigation**	**$134,797.00**
Task 05A	**7-Mile Utility Exploration/Design**	**$0.00**
Task 05B	**Additional Geotech for PCI-4 Shaft**	**$0.00**
Task 06	**Environmental Study**	**$60,642.00**
Task 07	**Basis of Design**	**$379,785.00**
Task 08	**Rehabilitation Design**	**$282,099.00**
Task 09	**Contract Drawings**	**$235,070.00**
Task 10	**Contract Specifications**	**$188,178.00**
Task 11	**Construction Costs**	**$27,761.00**
Task 12	**Permits & Coordination**	**$25,655.00**
Task 13	**Bidding Assistance**	**$198,402.00**
Task 14	**Gate Automation**	**$68,770.00**
Task 15	**Odor & Air Flow Study**	**$103,470.00**
	Preliminary Budget Amount	**$2,377,303.00**
	Percent Complete:	93.67%

Analysis of Costs		**This Invoice**	**Cumulative**
Direct Salaries		$ 638.24	$ 312,702.58
Overhead %	188.00	1,199.89	587,880.87
Total Regular Labor Expense		1,838.13	900,583.45
Total Direct Labor		1,838.13	900,770.02
Profit / Fixed Fee %	12.00	220.58	108,070.00
Direct Expenses Charge		0.00	27,671.41
Expense Multiplier %	5.00	0.00	1,383.61
Direct Subcontractor Charge		20,787.84	1,121,837.59
Subcontractor/Subconsultant Multiplier %	6.00	1,247.27	67,310.41
Total Other Direct Charges Reimbursables		22,035.11	1,218,203.02
Total Costs:		**24,093.82**	**2,226,856.47**
Total Due This Invoice		**$ 24,093.82**	**$ 2,226,856.47**

PM Technologies
28294 Beck Road, Wixom, Michigan 48393 United States
(248) 374-6405

BILL TO
County Of Oakland
A Michigan Constitional Corp
Detroit, MI 48234 USA

82912-6010101-149090-730660-5821 - CH. 21

10/12/2022

INVOICE	INVOICE DATE
0000168014	Jun 24, 2022

JOB ADDRESS
Northeast Sewage Pumping Station - Generator 1
11001 East State Fair Avenue
Detroit, MI 48234 USA

Completed Date: 6/24/2022
Payment Term: NET 10 DAYS
Due Date: 7/4/2022

TM 10-3-22

DESCRIPTION OF WORK

MicroGenius 300 Batt Charger Output - 10A @ 24Vdc & 12A @ 12 NFPA-10, NFPA-110 SENS ADAPTOR PLACTE FC TO MG2

TASK	DESCRIPTION	QTY	PRICE	TOTAL
Imported Default Service	DESC: Quote # 165123	0.00	$0.00	$0.00
Imported Default Service	QUOTED SERVICE: PM Technologies is pleased to offer this repair quote to address the following issues found after a complete inspection of the emergency back up power generator and transfer switches.	1.00	$0.00	$0.00
Imported Default Service	DESC: No Item Description	1.00	$0.00	$0.00
Imported Default Service	DESC: Service visit 3-11-22 (Dustin) Found battery charger circuit board has signs of corrosion build up and showing signs of wear and tear. Recommend replacement of battery charger to avoid future charging issues.	1.00	$0.00	$0.00
Imported Default Service	DESC: No Item Description	1.00	$0.00	$0.00
Imported Default Service	M3-22-1210-E: MicroGenius 300 Batt Charger Output - 10A @ 24Vdc & 12A @ 12 NFPA-10, NFPA-110	1.00	$1,060.22	$1,060.22

Imported Default Service	209194: SENS ADAPTOR PLACTE FC TO MG2	1.00	$96.42	$96.42
Imported Default Service	SHOPSURCHARGE: Shop Surcharge	1.00	$25.68	$25.68
Imported Default Service	QLAB: Technician labor.	1.00	$513.50	$513.50
Imported Default Service	SHIPPING: Shipping Charges	1.00	$60.00	$60.00
Imported Default Service	DESC: No Item Description	1.00	$0.00	$0.00
Imported Default Service	MM-APPROVAL: Please sign and return by e-mail; estimate@pmtech.org, or fax 248-374-6402. For questions regarding this estimate please call Mark Melendez, 248-773-4911	1.00	$0.00	$0.00
Imported Default Service	DESC: No Item Description	1.00	$0.00	$0.00
Imported Default Service	DISCLAIMER: PM Technologies' proposal is limited to the scope of services described above and specifically excludes other work not described herein. Services will be performed in accordance with a purchase order referencing this proposal. - This proposal will remain valid for 30 days from the proposal date. - Any alteration or deviation from the above services involving additional labor and or parts will be executed only upon receiving written authorization and will be charged in addition to the pricing detailed above. - Normal business hours are 8:00 AM – 4:00 PM, work performed outside normal business hours will be charged at over time rates. - Returned parts will be charged a minimum restocking fee of 25%, parts held for longer than 60 days are not returnable and must be paid in full. Electrical components are not eligible for return. Please feel free to contact us at your convenience should you have any comments, questions or concerns regarding our proposal.	1.00	$0.00	$0.00
Imported Default Service	DESC: No Item Description	0.00	$0.00	$0.00
Imported Default Service	DESC: 6/7/22	0.00	$0.00	$0.00

SUB-TOTAL	$1,755.82
TOTAL DUE	$1,755.82
BALANCE DUE	**$1,755.82**

Thank you for choosing PM Technologies

CUSTOMER AUTHORIZATION

This invoice is agreed and acknowledged. Payment is due upon receipt. A service fee will be charged for any returned checks, and a financing charge of 1% per month shall be applied for overdue amounts.

Sign here Date

CUSTOMER ACKNOWLEDGEMENT

I find and agree that all work performed by PM Technologies has been completed in a satisfactory and workmanlike manner. I have been given the opportunity to address concerns and/or discrepancies in the work provided, and I either have no such concerns or have found no discrepancies or they have been addressed to my satisfaction. My signature here signifies my full and final acceptance of all work performed by the contractor.

Sign here Date

PMA Consultants
Est. 1971
226 W. Liberty Street ▪ Ann Arbor, MI 48104
Tel: 734.769.0530 ▪ Fax: 734.663.9561

Oakland County Water Resourses Commissioner
Attn: Sid Lockhard, P.E.
One Public Works Drive
Building 95-West
Waterford 48328

September 20, 2022
Invoice No: 03559.01 - 27

84917 - 6010101 - 149015 - 731458- 6096- 1-3308 - ch21 - engcon - v#16918 - exp. 5/29/23

10/12/2022

Project 03559.01 Oakland-Macomb Interceptor Drainage 2020

Professional Services from August 1, 2022 to August 31, 2022

Professional Personnel

		Hours	Rate	Amount	
Zann, John		76.00	94.00	7,144.00	
	Totals	76.00		7,144.00	
	Total Labor				**7,144.00**

Additional Fees

Overhead	149.10 % of 7,144.00		10,651.70	
Profit	10.00 % of 17,795.70		1,779.57	
Total Additional Fees			**12,431.27**	**12,431.27**

Billing Limits	**Current**	**Prior**	**To-Date**	
Total Billings	19,575.27	271,220.58	290,795.85	
Limit			450,000.00	
Remaining			159,204.15	
		Total this Invoice		**$19,575.27**

Please remit payment to PMA CONSULTANTS LLC, PO BOX 675234, DETROIT, MI 48267-5234. Please direct any questions regarding this invoice to Samantha Zeisler, Project Administrator, at 734-418-7897 or szeisler@pmaconsultants.com

Agenda Item No. 13

Other Business

Agenda Item No. 14

Adjourn