Wayne County Rouge Valley Sewage Disposal System

September 29, 2016 Wet Weather Mobilization
Long Term Corrective Action Plan – Phase 1 (Task M)

Draft

October 27, 2016

Prepared by:
OHM Advisors
34000 Plymouth Road
Livonia, MI 48150

Rouge Valley Sewage Disposal System
Phase 1: Wet Weather Mobilization
October 27, 2016

Introduction

Wayne County is in the process of implementing a Long Term Corrective Action Plan (LTCAP) to satisfy the terms of its ACO, which require the analysis and capital improvements along the Rouge Valley Sewage Disposal System (RVSDS) interceptor system. Wayne County has been diligently working since 2012 to develop the LTCAP. A two phase strategy is in place to meet the requirements of the FOA 2117. Phase 1 is to address existing sanitary sewer overflow (SSO) problems in the Middle Lower Rouge. As part of that effort, OHM Advisors is working to improve management and knowledge of the RVSDS service area by observing manholes and junctions after storm events.

Visual inspection of the RVSDS during wet weather events will help to confirm what is happening at key locations where system-critical hydrologic and hydraulic dynamics are anticipated. This will also help increase confidence in the hydrologic/hydraulic model.

The Wet Weather Monitoring Team has been in effect since May 1, 2016 and consist of six people, two from each of the three consultants under contract for this program (OHM, ASI, and Wade Trim). OHM maintains the team list and is responsible for emailing and texting the mobilization orders.

Response Protocol

Mobilizations are only anticipated during an event that will exceed the threshold of an annual (i.e. 1-year) event. Mobilizations will only occur when the rainfall appears to be falling in a relatively uniform and widespread pattern over the RVSDS service area. The response from convective thunderstorms over small portions of the service area will not be observed.

OHM Advisors monitors rainfall precipitation forecasts from the National Weather Service's Weather Prediction Center. The weather is daily monitored for precipitation prediction for the next two (2) to three (3) days. If more than one inch of rainfall is predicted for any single 24-hour period, a WET WEATHER WATCH is issued to the team. This alerts the primary and backup team members that a wet weather mobilization may be necessary within the next day or two and to be ready for additional instructions.

When wet weather is imminent, OHM monitors radar based rainfall depth estimates produced by the approaching storm. The total storm rainfall depth estimates from the National Weather Service Enhanced Radar Image is used for this task. If the radar estimates indicate at least one inch of rainfall is imminent and is tracking towards the RVSDS service area, a WET WEATHER ALERT will be issued to the team. At this point, the team members will be on standby and will be available to mobilize if given a follow up order.

As rainfall occurs over the RVSDS service area, the RVSDS Interceptors take several hours for the precipitation to have a full impact on flows and flow depths. As such, there will be adequate time to review the hydrologic response in the Middle and Lower Branches of the Rouge River and use that information to determine if a mobilization is necessary. OHM Advisors will review the USGS Streamflow data for the following gages:

- USGS 04167000 (Middle Rouge at Garden City)
- USGS 04168000 (Lower Rouge at Inkster)
- USGS 04167150 (Middle Rouge at Dearborn Heights)

The gage height and flow data will be closely tracked during a wet weather alert. If the gage heights are trending towards depths exceeding 9 to 10 feet for the three referenced USGS gages, OHM Advisors will issue a MOBILIZATION ORDER.

Mobilization Locations

The mobilization assignments for the project team currently under contract with Wayne County are as following:

- Wade Trim: Lift Station 1A (including the Master Control, JC 2-08 and JC 1-18A), RVI 13-23 and RVI 13-22
- ASI: GLWA hydraulic conditions at key locations/facilities, such as the Hubbell-Southfield CSO regulator and RTB and other accessible junctions (i.e. junction with stop logs at NWI/RVI crossing) that would impact the RVSDS including the Area 13 local sewer reaches in Dearborn Heights
- OHM: Middle Rouge Interceptor, including Inkster Arm and key structures primarily downstream of Middlebelt Road, including the Lefler-Ready Relief, Lefler Ready, and Red Run, downstream to, but not including JC 2-08. Specific structures include:
    - M-22, M-21, M-20, JC 3-16, MH 3-24 (MRPIE)
    - SA09NW048 (Dearborn Heights Sewer)

The team will measure rim to invert and water depth at each structure and note of any SSOs. Additionally, photographs and videos will be collected at each facility inspection, including, if appropriate, hand sketches to illustrate the operation of the inspected component.

Mobilization Order

A Wet Weather mobilization order was issued on September 29, 2016 at 11 AM. The maximum gage height for the three USGS Gages between 12 PM, September 29th and Midnight, September 30th were:

- USGS 04167000 (Middle Rouge at Garden City)-8.15 feet
- USGS 04168000 (Lower Rouge at Inkster)-10.2 feet
- USGS 04167150 (Middle Rouge at Dearborn Heights)-8.2 feet

According to the NOAA National Weather Service Forecast, the total amount of rainfall at the Detroit Metropolitan Airport on September 29th was 2.87 inches.

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The team visited their respected structures where they took pictures and measurements. Table 1 lists all measurements and observations at each structure. Appendix A provides all pictures of the September 29th mobilization order.

On average, the structures fared well through the storm. Only four structures were found to have evidence of an SSO, and structures, MR III-16 and JC 1-18A, were still submerged under water during the mobilization. Near MR III-16, a structure was found. This structure was also submerged. After the storm, field staff returned to the site and identified the structure as a catch basin. The coordinates will be provided to Wayne County for their GIS database. At M-20, the cover stayed in place during the storm; however, there was a significant amount of inflow due to the poor condition of the junction chamber.



Figure 1: The found structure near MR III-16

Table 1: Measurements and Observations For September 29th

Time	Consultant	Structure Id	Rim to Invert (ft)	Top of Water to Rim (ft)	Water Depth (ft)	Evidence of SSO	Submerged	Note
	Wade Trim	L-34	9	8.1	0.9	No	No	north side of river
		Siphon MH 2-7	21	10.9	10.1	No	No	south of river
		Siphon MH 2-6	18.1	10.9	7.2	No	No	south of river
		RVI 13-23	9.2	-	-	No	No	
		RVI 13-22	11.8	-	-	No	No	
		JC 2-8	13.4			No	No	
		JC 1	14.3			No	Yes	Surface flooding over structure
11:06 AM; 12:15 PM	ASI	RVI 2-S1C	-	5.1;6.6	-	No	No	
11:50 AM; 12:41 PM		WC S-2	-	32;32	-	No	No	
11:36 AM; 12:52 PM		WC S-3	-	14.1;17.1	-	No	No	
11:24 AM; 12:30 PM		Gate VR-8	-	15.1;15.6	-	No	No	
11:30 AM	OHM	M-22B	15.9	14.7	1.2	No	No	
		M-22C	-	-	-	No	No	Metered
		M-22D	16.1	8.6	7.5	No	No	
11:45 AM		MR III-16	-	-	-	No	Yes	Surface flooding over structure (0.4 ft above rim)
12:00 PM		M-20A	6	To Rim	6	Yes	No	
		M-20B	8.9	To Rim	8.9	Yes	No	
		M-20C	8.9	To Rim	8.9	Yes	No	
		M-20D	-	-	-	Yes	No	
12:30 PM		M-21	9.7	7.6	2.1	No	No	
1:00 PM		SA09NW048	-	-	-	No	No	Structure 5ft above ground.

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Recommendations

It is recommended that Wayne County address the structure condition at M-20 during Phase 1 of the LTCAP. The suggested approach for M-20 would be to rebuild the entire structure and approve M-20 as a planned overflow location. The chamber is currently in the 1 –year floodplain and in poor condition. It would be ideal to raise the of the structure approximately 2 feet. However, it will need to be determined whether the structure can be raised without negatively impacting upstream properties, i.e. basement backups due to additional wet weather surcharging. Additionally, instead of using a standard manhole cover, use a cast-in place access hatch with spring-loaded hinges to allow for overflows while closing and sealing after surcharge to prevent river inflow.

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Appendix A: Mobilization Photographs


MR-III-16


Found structure location




M-20


M-20


JC 1


master control


JC 2-8


JC 1




MH 2-6


MH 2-7


MH 2-6


vent stack


vent stack


JC 2-8




Wayne Interceptor Siphon


CSO 53 L-34




CSO 53 L-34


CSO 53 L-34


Wayne Interceptor Siphon


CSO 53 L-34


CSO 53 L-34


RVI-13-23


RVI-13-22

Wayne County Rouge Valley Sewage Disposal System

March 31, 2017 Wet Weather Mobilization
Long Term Corrective Action Plan – Phase 1 (Task M)

Draft

May 8, 2017

Prepared by:
OHM Advisors
34000 Plymouth Road
Livonia, MI 48150

Rouge Valley Sewage Disposal System
Phase 1: Wet Weather Mobilization
March 31, 2017

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- USGS 04167000 (Middle Rouge at Garden City)
- USGS 04167150 (Middle Rouge at Dearborn Heights)

The USGS 04168000 (Lower Rouge at Inkster) was discontinued on September 30, 2016, so was not reviewed during the March 31 mobilization. The gage height and flow data will be closely tracked during a wet weather alert. If the gage heights are trending towards depths exceeding 9 to 10 feet for the three referenced USGS gages, OHM Advisors will issue a MOBILIZATION ORDER.

Mobilization Locations

The mobilization assignments for the project team currently under contract with Wayne County are as following:

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    - M-22, M-21, M-20, JC 3-16, MH 3-24 (MRPIE)
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The team will measure rim to invert and water depth at each structure and note of any SSOs. Additionally, photographs and videos will be collected at each facility inspection, including, if appropriate, hand sketches to illustrate the operation of the inspected component.

Mobilization Order

A Wet Weather mobilization order was issued on March 31, 2017 at 1:30 PM. The maximum gage height for the two USGS Gages between 8 AM and 9 PM on March 31th were:

- USGS 04167000 (Middle Rouge at Garden City)-8.7 feet
- USGS 04167150 (Middle Rouge at Dearborn Heights)-9.6 feet

According to the NOAA National Weather Service Forecast, the total amount of rainfall at the Detroit Metropolitan Airport on March 30th was 1.97 inches.

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The team visited their respected structures where they took pictures and made observation. Table 1 lists summarizes all observations at each structure. Appendix A provides all pictures of the March 31th mobilization order.

Hines Drive flooded significantly which made it difficult to make field observations and measures during the mobilization. Sixteen manholes were submerged during the mobilization. Figure 1 illustrates the amount of flooding that occurred during the storm event. Due to the significant amount of flooding, many structures had to be revisited at a later date. On average, the structures fared well through the storm. Two manholes had signs of overflow, M-20 and RVI 13-23, and ten structures were found to have evidence of surcharge. At M-20, one of the castings was blown off of the structure, illustrated in Figure 2. The manhole was reset, but it is not anchored. It is sitting on the plate with no means in place to anchor it down. Due to the poor condition of the structure and the significant amount of river-dependent inflow, this structure should be a top priority during the RVSDS Asset Management Plan.



Figure 1: Warren Valley Golf Course



Figure 2: M-20 after the storm event

Table 1: Measurements and Observations for March 31, 2017

Structure ID	Surcharged	Evidence of SSO	Submerged
RVI 12-17	Yes	No	No
WC-07	Yes	No	No
RVI 12-18	No	No	No
Meter P-29 Manhole	Yes	No	No
RVI 12-18A	No	No	No
WC-09	Yes	No	No
SA10SE014	No	No	No
SA10SE013	No	No	No
SA10SW041	No	No	No
INK-30	Yes	No	No
SA09NW049	Yes	No	No
MR VI-02	No	No	Yes
LVI 1-16	No	No	Yes
M-20	Yes	Yes	Yes
6L-02	No	No	Yes
NHV 6-55	No	No	Yes
M-21	No	No	Yes
SA05SW011	No	No	Yes
SA06SE038	No	No	Yes
MR II-10G	No	No	Yes
SA06SE032	No	No	Yes
MR II-14	No	No	Yes
Regulator M-23	No	No	Yes
Regulator M-25	No	No	No
Regulator M-22	No	No	Yes
Regulator L-34	Yes	No	No
JC 2-08	No	No	No
JC-1	No	No	Yes
Siphon between MH 2-6 and 2-7	Yes	No	No
LS1A	No	No	No
CSO 53 (L-34)	Yes	No	No
RVI 13-23	No	Yes	Yes
RVI 13-22	Yes	No	Yes

Draft

Appendix A: Field Notes

Draft

Applied Science, Inc.

FIELD REPORT

PROJECT NAME	RVSDS Long Term Corrective Action Plan	PROJECT NO.	1315
PROJECT LOCATION	Dearborn Heights | Garden City | Redford Township | City of Wayne | Livonia	DATE	Varies, see below
CLIENT	OHM Advisors	WEATHER	Drizzle, 41°F
CLIENT'S REPRESENTATIVE(S)	Greg Kacvinsky, Nancy Russell	PAGE	1 of 24
CONTRACTOR	N/A	REPORT NO.	1
CONTRACTOR'S REPRESENTATIVE(S)	N/A	TIME ON SITE	Varies, see below

Objective: Inspect various manholes and overflow structures throughout the RVSDS for signs of sanitary sewage overflow. All coordinates approximate.

Personnel: Tim Minor (ASI), Paul Szlaga (ASI), and Dane Wiebe (ASI)

Visitors: None

Equipment: Camera, manhole hook, lug wrench, flash light.

Thursday, March 30, 2017 - Tim

10:20 pm | Arrived at Location U, the following observations were made:

- Manhole RVI 12-17 [RVSDS GIS Facility ID: RVI 12-17, 83°18'55.705"W, 42°24'17.71"N] and adjacent Livonia manhole [RVSDS GIS Facility ID: WC-07, 83°18'55.498"W, 42°24'17.683"N], sanitary trash between rim and cover of both **{Photos 1&2}**.
- Manhole RVI 12-18 [RVSDS GIS Facility ID: RVI 12-18, 83°18'56.861"W, 42°24'20.178"N] and adjacent Livonia manhole [RVSDS GIS Facility ID: WC-08, 83°18'56.67"W, 42°24'20.189"N], no sanitary trash noted.
- Meter P-29 manhole [*not mapped*, 83°18'57.256"W, 42°24'23.919"N], sanitary trash between rim and cover, experiencing surcharged conditions only inches below grade elevation **{Photo 3}**.
- RVI 12 West Siphon Chamber [RVSDS GIS Facility ID: RVI 12-18A, 83°18'57.282"W, 42°24'24.093"N], no sanitary trash noted, and adjacent Livonia siphon chamber [RVSDS GIS Facility ID: WC-09, 83°18'57.057"W, 42°24'24.026"N], sanitary trash between rim and cover **{Photo 4}**.
- Evidence of emergency pumping activities by City of Livonia on north bank of river **{Photo 5}**.

Friday, March 31, 2017 – Paul and Dane

11:32 am | Arrived at Locations R and S [Dearborn Heights GIS Asset ID: SA10SE014, 83°14'33.12"W, 42°20'0.892"N] & [Dearborn Heights GIS Asset ID: SA10SE013, 83°14'33.864"W, 42°20'0.307"N], both manholes were securely bolted down with no signs of overflow. Did not attempt to open.

11:38 am | Arrived at Location T [Dearborn Heights GIS Asset ID: SA10SW041, 83°14'46.792"W, 42°20'8.851"N], flow within 15" pipe, surcharging adjacent 21" pipe **{Photo 6}**, no signs of overflow. Checked first and second manholes upstream and downstream, no signs of overflow. Third, fourth, and fifth manholes downstream of Location L were inaccessible due to the flood waters though still observed to have lids above the water level **{Photo 7}**.

Report Prepared by: Paul Szlaga

Reviewed By:

Applied Science, Inc.

FIELD REPORT

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CLIENT	OHM Advisors	WEATHER	Drizzle, 41°F
CLIENT'S REPRESENTATIVE(S)	Greg Kacvinsky, Nancy Russell	PAGE	2 of 24
CONTRACTOR	N/A	REPORT NO.	1
CONTRACTOR'S REPRESENTATIVE(S)	N/A	TIME ON SITE	Varies, see below

12:06 pm | Arrived at Location P (former Wayne County Regulator 9 [RVSDS GIS Facility ID: INK-30, 83°15'32.31"W, 42°20'4.72"N]). Surcharged conditions observed at upstream structure adjacent to defunct pump station. No signs of overflow. Turbulent flow conditions through Location P observed. Observed large gushes of air periodically bubbling up in river on upstream side of outfall headwall.

12:31 pm | Arrived at Location O [Dearborn Heights GIS Asset ID: SA09NW049, 83°15'47.549"W, 42°20'4.288"N]. Could not find manhole. Found next downstream manhole in the side yard of 6389 Martha and observed surcharged conditions **{Photo 8}**, no signs of overflow.

12:52 pm | Arrived at Location W [RVSDS GIS Facility ID: MR VI-02, 83°16'49.458"W, 42°23'44.274"N]. Manhole was submerged by river **{Photo 9}**.

1:01 pm | Stopped at hill near Graham Road and Lennane [83°17'21.917"W, 42°23'47.506"N] to photograph extent of river flooding.

1:08 pm | Arrived at Location V [RVSDS GIS Facility ID: LVI 1-16, 83°17'9.206"W, 42°24'0.947"N]. Manhole was submerged by river **{Photo 10}**. Next two manholes downstream in shoulder of Five Mile Road were inspected and observed to be experiencing surcharged conditions, no signs of overflow.

1:32 pm | Arrived at Locations D & E (former Wayne County Regulator M-20 [RVSDS GIS Facility ID: 5L-04, 83°19'54.916"W, 42°20'35.992"N]). Structure was submerged by river **{Photo 11}**.

1:42 pm | Arrived at Perrin Recreation Area for Locations C, F, and H. Location F [RVSDS GIS Facility ID: 6L-02, 83°18'54.89"W, 42°21'0.471"N] was submerged by river **{Photo 12}**, and Locations C [RVSDS GIS Facility ID: NHV 6-55, 83°19'2.345"W, 42°20'53.027"N] and H (Regulator M-21 [*not mapped*, 83°18'51.252"W, 42°20'57.356"N]) could not be approached due to flood waters.

2:07 pm | Stopped at new vent structure installed at Junction Chamber 3-16 [RVSDS GIS Facility ID: NHV3-16, 83°17'33.583"W, 42°20'49.438"N], this structure was observed to be a few feet above the flood level, did not attempt to open. Could not approach Location N [Dearborn Heights GIS Asset ID: SA05SW011, 83°17'25.923"W, 42°20'49.807"N] due to flood waters.

2:10 pm | Arrived at Warren Valley Golf Course to observe flooding. Location M [Dearborn Heights GIS Asset ID: SA06SE038, 83°17'53.039"W, 42°20'35.063"N] was found to be submerged by river **{Photo 13}**, Locations L [Dearborn Heights GIS Asset ID: MRII-10G, 83°17'47.982"W, 42°20'38.242"N], K [Dearborn Heights GIS Asset ID: SA06SE032, 83°17'36.325"W, 42°20'47.223"N], and I [RVSDS GIS Facility ID: MR II-14, 83°18'0.428"W, 42°20'57.484"N] could not be approached due to flood waters **{Photo 14}**.

2:42 pm | Arrived at former Regulator M-23 and mistook it for M-22. Outfall submerged by river.

Report Prepared by: Paul Szlaga

Reviewed By: _____

FIELD REPORT

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CLIENT'S REPRESENTATIVE(S)	Greg Kacvinsky, Nancy Russell	PAGE	3 of 24
CONTRACTOR	N/A	REPORT NO.	1
CONTRACTOR'S REPRESENTATIVE(S)	N/A	TIME ON SITE	Varies, see below

2:53 pm | Arrived at Regulator M-25 outfall structure [83°22'20.918"W, 42°21'5.171"N], outfall nearly submerged by lake, no signs of overflow.

2:57 pm | Stopped at Elm Grove Recreation Area [83°21'55.356"W, 42°20'42.702"N] via eastbound Hines Drive to photograph extent of river flooding.

3:10 pm | Arrived at correct location of Regulator M-22 [City of Livonia GIS Facility ID: SSMH-05585, 83°20'58.474"W, 42°20'33.769"N], outfall submerged by river.

3:32 pm | Arrived at former Regulator L-34 [RVSDS GIS Facility ID: WAY-15, 83°22'39.236"W, 42°17'1.508"N], observed to be experiencing surcharged conditions, flow very stagnant in chamber **{Photo 15}**, no signs of overflow.

Monday, April 3, 2017 – Paul and Dane

12:00 pm | Arrived at Location V, no longer submerged by river **{Photo 16}**, flow near crown of pipe, no signs of overflow.

12:34 pm | Arrived at Location W, no longer submerged by river, could not locate due to debris accumulated in its vicinity **{Photo 17}**.

12:54 pm | Arrived at Location M, no longer submerged by river, flow was within pipe with gushing infiltration occurring along the river facing wall of the manhole shaft. Concrete encasement around brick manhole structure has mostly eroded off **{Photo 18}**. Inspected manhole MR II-10H [RVSDS GIS Facility ID: MR II-10H, 83°17'49.348"W, 42°20'36.88"N], lid was bolted down, flow within pipe. Observed Location L [RVSDS GIS Facility ID: MRII-10G, 83°17'47.974"W, 42°20'38.179"N], lid was bolted down, did not attempt to open. Manhole MR II-10F [RVSDS GIS Facility ID: MR II-10F, 83°17'44.632"W, 42°20'40.901"N] was observed to still be submerged by flood water. Location K was observed to be experiencing surcharged conditions, no signs of overflow. Junction Chamber 3-38 [RVSDS GIS Facility ID: MRII-10, 83°17'36.541"W, 42°20'47.539"N] was difficult to observe from surface, flow appeared to be just within pipe, no signs of overflow. Observed recession of flood waters **{Photo 19}.**

1:49 pm | Arrived at Locations D & E, no longer submerged by river. Manhole castings not secured to structure. Signs of overflow evident around structure **{Photo 20}**. Regulator chamber observed to still be experiencing surcharged conditions.

Report Prepared by: Paul Szlaga

Reviewed By:

SELECT PHOTOGRPAHS

1. Manhole RVI 12-17 • Sanitary Trash



2. Livonia Manhole Adjacent to Manhole RVI 12-17 • Sanitary Trash



3. Meter P29 Manhole • Level of Surcharging



4. Livonia Manhole Adjacent to MH RVI 12-17 • Sanitary Trash



5. Discharge Pipe on North Bank of Bell Branch Upstream of Inkster Road



6. Surcharging in Dearborn Heights Sewer



7. River Flooding along Dearborn Heights Sewer



8. Surcharging in Manhole in Side Lot of 6389 Martha



9. Vicinity of Location W • Submerged by River



10. Vicinity of Location V • Submerged by River



11. Vicinity of Regulator M-20 • Submerged by River



12. Vicinity of Location F • Submerged by River



13. Vicinity of Location M • Submerged by River



14. Overall Flooding of Warren Valley Golf Course



15. Former Regulator L-34 • Stagnant Flow and Debris



16. Location V • Now Exposed



17. Location W • Debris Coverage



18. Location M • Now Exposed



19. Receding Flooding of Warren Valley Golf Course



20. Regulator M-20 • Sanitary Trash



LTCAP Wet Weather Response Team

Wade-Trim Field Crew -March 31,2017 Event Observations

The following is a description of the Wade-Trim field observations by Sean Tharpe during the 3-31-17 wet weather event mobilization. Refer to the attached photos documenting the observations.

1. Lift Station 1A: Wade-Trim crew visited JC 2-8, JC-1, Master Control, Siphon between MH 2-7 and MH 2-6, and LS-1A. Rouge River level was observed overtopping bank in vicinity of JC-1.
    a. JC 2-8 - No surface flooding, river inflow, or SSO observed at structure.
    b. Master Control-No surface flooding at structure. No river inflow or SSO observed.
    c. JC-1-River level over banks with surface flooding over JC-1 structure preventing direct access by field crew. Based on field observations of surface flooding, it did not appear that any river inflow or SSO was occurring (no swirling or bubbling of surface water).
    d. Siphon-No surfacing flooding observed at upstream Manhole 2-7 or downstream Manhole 2-6. Crew opened both manholes and took measurements of surcharged sewers: MH 2-7 –Top of water to rim 10.7'at 3:45PM. MH 2-6 –Top of water to rim 10.7'. at 3:51 pm.
    e. LS-1A: No one at pump station building and doors locked. Checked vent structure and no SSO issues observed.
2. CSO 53 (L-34):
    a. CSO Structure 53 (north side of river) - Lower Rouge River level high submerging outfall pipe. Opened chamber manhole and no river inflow or SSO observed. MH is dry. Observed sanitary debris bottom of structure and on steps.
    b. Wayne Interceptor Siphon (south side of river) - No surfacing flooding, river inflow, or SSO observed. MH is surcharged took measurements at 4:55PM. Rim to bottom of MH structure 8.9'. Rim to top of water 5.0'.

3. Manhole 13-23 and 13-22: Unable to access manhole locations-park area completely flooded (see photos).

Follow-up observations on Tuesday April 4, 2016 to visit sites not accessible on Friday March 31, 2017:

4. JC 1 -- Surface flooding went down since 3-31-17 I No evidence of sanitary debris observed at the surface in vicinity of JC-1.
5. RVI 13-23 -Still unable to access MH as it flooded and soft ground up to just outside of the tree line. Unable to access without waders. I did observe sanitary debris all around this area at the surface.
6. RVI 13-22- Surface flooding subsided to allow access to the MH surface. No sanitary debris observed in the vicinity of this MH at the surface. Opened manhole and took level measurement. MH is not currently surcharged -flow is to the east. Sanitary debris visible on the steps. Rim to top of water approximately 9.3', rim to invert 11.5'.


JC 1 under water


Master Control




Master Control


MH 2-7 surcharged


MH 2-6


MH 2-7


photo taken on bridge between MH 2-7
and MH 2-6


JC 2-8


CSO L-34


MH 2-6 surcharged




CSO L-34


CSO L-34 south access surcharged


RVI 13-22


JC-1


RVI 13-22


RVI 13-22





RVI 13-23 surrounded by water



- sanitary debris observed at surface near area of RVI 13-23



- RVI 13-23 surrounded by water

DRAFT – June 29, 2019

Appendix K: Public Hearing

State of Michigan } ss
County of Macomb }

Affidavit of Publication

IN

Michigan.com

Detroit News and Free Press

OHM ADVISORS
34000 PLYMOUTH ROAD
LIVONIA< MI 48150

NOTICE OF PUBLIC HEARING

The Wayne County Department of Public Services-Environmental Services Group MAY 22, 2019

See attached.

(Tamika Key), being duly sworn, deposes and says that the above advertisement(s) appeared in Michigan.com - The Detroit News and Free Press on April 26, 2019. Invoice 3526711 and as an authorized employee of Michigan.com, he/she knows well the facts stated herein.

Dated: April 29, 2019

Notarized By:

Acting in the County of Macomb

GINA ANNE HUFF
NOTARY PUBLIC - STATE OF MICHIGAN
COUNTY OF LIVINGSTON
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Friday	Thu - 5 pm	Wed - 4 pm
Saturday	Fri - 5 pm	Thu - 4 pm

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Legal Notices

NOTICE TO CREDITORS DECEDENT'S TRUST

Kevin L Dennis & Mary Jane Dennis Trust

TO ALL CREDITORS:*

NOTICE TO CREDITORS:

The decedent, Kevin L Dennis, born on 9/18/1954, who lived at 30929 Maplewood St. Garden City, MI, died on 12/02/2018. There is no probate estate.

Creditors of the decedent are notified that all claims against the trust and the decedent will be forever barred unless presented to Mary Jane Dennis, Successor Trustee of the Kevin L Dennis & Mary Jane Dennis Trust, within 4 months after the date of publication of this notice.

04/23/2019

Successor Trustee:
Mary Jane Dennis
30929 Maplewood
Garden City, MI 48145
734-673-2754
DET3522203 04/26/2019

Legal Notices

ORDER FOR SUBSTITUTED SERVICE AND NOTICE OF ACTION

STATE OF MICHIGAN
IN THE CIRCUIT COURT FOR THE COUNTY OF OAKLAND

Case No. 18-169791-NO
HONORABLE LEO BOWMAN

Mooney, Plaintiff,

-v-

Devito and Block, Defendant.

At a session of said Court, held in the City of Pontiac, Oakland County, Michigan, this 27th day of March, 2019.
Present: HONORABLE LEO BOWMAN Circuit Court Judge

This matter having come before the Court on (Plaintiff/Defendant):

Plaintiff's Motion for Substituted Service and Third Extension of Summons on Defendant Block, and the Court being advised in the premises;

IT IS HEREBY ORDERED that the motion is GRANTED.

Publication – legal newspaper of proper jurisdiction (Detroit News and Free Press), tracking at previous known locations (tracking at aunt's address) and at the Oakland County Circuit Court.

Summons to be extend 60 days from previous expiration date; third summons extended through June 6, 2019

/s/HON. LEO BOWMAN, Circuit Court Judge

APPROVED AS TO SUBSTANCE AND FORM
/s/Alexander J. Kassab

NOTICE OF ACTION

You are being sued in this court by the plaintiff. You must file your answer or take other action permitted by law in this court at the court address above on or before 28 days from April 26, 2019. If you fail to do so, a default judgment may be entered against you for the relief demanded in the complaint filed in this case.

If you require special accommodations to use the court because of a disability or if you require a foreign language interpreter to help you fully participate in court proceedings, please contact the court immediately to make arrangements.
DET3486384 – 04/12/20149, 04/19/2019, 04/26/2019

SUMMONS (CITACION JUDICIAL)

CASE NUMBER (Número del Caso):
30-2018-01022510-CU-BC-CJC

NOTICE TO DEFENDANT:
(AVISO AL DEMANDADO):
GLOBAL MEDIA COMMUNICATIONS, LLC, a Michigan limited liability company; CLARENCE WATKINS, an individual; and DOES 1 through 10, inclusive

YOU ARE BEING SUED BY PLAINTIFF:
(LO ESTA DEMANDANDO EL DEMANDANTE):
Quick Bridge Funding, LLC, a California limited liability company.

Notice! You have been sued. The court may decide against you without your being heard unless you respond within 30 days. Read the information below.
Aviso! Lo han demandado. Si no responde dentro de 30 dias, la corte puede decider en su contra sin escuchar su version. Lea la information a continuacion.

You have 30 CALENDAR DAYS after this summons and legal papers are served on you to file a written response at this court and have a copy served on the plaintiff. A letter or phone call will not protect you. Your written response must be in proper legal form if you want the court to hear your case. There may be a court form that you can use for your response. You can find these court forms and more information at the California Courts Online Self-Help Center (www.courtinfo.ca.gov/selfhelp), your county law library, or the courthouse nearest you. If you cannot pay the filing fee, ask the court clerk for a fee waiver form. If you do not file your response on time, you may lose the case by default, and your wages, money, and property may be taken without further warning from the court.

There are other legal requirements. You may want to call an attorney right away. If you do not know an attorney, you may want to call an attorney referral service. If you cannot afford an attorney, you may be eligible for free legal services from a nonprofit legal services program. You can locate these nonprofit groups at the California Legal Services Web site (www.lawhelpcalifornia.org), the California Courts Online Self- Help Center (www.courtinfo.ca.gov/selfhelp), or by contacting your local court or county bar association. NOTE: The court has a statutory lien for waived fees and costs on any settlement or arbitration award of $10,000 or more in a civil case. The court's lien mu fore the court will dismiss the c

The name and address of the nombre y dirección de la cort County Superior Court, C Center, 751 W Santa Ana Blvd, 92701;

The name, address, and teleph plaintiff's attorney, or plaintiff torney, is: (El nombre, la número de teléfono del demandante, o del demandant abogado, es): Neal S. Sali Coffman, 550 South Hope Str Los Angeles, CA 90071; Teleph 9100.
Date: (Fecha) October 1, 2 Yamasaki, Clerk of the Court by Clarissa Bustamante, Deput

PLEASE TAKE NOTICE that agement Conference will be he on July 11, 2019 at 8:30 a.m. CX103 of the Superior Court Orange, located at 751 W Sa Santa Ana, CA 92701.
DET3466623 - 4/19/19, 4/26/19, 5/3

Maintenance Contracting will be doing handheld broadcast spraying in Michigan during the following period 4/30/19 to 10/31/19. Herbicides to be used:

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Contact - Davin T. Little at 10395 Henschell Rd Fife Lake, MI 49646, Phone 231-590-0770.
DET3522183 04/26/2019

NOTICE OF PUBLIC HEARING

The Wayne County Department of Public Services-Environmental Services Group will hold a public hearing for the purpose of receiving comments from interested persons regarding application to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for funding assistance through the Clean Water State Revolving Fund Program for proposed improvements to the Rouge Valley Sewage Disposal System (RVSDS).

The hearing will be held at 6:00 P.M. on Wednesday, May 22, 2019 at the City of Livonia City Hall located at 33000 Civic Center Drive, Livonia, MI 48154.

The recommended improvements are described in a 20 year SRF Project Plan for the RVSDS Long Term Corrective Action Plan. The purpose of the proposed projects is to resolve Sanitary Sewer Overflows to meet regulatory compliance obligations with EGLE under the County's Final Order of Abatement #2117. The recommended projects (Alternative 1) focus on improvements to the system that will have the best long-term benefit to the system and environment. The projects will target the removal of river inflow and also enhance structural integrity, hydraulic capacity, and longevity of the system.

Construction will be limited to the areas along and immediately adjacent to the RVSDS interceptor sewers and minimal disruption is anticipated outside of this area. Construction related impacts include short term noise and dust in the immediate vicinity of the interceptor sewers.

The total project costs for Alternative 1 improvements are estimated at $80,050,000. The County is proposing to fund the project with money collected from user charges. The estimated annual cost increase to a typical household within the RVSDS service area for the proposed projects can be found in the SRF Project Plan.

Copies of the Project Plan detailing the proposed projects are available for review beginning on April 26, 2019 at the following locations:

Wayne County Department of Public Services
400 Monroe Street, Suite 400, Detroit, MI 48226
OHM Advisors, 34000 Plymouth Road, Livonia, MI 48150
https://www.waynecounty.com/departments/environmental/home.aspx

Written comments received before the hearing record is closed on May 27, 2019 will receive responses in the final Project Plan. Written comments should be sent to:

Elmeka N. Steele, Esq, Deputy Director
Wayne County Department of Public Services-Environmental Services Group
400 Monroe Street, Suite 400
Detroit, MI 48226
esghelp@waynecounty.com
DET3526711 04/26/2019

Legal Notices

Legal Notices

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Elmeka N. Steele, Esq, Deputy Director
Wayne County Department of Public Services-Environmental Services Group
400 Monroe Street, Suite 400
Detroit, MI 48226
esghelp@waynecounty.com

Published April 26, 2019

RVSDS LTCAP/SRF Project Plan Public Hearing

May 22, 2019

Name	Organization	Email
Bob MARZANO	City of Plymouth / City of Northville	rmarzano@plymouthcounty.com
Patrick McCauley	Van Buren / Dearborn Htr	pmccauley@garanik law.com
STEVEN COLLINS	WAYNE COUNTY	scollins@waynecounty.com
PHILIP SANZICA	CITIZEN	SANZICAP@COMCAST.COM
Brandon Grysko	Westland	
BRAD Ohman	City of GARDEN City	bradoh@gardencityhi.org
GREG KACVINSKY	OHM Advisors / WAYNE CO	greg.kacvinsky@ohm-advisors.com
Nancy Russell	OHM Advisors / WAYNE CO	nancy.russell@ohm-advisors.com
Adam Gedeck	City of Plymouth	agedeck@plymouthmi.gov
Ryan Keen	HENNESSEY ENGINEERS REPRESENTING GARDEN CITY	rrkeen@hengineers.com
Kelly Cave	Wayne County	kcave@waynecounty.com

ROUGE VALLEY SEWAGE DISPOSAL SYSTEM

LTCAP/SRF PUBLIC HEARING

WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES PUBLIC HEARING,
APPLICATION TO EGLE FOR FUNDING ASSISTANCE,
Taken at 33000 Civic Center Drive,
Livonia, Michigan,
Commencing at 7:02 p.m.,
Tuesday, May 22, 2019,
Before Melynda C. Jardine, CER 7536.

PRESENTERS:

KELLY CAVE
Wayne County Department of Public Services
400 Monroe Street
Suite 400
Detroit, Michigan 48226
313.213.5273

GREGORY P. KACVINSKY, PE
NANCY RUSSELL, EIT
OHM Advisors
1145 Griswold Street
Suite 200
Detroit, Michigan 48226
313.481.1250
greg.kacvinsky@ohm-advisors.com
nancy.russell@ohm-advisors.com

PUBLIC ATTENDANCE:

Bob Marzano, City of Plymouth/City of Northville
Patrick McCauley, Van Buren/Dearborn Heights
Steven Collins, Wayne County
Brandon Grysko, Westland
Brad Ohman, City of Garden City
Adam Gerlach, City of Plymouth
Ryan Kern, Hennessey Engineers for Garden City
Philip Sanzica

Livonia, Michigan
Tuesday May 22, 2019
7:02 p.m.

MS. CAVE: Well, good evening, everyone. This is the public hearing for the Rouge Valley Sewage Disposal System Long-term Corrective Action Plan, State Revolving Fund Project Plan. I'm Kelly Cave from the Wayne County Department of Public Services. We have a sign-in sheet. It's important that everybody sign in. I was thinking also that I'd ask -- we have a court reporter here to record the meeting, so I think I'd like to ask to go around and have everyone introduce themselves.

MR. COLLINS: Steven Collins, I'm an assistant corporation counsel was Wayne County.

MR. MARZANO: I'm Bob Marzano. I'm the city attorney for the City of Plymouth and the City of Northville.

MR. McCAULEY: Patrick McCauley, legal counsel for the City of Dearborn Heights and the Charter Township of Van Buren.

MR. GRYSKO: Brandon Grysko, assistant city attorney, City of Westland.

MR. OHMAN: Brad Ohman, City of Garden City,

Department of Public Works.

MR. KACVINSKY: Greg Kacvinsky, OHM Advisors.

MS. RUSSELL: Nancy Russell, OHM Advisors.

MR. SANZICA: Phil Sanzica, private citizen and body guard.

MS. CAVE: So what we want to do today is go through the project plan for the long-term corrective action plan. It's a 20-year plan. We -- the County has a Final Order of Abatement from the Michigan Department of Environment, Great Lakes and Energy to address sanitary sewer overflows for the Rouge Valley Sewage Disposal System. This plan is required to be submitted to the State -- the acronym is EGLE, E-G-L-E -- by late June, and this document will be also the first step to obtain a low interest loan from the State Revolving Fund Program to finance the improvements that are mandated in the Order of Abatement and that are embodied in the project plan that we're going to review for you tonight. We're also going to talk about some of the cost impacts for the plan, and then we have a segment for questions and answers. Sir, we have a sign-in sheet, if you could please sign in, and introduce yourself?

MR. GERLACH: I'm Adam. I'm with the City of Plymouth.

MS. CAVE: So -- hey, Ryan.
MR. KERN: How you doing?
MS. CAVE: Please sign in. This is Ryan Kern. You're the consulting engineer for --
MR. KERN: Garden City.
MS. CAVE: -- Garden City. We've been working on the -- the Final Order of Abatement itself goes back to 1986, so this is not anything new. We have implemented a number of projects over the years. The last big project was the short-term corrective action plan. That was a $21 million project that we completed. I can't remember exactly the time --
MR. KACVINSKY: 2011.
MS. CAVE: -- 2011? Thank you. Time flies. So that was the first step to implement the improvements necessary for complying with the Order of Abatement to eliminate sanitary sewer overflows. This is the long-term corrective action plan, and we've been working on it about four years. We've had numerous meetings with a technical committee comprised of the technical representatives from all the communities. We've had some meetings also with the finance staff, and it's been awhile, but we've had meetings with the legal staff as well. So we had a project team that's been working on this together. We have OHM here

tonight, was the lead, and then we had Applied Science and Wade Trim also helped us put this comprehensive 20-year plan together. There are a lot of acronyms in this document, so the document, by the way, is available for public review. It is available from the Wayne County website, www.waynecounty.com, under the Department of Public Services. We have two printed copies available. One is at Wayne County's offices downtown at 400 Monroe, Suite 400, and we have another copy at OHM's office just down the street at 34000 Plymouth Road So I'm not going to go through all these, but you've got a copy of the presentation. But we thought we would start with all these acronyms that we -- that we use. And okay, I said 1986. It was 1989 that the first version of the Final Order of Abatement was signed between Wayne County and the State of Michigan, and we are supposed to be done 2023, I believe. The Rouge Valley Sewage Disposal System is about 98 miles of sewers that picks up the waste water from about two-thirds of Wayne County, and it's 13 communities in Wayne County, and we also pick up the bottom third of the City of Novi and Oakland County. And we have parts of the system that is, you know, 80 years old. So a key component of the project plan, which you're going to hear from Greg in a moment, is an

asset management plan, and that will help us re some of the older pipes to make some improvements to them to extend the asset life. As I mentioned, the mandate of the Final Order of Abatement is to eliminate sanitary sewer overflows for the 25-year, 24-hour design storm event, which is what the State of Michigan's SSO policy mandates. I mentioned we have also -- we've done the short-term corrective action plan, and now we're on to the long-term plan. So at this point, I'm going to turn it over to Greg Kacvinsky from OHM, and he's going to walk you through the different options that we looked at, the different alternatives for making the required improvements to the systems, such that we don't have SSOs, and we also enable the asset to have a longer life.

MR. KACVINSKY: Thanks, Kelly. I'll stay close to the microphones for you.

REPORTER: Thanks.

MS. CAVE: Okay. So we're going to summarize the SRF project plan that some of you may have reviewed already, and go through the process that we went through with the communities and the County to develop this document. As Kelly mentioned, the project plan is due to what we're calling EGLE, which used to be the MDEQ, by the end of June. Beyond that point, they'll

review it, and if approved, it will set up the County for low interest loan financing for the projects identified in the project plan. To get access to this low interest loan funding, the MDEQ or EGLE requires that you go through a process of identifying project alternatives to find the most cost effective solution to address the SSOs as part of the Final Order of Abatement, and that's what brings up our five alternatives for this project. The first is asset management. This is what we call the low hanging fruit. This is -- these are the projects that help the system -- help out the longevity of the system, and help enhance hydraulic capacity of the system, things that have to be done to any system regardless as its agent. Alternative Number 2 includes some wet weather storage, and that includes wet weather storage that may be required, assuming that the asset management plan does not take out all of the wet weather inflow that currently gets into the system. We'll talk a little about that. Alternative 3 is providing wet weather storage, storage tanks to allow the excessive flows during wet weather a place to be stored as opposed to overflowing into the rivers. Alternative 4 would be what we call transport and store, so we would increase the size of the piping system to get the flows

downstream, and then store the excess flows to help prevents SSOs. And then 5 is simply transport and treat, which is basically providing a new treatment system for the Rouge Valley. This is a project or this is an alternative that EGLE staff asked us to look at. Items 3 through 5 are basically what we would consider to be fairly conventional approaches to wet weather management. We believe that 1 and 2 are relatively -- they're more cost efficient. They're not as conventional, but they're significantly less costly than the conventional approaches. This slide outlines the planning or the concept level costs relative between the different alternatives. As you can see, with Alternative 1 as the least costly. As you go from Alternatives 1 through 5, they got more costly as you go down. That is mainly due to the fact that when you get to alternatives, especially 3 and 4, we're not really focused on asset management. It's more the conventional approaches of providing storage and conveyance or what we call transport. That's a lot of tunneling, piping, and large storage tanks. The fifth is the most expensive, and that would be an additional treatment plant to handle the flows in the Rouge Valley System. That's the most expensive option. And, again, the reason for these is that we can evaluate the

different alternatives, and select the most cost efficient one. Alternative 1, which is asset management -- all of the alternatives in this SRF project plan are in a 20-year time horizon. That's the typical planning horizon for an SRF project plan. This alternative assumes that the capital improvements made as part of this asset management planning effort will address SSOs by themselves. We don't know whether or not this is true, but this is the base assumption for Alternative 1. It is the lowest cost. It's targeted to system improvements that we know are necessary to address aging system components, and most importantly to remove river inflow, and it includes several different types of projects. These are all very targeted projects in areas of the system that we know need -- we know needs some kind of improvements right now. We'll get into some of these details later on. The total cost of that is 80 million. Of that 80 million, approximately 51 million is targeted for the first 5 years. That's more aggressive asset management planning and projects, and then the remainder would be implemented in years 6 through 20 of the planning horizon. I'm going to hand it over to Nancy for a description of asset management in general. Thanks.

MS. RUSSELL: Okay. Yes. I'm going to go

over those, what was included. The first one is talking about the sewer conditions of the pipe. Like Kelly said, there's almost 100 miles of pipe that Rouge Valley serves with the communities of 13, and with that and during the short-term correction action plan, they televised the pipes. They put a camera in the pipes, and kind of inspected what was going on in the pipes, what was the condition of interior. And based on that, during the short term corrective action plan, this map, which I'll explain, coded it based on is your structure or your pipe in really good shape, so that would be good, so it'd be a green on the map, and then to red, which is in really bad shape and needs attention right away. So the yellow is in moderate condition. It's okay. We'll keep an eye on it, but as the years go on, it might get worse. And that's what the orange is saying. It's in poor structural condition, probably needs some attention, and then the red is it's critical, and we need to address it right away. So during the short-term corrective action plan, 5 miles was fixed. But with that, there's, again, the -- what I said, the 100 miles roughly of pipe in the system. It's, you know, some parts of the system 80 years old. We'll say on average it's 4 to 50 years old. It really just needs that attention, and that's why we're

focusing the first 5 years really heavily on just getting the system up to shape, and making sure there's pipe that were probably that yellow that was moderate, that are probably now in pretty poor shape. So we're going to again televise, put that camera in the pipe, and see what's going on.

MR. MARZANO: What's the purple?

MS. RUSSELL: The purple is what wasn't inspected.

MR. MARZANO: Was not inspected? Okay.

MS. RUSSELL: Correct. So part of the process of the long-term corrective action plan is if we did some small section and looked at the condition of the pipe, and this is exposed rebar, which as your pipe gets thinner, you get this exposed rebar, which is not good. So we know there's pipes out there that are in poor condition, and we need to address them by different types of technology, like lining, which I'll show an example of.

MS. CAVE: Rebar is an engineering shorthand for the steel that is embedded in a concrete pipe, and it provides additional structural strength to the pipe.

MS. RUSSELL: Thanks, Kelly. And the last picture is very recent. There was a pipe along Telegraph that caused a sinkhole, and Wayne County went

out and televised it, and found that there was a hole in the pipe. So they immediately fixed it, they lined it, and it didn't cause any harm. No one was -- it was lucky. It was in the median in between the lanes. It got immediately taken care of. But part of the asset management plan is being proactive instead of reactive. So instead of trying to fix sinkholes throughout the system, let's inspect, realize where there's issues, address it, so we don't cause any public harm like sinkholes. So when I was talking about lining, this is an example of what the pipe looked like before, and then it's a system where they go in and basically make the pipe look new. So they line it, and there's two purposes of that; one being that, you know, you fix the issue, and two, the -- it's smoother, so it's easier to flow. There's more capacity allowed for the sewage to go through the pipe, so it's two purposes why the lining works.

MR. COLLINS: What's the life of a lining?

MS. RUSSELL: 40 --

MR. KACVINSKY: Did you said the life?

MS. RUSSELL: The life of it.

MR. KACVINSKY: It depends on the existing soil conditions and what caused the failure in the first place.

MR. COLLINS: Uh-huh.
MR. KACVINSKY: Suppliers and contractors will say, you know, that can add 40 to 50 years.
MR. COLLINS: Really?
MR. KACVINSKY: I don't necessarily believe it will buy that much time. If the pipe's in really, really bad shape structurally, the liner will buy you an extended life, but ultimately you'll be replacing that pipe. In the case of the Rouge Valley System, a big benefit is, as Nancy mentioned, smoothing the wall of the pipe to enhance the hydraulic capacity.
MS. CAVE: It also depends on what method you use to line the pipe. You can slip line the pipe with a -- like another pipe inside the pipe. You can also do the -- what we did in the STCAP. Most of that was the -- oh, I can see it --
MR. SANZICA: (Inaudible).
MS. CAVE: The what?
MR. SANZICA: (Inaudible).
MS. CAVE: No, it was the plexiglass essentially, the liner. It's a sock and then -- it's not plexiglass -- it's --
MR. KACVINSKY: The resin?
MS. CAVE: -- resin, the resin, and so both of those provide a lot of structural stability. But

it's a corrode -- sewers are a very corrosive environment, and so that's why the pipe gets corroded to start with. And so whatever you put in there will -- but this extends the life of it quite a bit.

MR. MARZANO: Do you know how long the -- the first picture was before -- how long that pipe had been in existence before we got to that -- I mean, is this part of the 80-year-old system?

MS. RUSSELL: This is just an example pipe. And we can go back to -- so this example, which is actually part of the system -- I was trying to see if it said where. Oh, I was hoping --

MR. KACVINSKY: It's in the Middle Rouge.

MS. RUSSELL: Yeah. I don't know --

MR. KACVINSKY: 66-inch diameter pipe, there are three parallel interceptors built at different times, and I'm not sure which one this picture is related to.

MS. RUSSELL: Yeah, I don't know.

MR. KACVINSKY: But some of those sewers go back at least 50, 60 years.

MR. MARZANO: Okay.

MS. CAVE: And we actually have some bricks that were still --

MS. RUSSELL: Yeah, near Northville; right?

MS. CAVE: Under Newburgh Lake.
MR. MARZANO: Really?
MS. RUSSELL: Yeah; yeah.
MR. KACVINSKY: And along the Lower Rouge too, there's brick.
MS. CAVE: Yeah; uh-huh.
MR. KACVINSKY: And to say that lining is the only solution, it won't be. If the televising comes back and the pipe is failing in multiple locations, the recommended improvement might be to remove and replace.
MR. MARZANO: Okay.
MR. KACVINSKY: So we would not recommend a liner, nor would a contractor if that liner would only last 5 or 10 years.
MS. RUSSELL: So there's the pipes and then there's the manhole component. A big part of the asset management plan is really focusing on getting rid of the river inflow, so the river that gets -- seeps into the manholes, really getting that out of the system. There's been studies and we've really found that there's a major source of issues in this system. So this figure is along Hines Drive. Everyone's probably familiar with Hines Drive, and when it rains, it usually closes, because it's in the flood plan, so that's what that blue is indicating That's the

100-year flood plane, but it's, as you guys know, either -- it's like a bowl and steep. So most of the manholes are even in the 1- and 2-year, so when it rains, the manholes are under water. And we've done some calculations and have found that roughly there's 700 manholes between local and county-owned manholes that are in the flood plane. So part of it is really focusing in on this area along Hines Drive, and tightening up the manholes. There's different mechanisms that we can use. We've looked into different like manhole covers to address this issue, and I'm going to show some examples of where we have seen significant issues and what we're planning on immediately addressing with the asset management plan.

MS. CAVE: Most of the Rouge Valley system, there's two main interceptors. There's the Middle Rouge interceptor, and that runs right along the Middle Rouge River, so most of it is in the flood plane, and then the Lower Rouge interceptor runs right along the Lower Rouge River. Sso that's why these -- it's a kind of unique, I think --

MS. RUSSELL: Yeah.

MS. CAVE: -- system that we have so much of, you know, probably at least 70 miles of the almost 100 miles are right in --

MS. RUSSELL: Right along -- yup.
MS. CAVE: -- right in the flood plane.
MS. RUSSELL: Yeah, right along the river follows the path. So these are two structure examples. I'm going to focus more on this bottom one that's called M-20. It's right on the river, right off Merriman and Hines, and it's by like gardens. It's like Garden City, but it's up along Hines Drive in this area. And when there is significant amount of rain, the system gets a lot of pressure and has over time pushed the cover off. And so every time it rains, there's so much pressure, and the rains comes -- or, you know, the river flows in, we need to move that structure. So I've been out there and just seeing water flow in, and one of the solutions is working on a mechanism that will open the manhole to let the pressure be released, and then close when the river comes on top, if that makes sense to everyone. So this is an immediate fix that when the asset -- when we get the fiscal year funding, it will be a high priority. And the other one is just showing with that short-term corrective action plan, they -- I can't remember how many manholes were inspected.
MS. CAVE: Well, we have 968.
MS. RUSSELL: Okay. And with the rehab, we

happened to come across -- we were doing another project, and we had an exposed manhole and found that it was cracking on the exterior, so they went and did some like mortar, and fixed that issue. So sometimes you can open the manhole and see the issue, and sometimes it's on the exterior. When you excavate, you see other issues. So again, we just need to continue to inspect the manholes, as long as it's -- as well as the pipes, and make sure we're addressing issues and they don't get worse. So I'm going to show you a video. You got it? Okay. I don't think I can click from here. Okay. I'll let it go. It' a little loud. That's probably why.

MR. COLLINS: So that's a manhole?

MS. RUSSELL: Yes, so this is -- they're looking inside the manhole, and they're seeing water coming into the side, which is showing that there are exposed cracks, called seeping. There's different terms when you look at a manhole, and this is called a -- isn't it called a seep or a like a seeping?

MR. KACVINSKY: A Gusher.

MS. RUSSELL: A gusher. That's the word I'm looking for. It's called a gusher. So there are issues like this that we're seeing that are easy fixes to need to be completely restructed -- reconstructed,

but it will make a significant impact on removing that river inflow, which is what we're seeing a lot of in the system based on metering in our system, so they keep track of upstream, how much flow. Based on all the other connections that are coming, here's another meter, and they do some math, and they say this doesn't add up. What is the cause? And we found that a lot of it has to do with that river inflow.

MR. COLLINS: So it says wet weather? Is there rain going on right now and it's the water from the outside, or is this dry weather, but there was so much water accumulated on the outside of the manhole?

MR. SANZICA: It's ground water.

MR. COLLINS: Is it ground water?

MR. SANZICA: Yeah.

MS. RUSSELL: Yeah.

MR. KACVINSKY: So this can be near constant. It goes up when it's wet --

MR. COLLINS: Well, yeah. That's -- yeah.

MS. RUSSELL: Yeah.

MR. KACVINSKY: Yeah.

MS. CAVE: So all these -- this, we call them leaky pipes.

MR. COLLINS: Yeah.

MS. CAVE: These leaky pipes, when you have

the inflow from the river or from the ground water, it -- when it rains and you get more and more of that in addition to the sewage that you have, that's when you have SSOs. So the big premise with this asset management is that we're going to remove these sources of non-sewage -- ground water, river, what have you -- from the pipe, and then we will not have as many sanitary sewer overflows during storm events.

MR. COLLINS: Well, I don't want to take up your time, but water's got to go somewhere. If it's not going to go in there, where will it go?

MS. CAVE: Stay in the ground.

MR. COLLINS: Well, okay. Yeah.

MS. CAVE: And get to the river by itself --

MR. COLLINS: Okay. All right.

MS. CAVE: -- not through the sewer.

MS. RUSSELL: Yeah.

MR. COLLINS: Yeah.

MR. MARZANO: Down in your basement.

MR. COLLINS: Yeah.

MS. RUSSELL: And it adds up; right? You're treating then water that doesn't need to be treated.

MR. COLLINS: No; no. I get it. You don't want it to go in.

MS. RUSSELL: Oh, yeah. I know. Yeah; yeah.

MR. COLLINS: I'm just thinking. I'm just saying how do you fix that? I mean, how do you go in? You can't take it out, because it all comes in. You know what I mean?

MR. KACVINSKY: Yeah. If the ground water can't get into the manholes and the junctions, it will find its way to the next lowest point, which will be the Middle Rouge River or the Lower Rouge.

MR. COLLINS: Right.

MR. KACVINSKY: And they'll be some times of the year where the ground water's so high, that it will just have to sit higher, and then will have nowhere to go. It usually finds its way into a crack somewhere.

MR. COLLINS: Or creates one.

MR. KACVINSKY: Yes; yes.

MR. COLLINS: You know what I mean?

MR. KACVINSKY: Yes. And that's why the asset management plan is perpetual inspection of the system, so you figure out where those points are, and you address them as you find them.

MS. RUSSELL: Is there any more questions about the specific asset management?

MR. GERLACH: What are the actual methods to tighten up the manholes that are going to be -- I mean, putting a different lid's not going to change that, but

what are the actual methods you're going to use for manholes?

MS. CAVE: Well, we used -- for the short-term corrective action plan, we did 968 of the manholes. There are still hundreds more; that we just did the really bad, urgent ones that needed urgent repair, and we used a variety of techniques, depending on what was the issue with the manhole. A lot of them, we used a spray, spray-on sealant, if you will, a couple inches thick to just remove the sources of water and also to provide some structural stability. Sometimes we replaced the whole manhole, if it was not in good condition. So the rehab -- the rehabilitation work that we're going to do for these manholes that are in the flood plan, it depends if they were -- if they were lined last time, we're going to be looking at, you know, changing the lids. Some of them will be -- just different techniques. It's going to depend on what the issue is, but the objective is -- the thing that we didn't do with the short-term corrective action plan, we were focused on the body of the manhole and not the lid, and not having the surface water come down through the holes in the manhole. So we're going to definitely replace many lids with ones that have neoprene gaskets to seal and don't have the holes, which you typically

have in manhole lids to help you lift it up. So that's the kind of thing we're looking at. But we will do a focused manhole by manhole plan.

MR. KACVINSKY: Some manholes like the one that Nancy pointed out, M-20, it's a large junction that will probably need to get rebuilt, but my guess is that one will be raised to get it up, a little bit more pipe.

MR. GERLACH: Get it out of the hydraulic? Yeah.

MR. KACVINSKY: The castings that Nancy mentioned, there's a casting we found that it's on a hinge and it comes up a few inches, which allows it to relieve itself during surcharge on the system. But then it can only come up a few inches; then it's going to come back down. That keeps it sealed for when the river comes up, because the river comes up later in the -- after the storm basically.

MR. GERLACH: Okay.

MR. KACVINSKY: The system surcharges first, and when we -- basically that's when the SSOs, then the river comes up later.

MR. GERLACH: Okay.

MR. KACVINSKY: Our goal is to allow those lids to come back down and rest and close, so the river

comes up, that river isn't getting into the system.

MR. GERLACH: Okay.

MS. CAVE: Instead of blowing the whole thing off, so that you have a big hole.

MS. RUSSELL: And then have -- yeah, you've got to let the water recede to be safe, and, yeah, put it back on.

MS. CAVE: Right.

MS. RUSSELL: So not the effective way.

MR. McCAULEY: Before we get to Alternative 2, just a quick question. How do we evaluate the success of Alternative 1 in terms of telling EGLE we did the asset management? It's great. We don't have to do anything else, look at number of assets, those that take place. How will that evaluation go down in terms of what we have to do next?

MS. CAVE: In developing this plan over the last four years, we developed a very comprehensive hydroponic and hydraulic computer model of the sewer system. And so that -- we also have an extensive flow metering system throughout the sewer system, so we made sure that our model was calibrated to the flow meter data, and then we looked at -- you can change parameters in the model to simulate lining the pipe, changing those manhole lids. And so at this moment, we

think that if we fully implement for the first 5 years, we're going to remove most of the excess water that's causing the sanitary sewer overflows. There are some conditions that we had to estimate at this time, the most notable of those is the -- our -- the refilling system discharges into the Great Lakes Water Authority Sewer System, and the hydraulic rain line, the back water, the -- from the treatment plant actually comes all the way up to the Rouge system. So because they're doing a long-term master plan right now, they couldn't guarantee us what level we would see in their pipe where our pipe dumps, discharges into it. And that level significantly affects how, the ability of the Rouge Valley System to transport and discharge the waste water. So because of that uncertainty, EGLE has agreed in -- I mean, they haven't officially reviewed the project plan, but we've had many meetings with them over the last 4 years, and we are going -- they've agreed that we'll do this phased approach. We will do this. GLWA will be able to commit in a couple years to what they can promise us the level will be. And then after that first 5 years, we will use our computer models that we have now, and all the flow meter data that we continue to collect, and we'll assess -- and, you know, we know when we have SSOs from some

locations. So we'll assess all that, and see if more is needed. And if that's the case, if we've dried out the system a lot, but not enough to have zero SSOs, then we think that we're going to need to build some, a few storage systems, which is Alternative 2.

MR. McCAULEY: Okay.

MR. KACVINSKY: This a good segue.

MS. RUSSELL: Yeah. And Im going to give it back to Greg to go over the rest of the alternatives.

MR. KACVINSKY: So, yeah, as Kelly said, the -- our assumptions in the project plan are that Alternative 1 can, at least on paper, remove enough river inflow to control SSOs. We know enough about how systems work to realize that's kind of -- that may not and probably will not happen. However, it's the most cost efficient way to deal with system inflow. So and it also minimizes the amount of storage that does ultimately need to occur, and that's what Alternative 2 recognizes, is that they'll be -- they'll be asset management, but they'll also be a couple of places where we'll still probably need to store some wet weather flow. And that's based on the modeling that was done, looking at the most vulnerable points in the system for SSOs most frequent. Based on what we've observed, and what the model tells us, there are a

couple locations where we're looking at probably some additional storage. And I think I covered these bullets already. Under Alternative 2, we're looking at about an additional 5 to 6 million gallons for the design event to completely address SSOs based on EGLE's SSO policy for the 25-year, 24-hour storm. Along the Middle Rouge, we need to be careful to make sure that those facilities are above the flood plane. The flood plane's pretty wide through that area, so we're looking for places where we can locate it up the hill and get it high and dry to keep it out of the impacts of the flood plane.

MR. MARZANO: Is this county-owned property you'll do that on, or is it somewhere you have to --

MS. CAVE: Well, you'll see. We have different sites. Some are, and some aren't.

MR. KACVINSKY: Yup. What these facilities will include will likely -- because they'd be up on the hill, will likely need pumping to get it into the storage areas, while the storage tanks themselves, which would likely be below ground and then flushing, odor control systems, and control systems to maintain them. So it's not just the storage tank. It's a lot of stuff that goes with them. Under Alternative 2, the total cost is $127 million. That includes the asset

management component, which is that $80 million over 20 years. The remainder of that is the estimate for the storage facilities. The two locations that were identified by the team for storage, one is along Inkster Road. Along the Bell Branch, there's a park. This is up in the City of Livonia. This branch of the Rouge Valley System, the Inkster Arm, is prone to surcharging, and there is a known SSO location up here. This storage area allows us to manage the remaining wet weather flow that's going into the system at this point, and prevent SSOs at this location. That's location 1. That's about 1.6 million gallons. We have 4 million gallons proposed along the Middle Rouge at this location. I'll actually show these in more detail. But these are the two storage locations identified that may still likely be necessary, assuming we can't get all the river inflow out of the system. This is a blowup of Alternative -- of the Inkster Arm location, Bell Creek Park, and this would be located under existing recreational fields along that park, so it would be -- you'd be disrupting the park temporarily, that then it would go back to its existing use once the system is in place. And the County's interceptor sewer along Inkster Road is along here, and then the City of Livonia system enters in this location

as well. The other location is north of the Middle Rouge along Merriman. There is an -- this is actually, as I understand, this is currently county-owned property. It's an old golf course that is no longer being used.

MR. COLLINS: Where is this?

MR. KACVINSKY: Just east of Merriman.

MS. RUSSELL: And south of Ann Arbor Trail.

MR. COLLINS: What was the old golf course?

MS. RUSSELL: Hawthorne.

MR. KACVINSKY: Hawthorne, yeah.

MS. RUSSELL: Hawthorne.

MR. COLLINS: Oh, you're right then. Well, I didn't know the golf course was -- okay.

MR. KACVINSKY: So this blue area is the existing flood plane in the Middle Rouge. It spreads out pretty far, and we're -- there's a nice corner of this property up along here that's higher and drier, and can accommodate a facility. This is a larger one, 4 million gallons, but, again, this is where a lot of the -- this is on the main branch of the Middle Rouge interceptor, so there's just more flow to manage here. So that's Alternative 2. The last three alternatives, I'm going to go through relatively quickly. They're significantly more expensive, and so the amount of --

the amount of detail we're going to go into at this meeting is a little lighter. We don't consider these to be alternatives worthy of additional exploration at this time. So Alternative 3 is basically -- as I mentioned before, it's more of a conventional approach for wet weather management and systems, so a lot of SRF project plans like this go through a storage only option. That's what this is. So what would it take if we didn't do the asset management? If we had to manage the river inflow, how much storage would we need? And so this requires some additional larger storage facilities along primarily the Middle Rouge interceptor and the Inkster Arm. In this scenario, we'd need up to 48 million gallons of additional storage. That's compared to the 5 to 6 million gallons under Alternative 2 of the asset management. So this is why asset management is important, because we feel that we can significantly reduce the total storage volume. And with 48 million gallons of total storage, that ups the cost significantly. So we're talking about 247 million concept level planning costs. The locations of the storage, I'm not going to go into details on all the locations, but you have the same two, number one up here on Inkster Arm, just a larger -- a larger storage. This location 2 is the same as Alternative 2, but it's

a larger tank. We've added two more facilities downstream, because we need to address more of the river inflow on this scenario. So we have two additional storage areas. This one actually is a very large one, 37 million gallons, and then another one, 14 million gallons.

MS. RUSSELL: 1.5.

MR. KACVINSKY: I'm sorry. I was looking at the --

MS. RUSSELL: But 37 was correct the first time.

MR. KACVINSKY: -- the CFS. 1.5 million gallons for this one down here. Alternative 4 is a an option that consolidates the storage to a single location, the downstream end. However, to prevent SSOs in the system, we'd need a larger interceptor sewer to get it there without overflowing along the Inkster Arm and the Middle Rouge. So this alternative would require the construction of fairly -- of a very large diameter sewer along the Middle Rouge to get it down to in the vicinity of lift station 1A, which is the downstream of the Middle Rouge before it discharges into GLWA's system. In this case, the total storage is about the same, it's a little less, but there's a significant increase in costs, because you have to

build a lot of pipes to get it there. This alternative is 260 million. It's a little bit more expensive than Alternative 3, and the reason for that is that we would be proposing to build new, larger interceptors along this, these black lines, so that's a lot of miles of new pipe. The -- we're talking about 40- to 50,000, so anywhere from maybe 9 to 10 miles of new interceptor pipe, and the proposed storage location is down here. The problem with this is that there's not many places to put it. There's an existing country club down here. That's the only feasible place to put an underground storage tank. It would be very difficult to obtain even temporary use of that to get it -- to get it in. It would be very expensive, and you'd be shutting down a portion of the golf course for at least a couple of years. Alternative 5 is transport and treat. This is an alternative that EGLE staff wanted us to look at, and this is basically another box to check off. But what would it cost to put larger pipes in and get the flow to a new treatment plant? It's a common alternative in a project like this, but we had to go through it. So it's similar to Alternative 4, but instead of the storage area at the downstream end, there's a treatment plant in the same location. This cost is about $1 billion. The vast majority of that

cost would be a new treatment plant. And, again, this was dismissed relatively early in the process, because it's simply many times more expensive than the other alternatives. This is a map showing what it would look like. Again, the same as before, except instead of a storage tank at the downstream end, there's a treatment plant.

MR. COLLINS: And then what? You treat the water and send it to Great Lakes anyway?

MS. CAVE: No; no.

MR. KACVINSKY: It would be discharged to the Rouge River.

MR. COLLINS: Oh, would it?

MR. KACVINSKY: Yeah. Because it would be -- you'd get a --

MR. COLLINS: Right.

MR. KACVINSKY: -- permit to discharge. You wouldn't have to treat it again.

MR. MARZANO: Is that treatment plant -- I can't tell -- in the same place? Same golf course?

MR. KACVINSKY: That's the spot that would -- that's the likely spot for it to go.

MR. MARZANO: What is that? I remember reading somewhere. Is it Western County Club? Is that --

MS. CAVE: No.
MR. MARZANO: No?
MS. CAVE: This is --
MR. MARZANO: Dearborn?
MS. CAVE: -- the Western Country Club is up on the Bell Branch --
MR. MARZANO: I'm sorry. Dearborn. Yeah.
MR. KACVINSKY: Yeah.
MS. CAVE: This is the privately owned Dearborn County Club.
MR. COLLINS: Right off Ford Road?
MS. CAVE: Yeah.
MR. MARZANO: I'm sure they'll love that idea.
MR. COLLINS: You'll never get that. You're never going to get that.
MR. KACVINSKY: Which is why we didn't -- we didn't spend much time and effort on these two alternatives, because when you look at the prices and the costs, it -- it's -- we're going through the motions to satisfy the EGLE requirements, and that's fine. We've got to check off those boxes. But, again, it is not cost efficient and probably not -- probably not easy to do with the land acquisition that's necessary.

MS. CAVE: And they don't -- you know, the Alternatives 3, 4, and 5 do not include asset management, so it doesn't provide any structural improvements to the pipe itself to extend the life of the system.

MR. MARZANO: It just essentially takes it somewhere else and stores it?

MS. CAVE: Yeah, stores the water. Stores or treats it.

MR. MARZANO: But we still have the culprit that's causing the problem without any fix to it.

MS. CAVE: That's right.

MR. MARZANO: And the assets deteriorate even more.

MS. CAVE: Right.

MR. KACVINSKY: Right.

MS. CAVE: Right.

MR. KACVINSKY: So, you know, when we go through this exercise, we have to answer the question. Well, what if we just put it in tanks and didn't spend the 80 million on the asset management? We have to answer that question. It's important for the communities and the rate payers. When we looked at it, we thought that -- we felt that the asset management component was probably by default a necessary step,

because it reduces the cost of what ultimately needs to get done, and that is wet weather storage. And this is the same table we had earlier, but it circles Alternative 1 as being our default. And in the SRF project plan, it does mention that there is the likelihood that Alternative 2 will be the alternative we'll be looking at. That won't be confirmed until after this asset management component has been looked at or has been ruled out, and then the impacts using the meter data and the model can help confirm whatever or how much of Alternative 2 needs to get done.

MS. CAVE: After 5 years.

MR. KACVINSKY: After 5 years.

MR. MARZANO: So just so I understand, you're going to start with Alternative 1 --

MR. KACVINSKY: Right.

MR. MARZANO: -- see what that does in that 5-year period, and then from there, most likely we'll go to step 2. Is there any possibly we wouldn't need to, or is pretty much a foregone conclusion we're going to have to go to step -- or Alternative 2? I'm sorry.

MS. CAVE: At this moment, because of the uncertainty with the downstream that I mentioned with the connection with the Great Lakes Water Authority, we are hopeful that Alternative 1 will be sufficient. It

is possible that we'll have to build a couple -- those -- go with Alternative 2, but we cannot -- so EGLE, again, we have met with them very frequently for the last many years, but for developing this long-term corrective action plan, they have indicated that they are in agreement with doing this phased approach, where we would do phase 1 for 5 years, assess it, and then commit at that time to if we have to build more storage, and, you know, we will have the -- right now, we're estimating that we would need -- how many gallons? -- about 4 million, the storage in Alternative 2? --

MR. KACVINSKY: 5 to 6 million.

MS. CAVE: -- 5 to 6 million. You know, we'll have the actual data to show how much we've reduced the inflow into the pipe, and that will allow us to make a much better design to decide -- we may only need 2 million, but we may need more. But we can't answer that now, and EGLE has allowed us to do this -- or they've told us they have. They have to actually review the document, and approve it in writing. But that's what they're -- they've indicated.

MR. KACVINSKY: There are other factors too with the individual communities and their management of their own collection systems. Some of the

municipalities have enacted sewer lining programs, footing drain disconnection programs. Those help to reduce flow. So depending on how aggressive the individual communities are with wet weather reduction, that will have a positive impact on the system as well. And, again, another 5 years of system improvements will change things as well. This is the table that was in the SRF project plan. The percent allocations in the second column were based on the rate -- the rate tables from fiscal year '15 and '16. We also adjusted those percentages by removing the townships that went to a -- two of them that are now going in another direction. They're not -- they'll no longer be in the system. So those percentage were -- percentages were adjusted based on the removal of the township flows.

MR. MARZANO: Can I ask a question real quick? I represent two cities that purchased -- or I'm sorry -- one of the two cities, Plymouth, purchased capacity from WTUA. Will that change our allocation once that gets the --

MS. CAVE: Yes.

MR. MARZANO: -- we're waiting on you guys to approve it, but --

MS. CAVE: Well, actually it hasn't been officially submitted to the County yet.

MR. MARZANO: We submitted it to you guys. Maybe the County -- we've -- all -- The WTUA, Plymouth, and Canton Township and Plymouth Township have all signed off on it with -- say his name, and I'll tell you.

MS. CAVE: Yes. It's with Mr. --

MR. COLLINS: Caldwell.

MR. MARZANO: Yeah, Mike Caldwell.

MS. CAVE: -- Barbier.

MR. MARZANO: Yeah, Chuck. He's got it down to Mike Caldwell. We're just waiting for -- to get the commission now, from what I understand.

MS. CAVE: Okay. Well, regardless, yes, the -- your allocation won't change.

MR. MARZANO: Okay.

MS. CAVE: And we have also -- are working on a new rate package, which is -- actually was just sent while we were all sitting in this room to the communities, and so the allocations, this was on the last adopted, officially adopted rate package. They will change based on the new rate package when that is adopted, and the plan for that is to have the communities have another look at the revised package that was sent out tonight, and then we'll submit that to the County Commission so that it would be in effect

on July 1st.

MR. KACVINSKY: And then the costs in this table, this is a simplified analysis. Now, this is based on the years 1 through 5 of Alternative 1, which is approximately 10 million a year. The actual cash flow will be different than that, because there will be debt financing and there will be other factors in play. And so that was listed in the SRF project plan as an 18 per increase in the overall rate relative to the '15, '16 rate. The rate table Kelly was referring to, the increase is less than that, and that's to get started in year 1 with some of these projects, understanding that after the first year, depending on how the loan financing works and the timing and the interest rate, there'll be another rate increase to get the rest of the way. But the numbers in the SRF project plan were conservative in that it just assumed pay as you go for the asset management plan. The approximate monthly increase in the sewer bill is very simplified. It's based on population, or, you know, number of households. It does not account for the percentages of commercial/industrial that flow into the system that may skew the numbers a little bit. This is the analysis that we typically do for the SRF project plan. It's for information, but it's very -- it's just

approximate. So I wouldn't -- I wouldn't consider those numbers to be accurate or to reflect what the actual costs will be. As I mentioned before, the actual rate increases that the County just sent out are substantially lower than 18 percent that we were showing in the SRF project plan. So as far as the conceptual cost estimates, years 1 through 5, this requires an investment of about 10.3 million a year in the system. In years 6 through 10, the additional amount is lower, because that more aggressive capital improvement in years 1 through 5 backs off, and it is more system inspection and targeted improvements, not as widespread in years -- as in years 1 through 5. So this version up here is if Alternative 1 solves our issues, and there's no more work to be done. If Alternative 2 comes into play and there is additional storage needed, then the level of investment will be similar as in years 1 through 5, because then there'll be the construction of one or two storage facilities. And so in that case, the additional amount relative to existing rates would be similar in magnitude to what we're proposing in years 1 through 5. In years 11 through 20, the assumption is that by this point, you've got whatever storage is required in the system, and so the additional amount relative to today would be

relatively small, because now you're looking at perpetual asset management components, and that's sewer televising. So we're still recommending that the system is televised in the 5 years -- is it 5-year or 7-year cycle? --

MS. RUSSELL: 5.

MR. KACVINSKY: -- 5-year cycle, and there'll be -- there's a provision for some occasional pipe replacement or lining into perpetuity, because it's a system that will always be aging, will always require some help. And, again, all of these costs are based on pay as you go. This does not reflect the cash flow impacts of debt financing, because we don't know exactly the timing of that and the interest rates. So this is more conservative.

MS. CAVE: If we do get -- if we're successful in getting the low interest SRF loan, then the impacts will be less, because it'll be financed through debt.

MR. KACVINSKY: So the next steps, the public comment period through the public notice goes through May 27th, so any comments received through May 27th will be considered for the SRF project plan. In the month of June, we'll be editing that plan based on any comments we get from EGLE staff, as well as comments

received from the public. And we will be submitting SRF project plan to EGLE by June 29th, 2019 per the Final Order of Abatement. And that is the first step in securing loan interest loans for the Rouge Valley System. Implementation will begin -- is anticipated to begin this summer. Likely that will be more aggressive sewer televising. Some of that televising will include inspection and finding additional manholes in the flood plane. Some of those will be cutting manholes. We'll also be looking at some local systems that are in the flood plane as well, because they all contribute, and beginning to develop plan specifications for manhole retrofits for some of the -- especially the problem structures that were identified. With that, I guess we'll open it up to any questions.

MR. MARZANO: I have one. So the resolution that we've been asked to review and take to our City Council talks about a 5-year asset management plan in the amount of $51,660,000, but we're looking at an $80 million estimate. What's the difference? What are those two numbers, and why aren't they the same?

MR. KACVINSKY: The 51 million is -- represent years 1 through 5. The remaining roughly 30 million represents years 6 through 20.

MR. MARZANO: Okay.

MR. KACVINSKY: So on a per year basis, the asset management plan costs scale way back after year 5.

MR. MARZANO: Okay. And if for some -- what? -- you know, hopefully after that fifth year, if we've figured out the asset management plan worked, that could be the end of it?

MR. KACVINSKY: Well, the asset management plan costs will still be there.

MR. MARZANO: Okay.

MR. KACVINSKY: So in that case, there -- that remaining 30 million would still be programmed in for inspection and repair --

MR. MARZANO: Okay. That's fine.

MR. KACVINSKY: -- and rehabilitation.

MR. MARZANO: Okay.

MS. CAVE: The reason that we -- in negotiating with some of the attorneys in terms of the language of the resolution when it was requested that it be different than what the EGLE staff originally told us it needed to be, the reason that we put that 51 million, the 5-year window is that the SRF program requires you to do a 20-year project plan; however, they will fund -- they -- the --

MR. SANZICA: Eligible.

MS. CAVE: -- the costs that are eligible for your initial loan is only the first 5 years. So if you need to do projects in years 6, 7, and 8, if we need to build those additional storage tanks that we've identified in Alternative 2, they require -- the EGLE requires that the project plan be updated, new resolutions obtained, and you go through the same process. You submit the document, they review it, and tell you you're eligible for another loan.

MR. MARZANO: Do they say -- so for instance, say you get the SRF approval --

MS. CAVE: Uh-huh.

MR. MARZANO: -- for the first 5 years, and everything goes as planned, but you've got to go back for the next 5 years.

MS. CAVE: That's right.

MR. MARZANO: Is there any guarantee that you're going to get SRF funding for that next 5 years, or is it you're just back to square one where they may approve it, they may not?

MS. CAVE: You're back to square one. What they do is all project plans in Michigan are submitted -- have to be submitted for July 1st for funding eligibility in the next fiscal year. The State's fiscal year begins October 1st. So they get

the project plans from all across the state, and they determine if they're eligible for funding, and then they rank the projects. They have about -- I don't know -- 10, 15 criteria that they use. They look at whether there's -- the project that's being done is part of an enforcement action, which this one is. You get more points if it's part of an enforcement action. They look at population served, water quality impacts, a number of factors. So then they rank the projects based on the points awarded. Then they determine how much money they have available to give out under the -- under loans, and draw a line. So you need to be above your -- you're in the -- you're called -- it's called the fundable range, if your project is above -- in the list that is within the amount of money that they have to give out. So they will do that again after the first 5 years, if we need to up -- if we've decided that we need to do more to control the SSOs, but we will still have the points for it being an enforcement, the extra points that -- because it's an enforcement action.

MR. KACVINSKY: And all that's predicated on whether the EPA continues to fund that program --

MS. CAVE: Yes.

MR. KACVINSKY: -- because that's where the

money comes from. It appears that it will continue to be funded, but that can always change.

MR. MARZANO: Sure. Right.

MS. CAVE: Yes.

MR. McCAULEY: In bringing your resolution before a City Council or a Township Board, the first thing I think that they're going to look at is 18 percent. The sky is falling. We have this rate increase. Secondly, why should we approve something, unless we know exactly what it's going to cost per resident? And I wonder how we finesse an answer to those questions.

MS. CAVE: What we're planning to do, Patrick, is now that we have the right package of revised -- right package that reflects some of the community comments, Greg, Nancy, and I are going -- we have -- we prepared an executive summary that was provided to all the communities to -- that they could use to describe this project plan to the governing body of the community. We are going to update that, and show the proposed -- what it would look like with the proposed rate package.

MR. McCAULEY: Okay. Thank you.

MR. KACVINSKY: There are two variables there. There's the reduced amount, the reduced

increase, and also the allocations have changed based on self-reported flow. So some of the percentages have gone up, and some have gone down, and so that will be important as well. So the impact to each of the communities will vary. It won't be constant. It won't be a constant percentage. The percentages in the SRF project plan were constant, because we were -- we were basing it on the '15, '16 rate tables, with the exception that there were the two township flows that were taken out.

MR. McCAULEY: Sounds like a good part of the solution is to have Wayne County come and explain all this stuff for us.

MS. CAVE: Well, we have offered many times to the technical committee members from the communities if they would like someone from our project team to come to the governing body meeting when the LTCAP resolution is going to be discussed, to let us know, and so that we can try to schedule someone to come.

MR. McCAULEY: Thank you.

MR. MARZANO: And you need these by June 29th obviously?

MS. CAVE: Yes.

MR. MARZANO: I don't know. I know my cities meet the 3rd and the 17th of June, the next meetings,

so which I think most communities or townships are different.

MR. KACVINSKY: I would respectfully request that at this point, if you could go for the 17th, because right now, I think we have four meetings on the 3rd.

MS. RUSSELL: Yeah.

MS. CAVE: No, it went up. We have another one.

MR. KACVINSKY: Oh, do we?

MS. CAVE: We have five.

MR. KACVINSKY: Okay. So we're going to be --

MS. RUSSELL: Stretched thin.

MR. KACVINSKY: -- yeah, we'll be stretched thin on the June 3rd.

MR. MARZANO: That's what I figured, so -- but you get the panickers at the end.

MR. COLLINS: Yeah.

MR. MARZANO: I'm doing the agenda for the 17th. I've got to do this. Okay. No problem.

MS. CAVE: Any other questions or comments? Well, thank you for coming. We'll consider the public hearing to be closed at 7:10 p.m.

(The meeting was concluded at 7:10 p.m.)

CERTIFICATE OF NOTARY

STATE OF MICHIGAN)
) SS
COUNTY OF WAYNE)

I, MELYNDA JARDINE, certify that this meeting was taken before me on the date hereinbefore set forth; that the foregoing questions and answers were recorded electronically and transcribed by me; that this is a true, full, and correct transcript of my recording so taken; and that I am not related to, nor of counsel to, either party nor interested in the event of this cause.



MELYNDA JARDINE, CER-7536
Notary Public,
Oakland County, Michigan.
My Commission expires: March 23, 2021

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DRAFT – June 29, 2019

Appendix L: Resolutions

Warren C. Evans
Wayne County Executive

Via Electronic Mail

April 22, 2019

Subject: Resolution for Mandated State Revolving Fund Project Plan
Long Term Corrective Action Plan, Rouge Valley Sewage Disposal System
Fourth Amended Final Order of Abatement Number 2117 (AACO-000031)

Dear Rouge Valley Sewage Disposal System Customer[1]:

In 1989, Wayne County and the Michigan Department of Environmental Quality (now known as Department of Environment, Great Lakes and Energy (EGLE)) entered Final Order of Abatement #2117 (FOA 2117, Amended Administrative Consent Order AACO-000031), most recently amended in July 2015, to resolve Sanitary Sewer Overflows (SSOs) in compliance with the revised EGLE SSO Policy. A Long Term Corrective Action Plan (LTCAP) for the RVSDS is a required component of FOA 2117.

The RVSDS LTCAP is described in a Project Plan, which is required to be submitted to the EGLE by June 29, 2019. The RVSDS LTCAP Project Plan will also be submitted to EGLE under the State Revolving Fund (SRF) program, for review to determine funding eligibility for LTCAP implementation under a low interest 20-year SRF loan. As a municipality serviced by the RVSDS, it is necessary that your community authorize the RVSDS LTCAP SRF Project Plan by resolution. For your convenience, a sample resolution is attached, along with a summary of the Project Plan which may be useful in presenting the Project Plan to your municipality's governing body.

In order to comply with SRF deadlines, the resolution from your municipality's governing body should be received by May 31, 2019, but **no later than June 14, 2019.** Please forward a true copy of the resolution to the undersigned at the mailing address below or email a copy to Kelly Cave at kcave@waynecounty.com.

If you have any questions about this matter, please contact Ms. Cave at (313) 213-5273.

Sincerely,

Elmeka N. Steele

Elmeka N. Steele, Esq.
Deputy Director
Wayne County Department of Public Services

[1] Transmitted to: John Selmi, City of Dearborn Heights; Chris Porman, City of Plymouth; Ramzi El-Gharib, City of Westland; Brad Ohman, City of Garden City; George Bednarski, Redford Township; Brian Coburn, Oakland Co. WRC; Don Rohraff, City of Livonia; Roberto Scappaticci, City of Romulus; Jerome Bivins, City of Inkster; James Taylor, Van Buren Township; Lloyd Cureton, City of Northville; Ed Queen, City of Wayne; Bryan Wagoner, Wayne Co. Airport Authority.

A RESOLUTION ADOPTING A FINAL PROJECT PLAN FOR WASTEWATER SYSTEM IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the_____ (*legal name of community*) recognizes the need to make improvements to the Rouge Valley Sewage Disposal System in compliance with Final Order of Abatement #2117 (Amended Administrative Consent Order AACO-000031) issued by the Michigan Department of Environmental Quality (now known as Department of Environment, Great Lakes and Energy (EGLE)); and

WHEREAS, the Charter County of Wayne and its engineering consulting team led by Orchard, Hiltz & McCliment, Inc. prepared the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System (Project Plan), to identify, evaluate and recommend construction of improvements to the RVSDS to ensure the reliability of the RVSDS and its compliance with current and future regulatory requirements; and

WHEREAS, the planning level costs of projects recommended for implementation during the first five years total $51,660,000 and include an Asset Management Plan to remove river dependent inflow and address hydraulic deficiencies by rehabilitation and replacement of sewer pipes, manholes, junction chambers and regulators pursuant to AACO-00031; and

WHEREAS, submittal of a Project Plan to EGLE is necessary for the RVSDS improvements within the Project Plan to be eligible for funding under the Clean Water State Revolving Fund (SRF) Loan Program; and

WHEREAS, it is anticipated that application will be made to the SRF for the improvements identified in the Project Plan, and costs to implement the Project Plan (including said loans if obtained) will be repaid by the RVSDS customer municipalities; and

WHEREAS, said Project Plan will be presented at a Public Hearing to be held on or before May 31, 2019 and all public comments will be considered and addressed;

NOW THERFORE BE IT RESOLVED, that the _____(*legal name of community*) approves the Charter County of Wayne filing said Project Plan with EGLE and formally supports the first five (5) year Asset Management Plan in the amount of $51,660,000 of the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System.

BE IT FURTHER RESOLVED, that the Deputy Director of the Wayne County Department of Public Services, a position currently held by Elmeka Steele, is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for revolving fund loans to assist in the implementation of the RVSDS Long Term Corrective Action Plan.

Yeas:
Nays:
Abstain:
Absent:

I certify that the above Resolution was adopted by _____(*the governing body of the applicant)* on _____.

BY:_____

Name and Title (*please print or type*)

_____

Signature Date

Warren C. Evans
Wayne County Executive

Executive Summary
2019 SRF Project Plan
Rouge Valley Sewage Disposal System, Long Term Corrective Action Plan

REVISED: May 30, 2019

The Rouge Valley Sewage Disposal System (RVSDS) transports wastewater collected by 12 municipalities in Wayne County and 1 municipality in Oakland County to the regional wastewater system and Water Resource Recovery Facility owned by Detroit Water and Sewerage Department and operated by the Great Lakes Water Authority (GLWA). The RVSDS is owned by Wayne County and operated by its Department of Public Services (WCDPS). In 1989, Wayne County and the Michigan Department of Environment, Great Lakes and Energy (EGLE) (formerly known as the Department of Environmental Quality, MDEQ) entered into a Final Order of Abatement #2117 (FOA 2117), most recently amended in July 2015, to resolve Sanitary Sewer Overflows (SSOs) in compliance with the revised EGLE SSO Policy. To date, Wayne County has completed numerous studies and system improvements in compliance with FOA 2117. For the past several years, work has been focused on developing the Long-Term Corrective Action Plan (LTCAP) for the RVSDS, a required component of FOA 2117.

The SRF Project Plan is being submitted to the EGLE in June 2019 in order to meet our regulatory obligations and to seek low interest subsidized loans under the State Revolving Fund (SRF) to finance the necessary improvements to the sewer system. This effort included detailed analysis of multiple alternatives to manage SSOs within the RVSDS to satisfy the EGLE SSO Policy, primarily by controlling wet weather inflow and infiltration into the system, and to enhance system structural integrity and longevity. The alternatives represent varying strategies to achieve these goals. The five alternatives assessed in this SRF Project Plan for the RVSDS LTCAP are summarized in the table below.

Alternative	Description	Conceptual Cost Estimate*	
1	Asset Management Plan is fully implemented, including local wet weather flow reduction projects to the point that no further projects are necessary	$80 Million	**Prime Alternatives**
2	Asset Management Plan is fully implemented, although local wet weather flow reductions were not sufficient enough to eliminate all SSOs for the design event. Additional storage along the Inkster Arm and the Middle Rouge Interceptor is necessary.	$127 Million	
3	Decentralized storage only (no asset management). Install several storage facilities along the Middle Rouge Interceptor as well as storage on the Inkster Arm.	$247 Million	**Alternatives NOT being considered**
4	Conveyance and Centralized Storage only (no asset management). Conveyance and centralized storage projects include construction of large interceptors to convey the design event to JC 2-8 and store the wet weather volume at a single location at the downstream end of the Middle Rouge Interceptor, near LS1A.	$260 Million	
5	Conveyance and Treatment. Same as Alternative 4, but with a localized Water Resource Recovery Facility.	$1.07 Billion	

**Includes contingency and engineering/legal/administrative costs for entire 20-year planning horizon.*

Alternative 1 represents the **most cost-efficient** approach to controlling SSOs from the RVSDS and to ensure operational efficiency, structural integrity, hydraulic capacity, and longevity of the system. ***Alternative 1 is the recommended alternative;*** it focuses on a system-wide Asset Management Plan, including the removal of river-dependent inflow that currently enters the system into manholes located in the floodplain of the Middle and Lower Rouge Rivers. Additional projects include sewer pipe inspection and rehabilitation, junction retrofits, optimizing combined sewer overflow (CSO) regulator flows

to the RVSDS, and improvements to a key system pumping facility (Lift Station 1A). This alternative also addresses a hydraulic bottleneck on the Lower Rouge Interceptor.

Asset Management (AM) is a critical component of effective utility management that focuses on the long-term operability through targeted but ongoing investments in key system assets. It is likely that after five years of the Asset Management Plan (Alternative 1), there may be remaining unaddressed SSOs. If that is the outcome, additional wet weather storage will be deemed necessary (Alternative 2) to comply with FOA 2117.

The AM efforts have begun and will continue to ramp up as the County is able to adjust sewer rates to RVSDS communities to meet the defined revenue needs. Beyond the first five years, the impacts of the Alternative 1 system improvements will be measured; if additional controls are needed to address SSOs, then Alternative 2 will be implemented, which includes targeted wet weather storage along the Inkster Arm and Middle Rouge Interceptors of the RVSDS.

Summary of Conceptual Costs

The proposed rate package for the rate year starting July 1, 2019 has been reviewed by the communities and submitted to the Wayne County Commission and Executive for approval. The proposed rate increases by 6.43% compared to the prior rate year. The County budgeted $2.6 million for design/construction costs for implementation of the first year of LTCAP Alternative 1. However, increased expenditures and likely additional rate increases over the next four years will be necessary to fully-implement the $51.7 AM budget for Years 1-5. The timing and magnitude of additional rate increases will be dependent on the timing and interest rates of SRF loans used to finance the AM efforts.

Tables 1 and 2 on the following pages present summaries of the estimated program costs and impacts on sewer rates for each community for the recommended Alternative 1, and for Alternative 2 (if necessary). Table 1 is based on the conservative assumption that all funding will be based on operating revenue with no SRF loan funding. Table 2 considers the impact of an SRF Loan scenario on annual cash flow needs through Year 5.

- Years 1 – 5: Additional $10.3 million per year (5-year average) above the current annual expenditures
- Years 6 – 10: Additional $2.5 million per year above the current annual expenditures ***(if no wet weather storage is needed)***

OR

- Years 6 – 10: Additional $11.9 million per year (5-year average) above the current annual expenditures ***(Alternative 2: wet weather storage is required)***
- Years 11 – 20: Additional $1.7 million per year above the current annual expenditures (ongoing Asset Management activities)

The existing annual expenditures for the RVSDS are approximately $57.5 million per year per the previous year rate package. Based on the Alternative 1 recommended projects in the SRF Project Plan, the fixed charges will increase by different amounts each year, based on the timing of implementation of key components under Alternative 1. As mentioned above, the first year includes $2.6 million to begin the AM implementation, which is significantly lower than the $10.3 million annual expenditure listed above. Spending in rate year 2020/2021 and beyond will accelerate accordingly to meet the AM objectives established for Years 1-5, although the SRF Loan process will allow for a lower annual cash flow need, thereby buffering future rate increases. Table 2 includes a debt financing scenario that reduces total costs in Years 1-5 (although this debt will impact fees for the next 20 years).

Additionally, rate increases in Table 2 relative to the previous rate package vary by community, based on a number of factors including updated self-reported flows from the previous two years and the removal of the WTUA Townships from the RVSDS service area.

Table 2 includes a scenario where two 20-year SRF loans are secured (one in 2020 and the other in 2022). This controls the cash flow needs for the initial 5 years of the LTCAP. Additional details on the impact of SRF loans for the LTCAP projects on sewer rates charged to customer communities (FY20/21 and beyond) will be made available upon EGLE approval of the SRF Project Plan and the County's successful application for low interest SRF loans for the recommended projects.

2019 SRF Project Plan, RVSDS LTCAP
Executive Summary, REVISED: May 30, 2019

TABLE 1 – Alternative 1 / Alternative 2 Annual Conceptual Cost Estimate [2019 Dollars]

SRF Project Plan Task			FISCAL YEAR BEGINNING										
			2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029-2038
Asset Management Projects	Remove River Inflow	Local and County Floodplain Manhole Replacement and Repairs	$2,880,000	$2,880,000	$2,880,000	$2,880,000	$2,880,000	$800,000	$800,000	$800,000	$800,000	$800,000	$500,000
		Local and County Floodplain Manhole Inspections	$115,200	$115,200	$115,200	$115,200	$115,200	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000
		Wayne County Parks Dual Purpose Pathways	$298,000	$298,000	$298,000	$298,000	$297,000						
	Address Hydraulic Capacity and Structural Integrity	Televising	$865,000	$865,000	$865,000	$865,000	$865,000	$600,000	$600,000	$600,000	$600,000	$600,000	$600,000
		Sewer Rehabilitation	$4,050,000	$4,050,000	$4,050,000	$4,050,000	$4,050,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$500,000
		Junction Retrofits											
	CSO Operational Enhancements			$900,000	$900,000	$900,000							
	LS1A Screening Improvements/Lower Rouge Isolation			$3,600,000	$3,600,000								
Ancillary Projects	Line Connection Siphon (Lower Rouge)			$720,000									
Wet Weather Storage	Alternative 2 Wet Weather Storage (If Necessary)		**Alternative 2 Only ---------->**					$2,300,000	$3,000,000	$15,000,000	$20,000,000	$7,000,000	
Community Specific Projects	Hydraulic Improvements to Local Connection to the RVSDS							Costs by others					
ANNUAL COST (ALTERNATIVE 1 ONLY)			**$8,208,200**	**$13,428,200**	**$12,708,200**	**$9,108,200**	**$8,207,200**	**$2,480,000**	**$2,480,000**	**$2,480,000**	**$2,480,000**	**$2,480,000**	**$1,680,000**
ANNUAL COST (IF ALTERNATIVE 2 IS NECESSARY)			**$8,208,200**	**$13,428,200**	**$12,708,200**	**$9,108,200**	**$8,207,200**	**$4,780,000**	**$5,480,000**	**$17,480,000**	**$22,480,000**	**$9,480,000**	**$1,680,000**

Notes: Conceptual Cost Estimates are in 2019 dollars. Final cost estimates will be prepared when engineering plans are finalized prior to wet weather storage construction (Alternative 2).

TABLE 2 – Preliminary Cost Allocation and Fee Impacts [2019 Dollars]

		LTCAP-Related Costs: Rate Year Beginning									
RVSDS Customer	Allocation Percentage from Proposed 19/20 Rate Package Presentation[1]	2019	2020	2021	2022	2023	Increase/Decrease Relative to Existing Fixed Charges Over 5-yr Period[2],[7]	Total Number of Households[3]	Population in Service Area	Number of Households in Service Area	Approximate Monthly Increase in Typical Sewer Bill (Average over 5 years)[4]
DEARBORN HTS	8.34%	$ 216,923	$ 325,384	$ 325,384	$ 442,188	$ 442,188	24%	22,506	36,004	12,001	$ 2.43
GARDEN CITY	5.29%	$ 137,438	$ 206,157	$ 206,157	$ 280,162	$ 280,162	33%	10,856	25,709	10,856	$ 1.70
INKSTER	5.66%	$ 147,087	$ 220,630	$ 220,630	$ 299,831	$ 299,831	13%	10,147	23,806	10,147	$ 1.95
LIVONIA	27.75%	$ 721,573	$ 1,082,359	$ 1,082,359	$ 1,470,898	$ 1,470,898	18%	37,957	96,589	37,957	$ 2.56
NORTHVILLE	1.51%	$ 39,283	$ 58,924	$ 58,924	$ 80,076	$ 80,076	14%	1,182	2,570	1,182	$ 4.47
PLYMOUTH	1.03%	$ 26,768	$ 40,152	$ 40,152	$ 54,565	$ 54,565	-46%	4,141	8,940	4,141	$ 0.87
REDFORD TWP	10.87%	$ 282,543	$ 423,814	$ 423,814	$ 575,952	$ 575,952	19%	19,201	42,921	14,307	$ 2.66
ROMULUS	0.75%	$ 19,495	$ 29,243	$ 29,243	$ 39,741	$ 39,741	20%	9,197	2,275	758	$ 3.46
VAN BUREN TWP	1.98%	$ 51,578	$ 77,367	$ 77,367	$ 105,140	$ 105,140	51%	12,276	6,627	2,209	$ 3.14
WAYNE	4.97%	$ 129,130	$ 193,696	$ 193,696	$ 263,227	$ 263,227	-2%	6,915	17,213	6,915	$ 2.51
WESTLAND	19.16%	$ 498,222	$ 747,333	$ 747,333	$ 1,015,606	$ 1,015,606	38%	36,003	84,058	36,003	$ 1.86
OAKLAND COUNTY (Novi)	12.48%	$ 324,592	$ 486,888	$ 486,888	$ 661,668	$ 661,668	24%	24,334	53,816	17,939	$ 2.44
W.C. AIRPORT	0.21%	$ 5,370	$ 8,054	$ 8,054	$ 10,946	$ 10,946	146%	N/A	N/A	N/A	N/A
Totals	100.00%	***$ 2,600,000***	***$ 3,900,000***	***$ 3,900,000***	***$ 5,300,000***	***$ 5,300,000***					

Existing Annual Fixed Charges	$ 57,563,091	$ 57,563,091	$ 57,563,091	$ 57,563,091	$ 57,563,091	$ 287,815,455	
Additional Annual Charges (Alternative 1)[5]	$ 2,600,000	$ 3,900,000	$ 3,900,000	$ 5,300,000	$ 5,300,000	$ 21,000,000	
Total Projected Annual Charges[6]	$ 60,163,091	$ 61,463,091	$ 61,463,091	$ 62,863,091	$ 62,863,091	$ 308,815,455	
Percent Increase Related to LTCAP Only							7.3%

[1] *Allocation excludes Canton, Northville, and Plymouth Townships per planned termination of RVSDS sewer service to those communities. Percentages were calculated based on self reported two year flow data.*

[2] *The rate increase or decrease was calculated by the Total of Rate Year 2019/2020 divided by the Annual Billing Amount from the previous rate year; detailed calculations can be found in the proposed 2019/2020 rate package*

[3] *SEMCOG Data*

[4] *Actual increases in sewer bills will vary by year and by municipality based on the annual rate package and on the County's successful application for low interest SRF loans for the recommended projects.*

[5] *Reflects $2.6 million/yr starting in 19/20 rate year for initial LTCAP rollout, then two SRF Loans (2020 and 2022), for remainder of Alternative 1 costs at a 20-year term at 2.0% (2020) and 2.25% (2022)*

[6] *Does not include other additional costs for future years (e.g. increases in GLWA disposal fees, deficit funding replenshiment, etc.)*

[7] *The term 'existing' refers to the existing rate package which was adopted in 2015*

Notes: Conceptual Cost Estimates are in 2019 dollars. Final cost estimates will be prepared when engineering plans are finalized prior to wet weather storage construction (Alternative 2).

City of Dearborn Heights
6045 FENTON • DEARBORN HEIGHTS, MICHIGAN 48127

Walter J. Prusiewicz
CITY CLERK

TO: DPW DIRECTOR SELMI

FROM: CITY CLERK PRUSIEWICZ WJP

DATE: JUNE 19, 2019

RE: RESOLUTION TO SUPPORT WAYNE COUNTY'S STATE REVOLVING FUND (SRF) PROJECT PLAN

The following is a copy of a motion adopted at the Regular Meeting of the Dearborn Heights City Council held on June 11, 2019.

19-234 Motion by Councilwoman Hicks-Clayton, seconded by Councilman Muscat to concur and approve the Resolution to Support Wayne County's SRF Project Plan Submittal, as outlined in 11-B. Per DPW Director Selmi communication dated June 3, 2019.

Ayes: Council Chairwoman Malinowski Maxwell, Councilman Abdallah, Councilman Bazzi, Councilman Constan, Councilwoman Hicks-Clayton, Councilman Muscat, Councilman Wencel.
Nays: None.
Absent: None.

Motion unanimously adopted.

WJP/ls

cc: Wayne County
File

(313) 791-3430 • Fax: (313) 791-3401 • Email: clerk@ci.dearborn-heights.mi.us

A RESOLUTION ADOPTING A FINAL PROJECT PLAN FOR WASTEWATER SYSTEM IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the City of Dearborn Heights recognizes the need to make improvements to the Rouge Valley Sewage Disposal System in compliance with Final Order of Abatement #2117 (Amended Administrative Consent Order AACO-000031) issued by the Michigan Department of Environmental Quality (now known as Department of Environment, Great Lakes and Energy (EGLE)); and

WHEREAS, the Charter County of Wayne and its engineering consulting team led by Orchard, Hiltz & McCliment, Inc. prepared the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System (Project Plan), to identify, evaluate and recommend construction of improvements to the RVSDS to ensure the reliability of the RVSDS and its compliance with current and future regulatory requirements; and

WHEREAS, the planning level costs of projects recommended for implementation during the first five years total $51,660,000 and include an Asset Management Plan to remove river dependent inflow and address hydraulic deficiencies by rehabilitation and replacement of sewer pipes, manholes, junction chambers and regulators pursuant to AACO-00031; and

WHEREAS, submittal of a Project Plan to EGLE is necessary for the RVSDS improvements within the Project Plan to be eligible for funding under the Clean Water State Revolving Fund (SRF) Loan Program; and

WHEREAS, it is anticipated that application will be made to the SRF for the improvements identified in the Project Plan, and costs to implement the Project Plan (including said loans if obtained) will be repaid by the RVSDS customer municipalities; and

WHEREAS, said Project Plan was presented at a Public Hearing held on May 22, 2019 and all public comments will be considered and addressed;

NOW THERFORE BE IT RESOLVED, that the City of Dearborn Heights approves the Charter County of Wayne filing said Project Plan with EGLE and formally supports the first five (5) year Asset Management Plan in the amount of $51,660,000 of the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System.

BE IT FURTHER RESOLVED, that the Deputy Director of the Wayne County Department of Public Services, a position currently held by Elmeka Steele, is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for revolving fund loans to assist in the implementation of the RVSDS Long Term Corrective Action Plan.

Yeas: Council Chairwoman Malinowski Maxwell, Councilman Abdallah, Councilman Bazzi, Councilman Constan, Councilwoman Hicks-Clayton, Councilman Muscat, Councilman Wencel
Nays: NONE
Abstain: NONE
Absent: NONE

I do hereby certify that the foregoing is a true and correct copy of a resolution adopted by the members-elect of the City Council of the City of Dearborn Heights at a regular meeting held at 8:00 p.m. on Tuesday, June 11, 2019 and that said meeting was conducted and public notice of said meeting was given pursuant to and in full compliance with the Open Meetings Act of Michigan and that the minutes of said meeting were kept and will be made available as required by said act.

Walter J. Prusiewicz, City Clerk

A Great Place to Call Home!

Clerk/ Treasurer

6000 Middlebelt Road
Garden City, Michigan 48135
Phone: 734-793- 1620
Fax: 734-793- 1601
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Matthew K. Miller,
Clerk/ Treasurer

Mayor & City Council

Randy Walker, *Mayor*
Mark Jacobs, *Mayor Pro-Tem*
Brian Earle, *Council Member*
Kelly Kerwin, *Council Member*
Jaylee Lynch, *Council Member*
Patricia McKarge, *Council Member*
Pat Squires, *Council Member*

Doc Dougherty, *City Manager*

THE CITY OF GARDEN CITY
RESOLUTION #19-06-0106

A RESOLUTION SUPPORTING THE SUBMITTAL OF A FINAL PROJECT PLAN FOR WASTEWATER SYSTEM IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the **City of Garden City, Michigan** recognizes the need to make improvements to the Rouge Valley Sewage Disposal System (RVSDS), owned and maintained by the Charter County of Wayne, in compliance with Final Order of Abatement #2117 (Amended Administrative Consent Order AACO-000031) issued by the Michigan Department of Environmental Quality (now known as Department of Environment, Great Lakes and Energy (EGLE)); and

WHEREAS, the Charter County of Wayne and its engineering consulting team led by Orchard, Hiltz & McCliment, Inc. prepared the 2019 Clean Water State Revolving Fund (SRF) Project Plan, Long Term Corrective Action Plan for Improvements to the RVSDS (Project Plan), to identify, evaluate and recommend construction of improvements to the RVSDS to ensure the reliability of the RVSDS and its compliance with current and future regulatory requirements; and

WHEREAS, the planning level costs of projects recommended for implementation during the first five (5) years are estimated at a total of $51,660,000 and include an Asset Management Plan to remove river dependent inflow and address hydraulic deficiencies by rehabilitation and replacement of sewer pipes, manholes, junction chambers and regulators pursuant to AACO-00031; and

WHEREAS, submittal of a Project Plan to EGLE is necessary to fund RVSDS improvements within the Project Plan to be eligible for funding under the SRF Loan Program; and

WHEREAS, it is anticipated that application will be made to the SRF for the improvements identified in the Project Plan as Alternative Number 1, and costs to implement the Project Plan (including said loans if obtained) will be repaid by the thirteen (13) RVSDS customer municipalities; and

WHEREAS, said Project Plan was presented at a Public Hearing held on Wednesday, May 22, 2019 at 6:00pm at the City of Livonia Civic Center and all public comments considered and addressed;

NOW THERFORE BE IT RESOLVED, that the **City of Garden City, Michigan** formally supports said Project Plan, supports the Charter County of Wayne filing of said Project Plan with EGLE, and supports implementation of Alternative Number 1 of the Project Plan if SRF funding is approved for the first five (5) years of the recommended alternative (Asset Management Plan) in the estimated amount of $51,660,000 as described in said Project Plan.

THE CITY OF GARDEN CITY
RESOLUTION #19-06-0106
PAGE TWO

BE IT FURTHER RESOLVED, that Mr. Brad Ohman, Director of Public Services for the City of Garden City be the designated representative for the City to respond to any questions or comments related to the project plan pertaining to the City of Garden City.

Yeas: Walker, Jacobs, Lynch, Squires, Earle, McKarge
Nays: None
Abstain: None
Absent: Kerwin

I certify that the above Resolution was adopted by the City Council of the City of Garden City, Michigan on Monday, June 3, 2019.

BY: Matthew K. Miller, City Clerk/Treasurer

Matthew K. Miller 6/4/19

Signature Date

Inkster
Discover. Grow. Unite.

Resolution No. 6-19-97R
June 3, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF INKSTER:

WHEREAS, the City of Inkster City Council approves to adopt the following Resolution:

A RESOLUTION ADOPTING A FINAL PROJECT PLAN FOR WASTEWATER SYSTEM IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the City of Inkster (*legal name of community*) recognizes the need to make improvements to the Rouge Valley Sewage Disposal System in compliance with Final Order of Abatement #2117 (Amended Administrative Consent Order AACO-000031) issued by the Michigan Department of Environmental Quality (now known as Department of Environment, Great Lakes and Energy (EGLE)); and

WHEREAS, the Charter County of Wayne and its engineering consulting team led by Orchard, Hiltz & McCliment, Inc. prepared the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System (Project Plan), to identify, evaluate and recommend construction of improvements to the RVSDS to ensure the reliability of the RVSDS and its compliance with current and future regulatory requirements; and

WHEREAS, the planning level costs of projects recommended for implementation during the first five years total $51,660,000 and include an Asset Management Plan to remove river dependent inflow and address hydraulic deficiencies by rehabilitation and replacement of sewer pipes, manholes, junction chambers and regulators pursuant to AACO-00031; and

WHEREAS, submittal of a Project Plan to EGLE is necessary for the RVSDS improvements within the Project Plan to be eligible for funding under the Clean Water State Revolving Fund (SRF) Loan Program; and

WHEREAS, it is anticipated that application will be made to the SRF for the improvements identified in the Project Plan, and costs to implement the Project Plan (including said loans if obtained) will be repaid by the RVSDS customer municipalities; and

WHEREAS, said Project Plan will be presented at a Public Hearing to be held on or before May 31, 2019 and all public comments will be considered and addressed;

NOW THERFORE BE IT RESOLVED, that the City Of Inkster (*legal name of community*) formally adopts said Project Plan, approves the Charter County of Wayne filing of said Project Plan with EGLE, and agrees to implement the first five (5) years of the recommended alternative (Asset Management Plan) in the estimated amount of $51,660,000 as described in said Project Plan.

BE IT FURTHER RESOLVED, that the Deputy Director of the Wayne County Department of Public Services, a position currently held by Elmeka Steele, is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for revolving fund loans to assist in the implementation of the RVSDS Long Term Corrective Action Plan.

Yeas: 5-(Watley, Mitchell, Howard, Chisholm, Williams)
Nays:
Abstain:
Absent: 1-(Oden)

I certify that the above Resolution was adopted by The City of Inkster on June 3, 2019.
BY: Felicia Rutledge, City Clerk

Felicia Rutledge

Signature Date 6-5-19

MOVED BY: Mayor Pro-Tem Williams

SECONDED BY: Councilmember Howard

YEAS: 5 NAYS: ABSENT: 1- (Oden) VOTE: Motion carried

I hereby certify that the foregoing is a true and complete copy of a resolution adopted by the City Council of the City of Inkster, County of Wayne, State of Michigan, at a Regular City Council meeting held on June 3, 2019 and that the meeting was conducted and public notice of the meeting was given pursuant to and in full compliance with the Open Meetings Act, being Act 268, Public Acts of Michigan, 1976, and that the minutes of the meeting were kept and will be or have been made available as required by the Act.

Felicia Rutledge

Felicia Rutledge
City Clerk
Inkster, Michigan

OFFICE OF THE CITY CLERK
CITY OF LIVONIA

The undersigned, Susan M. Nash, City Clerk of the City of Livonia, does hereby certify that a Regular Meeting of the Council of the City of Livonia, held on June 17, 2019 at 33000 Civic Center Drive, Livonia, Michigan, at which time and place the following members of the Council were present: Kathleen McIntyre, Brian Meakin, Jim Jolly, Brandon Kritzman, Scott Bahr, Cathy White and President Laura Toy. Absent: None. The following resolution was made and adopted:

#220-19 WHEREAS, the City of Livonia recognizes the need to make improvements to the Rouge Valley Sewage Disposal System in compliance with Final Order of Abatement #2117 (Amended Administrative Consent Order AACO-000031) issued by the Michigan Department of Environmental Quality (now known as Department of Environment, Great Lakes and Energy (EGLE)); and

WHEREAS, the Charter County of Wayne and its engineering consulting team led by Orchard, Hiltz & McCliment, Inc. prepared the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System (Project Plan), to identify, evaluate and recommend construction of improvements to the RVSDS to ensure the reliability of the RVSDS and its compliance with regulatory requirements; and

WHEREAS, submittal of a Project Plan to EGLE is necessary for the RVSDS improvements within the Project Plan to be eligible for funding under the Clean Water State Revolving Fund (SRF) Loan Program; and

WHEREAS, it is anticipated that application will be made to the SRF for the improvements identified in the Project Plan, and costs to implement the Project Plan (including said loans if obtained) will be repaid by the RVSDS customer municipalities; and

WHEREAS, said Project Plan was presented at a Public Hearing held on May 22, 2019 and all public comments were considered and addressed;

NOW THEREFORE BE IT RESOLVED, that the City of Livonia supports said Project Plan, the Charter County of Wayne filing of said Project Plan with EGLE, and implementation of the first five (5) years of the recommended alternative (Asset Management Plan) as described in said Project Plan.

A roll call vote was taken on the foregoing resolution with the following result:

AYES: McIntyre, Meakin, Jolly, Kritzman, Bahr, White and Toy

NAYS: None

The President declared the resolution adopted.

IN WITNESS WHEREOF, the undersigned has hereunto affixed her signature on this 25th day of June, 2019.

Susan M. Nash, City Clerk
City of Livonia, Wayne County, Michigan
SMN/bjm

A RESOLUTION ADOPTING A FINAL PROJECT PLAN FOR WASTEWATER SYSTEM IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the City of Northville (*legal name of community*) recognizes the need to make improvements to the Rouge Valley Sewage Disposal System in compliance with Final Order of Abatement #2117 (Amended Administrative Consent Order AACO-000031) issued by the Michigan Department of Environmental Quality (now known as Department of Environment, Great Lakes and Energy (EGLE)); and

WHEREAS, the Charter County of Wayne and its engineering consulting team led by Orchard, Hiltz & McCliment, Inc. prepared the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System (Project Plan), to identify, evaluate and recommend construction of improvements to the RVSDS to ensure the reliability of the RVSDS and its compliance with current and future regulatory requirements; and

WHEREAS, the planning level costs of projects recommended for implementation during the first five years total $51,660,000 and include an Asset Management Plan to remove river dependent inflow and address hydraulic deficiencies by rehabilitation and replacement of sewer pipes, manholes, junction chambers and regulators pursuant to AACO-00031; and

WHEREAS, submittal of a Project Plan to EGLE is necessary for the RVSDS improvements within the Project Plan to be eligible for funding under the Clean Water State Revolving Fund (SRF) Loan Program; and

WHEREAS, it is anticipated that application will be made to the SRF for the improvements identified in the Project Plan, and costs to implement the Project Plan (including said loans if obtained) will be repaid by the RVSDS customer municipalities; and

WHEREAS, said Project Plan will be presented at a Public Hearing to be held on or before May 31, 2019 and all public comments will be considered and addressed;

NOW THERFORE BE IT RESOLVED, that the City of Northville (*legal name of community*) approves the Charter County of Wayne filing said Project Plan with EGLE and formally supports the first five (5) year Asset Management Plan in the amount of $51,660,000 of the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System.

BE IT FURTHER RESOLVED, that the Deputy Director of the Wayne County Department of Public Services, a position currently held by Elmeka Steele, is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for revolving fund loans to assist in the implementation of the RVSDS Long Term Corrective Action Plan.

Yeas: Darga, Ekong, Giese, Price, Roth
Nays: None
Abstain: None
Absent: None

I certify that the above Resolution was adopted by Northville City Council (*the governing body of the applicant*) on June 17, 2019.

BY: Dianne Massa, City Clerk
Name and Title (*please print or type*)

Signature

6-18-19
Date

RESOLUTION ADOPTING A FINAL PROJECT PLAN FOR WASTEWATER SYSTEM IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the County of Oakland ("Oakland County") as a customer of the Charter County of Wayne ("Wayne County") recognizes the need to make improvements to Wayne County's existing Rouge Valley Sewage Disposal System ("RVSDS") in compliance with Final Order of Abatement #2117 (Amended Administrative Consent Order AACO-000031) issued by the Michigan Department of Environmental Quality (now known as Department of Environment, Great Lakes and Energy (EGLE)); and

WHEREAS, Oakland County, by and through Jim Nash, the Oakland County Water Resources Commissioner and designated Oakland County Agency ("County Agency") for the Huron Rouge Sewage Disposal System (a sewage disposal system established in accordance with Public Act 185 of the Public Acts of 1957, as amended) does hereby acknowledge that Wayne County and its engineering consulting team led by Orchard, Hiltz & McCliment, Inc. prepared the 2019 SRF Project Plan, Long-Term Corrective Action Plan for Improvements to the Wayne County RVSDS (Project Plan), to identify, evaluate and recommend construction of improvements to the RVSDS to ensure the reliability of the RVSDS and its compliance with current and future regulatory requirements; and

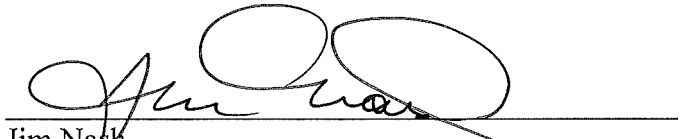
WHEREAS, said Project Plan will be presented at a Public Hearing to be held on or before May 31, 2019 and all public comments will be considered and addressed.

NOW THERFORE BE IT RESOLVED, that the Oakland County Agency hereby acknowledges and supports the Project Plan adopted by Wayne County and its implementation of the State Resolving Fund (SRF) Project Plan.

BE IT FURTHER RESOLVED, that the Oakland County Agency hereby acknowledges that Wayne County has designated the Deputy Director of the Wayne County Department of Public Services, a position currently held by Elmeka Steele, as Wayne County's authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for revolving fund loans to assist in the implementation of the RVSDS Long-Term Corrective Action Plan.

In accordance with the powers and authority conferred by Public Act 342 of the Public Acts of 1939, as amended, Act 185 of the Public Acts of 1957, as amended, and Oakland County Board of Commissioners Miscellaneous Resolution No. 93075, the foregoing is hereby acknowledged and ordered.

COUNTY OF OAKLAND



Jim Nash
Water Resources Commissioner and Oakland County Agency for the Huron Rouge Sewage Disposal System

Dated: 5/22/19

A RESOLUTION ADOPTING A FINAL PROJECT PLAN FOR WASTEWATER SYSTEM IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the City of Plymouth (*legal name of community*) recognizes the need to make improvements to the Rouge Valley Sewage Disposal System in compliance with Final Order of Abatement #2117 (Amended Administrative Consent Order AACO-000031) issued by the Michigan Department of Environmental Quality (now known as Department of Environment, Great Lakes and Energy (EGLE)); and

WHEREAS, the Charter County of Wayne and its engineering consulting team led by Orchard, Hiltz & McCliment, Inc. prepared the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System (Project Plan), to identify, evaluate and recommend construction of improvements to the RVSDS to ensure the reliability of the RVSDS and its compliance with current and future regulatory requirements; and

WHEREAS, the planning level costs of projects recommended for implementation during the first five years total $51,660,000 and include an Asset Management Plan to remove river dependent inflow and address hydraulic deficiencies by rehabilitation and replacement of sewer pipes, manholes, junction chambers and regulators pursuant to AACO-00031; and

WHEREAS, submittal of a Project Plan to EGLE is necessary for the RVSDS improvements within the Project Plan to be eligible for funding under the Clean Water State Revolving Fund (SRF) Loan Program; and

WHEREAS, it is anticipated that application will be made to the SRF for the improvements identified in the Project Plan, and costs to implement the Project Plan (including said loans if obtained) will be repaid by the RVSDS customer municipalities; and

WHEREAS, said Project Plan will be presented at a Public Hearing to be held on or before May 31, 2019 and all public comments will be considered and addressed;

NOW THERFORE BE IT RESOLVED, that the City of Plymouth (*legal name of community*) approves the Charter County of Wayne filing said Project Plan with EGLE and formally supports the first five (5) year Asset Management Plan in the amount of $51,660,000 of the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System.

BE IT FURTHER RESOLVED, that the Deputy Director of the Wayne County Department of Public Services, a position currently held by Elmeka Steele, is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for revolving fund loans to assist in the implementation of the RVSDS Long Term Corrective Action Plan.

Yeas:
Nays:
Abstain:
Absent:

I certify that the above Resolution was adopted by Plymouth City Commission (*the governing body of the applicant*) on June 3, 2019.

BY: Oliver J. Wolcott, Mayor
Name and Title (*please print or type*)

Signature

6/7/19
Date

A RESOLUTION ADOPTING A FINAL PROJECT PLAN FOR WASTEWATER SYSTEM IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the Charter Township of Redford recognizes the need to make improvements to the Rouge Valley Sewage Disposal System in compliance with Final Order of Abatement #2117 [Amended Administrative Consent Order AACO-000031) issued by the Michigan Department of Environmental Quality (now known as Department of Environment, Great Lakes and Energy (EGLE)]; and

WHEREAS, the Charter County of Wayne and its engineering consulting team led by Orchard, Hiltz & McCliment, Inc. prepared the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System (Project Plan), to identify, evaluate, and recommend construction of improvements to the RVSDS to ensure the reliability of the RVSDS and its compliance with current and future regulatory requirements; and

WHEREAS, the planning level costs of projects recommended for implementation during the first five years total $51,660,000 and include an Asset Management Plan to remove river-dependent inflow and address hydraulic deficiencies by rehabilitation and replacement of sewer pipes, manholes, junction chambers, and regulators pursuant to AACO-00031; and

WHEREAS, submittal of a Project Plan to EGLE is necessary for the RVSDS improvements within the Project Plan to be eligible for funding under the Clean Water State Revolving Fund (SRF) Loan Program; and

WHEREAS, it is anticipated that application will be made to the SRF for the improvements identified in the Project Plan, and costs to implement the Project Plan (including said loans if obtained) will be repaid by the RVSDS customer municipalities; and

WHEREAS, said Project Plan will be presented at a Public Hearing to be held on or before May 31, 2019, and all public comments will be considered and addressed;

NOW, THERFORE, BE IT RESOLVED, that the Charter Township of Redford formally supports the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System.

BE IT FURTHER RESOLVED, that the Deputy Director of the Wayne County Department of Public Services, a position currently held by Elmeka Steele, is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for revolving fund loans to assist in the implementation of the RVSDS Long Term Corrective Action Plan.

19:057 MOTION BY CAVANAGH, SUPPORTED BY TAYLOR, to approve Resolution Adopting a Final Project Plan for Wastewater System Improvements and Designating an Authorized Project Representative (Rouge Valley Sewage Disposal System).

All ayes. Motion carried.

GARTH J. CHRISTIE, MMC, CLERK
Charter Township of Redford

CERTIFICATION

I hereby certify that the foregoing is a true and complete copy of a resolution adopted by the Board of Trustees of the Charter Township of Redford at a Regular Meeting held on May 14, 2019.

GARTH J. CHRISTIE, MMC, CLERK
CHARTER TOWNSHIP OF REDFORD

RESOLUTION # 19-172

A RESOLUTION ADOPTING A FINAL PROJECT PLAN FOR WASTEWATER SYSTEM IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the City of Romulus recognizes the need to make improvements to the Rouge Valley Sewage Disposal System in compliance with Final Order of Abatement #2117 (Amended Administrative Consent Order AACO-000031) issued by the Michigan Department of Environmental Quality (now known as Department of Environment, Great Lakes and Energy (EGLE)); and

WHEREAS, the Charter County of Wayne and its engineering consulting team led by Orchard, Hiltz & McCliment, Inc. prepared the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System (Project Plan), to identify, evaluate and recommend construction of improvements to the RVSDS to ensure the reliability of the RVSDS and its compliance with current and future regulatory requirements; and

WHEREAS, the planning level costs of projects recommended for implementation during the first five years total $51,660,000 and include an Asset Management Plan to remove river dependent inflow and address hydraulic deficiencies by rehabilitation and replacement of sewer pipes, manholes, junction chambers and regulators pursuant to AACO-00031; and

WHEREAS, submittal of a Project Plan to EGLE is necessary for the RVSDS improvements within the Project Plan to be eligible for funding under the Clean Water State Revolving Fund (SRF) Loan Program; and

WHEREAS, it is anticipated that application will be made to the SRF for the improvements identified in the Project Plan, and costs to implement the Project Plan (including said loans if obtained) will be repaid by the RVSDS customer municipalities; and

WHEREAS, said Project Plan will be presented at a Public Hearing to be held on or before May 31, 2019 and all public comments will be considered and addressed;

NOW THERFORE BE IT RESOLVED, that the City of Romulus approves the Charter County of Wayne filing said Project Plan with EGLA and formally supports the first five (5) year Asset Management Plan in the amount of $51,660,000 of the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System.

BE IT FURTHER RESOLVED, that the Deputy Director of the Wayne County Department of Public Services, a position currently held by Elmeka Steele, is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for revolving fund loans to assist in the implementation of the RVSDS Long Term Corrective Action Plan.

Yeas: Abdo, Barden, Roscoe, Wadsworth, Webb, Williams
Nays: None
Abstain: None
Absent: Talley

I certify that the above Resolution was adopted by Romulus City Council on Monday, June 10, 2019.

BY: Ellen Craig-Bragg, Clerk

Ellen L Craig-Bragg — June 11, 2019

Signature — Date

CHARTER TOWNSHIP OF VAN BUREN - RESOLUTION 2019-09

At a meeting of the Charter Township of Van Buren Board of Trustees, Wayne County, Michigan held on the 18th day of June at 6:00 p.m., the following Resolution was proposed:

A RESLUTION ADOPTING A FINAL PROJECT PLAN FOR WASTEWATER SYSTEM IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the Charter Township of Van Buren recognizes the need to make improvements to the Rouge Valley Sewage Disposal System in compliance with Final Order of Abatement #2117 (Amended Administrative Consent Order AACO-000031) issued by the Michigan Department of Environmental Quality (now known as Department of Environment, Great Lakes and Energy (EGLE)); and

WHEREAS, the Charter County of Wayne and its engineering consulting team led by Orchard, Hiltz & McCliment, Inc. prepared the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System (Project Plan), to identify, evaluate and recommend construction of improvements to the RVSDS to ensure the reliability of the RVSDS and its compliance with current and future regulatory requirements; and

WHEREAS, the planning level costs of projects recommended for implementation during the first five years total $51,660,000 and include an Asset Management Plan to remove river dependent inflow and address hydraulic deficiencies by rehabilitation and replacement of sewer pipes, manholes, junction chambers and regulators pursuant to AACO-00031; and

WHEREAS, submittal of a Project Plan to EGLE is necessary for the RVSDS improvements within the Project Plan to be eligible for funding under the Clean Water State Revolving Fund (SRF) Loan Program; and

WHEREAS, it is anticipated that application will be made to the SRF for the improvements identified in the Project Plan, and costs to implement the Project Plan (including said loans if obtained) will be repaid by the RVSDS customer municipalities; and

WHEREAS, said Project Plan will be presented at a Public Hearing to be held on or before May 31, 2019 and all public comments will be considered and addressed;

NOW THERFORE BE IT RESOLVED, that the Charter Township of Van Buren approves the Charter County of Wayne filing said Project Plan with EGLE and formally supports the first five (5) year Asset Management Plan in the amount of $51,660,000 of the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System.

BE IT FURTHER RESOLVED, that the Deputy Director of the Wayne County Department of Public Services, a position currently held by Elmeka Steele, is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for revolving fund loans to assist in the implementation of the RVSDS Long Term Corrective Action Plan.

Yeas:
Nays:
Abstain:
Absent:

I, Leon Wright, Clerk of the Charter Township of Van Buren Township Board of Trustees, do hereby certify that the foregoing resolution is a true and correct copy of a resolution adopted by the Charter Township of the Van Buren Board of Trustees at a regular meeting held on June 18, 2019.

Leon Wright, Clerk
Van Buren Charter Township

A RESOLUTION ADOPTING A FINAL PROJECT PLAN FOR WASTEWATER SYSTEM IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the **City of Wayne** (*legal name of community*) recognizes the need to make improvements to the Rouge Valley Sewage Disposal System in compliance with Final Order of Abatement #2117 (Amended Administrative Consent Order AACO-000031) issued by the Michigan Department of Environmental Quality (now known as Department of Environment, Great Lakes and Energy (EGLE)); and

WHEREAS, the Charter County of Wayne and its engineering consulting team led by Orchard, Hiltz & McCliment, Inc. prepared the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System (Project Plan), to identify, evaluate and recommend construction of improvements to the RVSDS to ensure the reliability of the RVSDS and its compliance with current and future regulatory requirements; and

WHEREAS, the planning level costs of projects recommended for implementation during the first five years total $51,660,000 and include an Asset Management Plan to remove river dependent inflow and address hydraulic deficiencies by rehabilitation and replacement of sewer pipes, manholes, junction chambers and regulators pursuant to AACO-00031; and

WHEREAS, submittal of a Project Plan to EGLE is necessary for the RVSDS improvements within the Project Plan to be eligible for funding under the Clean Water State Revolving Fund (SRF) Loan Program; and

WHEREAS, it is anticipated that application will be made to the SRF for the improvements identified in the Project Plan, and costs to implement the Project Plan (including said loans if obtained) will be repaid by the RVSDS customer municipalities; and

WHEREAS, said Project Plan will be presented at a Public Hearing to be held on or before May 31, 2019 and all public comments will be considered and addressed;

NOW THERFORE BE IT RESOLVED, that the **City of Wayne** (*legal name of community*) approves the Charter County of Wayne filing said Project Plan with EGLA and formally supports the first five (5) year Asset Management Plan in the amount of $51,660,000 of the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System.

BE IT FURTHER RESOLVED, that the Deputy Director of the Wayne County Department of Public Services, a position currently held by Elmeka Steele, is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for revolving fund loans to assist in the implementation of the RVSDS Long Term Corrective Action Plan.

Yeas: **7**
Nays: **0**
Abstain: **0**
Absent: **0**

I certify that the above Resolution was adopted by **Wayne City Council** (*the governing body of the applicant)* on **June 4, 2019**

BY: **Tina M. Stanke, City Clerk**
Name and Title (*please print or type*)

Tina M. Stanke 6-5-19
Signature Date

RESOLUTION

No. 2019-433

By Commissioner Bell

WHEREAS, the Charter County of Wayne recognizes the need to make improvements to the Rouge Valley Sewage Disposal System in compliance with Final Order of Abatement #2117 (Amended Administrative Consent Order AACO-00031) issued by the Michigan Department of Environment, Great Lakes Energy (EGLE, formerly Department of Environmental Quality); and

WHEREAS, the Charter County of Wayne and its engineering consulting team led by Orchard, Hiltz & McCliment, Inc. prepared the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvemnets to the Wayne County Rouge Valley Sewage Disposal System (Project Plan), to identify, evaluate and recommend construction of improvements to the RVSDS to ensure the reliability of the RVSDS and its compliance with current and future regulatory requirements, and

WHEREAS, the Planning level costs of projects recommended for implementation during the first five years total $51,660,600 and include an Asset Management Plan to remove river dependent inflow and address hydraulic deficiencies by rehabilitation and replacement of sewer pipes, manholes, junction chambers and regulators pursuant to AACO-00031; and

WHEREAS, submittal of a Project Plan to EGLE is necessary for the RVSDS improvements within the Project Plan to eligible for funding under the Clean Water State Revolving Fund (SRF) Loan Program; and

WHEREAS, it is anticipated that application will be made to the the SRF for the improvements identified in the Project Plan, and costs to implement the Project Plan (including said loans if obtained) will be repaid by the RVSDS customer municipalities; and

WHEREAS, said Project Plan will be presented at a Public Hearing to be Held on or before May 31, 2019 and all public comments will be considered and addressed;

Now therefor be it

RESOLVED, that the Charter County of Wayne formally adopts said Project Plan and agrees to implement the State Revolving Fund (SRF) Project Plan; and be it further

RESOLVED, that the Deputy Director of the Wayne County Department Public Services, a position currently held by Elmeka N. Steele is designated as the authorized representative for all activities associated with the project referenced above, including the

submittal of said Project Plan as the first step in applying to the State of Michigan for revolving fund loans to assist in the implementation of the RVSDS Long Term Corrective Actions Plan.

[Project Plan on File]

(2019-70-004)

WRC
WATER RESOURCES COMMISSIONER
Jim Nash

May 23, 2019

Elmeka Steele, Director
Facilities Management Division
Wayne County Department of Environmental Services
400 Monroe, Suite 400
Detroit, MI 48226

Re: SRF Project Plan
Rouge Valley Sewage Disposal System

Dear Ms. Steele

Enclosed, please find a resolution acknowledging the adoption of the project plan for the Rouge Valley Sewage Disposal System dated May 22, 2019.

We look forward to continued collaboration with Wayne County and the Rouge Valley communities in completion of this project.

Please contact me at (248) 452-9846 should you have any questions or need additional information from this office.

Sincerely,

Brian Coburn, P.E.
Chief Engineer
Sewer System Operations

cc: Kelly Cave, P.E; Wayne County DOE
Ben Croy, P.E.; City of Novi

One Public Works Drive • Building 95 West • Waterford, MI 48328-1907
Phone: 248.858.0958 • Fax: 248.858.1066 • www.oakgov.com/water

Interoffice Memorandum
Department of City Clerk

June 4, 2019

To: James Fausone, City Attorney

Cc: Keith Madden, Assistant City Attorney
Ramzi El-Gharib, DPS Director
Kim Heinzelman, DPS Secretary
Mayor William R. Wild

From: Richard LeBlanc, City Clerk

Re: Rouge Valley Sewage Disposal System (RVSDS) Resolution

At a regular meeting of the Westland City Council held June 3, 2019, the following resolution was adopted: (2019-06-100)

"RESOLVED that Council grants adoption of Rouge Valley Sewage Disposal System (RVSDS) Resolution supporting a Final Project Plan for Wastewater System Improvements and Designating an authorized Project Representative."

A copy of the resolution is attached.

RL/dd

Attachment

RESOLUTION NO. 2019 - 06-100

A RESOLUTION SUPPORTING A FINAL PROJECT PLAN FOR WASTEWATER SYSTEM IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the City of Westland recognizes the need to make improvements to the Rouge Valley Sewage Disposal System in compliance with Final Order of Abatement #2117 (Amended Administrative Consent Order AACO-000031) issued by the Michigan Department of Environmental Quality (now known as Department of Environment, Great Lakes and Energy (EGLE)); and

WHEREAS, the Charter County of Wayne and its engineering consulting team led by Orchard, Hiltz & McCliment, Inc. prepared the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System (Project Plan), to identify, evaluate and recommend construction of improvements to the RVSDS to ensure the reliability of the RVSDS and its compliance with current and future regulatory requirements; and

WHEREAS, the planning level costs of projects recommended for implementation during the first five years total $51,660,000 and include an Asset Management Plan to remove river dependent inflow and address hydraulic deficiencies by rehabilitation and replacement of sewer pipes, manholes, junction chambers and regulators pursuant to AACO-00031; and

WHEREAS, submittal of a Project Plan to EGLE is necessary for the RVSDS improvements within the Project Plan to be eligible for funding under the Clean Water State Revolving Fund (SRF) Loan Program; and

WHEREAS, it is anticipated that application will be made to the SRF for the improvements identified in the Project Plan, and costs to implement the Project Plan (including said loans if obtained) will be repaid by the RVSDS customer municipalities; and

WHEREAS, said Project Plan was presented at a Public Hearing held in May 2019 and all public comments will be considered and addressed;

NOW THERFORE BE IT RESOLVED, that the City of Westland supports the Charter County of Wayne filing said Project Plan with EGLA and the first five (5) year Asset Management Plan in the amount of $51,660,000 of the 2019 SRF Project Plan, Long Term Corrective Action Plan for Improvements to the Wayne County Rouge Valley Sewage Disposal System.

BE IT FURTHER RESOLVED, that the Deputy Director of the Wayne County Department of Public Services, a position currently held by Elmeka Steele, is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for revolving fund loans to assist in the implementation of the RVSDS Long Term Corrective Action Plan.

ON MOTION OF Londeau SUPPORTED BY Johnson the foregoing Resolution was adopted by the following vote:

ROLL CALL:
AYE Green, Hammons Hart, Herzberg, Johnson Londeau, Godbout NAY None ABSENT None

I, RICHARD LEBLANC, Clerk for the City of Westland, hereby certify that the foregoing is a true and accurate copy of a Resolution adopted by the City Council for the City of Westland at a regular meeting held on the 3rd day of June, 2019, and that said meeting was conducted and public notice of said meeting was given pursuant to and in full compliance with the Open Meeting Act, being Act 267, Public Acts of Michigan, 1976, and that the minutes of said meeting were kept and will be or have been available as required by said Act.

RICHARD LEBLANC, City Clerk

DRAFT – June 29, 2019

Appendix M: Project Plan Correspondence

Pokégnek Bodéwadmik • Pokagon Band of Potawatomi
Department of Language and Culture

59291 Indian Lake Road • Dowagiac, MI 49047 • www.PokagonBand-nsn.gov
(269) 462-4316 • (269) 782-2499 fax

4/9/2019

Nancy Russell
Engineer
OHM
Email: Nancy.Russell@ohm-advisors.com

Wayne County Rouge Valley Sewage Disposal System – (SRF) Project plan

Dear Nancy:

Migwetth for contacting me regarding this project. As THPO, I am responsible for handling Section 106 Consultations on behalf of the tribe. I am writing to inform you that I have reviewed the details for the project referenced above. I have made the determination that this undertaking will have **No Adverse Effect** on any historic, religious, or culturally significant resources to the Pokagon Band of Potawatomi Indians.

If any cultural or archaeological resources are uncovered during construction, please stop work and contact me immediately. Should you have any other questions, please don't hesitate to contact me at your earliest convenience.

Sincerely,

Matthew Bussler

Matthew J.N. Bussler
Tribal Historic Preservation Officer
Pokagon Band of Potawatomi Indians
Office: (269) 462-4316
Cell: (269) 519-0838
Matthew.Bussler@Pokagonband-nsn.gov

STATE OF MICHIGAN
GRETCHEN WHITMER
GOVERNOR
MICHIGAN STATE HOUSING DEVELOPMENT AUTHORITY
STATE HISTORIC PRESERVATION OFFICE
EARL J. POLESKI
EXECUTIVE DIRECTOR

May 10, 2019

NANCY RUSSELL
OHM ADVISORS
1145 GRISWOLDSTREET SUITE 200
DETROIT MI 48226

Re: Wayne County Rouge Valley Sewage Disposal System (SRF) Project Plan

Dear Ms. Russell:

The State Historic Preservation Officer (SHPO) received your request for review under Section 106 of the National Historic Preservation Act of 1966, as amended. It appears that you are initiating consultation with the State Historic Preservation Office (SHPO) under Section 106 of the National Historic Preservation Act of 1966, as amended.
The Section 106 regulations specify what is required for a Section 106 review [36 CFR § 800.11]. The information that you have sent is incomplete. The SHPO cannot initiate the Section 106 review process until we receive complete project information. We are therefore returning your project for resubmittal.

Section 106 requires federal agencies to take into account the effect of their undertakings on historic properties. It is the responsibility of the federal agency, not the SHPO, to fulfill the requirements of Section 106. In some instances, the federal agency may delegate legal responsibility to a state, local, or tribal government. Consultants or designees contracted to prepare information, analyses, or recommendations, are not recognized as federally-delegated authorities. For your reference, a complete version of the Section 106 regulations can be found at www.achp.gov/regs.html.

The mandatory application form and instructions for submitting projects for review under Section 106 may be downloaded in MS Word format from our website at http://www.michigan.gov/shposection106. Please read each requirement carefully in its respective field and respond in full. **We remind you that it is not the responsibility of the SHPO to fulfill the requirements of Section 106 [36 CFR § 800.2(a)] and SHPO staff does not conduct research on behalf of others during Section 106.**

Applicants/consultants should arrange a visit to our offices to view both above-ground and archaeological historic site files when preparing project application. Email SHPOresearch@michigan.gov to access these files and note that a research visit to our office may be required. Research appointments may be made by contacting us a week in advance.

Once the required information is received in full by the SHPO, we can proceed with the review. **The Section 106 process for this project is not complete.** If you have any questions, please contact the Cultural Resource Management section of the SHPO at (517) 335 2721 or by e-mail at GrennellB@michigan.gov.

Thank you for your cooperation.

Sincerely,

Brian G. Grennell
Cultural Resource Protection Specialist

for Brian D. Conway
State Historic Preservation Officer

Enclosure(s)

MICHIGAN STATE UNIVERSITY | Extension

Ms. Nancy Russell
Engineer
OHM Advisors
1145 Griswold Street, Suite 200
Detroit, MI 48226
313.481.1250

May 24, 2019

Re: Rare Species Review #2390 - Wayne County Rouge Valley Sewage Disposal System SRF Project Plan – Wayne County, MI.

Ms. Russell,

The location for the proposed project was checked against known localities for rare species and unique natural features, which are recorded in the Michigan Natural Features Inventory (MNFI) natural heritage database. This continuously updated database is a comprehensive source of existing data on Michigan's endangered, threatened, or otherwise significant plant and animal species, natural plant communities, and other natural features. Records in the database indicate that a qualified observer has documented the presence of special natural features. The absence of records in the database for a particular site may mean that the site has not been surveyed. The only way to obtain a definitive statement on the status of natural features is to have a competent biologist perform a complete field survey.

Under Act 451 of 1994, the Natural Resources and Environmental Protection Act, Part 365, Endangered Species Protection, "a person shall not take, possess, transport, …fish, plants, and wildlife indigenous to the state and determined to be endangered or threatened," unless first receiving an Endangered Species Permit from the Michigan Department of Natural Resources (MDNR), Wildlife Division. Responsibility to protect endangered and threatened species is not limited to the lists below. Other species may be present that have not been recorded in the database.

Several legally protected and/or rare natural features have been documented in the project area, and **it is possible** that negative impacts will occur. Keep in mind that MNFI cannot fully evaluate this project without visiting the project site. MNFI offers several levels of Rare Species Reviews, including field surveys which I would be happy to discuss with you.

Sincerely,

Michael A. Sanders

Michael A. Sanders
Environmental Review Specialist/Zoologist
Michigan Natural Features Inventory

MSU EXTENSION

Michigan Natural Features Inventory

PO Box 13036
Lansing MI 48901

(517) 284-6200
Fax (517) 373-9566

mnfi.anr.msu.edu

MSU is an affirmative-action, equal-opportunity employer.

Table 1: Occurrences of threatened & endangered species within 1.5 miles of #2390

ELCAT	SNAME	SCOMNAME	USESA	SPROT	G_RANK	S_RANK	FIRSTOBS	LASTOBS
Animal	*Clinostomus elongatus*	Redside dace		E	G3G4	S2	1991-06	2012-05-25
Animal	*Ammocrypta pellucida*	Eastern sand darter		T	G4	S1S2	1936	1936
Animal	*Ammodramus henslowii*	Henslow's sparrow		E	G4	S3	2005-06-12	2006-06-06
Animal	*Toxolasma parvum*	Lilliput		E	G5	S1	1933	1933
Animal	*Alasmidonta viridis*	Slippershell		T	G4G5	S2S3	1930	1933-07-12
Animal	*Alasmidonta viridis*	Slippershell		T	G4G5	S2S3	1933-07-12	1933-07-12
Animal	*Toxolasma parvum*	Lilliput		E	G5	S1	2011-08-26	2011-08-26
Animal	*Falco peregrinus*	Peregrine falcon		E	G4	S3	2013	2018
Plant	*Aristida longespica*	Three-awned grass		T	G5	S2	1959	1959-09-25
Plant	*Silphium perfoliatum*	Cup plant		T	G5	S2	1991	1991-08-07
Plant	*Galearis spectabilis*	Showy orchis		T	G5	S2	1916	1916-05-26
Plant	*Galearis spectabilis*	Showy orchis		T	G5	S2	1929	1933-07-11
Plant	*Silphium perfoliatum*	Cup plant		T	G5	S2	1972	2017-10-31
Plant	*Galearis spectabilis*	Showy orchis		T	G5	S2	1916	1928-06-28
Plant	*Galearis spectabilis*	Showy orchis		T	G5	S2	1928	1928-05-22
Plant	*Gentianella quinquefolia*	Stiff gentian		T	G5	S2	1915	1916-10-08
Plant	*Silphium laciniatum*	Compass plant		T	G5	S1S2	1991	2002-08-02
Plant	*Castanea dentata*	American chestnut		E	G4	S1S2	1994	1994-05-21
Plant	*Silphium perfoliatum*	Cup plant		T	G5	S2	1984	1984
Plant	*Hydrastis canadensis*	Goldenseal		T	G3G4	S2	1953	1957-05-10
Plant	*Silphium perfoliatum*	Cup plant		T	G5	S2	2004-06-21	2004-06-21
Plant	*Lactuca floridana*	Woodland lettuce		T	G5	S2	2004-08-29	2004-08-29
Plant	*Lycopus virginicus*	Virginia water-horehound		T	G5	S2	2003-08-17	2003-08-17
Plant	*Prenanthes crepidinea*	Nodding rattlesnake-root		T	G4	SNR	2004-05-16	2004-05-16
Plant	*Lactuca floridana*	Woodland lettuce		T	G5	S2	2011-08-25	2011-08-31

Of concern: See Response Letter Comments

Table 2: Occurrences of special concern species & rare natural features within 1.5 miles of #2390

ELCAT	SNAME	SCOMNAME	USESA	SPROT	G_RANK	S_RANK	FIRSTOBS	LASTOBS
Animal	*Villosa iris*	Rainbow		SC	G5Q	S3	2006-08	2006-08
Animal	*Ammodramus savannarum*	Grasshopper sparrow		SC	G5	S4	2007-06-04	2007-06-04
Animal	*Ammodramus savannarum*	Grasshopper sparrow		SC	G5	S4	2008-06-29	2008-06-29
Animal	*Pleurobema sintoxia*	Round pigtoe		SC	G4G5	S3	1954-pre	1954-pre
Animal	*Mesomphix cupreus*	Copper button		SC	G5	S1		
Animal	*Utterbackia imbecillis*	Paper pondshell		SC	G5	S2S3	2011-08-26	2011-08-26
Animal	*Emydoidea blandingii*	Blanding's turtle		SC	G4	S2S3	2015-05-18	2015-05-18
Animal	*Myotis lucifugus*	Little brown bat		SC	G3	S1	1921-07-25	1928-08-09
Animal	*Emydoidea blandingii*	Blanding's turtle		SC	G4	S2S3	2016-06-23	2016-06-23
Animal	*Lasmigona compressa*	Creek heelsplitter		SC	G5	S3	1933-07-12	1933-07-12
Animal	*Lasmigona compressa*	Creek heelsplitter		SC	G5	S3	1933-07-12	1933-07-12
Animal	*Lasmigona compressa*	Creek heelsplitter		SC	G5	S3	1933-07-12	2011-08-26
Animal	*Bombus affinis*	Rusty-patched bumble bee	LE	SC	G1	SNR	1914-08-30	1914-08-30
Animal	*Notropis amblops*	Bigeye chub		X	G5	SH	1936-05-19	1936-05-19
Animal	*Bombus pensylvanicus*	American bumble bee		SC	G3G4	SNR	1974-05-10	1974-05-10
Community	Mesic Southern Forest	Rich Forest, Central Midwest Type			G2G3	S3	1976	1981-08-31
Other	Great Blue Heron Rookery	Great Blue Heron Rookery			G5	SU	2015-09-27	2015-09-27
Plant	*Adlumia fungosa*	Climbing fumitory		SC	G4	S3	1929	1929-07-09
Plant	*Jeffersonia diphylla*	Twinleaf		SC	G5	S3	188?	1933-SP
Plant	*Prosartes maculata*	Nodding mandarin		X	G3G4	SX	1922	1922-05-07
Plant	*Hybanthus concolor*	Green violet		SC	G5	S3	1921	1921-09-28
Plant	*Lysimachia hybrida*	Swamp candles		X	G5	SX	1927	1927-07-27
Plant	*Euonymus atropurpureus*	Wahoo		SC	G5	S3	2004-06-19	2004-06-19
Plant	*Quercus shumardii*	Shumard's oak		SC	G5	S2	2001-05-12	2001-05-12
Plant	*Carex davisii*	Davis's sedge		SC	G4	S3	2016-06-23	2016-06-23
Plant	*Carex squarrosa*	Sedge		SC	G4G5	S1	2016-06-23	2016-06-23
Plant	*Thalictrum pubescens*	Tall meadowrue		SC	G5	SNR	1931-06-16	1931-06-16
Plant	*Pycnanthemum verticillatum*	Whorled mountain mint		SC	G5	S2	1973-07-23	1973-07-23

Of concern: See Response Letter Comments

Codes to accompany Tables 1 and 2:

State Protection Status Code Definitions (SPROT)
E: Endangered
T: Threatened
SC: Special concern

Federal Protection Status Code Definitions (USESA)
LE = listed endangered
LT = listed threatened
LELT = partly listed endangered and partly listed threatened
PDL = proposed delist
E(S/A) = endangered based on similarities/appearance
PS = partial status (federally listed in only part of its range)
C = species being considered for federal status

Global Heritage Status Rank Definitions (GRANK)
The priority assigned by NatureServe's national office for data collection and protection based upon the element's status throughout its entire world-wide range. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.
G1 = critically imperiled globally because of extreme rarity (5 or fewer occurrences range-wide or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.
G2 = imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.
G3: Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g. a single western state, a physiographic region in the East) or because of other factor(s) making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.
G4: Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5: Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
Q: Taxonomy uncertain

State Heritage Status Rank Definitions (SRANK)
The priority assigned by the Michigan Natural Features Inventory for data collection and protection based upon the element's status within the state. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.
S1: Critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation in the state.
S2: Imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.
S3: Rare or uncommon in state (on the order of 21 to 100 occurrences).
S4 = apparently secure in state, with many occurrences.
S5 = demonstrably secure in state and essentially ineradicable under present conditions.
SX = apparently extirpated from state.

Rare Species Review #2390
OHM Advisors
Response Letter Comments
May 24, 2019

Comments for Rare Species Review #2390: It is important to note that it is the applicant's responsibility to comply with both state and federal threatened and endangered species legislation. Therefore, if a state listed species occurs at a project site, and you think you need an endangered species permit please contact: Casey Reitz, Wildlife Division, Michigan Department of Natural Resources, 517-284-6210, or ReitzC@michigan.gov. If a federally listed species is involved and, you think a permit is needed, please contact Carrie Tansy, Endangered Species Program, U.S. Fish and Wildlife Service, East Lansing office, 517-351-8375, or Carrie_Tansy@fws.gov.

Please consult MNFI's Rare Species Explorer for additional information regarding the listed species: http://mnfi.anr.msu.edu/explorer/search.cfm.

Special concern species and natural communities are not protected under endangered species legislation, but efforts should be taken to minimize any or all impacts. Species classified as special concern are species whose numbers are getting smaller in the state. If these species continue to decline they would be recommended for reclassification to threatened or endangered status.

Comments for Table 1:

Redside dace - the state endangered redside dace *(Clinostomus elongatus)* has been known to occur in the Johnson Drain in T01S R08E). This small, 3-inch red-sided fish has a distinctively large mouth that extends below the front half of the eyes. Its lower jaw projects beyond the upper jaw, producing a somewhat triangular head appearance. The redside dace requires clear water, usually in the headwater regions of small- to medium-sized streams. These clear, cool streams, with overhanging woody vegetation shading the sun, have pebble or gravel bottoms and a moderate to fast current. Streams meeting these physical characteristics also need riffles for spawning grounds and pools for the nonbreeding season. This species is often found under the shade of overhanging vegetation adjacent to banks that had been undercut by the current.

Management and Conservation - submerged wood debris also may enhance habitat by providing added shelter. Spawning occurs in late May when adults move from pools to gravel riffles areas. Insects are the major prey of the redside dace. Decreasing populations are attributed to the effects of turbidity, which usually occurs when agricultural practices or development alter the riparian zones. The redside dace is endangered in Michigan and only occurs in a few drainages within the state. It has been in decline across its range because its habitat frequently coincides with intensive human use. There are very few viable populations in the state and those populations are in habitats subject to severe threats. Decreasing populations are attributed to the effects of increased siltation, pollution, and turbidity.

Peregrine falcon – the state endangered Peregrine falcon (*Falco peregrinus*) has been known to occur on the Park Lane Tower in East Dearborn near the intersection of Michigan Avenue and Outer Drive in Section 21 of T02S R10E. Peregrine falcons prefer open habitats such as grasslands, tundra, and meadows. They nest on cliff faces, crevices or tall manmade structures usually along a major waterway. They have been very successful in urban areas because tall buildings are suitable for nesting in this species, and because of the abundance of pigeons as prey items. The Peregrine falcon is monogamous, and males and females may mate for life. Nest sites may be reused for many years running. Nest height varies from 15 to 60 m. They do not build nests, rather they prefer to lay their eggs on gravelly substrates. Three or four white or pinkish, brown-marked eggs are laid, and are incubated by both sexes, but mostly the female, for about a month. The young fledge in 35 to 42 days, after being fed at the nest. Usually, the male hunts, and the female feeds and broods the chicks.

Management and Conservation - Historically, Peregrine falcon populations plummeted because of the bioaccumulation of pesticides in their food chain. Recently, however, their numbers are increasing. They are tolerant of human activity, but nest sites should not be disturbed during the early nesting season. Routine ROW maintenance should not affect

them. Bridge or building maintenance that includes active nest sites must be scheduled outside of the breeding season, between October and February whenever possible.

Cup plant - the state threatened cup plant (*Silphium perfoliatum*) has been known to occur at several locations throughout the project area. It has been observed in Sections 15, 22, & 23 of T02S R10E, and in Section 25 of T01S R08E. Most of Michigan's cup-plant colonies lie on river floodplains in forest openings and edges. It can also be found in rich woods, thickets, prairies, and roadside ditches. It is typically associated with silver maple, green ash, red maple, black walnut, hackberry, black maple, Ohio buckeye, box elder, black ash, black willow, cottonwood, swamp white oak, sycamore, spice bush, redbud, paw paw, Kentucky coffee tree, red mulberry, wahoo, Virginia blue-bells, common trillium, red trillium, stinging nettle, poison ivy, moneywort, Canada moonseed, wild ginger, skunk cabbage, honewort, kidney-leaved buttercup, false mermaid, rough bedstraw, mayapple, blue eyed Mary, and Canada goldenrod. Flowering begins about mid-July and continues through August, with fruits produced by October.

Management and Conservation: this species is vulnerable to hydrological disturbances of its moist riparian habitat, and probably also to overstory closure. Although forest openings are characteristic of floodplain habitats, small colonies and/or habitats deprived of a natural hydrologic regime which creates and maintains openings may benefit from human maintenance of openings.

Compass plant – the state threatened compass plant (Silphium laciniatum) has been known to occur in the area. It has been observed in Section 23 of T02S R10E. Compass plant occurs in mesic and dry-mesic prairie remnants, although most of the extant populations are found in degraded habitats along rights-of-way outside the core range of this species. Flowering begins from early-July to late-August.

Management and Conservation: to maintain this species, protect the habitat and hydrological and natural disturbance regimes. This species likely requires natural disturbances associated with prairie habitat such as fire or brush removal to prevent woody plant succession. Significant increases in vegetative and reproductive vigor have been observed following early spring and fall burns. Much of this habitat type has been lost or severely degraded. Many prairie remnants are vulnerable to common right-of-way maintenance activities such as mowing, herbiciding, and bulldozing.

Comments for Table 2:

Special concern species and natural communities are not protected under endangered species legislation, but efforts should be taken to minimize any or all impacts. Species classified as special concern are species whose numbers are getting smaller in the state. If these species continue to decline they would be recommended for reclassification to threatened or endangered status.

Grasshopper sparrow - the special concern grasshopper sparrow *(Ammodramus savannarum)* has been known to occur in Section 26 of T02S R09E. This small sparrow is readily identified by its' high pitch insect-like buzzy song "tik-tuk tikeeeeeeeeeeez". Grasshopper sparrows can be found in native prairies, cultivated fields, old fields, hayfields, pastures and open savanna; they seem to prefer drier sites with tall dense vegetation. The nest is generally well concealed on the ground by overhanging vegetation. Spring arrival occurs in April and May and by mid-May grasshopper sparrows are on their breeding ground. Two broods are possible during the breeding season, which means nesting can last into August. Fall migration is complete by late October.

Management and Conservation - all vegetation management activities (mowing, controlled burns and brush clearing) should be conducted in the fall (October and November) after the fall migration. A rotational burn disturbance regime should be implemented when possible to promote a diversity of grassland habitat. Herbicide or insecticide applications should also be avoided during the nesting season.

Paper pondshell – the state special concern paper pondshell mussel (*Utterbackia imbecillis*) has been known to occur near the Newberg Lake Dam in Section 32 of T01S R09E. Paper pondshell is most often observed in lakes, ponds and impoundments with soft mud or sand substrates.

Management and Conservation: approximately 70% of North American unionids are imperiled. Threats include alteration of physical habitat, host fish population declines, invasive species introduction and compromised water quality. As with all species of this group, paper pondshell has been found to be highly vulnerable to chemical pollutants and heavy metals found in many herbicides and pesticides, and in other forms of point and non-point source pollution. Sedimentation of waterways causes harm to a wide variety of freshwater organisms. Management of all native mussels must include maintaining healthy habitat structure and high-water quality standards. Zebra mussels must be prevented from spreading to new waterways through the careful cleaning of fishing gear, boats and trailers, and scuba equipment in order to protect paper pondshell populations from infestation.

Creek heelsplitter – the state special concern creek heelsplitter (*Lasmigona compressa*) has been known to occur along several stretches of the Middle Branch of the Rouge River. Creek heelsplitter are normally found in creeks and the headwaters of small to medium rivers in fine gravel or sand.

Management and Conservation – threats to the species include water pollution, industrial and residential discharge, siltation, increased water temperatures and non-native species. All projects should implement proper upland managements such as contour farming and other soil erosion control methods.

Blanding's turtle - the special concern Blanding's turtle *(Emydoidea blandingii)* has been known to occur along the Middle Branch of the Rouge River in Sections 32 and 33 of T01S R09E. Blanding's turtles inhabit shallow bodies of water with some aquatic plant growth and a muddy bottom, such as marshes, ponds, swamps, lake inlets and coves, and river backwaters. Blanding's turtles are active from early April to late October. They are most often seen wandering overland in spring and fall. Females seeking nest sites may travel considerable distances and are commonly seen on or near roads. Most feeding occurs underwater and includes crayfish, insects, worms, leeches, snails, small fish, tadpoles, frogs, and some plants. Nesting occurs in June where eggs are buried in a sandy, sunny location. Hatchlings emerge in August or September. Blanding's turtles hibernate underwater (more rarely under debris close to water) from late October or early November until early April.

Management and Conservation: primary threats to the Blanding's turtles include loss or altering of wetland habitats and destruction on roads. The most critical conservation need for this species is protection and management of suitable wetland and adjacent upland habitats. Maintaining good water quality, restricting herbicide and pesticide use in or near wetlands, implementing minimum development set-back distances, leaving buffer zones during timber harvest, grazing and agricultural operations, and minimizing the construction of roads in or near suitable wetlands would be beneficial to this species. Timber harvesting can benefit this species by creating or maintaining open habitat conditions for thermoregulation and nesting. Minimizing adult mortality or removal is crucial for population viability given this species' life history. Thus, habitat management activities should be conducted in such a manner so as to minimize the potential for causing take of adults (e.g., timber harvesting during the inactive season). Minimizing road mortality and illegal collection also would beneficial to this species. In some cases, on-site protection of nest sites and predator control may be necessary to facilitate or increase successful reproduction or population recruitment.

As a species of special concern, the Blanding's turtle is not protected under state or federal endangered species legislation, but it is becoming rare throughout its range and it is protected under the authority of the Department of Natural Resources Director's Order, Regulations on the Take of Reptiles and Amphibians, dated October 12, 2001 (section 324 of PA 451).

Davis's sedge - the special concern Davis's sedge *(Carex davisii)* has been known to occur in Section 15 of T02S R10E. Davis's sedge inhabits rich floodplain forests and stream banks. Flowering occurs in late May through June. Special concern species are not legally protected under state or federal endangered species legislation, but they are rare in Michigan and should be protected to prevent future listing.

Management and Conservation - conserve hydrology of river system and corresponding cyclical floodplain regime. Maintain healthy intact, mature floodplain forests and minimize forest fragmentation. When possible, leave large tracts of unharvested forests and allow natural processes to operate unhindered.

Section 7 Comments for Rare Species Review #2390
OHM Advisors
Wayne County Rouge River Valley Sewage Disposal System – SRF Project Plan
Wayne County, MI
May 24, 2019

For projects involving Federal funding or a Federal agency authorization

The following information is provided to assist you with Section 7 compliance of the Federal Endangered Species Act (ESA). The ESA directs all Federal agencies "to work to conserve endangered and threatened species. Section 7 of the ESA, called "Interagency Cooperation, is the means by which Federal agencies ensure their actions, including those they authorize or fund, do not jeopardize the existence of any listed species."

The proposed project falls within the range of eight (8) federally listed which have been identified by the U.S. Fish and Wildlife Service (USFWS) to occur in Wayne County, Michigan:

Federally Endangered

Indiana bat – there appears to be suitable habitat within the 1.5-mile search buffer. Indiana bats (*Myotis sodalis*) are found only in the eastern United States and are typically confined to the southern three tiers of counties in Michigan. Indiana bats that summer in Michigan winter in caves in Indiana and Kentucky. This species forms colonies and forages in riparian and mature floodplain habitats. Nursery roost sites are usually located under loose bark or in hollows of trees near riparian habitat. Indiana bats typically avoid houses or other artificial structures and typically roost underneath loose bark of dead elm, maple and ash trees. Other dead trees used include oak, hickory and cottonwood.

Foraging typically occurs over slow-moving, wooded streams and rivers as well as in the canopy of mature trees. Movements may also extend into the outer edge of the floodplain and to nearby solitary trees. A summer colony's foraging area usually encompasses a stretch of stream over a half-mile in length. Upland areas isolated from floodplains and non-wooded streams are generally avoided.

Conservation and Management: the suggested seasonal tree cutting range for Indiana bat is between October 1 and March 31 (i.e., no cutting April 1-September 30). This applies throughout the Indiana bat range in Michigan.

Northern riffleshell – there appears to be suitable habitat within the 1.5-mile search buffer. The northern riffleshell *(Epioblasma torulosa rangiana)* mussel inhabits medium to large rivers in gravel riffles, where the water is highly oxygenated. This species was formerly widespread in the Midwest, but it has declined in range by more than 95% and now exists in only eight to ten isolated populations, most of which are small and peripheral.

Conservation and Management: members of the genus *Epioblasma* seem to be particularly sensitive to impacts from impoundment, which include population fragmentation and streamflow alteration. Other threats include habitat destruction (e.g. channelization, dredging, bulkheading), exotic species introductions, siltation, pollution, and modified streamflows due to wetland loss, dam operation, and intensive landscape modification. The other two subspecies of *E. torulosa*, *E. torulosa torulosa* and *E. torulosa gubernaculum*, appear to have already gone extinct due to modification and degradation of river systems.

Rayed bean mussel – there appears to be suitable habitat within the 1.5-mile search buffer. The federally and state endangered rayed bean mussel *(Villosa fabalis)* typically occurs in fine mud substrates and riffles among roots of aquatic vegetation. Limits of the breeding season are not known but gravid specimens have been found in May.

Conservation and Management: like other mussels, threats to the rayed bean include: natural flow alterations, siltation, channel disturbance, point and non-point source pollution, and exotic species. Maintenance or establishment of vegetated riparian buffers can help protect mussel habitats from many of their threats. Control of zebra mussels is critical to preserving native mussels. And as with all mussels, protection of their hosts habitat is also crucial.

Snuffbox mussel – there appears to be suitable habitat within the 1.5-mile search buffer. The state and federally endangered snuffbox mussel (*Epioblasma triquetra*) inhabits rivers and streams with cobble, gravel, or sand bottoms in swift currents and usually is deeply buried in the substrate. Glochidia, the parasitic larval stage of the mussel, are released from May to mid-July. In Michigan, the only host fish known for snuffbox is the log perch (*Percina caprodes*). In other parts of their range the banded sculpin (*Cottus carolinae*) is also a known host. After completing the parasitic stage and reaching adulthood, snuffbox remain relatively sessile on the river bottom, living between 8-10 years. The best time to survey for snuffbox is April through September.

Conservation and Management: the snuffbox mussel is sensitive to river impoundment, siltation and disturbance, due to its requirement for clean, swift current and relative immobility as an adult. To maintain the current populations in Michigan, rivers need to be protected to reduce silt loading and run-off. Maintaining or establishing vegetated riparian buffers can aid in controlling many of the threats to mussels. Control of zebra mussels is critical to preserving native mussels. And as with all mussels, protection of their hosts habitat is also crucial. Because the life cycle of the snuffbox is inherently linked with that of the logperch in Michigan, conservation and management of this fish species is needed to ensure that of the snuffbox.

Federally Threatened

Northern long-eared bat - although no known hibernacula or roost trees have been documented within 1.5 miles of the project area, this activity occurs within the designated WNS zone (i.e., within 150 miles of positive counties/districts impacted by WNS. In addition, suitable habitat does exist in and outside of our 1.5-mile search buffer. The USFWS has prepared a dichotomous key to help determine if this action may cause prohibited take of this bat. Please consult the USFWS Endangered Species Page for more information.

Northern long-eared bat (*M. septentrionalis*) numbers in the northeast US have declined up to 99 percent. Loss or degradation of summer habitat, wind turbines, disturbance to hibernacula, predation, and pesticides have contributed to declines in Northern long-eared bat populations. However, no other threat has been as severe to the decline as White-nose Syndrome (WNS). WNS is a fungus that thrives in the cold, damp conditions in caves and mines where bats hibernate. The disease is believed to disrupt the hibernation cycle by causing bats to repeatedly awake thereby depleting vital energy reserves. This species was federally listed in May 2015 primarily due to the threat from WNS.

Also called northern bat or northern myotis, this bat is distinguished from other *Myotis* species by its long ears. In Michigan, northern long-eared bats hibernate in abandoned mines and caves in the Upper Peninsula; they also commonly hibernate in the Tippy Dam spillway in Manistee County. This species is a regional migrant with migratory distance largely determined by locations of suitable hibernacula sites.

Northern long-eared bats typically roost and forage in forested areas. During the summer, these bats roost singly or in colonies underneath bark, in cavities or in crevices of both living and dead trees. These bats seem to select roost trees based on suitability to retain bark or provide cavities or crevices. Common roost trees in southern Lower Michigan included species of ash, elm and maple. Foraging occurs primarily in areas along woodland edges, woodland clearings and over small woodland ponds. Moths, beetles and small flies are common food items. Like all temperate bats this species typically produces only 1-2 young per year.

Conservation and Management: when there are no known roost trees or hibernacula in the project area, we encourage you to conduct tree-cutting activities and prescribed burns in forested areas during October 1 through March 31 when possible, but you are not required by the ESA to do so. When that is not possible, we encourage you to remove trees prior to June 1 or after July 31, as that will help to protect young bats that may be in forested areas, but are not yet able to fly.

Eastern prairie fringed orchid – there does not to be suitable habitat within the 1.5-mile search buffer. The eastern prairie fringed orchid (*Platanthera leucophaea*) occurs in a wide variety of habitats, from mesic prairie to wetlands such as sedge meadows, marsh edges, even bogs. It requires full sun for optimum growth and flowering and a grassy habitat with little or no woody encroachment. The white blossoms produce a heavy fragrance at dusk that attracts many moths, including the primary pollinators of *P. leucophaea*, hawkmoths (Lepidoptera: Sphingidae). Hawkmoths are likely co-adapted pollinators, since their tongues are long enough to reach the nectar that lies deep in the spur of the flower. Capsules mature in September, releasing hundreds of thousands of airborne seeds. Plants may not flower every year but frequently produce only a single leaf above ground, possibly even becoming dormant when conditions are unsuitable, such as the onset of drought.

Conservation and Management: this species requires the maintenance of natural hydrological cycles and open habitat. Activities such as shrub removal are likely to benefit the species, but other management such as prescribed fire is not well understood. Caution and proper monitoring should be employed if using prescribed fire in occupied habitat. Spring fires should be conducted prior to emergence (mid-April). Poaching is also a threat.

Rufa red knot – there does not appear to be suitable habitat within the 1.5-mile search buffer. The rufa red knot (*Calidris canutus rufa*) is one of the longest-distance migrants in the animal kingdom, flying some 18,000 miles annually between its breeding grounds in the Canadian Arctic to the wintering grounds at the southern-most tip of South America. Primarily occurring along the Atlantic and Gulf coasts, small groups of this shorebird regularly use the interior of the United States such as the Great Lakes during the annual migration. The Great Lakes shorelines provide vital stopover habitat for resting and refueling during their long annual journey.

The largest concentration of rufa red knots is found in May in Delaware Bay, where the birds stop to gorge on the eggs of spawning horseshoe crabs; a spectacle attracting thousands of birdwatchers to the area. In just a few days, the birds nearly double their weight to prepare for the final leg of their long journey to the Arctic. This species may be especially vulnerable to climate change which affects coastal habitats due to rising sea levels.

Conservation and Management: applies to actions that occur along coastal areas during the Red Knot migratory window of MAY 1 - SEPTEMBER 30.

Eastern massasauga rattlesnake (EMR) – this project falls outside of Tier 1 and Tier2 EMR habitat as designated by the US Fish and Wildlife Service. The federal and state threatened eastern massasauga rattlesnake *(Sistrurus catenatus)* is Michigan's only venomous snake and found in a variety of wetland habitats

including bogs, fens, shrub swamps, wet meadows, marshes, moist grasslands, wet prairies, and floodplain forests. Eastern massasaugas occur throughout the Lower Peninsula but are not found in the Upper Peninsula. Populations in southern Michigan are typically associated with open wetlands, particularly prairie fens, while those in northern Michigan are better known from lowland coniferous forests, such as cedar swamps. These snakes normally overwinter in crayfish or small mammal burrows often close to the groundwater level and emerge in spring as water levels rise. During late spring, these snakes move into adjacent uplands they spend the warmer months foraging in shrubby fields and grasslands in search of mice and voles, their favorite food.

Often described as “shy and sluggish”, these snakes avoid human confrontation and are not prone to strike, preferring to leave the area when they are threatened. However, like any wild animal, they will protect themselves from anything they see as a potential predator. Their short fangs can easily puncture skin and they do possess potent venom. Like many snakes, the first human reaction may be to kill the snake, but it is important to remember that all snakes play vital roles in the ecosystem. Some may eat harmful insects. Others like the massasauga consider rodents a delicacy and help control their population. Snakes are also a part of a larger food web and can provide food to eagles, herons, and several mammals.

Conservation and Management: any sightings of these snakes should be reported to the Michigan Department of Natural Resources, Wildlife Division. If possible, a photo of the live snake is also recommended.

USFWS Section 7 Consultation Technical Assistance can be found at:

https://www.fws.gov/midwest/endangered/section7/s7process/index.html

The website offers step-by-step instructions to guide you through the Section 7 consultation process with prepared templates for documenting “no effect.” as well as requesting concurrence on "may affect, but not likely to adversely affect" determinations.

Please let us know if you have questions.

Mike Sanders
Environmental Review Specialist/Zoologist
Sander75@msu.edu
517-284-6215

OHM
Advancing Communities

RECEIVED
APR 30 2019
STATE HISTORIC PRESERVATION OFFICE

April 24, 2019

Andrew Martin
State Historic Preservation Office
735 E. Michigan Avenue
Lansing, MI 48909

RE: Wayne County Rouge Valley Sewage Disposal System,
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

OHM Project No. 0144430031

Dear Mr. Martin,

OHM Advisors is currently working with Wayne County on the development of a Long Term Corrective Action Plan (LTCAP) for improvements to the existing Rouge Valley Sewage Disposal System. The system services roughly the northern half of Wayne County, as shown in Attachment A (Figure A-1). Work is planned within the right-of-way along N. Edward Hines Drive from 7 Mile Road to Michigan Avenue and along Michigan Avenue from I-275 to West Outer Drive. Ongoing maintenance and improvements will continue throughout the system (inspection, cleaning and repairs). Attachment B identifies the locations of two planned wet weather storage facilities situated on public and privately-owned land. The work includes the construction of wet weather storage facilities and sewers to connect to the existing interceptors.

Modifications and upgrades are expected as the system ages. All work will involve a minimum amount of ground disturbance. The existing system is located within roadways and utility rights-of-way that have previously been disturbed. All lands will be restored to their existing use and there will be no discernable impacts to their physical, visual, auditory and sociocultural climates.

The Project Plan will be submitted to Michigan Department of Environmental Quality for prioritization of a State Revolving Fund loan. We are seeking your input to determine if any historical, cultural or religious sites are located within the proposed project areas. We would appreciate your thoughts and comments on the project.

Please respond with your findings at your earliest convenience. If you have any questions or require additional information, please contact the undersigned.

Sincerely,
OHM Advisors

Nancy Russell

Nancy Russell, Engineer
nancy.russell@ohm-advisors.com

Encl: Attachments A - B
cc: Kelly Cave, Elmeka Steele; Wayne County
RVSDS Team

OHM Advisors
1145 GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226
T 313.481.1250
OHM-Advisors.com

March 14, 2019

Colleen Medicine
Sault Ste. Marie Tribe of Chippewa Indians
523 Ashmun Street
Sault Ste. Marie, MI 49783

RE: Wayne County Rouge Valley Sewage Disposal System, OHM Project No. 0144430031
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

Dear Ms. Medicine:

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Sincerely,
OHM Advisors

Nancy Russell

Nancy Russell, Engineer

Encl: Attachments A - B
cc: Kelly Cave, Elmeka Steele; Wayne County
RVSDS Team

OHM Advisors
1145 GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226 T 313.481.1250 OHM-Advisors.com

March 14, 2019

William Johnson
Saginaw Chippewa Indian Tribe of Michigan
Ziibiwing Center of Anishinabe Culture & Lifeways
6650 East Broadway
Mt. Pleasant, MI 48858

RE: Wayne County Rouge Valley Sewage Disposal System, OHM Project No. 0144430031
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

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Nancy Russell

Nancy Russell, Engineer

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RVSDS Team

OHM Advisors
1145 GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226 T 313.481.1250 OHM-Advisors.com

March 14, 2019

Matthew J.N. Bussler
Pokagon Band of Potawatomi Indians
Department of Housing & Community Development
57824 E Potawatomi Rd. / P.O. Box 180
Dowagiac, MI 49047

RE: Wayne County Rouge Valley Sewage Disposal System, OHM Project No. 0144430031
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

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OHM Advisors

Nancy Russell

Nancy Russell, Engineer

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cc: Kelly Cave, Elmeka Steele; Wayne County
RVSDS Team

OHM Advisors
1145 GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226 T 313.481.1250 OHM-Advisors.com

March 14, 2019

Fred Jacko, Jr.
Nottawaseppi Huron Band of Potawatomi
1485 Mno-Bmadzewen Way
Fulton, MI 49052

RE: Wayne County Rouge Valley Sewage Disposal System, OHM Project No. 0144430031
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

Dear Mr. Jacko:

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Sincerely,
OHM Advisors

Nancy Russell

Nancy Russell, Engineer

Encl: Attachments A - B
cc: Kelly Cave, Elmeka Steele; Wayne County
RVSDS Team

OHM Advisors
1145 GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226 T 313.481.1250 OHM-Advisors.com

March 14, 2019

Wesley Andrews & Melissa Wiatrolik
Little Traverse Bay Bands of Odawa Indians
7500 Odawa Cir.
Harbor Springs, MI 49740

RE: Wayne County Rouge Valley Sewage Disposal System, OHM Project No. 0144430031
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

Dear Mr. Andrews & Ms. Wiatrolik:

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Sincerely,
OHM Advisors

Nancy Russell

Nancy Russell, Engineer

Encl: Attachments A - B
cc: Kelly Cave, Elmeka Steele; Wayne County
RVSDS Team

OHM Advisors
1145 GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226 T 313.481.1250 OHM-Advisors.com

March 14, 2019

Jonnie J. Sam
Little River Band of Ottawa Indians
2608 Government Center Drive
Manistee, MI 49660

RE: Wayne County Rouge Valley Sewage Disposal System, OHM Project No. 0144430031
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

Dear Jonnie J. Sam:

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OHM Advisors

Nancy Russell

Nancy Russell, Engineer

Encl: Attachments A - B
cc: Kelly Cave, Elmeka Steele; Wayne County
RVSDS Team

OHM Advisors
1145 GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226 T 313.481.1250 OHM-Advisors.com

March 14, 2019

Paula Carrick
Bay Mills Indian Community
12140 W. Lakeshore Drive
Brimley, MI 48715

RE: Wayne County Rouge Valley Sewage Disposal System, OHM Project No. 0144430031
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

Dear Ms. Carrick:

OHM Advisors is currently working with Wayne County on the development of a Long Term Corrective Action Plan (LTCAP) for improvements to the existing Rouge Valley Sewage Disposal System. The system services roughly the northern half of Wayne County, as shown in Attachment A (Figure A-1). Work is planned within the right-of-way along N. Edward Hines Drive from 7 Mile Road to Michigan Avenue and along Michigan Avenue from I-275 to West Outer Drive. Ongoing maintenance and improvements will continue throughout the system (inspection, cleaning and repairs). Attachment B identifies the locations of two planned wet weather storage facilities situated on public and privately-owned land. The work includes the construction of wet weather storage facilities and sewers to connect to the existing interceptors.

Modifications and upgrades are expected as the system ages. All work will involve a minimum amount of ground disturbance. The existing system is located within roadways and utility rights-of-way that have previously been disturbed. All lands will be restored to their existing use and there will be no discernable impacts to their physical, visual, auditory and sociocultural climates.

The Project Plan will be submitted to Michigan Department of Environmental Quality for prioritization of a State Revolving Fund loan. We are seeking your input to determine if any historical, cultural or religious sites are located within the proposed project areas. We would appreciate your thoughts and comments on the project.

Please respond with your findings at your earliest convenience. If you have any questions or require additional information, please contact the undersigned.

Sincerely,
OHM Advisors

Nancy Russell

Nancy Russell, Engineer

Encl: Attachments A - B
cc: Kelly Cave, Elmeka Steele; Wayne County
RVSDS Team

OHM Advisors
114S GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226 T 313.481.1250 OHM-Advisors.com

March 14, 2019

Cindy Winslow
Grand Traverse Band of Ottawa & Chippewa Indians
2605 North West Bay Shore Drive
Suttons Bay, MI 49682

RE: Wayne County Rouge Valley Sewage Disposal System, OHM Project No. 0144430031
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

Dear Ms. Winslow:

OHM Advisors is currently working with Wayne County on the development of a Long Term Corrective Action Plan (LTCAP) for improvements to the existing Rouge Valley Sewage Disposal System. The system services roughly the northern half of Wayne County, as shown in Attachment A (Figure A-1). Work is planned within the right-of-way along N. Edward Hines Drive from 7 Mile Road to Michigan Avenue and along Michigan Avenue from I-275 to West Outer Drive. Ongoing maintenance and improvements will continue throughout the system (inspection, cleaning and repairs). Attachment B identifies the locations of two planned wet weather storage facilities situated on public and privately-owned land. The work includes the construction of wet weather storage facilities and sewers to connect to the existing interceptors.

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Please respond with your findings at your earliest convenience. If you have any questions or require additional information, please contact the undersigned.

Sincerely,
OHM Advisors

Nancy Russell

Nancy Russell, Engineer

Encl: Attachments A - B
cc: Kelly Cave, Elmeka Steele; Wayne County
RVSDS Team

OHM Advisors
1145 GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226 T 313.481.1250 OHM-Advisors.com

March 14, 2019

Sydney Martin & Punkin Shananaquet
Match-e-be-nash-she-wish (Gun Lake) Band of Pottawatomi Indians
3556 26th Street
Hopkins, MI 49328

RE: Wayne County Rouge Valley Sewage Disposal System, OHM Project No. 0144430031
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

Dear Sydney Martin & Punkin Shananaquet:

OHM Advisors is currently working with Wayne County on the development of a Long Term Corrective Action Plan (LTCAP) for improvements to the existing Rouge Valley Sewage Disposal System. The system services roughly the northern half of Wayne County, as shown in Attachment A (Figure A-1). Work is planned within the right-of-way along N. Edward Hines Drive from 7 Mile Road to Michigan Avenue and along Michigan Avenue from I-275 to West Outer Drive. Ongoing maintenance and improvements will continue throughout the system (inspection, cleaning and repairs). Attachment B identifies the locations of two planned wet weather storage facilities situated on public and privately-owned land. The work includes the construction of wet weather storage facilities and sewers to connect to the existing interceptors.

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Please respond with your findings at your earliest convenience. If you have any questions or require additional information, please contact the undersigned.

Sincerely,
OHM Advisors

Nancy Russell

Nancy Russell, Engineer

Encl: Attachments A - B
cc: Kelly Cave, Elmeka Steele; Wayne County
RVSDS Team

OHM Advisors
1145 GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226 T 313.481.1250 OHM-Advisors.com

March 14, 2019

Earl Meshigaud
Hannahville Indian Community
N-14911 Hannahville B1 Road
Wilson, MI 49896

RE: Wayne County Rouge Valley Sewage Disposal System, OHM Project No. 0144430031
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

Dear Mr. Meshigaud:

OHM Advisors is currently working with Wayne County on the development of a Long Term Corrective Action Plan (LTCAP) for improvements to the existing Rouge Valley Sewage Disposal System. The system services roughly the northern half of Wayne County, as shown in Attachment A (Figure A-1). Work is planned within the right-of-way along N. Edward Hines Drive from 7 Mile Road to Michigan Avenue and along Michigan Avenue from I-275 to West Outer Drive. Ongoing maintenance and improvements will continue throughout the system (inspection, cleaning and repairs). Attachment B identifies the locations of two planned wet weather storage facilities situated on public and privately-owned land. The work includes the construction of wet weather storage facilities and sewers to connect to the existing interceptors.

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Sincerely,
OHM Advisors

Nancy Russell

Nancy Russell, Engineer

Encl: Attachments A - B
cc: Kelly Cave, Elmeka Steele; Wayne County
RVSDS Team

OHM Advisors
1145 GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226 T 313.481.1250 OHM-Advisors.com

March 14, 2019

Gary F. Loonsfoot, Jr.
Keweenaw Bay Indian Community of the Lake Superior Band of Chippewa Indians
16429 Bear Town Road
Baraga, MI 49908

RE: Wayne County Rouge Valley Sewage Disposal System, OHM Project No. 0144430031
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

Dear Mr. Loonsfoot:

OHM Advisors is currently working with Wayne County on the development of a Long Term Corrective Action Plan (LTCAP) for improvements to the existing Rouge Valley Sewage Disposal System. The system services roughly the northern half of Wayne County, as shown in Attachment A (Figure A-1). Work is planned within the right-of-way along N. Edward Hines Drive from 7 Mile Road to Michigan Avenue and along Michigan Avenue from I-275 to West Outer Drive. Ongoing maintenance and improvements will continue throughout the system (inspection, cleaning and repairs). Attachment B identifies the locations of two planned wet weather storage facilities situated on public and privately-owned land. The work includes the construction of wet weather storage facilities and sewers to connect to the existing interceptors.

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Please respond with your findings at your earliest convenience. If you have any questions or require additional information, please contact the undersigned.

Sincerely,
OHM Advisors

Nancy Russell

Nancy Russell, Engineer

Encl: Attachments A - B
cc: Kelly Cave, Elmeka Steele; Wayne County
RVSDS Team

OHM Advisors
1145 GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226 T 313.481.1250 OHM-Advisors.com

March 14, 2019

Daisy McGeshick
Lac Vieux Desert Band of Lake Superior Chippewa Indians
P.O. Box 249
Watersmeet, MI 49969

RE: Wayne County Rouge Valley Sewage Disposal System, OHM Project No. 0144430031
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

Dear Ms. McGeshick:

OHM Advisors is currently working with Wayne County on the development of a Long Term Corrective Action Plan (LTCAP) for improvements to the existing Rouge Valley Sewage Disposal System. The system services roughly the northern half of Wayne County, as shown in Attachment A (Figure A-1). Work is planned within the right-of-way along N. Edward Hines Drive from 7 Mile Road to Michigan Avenue and along Michigan Avenue from I-275 to West Outer Drive. Ongoing maintenance and improvements will continue throughout the system (inspection, cleaning and repairs). Attachment B identifies the locations of two planned wet weather storage facilities situated on public and privately-owned land. The work includes the construction of wet weather storage facilities and sewers to connect to the existing interceptors.

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Please respond with your findings at your earliest convenience. If you have any questions or require additional information, please contact the undersigned.

Sincerely,
OHM Advisors

Nancy Russell

Nancy Russell, Engineer

Encl: Attachments A - B
cc: Kelly Cave, Elmeka Steele; Wayne County
RVSDS Team

OHM Advisors
1145 GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226 T 313.481.1250 OHM-Advisors.com

April 24, 2019

Andrew Martin
State Historic Preservation Office
735 E. Michigan Avenue
Lansing, MI 48909

RE: Wayne County Rouge Valley Sewage Disposal System, OHM Project No. 0144430031
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

Dear Mr. Martin,

OHM Advisors is currently working with Wayne County on the development of a Long Term Corrective Action Plan (LTCAP) for improvements to the existing Rouge Valley Sewage Disposal System. The system services roughly the northern half of Wayne County, as shown in Attachment A (Figure A-1). Work is planned within the right-of-way along N. Edward Hines Drive from 7 Mile Road to Michigan Avenue and along Michigan Avenue from I-275 to West Outer Drive. Ongoing maintenance and improvements will continue throughout the system (inspection, cleaning and repairs). Attachment B identifies the locations of two planned wet weather storage facilities situated on public and privately-owned land. The work includes the construction of wet weather storage facilities and sewers to connect to the existing interceptors.

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Please respond with your findings at your earliest convenience. If you have any questions or require additional information, please contact the undersigned.

Sincerely,
OHM Advisors

Nancy Russell

Nancy Russell, Engineer

Encl: Attachments A - B
cc: Kelly Cave, Elmeka Steele; Wayne County
RVSDS Team

OHM Advisors
1145 GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226 T 313.481.1250 OHM-Advisors.com

April 24, 2019

Michigan Natural Features Inventory
P.O. Box 13036
Lansing, MI 48901-3036

RE: Wayne County Rouge Valley Sewage Disposal System, OHM Project No. 0144430031
State Revolving Fund (SRF) Project Plan
Fourth Amended Final Order of Abatement Number 2117 (ACO-SWO6-010)

Dear Sir or Madam,

OHM Advisors is currently working with Wayne County on the development of a Long Term Corrective Action Plan (LTCAP) for improvements to the existing Rouge Valley Sewage Disposal System. The system services roughly the northern half of Wayne County, as shown in Attachment A (Figure A-1). Work is planned within the right-of-way along N. Edward Hines Drive from 7 Mile Road to Michigan Avenue and along Michigan Avenue from I-275 to West Outer Drive. The project spans several survey Townships, T01S – R08E, T01S – R09E, T02S – R09E, and T02S – R10E. Ongoing maintenance and improvements will continue throughout the system (inspection, cleaning and repairs). Attachment B identifies the locations of two planned wet weather storage facilities situated on public and privately-owned land. The work includes the construction of wet weather storage facilities and sewers to connect to the existing interceptors.

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The Project Plan will be submitted to Michigan Department of Environmental Quality for prioritization of a State Revolving Fund loan. We are seeking your input to determine if there are any potential impacts to rare species within the proposed project areas. We would appreciate your thoughts and comments on the project.

Please respond with your findings at your earliest convenience. There is no need for any additional options beyond the base review. If you have any questions or require additional information, please contact the undersigned.

Sincerely,
OHM Advisors

Nancy Russell

Nancy Russell, Engineer

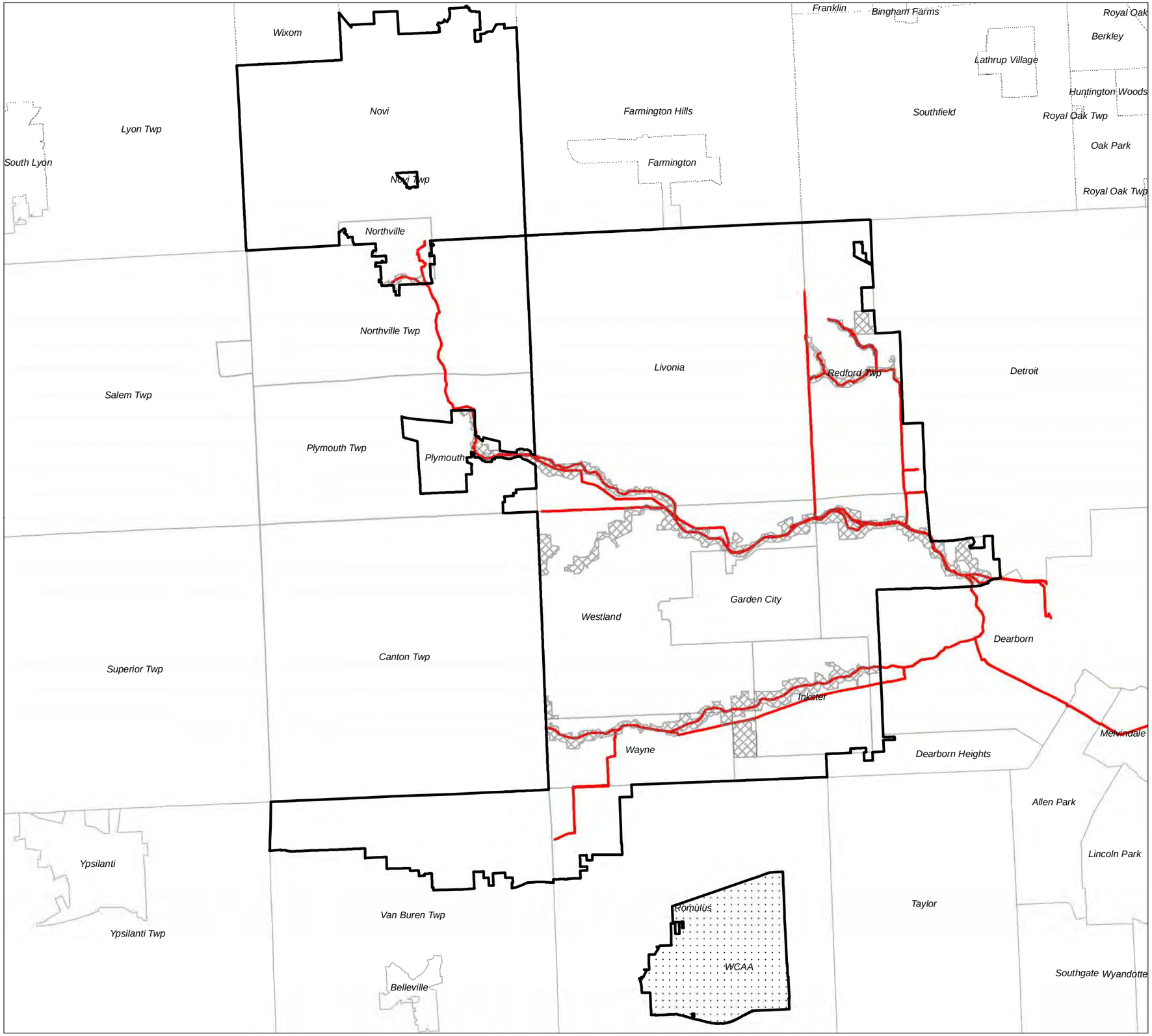
Encl: Attachments A - B
cc: Kelly Cave, Elmeka Steele; Wayne County
RVSDS Team

OHM Advisors
1145 GRISWOLD STREET, SUITE 200
DETROIT, MICHIGAN 48226 T 313.481.1250 OHM-Advisors.com

ATTACHMENT A

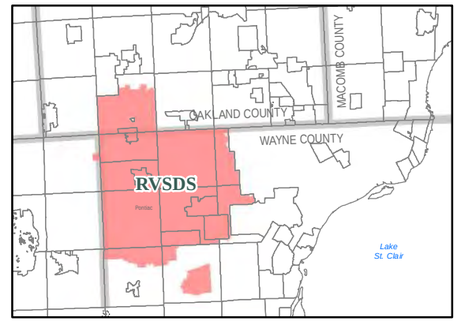
RVSDS Service Area

Rouge Valley Sewage Disposal System



N
W E
S

0 0.5 1 2 3 4 Miles



Location Map

Legend

- RVSDS Service Area Boundary
- Non-contributing/Unsewered
- Industrial Discharge
- Municipal Boundaries
- Interceptor

Figure A-1

Prepared By:

Applied Science, Inc.

Date: 3/1/2019

H:\2013\1315 -- Wayne County LTCAP Project Plan\Memos\H&H Report\Fig 2-1 - RVSDS District and Community Boundaries.mxd

ATTACHMENT B

Potential Project Locations

Proposed Wet Weather Storage Locations

There are two potential locations where wet weather storage may be necessary.

- Site 1 - Inkster Arm @ Bell Branch
- Site 2 - Middle Rouge @ JC 8-27

Figures B-1 and B-2 show the proposed storage locations. See Attachment A for the broader context of the RVSDS service area.

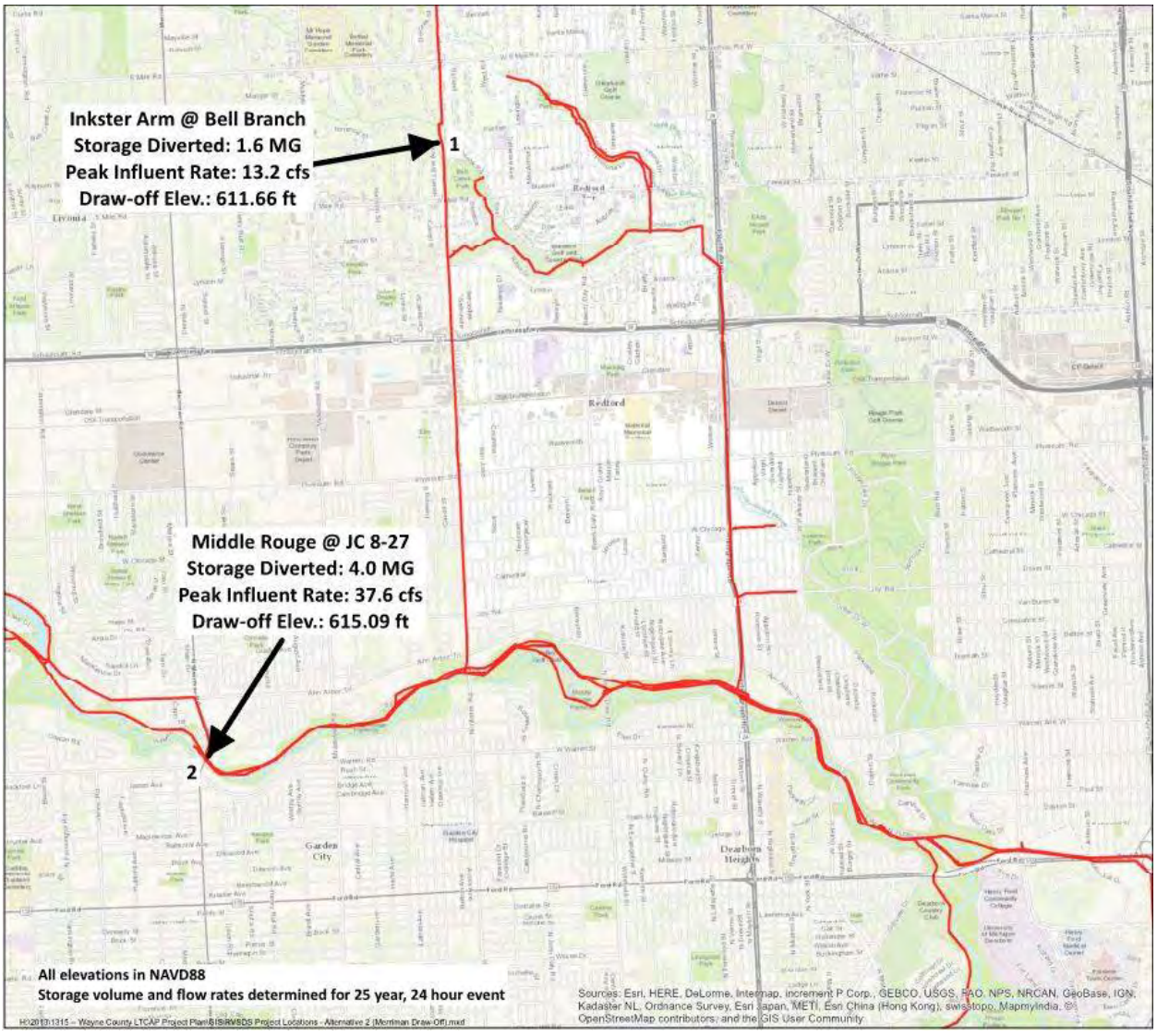


Figure B-1: Potential Wet Weather Storage Locations

Site 1 is located off of Inkster Road between 5 Mile Rd and Bell Creek. While this is a highly developed urban area, there is a potential site within the Wayne County Bell Creek Park north of 5 Mile Road that is currently used for soccer fields (see Figure B-2). This site could potentially be used to construct an underground storage tank, and then restored to allow continued use as a soccer field

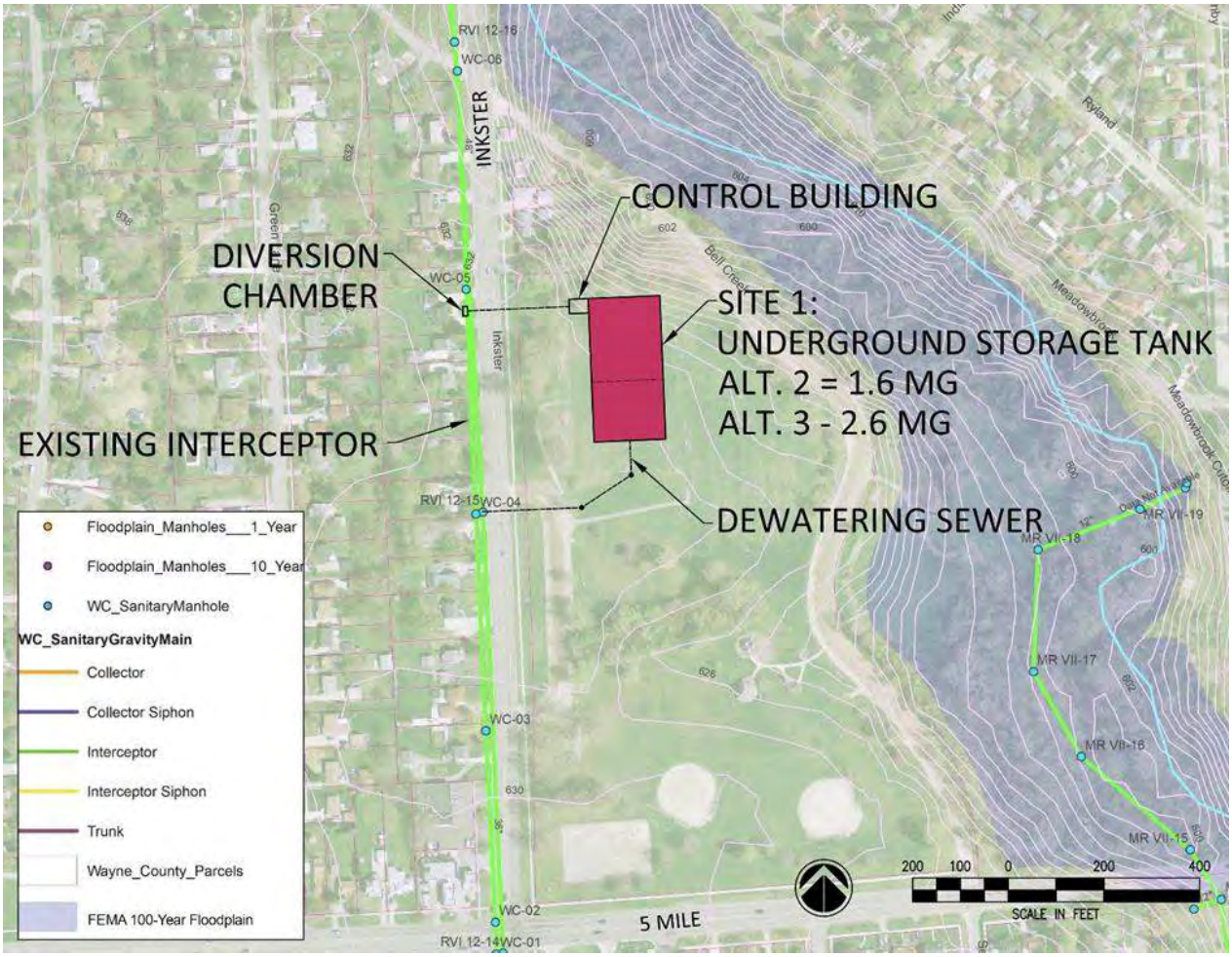


Figure B-2: Site 1 – Inkster Arm @ Bell Branch

Site 2 is located east of Merriman Road. The west end of the Hawthorn Valley Golf Course is currently under redevelopment as a housing project. There is, however, vacant property on the south end of the site that can accommodate the storage footprint required (see Figure B-3). This site will also require land acquisition from a private owner, and easements to route sewers through the apartment complex lot to the site.

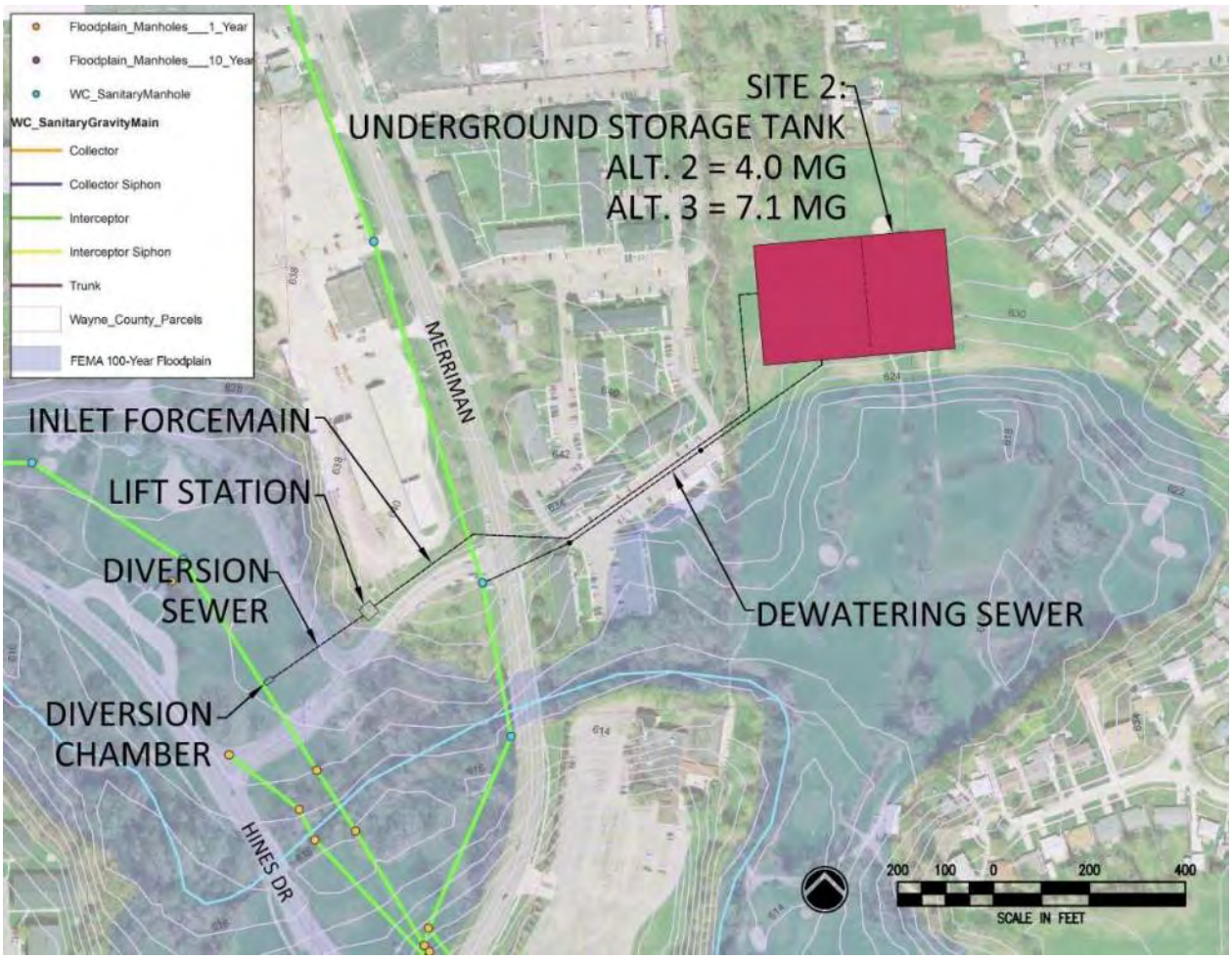


Figure B-3: Site 2 – Middle Rouge @ JC 8-27