

**ROCHESTER HILLS BROWNFIELD REDEVELOPMENT  
AUTHORITY**

# **BROWNFIELD PLAN**

Parcels 15-29-101-022 and 15-29-101-023, Northeast Corner of  
Hamlin and Adams Roads, Rochester Hills, Michigan

**PREPARED BY**

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**PROJECT #**

3679f6

**REVISION DATE**

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**BRA APPROVAL  
CITY APPROVAL**

# Table of Contents

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<b>1.0 INTRODUCTION.....</b>	<b>4</b>
<b>2.0 GENERAL PROVISIONS.....</b>	<b>5</b>
2.1 DESCRIPTION OF ELIGIBLE PROPERTY (SECTION 13 (L)(H).....	6
2.2 BASIS OF ELIGIBILITY (SECTION 13 (1)(H) , SECTION 2 (M)), SECTION 2(R).....	6
2.3 SUMMARY OF ELIGIBLE ACTIVITIES AND DESCRIPTION OF COSTS (SECTION 13 (1)(A),(B)) .	17
2.4 ESTIMATE OF CAPTURED TAXABLE VALUE AND TAX INCREMENT REVENUES (SECTION 13(1)(C)); IMPACT OF TAX INCREMENT FINANCING ON TAXING JURISDICTIONS (SECTION 13(1)(G), SECTION 2(E)) .....	26
2.5 IMPACT ON TAXING JURISDICTIONS (Section 13(2)(G)).....	26
2.6 PLAN OF FINANCING (SECTION 13(1)(D)); MAXIMUM AMOUNT OF INDEBTEDNESS (SECTION 13(1)(E)) .....	29
2.7 DURATION OF BROWNFIELD PLAN (SECTION 13(1)(F)) .....	29
2.8 EFFECTIVE DATE OF INCLUSION IN BROWNFIELD PLAN.....	29
2.9 DISPLACEMENT/RELOCATION OF INDIVIDUALS ON ELIGIBLE PROPERTY (SECTION 13(1)(I-L))	29
2.10 LOCAL BROWNFIELD REVOLVING FUND (“LBRF”) (SECTION 8, SECTION 13(5)) .....	29
2.11 OTHER INFORMATION .....	30

## **ATTACHMENTS**

Attachment A .....	Site Maps
• Figure 1 – Scaled Property Location Map	
• Figure 2 – Eligible Property Boundary Map	
• Figure 3 – Map Showing Proposed New Parcel Boundaries	
• Figure 4 – Proposed Truck Route Map	
Attachment B .....	Legal Description
Attachment C .....	Tables
• Table 1 – Eligible Activities	
• Table 2 – Tax Increment Revenue Estimates	
• Table 3 – Reimbursement Allocation Schedule	
Attachment D .....	Environmental Documentation

# PROJECT SUMMARY

<b>PROJECT NAME</b>	Legacy Rochester Hills - Redevelopment and Reuse of Properties Located at the northeast corner of Hamlin and Adams Roads, Rochester Hills, Michigan
<b>DEVELOPER</b>	Goldberg Companies, Inc. c/o Mr. Eric Bell 25101 Chagrin Boulevard, Suite 300 Beachwood, Ohio 44122
<b>ELIGIBLE PROPERTY LOCATION</b>	The Eligible Property is located at the northeast corner of Hamlin and Adams Roads, Rochester Hills, Michigan. Parcel ID Numbers 15-29-101-022 and 15-29-101-023.
<b>TYPE OF ELIGIBLE PROPERTY</b>	Facility
<b>SUBJECT PROJECT DESCRIPTION</b>	<p>Legacy Rochester Hills (Project) consists of the redevelopment of the subject property, which is located at the northeast corner of Hamlin and Adams Roads in the City of Rochester Hills. The final plans for the redevelopment have not been completed. However, this Project will include remediation of contaminated soils and construction of a new residential apartment complex with approximately 368 units and onsite surface parking. This Project will put an underutilized property into productive use and return it to the City's tax rolls.</p> <p>In addition to the economic benefits of this development to Rochester Hills, environmental activities are anticipated that would provide a safer and healthier community to the public.</p> <p>The Project is seeking approval of Tax Increment Financing (TIF). Construction is expected to begin in 2018.</p>
<b>ELIGIBLE ACTIVITIES</b>	Department Specific Activities and preparation of a Brownfield Plan and Act 381 Work Plan
<b>DEVELOPER'S REIMBURSABLE COSTS</b>	<p>\$ 9,619,587 (Est. Eligible Activities &amp; Contingency)</p> <p><u>\$ 3,800,000 (Interest)</u></p> <p>\$13,419,587</p>

<b>MAXIMUM ANTICIPATED DURATION OF CAPTURE</b>	24 years
<b>ESTIMATED TOTAL CAPITAL INVESTMENT</b>	\$48 million
<b>INITIAL TAXABLE VALUE</b>	\$37,440

# LIST OF ACRONYMS AND DEFINITIONS

<b>BEA</b>	Baseline Environmental Assessment (Michigan process to provide new property owners and/or operators with exemptions from environmental liability)
<b>BFP OR PLAN DEVELOPER</b>	Brownfield Plan Goldberg Companies, Inc. or other entity as approved by the Rochester Hills Brownfield Redevelopment Authority.
<b>ELIGIBLE PROPERTY</b>	Property for which eligible activities are identified under a Brownfield Plan, referred to herein as “the subject property”.
<b>ESA</b>	Environmental Site Assessment
<b>LBRF</b>	Local Site Remediation Revolving Fund
<b>MDEQ</b>	Michigan Department of Environmental Quality
<b>MEDC</b>	Michigan Economic Development Corporation
<b>MSF</b>	Michigan Strategic Fund
<b>PHASE I ESA</b>	An environmental historical review and site inspection (no soil and/or groundwater sampling and analysis)
<b>PHASE II ESA</b>	Environmental subsurface investigation (includes soil, soil gas, and/or groundwater sampling and analysis)
<b>RCC</b>	Residential Cleanup Criteria
<b>RHBRA</b>	Rochester Hills Brownfield Redevelopment Authority
<b>SUBJECT PROPERTY</b>	The Eligible Property, located at the northeast corner of Hamlin and Adams Roads, in Rochester Hills, Michigan. It comprises 2 parcels.
<b>TIF</b>	Tax Increment Financing (TIF describes the process of using TIR—i.e., TIF is the use of TIR to provide financial support to a project)
<b>TIR</b>	Tax Increment Revenue (new property tax revenue, usually due to redevelopment and improvement that is generated by a property after approval of a Brownfield Plan)

# BROWNFIELD PLAN

Northeast Corner of Hamlin and Adams Roads  
Rochester Hills, Michigan 48309

## 1.0 Introduction

The City of Rochester Hills, Michigan (the “City”), established the Rochester Hills Brownfield Redevelopment Authority (the “Authority”) on November 13, 2002, pursuant to Michigan Public Act 381 of 1996, as amended (“Act 381”). The primary purpose of Act 381 is to encourage the redevelopment of eligible property by providing economic incentives through tax increment financing for certain eligible activities.

A primary purpose of this Brownfield Plan is to promote the redevelopment of, and investment in, certain “Brownfield” properties within the City. Inclusion of the subject property in a brownfield plan will facilitate financing of environmental response and other eligible activities at eligible properties. This will enable eligible taxpayers to invest in revitalization of eligible sites, commonly referred to as “Brownfields” that otherwise would be economically unfeasible to redevelop. By facilitating redevelopment of Brownfield properties, Brownfield plans are intended to promote economic growth for the benefit of the residents of the City and all taxing units located within and benefited by the Authority.

The identification or designation of a developer that is the subject of this Brownfield Plan (the “subject property”) shall not be integral to the effectiveness or validity of this Brownfield Plan. This Brownfield Plan is intended to apply to the subject property identified in this Brownfield Plan. With respect to tax increment revenues proposed to be captured from that subject property, the Brownfield Plan is to identify and authorize the eligible activities to be funded by such tax increment revenues. Any change in the proposed developer shall not necessitate an amendment to this Brownfield Plan, affect the application of this Brownfield Plan to the subject property, or impair the rights available to the Authority under this Brownfield Plan. Any change in the proposed use of the subject property (particularly any proposed change in use of Parcel B) may require an Amendment and is subject to review by the Authority.

This Brownfield Plan is intended to be a living document, which may be modified or amended in accordance with the requirements of Act 381, as necessary to achieve the purposes of Act 381. If uses other than those currently planned by the Developer (i.e., residential use on the western Parcel A, and non-residential use, including open natural area and surface parking on the eastern Parcel B) are pursued in the future, the Brownfield Plan shall be amended if support of the new use through tax increment revenue is desired. The applicable sections of Act 381 are noted throughout the Brownfield Plan for reference purposes.

This Brownfield Plan contains information required by Section 13(1) of Act 381.

Legacy Rochester Hills (Project) consists of the redevelopment of the subject property. The final plans for the redevelopment have not been completed. However, this Project will include the remediation of contaminated soils and construction of a new residential apartment complex with approximately 368

units with onsite surface parking. This Project will put underutilized property back to productive use and will generate new tax revenue for the City. Although the Project is 100% residential, up to 10 new full-time permanent jobs are expected as well as 400 temporary construction jobs during the course of redevelopment.

In addition to the economic benefits of this development to the City of Rochester Hills, environmental activities are anticipated that would provide a safer and healthier community to the public and environment alike.

The Project is seeking approval of Tax Increment Financing (TIF). Construction is expected to begin in 2018.

## 2.0 General Provisions

The following sections detail information required by Act 381.

The project is for the redevelopment of the former Christensen Dump, located on two parcels northeast of the intersection of Hamlin and Adams Roads. The Christensen Dump operated from the mid-1950s until the mid-1960s. Later, during the 1960s and early-1970s, 55-gallon drums (which contained a variety of chemicals including paint and solvents) were dumped illegally on the property. The property has remained unimproved with no apparent use since that time. MDEQ began cleanup activities on the property in the 1990s, but due to financial constraints was unable to complete the remediation.

Both parcels are heavily contaminated. Analytical results of previous environmental investigations conducted on the two parcels indicate that concentrations of select metals, pesticides, volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs) and polynuclear aromatic compounds (PNAs) were detected in soil and/or groundwater above Michigan Department of Environmental Quality (MDEQ) Residential Cleanup Criteria (RCC).

Because of both heavy contamination and geotechnical issues from dumping, the properties have been unable to attract development or use since the 1960s. The area is attractive for new construction, but the costs associated with site conditions are so high that all previous efforts have been stymied. The most recent proposal, in 2008, failed because the redevelopment plan was unable to attract funding. In addition to financial viability, the current Legacy Rochester Hills development offers significant improvements over previous proposals, including: (1) this development entails more extensive cleanup activities on the western side of the property; (2) the proposed residential use is a better fit for the neighborhood; and (3) remediation activities planned for the former landfill include creation of a conservation area, which will expand upon municipal greenspace to the east of the subject property.

The proposed redevelopment has two components. The first, on the western portion of the property (Parcel A), involves remediation of contamination and construction of approximately 368 high-quality rental residential units. The second, on the eastern end of the property (Parcel B), is limited to environmental remediation activities in the areas of most significant contamination (excavation and removal of certain non-hazardous contaminated soils, and capping and isolating the area of most significant impact). Together, the two components will result in economically productive rehabilitation and reuse of properties that for decades have been a blight in the community. In addition to the significant benefits of environmental cleanup, the project will result in an immediate increase in tax revenue for some taxing jurisdictions.

## 2.1 Description of Eligible Property (Section 13 (l)(h))

The Eligible Property (“subject property”) is located at the northeast corner of Hamlin and Adams Roads, in the northwest ¼ of Section 29 in the City of Rochester Hills (T.3N. /R.11E.), Oakland County, Michigan. The subject property is situated northeast of the intersection of Hamlin and Adams Roads. The subject property currently consists of two parcels that contain approximately 28 acres. It is anticipated that the property boundary separating the two parcels will be redrawn prior to the commencement of the project; this anticipated boundary is shown on Figure 3, separating Parcel A and Parcel B. It should be noted that any future parcel reconfigurations or divisions will not affect the Eligible Property boundary, nor would they necessitate a Plan amendment. Moreover, while it is anticipated that all parcels will be the beneficiary of Department Specific Activities (i.e., environmental activities), they might not be owned by the same entity.

The subject property is in an area of Rochester Hills (“City”) that is characterized by residential properties and is served by surface roadways, municipal sanitary sewer and water, and electrical and gas utilities.

The following table describes each parcel which comprises the subject property. See Attachment A, Figure 2 – Eligible Property Boundary Map.

### Eligible Property Information

Address	Tax Identification Number	Basis of Brownfield Eligibility	Approximate Acreage
No Address	15-29-101-022	Facility	18.8
No Address	15-29-101-023	Facility	9.2

The subject property is zoned Residential (R2). The subject property consists of undeveloped land and does not contain any structures. A chain link fence to deter entry into the most highly contaminated portion is present on the eastern portion of the eastern parcel.

Attachment A includes site maps of the Eligible Property, refer to: Figure 1, Scaled Property Location Map and Figure 2, Eligible Property Boundary Map (which includes lot dimensions). The legal descriptions of the parcels included in the Eligible Property are presented in Attachment B.

The parcels and all tangible real and personal property located thereon will comprise the Eligible Property, which is referred to herein as the “subject property.”

## 2.2 Basis of Eligibility (Section 13 (2)(h), Section 2 (n)), Section 2(o))

The subject property is considered “Eligible Property” as defined by Act 381, Section 2 because: (a) the subject property was previously utilized as a commercial property; and (b) each of the parcels comprised by the subject property has been determined to be a “facility.” Due to the contamination present both onsite and offsite, redevelopment requires extensive environmental response activities, including removal of contaminated soils and installation of due care engineering controls.

Historical use of the property consists of the following:

- 1940 – early 1950s: agricultural land (including slaughterhouse operations)
- Mid-1950s – Mid-1960s: commercial landfill



- 1960s – Present: undeveloped

Several environmental investigations have been conducted on the subject property. Refer to Attachment D for additional details and documentation on site environmental conditions. Hazardous substances known to exceed residential cleanup criteria compounds (which form the basis for the facility designations), Chemical Abstract Service (CAS) numbers, sample location, depths, and media affected are summarized in the following tables.

On the western parcel (Tax Identification No. 15-29-101-022):

### Summary of Soil Analytical Results

Parameter	CAS Number	Sample Identification with Criteria Exceedance	Part 201 Residential Criteria Exceeded/ Established Criteria (ug/kg)	Maximum Concentration (ug/kg)/Sample Location
Arsenic	7440382	TP-2, TP-21, 2-3 (0-1'), 2-3 (10-12'), AKT-5 (20-22'), SB-5 (10-14'), SB-6 (18-20'), SB-9 (18-20'), SB-10 (18-20'), SS-3 (4-6'), SS-4 (2-4'), SS-6 (0-2'), SS-9 (2-4'), SS-10 (2-4')	DWP / 4,600 GSIP / 4,600 DC / 7,600	25,000 / SB-5 (10-14')
Acenaphthene	83329	DUP-1 [EP-5 (6')]	GSIP / 8,700	22,100 / DUP-1 [EP-5 (6')]
Benzo(a)pyrene	50328	DUP-1 [EP-5 (6')]	DC / 2,000	4,500 / DUP-1 [EP-5 (6')]
beta-Hexachlorocyclohexane	319857	TP1W	GSIP / 37	65 / TP1W
Cadmium	7440439	EP-31 (0.5-1'), SS-6 (0-2')	DWP / 6,000	39,000 / EP-31 (0.5-1')

Parameter	CAS Number	Sample Identification with Criteria Exceedance	Part 201 Residential Criteria Exceeded/ Established Criteria (ug/kg)	Maximum Concentration (ug/kg)/Sample Location
Chromium (total)	18540299	TP-2, TP-3-1, TP-21, 2-3 (0-1'), 2-3 (10-12'), EP-5 (6'), DUP-1 [EP-5 (6')], DUP-2 [EP-14 (7')], EP-31 (0.5-1'), EP-37 (0.5-1'), DUP-5 [EP-37 (0.5-1')], SB-3 (18-20'), SB-5 (10-14'), SB-6 (18-20'), SB-8 (18-20'), SB-9 (18-20'), SB-10 (18-20'), SB-12 (18-20'), SS-1 (0-2'), SS-2 (4-6'), SS-3 (4-6'), SS-4 (2-4'), SS-5 (2-4'), SS-6 (0-2'), SS-7 (4-6'), SS-8 (0-2'), SS-9 (2-4'), SS-10 (2-4'), TR1N, TR1S, TR1W, TR1Bottom-N, TR1Bottom-S, TR2-N, TR2-S, TR2-East, TR2-West, TR2-B North, TR2-B South, TP1N, TP1Bottom-S	DWP/ 30,000 GSIP / 3,300	91,000 / SS-3 (4-6')
Dibenzofuran	132649	DUP-1 [EP-5 (6')]	GSIP / 1,700	26,400 / DUP-1 [EP-5 (6')]
Fluorene	86737	DUP-1 [EP-5 (6')]	GSIP / 5,300	24,700 / DUP-1 [EP-5 (6')]
Fluoranthene	206440	DUP-1 [EP-5 (6')]	GSIP / 5,500	19,000 / DUP-1 [EP-5 (6')]
Lead	7439921	TP-2, TP-21, EP-31 (0.5-1'), SS-6 (0-2')	DC / 400,000	660,000 / TP-2
Mercury	7439976	TP-21, EP-14 (7'), DUP-2 [EP-14 (7')], EP-31 (0.5-1'), EP-37 (0.5-1'), DUP-5 [EP-37 (0.5-1')], SS-6 (0-2'), SS-9 (2-4')	GSIP / 50	500 / SS-6 (0-2')
2-Methylnaphthalene	91576	DUP-1 [EP-5 (6')]	GSIP / 4,200	16,500 / DUP-1 [EP-5 (6')]
Naphthalene	91203	EP-5 (6'), DUP-1 [EP-5 (6')], EP-31 (0.5-1')	DWP / 35,000 GSIP / 730	142,000 / DUP-1 [EP-5 (6')]
Phenanthrene	85018	EP-5 (6'), DUP-1 [EP-5 (6')]	GSIP / 2,100	51,400 / DUP-1 [EP-5 (6')]

Parameter	CAS Number	Sample Identification with Criteria Exceedance	Part 201 Residential Criteria Exceeded/ Established Criteria (ug/kg)	Maximum Concentration (ug/kg)/Sample Location
Polychlorinated biphenyls	1336363	DUP-1 [EP-5 (6')]	DC / 4,000	22,100 / DUP-1 [EP-5 (6')]
Selenium	7782492	EP-31 (0.5-1'), SS-6 (0-2'), SB-1 (19-20'), SB-3 (18-20'), SB-6 (18-20'), SB-8 (18-20'), SB-9 (18-20'), SB-10 (18-20')	GSIP / 400	1,000 / SB-1 (19-20')
Silver	7440224	EP-37 (1-2')	GSIP / 100	2,070 / EP-37 (1-2')
Xylenes	95476	EP-31 (0.5-1')	GSIP / 820	930 / EP-31 (0.5-1')

Table Notes:

ug/kg – microgram per kilogram

DWP – Drinking Water Protection Criteria

GSIP – Groundwater Surface Water Interface Protection Criteria

DC – Direct Contact Criteria

### Summary of Groundwater Analytical Results

Parameter	CAS Number	Sample Identification with Criteria Exceedance	Part 201 Residential Criteria Exceeded/ Established Criteria (ug/kg)	Maximum Concentration (ug/kg)/Sample Location
Arsenic	7440382	MW-13D, AKT-5W	DW/ 10 GSI/10	21 / AKT-5W
Chromium	7440473	AKT-5W	GSI / 11	18 / AKT-5W
Lead	7439921	AKT-5W	DW/ 4	42 / AKT-5W

Table Notes:

ug/L – microgram per liter

DW – Drinking Water Criteria

GSI – Groundwater Surface Water Interface Criteria

On the eastern parcel (Tax Identification No. 15-29-101-023):

### Summary of Soil Analytical Results

Parameter	CAS Number	Sample Identification with Criteria Exceedance	Part 201 Residential Criteria Exceeded/ Established Criteria (ug/kg)	Maximum Concentration (ug/kg)/Sample Location
Antimony	7440360	AKT-8 (3-5')	DWP / 4,300	6,140 / AKT-8 (3-5')
Arsenic	7440382	GP-1 (4-7'), GP-3 (2-6'), GP-4 (2.5-4'), GP-4 (11-12'), GP-5 (4-8'), GP-5 (11-14'), GP-6 (2-4'), GP-7 (4-8'), GP-8 (0-2'), GP-8 (9-10.5'), GP-9 (4-6'), GP-9 (6-7.5'), GP-10 (6-8'), GP-10 (8-10'), GP-11 (4.5-5'), GP-12 (0-2'), MW-9D (2-4'), MW-9D (4-6'), TP-16b, EP-28 (8'), EP-33 (15'), EP-48 (6'), AKT-8 (3-5')	DWP / 4,600 GSIP / 4,600 DC / 7,600	36,000 / GP-3 (2-6')
Benzene	71432	GP-1 (4-7'), GP-4 (2.5-4'), EB-23 (3-5')	DWP / 100	800 / EB-23 (3-5')
Benzo(a)anthracene	56553	GP-4 (2.5-4'), EB-20 (5-7')	DC / 20,000	33,000 / GP-4 (2.5-4')
Benzo(a)pyrene	50328	GP-1 (4-7'), GP-4 (2.5-4'), GP-6 (2-4'), GP-10 (6-8'), EB-7 (1-3'), EB-11 (10-12'), Duplicate [EB-13 (13-15')], EB-18 (3-5'), EB-19 (4-5'), EB-20 (5-7'), EB-21 (8-10'), EB-23 (3-5'), EB-24 (8-10'), EB-25 (3-4'), EB-26 (1-3'), EB-27 (1-3'), EB-29 (1-3'), EB-30 (1-3'), Duplicate 4 [EB-30 (1-3')], EB-31 (3-5'), EB-31 (7-9'), EB-32 (1-3'), EB-35 (1-3'), EB-39 (3-5'), EB-40 (3-5'), Duplicate 5 [EB-40(3-5')]	DC / 2,000	29,000 / GP-4 (2.5-4')
Benzo(b)fluoranthene	205992	GP-4 (2.5-4')	DC / 20,000	48,000 / GP-4 (2.5-4')
Bis(2-ethylhexyl)phthalate	117817	GP-7 (4-8')	DC / 2,800,000 SSSL / 10,000,000	37,000,000 / GP-7 (4-8')
n-Butylbenzene	104518	EB-9 (8-10'), Duplicate 3 [EB-13 (13-15')]	DWP / 1,600	10,000 / EB-9 (8-10')

Parameter	CAS Number	Sample Identification with Criteria Exceedance	Part 201 Residential Criteria Exceeded/ Established Criteria (ug/kg)	Maximum Concentration (ug/kg)/Sample Location
sec-Butylbenzene	135998	GP-1 (4-7'), GP-4 (2.5-4'), EB-9 (8-10'), EB-11 (10-12'), EB-12 (8-10'), EB-13 (13-15'), Duplicate 3 [EB-13 (13-15')], EB-19 (4-5'), EB-21 (8-10'), EB-22 (6-8'), EB-23 (3-5'), EB-30 (1-3'), Duplicate 4 [EB-30 (1-3')], EB-38 (3-5')	DWP / 1,600	50,000/ EB-12 (8-10')
Cadmium	7440439	GP-3 (2-6'), GP-4 (2.5-4'), GP-4 (11-12'), GP-5 (4-8'), GP-6 (2-4'), GP-7 (4-8'), GP-8 (0-2'), TP-16b, EB-1 (3-5'), EP-23 (2'), EP-33 (7'), Duplicate 4 [EP-33 (7')], EP-33 (15'), AKT-8 (3-5')	DWP / 6,000	61,000 / GP-8 (0-2')
Carbon tetrachloride	56235	GP-6 (12-13.5')	DWP / 100	110 / GP-6 (12-13.5')
Carbazole	86748	GP-6 (2-4'), GP-10 (6-8')	GSIP / 1,100	5,200 / GP-6 (2-4')
Chromium (total)	18540299	SB-2 (14-16'), GP-1 (4-7'), GP-2 (13-15'), GP-3 (2-6'), GP-3 (10-12'), GP-4 (2.5-4'), GP-4 (11-12'), GP-5 (4-8'), GP-5 (11-14'), GP-6 (2-4'), GP-6 (12-13.5'), GP-7 (4-8'), GP-7 (9-10.5'), GP-8 (0-2'), GP-8 (9-10.5'), GP-9 (4-6'), GP-9 (6-7.5'), GP-10 (6-8'), GP-10 (8-10'), GP-11 (4-5.5'), GP-11 (5.5-7'), GP-12 (0-2'), GP-13 (16-18'), MW-9D (2-4'), MW-9D (4-6'), TP-16B, EB-1 (3-5'), EP-19 (0.5-1'), EP-22 (6'), Duplicate 3 [EP-22 (6')], EP-23 (2'), EP-28 (8'), EP-30 (7'), EP-33 (7'), Duplicate 4 [EP-33 (7')], EP-33 (15'), EP-48 (6'), AKT-8 (3-5'), AKT-9 (8-10')	DWP/ 30,000 GSIP / 3,300 PSI / 260,000 DC / 2,500,000	2,880,000 / GP-5 (4-8')
Di-n-butyl phthalate	84742	GP-4 (11-12'), EB-12 (10-11'), EB-38 (3-5')	GSIP / 11,000	61,000 / GP-4 (11-12')

Parameter	CAS Number	Sample Identification with Criteria Exceedance	Part 201 Residential Criteria Exceeded/ Established Criteria (ug/kg)	Maximum Concentration (ug/kg)/Sample Location
Ethylbenzene	100414	GP-1 (4-7'), GP-4 (2.5-4'), GP-5 (4-8'), EB-9 (8-10'), EB-11 (10-12'), EB-12 (8-10'), EB-13 (13-15'), Duplicate 3 [ EB-13 (13-15')], EB-19 (4-5'), EB-21 (8-10'), EB-22 (6-8'), EB-23 (3-5'), EB-30 (1-3'), Duplicate 4 [EB-30 (1-3')], EB-38 (3-5'), AKT-8 (3-5')	DWP / 1,500 GSIP / 360 SVIAI / 87,000 SSSL / 140,000	590,000 / EB-12 (8-10')
Fluorene	86737	EB-20 (5-7'), AKT-8 (3-5')	GSIP / 5,300	6,000 / EB-20 (5-7')
Fluoranthene	206440	GP-1 (4-7'), GP-4 (2.5-4'), GP-4 (11-12'), GP-5 (4-8'), GP-6 (2-4'), GP-10 (6-8'), EB-11 (10-12'), EB-18 (3-5'), EB-19 (4-5'), EB-20 (5-7'), EB-21 (8-10'), EB-23 (3-5'), EB-24 (8-10'), EB-25 (3-4'), EB-26 (1-3'), EB-27 (1-3'), EB-28 (8-10'), EB-29 (1-3'), EB-30 (1-3'), Duplicate 4 [EB-30 (1-3')], EB-32 (1-3'), EB-38 (3-5'), EB-39 (3-5'), EB-40 (3-5'), Duplicate 5 [EB-40 (3-5')]	GSIP / 5,500	97,000 / GP-4 (2.5-4')
Isopropyl benzene	98828	EB-11 (10-12'), EB-12 (8-10'), EB-19 (4-5'), EB-21 (8-10'), EB-22 (6-8'), EB-23 (3-5'), Duplicate 4 [EB-30 (1-3')], EB-38 (3-5')	GSIP / 3,200	70,000 / EB-12 (8-10')
Lead	7439921	GP-1 (4-7'), GP-3 (2-6'), GP-4 (2.5-4'), GP-5 (4-8'), GP-5 (11-14'), GP-6 (2-4'), GP-7 (4-8'), GP-8 (0-2'), TP-16B, EB-1 (3-5'), EP-23 (2'), EP-28 (8'), EP-33 (7'), Duplicate 4 [EP-33 (7')], EP-33 (15'), AKT-8 (3-5')	DWP / 700,000 DC / 400,000	2,450,000 / GP-5 (4-8')

Parameter	CAS Number	Sample Identification with Criteria Exceedance	Part 201 Residential Criteria Exceeded/ Established Criteria (ug/kg)	Maximum Concentration (ug/kg)/Sample Location
Mercury	7439976	SB-3 (2-4'), GP-1 (4-7'), GP-3 (2-6'), GP-4 (2.5-4'), GP-4 (11-12'), GP-5 (4-8'), GP-6 (2-4'), GP-7 (4-8'), GP-7 (9-10.5'), GP-9 (4-6'), GP-10 (8-10'), TP-16b, EB-1 (3-5'), EP-19 (0.5-1'), EP-22 (6'), Duplicate 3 [EP-22 (6')], EP-23 (2'), EP-28 (8'), EP-30 (7'), EP-33 (7'), Duplicate 4 [EP-33 (7')], EP-33 (15'), EP-44 (6'), EP-48 (6'), AKT-8 (3-5')	DWP / 1,700 GSIP / 50	2,530 / AKT-8 (3-5')
2-Methylnaphthalene	91576	GP-1 (4-7'), GP-4 (2.5-4'), GP-4 (11-12'), GP-5 (4-8'), EB-9 (8-10'), EB-11 (10-12'), EB-12 (8-10'), EB-18 (3-5'), EB-19 (4-5'), EB-20 (5-7'), EB-21 (8-10'), EB-22 (6-8'), EB-23 (3-5'), EB-24 (8-10'), EB-28 (8-10'), EB-30 (1-3'), Duplicate 4 [EB-30 (1-3')], EB-38 (3-5'), EB-39 (3-5'), AKT-8 (3-5')	DWP / 57,000 GSIP / 4,200	388,000,000 / EB-39 (3-5')
Naphthalene	91203	GP-1 (4-7'), GP-4 (2.5-4'), GP-4 (11-12'), GP-5 (4-8'), EB-9 (8-10'), EB-11 (10-12'), EB-12 (8-10'), EB-12 (10-11'), EB-13 (13-15'), Duplicate 3 [EB-13 (13-15')], EB-18 (3-5'), EB-19 (4-5'), EB-20 (5-7'), EB-21 (8-10'), EB-22 (6-8'), EB-23 (3-5'), EB-28 (8-10'), EB-30 (1-3'), Duplicate 4 [EB-30 (1-3')], EB-38 (3-5'), EB-39 (3-5'), EB-40 (3-5'), Duplicate 5 [EB-40 (3-5')], AKT-8 (3-5'), AKT-9 (8-10'), AKT-8 (3-5')	DWP / 35,000 GSIP / 730 SVIAI / 250,000 VSIC / 300,000	400,000 / EB-12 (8-10')
Nickel	7440020	AKT-8 (3-5')	DWP / 100,000	339,000 / AKT-8(3-5')

Parameter	CAS Number	Sample Identification with Criteria Exceedance	Part 201 Residential Criteria Exceeded/ Established Criteria (ug/kg)	Maximum Concentration (ug/kg)/Sample Location
Phenanthrene	85018	GP-1 (4-7'), GP-4 (2.5-4'), GP-4 (11-12'), GP-5 (4-8'), GP-6 (2-4'), GP-10 (6-8'), EB-11 (10-12'), Duplicate 3 [ EB-13 (13-15')], EB-18 (3-5'), EB-19 (4-5'), EB-20 (5-7'), EB-22 (6-8'), EB-23 (3-5'), EB-24 (8-10'), EB-25 (3-4'), EB-26 (1-3'), EB-27 (1-3'), EB-29 (1-3'), EB-30 (1-3'), Duplicate 4 [EB-30 (1-3')], EB-35 (1-3'), EB-40 (3-5'), Duplicate 5 [EB-40 (3-5')], AKT-8 (3-5')	GSIP / 2,100	33,000 / GP-6 (2-4')
Polychlorinated biphenyls	1336363	GP-1 (4-7'), GP-4 (2.5-4'), GP-4 (11-12'), GP-5 (4-8'), GP-7 (4-8'), GP-7 (9-10.5'), GP-8 (0-2'), EB-10 (10-12'), Duplicate 2 [EB-10 (10-12')], EB-11 (1-3'), EB-11 (8-10'), EB-11 (10-12'), EB-12 (8-10'), EB-12 (10-11'), EB-13 (3-5'), EB-13 (8-10'), EB-13 (13-15'), Duplicate 3 [EB-13 (13-15')], EB-18 (3-5'), EB-19 (4-5'), EB-19 (5-7'), EB-19 (8-10'), EB-20 (1-3'), EB-20 (3-5'), EB-20 (5-7'), EB-21 (3-5'), EB-21 (8-10'), EB-22 (3-5'), EB-22 (6-8'), EB-22 (10-12'), EB-23 (3-5'), EB-23 (5-7'), EB-23 (7-9'), EB-28 (1-3'), EB-28 (3-5'), EB-28 (8-10'), EB-29 (3-5'), EB-29 (8-9'), EB-30 (1-3'), Duplicate 4 [EB-30 (1-3')], EB-30 (3-5'), EB-31 (1-3'), EB-31 (3-5'), EB-32 (1-3'), EB-36 (3-5'), EB-37 (1-3'), EB-38 (1-3'), EB-38 (3-5'), EB-38 (8-10'), EB-39 (1-3'), EB-39 (3-5'), EB-40 (1-3'), EB-40 (3-5'), Duplicate 5 [EB-40 (3-5')], EB-40 (8-10'), Duplicate 4 [EP-33 (7')], AKT-8 (3-5')	DC / 4,000 VSIC / 240,000	2,300,000 / GP-7 (4-8')



Parameter	CAS Number	Sample Identification with Criteria Exceedance	Part 201 Residential Criteria Exceeded/ Established Criteria (ug/kg)	Maximum Concentration (ug/kg)/Sample Location
n-Propylbenzene	103651	GP-1 (4-7'), GP-4 (2.5-4'), EB-9 (8-10'), EB-11 (10-12'), EB-12 (8-10'), EB-13 (13-15'), Duplicate 2 [EB-13 (13-15')], EB-19 (4-5'), EB-21 (8-10'), EB-22 (6-8'), EB-23 (3-5'), EB-30 (1-3'), Duplicate 4 [EB-30 (1-3')], EB-38 (3-5')	DWP / 1,600	110,000 / EB-12 (8-10')
Selenium	7782492	GP-4 (2.5-4'), GP-4 (11-12'), GP-5 (4-8'), GP-5 (11-14'), GP-7 (4-8'), GP-8 (0-2'), TP-16b, EB-1 (3-5'), EP-23 (2'), EP-30 (7'), EP-33 (15'), AKT-8 (3-5')	GSIP / 400	1,700 / GP-4 (2.5-4')
Silver	7440224	SB-2 (14-16'), SB-3 (2-4'), GP-1 (4-7'), GP-2 (13-15'), GP-3 (2-6'), GP-4 (2.5-4'), GP-4 (11-12'), GP-5 (4-8'), GP-5 (11-14'), GP-6 (2-4'), GP-7 (4-8'), EP-23 (2'), EP-33 (7'), Duplicate 4 [EP-33 (7')], EP-33 (15'), AKT-8 (3-5')	DWP / 4,500 GSIP / 100	90,000 / GP-2 (13-15')
Toluene	10883	EB-12 (8-10'), EB-13 (13-15'), Duplicate 3 [EB-13 (13-15')], EB-38 (3-5')	DWP / 16,000 GSIP / 5,400 SVIAI / 330,000 SSSL / 110,000	400,000 / EB-12 (8-10')
Trichloroethylene	79016	GP-3 (10-12'), GP7 (4-8')	DWP / 100	410 / GP-3 (10-12')
1,2,4-Trimethylbenzene	95636	GP-1 (4-7'), GP-4 (2.5-4'), GP-4 (11-12'), GP-5 (4-8'), GP-7 (4-8'), EB-9 (8-10'), EB-11 (10-12'), EB-12 (8-10'), EB-13 (13-15'), Duplicate 3 [EB-13 (13-15')], EB-19 (4-5'), EB-21 (8-10'), EB-22 (6-8'), EB-23 (3-5'), EB-30 (1-3'), Duplicate 4 [EB-30 (1-3')], EB-38 (3-5'), AKT-9 (8-10')	DWP / 2,100 GSIP / 570 DC / 110,000 SSSL / 110,000	760,000 / EB-12 (8-10')

Parameter	CAS Number	Sample Identification with Criteria Exceedance	Part 201 Residential Criteria Exceeded/ Established Criteria (ug/kg)	Maximum Concentration (ug/kg)/Sample Location
1, 3, 5-Trimethylbenzene	108678	GP-4 (2.5-4'), EB-9 (9-10'), EB-11 (10-12'), EB-12 (8-10'), EB-13 (13-15'), Duplicate 3 [EB-13 (13-15')], EB-19 (4-5'), EB-21 (8-10'), EB-22 (6-8'), EB-23 (3-5'), EB-30 (1-3'), Duplicate 4 [EB-30 (1-3')]	DWP / 1,800 GSIP / 1,100 SSSL / 150,000	280,000 / EB-12 (8-10')
Xylenes	95476	GP-1 (4-7'), GP-4 (2.5-4'), GP-4 (11-12'), GP-5 (4-8'), GP-7 (4-8'), EB-9 (8-10'), EB-11 (10-12'), EB-12 (8-10'), EB-13 (13-15'), Duplicate 3 [EB-13 (13-15')], EB-19 (4-5'), EB-21 (8-10'), EB-22 (6-8'), EB-23 (3-5'), EB-30 (1-3'), Duplicate 4 [EB-30 (1-3')], EB-38 (3-5')	DWP / 5,600 GSIP / 820 SSSL / 150,000	2,070,000 / EB-12 (8-10')
Zinc	7440666	GP-5 (4-8')	DWP / 2,400,000	7,100,000 / GP-5 (4-8')

Table Notes:

ug/kg – microgram per kilogram

DWP – Drinking Water Protection Criteria

GSIP – Groundwater Surface Water Interface Protection Criteria

PSI– Particulate Soil Inhalation Criteria

SVIAI – Soil Volatilization to Indoor Air Inhalation Criteria

VSIC – Infinite Source Volatile Soil Inhalation Criteria

DC – Direct Contact Criteria

SSSL – Soil Saturation Concentration Screening Levels

### Summary of Groundwater Analytical Results

Parameter	CAS Number	Sample Identification with Criteria Exceedance	Part 201 Residential Criteria Exceeded/ Established Criteria (ug/kg)	Maximum Concentration (ug/kg)/Sample Location
Arsenic	7440382	MW-2D, AKT-9W, AKT-10W	DW/ 10 GSI/10	33 / AKT-9W
Benzene	71432	AKT-9W	DW / 5	60 / AKT-9W

Parameter	CAS Number	Sample Identification with Criteria Exceedance	Part 201 Residential Criteria Exceeded/ Established Criteria (ug/kg)	Maximum Concentration (ug/kg)/Sample Location
Chromium	7440473	MW-6	GSI / 11	15 / MW-6
Di-n-butyl phthalate	84742	AKT-9W	GSI / 9.7	55 / AKT-9W
Ethylbenzene	100414	AKT-9W	DW / 74 GSI / 18	1,090 / AKT-9W
4-Methyl-2-pentanone (MIBK)	108101	AKT-9W	DW / 1,800	4,000 / AKT-9W
Naphthalene	91203	AKT-9W	GSI / 11	90 / AKT-9W
Selenium	7782492	AKT-9W	GSI / 5	8 / AKT-9W
Toluene	108883	AKT-9W	DW / 790 GSI / 270	2,220 / AKT-9W
1,2,4-Trimethylbenzene	95636	AKT-9W	DW / 63 GSI / 17	730 / AKT-9W
1,3,5-Trimethylbenzene	108678	AKT-9W	DW / 72 GSI / 45	120 / AKT-9W
Vinyl Chloride	75014	MW-4D	DW/ 2	3.5 / MW-4D
Xylenes	1330207	AKT-9W	DW / 280 GSI / 41	4,660 / AKT-9W

Table Notes:

ug/L – microgram per liter

DW – Drinking Water Criteria

GSI – Groundwater Surface Water Interface Criteria

Based on this information, Parcels A and B are a “facility” as defined in Part 201 of Natural Resources and Environmental Protection Act (NREPA), Michigan Public Act (PA) 451, as amended.

### 2.3 Summary of Eligible Activities and Description of Costs (Section 13 (2)(a),(b))

The “eligible activities” that are intended to be carried out at the subject property are considered “eligible activities” as defined by Sec 2 of Act 381, because they include Department Specific Activities and preparation of a Brownfield and Act 381 work plan (see Table 1). On the western Parcel A, Department Specific Activities include environmental assessment, excavation, soil removal, and backfill in contaminated areas. These activities are anticipated to begin in 2018, and are expected to take approximately three to four months to complete. Department Specific Activities on the western parcel also include installation of sub slab venting systems on new construction. Installation of the systems will

be coordinated with construction activities, which are estimated to take approximately 24-36 months to complete after environmental cleanup. A date for commencement of Department Specific Activities on the eastern Parcel B cannot be estimated at this time, as it depends on future discussions between the developer, the City, and the current property owner. However, the activities, include soil and waste removal, and installation of a hydraulic barrier, liner & cap, and passive methane venting system on the former landfill area.

Detailed information on eligible activities is summarized below:

### **2.3.1 Baseline Environmental Assessment Activities**

A Phase I ESA was completed for the subject property in January 2017. A Supplemental Subsurface Investigation and BEA are currently being prepared for the acquiring entity. Additional Phase I ESAs and BEAs may be completed for new entities.

### **2.3.2 NFA Report and Documentation of Due Care Compliance Report**

Phase I and Phase II ESAs are in process or have been completed for the subject property. A BEA will be completed for Parcels A and B prior to the development entity's (or entities') acquisition of the subject property. Additional due care investigations are planned for Parcel A and Parcel B.

#### *Parcel A*

Remediation on Parcel A at the subject property will be completed in order to obtain an unrestricted residential status. Subsequent to the completion of remedial activities, a No Further Action (NFA) report will be prepared and submitted to MDEQ for review and approval.

The BEA and NFA reporting will be completed in accordance with Part 201 of the Natural Resources and Environmental Protection Act (NREPA), 1994 Public Act (PA) 451, as amended, and Michigan Department of Environmental Quality (MDEQ) Instructions for Preparing and Disclosing Baseline Environmental Assessments and Section 7a Compliance Analyses, effective March 11, 1999. The NFA will describe remedial activities associated with soil and groundwater contamination at the subject property in light of the nature of the proposed development construction activities and occupancy of the developed property. A detailed breakdown of the costs associated with this task is provided later in this section.

#### *Parcel B*

On Parcel B, targeted environmental response activities will be conducted on the areas associated with previous dumping and landfilling outside of the currently fenced area. As detailed in Section 2.3.4, these activities will include excavation of landfilled materials and some consolidation of contaminated soils.

The fenced area, where most significant impact is generally located, will be subject to the installation of due care engineering controls. Cleanup activities on "areas of most significant impact" are intended to address the paint waste landfilled onsite; identification of these areas will be through field observation during excavation activities, using visual and olfactory criteria. Subsequent to the completion of remedial activities and installation of due care engineering controls, a Documentation of Due Care Compliance (DDCC) report will be completed. Future use of Parcel B is intended to be restricted to non-residential use, and is planned to be further limited to natural open area and surface parking. Therefore, in consultation with MDEQ, due care requirements for the intended use will be met. The Developer intends that the DDCC will be reviewed and approved by MDEQ, but does not intend to pursue closure for Parcel B.

After consultation with EPA and MDEQ, encapsulation of landfilled materials, which includes areas where PCB contamination was previously detected on Parcel B, will be conducted pursuant to Part 201 of the Natural Resources and Environmental Protection Act (NREPA), 1994 Public Act (PA) 451, as amended (Part 201), rather than the Toxic Substances Control Act of 1976, which EPA administers. Correspondence with EPA outlining the basis for this determination is provided in Attachment D.

The BEA and DDCC reporting will be completed in accordance with Part 201 of the Natural Resources and Environmental Protection Act (NREPA), 1994 Public Act (PA) 451, as amended, and Michigan Department of Environmental Quality (MDEQ) Instructions for Preparing and Disclosing Baseline Environmental Assessments and Section 7a Compliance Analyses, effective March 11, 1999. A detailed breakdown of the costs associated with this task is provided later in this section.

### **2.3.3 Health and Safety Plan**

A site-specific Health and Safety Plan (HASP) will be completed for redevelopment activities at the subject property by each of the subsurface contractors and others that can come into contact with potentially contaminated media during the performance of their work activities. The HASPs will comply with appropriate guidelines including the following:

- Michigan Occupational Safety and Health Act;
- Section 111(c)(6) of CERCLA;
- Occupational Safety and Health Administration requirements 29 CFR 1910 and 1926;
- Standard Operating Safety Guide Manual (revised November 1984) by the Office of Emergency and Remedial Response; and
- Occupation Safety and Health guidance manual for Hazardous Waste Site Activities (NIOSH/OSHA/USCG/EPA, DHHS [NIOSH] Publication No. 85-115, October 1985).

The HASPs will include the following elements:

- Authorized personnel and definition of responsibilities;
- proposed activities;
- personal protective equipment;
- decontamination procedures;
- work zone restrictions and delineations;
- personal protection upgrade/downgrade action limits;
- emergency information and telephone numbers;
- incident documentation procedures; and
- contingency plans.

Oversight will be conducted to ensure due care issues are addressed while eligible activities and construction activities are being completed. The following activities (at a minimum) will be documented:

- The type, location, quantities, etc., of materials removed from the site and disposed at the landfill or other appropriately licensed disposal operation.
- The final disposition and location of any contaminated media that can be managed on-site in accordance with due care requirements.
- Monitoring for unanticipated materials and/or materials previously not identified, including collection of samples for additional waste characterization.

- The type, location, materials and construction of vapor mitigation systems installed at the site to prevent future potential indoor air inhalation exposures.

The Contractor Site Safety Officer will document and enforce HASP issues with workers at the Site, including:

- Verification of on-site worker training and current certifications.
- Conducting site-specific HASP training for workers entering the site.
- Monitoring construction activities to ensure the HASP is being followed, including use of PPE, decontamination of equipment, site security, etc.

A Construction Summary Report (CSR) will be prepared and submitted to the MDEQ-RD at the completion of development activities. The CSR will summarize the due care issues addressed during the construction activities and will include such items as photographic documentation, disposal manifests, fill material load tickets, utility abandonment logs (if any), site plans, etc. to verify that the development construction activities were conducted in accordance with approved plans.

### 2.3.4 Soil Remediation Activities

AKT Peerless has conducted several investigations that detected numerous VOCs, SVOCs, PBCs and/or metals in soil and groundwater at concentrations that exceed MDEQ’s Part 201 RCC. VOCs, SVOCs, PBCs and/or metals detected in soil and/or groundwater at the subject property during past investigations include:

Antimony	Arsenic
Acenaphthene	beta-Hexachlorocyclohexane
Benzene	Benzo(a)anthracene
Benzo(a)pyrene	Benzo(b)fluoranthene
Bis(2-ethylhexyl)phthalate	n-Butylbenzene
Sec-Butylbenzene	Cadmium
Carbon tetrachloride	Carbazole
Chromium (total)	Dibenzofuran
Di-n-butyl phthalate	Ethylbenzene
Fluorene	Fluoranthene
Isopropyl benzene	Lead
Mercury	2-Methylnaphthalene
Naphthalene	Nickel
Phenanthrene	Polychlorinated biphenyls

n-Propylbenzene	Selenium
Silver	Toluene
Trichloroethylene	1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene	4-Methyl-2-pentanone (MIBK)
Vinyl Chloride	Xylenes
Zinc	

The Developer intends to construct a residential development on Parcel A and intends to remediate Parcel A to the extent that MDEQ may approve a No Further Action (NFA) request. Therefore, the Developer plans to remove the source areas of contamination on Parcel A. Based on the analytical results from previous subsurface investigations, six source areas have been identified on Parcel A (additional areas of contamination related to former landfilling are on Parcel B). Site specific background calculations will be performed for arsenic and selenium as part of the NFA.

The Developer intends to perform environmental cleanup activities on Parcel B and install due care engineering controls, such that Parcel B can be used as open natural area and surface parking to support recreational activities on municipal property east of Parcel B. These cleanup activities include soil removal in Source Area E, as listed in the following table.

Procedures for relocation of contaminated soils will be specified in an Environmental Construction Management Plan for certain minimal amounts of relocation within Parcel B, if necessary. In general, relocation of contaminated soils is not anticipated. Moreover, no contaminated soils are to be relocated between Parcel A and Parcel B, and none will be relocated within Parcel A.

The table below provides approximate volumes of contaminated soil/fill to be removed from each of the source areas and the former landfill area on the subject property.

Parcel Where Source Area Is Located	Source Area	Approximate Yd <sup>3</sup>
Parcel A	Source Area A	1,630
Parcel A	Source Area B	3,556
Parcel A	Source Area C-1	7,741
Parcel A	Source Area C-2	23,333
Parcel A	Source Area D	6,667
Parcel B	Source Area E	23,185
Parcel A	Source Area F	741

Due to the concentrations of soil contaminants in these source areas and due to the fact that the Developer wishes to pursue a NFA designation, impacted soil and fill materials must be removed from Parcel A. The soil/fill will be removed and disposed at a Type II landfill. The costs included in the eligible activities include excavation, transportation, disposal, verification sampling, backfill, oversight and reporting, and project management. Due to compaction requirements, an additional 40,000 tons of

backfill is anticipated to be necessary to return excavated areas to grade. Remediation activities in Source Areas A-D and F are planned to begin in 2018, and are anticipated to take approximately three to four months to complete. The remedial and due care work in Source Area E and Parcel B is expected to be conducted after completion of remedial work on Parcel A, funded by the tax increment revenue stream that will then be available.

It should be noted that previous subsurface investigations encountered discontinuous, perched groundwater pockets with limited contamination. Groundwater contamination appeared to have been due to leaching from surrounding contaminated soils. It is anticipated that these pockets of impacted groundwater will be removed and properly disposed of during soil remediation activities on Parcel A.

Please refer to Table 1, Eligible Activity Cost Detail, for specific line item costs for the due care activities, and to Figure 3 for the locations of the source areas. These costs include allowances for environmental project management, field time, and contracted services.

### **2.3.5 Hot Spot Removal**

Previous subsurface investigations identified six hot spots of metals contamination, likely associated with shallow fill materials, much smaller than the source areas identified in section 3.1.1.3 above. These hot spots are located in the central and southeastern portions of the western Parcel A. In order to remediate these areas, approximately 1,500 yd<sup>3</sup> of soil is anticipated to be excavated and disposed at a Type II landfill. The costs included in the eligible activities include excavation, transportation, disposal, verification sampling, backfill, oversight and reporting, and project management. These activities are anticipated to be completed at the same time as the soil removal described in the previous section. The costs in this section include allowances for environmental project management, field time, and contracted services.

### **2.3.6 Sub-Slab Venting System (New Construction)**

Methane has not been found extensively across the property; however, the subject property is at risk for migration of methane gas from the landfill located across Hamlin Road to the south. This would be a concern for financing. As a result, the Developer intends to install passive sub-slab venting systems in all new buildings as a presumptive remedy to prevent indoor air exposure. AKT Peerless will engage with MDEQ representatives to obtain approval of the draft venting system construction plan. Construction of the systems will occur at the same time as construction of the residential units, which is anticipated to occur over approximately 3 years, beginning in 2018. This cost includes assessment, design, construction, testing, reporting, and project management for the systems.

An Operation and Maintenance (O&M) Plan for the sub-slab venting systems will be prepared by an environmental consultant.

### **2.3.7 Engineering Controls – Former Landfill Area**

Complete removal of the area of the highest contamination, the former landfill area on the eastern parcel, is neither geotechnically sound or financially feasible. A hydraulic barrier system will be installed around the perimeter of the former landfill area (approximately 1,400 linear feet). Following the removal of contaminated soils from Area E, the initial portion of the barrier wall will be constructed adjacent to the western side of the landfill area (Refer to Figure 3, where this barrier wall is denoted as the “Clay Backfill Wall”). The final design of the barrier system is not complete, but will likely consist of a (minimum) 2-foot thick clay liner “slurry wall” around the remainder of the landfill area. The clay will be compacted to 95% based on the optimum moisture content. Shoring or trench boxes will be used to



ensure slope stability during the installation and compaction of the clay walls. The purpose of the Clay Backfill Wall and slurry wall is to prevent infiltration of groundwater into the former landfill area. The bottom of the Clay Backfill Wall and slurry wall will tie into native clay, and the top of these walls will tie into the clay cap, thus completely encapsulating the landfill area. Further, these control measures will act to prevent leachate formation.

As noted above, the former landfill will be covered with 2 feet of compacted clay and a flexible membrane liner and cap to prevent exacerbation of existing contamination. The clay cap will tie into the slurry wall and Clay Backfill Wall. In addition, if deemed necessary by MDEQ, a passive methane venting system will be designed and installed either (a) west of the former landfill area (approximately 1,400 linear feet), or (b) within the landfill area, to manage landfill gases on-site.

The environmental consultant will prepare and implement an O&M Plan for the engineering controls installed in the former landfill area. The O&M Plan is anticipated to include a recommendation for quarterly long term inspection/methane monitoring. The cost estimate for implementation of an O&M plan is \$30,000 per year.

This cost includes design, installation, reporting, and project management for the systems.

### **2.3.8 Passive Methane Venting System**

The south adjacent property is a former landfill. As a presumptive remedy to preemptively protect against the migration of contamination from methane gases, a passive methane venting system will be installed on the subject property along Hamlin Road, if deemed necessary by MDEQ. An O&M Plan for the venting system will be prepared.

This cost includes design, installation, reporting, and project management for the system. In addition, the environmental consultant will prepare and implement an O&M Plan for the engineering controls installed along Hamlin Road. The O&M Plan is anticipated to include a recommendation for quarterly long term inspection/methane monitoring.

### **2.3.9 Site Control & Erosion Control**

In order to be protective of workers and residents, the excavation areas will be fenced or barricaded to minimize potential for unauthorized access to contaminated soil. These costs include the silt fencing for the north and east in order to mitigate erosion concerns; dust monitoring during environmental mitigation work in order to address further concerns of the neighbors to the north; a Soil Erosion and Sedimentation Control Plan; and a Fugitive Dust Emission Control and Contingency Plan. Additionally, a gravel mat will be constructed along the truck route leaving the property to minimize tracking of dirt and potentially impacted soil from the property.

During soil excavation and removal activities the truck routes will be as follows:

#### *Site Arrival*

- The trucks will initially use the entrance ramps on M-59 at the Adams Road interchange.
- The trucks will proceed north on Adams Road to Hamlin Road.
- Turn right (east) on Hamlin Road to enter the site. All trucks will be staged on site while waiting to be loaded or completion of shipping papers.

#### *Site Departure*

- The trucks leave the site onto Hamlin Road and proceed west toward Adams.

- The trucks will turn left (south) onto Adams Road and proceed to the M-59 interchange.
- The trucks will access M-59 from Adams Road and procedure to their destination.

See Figure 4 for a proposed truck route map.

### 2.3.10 Dewatering

The potential for water in excavations exists, particularly in Area E. In the event that groundwater is encountered in sufficient quantities to require dewatering, the water will be containerized in frac tanks. Once containerized, the water will be sampled to determine whether or not disposal is necessary or if the water can be discharged to the POTW under a permit. In the event that groundwater is encountered in a quantity that is too large to containerize, alternate methods for direct dewatering and disposal will be evaluated.

A summary of the eligible activities and the estimated cost of each eligible activity intended to be paid for with Tax Increment Revenues from the subject property are shown in the table below.

#### Estimated Cost of Reimbursable Eligible Activities

Description of Eligible Activity		Estimated Cost*	
1.	Department Specific Activities	\$	8,328,415
<b>Subtotal Environmental &amp; Non-Environmental Eligible Activities</b>		\$	8,328,415
2.	15% Contingency on Eligible Activities**	\$	1,246,172
3.	Brownfield Plan & Act 381 WP Preparation Activities	\$	45,000
<b>Total Eligible Activities Cost with 15% Contingency</b>		\$	9,619,587
4.	BRA Administration Fee	\$	210,000
5.	State Revolving Fund	\$	1,410,194
6.	Local Brownfield Revolving Fund (LBRF)***	\$	1,139,949
7.	Interest (calculated at 5%, simple)****	\$	3,800,000
<b>Total Eligible Costs for Reimbursement</b>		\$	<b>16,179,730</b>

\*Estimated costs are subject to approval by MDEQ, as required. Any costs not approved by the MDEQ, as required, may become local only costs paid out of captured tax increment revenues from locally levied millages (to the extent available). Reimbursement of these activity costs would be limited to the local proportional share of local captured taxes.

\*\*The contingency is applied to the Subtotal, excepting those particular activities which have already been performed.

\*\*\*LBRF deposits will be made in accordance with Act 381 and with RHBRA policy.

\*\*\*\*Interest is calculated annually at 5% simple interest on unreimbursed eligible activities.

A detailed breakout of the eligible activities and the estimated cost of each eligible activity intended to be paid for with Tax Increment Revenues from the subject property is shown in Attachment C, Table 1. It is currently anticipated that redevelopment will begin in 2018 and be completed in 2021.

The Developer desires to be reimbursed for the costs of eligible activities. Tax increment revenue generated by the subject property will be captured by the Authority and used to reimburse the cost of the eligible activities completed on the subject property after approval of this Brownfield Plan and an associated reimbursement agreement.

The costs listed in the table above are estimated costs and may increase or decrease depending on the nature and extent of environmental contamination and other unknown conditions encountered on the subject property. Costs may be moved between categories of eligible activities, provided that the total amount of incurred eligible activity costs requested for reimbursement does not exceed the total cap approved by the municipality. The actual cost of those eligible activities encompassed by this Brownfield Plan that will qualify for reimbursement from tax increment revenues of the Authority from the subject property shall be governed by the terms of a Reimbursement Agreement with the Authority (the “Reimbursement Agreement”). No costs of eligible activities will be qualified for reimbursement except to the extent permitted in accordance with the terms and conditions of the Reimbursement Agreement and/or the Development Agreement.

In accordance with this Brownfield Plan, and the associated Reimbursement Agreement, the amount advanced by the Developer will be repaid by the Authority solely from the tax increment revenues realized from the Eligible Property. It should be noted that the environmental costs for the project of \$9,619,587 represent an approximately 17% increase in the development costs over a comparable “greenfield” site. This increase far exceeds any reasonable construction contingency for the project. Moreover, these costs do not add any benefit to the lenders’ loan to value considerations, and therefore are anticipated to be funded through equity, reducing investors’ returns on equity. In addition, the sub slab venting systems planned for the western parcel to address potential migration from offsite, and the capping and containment to remedy former illegal dumping on the eastern parcel are costs to address environmental issues that were not caused by the developers, and are outside the area of the developers’ residential construction. Moreover, the eligible activities on the eastern parcel provide a significant, direct benefit to the City of Rochester Hills in its efforts to develop quality greenspace east of the subject property, as well as to the residents currently living immediately to the north. In general, the subject property is located within a larger area of former landfills that have resisted redevelopment for decades. This project represents a turning point and will be a model for other projects, providing a vital pathway and boon for the area.

Per its brownfield guidance, the City of Rochester Hills permits interest in extreme circumstances where there is a gap in financing. Due to the extreme circumstances associated with the cleanup of the former illegal landfill – including remediation activities on the adjacent largely vacant parcel separate from the new residential development, the projected amount to be reimbursed includes interest at the rate set at 5% simple interest, as permitted by the Act. The interest reimbursement is estimated at \$3,800,000. This amount is still insufficient to fully cover the financing gap created by the \$9,619,587 in projected environmental costs (since the lender for the project will not loan to support those costs), but it is necessary to make the project financeable. Since the senior lender will not finance the environmental cost, those costs must be covered with equity. Without interest reimbursement, the project cannot attract enough equity to complete those activities.

Payments will be made to the full extent incremental property tax revenues are or become available for such purpose under the Act. However, if the actual cost of eligible activities turns out to be lower than the above estimates, interest reimbursement may be lower, subject to the 5% simple interest calculation.

Tax increment revenues will be used each year to make the specified payment toward administrative expenses described in the table above. The amount of school tax revenues, which will be used to reimburse the costs of implementing eligible activities at this site, will be limited to the school tax portion of the cost of: (1) eligible activities approved by the MDEQ (as required); (2) assessment activities and brownfield and work plan preparation; and (3) the interest calculated as described above.

If the use of school tax revenues to reimburse specific eligible activities is not approved by the MDEQ, these specific activities will be reimbursed with local-only TIR (to the extent available). Reimbursement of these activity costs would be limited to the local proportional share of local captured taxes.

## **2.4 Estimate of Captured Taxable Value and Tax Increment Revenues (Section 13(2)(c)); Impact of Tax Increment Financing On Taxing Jurisdictions (Section 13(2)(g), Section 2(ee))**

This Brownfield Plan anticipates the capture of tax increment revenues to reimburse the Developer for the costs of eligible activities under this Brownfield Plan in accordance with the Reimbursement Agreement. A table of estimated tax increment revenues to be captured is attached to this Brownfield Plan as Attachment C, Table 2. Tax increment revenue capture is expected to begin in 2019.

All reimbursement will be in accordance with the Reimbursement Agreement and the Development Agreement.

The total estimated cost of the eligible activities and other costs (including administrative fees, contingency, interest, and LBRF deposits) to be reimbursed through the capture of tax increment revenue is projected to be \$16,179,730. Of this total, \$9,619,587 are eligible activities including contingency. This represents over a 17% increase to the total development costs, which – excluding land and the eligible activities – exceed \$34 million.

The estimated effective initial taxable value for this Brownfield Plan is \$37,440 and is based on land and real property tax only. No personal property is currently on the subject property. Significant taxable personal property is not anticipated in the new development; however, to the extent that new taxable personal property generates tax increment revenue, the reimbursement period may be shortened. The initial taxable value of \$37,440 is set in the 2017 tax year, the tax year applicable to when the eligible property was included in this plan. Redevelopment of the subject property is expected to initially generate substantial incremental taxable value in 2020 with the first significant increase in taxable value of approximately \$5,925,000 beginning in 2020. Only tax revenue from the incremental increase will go toward reimbursement; there will be no loss to taxing jurisdictions during the life of the Plan.

It is estimated that the Authority will capture the 2020 through 2040 tax increment revenues to reimburse the cost of the eligible activities, reimburse interest, State Brownfield Redevelopment Fund, LBRF and pay Authority administrative fees, although if necessary in order to reimburse these costs, reimbursement is authorized through 2043. An estimated schedule of tax increment revenue reimbursement is provided as Attachment C, Table 3.

The captured incremental taxable value and associated tax increment revenue will be based on the actual increased taxable value from all taxable improvements on the subject property and the actual millage rates levied by the various taxing jurisdictions during each year of the plan, as shown in Attachment C, Tables 2 and 3. The actual tax increment captured will be based on taxable value set through the property assessment process by the local unit of government and equalized by the County and the millage rates set each year by the taxing jurisdictions.

## **2.5 Impact on Taxing Jurisdictions (Section 13(2)(g))**

Based on the current expectations, the Rochester Hills School District is projected to receive some \$2,778,021 toward bond repayment over the anticipated life of the Plan; the Zoo Authority, Art Institute, Ch 20 Drain Debt reduction fund and OPC Building debt retirement fund will all see significant payments as reflected on Table 2. Further, the Plan will provide some \$210,000 in fees to the Authority. Following

completion of this Plan, the subject property is anticipated to provide over \$750,000 per year thereafter in local taxes and over \$690,000 per year in school and education taxes. Also, the project will employ workers and house tenants that will help stimulate the regional economy, providing further tax benefits.

The following table on the next page presents an estimation of the tax revenues generated on the subject property during the life of the Plan. Revenues are shown by taxing jurisdiction.

**Impact to Taxing Jurisdictions**

	Millage Rate	Developer Reimbursement	BRA Admin Reimbursement	State Revolving Fund	LBRF	Taxing Jurisdiction
<u>School Capture</u>						
State Education Tax (SET)	6.0000	\$ 1,847,215		\$ 1,410,194	\$ 84,612	\$ 4,717
School Operating Tax	18.0000	\$ 5,541,645			\$ 253,835	\$ 14,152
<u>Local Capture</u>						
OAK COUNTY PARKS	0.2392	\$ 73,642	\$ 2,564		\$ 9,787	\$ 188
HURON-CLIN PARK	0.2146	\$ 66,069	\$ 2,301		\$ 8,781	\$ 169
GENERAL FUND	2.1136	\$ 650,712	\$ 22,659		\$ 86,482	\$ 1,662
LOCAL STREET I	0.3507	\$ 107,970	\$ 3,760		\$ 14,350	\$ 276
LOCAL STREET II	0.4803	\$ 147,870	\$ 5,149		\$ 19,652	\$ 378
LOCAL STREET III	0.2939	\$ 90,483	\$ 3,151		\$ 12,025	\$ 231
FIRE FUND	2.7000	\$ 831,247	\$ 28,945		\$ 110,475	\$ 2,123
SPECIAL POLICE I	1.1954	\$ 368,027	\$ 12,815		\$ 48,912	\$ 940
SPECIAL POLICE II	1.5633	\$ 481,292	\$ 16,759		\$ 63,965	\$ 1,229
PATHWAY	0.1837	\$ 56,556	\$ 1,969		\$ 7,516	\$ 144
RARA OPERATING	0.1928	\$ 59,357	\$ 2,067		\$ 7,889	\$ 152
OPC TRANSPORTION	0.0990	\$ 30,479	\$ 1,061		\$ 4,051	\$ 78
OPC OPERATING	0.2377	\$ 73,181	\$ 2,548		\$ 9,726	\$ 187
LIBRARY OPERATING	0.7739	\$ 238,260	\$ 8,297		\$ 31,665	\$ 608
OAK COUNTY OPERATING	4.0400	\$ 1,243,792	\$ 43,311		\$ 165,304	\$ 3,176
OAK INT SD-ALLOC	0.1985	\$ 61,112	\$ 2,128		\$ 8,122	\$ 156
OAK INT SD-VTD	3.1413	\$ 967,109	\$ 33,676		\$ 128,532	\$ 2,470
OAK COMM COLLEGE	1.5707	\$ 483,570	\$ 16,839		\$ 64,268	\$ 1,235
<b>TOTALS</b>		<b>\$ 13,419,587</b>	<b>\$ 210,000</b>	<b>\$ 1,410,194</b>	<b>\$ 1,139,949</b>	<b>\$ 34,271</b>
<u>Total Non-Capturable Taxes</u>						
In addition, taxes levied by the following millages will not be captured under the Plan, but instead will flow through to the taxing units.						
ZOO AUTHORITY	0.0990	\$ 55,332				
ART INSTITUTE	0.1981	\$ 110,719				
CH 20 DRAIN DEBT	0.0417	\$ 23,306				
OPC BUILDING DEBT	0.2345	\$ 131,063				
ROCH SCH DEBT	5.9000	\$ 3,297,539				

## **2.6 Plan of Financing (Section 13(2)(d)); Maximum Amount of Indebtedness (Section 13(2)(e))**

Eligible activities are to be financed by the Developer. No bonds will be issued nor will other governmental funds be utilized. The Authority will reimburse the Developer for the cost of approved eligible activities, but only from tax increment revenues generated from the subject property as available, and subject to the Reimbursement Agreement.

All reimbursements authorized under this Brownfield Plan shall be governed by the Reimbursement Agreement. The Authority shall not incur any note or bonded indebtedness to finance the purposes of this Brownfield Plan. The inclusion of eligible activities and estimates of costs to be reimbursed in this Brownfield Plan is intended to: (1) authorize the Authority to fund such reimbursements; and (2) does not obligate the Authority to fund any reimbursement or to enter into the Reimbursement Agreement providing for the reimbursement of any costs for which tax increment revenues may be captured under this Brownfield Plan, or which are permitted to be reimbursed under this Brownfield Plan. The amount and source of any tax increment revenues that will be used for purposes authorized by this Brownfield Plan, and the terms and conditions for such use and upon any reimbursement of the expenses permitted by the Brownfield Plan, will be provided solely under the Reimbursement Agreement contemplated by this Brownfield Plan.

## **2.7 Duration of Brownfield Plan (Section 13(2)(f))**

Current tax capture projections indicate the tax increment capture will continue for at least 21 years, and may be permitted to continue for up to 24 years. In the event that the City of Rochester Hills does not have a local brownfield revolving fund, the tax increment capture is expected to last for only 18 years. In no event shall the duration of the Brownfield Plan exceed 35 years following the date of the resolution approving the Brownfield Plan, nor shall the duration of the tax capture exceed the lesser of the period authorized under subsection (4) and (5) of Section 13 of Act 381 or 30 years. Further, in no event shall the beginning date of the capture of tax increment revenues be later than five years after the date of the resolution approving the Brownfield Plan.

## **2.8 Effective Date of Inclusion in Brownfield Plan**

The subject property will become a part of this Brownfield Plan on the date this Brownfield Plan is approved by the City of Rochester Hills. The date of tax capture is anticipated to commence the first year that tax increment revenue becomes available— but in no case shall the beginning date of tax capture shall exceed five years beyond the date of the governing body resolution approving the Brownfield Plan.

## **2.9 Displacement/Relocation of Individuals on Eligible Property (Section 13(2)(i-l))**

There are no persons or businesses residing on the Eligible Property, and no occupied residences will be acquired or cleared; therefore, there will be no displacement or relocation of persons or businesses under this Brownfield Plan.

## **2.10 Local Brownfield Revolving Fund (“LBRF”) (Section 8, Section 13(5))**

The Authority has established a Local Brownfield Revolving Fund (LBRF). The Authority will capture incremental local and state school taxes to fund the LBRF, to the extent allowed by law. The rate and schedule of incremental tax capture for the LBRF will be determined on a case-by-case basis. Considerations may include, but not be limited to the following: total capture duration, total annual capture, project economic factors, level of existing LBRF funding, projected need for LBRF funds, and amount of school tax capture available in accordance with Act 381.

The amount of tax increment revenue authorized for capture and deposit in the LBRF is estimated at \$1,139,949.

## 2.11 Other Information

The tax capture breakdown of tax increment revenues anticipated to become available for use in this Brownfield Plan is summarized below.

There are 43.6335 non-homestead mills available for capture, with school millage equaling 24.0000 mills (55%) and local millage equaling 19.6335 mills (45%). None of the project will include homestead residential property, with those properties including the State Education Tax and local ISD taxes. The requested tax capture for MDEQ eligible activities breaks down as follows:

### Tax Capture

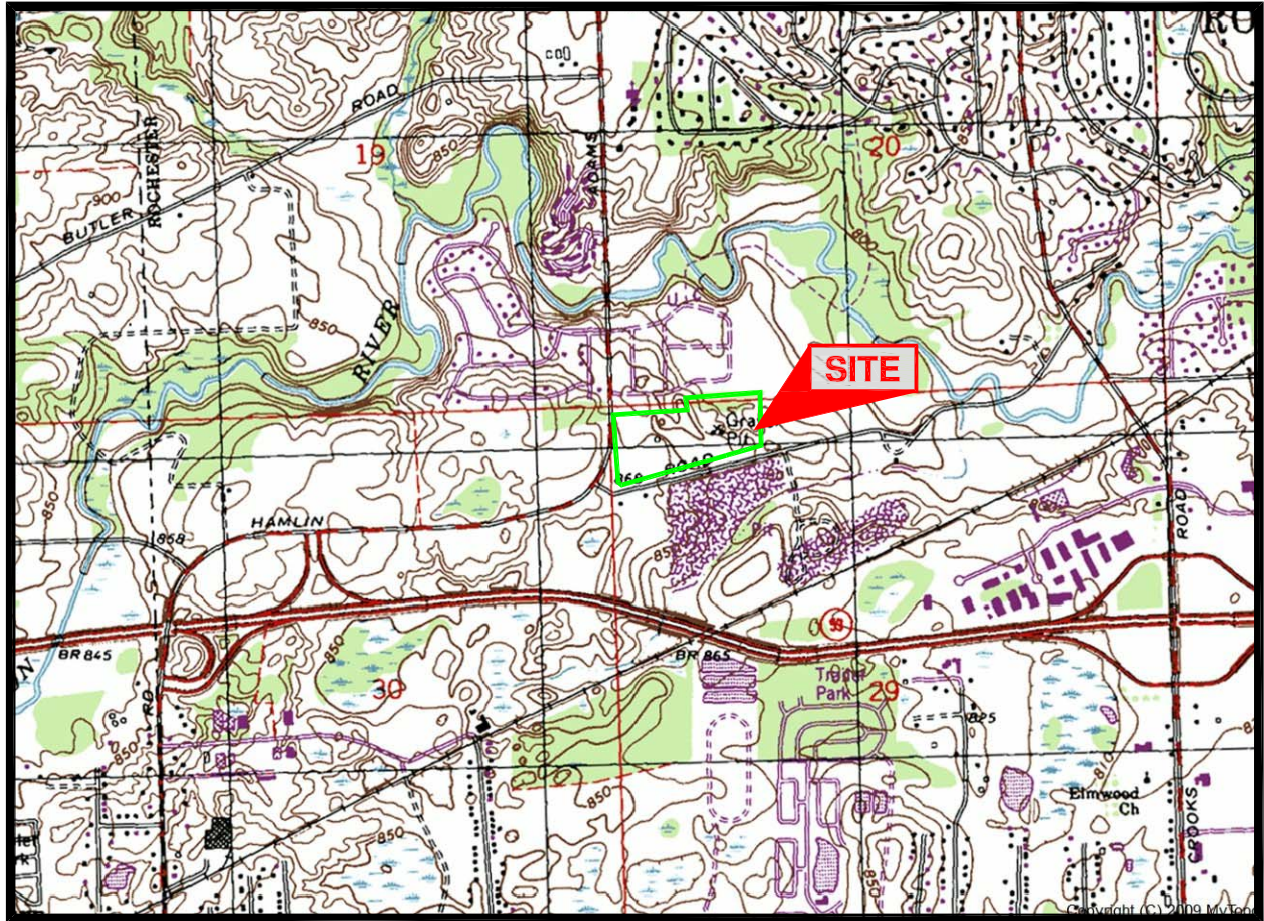
State to Local Tax Capture	Eligible Activities, Interest, Contingency
MDEQ School tax capture (55%)	\$7,388,861
MDEQ Local tax capture (45%)	\$6,030,726
Local-Only tax capture	\$0
<b>Total</b>	<b>\$13,419,587</b>



## **Attachments**

**Attachment A**  
**Site Maps**

ROCHESTER QUADRANGLE  
 MICHIGAN - OAKLAND COUNTY  
 7.5 MINUTE SERIES (TOPOGRAPHIC)



T.3 N.-R.11 E.



IMAGE TAKEN FROM 1997 U.S.G.S. TOPOGRAPHIC MAP

MICHIGAN  
 QUADRANGLE LOCATION



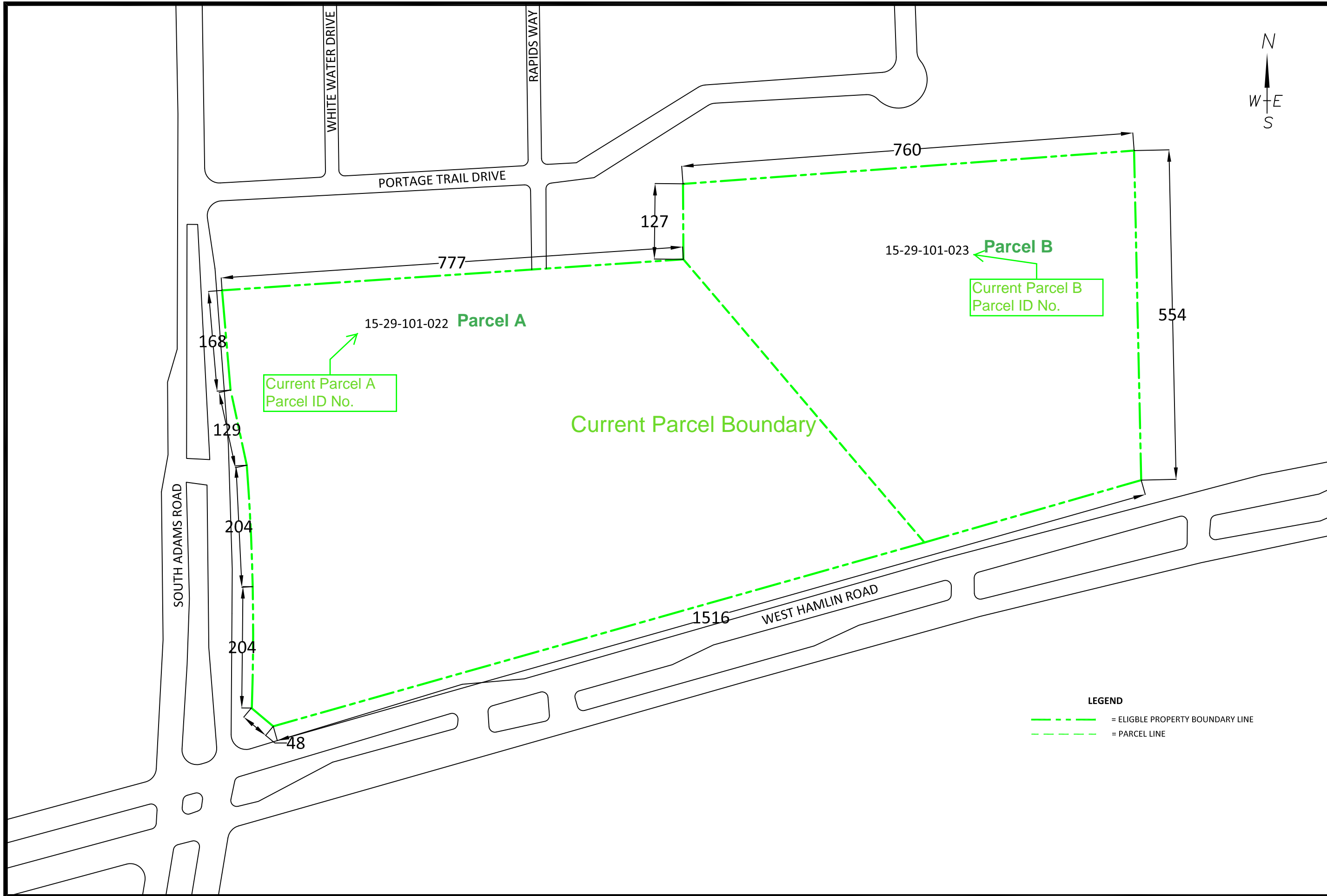
www.aktpeerless.com

**SCALED PROPERTY LOCATION MAP**

PARCEL 15-29-101-022 AND 15-29-101-023  
 NE CORNER OF HAMLIN & ADAMS ROADS  
 ROCHESTER HILLS, MICHIGAN  
 PROJECT NUMBER: 3679F6-5-25

DRAWN BY: ARR  
 DATE: 06/02/2017

**FIGURE 1**



DRAWN BY: ARR  
DATE: 06/02/2017

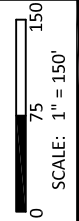


FIGURE 2

ELIGIBLE PROPERTY BOUNDARY MAP

PARCEL 15-29-101-022 AND 15-29-101-023  
NE CORNER OF HAMLIN & ADAMS ROADS  
ROCHESTER HILLS, MICHIGAN  
PROJECT NUMBER: 3679F6-5-25

LEGEND

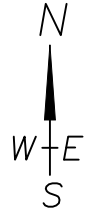
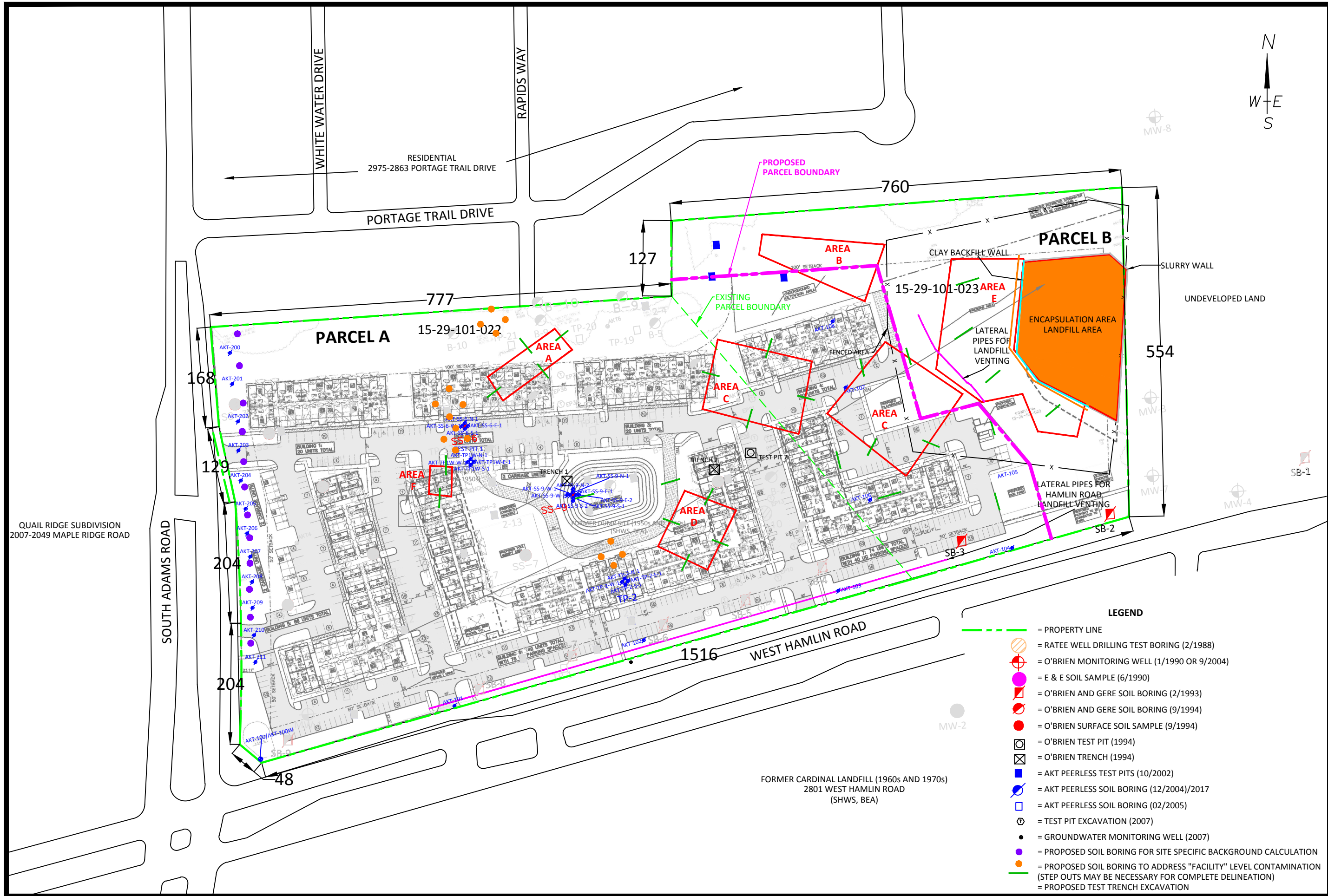
- = ELIGIBLE PROPERTY BOUNDARY LINE
- - - - - = PARCEL LINE



www.aktpeerless.com

**Figure 3.**

**Map Showing Proposed New Parcel Boundaries**



DRAWN BY: OGO/ARR  
 DATE: 03/13/2018

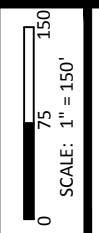


FIGURE 3

SITE MAP WITH HISTORICAL SUBSURFACE INVESTIGATION ACTIVITIES

PARCEL 15-29-101-022  
 NE CORNER OF HAMLIN & ADAMS ROADS  
 ROCHESTER HILLS, MICHIGAN  
 PROJECT NUMBER : 3679F6-3-26

- LEGEND**
- = PROPERTY LINE
  - = RATEE WELL DRILLING TEST BORING (2/1988)
  - = O'BRIEN MONITORING WELL (1/1990 OR 9/2004)
  - = E & E SOIL SAMPLE (6/1990)
  - = O'BRIEN AND GERE SOIL BORING (2/1993)
  - = O'BRIEN AND GERE SOIL BORING (9/1994)
  - = O'BRIEN SURFACE SOIL SAMPLE (9/1994)
  - = O'BRIEN TEST PIT (1994)
  - = O'BRIEN TRENCH (1994)
  - = AKT PEERLESS TEST PITS (10/2002)
  - = AKT PEERLESS SOIL BORING (12/2004)/2017
  - = AKT PEERLESS SOIL BORING (02/2005)
  - = TEST PIT EXCAVATION (2007)
  - = GROUNDWATER MONITORING WELL (2007)
  - = PROPOSED SOIL BORING FOR SITE SPECIFIC BACKGROUND CALCULATION
  - = PROPOSED SOIL BORING TO ADDRESS "FACILITY" LEVEL CONTAMINATION (STEP OUTS MAY BE NECESSARY FOR COMPLETE DELINEATION)
  - = PROPOSED TEST TRENCH EXCAVATION

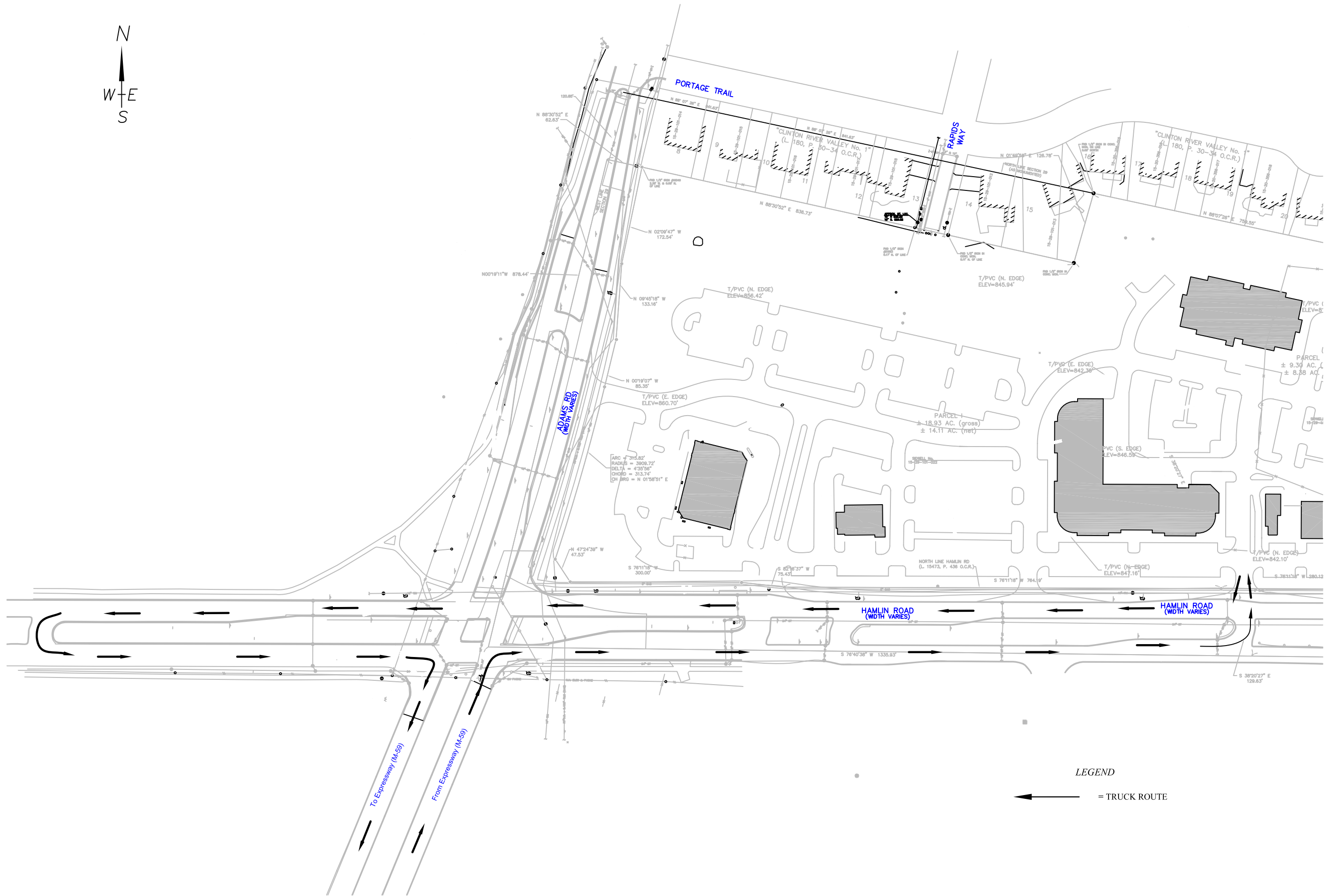
**AKTPEERLESS**

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QUAIL RIDGE SUBDIVISION  
 2007-2049 MAPLE RIDGE ROAD

FORMER CARDINAL LANDFILL (1960s AND 1970s)  
 2801 WEST HAMLIN ROAD  
 (SHWS, BEA)

**Figure 4.**  
**Proposed Truck Route Map**



DRAWN BY: KHE  
DATE: 10-9-07

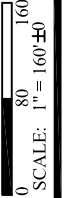


FIGURE 4

SITE MAP WITH GROUNDWATER FLOW DIRECTION

HAMLIN & ADAMS PROPERTIES, LLC  
ROCHESTER, MICHIGAN  
PROJECT NUMBER : 3679F2-10-20

**AKTPEERLESS**  
environmental services  
FARMINGTON DETROIT SAGINAW LANSING  
WWW.AKTPEERLESS.COM



**Attachment B**  
**Legal Description(s)**

Legal Descriptions:

Parcel ID: 70-15-29-101-022

Legal Information: T3N, R11E, SEC 29 PART OF W 1/2 OF NW 1/4 BEG AT PT DIST S 00-33-37 E 120.85 FT FROM NW SEC COR, TH N 88-30-46 E 836.53 FT, TH S 38-06-17 E 750.59 FT, TH S 76-30-50 W 1327.14 FT, TH N 00-33-37 W 878.45 FT TO BEG 18.80 A 1-24-00 FR 002

Parcel ID: 70-15-29-101-023

Legal Information: T3N, R11E, SEC 29 PART OF W 1/2 OF NW 1/4 BEG AT PT DIST N 88-07-26 E 841.94 FT FROM NW SEC COR, TH N 88-07-26 E 759 FT, TH S 01-26-07 W 674.52 FT, TH S 76-30-50 W 291 FT, TH N 38-06-17 W 750.59 FT, TH N 01-50-10 E 126.65 FT TO BEG 9.20A 01-24-00 FR 002

## **Attachment C**

### **Tables**

**Table 1. Eligible Activities**

Legacy Rochester Hills  
 Rochester Hills, MI  
 AKT Peerless Project No. 3679F6  
*As of April 7, 2018*

ELIGIBLE ACTIVITIES COST SUMMARY				
				Estimated Cost of Eligible Activity
<b>Department Specific Activities</b>				<b>8,368,415</b>
15% Contingency on Eligible Activities				\$ 1,206,172
<b>Brownfield Plan &amp; Act 381 WP Preparation Activities</b>				<b>\$ 45,000</b>
<b>Total Eligible Activities Cost with 15% Contingency</b>				<b>\$ 9,619,587</b>
Interest (calculated at 5%, simple)				\$ 3,800,000
<b>Total Eligible Activities Cost, with Contingency &amp; Interest</b>				<b>\$ 13,419,587</b>
<b>BRA Administration Fee</b>				<b>\$ 210,000</b>
<b>State Revolving Fund</b>				<b>\$ 1,410,194</b>
<b>Local Brownfield Revolving Fund (LBRF)</b>				<b>\$ 4,075,533</b>
<b>Total Eligible Costs for Reimbursement</b>				<b>\$ 19,115,315</b>

ELIGIBLE ACTIVITIES COST DETAIL				
	# of Units	Unit Type	Cost/Unit	Est. Total Cost
<b>Department Specific Activities</b>				
Phase I	2	LS	\$ 2,800	\$ 5,600
BEA	2	LS	\$ 7,500	\$ 15,000
Supplemental Subsurface Investigation	1	LS	\$ 120,000	\$ 120,000
Environmental Construction Management Plan	1	LS	\$ 20,000	\$ 20,000
Project Management, Administration, and Consulting Support	1	LS	\$ 25,000	\$ 25,000
HASP	1	LS	\$ 2,000	\$ 2,000
<b>Parcel A - Area A Soil/Waste Removal</b>				
Area A Excavation, Transportation & Disposal	1,630	YD	\$ 45	\$ 73,333
Area A Backfill	1,630	YD	\$ 17	\$ 27,704
Area A Laboratory Costs and Verification Sampling	1	LS	\$ 6,000	\$ 6,000
Area A Environmental Management/Oversight	1	LS	\$ 7,500	\$ 7,500
<b>Parcel A - Area B Soil/Waste Removal</b>				
Area B Excavation, Transportation & Disposal	3,556	YD	\$ 45	\$ 160,000
Area B Backfill	3,556	YD	\$ 17	\$ 60,444
Area B Laboratory Costs and Verification Sampling	1	LS	\$ 10,000	\$ 10,000
Area B Environmental Management/Oversight	1	LS	\$ 14,000	\$ 14,000
<b>Parcel A - Area C1 Soil/Waste Removal</b>				
Area C1 Excavation, Transportation & Disposal	7,741	YD	\$ 45	\$ 348,333
Area C1 Backfill	7,741	YD	\$ 17	\$ 131,593
Area C1 Laboratory Costs and Verification Sampling	1	LS	\$ 11,500	\$ 11,500
Area C2 Environmental Management/Oversight	1	LS	\$ 15,000	\$ 15,000
<b>Parcel A - Area C2 Soil/Waste Removal</b>				
Area C2 Excavation, Transportation & Disposal	23,333	YD	\$ 45	\$ 1,050,000
Area C2 Backfill	23,333	YD	\$ 17	\$ 396,667
Area C2 Laboratory Costs and Verification Sampling	1	LS	\$ 15,000	\$ 15,000
Area C2 Environmental Management/Oversight	1	LS	\$ 12,000	\$ 12,000
<b>Parcel A - Area D Soil/Waste Removal</b>				
Area D Excavation, Transportation & Disposal	6,667	YD	\$ 45	\$ 300,000
Area D Backfill	6,667	YD	\$ 17	\$ 113,333

**Table 1. Eligible Activities**

Legacy Rochester Hills  
Rochester Hills, MI  
AKT Peerless Project No. 3679F6  
*As of April 7, 2018*

Area D Laboratory Costs and Verification Sampling	1	LS	\$ 6,500	\$ 6,500
Area D Environmental Management/Oversight	1	LS	\$ 8,000	\$ 8,000
Parcel A - Area F Soil/Waste Removal				
Area F Excavation, Transportation & Disposal	741	YD	\$ 45	\$ 33,333
Area F Backfill	741	YD	\$ 17	\$ 12,593
Area F Laboratory Costs and Verification Sampling	1	LS	\$ 3,500	\$ 3,500
Area F Environmental Management/Oversight	1	LS	\$ 5,000	\$ 5,000
Smaller Hot Spot Removal (Southwestern Area)	1	LS	\$ 100,000	\$ 100,000
Sub-slab venting system - all new construction	162,000	SF	\$ 4	\$ 648,000
Parcel B - Area E Soil/Waste Removal				
Area E Excavation, Transportation & Disposal	23,185	YD	\$ 45	\$ 1,043,333
Area E Backfill	23,185	YD	\$ 17	\$ 394,148
Area E Laboratory Costs and Verification Sampling	1	LS	\$ 15,000	\$ 15,000
Area E Environmental Management/Oversight	1	LS	\$ 12,000	\$ 12,000
Parcel B - Removal and Disposal of PCB Impacted Soils	1	LS	\$ 232,000	\$ 232,000
O&M Plan - Parcel B	1	LS	\$ 900,000	\$ 900,000
Import Clean Fill for Land Balancing	40,000	CY	\$ 17	\$ 680,000
Installation Hydraulic Barrier (i.e. slurry wall)	1	LS	\$ 150,000	\$ 150,000
Installation of Liner and Cap over former landfill	1	LS	\$ 120,000	\$ 120,000
Installation of Passive Methane Venting System (former "landfill" area)	1	LS	\$ 190,000	\$ 190,000
Operation and Maintenance Plan - Subfloor Methane Mitigation Systems, S	1	LS	\$ 255,000	\$ 255,000
Passive Methane Venting System along Hamlin Road	1	LS	\$ 260,000	\$ 260,000
O&M Plan - Passive Methane Venting System along Hamlin Road	1	LS	\$ 150,000	\$ 150,000
Waterproofing Seals and Gaskets for Stormwater Piping	1	LS	\$ 40,000	\$ 40,000
Temporary Site Control & Erosion Control	1	LS	\$ 50,000	\$ 50,000
Dewatering	1	LS	\$ 75,000	\$ 75,000
Closeout Reporting (East Parcel) & Documentation of Due Care Compliance	1	LS	\$ 15,000	\$ 15,000
NFA Due Care Plan	1	LS	\$ 30,000	\$ 30,000
			<b>Subtotal</b>	<b>\$ 8,368,415</b>
<b>Brownfield Plan &amp; Act 381 Work Plan Preparation</b>				
BRA Application Fee and Administration Fee				\$ -
Brownfield Plan	1	LS	\$ 10,000	\$ 10,000
Act 381 Work Plan	1	LS	\$ 15,000	\$ 15,000
Cost Tracking & Compliance	1	LS	\$ 20,000	\$ 20,000
			<b>Subtotal</b>	<b>\$ 45,000</b>

**Table 2. Tax Increment Revenue Estimates**

Legacy Rochester Hills  
 Rochester Hills, MI  
 AKT Peerless Project No. 3679F6  
 As of April 7, 2018

Estimated TV Increase rate: 1.02		1	2	3	4	5	6	7	8	9	10	11	12
Plan Year	Calendar Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
	Initial Taxable Value	\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440
Post-Dev TV (30% of Project Investment)	Estimated New TV	\$ 5,925,000	\$ 13,825,000	\$ 19,750,000	\$ 20,145,000	\$ 20,547,900	\$ 20,958,858	\$ 21,378,035	\$ 21,805,596	\$ 22,241,708	\$ 22,686,542	\$ 23,140,273	\$ 23,603,078
	<b>Incremental Difference (New TV - Initial TV)</b>	<b>\$ 5,887,560</b>	<b>\$ 13,787,560</b>	<b>\$ 19,712,560</b>	<b>\$ 20,107,560</b>	<b>\$ 20,510,460</b>	<b>\$ 20,921,418</b>	<b>\$ 21,340,595</b>	<b>\$ 21,768,156</b>	<b>\$ 22,204,268</b>	<b>\$ 22,649,102</b>	<b>\$ 23,102,833</b>	<b>\$ 23,565,638</b>
<b>School Capture</b>		<b>Millage Rate</b>											
State Education Tax (SET)	6.0000	Initial \$ 225	\$ 225	\$ 225	\$ 225	\$ 225	\$ 225	\$ 225	\$ 225	\$ 225	\$ 225	\$ 225	\$ 225
		Incremental \$ 35,325	\$ 82,725	\$ 118,275	\$ 120,645	\$ 123,063	\$ 125,529	\$ 128,044	\$ 130,609	\$ 133,226	\$ 135,895	\$ 138,617	\$ 141,394
School Operating Tax	18.0000	Initial \$ 674	\$ 674	\$ 674	\$ 674	\$ 674	\$ 674	\$ 674	\$ 674	\$ 674	\$ 674	\$ 674	\$ 674
		Incremental \$ 105,976	\$ 248,176	\$ 354,826	\$ 361,936	\$ 369,188	\$ 376,586	\$ 384,131	\$ 391,827	\$ 399,677	\$ 407,684	\$ 415,851	\$ 424,181
<b>School Total</b>	<b>24.0000</b>												
<b>Local Capture</b>		<b>Millage Rate</b>											
OAK COUNTY PARKS	0.2392	Initial \$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9
		Incremental \$ 1,408	\$ 3,298	\$ 4,715	\$ 4,810	\$ 4,906	\$ 5,004	\$ 5,105	\$ 5,207	\$ 5,311	\$ 5,418	\$ 5,526	\$ 5,637
HURON-CLIN PARK	0.2146	Initial \$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8
		Incremental \$ 1,263	\$ 2,959	\$ 4,230	\$ 4,315	\$ 4,402	\$ 4,490	\$ 4,580	\$ 4,671	\$ 4,765	\$ 4,860	\$ 4,958	\$ 5,057
GENERAL FUND	2.1136	Initial \$ 79	\$ 79	\$ 79	\$ 79	\$ 79	\$ 79	\$ 79	\$ 79	\$ 79	\$ 79	\$ 79	\$ 79
		Incremental \$ 12,444	\$ 29,141	\$ 41,664	\$ 42,499	\$ 43,351	\$ 44,220	\$ 45,105	\$ 46,009	\$ 46,931	\$ 47,871	\$ 48,830	\$ 49,808
LOCAL STREET I	0.3507	Initial \$ 13	\$ 13	\$ 13	\$ 13	\$ 13	\$ 13	\$ 13	\$ 13	\$ 13	\$ 13	\$ 13	\$ 13
		Incremental \$ 2,065	\$ 4,835	\$ 6,913	\$ 7,052	\$ 7,193	\$ 7,337	\$ 7,484	\$ 7,634	\$ 7,787	\$ 7,943	\$ 8,102	\$ 8,264
LOCAL STREET II	0.4803	Initial \$ 18	\$ 18	\$ 18	\$ 18	\$ 18	\$ 18	\$ 18	\$ 18	\$ 18	\$ 18	\$ 18	\$ 18
		Incremental \$ 2,828	\$ 6,622	\$ 9,468	\$ 9,658	\$ 9,851	\$ 10,049	\$ 10,250	\$ 10,455	\$ 10,665	\$ 10,878	\$ 11,096	\$ 11,319
LOCAL STREET III	0.2939	Initial \$ 11	\$ 11	\$ 11	\$ 11	\$ 11	\$ 11	\$ 11	\$ 11	\$ 11	\$ 11	\$ 11	\$ 11
		Incremental \$ 1,730	\$ 4,052	\$ 5,794	\$ 5,910	\$ 6,028	\$ 6,149	\$ 6,272	\$ 6,398	\$ 6,526	\$ 6,657	\$ 6,790	\$ 6,926
FIRE FUND	2.7000	Initial \$ 101	\$ 101	\$ 101	\$ 101	\$ 101	\$ 101	\$ 101	\$ 101	\$ 101	\$ 101	\$ 101	\$ 101
		Incremental \$ 15,896	\$ 37,226	\$ 53,224	\$ 54,290	\$ 55,378	\$ 56,488	\$ 57,620	\$ 58,774	\$ 59,952	\$ 61,153	\$ 62,378	\$ 63,627
SPECIAL POLICE I	1.1954	Initial \$ 45	\$ 45	\$ 45	\$ 45	\$ 45	\$ 45	\$ 45	\$ 45	\$ 45	\$ 45	\$ 45	\$ 45
		Incremental \$ 7,038	\$ 16,482	\$ 23,564	\$ 24,037	\$ 24,518	\$ 25,009	\$ 25,511	\$ 26,022	\$ 26,543	\$ 27,075	\$ 27,617	\$ 28,170
SPECIAL POLICE II	1.5633	Initial \$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59
		Incremental \$ 9,204	\$ 21,554	\$ 30,817	\$ 31,434	\$ 32,064	\$ 32,706	\$ 33,362	\$ 34,030	\$ 34,712	\$ 35,407	\$ 36,117	\$ 36,840
PATHWAY	0.1837	Initial \$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7
		Incremental \$ 1,082	\$ 2,533	\$ 3,621	\$ 3,694	\$ 3,768	\$ 3,843	\$ 3,920	\$ 3,999	\$ 4,079	\$ 4,161	\$ 4,244	\$ 4,329
RARA OPERATING	0.1928	Initial \$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7
		Incremental \$ 1,135	\$ 2,658	\$ 3,801	\$ 3,877	\$ 3,954	\$ 4,034	\$ 4,114	\$ 4,197	\$ 4,281	\$ 4,367	\$ 4,454	\$ 4,543
OPC TRANSPORTION	0.0990	Initial \$ 4	\$ 4	\$ 4	\$ 4	\$ 4	\$ 4	\$ 4	\$ 4	\$ 4	\$ 4	\$ 4	\$ 4
		Incremental \$ 583	\$ 1,365	\$ 1,952	\$ 1,991	\$ 2,031	\$ 2,071	\$ 2,113	\$ 2,155	\$ 2,198	\$ 2,242	\$ 2,287	\$ 2,333
OPC OPERATING	0.2377	Initial \$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9
		Incremental \$ 1,399	\$ 3,277	\$ 4,686	\$ 4,780	\$ 4,875	\$ 4,973	\$ 5,073	\$ 5,174	\$ 5,278	\$ 5,384	\$ 5,492	\$ 5,602
LIBRARY OPERATING	0.7739	Initial \$ 29	\$ 29	\$ 29	\$ 29	\$ 29	\$ 29	\$ 29	\$ 29	\$ 29	\$ 29	\$ 29	\$ 29
		Incremental \$ 4,556	\$ 10,670	\$ 15,256	\$ 15,561	\$ 15,873	\$ 16,191	\$ 16,515	\$ 16,846	\$ 17,184	\$ 17,528	\$ 17,879	\$ 18,237
OAK COUNTY OPERATING	4.0400	Initial \$ 151	\$ 151	\$ 151	\$ 151	\$ 151	\$ 151	\$ 151	\$ 151	\$ 151	\$ 151	\$ 151	\$ 151
		Incremental \$ 23,786	\$ 55,702	\$ 79,639	\$ 81,235	\$ 82,862	\$ 84,523	\$ 86,216	\$ 87,943	\$ 89,705	\$ 91,502	\$ 93,335	\$ 95,205
OAK INT SD-ALLOC	0.1985	Initial \$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7
		Incremental \$ 1,169	\$ 2,737	\$ 3,913	\$ 3,991	\$ 4,071	\$ 4,153	\$ 4,236	\$ 4,321	\$ 4,408	\$ 4,496	\$ 4,586	\$ 4,678
OAK INT SD-VTD	3.1413	Initial \$ 118	\$ 118	\$ 118	\$ 118	\$ 118	\$ 118	\$ 118	\$ 118	\$ 118	\$ 118	\$ 118	\$ 118
		Incremental \$ 18,495	\$ 43,311	\$ 61,923	\$ 63,164	\$ 64,430	\$ 65,720	\$ 67,037	\$ 68,380	\$ 69,750	\$ 71,148	\$ 72,573	\$ 74,027
OAK COMM COLLEGE	1.5707	Initial \$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59
		Incremental \$ 9,248	\$ 21,656	\$ 30,963	\$ 31,583	\$ 32,216	\$ 32,861	\$ 33,520	\$ 34,191	\$ 34,876	\$ 35,575	\$ 36,288	\$ 37,015
<b>Local Total</b>	<b>19.5886</b>												
<b>Non-Capturable Millages</b>		<b>Millage Rate</b>											
ZOO AUTHORITY	0.0990	New TV \$ 587	\$ 1,369	\$ 1,955	\$ 1,994	\$ 2,034	\$ 2,075	\$ 2,116	\$ 2,159	\$ 2,202	\$ 2,246	\$ 2,291	\$ 2,337
ART INSTITUTE	0.1981	New TV \$ 1,174	\$ 2,739	\$ 3,912	\$ 3,991	\$ 4,071	\$ 4,152	\$ 4,235	\$ 4,320	\$ 4,406	\$ 4,494	\$ 4,584	\$ 4,676
CH 20 DRAIN DEBT	0.0417	New TV \$ 247	\$ 577	\$ 824	\$ 840	\$ 857	\$ 874	\$ 891	\$ 909	\$ 927	\$ 946	\$ 965	\$ 984
OPC BUILDING DEBT	0.2345	New TV \$ 1,389	\$ 3,242	\$ 4,631	\$ 4,724	\$ 4,818	\$ 4,915	\$ 5,013	\$ 5,113	\$ 5,216	\$ 5,320	\$ 5,426	\$ 5,535
ROCH SCH DEBT	5.9000	New TV \$ 34,958	\$ 81,568	\$ 116,525	\$ 118,856	\$ 121,233	\$ 123,657	\$ 126,130	\$ 128,653	\$ 131,226	\$ 133,851	\$ 136,528	\$ 139,258
<b>Total Non-Capturable Taxes</b>	<b>6.4733</b>												

**Table 2. Tax Increment Revenue Estimates**

Legacy Rochester Hills  
 Rochester Hills, MI  
 AKT Peerless Project No. 3679F6  
 As of April 7, 2018

Estimated TV Increase rate:		13	14	15	16	17	18	19	20	21
Plan Year	Calendar Year	2032	2033	2034	2035	2036	2037	2038	2039	2040
Initial Taxable Value		\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440	\$ 37,440
Post-Dev TV (30% of Project Investment)	Estimated New TV	\$ 24,075,140	\$ 24,556,643	\$ 25,047,775	\$ 25,548,731	\$ 26,059,706	\$ 26,580,900	\$ 27,112,518	\$ 27,654,768	\$ 28,207,863
	<b>Incremental Difference (New TV - Initial TV)</b>	<b>\$ 24,037,700</b>	<b>\$ 24,519,203</b>	<b>\$ 25,010,335</b>	<b>\$ 25,511,291</b>	<b>\$ 26,022,266</b>	<b>\$ 26,543,460</b>	<b>\$ 27,075,078</b>	<b>\$ 27,617,328</b>	<b>\$ 28,170,423</b>

<b>School Capture</b>	<b>Millage Rate</b>									
State Education Tax (SET)	6.0000	Initial	\$ 225	\$ 225	\$ 225	\$ 225	\$ 225	\$ 225	\$ 225	\$ 225
		Incremental	\$ 144,226	\$ 147,115	\$ 150,062	\$ 153,068	\$ 156,134	\$ 159,261	\$ 162,450	\$ 165,704
School Operating Tax	18.0000	Initial	\$ 674	\$ 674	\$ 674	\$ 674	\$ 674	\$ 674	\$ 674	\$ 674
		Incremental	\$ 432,679	\$ 441,346	\$ 450,186	\$ 459,203	\$ 468,401	\$ 477,782	\$ 487,351	\$ 497,112
<b>School Total</b>	<b>24.0000</b>									

<b>Local Capture</b>	<b>Millage Rate</b>									
OAK COUNTY PARKS	0.2392	Initial	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9
		Incremental	\$ 5,750	\$ 5,865	\$ 5,982	\$ 6,102	\$ 6,225	\$ 6,349	\$ 6,476	\$ 6,606
HURON-CLIN PARK	0.2146	Initial	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8	\$ 8
		Incremental	\$ 5,158	\$ 5,262	\$ 5,367	\$ 5,475	\$ 5,584	\$ 5,696	\$ 5,810	\$ 5,927
GENERAL FUND	2.1136	Initial	\$ 79	\$ 79	\$ 79	\$ 79	\$ 79	\$ 79	\$ 79	\$ 79
		Incremental	\$ 50,806	\$ 51,824	\$ 52,862	\$ 53,921	\$ 55,001	\$ 56,102	\$ 57,226	\$ 58,372
LOCAL STREET I	0.3507	Initial	\$ 13	\$ 13	\$ 13	\$ 13	\$ 13	\$ 13	\$ 13	\$ 13
		Incremental	\$ 8,430	\$ 8,599	\$ 8,771	\$ 8,947	\$ 9,126	\$ 9,309	\$ 9,495	\$ 9,685
LOCAL STREET II	0.4803	Initial	\$ 18	\$ 18	\$ 18	\$ 18	\$ 18	\$ 18	\$ 18	\$ 18
		Incremental	\$ 11,545	\$ 11,777	\$ 12,012	\$ 12,253	\$ 12,498	\$ 12,749	\$ 13,004	\$ 13,265
LOCAL STREET III	0.2939	Initial	\$ 11	\$ 11	\$ 11	\$ 11	\$ 11	\$ 11	\$ 11	\$ 11
		Incremental	\$ 7,065	\$ 7,206	\$ 7,351	\$ 7,498	\$ 7,648	\$ 7,801	\$ 7,957	\$ 8,117
FIRE FUND	2.7000	Initial	\$ 101	\$ 101	\$ 101	\$ 101	\$ 101	\$ 101	\$ 101	\$ 101
		Incremental	\$ 64,902	\$ 66,202	\$ 67,528	\$ 68,880	\$ 70,260	\$ 71,667	\$ 73,103	\$ 74,567
SPECIAL POLICE I	1.1954	Initial	\$ 45	\$ 45	\$ 45	\$ 45	\$ 45	\$ 45	\$ 45	\$ 45
		Incremental	\$ 28,735	\$ 29,310	\$ 29,897	\$ 30,496	\$ 31,107	\$ 31,730	\$ 32,366	\$ 33,014
SPECIAL POLICE II	1.5633	Initial	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59
		Incremental	\$ 37,578	\$ 38,331	\$ 39,099	\$ 39,882	\$ 40,681	\$ 41,495	\$ 42,326	\$ 43,174
PATHWAY	0.1837	Initial	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7
		Incremental	\$ 4,416	\$ 4,504	\$ 4,594	\$ 4,686	\$ 4,780	\$ 4,876	\$ 4,974	\$ 5,073
RARA OPERATING	0.1928	Initial	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7
		Incremental	\$ 4,634	\$ 4,727	\$ 4,822	\$ 4,919	\$ 5,017	\$ 5,118	\$ 5,220	\$ 5,325
OPC TRANSPORTION	0.0990	Initial	\$ 4	\$ 4	\$ 4	\$ 4	\$ 4	\$ 4	\$ 4	\$ 4
		Incremental	\$ 2,380	\$ 2,427	\$ 2,476	\$ 2,526	\$ 2,576	\$ 2,628	\$ 2,680	\$ 2,734
OPC OPERATING	0.2377	Initial	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9	\$ 9
		Incremental	\$ 5,714	\$ 5,828	\$ 5,945	\$ 6,064	\$ 6,185	\$ 6,309	\$ 6,436	\$ 6,565
LIBRARY OPERATING	0.7739	Initial	\$ 29	\$ 29	\$ 29	\$ 29	\$ 29	\$ 29	\$ 29	\$ 29
		Incremental	\$ 18,603	\$ 18,975	\$ 19,355	\$ 19,743	\$ 20,139	\$ 20,542	\$ 20,953	\$ 21,373
OAK COUNTY OPERATING	4.0400	Initial	\$ 151	\$ 151	\$ 151	\$ 151	\$ 151	\$ 151	\$ 151	\$ 151
		Incremental	\$ 97,112	\$ 99,058	\$ 101,042	\$ 103,066	\$ 105,130	\$ 107,236	\$ 109,383	\$ 111,574
OAK INT SD-ALLOC	0.1985	Initial	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7	\$ 7
		Incremental	\$ 4,771	\$ 4,867	\$ 4,965	\$ 5,064	\$ 5,165	\$ 5,269	\$ 5,374	\$ 5,482
OAK INT SD-VTD	3.1413	Initial	\$ 118	\$ 118	\$ 118	\$ 118	\$ 118	\$ 118	\$ 118	\$ 118
		Incremental	\$ 75,510	\$ 77,022	\$ 78,565	\$ 80,139	\$ 81,744	\$ 83,381	\$ 85,051	\$ 86,754
OAK COMM COLLEGE	1.5707	Initial	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59	\$ 59
		Incremental	\$ 37,756	\$ 38,512	\$ 39,284	\$ 40,071	\$ 40,873	\$ 41,692	\$ 42,527	\$ 43,379
<b>Local Total</b>	<b>19.5886</b>									

<b>Non-Capturable Millages</b>	<b>Millage Rate</b>									
ZOO AUTHORITY	0.0990	New TV	\$ 2,383	\$ 2,431	\$ 2,480	\$ 2,529	\$ 2,580	\$ 2,632	\$ 2,684	\$ 2,738
ART INSTITUTE	0.1981	New TV	\$ 4,769	\$ 4,865	\$ 4,962	\$ 5,061	\$ 5,162	\$ 5,266	\$ 5,371	\$ 5,478
CH 20 DRAIN DEBT	0.0417	New TV	\$ 1,004	\$ 1,024	\$ 1,044	\$ 1,065	\$ 1,087	\$ 1,108	\$ 1,131	\$ 1,153
OPC BUILDING DEBT	0.2345	New TV	\$ 5,646	\$ 5,759	\$ 5,874	\$ 5,991	\$ 6,111	\$ 6,233	\$ 6,358	\$ 6,485
ROCH SCH DEBT	5.9000	New TV	\$ 142,043	\$ 144,884	\$ 147,782	\$ 150,738	\$ 153,752	\$ 156,827	\$ 159,964	\$ 163,163
<b>Total Non-Capturable Taxes</b>	<b>6.4733</b>									

**Table 3. Reimbursement Allocation Schedule**

Legacy Rochester Hills  
 Rochester Hills, MI  
 AKT Peerless Project No. 3679F6  
*As of April 7, 2018*

Developer Maximum Reimbursement	Proportionality	School & Local Taxes	Local-Only Taxes	Total
State	55.1%	\$ 7,388,861		\$ 7,388,861
Local	44.9%	\$ 6,030,726	\$ -	\$ 6,030,726
<b>TOTAL</b>		<b>\$ 13,419,587</b>	<b>\$ -</b>	<b>\$ 13,419,587</b>
MDEQ	100.0%	\$ 13,419,587		
MSF	0.0%	\$ -		

Estimated Total Years of Plan: 21
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Plan Year	1	2	3	4	5	6	7	8	9	10
Total State Incremental Revenue	\$ 141,301	\$ 330,901	\$ 473,101	\$ 482,581	\$ 492,251	\$ 502,114	\$ 512,174	\$ 522,436	\$ 532,902	\$ 543,578
State Brownfield Revolving Fund (3 mills of SET)	\$ 17,663	\$ 41,363	\$ 59,138	\$ 60,323	\$ 61,531	\$ 62,764	\$ 64,022	\$ 65,304	\$ 66,613	\$ 67,947
Local Brownfield Revolving Fund (3% of capture)	\$ 4,239	\$ 9,927	\$ 14,193	\$ 14,477	\$ 14,768	\$ 15,063	\$ 15,365	\$ 15,673	\$ 15,987	\$ 16,307
<b>State TIR Available for Reimbursement</b>	<b>\$ 119,400</b>	<b>\$ 279,612</b>	<b>\$ 399,771</b>	<b>\$ 407,781</b>	<b>\$ 415,952</b>	<b>\$ 424,286</b>	<b>\$ 432,787</b>	<b>\$ 441,458</b>	<b>\$ 450,303</b>	<b>\$ 459,324</b>
Total Local Incremental Revenue	\$ 115,329	\$ 270,079	\$ 386,141	\$ 393,879	\$ 401,771	\$ 409,821	\$ 418,032	\$ 426,408	\$ 434,951	\$ 443,664
BRA Administrative Fee	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000
Local Brownfield Revolving Fund (3% of capture)	\$ 3,460	\$ 8,102	\$ 11,584	\$ 11,816	\$ 12,053	\$ 12,295	\$ 12,541	\$ 12,792	\$ 13,049	\$ 13,310
<b>Local TIR Available for Reimbursement</b>	<b>\$ 101,869</b>	<b>\$ 251,977</b>	<b>\$ 364,557</b>	<b>\$ 372,063</b>	<b>\$ 379,718</b>	<b>\$ 387,527</b>	<b>\$ 395,491</b>	<b>\$ 403,615</b>	<b>\$ 411,902</b>	<b>\$ 420,354</b>
<b>Total State &amp; Local TIR Available</b>	<b>\$ 221,269</b>	<b>\$ 531,588</b>	<b>\$ 764,328</b>	<b>\$ 779,844</b>	<b>\$ 795,670</b>	<b>\$ 811,813</b>	<b>\$ 828,279</b>	<b>\$ 845,074</b>	<b>\$ 862,205</b>	<b>\$ 879,678</b>

DEVELOPER	Beginning Balance	1	2	3	4	5	6	7	8	9	10
<b>DEVELOPER Reimbursement Balance</b>	<b>\$ 13,419,587</b>	<b>\$ 13,198,318</b>	<b>\$ 12,666,730</b>	<b>\$ 11,902,402</b>	<b>\$ 11,122,558</b>	<b>\$ 10,326,888</b>	<b>\$ 9,515,075</b>	<b>\$ 8,686,796</b>	<b>\$ 7,841,722</b>	<b>\$ 6,979,518</b>	<b>\$ 6,099,840</b>
<u>STATE Reimbursement Balance</u>	<u>\$ 7,388,861</u>	<u>\$ 7,269,461</u>	<u>\$ 6,989,849</u>	<u>\$ 6,590,078</u>	<u>\$ 6,182,297</u>	<u>\$ 5,766,345</u>	<u>\$ 5,342,059</u>	<u>\$ 4,909,271</u>	<u>\$ 4,467,813</u>	<u>\$ 4,017,511</u>	<u>\$ 3,558,187</u>
Eligible Activities Reimbursement	\$ 5,296,570	\$ 119,400	\$ 279,612	\$ 399,771	\$ 407,781	\$ 415,952	\$ 424,286	\$ 432,787	\$ 441,458	\$ 450,303	\$ 459,324
Environmental Eligible Activities	\$ 5,296,570	\$ 119,400	\$ 279,612	\$ 399,771	\$ 407,781	\$ 415,952	\$ 424,286	\$ 432,787	\$ 441,458	\$ 450,303	\$ 459,324
Interest Reimbursement	\$ 2,092,290	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Environmental Portion	\$ 2,092,290	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total STATE TIR Reimbursement</b>	<b>\$ 119,400</b>	<b>\$ 279,612</b>	<b>\$ 399,771</b>	<b>\$ 407,781</b>	<b>\$ 415,952</b>	<b>\$ 424,286</b>	<b>\$ 432,787</b>	<b>\$ 441,458</b>	<b>\$ 450,303</b>	<b>\$ 459,324</b>	
<u>LOCAL Reimbursement Balance</u>	<u>\$ 6,030,726</u>	<u>\$ 5,928,857</u>	<u>\$ 5,676,881</u>	<u>\$ 5,312,323</u>	<u>\$ 4,940,261</u>	<u>\$ 4,560,543</u>	<u>\$ 4,173,016</u>	<u>\$ 3,777,525</u>	<u>\$ 3,373,909</u>	<u>\$ 2,962,007</u>	<u>\$ 2,541,653</u>
Eligible Activities Reimbursement	\$ 4,323,017	\$ 101,869	\$ 251,977	\$ 364,557	\$ 372,063	\$ 379,718	\$ 387,527	\$ 395,491	\$ 403,615	\$ 411,902	\$ 420,354
Environmental Eligible Activities	\$ 4,323,017	\$ 101,869	\$ 251,977	\$ 364,557	\$ 372,063	\$ 379,718	\$ 387,527	\$ 395,491	\$ 403,615	\$ 411,902	\$ 420,354
Interest Reimbursement	\$ 1,707,710	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Environmental Portion	\$ 1,707,710	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total LOCAL TIR Reimbursement</b>	<b>\$ 101,869</b>	<b>\$ 251,977</b>	<b>\$ 364,557</b>	<b>\$ 372,063</b>	<b>\$ 379,718</b>	<b>\$ 387,527</b>	<b>\$ 395,491</b>	<b>\$ 403,615</b>	<b>\$ 411,902</b>	<b>\$ 420,354</b>	
<b>Total Annual Developer Reimbursement</b>	<b>\$ 221,269</b>	<b>\$ 531,588</b>	<b>\$ 764,328</b>	<b>\$ 779,844</b>	<b>\$ 795,670</b>	<b>\$ 811,813</b>	<b>\$ 828,279</b>	<b>\$ 845,074</b>	<b>\$ 862,205</b>	<b>\$ 879,678</b>	

**LOCAL BROWNFIELD REVOLVING FUND**

LSRRF Year	0	0	0	0	0	0	0	0	0	0
<b>LBRF Deposits</b>	<b>\$ 7,699</b>	<b>\$ 18,029</b>	<b>\$ 25,777</b>	<b>\$ 26,294</b>	<b>\$ 26,821</b>	<b>\$ 27,358</b>	<b>\$ 27,906</b>	<b>\$ 28,465</b>	<b>\$ 29,036</b>	<b>\$ 29,617</b>
STATE	\$ 7,388,861	\$ 4,239	\$ 9,927	\$ 14,193	\$ 14,477	\$ 14,768	\$ 15,063	\$ 15,365	\$ 15,673	\$ 15,987
LOCAL	<i>no maximum</i>	\$ 3,460	\$ 8,102	\$ 11,584	\$ 11,816	\$ 12,053	\$ 12,295	\$ 12,541	\$ 12,792	\$ 13,049



**Table 3. Reimbursement Allocation Schedule**

Legacy Rochester Hills  
 Rochester Hills, MI  
 AKT Peerless Project No. 3679F6  
*As of April 7, 2018*

Estimated Capture	
Administrative Fees	\$ 210,000
State Revolving Fund	\$ 1,410,194
Local Revolving Fund	\$ 4,075,533

	End Plan										
	11	12	13	14	15	16	17	18	19	20	21
Total State Incremental Revenue	\$ 554,468	\$ 565,575	\$ 576,905	\$ 588,461	\$ 600,248	\$ 612,271	\$ 624,534	\$ 637,043	\$ 649,802	\$ 662,816	\$ 676,090
State Brownfield Revolving Fund (3 mills of SE)	\$ 69,308	\$ 70,697	\$ 72,113	\$ 73,558	\$ 75,031	\$ 76,534	\$ 78,067	\$ 79,630	\$ 81,225	\$ 82,852	\$ 84,511
Local Brownfield Revolving Fund (3% of captur	\$ 16,634	\$ 16,967	\$ 17,307	\$ 17,654	\$ 18,007	\$ 18,368	\$ 18,736	\$ 19,111	\$ 19,494	\$ 19,884	\$ 20,283
<b>State TIR Available for Reimbursement</b>	<b>\$ 468,525</b>	<b>\$ 477,911</b>	<b>\$ 487,485</b>	<b>\$ 497,249</b>	<b>\$ 507,210</b>	<b>\$ 517,369</b>	<b>\$ 527,732</b>	<b>\$ 538,301</b>	<b>\$ 549,083</b>	<b>\$ 560,079</b>	<b>\$ 571,296</b>
Total Local Incremental Revenue	\$ 452,552	\$ 461,618	\$ 470,865	\$ 480,297	\$ 489,917	\$ 499,730	\$ 509,740	\$ 519,949	\$ 530,363	\$ 540,985	\$ 551,819
BRA Administrative Fee	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000
Local Brownfield Revolving Fund (3% of captur	\$ 13,577	\$ 13,849	\$ 14,126	\$ 14,409	\$ 14,698	\$ 14,992	\$ 15,292	\$ 15,598	\$ 15,911	\$ 16,230	\$ 16,555
<b>Local TIR Available for Reimbursement</b>	<b>\$ 428,976</b>	<b>\$ 437,769</b>	<b>\$ 446,739</b>	<b>\$ 455,888</b>	<b>\$ 465,220</b>	<b>\$ 474,739</b>	<b>\$ 484,448</b>	<b>\$ 494,351</b>	<b>\$ 504,452</b>	<b>\$ 514,755</b>	<b>\$ 525,265</b>
<b>Total State &amp; Local TIR Available</b>	<b>\$ 897,501</b>	<b>\$ 915,680</b>	<b>\$ 934,223</b>	<b>\$ 953,137</b>	<b>\$ 972,430</b>	<b>\$ 992,108</b>	<b>\$ 1,012,179</b>	<b>\$ 1,032,652</b>	<b>\$ 1,053,535</b>	<b>\$ 1,074,835</b>	<b>\$ 1,096,561</b>

**DEVELOPER**

<b>DEVELOPER Reimbursement Balance</b>	<b>\$ 5,202,339</b>	<b>\$ 4,286,658</b>	<b>\$ 3,352,435</b>	<b>\$ 2,399,297</b>	<b>\$ 1,426,868</b>	<b>\$ 602,438</b>	<b>\$ 74,706</b>	<b>\$ (0)</b>	<b>\$ (0)</b>	<b>\$ (0)</b>	<b>\$ (0)</b>
<b>STATE Reimbursement Balance</b>	<b>\$ 3,089,661</b>	<b>\$ 2,611,750</b>	<b>\$ 2,124,266</b>	<b>\$ 1,627,016</b>	<b>\$ 1,119,807</b>	<b>\$ 602,438</b>	<b>\$ 74,706</b>	<b>\$ (0)</b>	<b>\$ (0)</b>	<b>\$ (0)</b>	<b>\$ (0)</b>
Eligible Activities Reimbursement	\$ 468,525	\$ 477,911	\$ 487,485	\$ 31,976	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Environmental Eligible Activities	\$ 468,525	\$ 477,911	\$ 487,485	\$ 31,976	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest Reimbursement	\$ -	\$ -	\$ -	\$ 465,274	\$ 507,210	\$ 517,369	\$ 527,732	\$ 74,706	\$ -	\$ -	\$ -
Environmental Portion	\$ -	\$ -	\$ -	\$ 465,274	\$ 507,210	\$ 517,369	\$ 527,732	\$ 74,706	\$ -	\$ -	\$ -
<b>Total STATE TIR Reimbursement</b>	<b>\$ 468,525</b>	<b>\$ 477,911</b>	<b>\$ 487,485</b>	<b>\$ 497,249</b>	<b>\$ 507,210</b>	<b>\$ 517,369</b>	<b>\$ 527,732</b>	<b>\$ 74,706</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>LOCAL Reimbursement Balance</b>	<b>\$ 2,112,677</b>	<b>\$ 1,674,908</b>	<b>\$ 1,228,169</b>	<b>\$ 772,281</b>	<b>\$ 307,061</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Eligible Activities Reimbursement	\$ 428,976	\$ 404,968	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Environmental Eligible Activities	\$ 428,976	\$ 404,968	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest Reimbursement	\$ -	\$ 32,802	\$ 446,739	\$ 455,888	\$ 465,220	\$ 307,061	\$ -	\$ -	\$ -	\$ -	\$ -
Environmental Portion	\$ -	\$ 32,802	\$ 446,739	\$ 455,888	\$ 465,220	\$ 307,061	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total LOCAL TIR Reimbursement</b>	<b>\$ 428,976</b>	<b>\$ 437,769</b>	<b>\$ 446,739</b>	<b>\$ 455,888</b>	<b>\$ 465,220</b>	<b>\$ 307,061</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Total Annual Developer Reimbursement</b>	<b>\$ 897,501</b>	<b>\$ 915,680</b>	<b>\$ 934,223</b>	<b>\$ 953,137</b>	<b>\$ 972,430</b>	<b>\$ 824,430</b>	<b>\$ 527,732</b>	<b>\$ 74,706</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

**LOCAL BROWNFIELD REVOLVING FUND**

	0	0	0	0	0	0	1	2	3	4	5
<b>LBRF Deposits</b>	<b>\$ 30,211</b>	<b>\$ 30,816</b>	<b>\$ 31,433</b>	<b>\$ 32,063</b>	<b>\$ 32,705</b>	<b>\$ 33,360</b>	<b>\$ 34,028</b>	<b>\$ 34,710</b>	<b>\$ 35,405</b>	<b>\$ 36,114</b>	<b>\$ 562,102</b>
STATE	\$ 16,634	\$ 16,967	\$ 17,307	\$ 17,654	\$ 18,007	\$ 18,368	\$ 18,736	\$ 19,111	\$ 19,494	\$ 19,884	\$ 20,283
LOCAL	\$ 13,577	\$ 13,849	\$ 14,126	\$ 14,409	\$ 14,698	\$ 14,992	\$ 15,292	\$ 15,598	\$ 15,911	\$ 16,230	\$ 541,819

**Attachment D**  
**Environmental Documentation**

February 20, 2008

Ms. Jean M. Greensly (LC-8J)  
US Environmental Protection Agency  
Toxics Section - Land and Chemicals Division  
77 West Jackson Boulevard  
Chicago, Illinois 60604

Subject: PCB Migration Risk at Christenson Landfill  
Northeast Corner of Hamlin and Adams Roads  
Rochester Hills, Michigan

Dear Ms. Greensley:

As we discussed on our conference call, it was mutually agreed that the above location was a pre-1978 unregulated landfill and thus not regulated by TSCA. However, you stated under certain circumstances when there was an imminent risk to human health the USEPA would take action. Therefore, you requested data to support that there was no such imminent risk to the community that would make this a site of interest to the USEPA.

Michigan has several sites such as these and they are typically regulated by the MDEQ. Due to the requirements of a consent judgment between the City of Rochester Hills and the developer, the USEPA's acknowledgement that they do not assert jurisdiction is required. Therefore, below please find the summary of the known data and the proposed remedy. The proposed remedy would further greatly reduce any existing risk to human health and the environment.

This is a Michigan Brownfield Redevelopment site and the parties are working closely with the MDEQ as to the appropriateness of the remedial action at the site. Ultimately, MDEQ's approval is required to ensure that the remedy sufficiently addresses potential risks to human health.

Therefore, AKT Peerless Environmental Services (AKT Peerless) is please to present a summary of the historical information collected from the Christenson Landfill site. During the 1960s, drums were illegally dumped at the site. Since 1984, several investigations and removal actions have been implemented at this site. The historical information presented in this letter is intended to evaluate the risks associated PCBs at the Christenson Landfill site.

### **March 24, 1986 – USEPA Letter to Michigan Department of Natural Recourses**

On March 24, 1986, USEPA submitted a letter to the Michigan Department of Natural Resources (MDNR) and stated the following:

“This letter is in response to your request for the United States Environmental Protection Agency (USEPA) to assess the Christenson Landfill problem site in Oakland County, Michigan for a possible immediate removal action. USEPA has prepared and reviewed an Assessment for the site, and does not feel that an immediate removal is warranted at this time.”

USEPA retained Roy F. Weston (Weston) to conduct a Site Assessment for the site. USEPA based their opinion on this assessment. According to the Weston report,

“The major threat to human health and the environment by the Christenson landfill is the potential for direct human contact with exposed drums and paint wastes. The site poses not apparent threat to groundwater contamination of

aquifers used by some local residents as sources of potable water. This conclusion is based on the following reasons:

- The area in question is underlain by 30 to 50 feet of clay.
- Water used by local residents is either from the Detroit Municipal Water System or from fairly deep private wells greater than 75 feet.

Weston further states, “that the site does not pose a threat to the drinking water supply of the surrounding community.” **Thus, the USEPA has already concluded that no material risk is associated with this site and that it has waived its jurisdiction and passed on jurisdiction to the State of Michigan.**

### **August and December 1990 – Ecology and Environmental Groundwater Investigation**

In 1990 Ecology and Environment conducted a groundwater investigation at the site. Ecology and Environment identified two water-bearing zones. The shallow water-bearing zone consisted interbedded sand and clay lenses. The predominant soil type in the shallow aquifer is sand. The shallow and deep-water bearing zones are separated by a clay aquitard. Monitoring wells installed at the site were screened in both water-bearing zones. Where the monitoring wells are nested, the shallow well is identified with “S” and the deeper well is identified with a “D”. If neither letter is used, the well is screened in the shallow water-bearing zone.

Ecology and Environment collected groundwater samples in August 1990 and did not analyze the groundwater samples for PCBs.

### **November 8, 1994 – O’Brien & Gere Engineers’ “Soil and Groundwater Survey”**

In October 1994, the former property owner retained O’Brien & Gere Engineers to collect groundwater samples from nine monitoring wells at the site. These monitoring wells were called the following:

- MW1-S and MW1-D
- MW2-S and MW2-D
- MW5-S and MW5-D
- MW6
- MW13-S and MW-13-D

These eight of these monitoring wells were nested wells with the shallow wells (denoted “S”) screened in the shallow water bearing zone and the deep wells (denoted “D”) screened in the deeper water-bearing zone. **The groundwater samples collected from these monitoring wells were analyzed for PCBs and no PCBs were detected.**

### **August 2000 – MDEQ Groundwater Monitoring**

In August 2000, the Michigan Department of Environmental Quality (MDEQ) collected groundwater samples from the monitoring wells at the site. MDEQ did not analyze the groundwater for PCBs.

### **January 2001 – Snell Environmental Group’s “Final Construction Oversight Report”**

Snell Environmental Group, Inc., was retained by the Michigan Department of Environmental Quality (MDEQ) to supervise the removal of buried drums and grossly contaminated soils. From March 3, 1999 to January 2000, Snell supervised the removal of approximately 2,220

cubic yards of crushed drums; drum contents, and grossly contaminated soil. Thus, even further reducing the risks to the environment.

### **October 9, 2007 – AKT Peerless Environmental Services' Additional Assessment Report**

AKT Peerless completed an Additional Assessment at the Christenson Landfill site. During this assessment, AKT Peerless conducted two groundwater-sampling events in June 2007 and July 2007. Groundwater samples were collected from five monitoring wells. These wells were called the following:

- AKT-8
- AKT-9
- AKT-10
- AKT-11
- AKT-12

All five monitoring wells were located in the area of buried drums and were screened in the shallow water-bearing zone. Groundwater samples collected in June and July 2007 were analyzed for PCBs. No PCBs were detected in June or July 2007, demonstrating that the PCBs have not become mobile.

### **Summary**

At least six groundwater-monitoring events have been conducted at the site. During three of the six groundwater-monitoring events the groundwater samples were analyzed for PCBs. No PCBs were detected in groundwater. Further, a source removal action was performed during 1999 and 2000. Based on these results, PCBs do not appear to pose a threat to migrate through groundwater.

Further, continued remedial actions are proposed for this site. These remedial actions include additional source removal and encapsulation of the remaining PCB contamination. As part of the encapsulation, a two-foot-thick clay wall keyed into native soil and covered with an FML liner and clay cap to restrict infiltration will surround the area of PCB contamination. By removing additional source material and restricting infiltration, the proposed remedial actions will further protect groundwater, thus reducing any risks with the remaining PCB contamination.

Therefore, in conclusion, this site should not be regulated by USEPA because of the following:

1. This is a pre-1978 unregulated landfill.
2. USEPA's own conclusion in 1986 was that "the major threat to human health and the environment by the Christenson landfill is the potential for direct human contact with exposed drums and paint wastes. The site poses no apparent threat to groundwater contamination of aquifers used by some local residents as sources of potable water.

USEPA has prepared and reviewed an Assessment for the site, and does not feel that an immediate removal is warranted at this time."

3. Studies undertaken between 1990 and 2001 confirm no change in risk from 1986.
4. In 2001, MDEQ acted on their jurisdiction and removed the majority of the source material from the site.
5. Recent data, as part of an MDEQ approved investigation work plan, confirms the lack of mobility of PCBs from this site.
6. MDEQ is providing and review and oversight for the proposed remedial actions.

Thus, due to the above, the additional proposed remedial activities and the oversight of the MDEQ should assist the USEPA in its determination that no USEPA jurisdiction exists.

It has been a pleasure working with you. If you have any further questions please contact me at (248) 615-1333.

Sincerely

**AKT PEERLESS ENVIRONMENTAL SERVICES**

A handwritten signature in black ink, appearing to read "T. R. Anthony". The signature is stylized and written in a cursive-like font.

Tony R. Anthony, CP, CHMM, CPG, REPA  
Principal

cc: Joe Dufficy, USEPA Brownfield Group  
Derek Delacourt, City of Rochester Hills  
Neil Silver, Strobl Cunningham



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
EASTERN RESPONSE UNIT  
9311 GROH ROAD  
GROSSE ILE, MICHIGAN 48138-1697

MAR 24 1986

REPLY TO ATTENTION OF:  
SHRGI

Mr. Andrew Hogarth, Chief  
Remedial Action Section GWQD  
Michigan Department of Natural Resources  
P.O. Box 30028  
Lansing, MI 48909

517-373-8049

RE: Christenson Landfill  
Oakland County, MI

Dear Mr. Hogarth:

This letter is in response to your request for the United States Environmental Protection Agency (U.S. EPA) to assess the Christenson Landfill problem site in Oakland County, Michigan for a possible immediate removal action.

U.S. EPA has prepared and reviewed an Assessment for the site, and does not feel that an immediate removal is warranted at this time. Available analytical data do not show or suggest an immediate and significant threat to public health, welfare, or the environment. However, if you obtain further information which indicates that an immediate threat does exist, please notify U.S. EPA, Eastern Response Unit, Grosse Ile, Michigan.

Although an immediate endangerment does not appear to exist at this site, the Michigan Department of Natural Resources should continue its investigation into possible long-term remedial actions.

I have enclosed a copy of the site assessment for the Christenson Landfill site. If you have any questions regarding this matter, please call Ross Powers, the On-Scene Coordinator for this site at 313-676-6500.

Sincerely yours,

Robert M. Buckley, P.E., Chief  
Eastern Response Unit

Enclosure

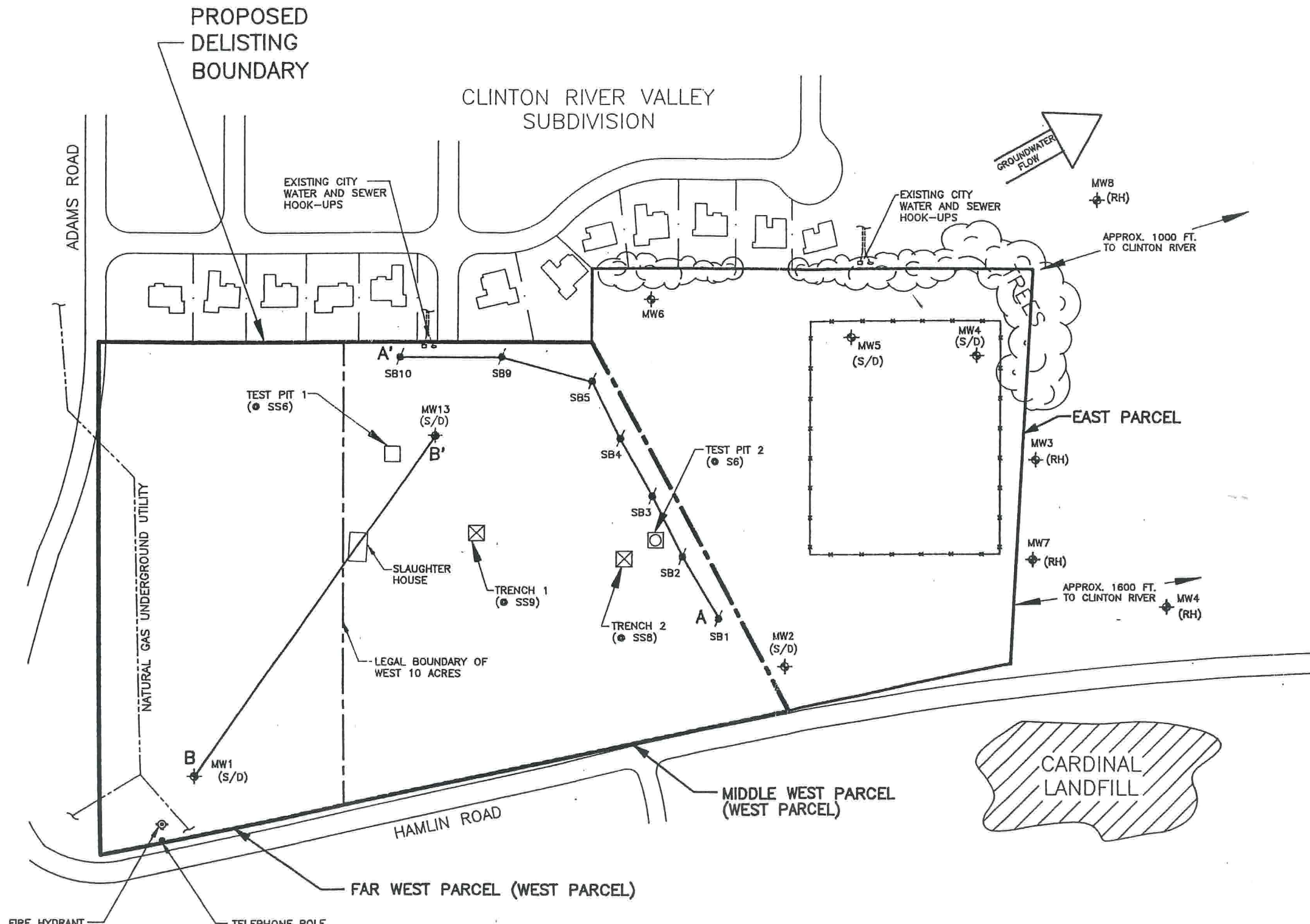
cc: Oakland Co. Health Dept. w/Encl

FIGURE 9



**LEGEND**

- EXISTING PROPERTY LINE
- - - PROPOSED DELISTING BOUNDARY
- - - APPROXIMATE LOCATION OF 400' X 325' FENCE
- ⊕ SOIL BORING (INSTALLED BY O'BRIEN & GERE 9/94)
- SOIL BORING (INSTALLED BY ECOLOGY & ENVIRONMENT FIELD INVESTIGATION TEAM 6/90)
- ⊕ MONITORING WELL (INSTALLED BY PATRICK DRILLING INC. 6/90)
- ⊕ MONITORING WELL (INSTALLED BY O'BRIEN & GERE 1/90)
- ⊕ MONITORING WELL (INSTALLED BY O'BRIEN & GERE 9/94)
- (S/D) NESTED SHALLOW/DEEP MONITORING WELL LOCATION
- (RH) MONITORING WELL LOCATION ON CITY OF ROCHESTER HILLS PROPERTY
- TEST PIT (10' X 10' X 5')
- ⊗ TRENCH (5' X 5' X 5')
- A' - A GEOLOGICAL CROSS SECTION
- B' - B GEOLOGICAL CROSS SECTION



WILLIAM JAMENS, ROMAN HALANSI  
& JOE BALOUS PROPERTY  
@ HAMLIN & ADAMS ROAD  
ROCHESTER HILLS, MICHIGAN

**TEST PIT LOCATIONS  
AND GEOLOGICAL  
CROSS SECTIONS**



SCALE

FILE NO. 5699.003-013





TABLE 4  
Ground Water Sample Analytical Results  
Christianson Dump Site  
October 1994

LOCATION			MW1-S	MW1-D	MW2-S	MW2-D	MW5-S	MW5-D	MW6	MW13-S	MW13-D	MW-DUP	EQPBLNK	Type A Criteria	Type B Criteria Health-Based Drinking Water Value
Analytical Parameter	Analytical Method	Units													
Arsenic	8020	ug/L	<1.0	<1.0	<1.0	25.0	4.2	9.3	3.0	3.6	13.0	3.9	3.4	1	0.02(C)
Barium	8020	ug/L	123	191	181	223	276	157	<100	337	331	308	<100	200	2,400(C)
Cadmium	6020	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	4.3	0.2	3.5(C)
Chromium	6020	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	15	<1.0	<1.0	<1.0	<1.0	1	120(C)
Copper	6020	ug/L	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	25	1,300(C)
Lead	6020	ug/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	4.0	<3.0	<3.0	<3.0	<3.0	3	4(C)
Mercury	7470	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	0.2	2.1(C)
Selenium	7740	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5	35(C)
Silver	6020	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	33(C)
Zinc	6020	ug/L	100	58.0	124	41.0	140	158	102	114	31.0	152	44	20	2,300(C)
Aroclor-1018	8080	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2
Aroclor-1221	8080	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2
Aroclor-1232	8080	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4		<0.4
Aroclor-1242	8080	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2
Aroclor-1248	8080	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2
Aroclor-1254	8080	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2
Aroclor-1260	8080	ug/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2
Aldrin	8080	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Alpha-BHC	8080	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Beta-BHC	8080	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Delta-BHC	8080	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Gamma-BHC	8080	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chlordane	8080	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4,4'-DDD	8080	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
4,4'-DDE	8080	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
4,4'-DDT	8080	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Dieldrin	8080	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Endosulfan I	8080	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulfan II	8080	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Endosulfan Sulfate	8080	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Endrin	8080	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Endrin Aldehyde	8080	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin Ketone	8080	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor	8080	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor Epoxide	8080	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4,4-Methoxychlor	8080	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toxaphene	8080	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		<1.0

Notes:

1. Samples analyzed by Environmental Quality Laboratories, Inc. of Sterling Heights, MI.
2. Samples collected on October 3 - 5, 1994 by O'Brien & Gere Engineers, Inc.
3. "<" denotes less than the Indicated detection limit of test.
4. "C" denotes background as defined in Rule 701(c), may be substituted as the cleanup criteria if higher than the Type B cleanup criteria.

TABLE 4 - Continued  
 Ground Water Sample Analytical Results  
 Christlanson Dump Site  
 October 1994

LOCATION			MW1-S	MW1-D	MW2-S	MW2-D	MW5-S	MW5-D	MW6	MW13-S	MW13-D	MW-DUP	EQPBLNK
Analytical Parameter	Analytical Method	Units											
Acenaphthene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Acenaphthylene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Anthracene	8270	ug/L	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzoic Acid	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(a)anthracene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(b)fluoranthene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(k)fluoranthene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(g,h,i)perylene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzo(a)pyrene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzyl Alcohol	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bis(2-chloroethoxy)methane	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bis(2-chloroethyl)ether	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bis(2-chloroisopropyl)ether	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bis(2-ethylhexyl)phthalate	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4-Bromophenyl phenyl ether	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Butyl benzyl phthalate	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4-Chloroaniline	8270	ug/L	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
4-Chloro-3-methylphenol	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Chloronaphthalene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Chlorophenol	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4-Chlorophenyl phenyl ether	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chrysene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dibenzo (a,h)anthracene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dibenzofuran	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Di-n-butylphthalate	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,3-Dichlorobenzene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
3,3'-Dichlorobenzidine	8270	ug/L	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
2,4-Dichlorophenol	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Diethyl phthalate	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2,4-Dimethylphenol	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dimethyl phthalate	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Notes:

1. Samples analyzed by Environmental Quality Laboratories, Inc. of Sterling Heights, MI.
2. Samples collected on October 3 - 5, 1994 by O'Brien & Gere Engineers, Inc.
3. "<" denotes less than the indicated detection limit of test.

TABLE 4 - Continued  
 Ground Water Sample Analytical Results  
 Christlanson Dump Site  
 October 1994

LOCATION			MW1-S	MW1-D	MW2-S	MW2-D	MW3-S	MW3-D	MW4	MW13-S	MW13-D	MW-DUP	EQPBLNK
Analytical Parameter	Analytical Method	Units											
4,6-Dinitro-2-methylphenol	8270	ug/L	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
2,4-Dinitrophenol	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2,4-Dinitrotoluene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2,6-Dinitrotoluene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Di-n-octyl phthalate	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Fluoranthene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Fluorene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Hexachlorobenzene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Hexachlorobutadiene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Hexachlorocyclopentadiene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Hexachloroethane	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Indeno(1,2,3-cd)pyrene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Isochlorone	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Methylnaphthalene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Methylphenol	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4-Methylphenol	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Naphthalene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Nitroaniline	8270	ug/L	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
3-Nitroaniline	8270	ug/L	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
4-Nitroaniline	8270	ug/L	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Nitrobenzene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Nitrophenol	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4-Nitrophenol	8270	ug/L	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
N-Nitrosodiphenylamine	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
N-Nitrosodi-n-propylamine	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Pentachlorophenol	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Phenanthrene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Phenol	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Pyrene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2,4-Trichlorobenzene	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2,4,5-Trichlorophenol	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2,4,6-Trichlorophenol	8270	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Notes:

1. Samples analyzed by Environmental Quality Laboratories, Inc. of Sterling Heights, MI.
2. Samples collected on October 3 - 5, 1994 by O'Brien & Gere Engineers, Inc.
3. "<" denotes less than the indicated detection limit of test.

TABLE 4 - Continued  
 Ground Water Sample Analytical Results  
 Christlanson Dump Site  
 October 1994

LOCATION			MW1-S	MW1-D	MW2-S	MW2-D	MW5-S	MW5-D	MW6	MW13-S	MW13-D	MW-DUP	EQPBLNK
Analytical Parameter	Analytical Method	Units											
Bromodichloromethane	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chloroethyl Vinyl Ether	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dibromochloromethane	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichlorodifluoromethane	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethylene	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethylene	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,3-Dichloropropylene	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-Dichloropropylene	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1,2-Tetrachloroethane	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethylene	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethylene	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichlorofluoromethane	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	8010	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Benzene	8020/5030	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	8020/5030	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethyl Benzene	8020/5030	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes	8020/5030	ug/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

Notes:

1. Samples analyzed by Environmental Quality Laboratories, Inc. of Sterling Heights, MI.
2. Samples collected on October 3 - 5, 1994 by O'Brien & Gere Engineers, Inc.
3. "<" denotes less than the indicated detection limit of test.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
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CHICAGO, IL 60604-3590

SEP 11 2008

REPLY TO THE ATTENTION OF:

L-8J

Mr. Derek Delacourt  
Deputy Director, Planning and Development  
The City of Rochester Hills  
1000 Rochester Hills Drive  
Rochester Hills, Michigan 48309

Re: Christianson Landfill Site (site)  
Hamlin Adams Brownfield Redevelopment Project

Dear Mr. Delacourt:

The U.S. Environmental Protection Agency, Region 5, has reviewed information regarding the environmental history and proposed plans for the Hamlin Adams Brownfield Redevelopment Project. EPA also has discussed the project with the Michigan Department of Environmental Quality (MDEQ).

Based on our review of the information and discussions with MDEQ, EPA has determined that, under 40 CFR § 761.50(b)(3)(i)(A) of the PCB regulations, the site is presumed not to present an unreasonable risk to health or the environment. EPA made this determination based on the understanding that the PCB contamination occurred prior to 1978, and currently there is no ongoing release of PCBs to the environment. As long as there is no ongoing release of PCBs to the environment from this site, EPA will take no action on this project. MDEQ will oversee remedial action at this site.

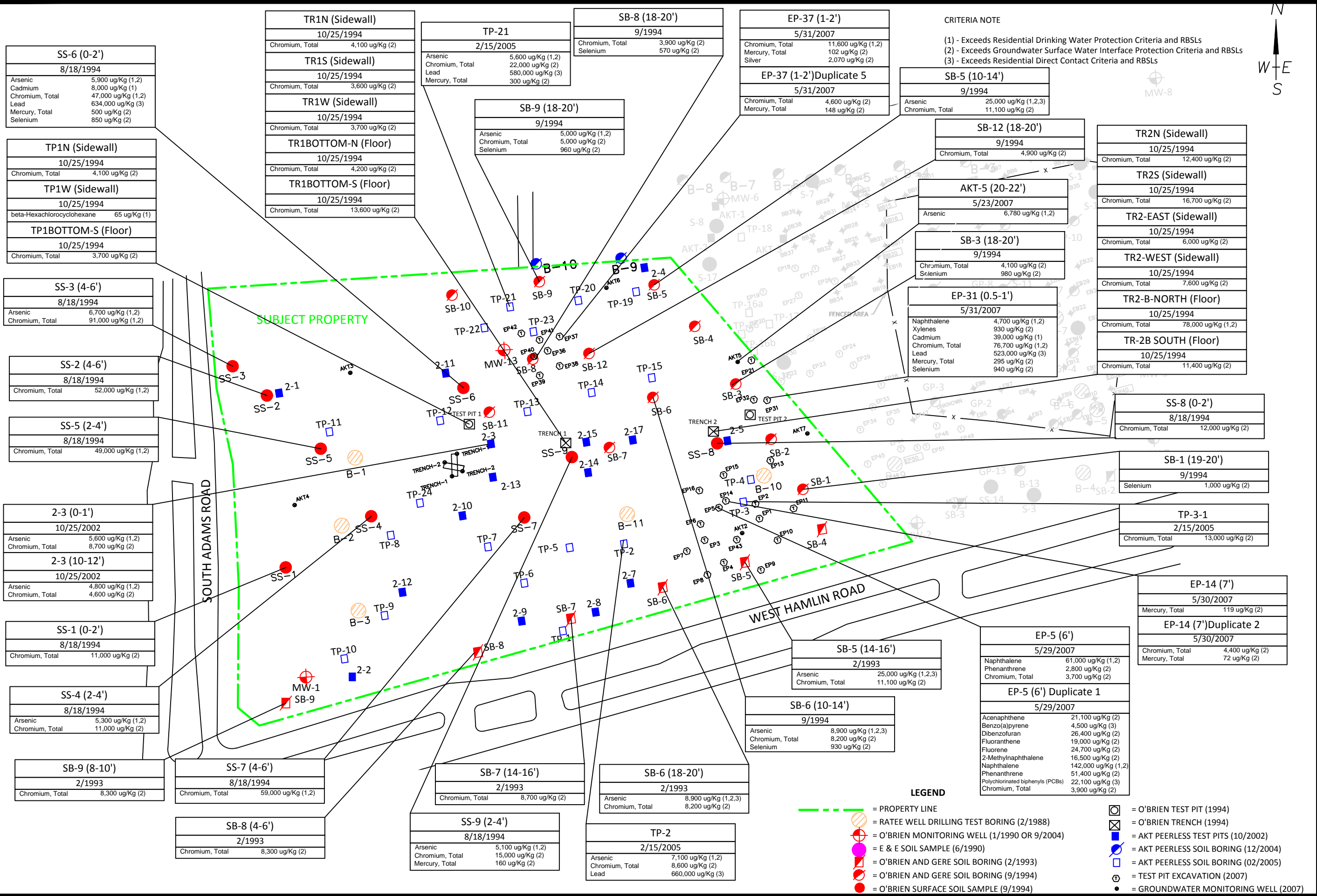
If you have any questions regarding this decision, please do not hesitate to contact me, or your staff may contact Jean Greensley, of my staff, at 312-353-1171.

Sincerely,

A handwritten signature in black ink, appearing to read "Margaret M. Guerriero".

Margaret M. Guerriero  
Director  
Land and Chemicals Division

cc: Mr. Ben Mathews, MDEQ



DRAWN BY: OGO  
 DATE: 01/05/2017  
 SCALE: 1" = 150'  
 FIGURE 3

**SITE MAP WITH SOIL RESULTS EXCEEDING MDEQ RCC**

PARCEL 15-29-101-022  
 NE CORNER OF HAMLIN & ADAMS ROADS  
 ROCHESTER HILLS, MICHIGAN  
 PROJECT NUMBER : 3679F6-3-26



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SS-6 (0-2')	
8/18/1994	
Arsenic	5,900 ug/Kg (1,2)
Cadmium	8,000 ug/Kg (1)
Chromium, Total	47,000 ug/Kg (1,2)
Lead	634,000 ug/Kg (3)
Mercury, Total	500 ug/Kg (2)
Selenium	850 ug/Kg (2)

TP1N (Sidewall)	
10/25/1994	
Chromium, Total	4,100 ug/Kg (2)
TP1W (Sidewall)	
10/25/1994	
beta-Hexachlorocyclohexane	65 ug/Kg (1)
TP1BOTTOM-S (Floor)	
10/25/1994	
Chromium, Total	3,700 ug/Kg (2)

SS-3 (4-6')	
8/18/1994	
Arsenic	6,700 ug/Kg (1,2)
Chromium, Total	91,000 ug/Kg (1,2)

SS-2 (4-6')	
8/18/1994	
Chromium, Total	52,000 ug/Kg (1,2)

SS-5 (2-4')	
8/18/1994	
Chromium, Total	49,000 ug/Kg (1,2)

2-3 (0-1')	
10/25/2002	
Arsenic	5,600 ug/Kg (1,2)
Chromium, Total	8,700 ug/Kg (2)
2-3 (10-12')	
10/25/2002	
Arsenic	4,800 ug/Kg (1,2)
Chromium, Total	4,600 ug/Kg (2)

SS-1 (0-2')	
8/18/1994	
Chromium, Total	11,000 ug/Kg (2)

SS-4 (2-4')	
8/18/1994	
Arsenic	5,300 ug/Kg (1,2)
Chromium, Total	11,000 ug/Kg (2)

SB-9 (8-10')	
2/1993	
Chromium, Total	8,300 ug/Kg (2)

SS-7 (4-6')	
8/18/1994	
Chromium, Total	59,000 ug/Kg (1,2)

SB-8 (4-6')	
2/1993	
Chromium, Total	8,300 ug/Kg (2)

TR1N (Sidewall)	
10/25/1994	
Chromium, Total	4,100 ug/Kg (2)
TR1S (Sidewall)	
10/25/1994	
Chromium, Total	3,600 ug/Kg (2)
TR1W (Sidewall)	
10/25/1994	
Chromium, Total	3,700 ug/Kg (2)
TR1BOTTOM-N (Floor)	
10/25/1994	
Chromium, Total	4,200 ug/Kg (2)
TR1BOTTOM-S (Floor)	
10/25/1994	
Chromium, Total	13,600 ug/Kg (2)

TP-21	
2/15/2005	
Arsenic	5,600 ug/Kg (1,2)
Chromium, Total	22,000 ug/Kg (2)
Lead	580,000 ug/Kg (3)
Mercury, Total	300 ug/Kg (2)

SB-8 (18-20')	
9/1994	
Chromium, Total	3,900 ug/Kg (2)
Selenium	570 ug/Kg (2)

SB-9 (18-20')	
9/1994	
Arsenic	5,000 ug/Kg (1,2)
Chromium, Total	5,000 ug/Kg (2)
Selenium	960 ug/Kg (2)

EP-37 (1-2')	
5/31/2007	
Chromium, Total	11,600 ug/Kg (1,2)
Mercury, Total	102 ug/Kg (2)
Silver	2,070 ug/Kg (2)
EP-37 (1-2') Duplicate 5	
5/31/2007	
Chromium, Total	4,600 ug/Kg (2)
Mercury, Total	148 ug/Kg (2)

SB-5 (10-14')	
9/1994	
Arsenic	25,000 ug/Kg (1,2,3)
Chromium, Total	11,100 ug/Kg (2)

SB-12 (18-20')	
9/1994	
Chromium, Total	4,900 ug/Kg (2)

SB-3 (18-20')	
9/1994	
Chromium, Total	4,100 ug/Kg (2)
Selenium	980 ug/Kg (2)

EP-31 (0.5-1')	
5/31/2007	
Naphthalene	4,700 ug/Kg (1,2)
Xylenes	930 ug/Kg (2)
Cadmium	39,000 ug/Kg (1)
Chromium, Total	76,700 ug/Kg (1,2)
Lead	523,000 ug/Kg (3)
Mercury, Total	295 ug/Kg (2)
Selenium	940 ug/Kg (2)

TR2N (Sidewall)	
10/25/1994	
Chromium, Total	12,400 ug/Kg (2)
TR2S (Sidewall)	
10/25/1994	
Chromium, Total	16,700 ug/Kg (2)
TR2-EAST (Sidewall)	
10/25/1994	
Chromium, Total	6,000 ug/Kg (2)
TR2-WEST (Sidewall)	
10/25/1994	
Chromium, Total	7,600 ug/Kg (2)
TR2-B-NORTH (Floor)	
10/25/1994	
Chromium, Total	78,000 ug/Kg (1,2)
TR2-B SOUTH (Floor)	
10/25/1994	
Chromium, Total	11,400 ug/Kg (2)

SS-8 (0-2')	
8/18/1994	
Chromium, Total	12,000 ug/Kg (2)

SB-1 (19-20')	
9/1994	
Selenium	1,000 ug/Kg (2)

TP-3-1	
2/15/2005	
Chromium, Total	13,000 ug/Kg (2)

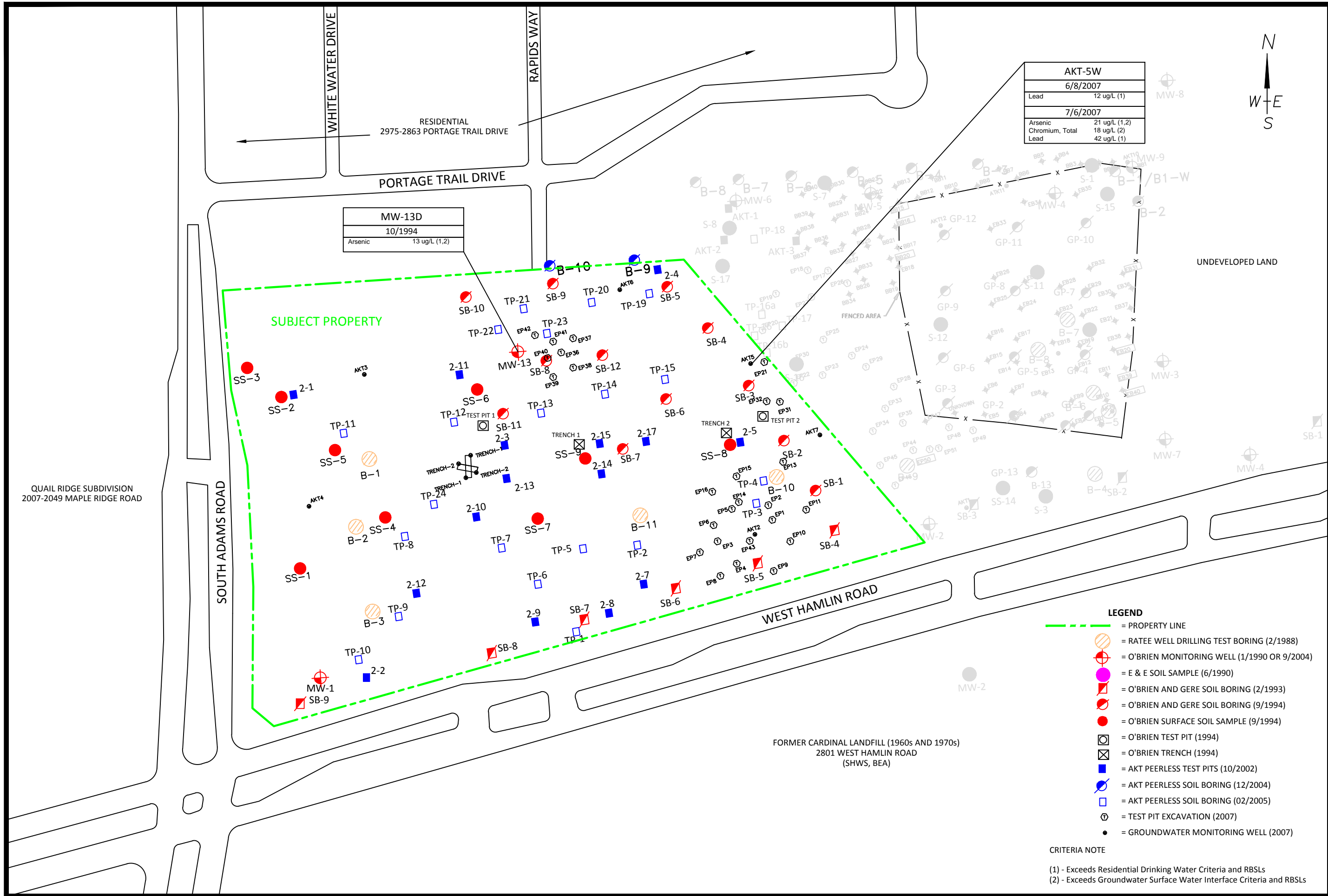
EP-14 (7')	
5/30/2007	
Mercury, Total	119 ug/Kg (2)
EP-14 (7') Duplicate 2	
5/30/2007	
Chromium, Total	4,400 ug/Kg (2)
Mercury, Total	72 ug/Kg (2)

EP-5 (6')	
5/29/2007	
Naphthalene	61,000 ug/Kg (1,2)
Phenanthrene	2,800 ug/Kg (2)
Chromium, Total	3,700 ug/Kg (2)
EP-5 (6') Duplicate 1	
5/29/2007	
Acenaphthene	21,100 ug/Kg (2)
Benzo(a)pyrene	4,500 ug/Kg (3)
Dibenzofuran	26,400 ug/Kg (2)
Fluoranthene	19,000 ug/Kg (2)
Fluorene	24,700 ug/Kg (2)
2-Methylnaphthalene	16,500 ug/Kg (2)
Naphthalene	142,000 ug/Kg (1,2)
Phenanthrene	51,400 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	22,100 ug/Kg (3)
Chromium, Total	3,900 ug/Kg (2)

SB-7 (14-16')	
2/1993	
Chromium, Total	8,700 ug/Kg (2)

SB-6 (18-20')	
2/1993	
Arsenic	8,900 ug/Kg (1,2,3)
Chromium, Total	8,200 ug/Kg (2)

TP-2	
2/15/2005	
Arsenic	7,100 ug/Kg (1,2)
Chromium, Total	8,600 ug/Kg (2)
Lead	660,000 ug/Kg (3)



AKT-5W	
6/8/2007	
Lead	12 ug/L (1)
7/6/2007	
Arsenic	21 ug/L (1,2)
Chromium, Total	18 ug/L (2)
Lead	42 ug/L (1)

MW-13D	
10/1994	
Arsenic	13 ug/L (1,2)

- LEGEND**
- = PROPERTY LINE
  - = RATEE WELL DRILLING TEST BORING (2/1988)
  - = O'BRIEN MONITORING WELL (1/1990 OR 9/2004)
  - = E & E SOIL SAMPLE (6/1990)
  - = O'BRIEN AND GERE SOIL BORING (2/1993)
  - = O'BRIEN AND GERE SOIL BORING (9/1994)
  - = O'BRIEN SURFACE SOIL SAMPLE (9/1994)
  - = O'BRIEN TEST PIT (1994)
  - = O'BRIEN TRENCH (1994)
  - = AKT PEERLESS TEST PITS (10/2002)
  - = AKT PEERLESS SOIL BORING (12/2004)
  - = AKT PEERLESS SOIL BORING (02/2005)
  - = TEST PIT EXCAVATION (2007)
  - = GROUNDWATER MONITORING WELL (2007)

**CRITERIA NOTE**

(1) - Exceeds Residential Drinking Water Criteria and RBSLs  
 (2) - Exceeds Groundwater Surface Water Interface Criteria and RBSLs

DRAWN BY: OGO  
 DATE: 01/05/2017

0 75 150  
 SCALE: 1" = 150'

**FIGURE 4**

**SITE MAP WITH GROUNDWATER RESULTS EXCEEDING MDEQ RCC**

PARCEL 15-29-101-022  
 NE CORNER OF HAMLIN & ADAMS ROADS  
 ROCHESTER HILLS, MICHIGAN  
 PROJECT NUMBER : 3679F6-3-26

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DATE: 01/05/2017

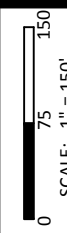
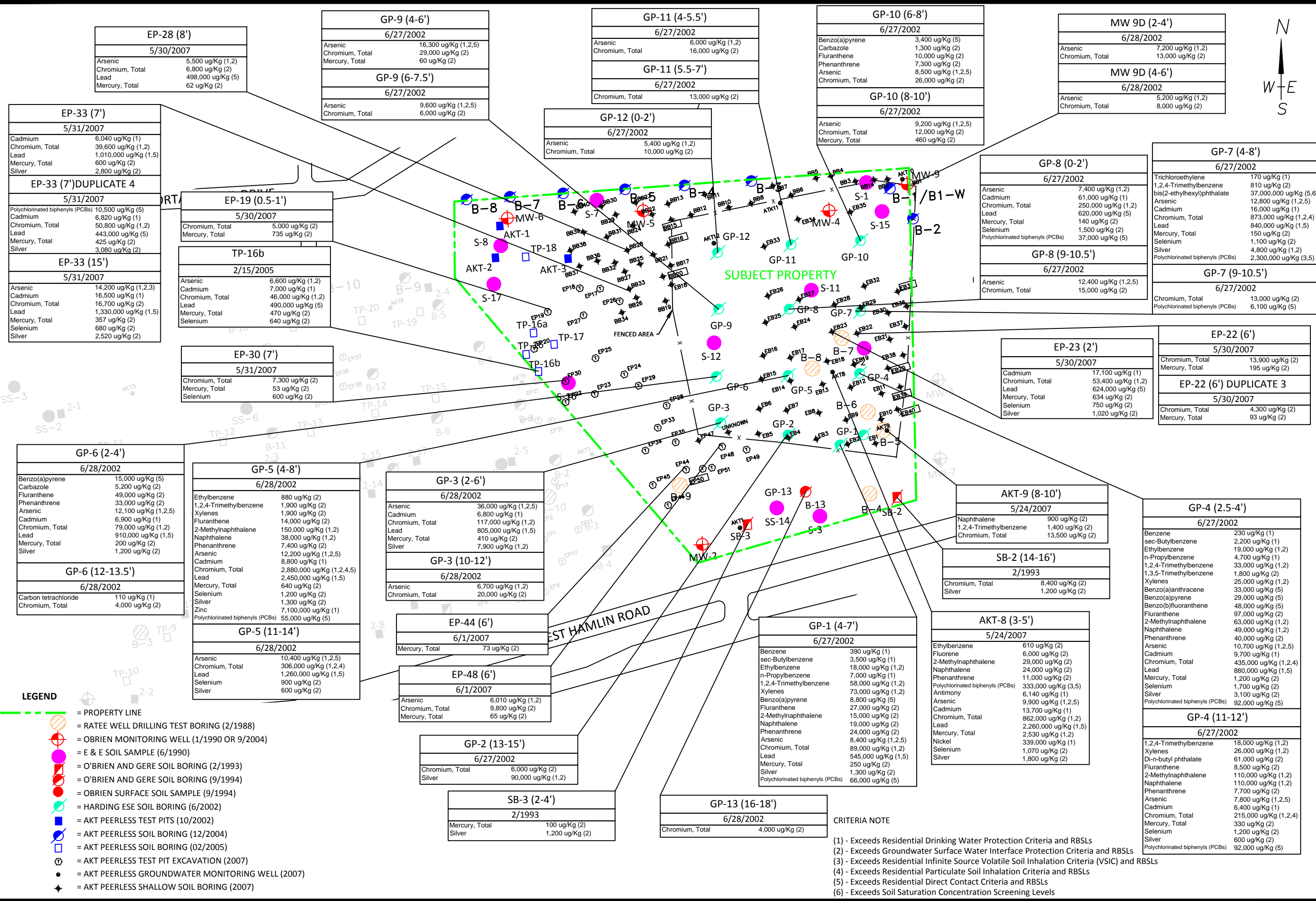


FIGURE 3A



SITE MAP WITH SOIL RESULTS EXCEEDING MDEQ RCC

PARCEL 15-29-101-023  
NE CORNER OF HAMLIN & ADAMS ROADS  
ROCHESTER HILLS, MICHIGAN  
PROJECT NUMBER : 3679F6-3-26

AKTPEERLESS

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- LEGEND
- = PROPERTY LINE
- ⊕ = RATEE WELL DRILLING TEST BORING (2/1988)
- ⊕ = OBRIEN MONITORING WELL (1/1990 OR 9/2004)
- = E & E SOIL SAMPLE (6/1990)
- ⊕ = O'BRIEN AND GERE SOIL BORING (2/1993)
- ⊕ = O'BRIEN AND GERE SOIL BORING (9/1994)
- ⊕ = OBRIEN SURFACE SOIL SAMPLE (9/1994)
- ⊕ = HARDING ESE SOIL BORING (6/2002)
- ⊕ = AKT PEERLESS TEST PITS (10/2002)
- ⊕ = AKT PEERLESS SOIL BORING (12/2004)
- ⊕ = AKT PEERLESS SOIL BORING (02/2005)
- ⊕ = AKT PEERLESS TEST PIT EXCAVATION (2007)
- = AKT PEERLESS GROUNDWATER MONITORING WELL (2007)
- ⊕ = AKT PEERLESS SHALLOW SOIL BORING (2007)

CRITERIA NOTE

- (1) - Exceeds Residential Drinking Water Protection Criteria and RBSLs
- (2) - Exceeds Groundwater Surface Water Interface Protection Criteria and RBSLs
- (3) - Exceeds Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) and RBSLs
- (4) - Exceeds Residential Particulate Soil Inhalation Criteria and RBSLs
- (5) - Exceeds Residential Direct Contact Criteria and RBSLs
- (6) - Exceeds Soil Saturation Concentration Screening Levels



CRITERIA NOTE

- (1) - Exceeds Residential Drinking Water Protection Criteria and RBSLs
- (2) - Exceeds Groundwater Surface Water Interface Protection Criteria and RBSLs
- (3) - Exceeds Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC) and RBSLs
- (4) - Exceeds Residential Particulate Soil Inhalation Criteria and RBSLs
- (5) - Exceeds Residential Direct Contact Criteria and RBSLs
- (6) - Exceeds Soil Saturation Concentration Screening Levels

EB-28 (1-3')	
5/24/2007	
Polychlorinated biphenyls (PCBs)	150,000 ug/Kg (5)

EB-28 (3-5')	
5/24/2007	
Polychlorinated biphenyls (PCBs)	31,000 ug/Kg (5)

EB-28 (8-10')	
5/24/2007	
Fluoranthene	10,000 ug/Kg (2)
2-Methylnaphthalene	30,000 ug/Kg (2)
Naphthalene	30,000 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	16,000 ug/Kg (5)

EB-27 (1-3')	
5/24/2007	
Benzo(a)pyrene	10,200 ug/Kg (2)
Fluoranthene	20,500 ug/Kg (2)
Phenanthrene	14,100 ug/Kg (2)

EB-26 (1-3')	
5/24/2007	
Benzo(a)pyrene	4,600 ug/Kg (2)
Fluoranthene	8,400 ug/Kg (2)
Phenanthrene	3,200 ug/Kg (2)

EB-25 (3-4')	
5/24/2007	
Benzo(a)pyrene	9,100 ug/Kg (2)
Fluoranthene	16,700 ug/Kg (2)
Phenanthrene	9,200 ug/Kg (2)

EB-24 (8-10')	
5/24/2007	
Benzo(a)pyrene	3,900 ug/Kg (2)
Fluoranthene	6,700 ug/Kg (2)
2-Methylnaphthalene	6,100 ug/Kg (2)
Phenanthrene	3,100 ug/Kg (2)

EB-23 (3-5')	
5/24/2007	
Benzene	800 ug/Kg (1)
sec-Butylbenzene	5,400 ug/Kg (1)
Ethylbenzene	46,900 ug/Kg (1.2)
Isopropyl benzene	8,000 ug/Kg (2)
Naphthalene	82,000 ug/Kg (1.2)
n-Propylbenzene	17,000 ug/Kg (1)
1,2,4-Trimethylbenzene	66,000 ug/Kg (1.2)
1,3,5-Trimethylbenzene	19,000 ug/Kg (1.2)
Xylenes	159,500 ug/Kg (1.2,6)
Benzo(a)pyrene	3,000 ug/Kg (5)
Fluoranthene	6,000 ug/Kg (2)
2-Methylnaphthalene	82,000 ug/Kg (1.2)
Phenanthrene	4,000 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	149,000 ug/Kg (5)

EB-23 (5-7')	
5/24/2007	
Polychlorinated biphenyls (PCBs)	119,000 ug/Kg (5)

EB-23 (7-9')	
5/24/2007	
Polychlorinated biphenyls (PCBs)	99,000 ug/Kg (5)

EB-22 (3-5')	
5/24/2007	
Polychlorinated biphenyls (PCBs)	94,000 ug/Kg (5)

EB-22 (6-8')	
5/24/2007	
sec-Butylbenzene	9,000 ug/Kg (1)
Ethylbenzene	230,000 ug/Kg (1,2,3,6)
Isopropyl benzene	20,000 ug/Kg (2)
Naphthalene	130,000 ug/Kg (1,2)
n-Propylbenzene	39,000 ug/Kg (1)
1,2,4-Trimethylbenzene	142,000 ug/Kg (1,2,5,6)
1,3,5-Trimethylbenzene	41,000 ug/Kg (1,2)
Xylenes	1,033,000 ug/Kg (1,2,6)
2-Methylnaphthalene	130,000 ug/Kg (1,2)
Phenanthrene	5,600 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	51,000 ug/Kg (5)

EB-22 (10-12')	
5/24/2007	
Polychlorinated biphenyls (PCBs)	7,000 ug/Kg (5)

EB-18 (3-5')	
5/23/2007	
Benzo(a)pyrene	6,000 ug/Kg (5)
Fluoranthene	13,400 ug/Kg (2)
2-Methylnaphthalene	4,700 ug/Kg (2)
Naphthalene	2,700 ug/Kg (2)
Phenanthrene	3,700 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	4,300 ug/Kg (5)

EB-10 (11-13')	
5/23/2007	
Polychlorinated biphenyls (PCBs)	104,000 ug/Kg (5)

EB-19 (4-5')	
5/23/2007	
sec-Butylbenzene	10,000 ug/Kg (1)
Ethylbenzene	38,000 ug/Kg (1.2)
Isopropyl benzene	7,000 ug/Kg (2)
Naphthalene	55,000 ug/Kg (1.2)
n-Propylbenzene	13,000 ug/Kg (1)
1,2,4-Trimethylbenzene	91,000 ug/Kg (1.2)
1,3,5-Trimethylbenzene	54,000 ug/Kg (1.2)
Xylenes	179,000 ug/Kg (1,2,6)
2-Methylnaphthalene	68,000 ug/Kg (1.2)
Benzo(a)pyrene	11,000 ug/Kg (5)
Fluoranthene	39,000 ug/Kg (2)
Phenanthrene	20,000 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	203,000 ug/Kg (5)

EB-19 (5-7')	
5/23/2007	
Polychlorinated biphenyls (PCBs)	197,000 ug/Kg (5)

EB-19 (8-10')	
5/23/2007	
Polychlorinated biphenyls (PCBs)	34,000 ug/Kg (5)

EB-13 (3-5')	
5/23/2007	
Polychlorinated biphenyls (PCBs)	6,600 ug/Kg (5)

EB-13 (8-10')	
5/23/2007	
Polychlorinated biphenyls (PCBs)	13,700 ug/Kg (5)

EB-13 (13-15')	
5/23/2007	
sec-Butylbenzene	4,000 ug/Kg (1)
Ethylbenzene	53,000 ug/Kg (1.2)
Isopropyl benzene	11,000 ug/Kg (1)
Toluene	56,000 ug/Kg (1.2)
1,2,4-Trimethylbenzene	43,000 ug/Kg (1.2)
1,3,5-Trimethylbenzene	10,000 ug/Kg (1.2)
Xylenes	250,000 ug/Kg (1,2,6)
Naphthalene	1,300 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	5,000 ug/Kg (5)

DUPLICATE 3 EB-13 (13-15')	
5/23/2007	
n-Butylbenzene	11,000 ug/Kg (1)
sec-Butylbenzene	6,000 ug/Kg (1)
Ethylbenzene	61,000 ug/Kg (1.2)
n-Propylbenzene	15,000 ug/Kg (1)
Toluene	76,000 ug/Kg (1.2)
1,2,4-Trimethylbenzene	59,000 ug/Kg (1.2)
1,3,5-Trimethylbenzene	13,000 ug/Kg (1.2)
Xylenes	289,000 ug/Kg (1,2,6)
Benzo(a)pyrene	2,200 ug/Kg (5)
Naphthalene	1,500 ug/Kg (2)
Phenanthrene	2,900 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	14,000 ug/Kg (5)

EB-7 (1-3')	
5/22/2007	
Benzo(a)pyrene	2,400 ug/Kg (5)

EB-12 (8-10')	
5/22/2007	
sec-Butylbenzene	50,000 ug/Kg (1)
Ethylbenzene	590,000 ug/Kg (1,2,3,6)
Isopropyl benzene	70,000 ug/Kg (2)
Naphthalene	400,000 ug/Kg (1,2,3,4)
n-Propylbenzene	110,000 ug/Kg (1)
Toluene	400,000 ug/Kg (1,2,3,6)
1,2,4-Trimethylbenzene	760,000 ug/Kg (1,2,5,6)
1,3,5-Trimethylbenzene	280,000 ug/Kg (1,2,6)
Xylenes	2,070,000 ug/Kg (1,2,6)
2-Methylnaphthalene	280,000 ug/Kg (1.2)
Polychlorinated biphenyls (PCBs)	23,000 ug/Kg (5)

EB-12 (10-11')	
5/22/2007	
Di-n-butyl phthalate	7,200 ug/Kg (5)
2-Methylnaphthalene	7,200 ug/Kg (5)
Naphthalene	7,200 ug/Kg (5)
Polychlorinated biphenyls (PCBs)	7,200 ug/Kg (5)

EB-9 (8-10')	
5/22/2007	
n-Butylbenzene	10,000 ug/Kg (1)
sec-Butylbenzene	3,500 ug/Kg (1)
Ethylbenzene	21,500 ug/Kg (1.2)
Naphthalene	11,000 ug/Kg (2)
n-Propylbenzene	7,000 ug/Kg (1)
1,2,4-Trimethylbenzene	41,000 ug/Kg (1.2)
1,3,5-Trimethylbenzene	11,000 ug/Kg (1.2)
Xylenes	66,200 ug/Kg (1.2)
2-Methylnaphthalene	6,000 ug/Kg (2)

EB-32 (1-3')	
5/24/2007	
Benzo(a)pyrene	5,500 ug/Kg (5)
Fluoranthene	7,400 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	29,000 ug/Kg (5)

EB-35 (1-3')	
5/25/2007	
Benzo(a)pyrene	3,600 ug/Kg (5)
Phenanthrene	2,700 ug/Kg (2)

EB-31 (1-3')	
5/24/2007	
Polychlorinated biphenyls (PCBs)	5,400 ug/Kg (5)

EB-31 (3-5')	
5/24/2007	
Benzo(a)pyrene	2,300 ug/Kg (5)
Polychlorinated biphenyls (PCBs)	32,000 ug/Kg (5)

EB-31 (7-9')	
5/24/2007	
Benzo(a)pyrene	3,000 ug/Kg (5)

EB-30 (1-3')	
5/24/2007	
sec-Butylbenzene	7,000 ug/Kg (1)
Ethylbenzene	111,000 ug/Kg (1,2,3)
n-Propylbenzene	40,000 ug/Kg (1)
1,2,4-Trimethylbenzene	140,000 ug/Kg (1,2,5,6)
1,3,5-Trimethylbenzene	30,000 ug/Kg (1.2)
Xylenes	330,000 ug/Kg (1,2,6)
Benzo(a)pyrene	8,000 ug/Kg (5)
Fluoranthene	15,600 ug/Kg (2)
2-Methylnaphthalene	12,100 ug/Kg (2)
Naphthalene	13,800 ug/Kg (2)
Phenanthrene	10,800 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	68,000 ug/Kg (5)

DUPLICATE 4 EB-30 (1-3')	
5/24/2007	
sec-Butylbenzene	10,000 ug/Kg (1)
Ethylbenzene	122,000 ug/Kg (1,2,3)
Isopropyl benzene	20,000 ug/Kg (2)
Naphthalene	30,000 ug/Kg (2)
n-Propylbenzene	47,000 ug/Kg (1)
1,2,4-Trimethylbenzene	175,000 ug/Kg (1,2,5,6)
1,3,5-Trimethylbenzene	48,000 ug/Kg (1.2)
Xylenes	332,000 ug/Kg (1,2,6)
Benzo(a)pyrene	3,600 ug/Kg (5)
Fluoranthene	9,900 ug/Kg (2)
2-Methylnaphthalene	22,500 ug/Kg (2)
Phenanthrene	10,400 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	284,000 ug/Kg (5)

EB-30 (3-5')	
5/24/2007	
Polychlorinated biphenyls (PCBs)	97,000 ug/Kg (5)

EB-38 (1-3')	
5/25/2007	
Polychlorinated biphenyls (PCBs)	89,000 ug/Kg (5)

EB-38 (3-5')	
5/25/2007	
sec-Butylbenzene	14,000 ug/Kg (1)
Ethylbenzene	71,000 ug/Kg (1,2)
Isopropyl benzene	20,000 ug/Kg (2)
n-Propylbenzene	29,000 ug/Kg (1)
Toluene	9,000 ug/Kg (2)
1,2,4-Trimethylbenzene	168,000 ug/Kg (1,2,5,6)
Xylenes	79,000 ug/Kg (1,2)
Di-n-butyl phthalate	48,000 ug/Kg (2)
Fluranthene	8,000 ug/Kg (2)
2-Methylnaphthalene	388,000 ug/Kg (1.2)
Naphthalene	246,000 ug/Kg (1.2)
Polychlorinated biphenyls (PCBs)	56,000 ug/Kg (5)

EB-38 (8-10')	
5/25/2007	
Polychlorinated biphenyls (PCBs)	20,000 ug/Kg (5)

EB-20 (1-3')	
5/23/2007	
Polychlorinated biphenyls (PCBs)	37,000 ug/Kg (5)

EB-20 (3-5')	
5/23/2007	
Polychlorinated biphenyls (PCBs)	74,000 ug/Kg (5)

EB-20 (5-7')	
5/23/2007	
Benzo(a)anthracene	21,000 ug/Kg (5)
Benzo(a)pyrene	17,000 ug/Kg (5)
Fluranthene	53,000 ug/Kg (2)
Fluorene	6,000 ug/Kg (2)
2-Methylnaphthalene	149,000 ug/Kg (1.2)
Naphthalene	126,000 ug/Kg (1.2)
Phenanthrene	44,000 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	110,000 ug/Kg (5)

EB-39 (1-3')	
5/25/2007	
Polychlorinated biphenyls (PCBs)	25,000 ug/Kg (5)

EB-39 (3-5')	
5/25/2007	
Benzo(a)pyrene	4,000 ug/Kg (5)
Fluranthene	7,000 ug/Kg (2)
Naphthalene	2,000 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	113,000 ug/Kg (5)

EB-11 (1-3')	
5/22/2007	
Polychlorinated biphenyls (PCBs)	7,200 ug/Kg (5)

EB-11 (8-10')	
5/22/2007	
Polychlorinated biphenyls (PCBs)	20,000 ug/Kg (5)

EB-11 (10-12')	
5/22/2007	
sec-Butylbenzene	5,200 ug/Kg (1)
Ethylbenzene	26,000 ug/Kg (1.2)
Isopropyl benzene	5,000 ug/Kg (2)
Naphthalene	77,000 ug/Kg (1.2)
n-Propylbenzene	11,000 ug/Kg (1)
1,2,4-Trimethylbenzene	60,000 ug/Kg (1.2)
1,3,5-Trimethylbenzene	14,000 ug/Kg (1.2)
Xylenes	96,300 ug/Kg (1.2)
2-Methylnaphthalene	76,000 ug/Kg (1.2)
Benzo(a)pyrene	3,800 ug/Kg (5)
Fluranthene	10,000 ug/Kg (2)
Phenanthrene	9,000 ug/Kg (1.2)
Polychlorinated biphenyls (PCBs)	45,000 ug/Kg (5)

EB-40 (1-3')	
5/25/2007	
Polychlorinated biphenyls (PCBs)	9,000 ug/Kg (5)

EB-40 (3-5')	
5/25/2007	
Benzo(a)pyrene	4,800 ug/Kg (5)
Fluranthene	9,600 ug/Kg (2)
Naphthalene	1,100 ug/Kg (2)
Phenanthrene	2,700 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	67,000 ug/Kg (5)

DUPLICATE 5 EB-40 (3-5')	
5/25/2007	
Benzo(a)pyrene	5,600 ug/Kg (5)
Fluranthene	10,600 ug/Kg (2)
Naphthalene	1,300 ug/Kg (2)
Phenanthrene	2,700 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	159,000 ug/Kg (5)

EB-40 (8-10')	
5/25/2007	
Polychlorinated biphenyls (PCBs)	4,700 ug/Kg (5)

EB-10 (10-12')	
5/22/2007	
Polychlorinated biphenyls (PCBs)	10,400 ug/Kg (5)

DUPLICATE 2 EB-10 (10-12')	
5/22/2007	
Naphthalene	800 ug/Kg (2)
Polychlorinated biphenyls (PCBs)	50,000 ug/Kg (5)

EB-1 (3-5')	
5/21/2007	
Cadmium	14,900 ug/Kg (1)
Chromium, Total	82,800 ug/Kg (1.2)
Lead	695,000 ug/Kg (5)
Mercury, Total	394 ug/Kg (2)
Selenium	1,110 ug/Kg (2)

**LEGEND**

- = PROPERTY LINE
- = RATEE WELL DRILLING TEST BORING (2/1988)
- = O'BRIEN MONITORING WELL (1/1990 OR 9/2004)
- = E & E SOIL SAMPLE (6/1990)
- = O'BRIEN AND GERE SOIL BORING (2/1993)
- = O'BRIEN AND GERE SOIL BORING (9/1994)
- = O'BRIEN SURFACE SOIL SAMPLE (9/1994)
- = HARDING ESE SOIL BORING (6/2002)
- = AKT PEERLESS TEST PITS (10/2002)
- = AKT PEERLESS SOIL BORING (12/2004)
- = AKT PEERLESS SOIL BORING (02/2005)
- = AKT PEERLESS TEST PIT EXCAVATION (2007)
- = AKT PEERLESS GROUNDWATER MONITORING WELL (2007)
- = AKT PEERLESS SHALLOW SOIL BORING (2007)

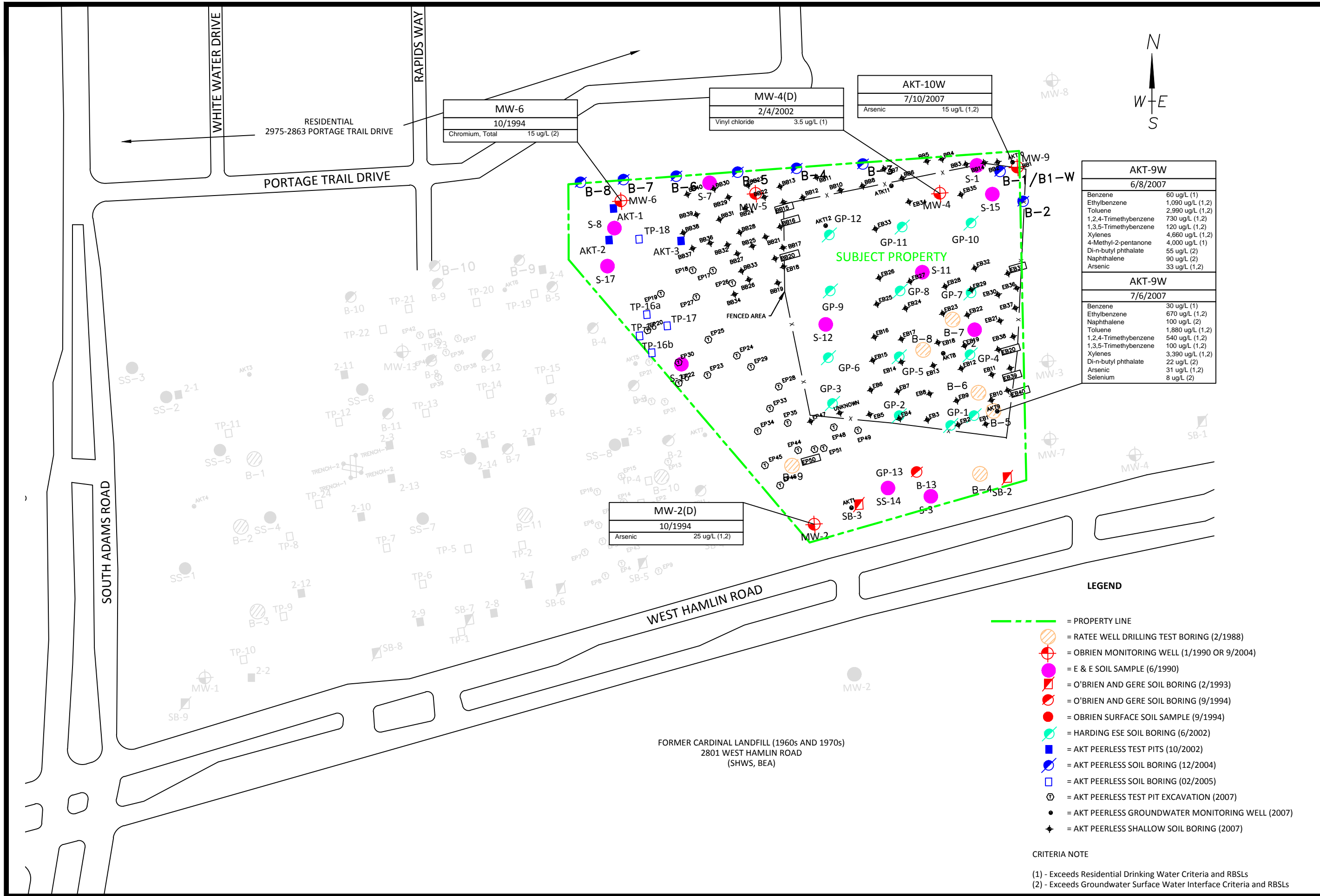
SUBJECT PROPERTY



DRAWN BY: OGO  
DATE: 01/05/2017  
SCALE: 1" = 150'

SITE MAP WITH SOIL RESULTS EXCEEDING MDEQ RCC  
(AKT PEERLESS' 2007 INVESTIGATION - AREA B)  
 PARCEL 15-29-101-023  
 NE CORNER OF HAMLIN & ADAMS ROADS  
 ROCHESTER HILLS, MICHIGAN  
 PROJECT NUMBER : 3679F6-3-26





DRAWN BY: OGO  
DATE: 01/05/2017

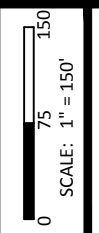


FIGURE 4

**SITE MAP WITH GROUNDWATER RESULTS EXCEEDING MDEQ RCC**

PARCEL 15-29-101-023  
NE CORNER OF HAMLIN & ADAMS ROADS  
ROCHESTER HILLS, MICHIGAN  
PROJECT NUMBER : 3679F6-3-26



www.aktpeerless.com

AKT-9W	
6/8/2007	
Benzene	60 ug/L (1)
Ethylbenzene	1,090 ug/L (1,2)
Toluene	2,990 ug/L (1,2)
1,2,4-Trimethylbenzene	730 ug/L (1,2)
1,3,5-Trimethylbenzene	120 ug/L (1,2)
Xylenes	4,660 ug/L (1,2)
4-Methyl-2-pentanone	4,000 ug/L (1)
Di-n-butyl phthalate	55 ug/L (2)
Naphthalene	90 ug/L (2)
Arsenic	33 ug/L (1,2)

AKT-9W	
7/6/2007	
Benzene	30 ug/L (1)
Ethylbenzene	670 ug/L (1,2)
Naphthalene	100 ug/L (2)
Toluene	1,880 ug/L (1,2)
1,2,4-Trimethylbenzene	540 ug/L (1,2)
1,3,5-Trimethylbenzene	100 ug/L (1,2)
Xylenes	3,390 ug/L (1,2)
Di-n-butyl phthalate	22 ug/L (2)
Arsenic	31 ug/L (1,2)
Selenium	8 ug/L (2)

MW-6	
10/1994	
Chromium, Total	15 ug/L (2)

MW-4(D)	
2/4/2002	
Vinyl chloride	3.5 ug/L (1)

AKT-10W	
7/10/2007	
Arsenic	15 ug/L (1,2)

MW-2(D)	
10/1994	
Arsenic	25 ug/L (1,2)

**LEGEND**

- = PROPERTY LINE
- = RATEE WELL DRILLING TEST BORING (2/1988)
- = O'BRIEN MONITORING WELL (1/1990 OR 9/2004)
- = E & E SOIL SAMPLE (6/1990)
- = O'BRIEN AND GERE SOIL BORING (2/1993)
- = O'BRIEN AND GERE SOIL BORING (9/1994)
- = O'BRIEN SURFACE SOIL SAMPLE (9/1994)
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- = AKT PEERLESS TEST PITS (10/2002)
- = AKT PEERLESS SOIL BORING (12/2004)
- = AKT PEERLESS SOIL BORING (02/2005)
- = AKT PEERLESS TEST PIT EXCAVATION (2007)
- = AKT PEERLESS GROUNDWATER MONITORING WELL (2007)
- = AKT PEERLESS SHALLOW SOIL BORING (2007)

**CRITERIA NOTE**

- (1) - Exceeds Residential Drinking Water Criteria and RBSLs
- (2) - Exceeds Groundwater Surface Water Interface Criteria and RBSLs

FORMER CARDINAL LANDFILL (1960s AND 1970s)  
2801 WEST HAMLIN ROAD  
(SHWS, BEA)