Mr. Jeremy Pepin
Environmental Engineer
Corrective Action Unit
Hazardous Waste Section
Materials Management Division
Michigan Department of Environment, Great Lakes and Energy
525 West Allegan Street
Constitution Hall, Atrium North
Lansing, MI 48909

Arcadis of Michigan, LLC
28550 Cabot Drive
Suite 500
Novi
Michigan 48377
Phone: 248 994 2240
Fax:
www.arcadis.com

Date: February 12, 2025
Our Ref: 30215500
Subject: Stormwater Treatment Evaluation Work Plan
RACER Buick City
Flint, Michigan

Dear Mr. Pepin,

Arcadis of Michigan, LLC (Arcadis) has prepared this Stormwater Treatment Evaluation Work Plan (Work Plan) on behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust for the Southern Portion of the Buick City Site located at 902 East Hamilton Street in Flint, Michigan (Site). The Site location and layout of the Site is presented on **Figure 1**. Refer to **Figure 2** for features and locations discussed in this Work Plan.

Background

The Site is known to have per- and polyfluoroalkyl substance (PFAS) contamination in groundwater within the Hamilton Avenue area, located in the southern portion of the Site. Groundwater in this area is migrating toward the south. The Outfall 011 storm sewer, located in Hamilton Avenue (**Figure 2**), is collecting PFAS impacted groundwater that is infiltrating through street drains and manholes. In 2025, stormwater flow in the Outfall 011 storm sewer upgradient of the intersection of Hamilton and Industrial Avenues will be rerouted to the Outfall 013 storm sewer (**Figure 2** depicts this planned work). Bulkheads will be placed in the 011 storm sewer downgradient (east) at the intersection of Hamilton and Industrial Avenues and in manhole MH 11-6, near the intersection of Hamilton Avenue and the former railroad tracks. The bulkhead at MH 11-6 will effectively eliminate discharge of PFAS impacted groundwater through the storm sewer to the Flint River. RACER is proposing to potentially utilize the abandoned storm sewer as a subgrade collection drain to capture the groundwater infiltrating into the 011 storm sewer and to utilize manhole MH 11-6 as a collection sump. Groundwater collected in the storm sewer would be pumped from MH 11-6 to an abovegrade treatment system that would treat the groundwater to below local limits prior to discharge to the City of Flint publicly owned treatment works (POTW) in accordance with a new discharge permit.

Mr. Jeremy Pepin
EGLE
February 12, 2025

Scope of Work

Establish Objectives and the Basis of Design (BOD)

Prior to the design of the system, Arcadis recommends ensuring alignment on the short and long term objectives, as well as the Basis of Design (BOD) for the groundwater collection, conveyance, pretreatment and PFAS treatment system. This task includes the following:

- Work with RACER and the Michigan Department of Environment, Great Lakes and Energy (EGLE) to memorialize the short and long term objectives of the groundwater collection, conveyance, and treatment system; with keeping RACER Trust's Site Funding Prioritization in mind;
- Evaluate the infiltration rate and groundwater chemistry data collected from the 011 storm sewer to establish the BOD for flow rate, constituents requiring treatment, and the treatment targets (i.e. which constituents are above the POTW local limits and require treatment).

Note that the characterization of PFAS impacted groundwater infiltration into the nearby sanitary sewer is ongoing. The need to incorporate this water into a treatment system may need to be evaluated and considered as part of the BOD. Therefore, a desktop evaluation of water chemistry and flow rate from the sanitary sewer for potential incorporation into the BOD will also be completed. If additional field work and/or data collection is needed, development and execution of that scope of work will be discussed with RACER and EGLE prior to initiation of activities.

A brief memorandum will be prepared to document the final determined short and long term objectives of the groundwater collection, conveyance, and treatment system. The memorandum will also briefly summarize the conceptual design evaluation completed and final recommendation of the treatment system selected for the Site to address PFAS impacted groundwater infiltration into the storm sewer system.

Conceptual Design Evaluation

Upon agreement on the objectives and the BOD, Arcadis will complete the conceptual design. It is assumed that the conceptual design is completed following the finalization of the objectives and BOD. The conceptual design evaluation will include the following:

- Evaluation of the depth to groundwater, depth of impacts, depth of the storm sewer to confirm that the existing sewer pipe meets the previously determined short and long term objectives. If needed, develop alternatives for groundwater collection to meet previously determined short and long term objectives.
- To develop a conceptual design for a treatment system that meets the previously determined short and long term objectives, as well as the BOD. This includes development of up to four options of collection, conveyance, pretreatment, and/or PFAS treatment technology combinations. Arcadis will develop a comparison table that includes advantages, limitations health and safety considerations, data gaps, and risks for each option considered.
- Completion of engineering cost estimates for capital and operations and maintenance costs for the four options.

This assumes no bench scale or field testing will be completed to support the conceptual design. If the options evaluation identifies data gaps that significantly drive performance and/or cost risk, and additional data collection is warranted, the development and execution of an additional scope of work will be discussed with RACER and

EGLE prior to implementation. Upon completion of the comparison table and cost estimating, RACER, in collaboration with EGLE, will select the preferred treatment option keeping RACER Trust's Site Funding Prioritization in mind.

Design Package for Bidding

Once the preferred treatment option is selected, a design package for bidding will be developed. This package will include a performance specification for the treatment system and a design package for the subsurface components and infrastructure.

The performance specification for the treatment system will include a process narrative, process flow diagram, and basis of design. These elements will define the operational requirements, treatment objectives, and performance criteria for the selected treatment technology. This specification will ensure the contractor(s) provides a system that meets the necessary pretreatment requirements, PFAS removal efficiency, flow rates, media replacement schedules, discharge limits, and waste disposal criteria.

The subsurface and infrastructure design package will include:

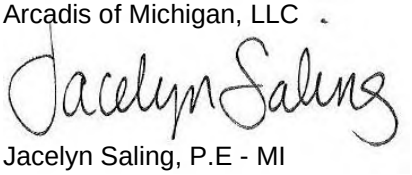
- A civil drawing package, anticipated to include 2–3 drawings, that will depict the layout of underground piping from the existing manhole to the selected treatment system location.
- Electrical design, expected to require 1–2 drawings, that will include wiring and power requirements for the new treatment system, including conduit layouts and connection details.
- Structural design, if required, will consist of 1 drawing for any treatment system foundations or structural supports that may be necessary.
- Mechanical design, expected to require 1 drawing, will provide specifications for the pumping system and any associated mechanical components.

In total, 5–7 design drawings are anticipated, ensuring that all site-specific requirements are incorporated into the final bidding package.

Proposed Schedule

Upon the final determination of the short and long term objectives of the groundwater collection, conveyance, and treatment system; with keeping RACER Trust's Site Funding Prioritization in mind, the activities outlined above are anticipated to take approximately 4 months to complete. It is proposed that the short and long term objectives will be discussed during meetings between Arcadis, RACER Trust and EGLE in the coming weeks.

Sincerely,
Arcadis of Michigan, LLC



Jacelyn Saling, P.E - MI
Technical Expert

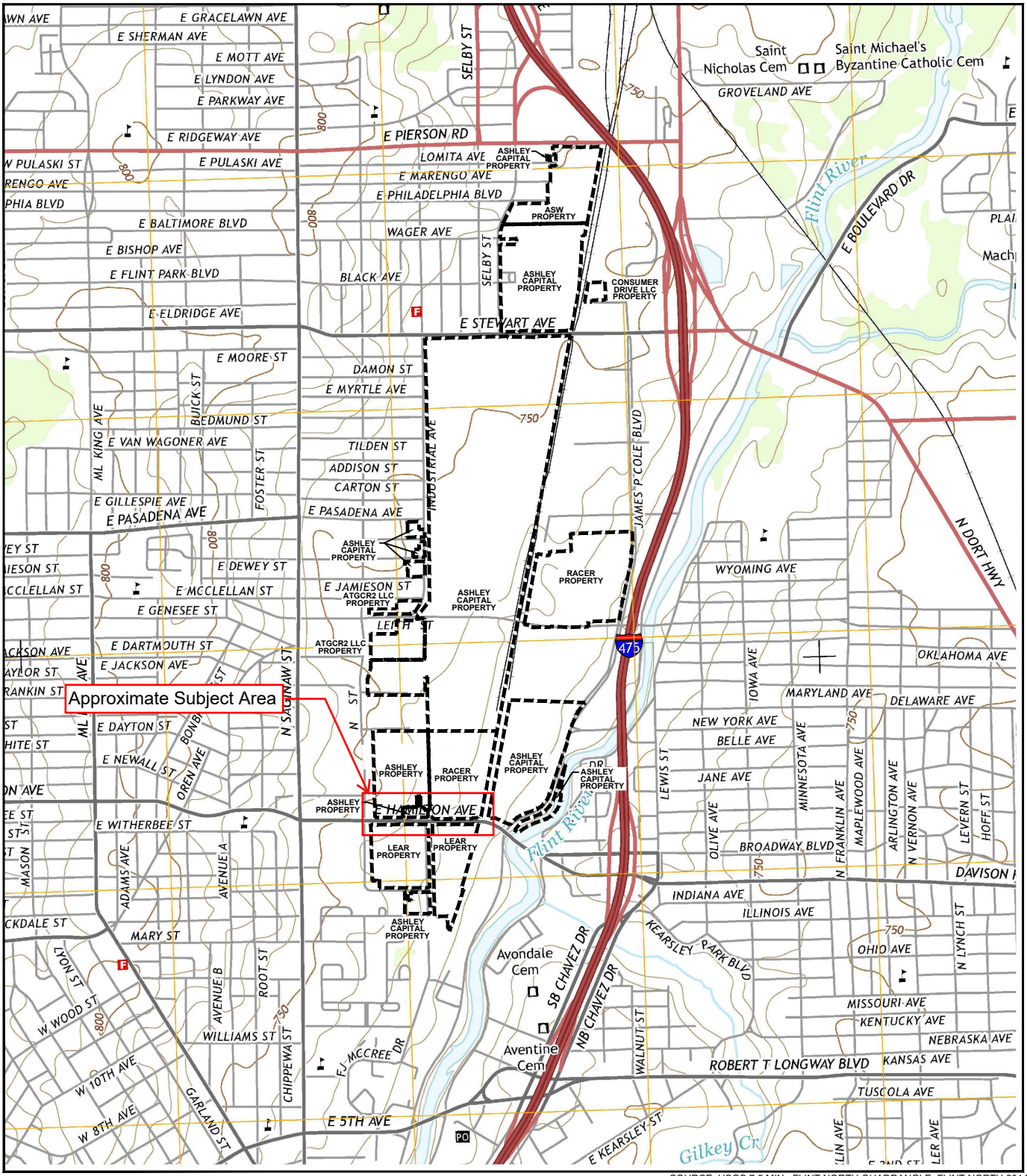
Email: Jacelyn.Saling@arcadis.com

Mr. Jeremy Pepin
EGLE
February 12, 2025

Direct Line: 248-994-2269

CC. Project file
Brendan Mullen, RACER Trust
Tiffany Linder, Arcadis

Enclosures:
Figure 1 – Site Location
Figure 2 – Hamilton Area and Outfall 011



SOURCE: USGS 7.5 MIN., FLINT NORTH QUADRANGLE, FLINT NORTH 2014

0 2000' 4000'

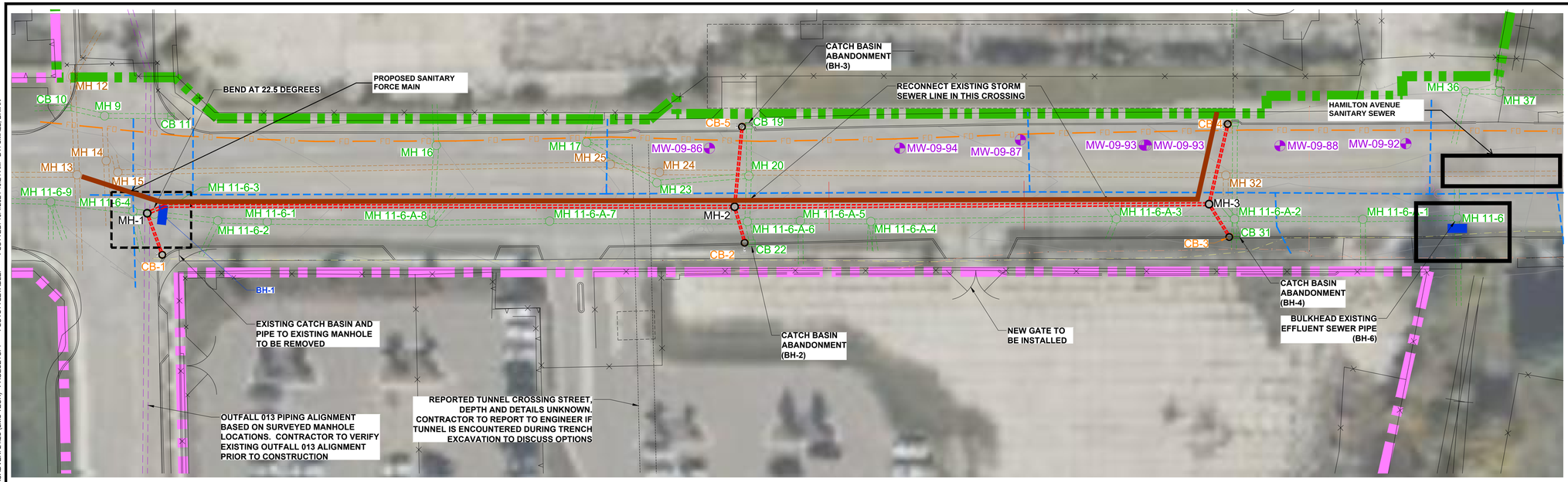
APPROXIMATE SCALE IN FEET

RACER TRUST
BUICK CITY
FLINT, MICHIGAN

SITE LOCATION MAP

ARCADIS

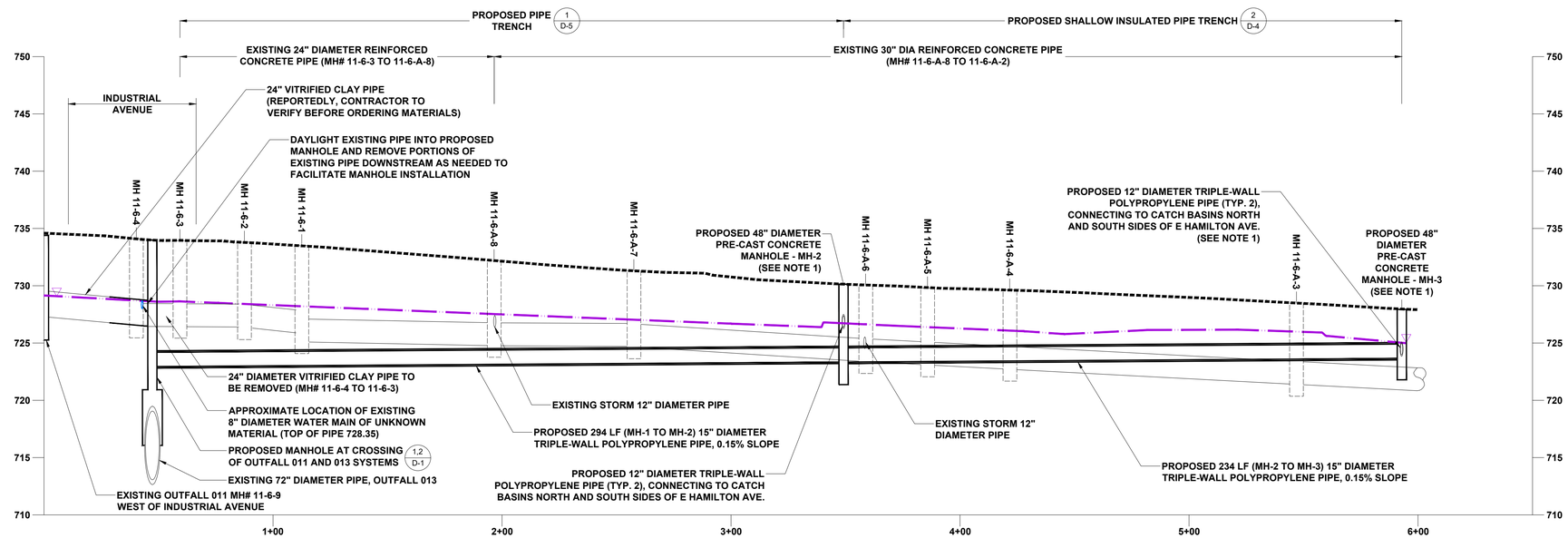
FIGURE 1



LEGEND:

- RACER PROPERTY BOUNDARY
- FORMER RACER PROPERTY BOUNDARY
- OUTFALL 011
- OUTFALL 013
- SANITARY LINE
- FIBER LINE
- GAS LINE
- TELEPHONE LINE
- WATERMAIN
- PROPOSED SEWER LINE
- APPROXIMATE LOCATION OF PROPOSED BULKHEAD
- PROPOSED CATCH BASIN
- PROPOSED MANHOLE
- MONITORING WELL

0 30' 60'
GRAPHIC SCALE



LEGEND:

- SEWER MANHOLE - EXISTING
- SEWER LINE - EXISTING
- SEWER LINE - PROPOSED
- EXISTING GRADE LINE ALONG PROPOSED SEWER ALIGNMENT
- APPROXIMATE GROUNDWATER TABLE (AUGUST 2024)

NOTE:

1. INDICATED MATERIALS AND SIZES OF PIPE AND DRAINAGE STRUCTURES REPRESENT BASE BID. REFER TO DRAWING DETAILS, SPECIFICATIONS, AND BID FORM FOR MODIFICATIONS UNDER BID OPTION 1.

ALTERNATIVE MATERIAL FOR BID OPTION 1			
TYPE	ALTERNATIVE MATERIAL	LOCATION	DETAIL REFERENCE
MH	HDPE MH	MH-2,3	1/D-2
CB	HDPE FABRICATED TEE	CB -1,2,3,4,5	1/D-3
15" PIPE	HDPE FUSED PIPE 18" OD DIA DR 17	MAIN	1/D-5
12" PIPE	HDPE FUSED PIPE 14" OD DIA DR 17	CB LATERAL	1/D-5

0 2' 4'
VERTICAL GRAPHIC SCALE

0 30' 60'
HORIZONTAL GRAPHIC SCALE

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name
BRAD A. SAUNDERS
Professional Engineer's No.
6201050540

State	Date Signed	Project Mgr.
MI		TM
Designed by	Drawn by	Checked by
GG	BS	BMS

DRAFT

ARCADIS
ARCADIS OF MICHIGAN, LLC.

RACER TRUST • BUICK CITY, FLINT, MICHIGAN
OUTFALL 011 STORM SEWER REROUTE

E HAMILTON AVENUE PLAN AND PROFILE

GENERAL

ARCADIS Project No.
30215500

Date
SEPTEMBER 2024

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2