MACOMB COUNTY
BROWNFIELD REDEVELOPMENT AUTHORITY

BROWNFIELD PLAN

PROPOSED LUTZ ROOFING HEADQUARTERS
LOCATED AT HAMLIN ROAD
SHELBY TOWNSHIP, MICHIGAN

March 5, 2024

Approved by Township Board of Trustees: March 20, 2024
Approved by BRA:
Approved by Board of Commissioners

Prepared on Behalf of:

Hamlin-Ryan Properties, LLC
1150 Julie Ann
Leonard, MI 48367
Contact Person: Mr. Bill Borgiel
Telephone: (586) 855-2184

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APPENDICIES

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PROJECT SUMMARY

Project Name:	Proposed Lutz Roofing Headquarters
Applicant/Developer:	Hamlin-Ryan Properties, LLC
Project Location:	The property is located at Parcel ID No. 23-07-30-200-014 located on Hamlin Road, Shelby Township, Michigan in Township three north (T.3N), Range twelve east (R.12E), Section 30, Township of Shelby, Macomb County Michigan 48317 (the "Property").
Type of Eligible Property:	The property is determined to be a "Facility".
Eligible Activities:	Work Plan Exempt Activities, Department Specific Activities, Infrastructure Improvements, Site Preparation, and Preparation of a Brownfield Plan.
Developer Reimbursable Costs:	$1,505,450 (includes eligible activities and 15% contingency)
Length of Developer Reimbursement:	Estimated 30 Years from start of capture
Project Overview:	This project includes demolition, retrofitting and additions onto an existing structure for the expansion of a locally based business. This project will allow Lutz Roofing to continue operations and expand their operations in Shelby Township, both retaining and creating long term jobs in the community.
Estimated Capital Investment:	Approximately $7.3 million (including Hard and Soft Costs)
Estimated Job Creation:	It is estimated that 150 temporary construction jobs and 50 new permanent jobs will be created over the first five years in association with this expansion, in addition to the retaining of approximately 180 existing jobs. In addition, the project will improve property values, catalyze additional investment, and foster the growth of an existing local business.

I. INTRODUCTION AND PURPOSE

To promote the revitalization of environmentally distressed, historic, functionally obsolete and blighted areas within the boundaries of Macomb County ("the County"), the County has established the Macomb County Brownfield Redevelopment Authority (MCBRA) the "Authority" pursuant to the Brownfield Redevelopment Financing Act, Michigan Public Act 381 of 1996, as amended ("Act 381").

The purpose of this Brownfield Plan (the "Plan") is to promote the redevelopment of and investment in the eligible "Brownfield" Property within the County and to facilitate reimbursement of eligible activities at the Brownfield. By facilitating redevelopment of the Brownfield, this Plan is intended to promote economic growth for the benefit of the residents of the County and all taxing units located within and benefited by the Authority.

This Plan is intended to apply to the eligible property identified in this Plan and, to identify and authorize the eligible activities to be reimbursed utilizing tax increment revenues. This Plan is intended to be a living document, which may be modified or amended in accordance with and as necessary to achieve the requirements and purposes of Act 381.

This Plan contains information required by Section 13(2) of Act 381, as amended. The applicable sections of Act 381 are noted throughout the Plan for reference purposes. All words or phrases not defined herein shall have the same meaning as such words and phrases included in Act 381.

I.a. Property Description

The Eligible Property consists of one (1), unaddressed legal parcel totaling approximately 6.406 acres located at the southwest corner of Hamlin and Ryan Roads in Shelby Township, Macomb County, Michigan. The parcel and all tangible personal property located thereon will comprise the eligible property and is referred to herein as the "subject property."

The subject property is located on the Hamlin Road corridor, bounded by Hamlin Road to the north, Ryan Road to the east, a wood recycling business to the south and west. parcel information is outlined below.

Property Address	Parcel ID Number	Approximate Acreage	Eligibility
Unaddressed Parcel	23-07-30-200-014	6.406 acres	Facility

Based on a review of previous environmental investigations conducted on the subject property, the subject property originally operated as a waste disposal site prior to 1940. Based on historical uses of the adjoining properties, the subject property was likely utilized as a mining site for sand and gravel that occurred sometime before the 1930s. Excavated areas located on the subject property were reportedly filled in with a variety of waste materials that include construction fill soils, building debris, incinerator ash, and potentially hazardous materials and petroleum products. Waste disposal activities at the subject property concluded by the mid-1950s, and by 1964, the subject property consisted of a generally level, undeveloped parcel of land covered in low lying vegetation and light tree cover. Construction yard equipment and debris storage from the adjoining properties encroached onto the western and southern boundaries of the subject property during the 1970s and at least through the early 1980s. Since the mid-1960s until approximately 2004, the subject property was not utilized for any significant or obvious purpose. In 2005, an area in the southwest portion of the subject property was cleared of

vegetation and tanker trucks were parked on this area of the subject property. Currently, the subject property consists of a partially grassy, gravelly, and wooded lot that is being utilized for limited truck and roofing materials storage.

I.b. Basis of Eligibility

The subject property is considered "eligible property" as defined by Act 381, Section 2 because it is determined to be a "facility" as defined by Act 381. Furthermore, pursuant to Act 381, Section 2 (tt) the subject property meets the definition of a "qualified facility", meaning that it is part of a larger landfill facility area of 15 or more contiguous acres that is located in a city and that contains, contained, or is adjacent to a landfill, a material recycling facility, or an asphalt plant that is no longer in operation.

Per Section 2(o) for eligible activities on eligible property that is a qualified facility that is not located in a qualified local governmental unit and that is a facility, functionally obsolete, or blighted, the following additional activities are eligible for reimbursement:

- Infrastructure improvements that directly benefit eligible property.
- Site preparation that is not a response activity.

Additional information regarding the subject property's eligibility is included within section II.h and documentation of eligibility is included within Attachment D.

I.c. Project Description

Hamlin-Ryan Properties, LLC (Hamlin-Ryan) a development entity Lutz Roofing, or any affiliate, or such other developer as approved by the Authority, are collectively the project developer ("Developer").

Since 1984, Lutz Roofing has grown into one of the most prominent roofing companies in the country. With over 30 years of experience, Lutz Roofing has consistently been ranked as one of the highest quality achievers in the country by roofing manufacturers. In a trade that has historically had a high turnover rate, Lutz Roofing has had a low turnover rate among their employees which has enabled them to provide consistently high-quality workmanship to its customers.

The general contractor for the project is General Development Company, LLC (GDC). GDC is a full-service real estate developer, landlord, and general contractor providing industrial/commercial and general construction services throughout southeast Michigan. For more than 40 years the GDC team of professionals have been a proven and trusted leader in developing cost-effective facilities with the highest quality standards for internationally recognized corporate leaders including but not limited to both worldwide, regional and local manufacturers. GDC has developed over 13 million square feet of industrial, office, high tech and distribution real estate.

The proposed redevelopment includes the construction of a two-story 34,200 square foot building for office and warehousing space that will serve as the headquarters for Lutz Roofing. Development of the property also includes the construction of a stormwater detention pond, associated parking, a gravel storage lot, and landscaping. The redevelopment will contribute to the health of Shelby Township's economy will redevelop an area at Ryan and Hamlin Roads, that has been blighted for many years, and enable Lutz Roofing to expand their operations which support both local and regional populations. Upon successful completion, the project will

improve property values, catalyze additional investment, and foster the growth of an existing local business.

Site preparation and cleanup activities are anticipated to begin in the spring of 2024. Construction of the building is estimated to start in early spring of 2024 and be completed by spring of 2025. Hamlin-Ryan will invest an estimated $7.3 million in the development and create approximately 150 construction jobs, retain 180 existing jobs, and create 50 permanent jobs over the next five years. The project received site plan approval from Shelby Township Planning Commission on February 26, 2024. Without Brownfield tax increment financing (TIF) the added costs to address the environmental challenges at the site would make the project not financially viable.

Preliminary site plans and renderings are included in Attachment C.

II. GENERAL PROVISIONS

II.a. Description of Costs to be Paid for with Tax Increment Revenues (Section 13 (2)(a))

Tax Increment Financing revenues will be used to reimburse the costs of "Eligible Activities" (as defined by Section 2 of Act 381) as permitted under the Brownfield Redevelopment Financing Act that include:

- Work Plan Exempt Department Specific Activities,
- Department Specific Activities
- Infrastructure Improvements
- Site Preparation Activities
- Preparation and Implementation of a Brownfield Plan

A 15% Contingency have also been calculated and included within this Brownfield Plan. Tax Increment Revenues are also projected to be captured for BRA administrative fees and the Local Brownfield Revolving Fund (LBRF).

A summary of the eligible activities and the estimated cost of each eligible activity intended to be reimbursed with tax increment revenues captured from the subject property are shown in the attached Table 1.

The Eligible Activity cost estimates may increase or decrease depending on the nature and extent of unknown conditions encountered. If the total cost of eligible activities as described within this Plan is not exceeded, line-item categories and costs of eligible activities may differ from what is included within this Plan, to the extent the adjustments do not violate the terms of Act 381. Any costs not authorized by EGLE or MSF/MEDC will become reimbursable costs with local-only tax increment revenues from locally levied millages if revenues are available.

Eligible activity costs may be incurred no more than three months (90 days) prior to this plan's approval by the Macomb County Board of Commissioners.

II.b. Brief Summary of the Eligible Activities that are Proposed (Section 13 (2)(b))

1. Work Plan Exempt Activities include a Phase II Environmental Site Assessment (ESA) which are needed to delineate the contamination on the property.

2. Department Specific Activities include the design and installation of a vapor barrier system; contaminated soil transport and disposal associated with development activities; contaminated water and groundwater management; surface cover; stormwater pond liners; and oversight/sampling/reporting by an environmental professional.

3. Infrastructure Improvements include sidewalk improvements, landscaping, and road improvements that will occur within the public rights-of-way along the Ryan and Hamlin Roads.

4. Site Preparation Activities include temporary construction access/roads, temporary traffic control, temporary erosion control, temporary facilities, geotechnical engineering including the investigation of existing subsurface conditions posed by site conditions, clearing and grubbing, grading, and foundation work to address special soil concerns (see Attachment E).

5. Preparation and implementation of the Brownfield Plan and associated activities (e.g. meetings with MCBRA, Shelby Township, etc.)

6. A 15% contingency of $196,363 is established to address unanticipated environmental and/or other conditions that may be discovered through the implementation of site activities. This excludes the cost of Work Plan Exempt Activities and preparation of the Brownfield Plan.

7. Costs for administrative fees.

The total estimated cost of Eligible Activities subject to reimbursement to the developer from tax increment revenues is $1,309,087 with a potential $196,363 contingency, resulting in a total, not to exceed cost of $1,505,450, unless the Plan is amended and approved by the Township Board of Trustees, the MCBRA, and Macomb County Board of Commissioners.

II.c. Estimate of Captured Taxable Value and Tax Increment Revenues (Section 13 (2)(c))

The costs of eligible activities included in, and authorized by, this Plan will be reimbursed with incremental local tax revenues (as applicable) generated by the subject property and captured by the MCBRA, subject to any limitations and conditions described in this Plan, and the terms of a Reimbursement Agreement between the Developer and the Authority (the “Reimbursement Agreement”).

The initial (“base”) taxable value of the subject property shall be determined by use of the 2023 tax year taxable value, which is $27,150. Tax increment revenue capture will begin when tax increment is generated by redevelopment of the subject property, which is expected to begin in 2025 or when full redevelopment is completed, whichever occurs first. The estimated taxable value of the completed development is $1,800,000. An annual increase in taxable value of 1.5% has been applied to account for future tax increments in this Plan. Table 2 details the estimated available tax increment revenues for each year of the Plan. The actual taxable value will be determined by the authorized assessor.

The MCBRA will capture 2% of total tax increment revenues on an annual basis for administrative fees, which is estimated to be $27,989.

Prior to reimbursement of tax increment revenues to the Developer, payment of administrative fees will occur first.

A summary of the impact to taxing jurisdictions for the life of the Plan is summarized in Section II.h.

II.d. Method of Financing Plan Costs and Description of Advances by the Municipality (Section 13 (2)(d))

Eligible activities will be financed by Hamlin-Ryan Properties, LLC. The Developer will be reimbursed for eligible costs as described in Section II.c and outlined in Table 1. Costs for Eligible Activities funded by Hamlin-Ryan Properties, LLC will be repaid under the Michigan Brownfield Redevelopment Financing Program (Michigan Public Act 381, as amended) with incremental taxes generated by future development of the subject property.

No advances will be made by the MCBRA for this project. All reimbursements authorized under this Plan shall be governed by the Reimbursement Agreement.

II.e. Maximum Amount of Note or Bonded Indebtedness (Section 13 (2)(e))

No note or bonded indebtedness will be incurred by any local unit of government for this project.

II.f. Duration of the Brownfield Plan (Section 13 (2)(f))

Tax increment revenue capture will begin when tax increment is generated by redevelopment of the subject property, which is expected to begin in 2025 or when full redevelopment is completed, whichever occurs first.

In no event shall the duration of the Plan, exceed 35 years following the date of the resolution approving the 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. The subject property will become part of this Plan on the date this Plan is approved by the Macomb County Brownfield Redevelopment Authority.

II.g. Estimated Impact of Tax Increment Financing on Revenues of Taxing Jurisdictions (Section 13 (2)(g))

A summary of the total amounts estimated to be generated and preserved for taxing units during the life of the Plan are outlined below.

Millage	Rate	Developer Reimbursement	Administrative Fee	Taxes Preserved for Taxing Unit	Totals
State Education	6.0000	$ -	$ -	$ 4,887.00	$ 4,887.00
Utica School Operating	18.0000	$ -	$ -	$ 14,661.00	$ 14,661.00
Subtotal	***24.0000***	***$ -***	***$ -***	***$ -***	***$ -***
					$ -
General Fund - Twp.	1.0000	$ 65,420.02	$ 1,335.10	$ 814.50	$ 67,569.63
Fire Fund - Twp.	3.2575	$ 213,105.73	$ 4,349.10	$ 2,653.23	$ 220,108.06
Police Fund - Twp.	4.0424	$ 264,453.90	$ 5,397.02	$ 3,292.53	$ 273,143.46
Pol/Fire Pension	1.0000	$ 65,420.02	$ 1,335.10	$ 814.50	$ 67,569.63
HCMA	0.2070	$ 13,541.94	$ 276.37	$ 168.60	$ 13,986.91
Smart Bus	0.9500	$ 62,149.02	$ 1,268.35	$ 773.78	$ 64,191.15
County Tax	4.3200	$ 282,614.50	$ 5,767.64	$ 3,518.64	$ 291,900.79
College Operating	1.4077	$ 92,091.77	$ 1,879.42	$ 1,146.57	$ 95,117.76
Macomb ISD	4.7100	$ 308,128.31	$ 6,288.33	$ 3,836.30	$ 318,252.94
Veterans Oper.	0.0690	$ 4,513.98	$ 92.12	$ 56.20	$ 4,662.30
Subtotal	***20.9636***	***$ 1,371,439.21***	***$ 27,988.56***	***$ 17,074.85***	***$ 1,416,502.62***
					$ -
Total Capturable Millages	***44.9636***	***$ 1,371,439.21***	***$ 27,988.56***	***$ 17,074.85***	***$ 1,416,502.62***
Non-Capturable Millages	**Rate**			**Taxes Preserved for Taxing Unit**	
Utica School Debt	3.5000			$ 236,493.69	$ 236,493.69
Macomb Zoo Auth.	0.0945			$ 6,385.33	$ 6,385.33
DIA	0.1956			$ 13,216.62	$ 13,216.62
Total Non-Capturable Millages	***3.7901***			***$ 256,095.64***	***$ 256,095.64***

See Table 2 for a complete breakdown of estimated available tax increment revenues and Table 3 for the annual estimated developer reimbursement.

II.h. Legal Description, Property Map, Property Characteristics, and Personal Property (Section 13 (2)(h))

The subject property's legal description is included in Attachment A and a map showing the location and dimensions of the eligible property is included in Attachment B.

The subject property is considered "eligible property" as defined by Act 381, Section 2 because it is determined to be a "facility" as defined by Act 381.

Furthermore, pursuant to Act 381, Section 2 (tt) the subject property meets the definition of a "qualified facility", meaning that it is part of a larger landfill facility area of 15 or more contiguous acres that is located in a city and that contains, contained, or is adjacent to a landfill, a material recycling facility, or an asphalt plant that is no longer in operation. In conjunction with the adjacent parcels, the subject property is part of a larger former landfill facility. In total, the subject and adjacent parcels is approximately 29.77 acres.

The subject property was formerly used for landfilling, which included the presence of buried wastes including construction fill soils, building debris, incinerator ash, and potentially hazardous materials and petroleum products. Soil, groundwater, and soil gas samples collected during a previous site investigation occurring in February 2022 identified the following:

- Arsenic, total chromium, lead, total (calculated), lead, coarse fraction, lead, fine fraction, total mercury, selenium, silver, benzo(a)pyrene, fluoranthene, 2-methylnaphthalene, naphthalene, phenanthrene, benzene, 1,4-dichlorobenzene, isopropyl benzene, trichloroethylene, 1,2,4- trimethylbenzene, 1,3,5-trimethylbenzene, and xylenes were detected in subsurface soils at concentrations exceeding EGLE's Part 201 Generic

Residential Cleanup Criteria (GRCC) and/or Non-Residential Cleanup Criteria (NRCC). Various concentrations in soil were detected above the Drinking Water Protection (DWP), Groundwater Surface Interface Protection (GSIP), and/or Direct Contact (DC) criteria.

- Arsenic and lead were detected in groundwater at the subject property at concentrations exceeding EGLE's Part 201 GRCC and/or NRCC. Various concentrations in groundwater were detected above the DW and Groundwater Surface Interface (GSI) criteria. Total mercury, naphthalene, benzene, 1,4-dichlorobenzene, isopropyl benzene, trichloroethylene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were detected in soil at the subject property exceeding the EGLE September 2020 Non-Residential Volatilization to Indoor Air Pathway (VIAP) Soil Screening Levels, representing a potential vapor intrusion concern.

- Methane was detected at the subject property in soil gas at soil boring locations at concentrations exceeding the EGLE Action Limit of 1.25%. The maximum concentration detected was 40.4% methane. These results represent a potential vapor intrusion concern as well as the potential to create a fire and explosion risk within an enclosed structure.

Based on the identified exceedances of the Part 201 cleanup criteria, the Property meets the definition of a "facility" in accordance with Parts 201 of P.A. 451 of the Michigan Natural Resources Environmental Protection Act (NREPA), as amended. Hamlin-Ryan conducted pre-purchase due diligence in November 2004 which included a Phase I ESA, Phase II ESAs, and a BEA. The BEA provides statutory protection to the new owners and operators of the "facility" against cleanup liability for pre-existing subsurface contamination under Michigan law. However, the non-liable owner and operator has due care obligations as defined under Section 20107a of Part 201.

Personal property may be included as part of the eligible property and associated tax increment capture to the extent that it is taxable personal property. However, personal property is not included within the projections attached to this Plan.

Documentation of characteristics that qualify the property as eligible property is provided in Attachment D.

II.i. Estimates of the Number of Persons Residing on the Property (Section 13 (2)(i))

No displacement of residents or families is expected as part of this project.

II.j. Plan for Relocation of Displaced Residents (Section 13 (2)(j))

No persons will be displaced as result of this development; therefore, a Plan for relocation is not applicable for this Plan.

II.k. Provisions for Relocation Costs (Section 13 (2)(k)

No persons will be displaced as result of this development; therefore, no relocation costs will be incurred.

II.l. Strategy for Compliance with Michigan's Relocation Assistance Law (Section 13 (2)(l)

No persons will be displaced as result of this development; therefore, no relocation assistance strategy is needed for this Plan.

II.m. Other Material that the Authority or Governing Body Considers Pertinent (Section 13 (2)(m))

Construction of the Lutz Roofing Headquarters is consistent with the guiding principles of Shelby Township's future land use (Shelby Township Master Plan 2017). Specifically, these principals are:

- *"Provide an attractive business environment and opportunities for businesses to expand the economic diversity of Shelby Township and contribute to the overall economic strength."*
- *"Foster the revitalization and redevelopment of existing uses or areas which have deteriorated or have become obsolete".*

The Township Board of Trustees, MCBRA, and Macomb County Board of Commissioners as the Governing Bodies, in accordance with the Act, may amend this Plan in order to fund additional eligible activities associated with the Project described herein.

ATTACHMENTS

Attachment A

Legal Description

Attachment A: Legal Description

Unaddressed Parcel, Hamlin Road, Shelby Township, Macomb County, Michigan

Parcel: 23-07-30-200-014

*L 525A T3N R12E SEC 30 COMM AT NE COR SEC 30, TH S 0 DEG 10’ W 1138.50 FT ALG E SEC LINE TO PT OF BEG, TH S 0 DEG 10’ W 660.0 FT ALG SD SEC LINE, TH N 73 DEG 53’ W 499.22 FT, TH N 0 DEG 10’ E 660.0 FT, TH S 73 DEG 53’ E 499.22 FT TO PT OF BEG. 7.26 A.

Attachment B

Eligible Property Location Map

Attachment B
Eligible Property Location Map

Unaddressed Parcel
Hamlin Road, Shelby Township, MI

Attachment C

Plans and Site Renderings

Owner / Developer

GENERAL DEVELOPMENT COMPANY
Two Towne Squarem Suite 850
Southfield, MI 48076

Contact: Teresa Bruce
Ph: (248) 357-3777
Fax: (248) 357-1929

Architect

GAV ASSOCIATES, INC.
24001 Orchard Lake Rd., Suite 180A
Farmington, MI 48336

Contact: Al Valentine
Ph: (248) 985-9101

Civil Engineer

NOWAK & FRAUS ENGINEERS
46777 Woodward Ave.
Pontiac, MI 48342-5032

Contact: Patrick Williams, P.E.
Ph: (248) 332-7931
Fax: (248) 332-8257

Landscape Architect

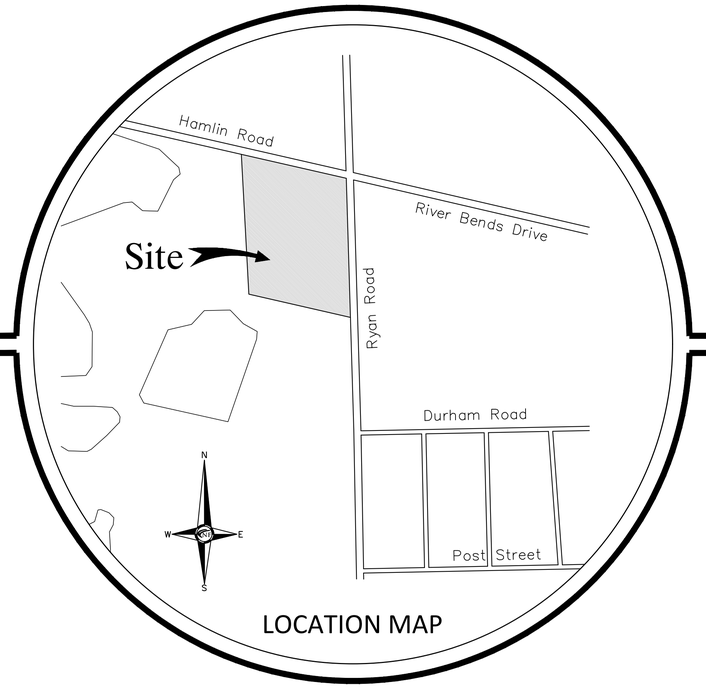
NOWAK & FRAUS ENGINEERS
46777 Woodward Ave.
Pontiac, MI 48342-5032

Contact: George Ostrowski, PLA, LEED AP
Ph: (248) 332-7931
Fax: (248) 332-8257

Shelby Township, Macomb County, Michigan SITE PLAN DOCUMENTS

PART OF THE NORTHEAST 1/4
OF SECTION 30,
T. 3 NORTH, R. 12 EAST

SHEET INDEX



LOCATION MAP

LEGAL DESCRIPTION

PART OF THE N.E. 1/4 OF SECTION 30, T.3N., R.12E., TOWNSHIP OF SHEBLY, MACOMB COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS COMMENCING AT THE E. 1/4 CORNER OF SAID SECTION 30; THENCE N.00°10'00"E. 843.94 FEET ALONG THE EAST LINE OF SAID SECTION 30, ALSO BEING THE CENTERLINE OF RYAN ROAD (66' WD.) TO THE POINT OF BEGINNING; THENCE N.73°53'00"W. 499.22 FEET; THENCE N.00°10'00"E. 659.64 FEET (RECORDED AS 660.00 FEET) TO A POINT ON THE CENTERLINE OF HAMLIN ROAD (66' WD.); THENCE S.73°55'23"E. 499.12 FEET (RECORDED AS S.73°53'00"E. 499.22 FEET) TO A POINT ON THE EAST LINE OF SAID SECTION 30; THENCE S.00°10'00"W. 660.00 FEET ALONG THE EAST LINE OF SAID SECTION 30, ALSO BEING THE CENTERLINE OF RYAN ROAD (66' WD.) TO THE POINT OF BEGINNING.

CONTAINING 316,714 SQUARE FEET OR 7.27 ACRES OF LAND.

REVISIONS:
12-20-23 ISSUED FOR SP REVIEW

Project Name

Lutz Roofing

N & F JOB #D304

Know what's **below** **Call** before you dig.

STATE OF MICHIGAN
PATRICK J. WILLIAMS
ENGINEER
NO. 44351
LICENSED PROFESSIONAL ENGINEER

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
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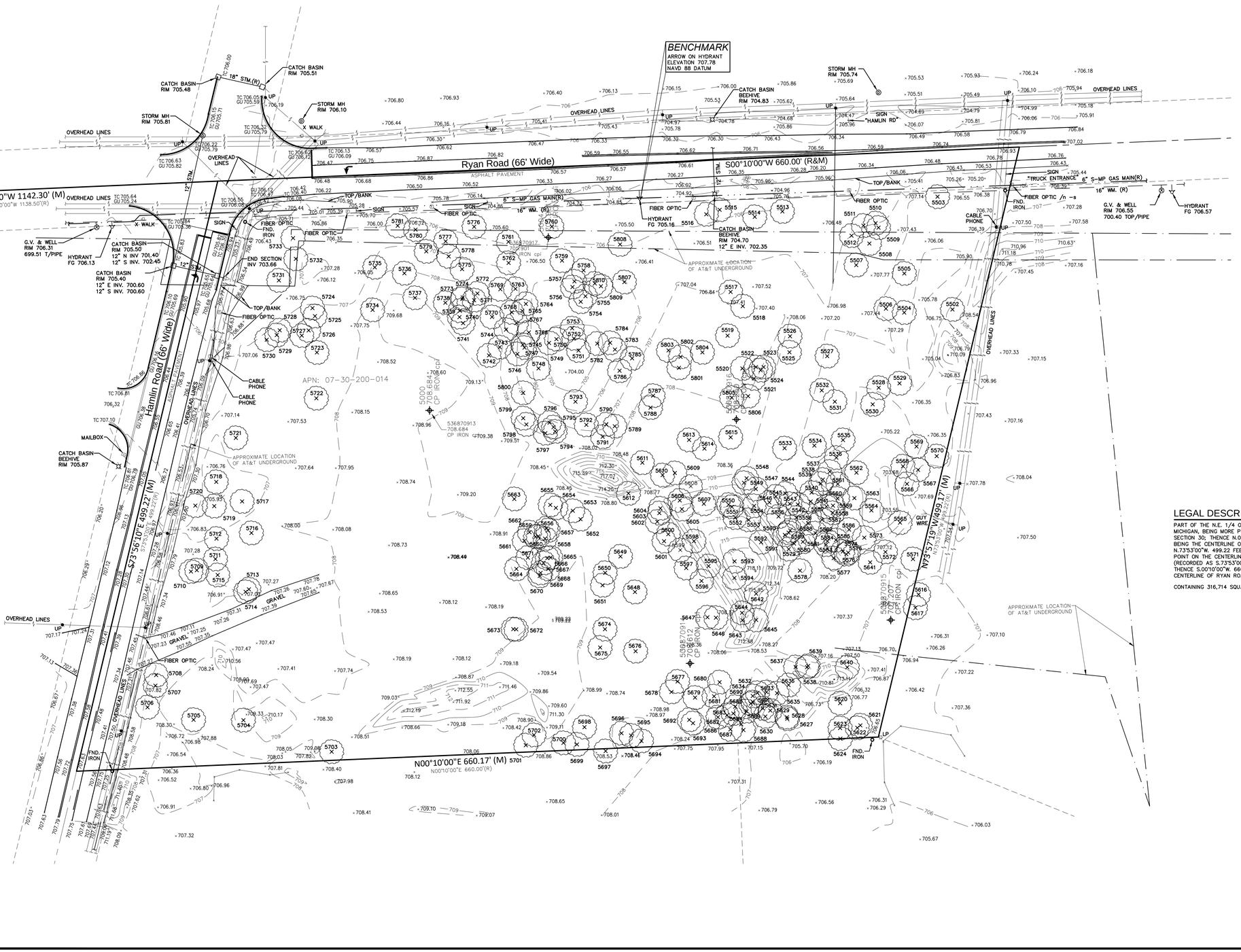

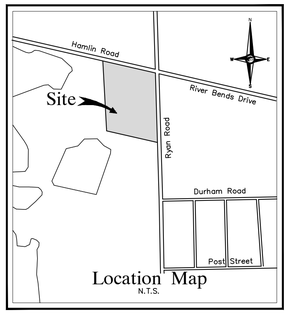

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LEGAL DESCRIPTION

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CONTAINING 316,714 SQUARE FEET OR 7.27 ACRES OF LAND.

MISS DIG / UTILITY DISCLAIMER NOTE

A MISS DIG TICKET NUMBER 2022020800156, PURSUANT TO MICHIGAN PUBLIC ACT 174 WAS ENTERED FOR THE SURVEYED PROPERTY. DUE TO THE EXTENDED REPORTING PERIOD FOR UNDERGROUND FACILITY OWNERS TO PROVIDE THEIR RECORDS, THE SURVEY MAY NOT REFLECT ALL THE UTILITIES AT THE TIME THE SURVEY WAS ISSUED ON 02-14-2022. THE SURVEY ONLY REFLECTS THOSE UTILITIES WHICH COULD BE OBSERVED BY THE SURVEYOR IN THE FIELD OR AS DEPICTED BY THE UTILITY COMPANY RECORDS FURNISH PRIOR TO THE DATE THIS SURVEY WAS ISSUED. **THE CLIENT AND/OR THEIR AUTHORIZED AGENT SHALL VERIFY WITH THE FACILITY OWNERS AND/OR THEIR AUTHORIZED AGENTS, THE COMPLETENESS AND EXACTNESS OF THE UTILITIES LOCATION.**

TOPOGRAPHIC SURVEY NOTES

ALL ELEVATIONS ARE EXISTING ELEVATIONS, UNLESS OTHERWISE NOTED.

UTILITY LOCATIONS WERE OBTAINED FROM MUNICIPAL OFFICIALS AND RECORDS OF UTILITY COMPANIES, AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, OR EXACTNESS OF LOCATION.

THIS SURVEY MAY NOT SHOW ALL EASEMENTS OF RECORD UNLESS AN UPDATED TITLE POLICY IS FURNISHED TO THE SURVEYOR BY THE OWNER.

LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- HYDRANT, GATE VALVE — EXISTING SAN. CLEAN OUT
- EXISTING WATER MAIN
- MANHOLE, CATCH BASIN — EXISTING STORM SEWER
- EX. R.Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE, GUY POLE, GUY WIRE — OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN

SEAL

STATE OF MICHIGAN
PATRICK J. WILLIAMS
LICENSED PROFESSIONAL ENGINEER
ENGINEER NO. 44351

PROJECT
Southwest Corner of
Hamlin rd. & Ryan Rd.

CLIENT
Lutz Roofing
4721 22 Mile Road
Utica, MI 48317

PROJECT LOCATION
Part of the Northeast $\frac{1}{4}$
of Section 30
T.3N., R.12E.,
Shelby Township,
Macomb County, Michigan

SHEET
Boundary, Topographic &
Tree Survey

Know what's **below** **Call** before you dig.

DATE	ISSUED/REVISED
12-20-23	ISSUED FOR SP REVIEW

DRAWN BY: M. Hani
DESIGNED BY:
APPROVED BY: K. Navaroli
DATE: December 20, 2023
SCALE: 1" = 30'
30 15 0 15 30 45

NFE JOB NO. **D304-01**
SHEET NO. **SP01**

Tree Survey for SW Corner of Hamlin Rd. and Ryan Rd., Shelby Twp.
2/10/2022

Tag No.	Scientific Name	Common Name	Diameter at Breast Height (DBH) Trunk 1	Trunk 2	Trunk 3	Condition (1)	Removable (2)
5502	Populus deltoides	Cottonwood	27.5	27.0	21.2	Fair	X
5503	Populus deltoides	Cottonwood	8.6			Fair	X
5504	Populus deltoides	Cottonwood	13.5			Fair	X
5505	Ulmus pumila	Siberian Elm	6.2			Fair	X
5506	Acer negundo	Box-elder	6.2			Fair	
5507	Ulmus pumila	Siberian Elm	7.7			Fair	X
5508	Acer negundo	Box-elder	6.5			Fair	
5509	Acer negundo	Box-elder	6.5			Fair	
5510	Ulmus pumila	Siberian Elm	7.2			Fair	X
5511	Ulmus pumila	Siberian Elm	6.8			Fair	X
5512	Ulmus pumila	Siberian Elm	6.2			Fair	X
5513	Populus deltoides	Cottonwood	30.0			Fair	X
5514	Populus deltoides	Cottonwood	13.7	12.5		Fair	X
5515	Populus deltoides	Cottonwood	14.8			Fair	X
5516	Populus deltoides	Cottonwood	19.0	16.0	13.0	Fair	X
5517	Ulmus pumila	Siberian Elm	8.9			Fair	X
5518	Ailanthus altissima	Tree of heaven	6.1			Fair	
5519	Gleditsia triacanthos	Honey Locust	20.7			Good	
5520	Populus deltoides	Cottonwood	20.2			Fair	X
5521	Populus deltoides	Cottonwood	12.1			Very Poor	X
5522	Populus deltoides	Cottonwood	13.5			Fair	X
5523	Populus deltoides	Cottonwood	17.3			Fair	X
5524	Populus deltoides	Cottonwood	11.8			Fair	X
5525	Ailanthus altissima	Tree of heaven	6.3			Fair	
5526	Ulmus pumila	Siberian Elm	6.1			Fair	X
5527	Populus deltoides	Cottonwood	25.3			Fair	X
5528	Juglans nigra	Black Walnut	8.5			Fair	
5529	Juglans nigra	Black Walnut	6.6			Fair	
5530	Gleditsia triacanthos	Honey Locust	4.2			Good	
5531	Ailanthus altissima	Tree of heaven	8.9			Fair	
5532	Ailanthus altissima	Tree of heaven	8.2	6.6		Fair	
5533	Ulmus pumila	Siberian Elm	28.4			Poor	X
5534	Ailanthus altissima	Tree of heaven	6.6			Fair	
5535	Ulmus pumila	Siberian Elm	12.8	12.1		Fair	X
5536	Ailanthus altissima	Tree of heaven	7.4			Fair	
5537	Ailanthus altissima	Tree of heaven	8.1			Fair	
5538	Ailanthus altissima	Tree of heaven	6.5			Fair	
5539	Ailanthus altissima	Tree of heaven	8.4			Fair	
5540	Ailanthus altissima	Tree of heaven	8.2			Fair	
5541	Ailanthus altissima	Tree of heaven	8.4			Fair	
5542	Ailanthus altissima	Tree of heaven	9.5			Fair	
5543	Ailanthus altissima	Tree of heaven	9.8			Fair	
5544	Ailanthus altissima	Tree of heaven	6.5			Fair	
5545	Ailanthus altissima	Tree of heaven	6.3			Fair	
5546	Ailanthus altissima	Tree of heaven	6.2			Fair	
5547	Ailanthus altissima	Tree of heaven	8.1			Fair	
5548	Ailanthus altissima	Tree of heaven	6.3			Fair	
5549	Ailanthus altissima	Tree of heaven	7.0			Fair	

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Tag No.	Scientific Name	Common Name	Diameter at Breast Height (DBH) Trunk 1	Trunk 2	Trunk 3	Condition (1)	Removable (2)
5550	Ailanthus altissima	Tree of heaven	6.2			Fair	
5551	Ailanthus altissima	Tree of heaven	6.5			Fair	
5552	Ailanthus altissima	Tree of heaven	6.3			Fair	
5553	Ailanthus altissima	Tree of heaven	7.1			Fair	
5554	Ailanthus altissima	Tree of heaven	7.8			Fair	
5555	Ailanthus altissima	Tree of heaven	8.1			Fair	
5556	Ailanthus altissima	Tree of heaven	8.6			Fair	
5557	Ailanthus altissima	Tree of heaven	8.7			Fair	
5558	Ailanthus altissima	Tree of heaven	8.5			Fair	
5559	Ailanthus altissima	Tree of heaven	9.5			Fair	
5560	Ailanthus altissima	Tree of heaven	9.1			Fair	
5561	Ailanthus altissima	Tree of heaven	9.6			Fair	
5562	Ailanthus altissima	Tree of heaven	9.7			Fair	
5563	Ailanthus altissima	Tree of heaven	7.3			Fair	
5564	Ulmus pumila	Siberian Elm	16.9	15.8		Fair	X
5565	Populus deltoides	Cottonwood	20.8			Fair	X
5566	Populus deltoides	Cottonwood	25.6			Fair	X
5567	Populus deltoides	Cottonwood	19.3			Fair	X
5568	Morus alba	White Mulberry	22.5			Fair	
5569	Populus deltoides	Cottonwood	25.9			Fair	X
5570	Populus deltoides	Cottonwood	23.4			Fair	X
5571	Ailanthus altissima	Tree of heaven	8.6			Fair	
5572	Ailanthus altissima	Tree of heaven	6.5			Fair	
5573	Ailanthus altissima	Tree of heaven	17.0			Fair	
5574	Ailanthus altissima	Tree of heaven	6.0			Fair	
5575	Populus deltoides	Cottonwood	19.3	13.2		Fair	X
5576	Ailanthus altissima	Tree of heaven	6.0			Fair	
5577	Ailanthus altissima	Tree of heaven	12.3			Fair	
5578	Ailanthus altissima	Tree of heaven	11.6			Fair	
5579	Ailanthus altissima	Tree of heaven	13.0	11.1		Poor	
5580	Ailanthus altissima	Tree of heaven	9.0			Fair	
5581	Ailanthus altissima	Tree of heaven	9.2			Fair	
5582	Ailanthus altissima	Tree of heaven	8.9			Fair	
5583	Ailanthus altissima	Tree of heaven	8.5			Fair	
5584	Ailanthus altissima	Tree of heaven	9.3			Fair	
5585	Ailanthus altissima	Tree of heaven	8.2			Fair	
5586	Ailanthus altissima	Tree of heaven	10.5			Fair	
5587	Ailanthus altissima	Tree of heaven	11.8			Fair	
5588	Ailanthus altissima	Tree of heaven	8.1			Fair	
5589	Ailanthus altissima	Tree of heaven	8.0			Fair	
5590	Ailanthus altissima	Tree of heaven	8.4			Fair	
5591	Ailanthus altissima	Tree of heaven	7.8			Fair	
5592	Ailanthus altissima	Tree of heaven	6.3			Fair	
5593	Ailanthus altissima	Tree of heaven	10.4	9.2	8.6	Fair	
5594	Ailanthus altissima	Tree of heaven	7.3			Fair	
5595	Ailanthus altissima	Tree of heaven	6.8			Fair	
5596	Ailanthus altissima	Tree of heaven	7.7			Fair	
5597	Ailanthus altissima	Tree of heaven	8.9			Fair	
5598	Ailanthus altissima	Tree of heaven	9.6			Fair	

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Tag No.	Scientific Name	Common Name	Diameter at Breast Height (DBH) Trunk 1	Trunk 2	Trunk 3	Condition (1)	Removable (2)
5599	Acer negundo	Box-elder	7.0			Fair	
5600	Acer negundo	Box-elder	11.0			Fair	
5601	Acer negundo	Box-elder	7.1			Fair	
5602	Acer negundo	Box-elder	7.9			Fair	
5603	Acer negundo	Box-elder	7.5	7.2		Fair	
5604	Acer negundo	Box-elder	6.8			Fair	
5605	Acer negundo	Box-elder	7.2			Fair	
5606	Acer negundo	Box-elder	11.8	8.3		Fair	
5607	Acer negundo	Box-elder	10.0	7.0		Fair	
5608	Acer negundo	Box-elder	7.5			Fair	
5609	Acer negundo	Box-elder	10.1			Fair	
5610	Acer negundo	Box-elder	7.2			Fair	
5611	Acer negundo	Box-elder	8.6	7.7		Fair	
5612	Acer negundo	Box-elder	13.6	11.9		Fair	
5613	Acer negundo	Box-elder	7.5			Fair	
5614	Populus deltoides	Cottonwood	15.8	13.9	12.6	Fair	X
5615	Populus deltoides	Cottonwood	19.1	18.9	15.4	Fair	X
5616	Ailanthus altissima	Tree of heaven	7.2			Fair	
5617	Ailanthus altissima	Tree of heaven	17.2			Fair	
5618	tag not used					Fair	
5619	tag not used					Fair	
5620	Morus alba	White Mulberry	15.7	11.2		Fair	
5621	Populus deltoides	Cottonwood	28.9			Fair	X
5622	Populus deltoides	Cottonwood	30.0			Fair	X
5623	Populus deltoides	Cottonwood	27.1			Fair	X
5624	Populus deltoides	Cottonwood	18.3			Poor	X
5625	tag not used					Fair	
5626	tag not used					Fair	
5627	Ailanthus altissima	Tree of heaven	7.9			Fair	
5628	Ailanthus altissima	Tree of heaven	7.7			Fair	
5629	Ailanthus altissima	Tree of heaven	6.1			Fair	
5630	Ailanthus altissima	Tree of heaven	8.7			Fair	
5631	Ailanthus altissima	Tree of heaven	10.5			Fair	
5632	Ailanthus altissima	Tree of heaven	7.6			Fair	
5633	Ailanthus altissima	Tree of heaven	8.7			Fair	
5634	Ailanthus altissima	Tree of heaven	6.6			Fair	
5635	Ailanthus altissima	Tree of heaven	7.2			Fair	
5636	Ailanthus altissima	Tree of heaven	7.8			Fair	
5637	Ailanthus altissima	Tree of heaven	10.0			Fair	
5638	Ailanthus altissima	Tree of heaven	9.2			Fair	
5639	Ailanthus altissima	Tree of heaven	10.2			Fair	
5640	Ailanthus altissima	Tree of heaven	11.0			Fair	
5641	Ailanthus altissima	Tree of heaven	12.6			Fair	
5642	Ailanthus altissima	Tree of heaven	7.0			Fair	
5643	Ailanthus altissima	Tree of heaven	8.4			Fair	
5644	Ailanthus altissima	Tree of heaven	6.5			Fair	
5645	Ailanthus altissima	Tree of heaven	7.7	7.5		Fair	
5646	Ailanthus altissima	Tree of heaven	6.5			Fair	
5647	Ailanthus altissima	Tree of heaven	7.0			Fair	

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Tag No.	Scientific Name	Common Name	Diameter at Breast Height (DBH) Trunk 1	Trunk 2	Trunk 3	Condition (1)	Removable (2)
5648	Acer negundo	Box-elder	7.8			Fair	
5649	Acer negundo	Box-elder	8.1			Fair	
5650	Acer negundo	Box-elder	8.5	7.6		Fair	
5651	Acer negundo	Box-elder	8.2			Fair	
5652	Acer negundo	Box-elder	7.5			Fair	
5653	Acer negundo	Box-elder	16.2			Fair	
5654	Acer negundo	Box-elder	11.2			Fair	
5655	Acer negundo	Box-elder	9.8			Fair	
5656	Populus deltoides	Cottonwood	8.8			Fair	X
5657	Populus deltoides	Cottonwood	9.7			Fair	X
5658	Populus deltoides	Cottonwood	6.3			Fair	X
5659	Populus deltoides	Cottonwood	7.3			Fair	X
5660	Populus deltoides	Cottonwood	6.3			Fair	X
5661	Populus deltoides	Cottonwood	7.2			Fair	X
5662	Populus deltoides	Cottonwood	8.6			Fair	X
5663	Acer negundo	Box-elder	9.0			Fair	
5664	Populus deltoides	Cottonwood	12.9			Fair	X
5665	Populus deltoides	Cottonwood	8.1			Fair	X
5666	Populus deltoides	Cottonwood	12.1			Fair	X
5667	Populus deltoides	Cottonwood	7.7			Fair	X
5668	Populus deltoides	Cottonwood	7.9			Fair	X
5669	Populus deltoides	Cottonwood	6.5			Poor	X
5670	Populus deltoides	Cottonwood	9.7			Fair	X
5671	Populus deltoides	Cottonwood	6.3			Fair	X
5672	Populus deltoides	Cottonwood	7.6			Fair	X
5673	Populus deltoides	Cottonwood	16.7			Fair	X
5674	Acer negundo	Box-elder	8.0	6.0		Fair	
5675	Acer negundo	Box-elder	7.5	6.0		Fair	
5676	Populus deltoides	Cottonwood	25.5			Fair	X
5677	Populus deltoides	Cottonwood	13.0			Fair	X
5678	Populus deltoides	Cottonwood	10.3			Fair	X
5679	Ailanthus altissima	Tree of heaven	7.3	6.9		Fair	
5680	Ulmus pumila	Siberian Elm	6.2			Fair	X
5681	Acer negundo	Box-elder	6.0			Poor	
5682	Acer negundo	Box-elder	9.7			Fair	
5683	Ailanthus altissima	Tree of heaven	6.3			Fair	
5684	Ailanthus altissima	Tree of heaven	6.7			Fair	
5685	Ailanthus altissima	Tree of heaven	7.8			Fair	
5686	Ailanthus altissima	Tree of heaven	7.2			Fair	
5687	Ailanthus altissima	Tree of heaven	6.5			Fair	
5688	Ailanthus altissima	Tree of heaven	6.9			Fair	
5689	Ailanthus altissima	Tree of heaven	9.3			Fair	
5690	Ailanthus altissima	Tree of heaven	7.6			Fair	
5691	Ailanthus altissima	Tree of heaven	6.0			Fair	
5692	Populus deltoides	Cottonwood	9.0			Poor	X
5693	Populus deltoides	Cottonwood	21.3	18.8		Fair	X
5694	Ulmus pumila	Siberian Elm	14.9	7.8		Fair	X
5695	Ulmus pumila	Siberian Elm	13.1			Fair	X

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Tag No.	Scientific Name	Common Name	Diameter at Breast Height (DBH) Trunk 1	Trunk 2	Trunk 3	Condition (1)	Removable (2)
5696	Ulmus pumila	Siberian Elm	8.1			Fair	X
5697	Ulmus pumila	Siberian Elm	11.2			Poor	X
5698	Ulmus pumila	Siberian Elm	13.3	10.2		Fair	X
5699	Ulmus pumila	Siberian Elm	8.1	6.0		Fair	X
5700	Ulmus pumila	Siberian Elm	10.5			Fair	X
5701	Ulmus pumila	Siberian Elm	11.7			Fair	X
5702	Acer negundo	Box-elder	6.3			Fair	
5703	Ulmus pumila	Siberian Elm	9.3			Fair	X
5704	Ulmus pumila	Siberian Elm	6.0			Fair	X
5705	Ulmus pumila	Siberian Elm	11.7			Fair	X
5706	Ulmus pumila	Siberian Elm	10.3			Fair	X
5707	Ulmus pumila	Siberian Elm	8.0			Fair	X
5708	Ulmus pumila	Siberian Elm	9.1	8.0		Fair	X
5709	Populus deltoides	Cottonwood	9.6			Fair	X
5710	Populus deltoides	Cottonwood	6.3			Fair	X
5711	Populus deltoides	Cottonwood	6.2			Fair	X
5712	Populus deltoides	Cottonwood	11.2			Fair	X
5713	Populus deltoides	Cottonwood	6.6			Fair	X
5714	Populus deltoides	Cottonwood	6.2			Fair	X
5715	Populus deltoides	Cottonwood	6.3			Fair	X
5716	Populus deltoides	Cottonwood	7.3			Fair	X
5717	Ulmus pumila	Siberian Elm	19.4	17.3	10.9	Poor	X
5718	Ulmus pumila	Siberian Elm	11.2	6.0		Fair	X
5719	Ulmus pumila	Siberian Elm	10.0	8.9		Fair	X
5720	Acer negundo	Box-elder	10.0			Fair	
5721	Ulmus pumila	Siberian Elm	15.5	13.5		Fair	X
5722	Populus deltoides	Cottonwood	6.4	6.0		Fair	X
5723	Populus deltoides	Cottonwood	6.0			Fair	X
5724	Populus deltoides	Cottonwood	11.4			Fair	X
5725	Populus deltoides	Cottonwood	11.0			Fair	X
5726	Populus deltoides	Cottonwood	7.7			Fair	X
5727	Populus deltoides	Cottonwood	8.1			Fair	X
5728	Ulmus pumila	Siberian Elm	7.6			Fair	X
5729	Ulmus pumila	Siberian Elm	9.5			Fair	X
5730	Populus deltoides	Cottonwood	12.5			Fair	X
5731	Ulmus pumila	Siberian Elm	23.0			Fair	X
5732	Acer negundo	Box-elder	8.7	8.6	8.5	Fair	
5733	Acer negundo	Box-elder	13.0	6.9		Poor	
5734	Populus deltoides	Cottonwood	12.6			Fair	X
5735	Acer negundo	Box-elder	6.3			Fair	
5736	Acer negundo	Box-elder	7.3			Fair	
5737	Populus deltoides	Cottonwood	12.8	10.5		Fair	X
5738	Populus deltoides	Cottonwood	10.9			Fair	X
5739	Populus deltoides	Cottonwood	8.6			Fair	X
5740	Populus deltoides	Cottonwood	10.9			Fair	X
5741	Populus deltoides	Cottonwood	10.3			Fair	X
5742	Populus deltoides	Cottonwood	13.3			Fair	X
5743	Populus deltoides	Cottonwood	8.9			Fair	X
5744	Populus deltoides	Cottonwood	10.6	8.5		Fair	X
5745	Acer negundo	Box-elder	8.1			Fair	
5746	Acer negundo	Box-elder	10.1			Fair	

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Tag No.	Scientific Name	Common Name	Diameter at Breast Height (DBH) Trunk 1	Trunk 2	Trunk 3	Condition (1)	Removable (2)
5747	Acer negundo	Box-elder	6.4			Fair	
5748	Acer negundo	Box-elder	10.4			Fair	
5749	Acer negundo	Box-elder	7.1			Fair	
5750	Acer negundo	Box-elder	7.0			Fair	
5751	Acer negundo	Box-elder	7.1			Fair	
5752	Acer negundo	Box-elder	9.0			Fair	
5753	Acer negundo	Box-elder	10.1			Fair	
5754	Ailanthus altissima	Tree of heaven	6.1			Fair	
5755	Ailanthus altissima	Tree of heaven	6.5			Fair	
5756	Ailanthus altissima	Tree of heaven	6.4			Fair	
5757	Ailanthus altissima	Tree of heaven	8.6			Fair	
5758	Populus deltoides	Cottonwood	9.0			Fair	X
5759	Ulmus pumila	Siberian Elm	8.2			Fair	X
5760	Ulmus pumila	Siberian Elm	7.0			Fair	X
5761	Ulmus pumila	Siberian Elm	7.8			Fair	X
5762	Ulmus pumila	Siberian Elm	6.2			Fair	X
5763	Acer negundo	Box-elder	7.6	7.2		Fair	
5764	Acer negundo	Box-elder	7.5			Fair	
5765	Acer negundo	Box-elder	7.6			Fair	
5766	Acer negundo	Box-elder	8.5			Fair	
5767	Acer negundo	Box-elder	6.6			Fair	
5768	Acer negundo	Box-elder	7.2			Fair	
5769	Acer negundo	Box-elder	8.4			Fair	
5770	Acer negundo	Box-elder	9.1			Fair	
5771	Populus deltoides	Cottonwood	15.3			Fair	X
5772	Acer negundo	Box-elder	6.0			Fair	
5773	Populus deltoides	Cottonwood	8.2			Fair	X
5774	Populus deltoides	Cottonwood	7.7			Fair	X
5775	Populus deltoides	Cottonwood	9.3	8.8		Fair	X
5776	Acer negundo	Box-elder	17.5			Fair	
5777	Acer negundo	Box-elder	7.2			Fair	
5778	Acer negundo	Box-elder	6.1			Fair	
5779	Acer negundo	Box-elder	13.4			Fair	
5780	Ulmus pumila	Siberian Elm	6.3			Fair	X
5781	Ulmus pumila	Siberian Elm	6.8			Fair	X
5782	Acer negundo	Box-elder	7.6			Fair	
5783	Ulmus pumila	Siberian Elm	36.7			Poor	X
5784	Acer negundo	Box-elder	7.0			Fair	
5785	Acer negundo	Box-elder	12.5	11.5		Fair	
5786	Acer negundo	Box-elder	10.2			Fair	
5787	Acer negundo	Box-elder	8.2			Fair	
5788	Acer negundo	Box-elder	12.3			Fair	
5789	Acer negundo	Box-elder	8.4			Fair	
5790	Acer negundo	Box-elder	10.2	9.1		Fair	
5791	Acer negundo	Box-elder	19.4			Fair	
5792	Acer negundo	Box-elder	8.0	7.1		Fair	
5793	Acer negundo	Box-elder	23.7			Fair	
5794	Acer negundo	Box-elder	6.5			Fair	
5795	Acer negundo	Box-elder	14.7			Fair	
5796	Acer negundo	Box-elder	12.2			Fair	
5797	Acer negundo	Box-elder	9.5			Fair	

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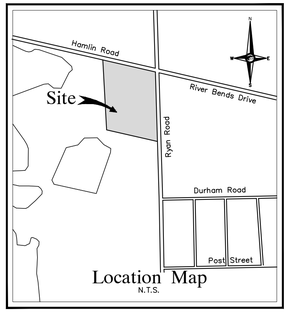
Tag No.	Scientific Name	Common Name	Diameter at Breast Height (DBH) Trunk 1	Trunk 2	Trunk 3	Condition (1)	Removable (2)
5798	Acer negundo	Box-elder	6,8			Fair	
5799	Acer negundo	Box-elder	11.5			Fair	
5800	Acer negundo	Box-elder	13.0	11.8	9.2	Fair	
5801	Acer negundo	Box-elder	10.6			Fair	
5802	Acer negundo	Box-elder	8.6			Fair	
5803	Acer negundo	Box-elder	12.3	7.8		Fair	
5804	Acer negundo	Box-elder	7.4			Fair	
5805	Populus deltoides	Cottonwood	18.7	11.5		Fair	X
5806	Ailanthus altissima	Tree of heaven	11.0	7.8		Fair	
5807	Ulmus pumila	Siberian Elm	19.8			Fair	X
5808	Ulmus pumila	Siberian Elm	24.6	11.0		Fair	X
5809	Ailanthus altissima	Tree of heaven	6.5			Fair	
5810	Ailanthus altissima	Tree of heaven	6.1			Fair	

(1) Condition as per ISA Health Ratings, 9th Edition.
(2) Removable as per Shelby Township Ordinance Sec. 74-31-Definitions.



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LAND PLANNERS
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46777 WOODWARD AVE.
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TEL. (248) 332-7931
FAX. (248) 332-8257
WWW.NOWAKFRAUS.COM

SEAL
STATE OF MICHIGAN
PATRICK J. WILLIAMS
ENGINEER NO. 44351
LICENSED PROFESSIONAL ENGINEER

PROJECT
Southwest Corner of
Hamlin rd. & Ryan Rd.

CLIENT
Lutz Roofing
4721 22 Mile Road
Utica, MI 48317

PROJECT LOCATION
Part of the Northeast $\frac{1}{4}$ of Section 30
T.3N., R.12E.,
Shelby Township,
Macomb County, Michigan

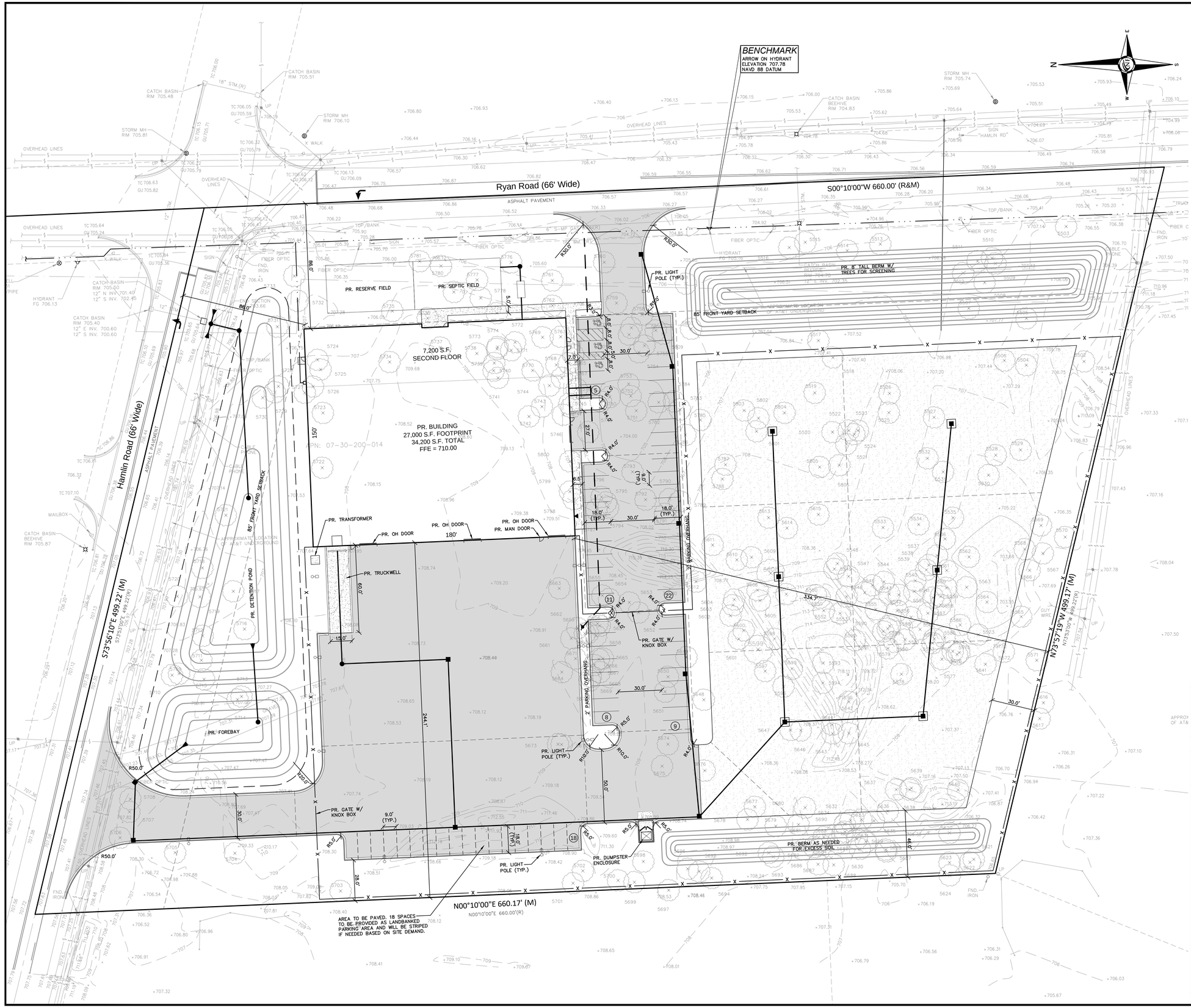
SHEET
List of Surveyed Trees

Know what's below Call before you dig.

DATE ISSUED/REVISED
12-20-23 ISSUED FOR SP REVIEW

DRAWN BY:
M. Hani
DESIGNED BY:
APPROVED BY:
K. Navaroli
DATE:
December 20, 2023
SCALE: 1" = 30'
30 15 0 15 30 45

NFE JOB NO. D304-01
SHEET NO. SP01a



SITE DATA

SITE AREA:
GROSS: 316,926 S.F. OR 7.28 ACRES.
NET: 279,803 S.F. OR 6.42 ACRES.

ZONING: LM (LIGHT MANUFACTURING)

SETBACKS:	REQUIRED	PROVIDED
FRONT (EAST)	85'	86.0'
FRONT (NORTH)	85'	86.0'
SIDE (SOUTH)	0'	334.7'
SIDE (WEST)	0'	244.1'

MAXIMUM BUILDING HEIGHT: 35 FEET

PR. BUILDING: 2-STORY = 34,200 S.F. TOTAL
7,200 S.F. OFFICE PER FLOOR = 14,400 S.F. TOTAL
19,800 S.F. WAREHOUSE (FIRST FLOOR ONLY)

PARKING REQUIRED:
OFFICE: 1 SPACE PER 300 S.F.
14,400 S.F. / 300 S.F. = 48 SPACES
WAREHOUSE: 1 SPACE PER 800 S.F.
19,800 S.F. / 800 S.F. = 25 SPACES REQUIRED

TOTAL REQUIRED: 73 SPACES

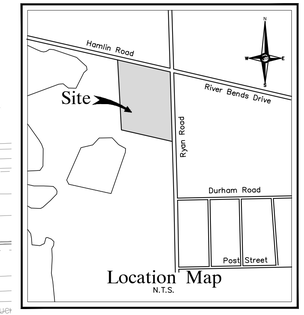
PARKING PROVIDED: 55 SPACES
INCLUDING: 3 BARRIER-FREE SPACES
**ADDITIONAL 18 SPACES TO BE LANDBANKED

PAVING LEGEND

- PROPOSED CONCRETE PAVEMENT
- PROPOSED ASPHALT PAVEMENT

LEGEND

- EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- PR. SANITARY SEWER
- PR. WATER MAIN
- PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- PROPOSED LIGHT POLE
- TC 600.00 — PR. TOP OF CURB ELEVATION
- GU 600.00 — PR. GUTTER ELEVATION
- TW 600.00 — PR. TOP OF WALK ELEVATION
- TP 600.00 — PR. TOP OF PVMT. ELEVATION
- FG 600.00 — FINISH GRADE ELEVATION



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of Section 30
T.3N., R.12E.,
Shelby Township,
Macomb County, Michigan

SHEET
Dimensional Site Plan

Know what's below
Call before you dig.

DATE	ISSUED/REVISED
12-20-23	ISSUED FOR SP REVIEW

DRAWN BY:
J. Lawrey

DESIGNED BY:
A. Eizember

APPROVED BY:
P. Williams

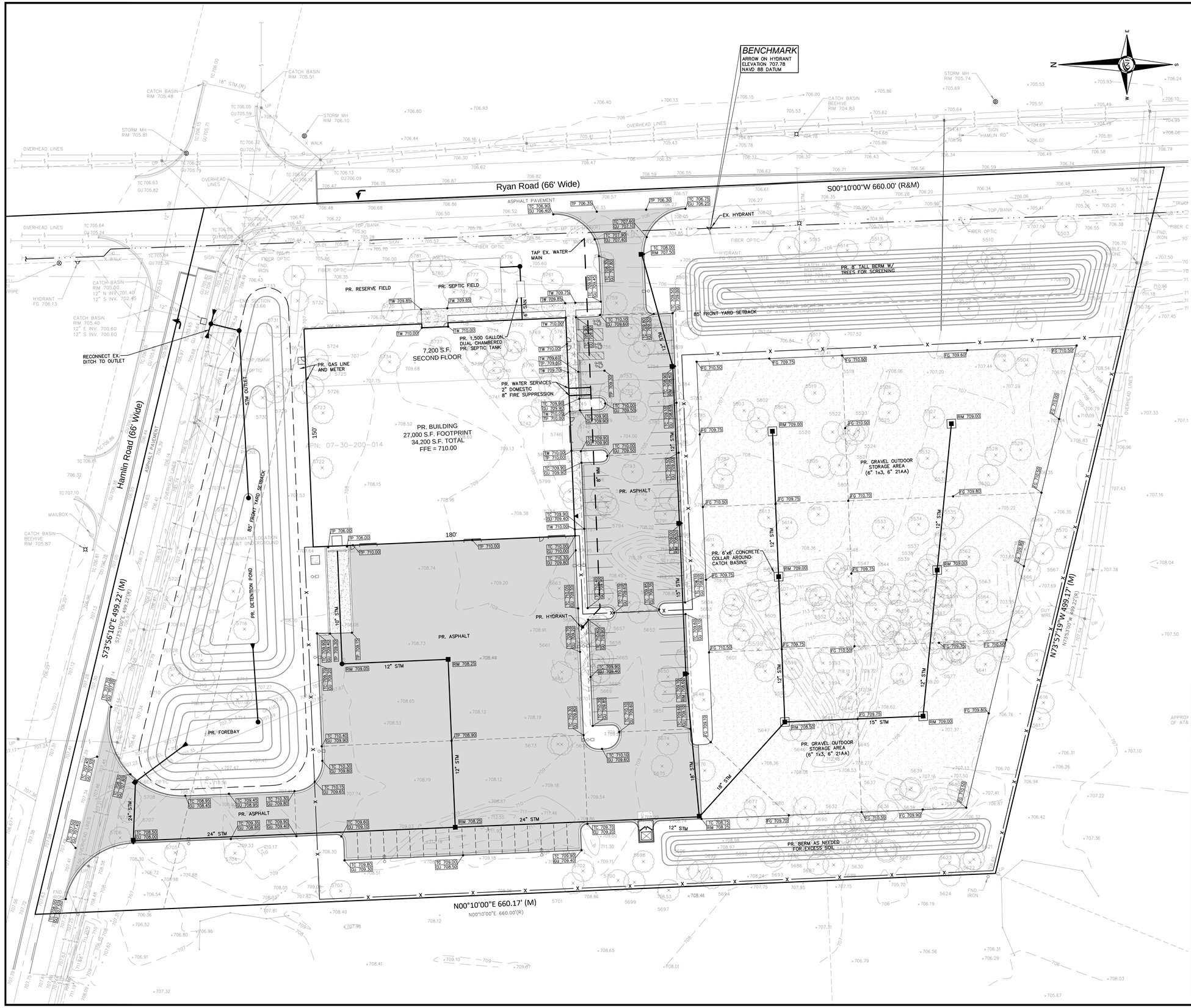
DATE:
December 20, 2023

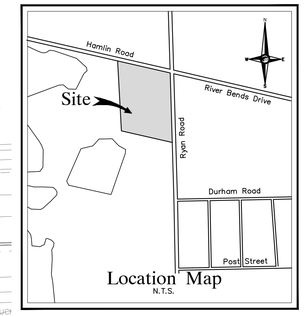
SCALE: 1" = 30'

30 15 0 15 30 45

NFE JOB NO.
D304-01

SHEET NO.
SP02





PAVING LEGEND

- PROPOSED CONCRETE PAVEMENT
- PROPOSED ASPHALT PAVEMENT

LEGEND

- MANHOLE — EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- HYDRANT, GATE VALVE — EXISTING WATERMAIN
- MANHOLE, CATCH BASIN — EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE, GUY POLE, GUY WIRE — OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O., MANHOLE, HYDRANT, GATE VALVE — PR. SANITARY SEWER
- PR. WATER MAIN
- INLET, C.B., MANHOLE — PR. STORM SEWER
- PR. R. Y. CATCH BASIN
- PROPOSED LIGHT POLE
- TC 600.00 — PR. TOP OF CURB ELEVATION
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SEAL

STATE OF MICHIGAN — PATRICK J. WILLIAMS — ENGINEER NO. 44351 — LICENSED PROFESSIONAL ENGINEER

PROJECT
Southwest Corner of
Hamlin rd. & Ryan Rd.

CLIENT
Lutz Roofing
4721 22 Mile Road
Utica, MI 48317

PROJECT LOCATION
Part of the Northeast $\frac{1}{4}$
of Section 30
T.3N., R.12E.,
Shelby Township,
Macomb County, Michigan

SHEET
Engineering Site Plan

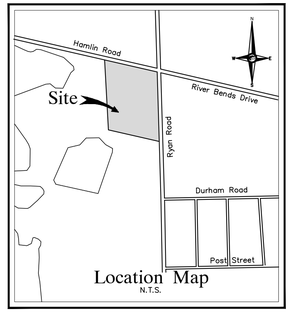
Know what's below Call before you dig.

DATE	ISSUED/REVISED
12-20-23	ISSUED FOR SP REVIEW

DRAWN BY: J. Lawrey
DESIGNED BY: A. Eizember
APPROVED BY: P. Williams
DATE: December 20, 2023
SCALE: 1" = 30'

30 15 0 15 30 45

NFE JOB NO. **D304-01**
SHEET NO. **SP03**



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GENERAL PAVING NOTES

PAVEMENT SHALL BE OF THE TYPE, THICKNESS AND CROSS SECTION AS INDICATED ON THE PLANS AND AS FOLLOWS:

CONCRETE: PORTLAND CEMENT TYPE IA (AIR-ENTRAINED) WITH A MINIMUM CEMENT CONTENT OF SIX SACKS PER CUBIC YARD, MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,500 PSI AND A SLUMP OF 1 1/2 TO 3 INCHES.

ASPHALT: BASE COURSE – MDOT BITUMINOUS MIXTURE HMA, 4E ML;
SURFACE COURSE – MDOT BITUMINOUS MIXTURE HMA, 5E ML;
BOND COAT – MDOT SS-1H EMULSION AT 0.10 GALLON PER SQUARE YARD;

PAVEMENT BASE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT. EXISTING SUB-BASE SHALL BE PROOF-ROLLED IN THE PRESENCE OF THE ENGINEER TO DETERMINE STABILITY.

ALL CONCRETE PAVEMENT, DRIVEWAYS, CURB & GUTTER, ETC., SHALL BE SPRAY CURED WITH WHITE MEMBRANE CURING COMPOUND IMMEDIATELY FOLLOWING FINISHING OPERATION.

ALL CONCRETE PAVEMENT JOINTS SHALL BE FILLED WITH HOT POURED RUBBERIZED ASPHALT JOINT SEALING COMPOUND IMMEDIATELY AFTER SAWCUT OPERATION. FEDERAL SPECIFICATION SS-S164.

ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE MUNICIPALITY AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, CURRENT EDITION.

ALL TOP OF CURB ELEVATIONS, AS SHOWN ON THE PLANS, ARE CALCULATED FOR A 6" CONCRETE CURB UNLESS OTHERWISE NOTED.

ALL SIDEWALK RAMPS, CONFORMING TO PUBLIC ACT NO. 8, 1993, SHALL BE INSTALLED AS INDICATED ON THE PLANS.

CONSTRUCTION OF A NEW OR RECONSTRUCTED DRIVE APPROACH CONNECTING TO AN EXISTING STATE OR COUNTY ROADWAY SHALL BE ALLOWED ONLY AFTER AN APPROVED PERMIT HAS BEEN SECURED FROM THE AGENCY HAVING JURISDICTION OVER SAID ROADWAY.

FOR ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL PAY FOR AND SECURE ALL NECESSARY PERMITS AND LIKEWISE ARRANGE FOR ALL INSPECTION.

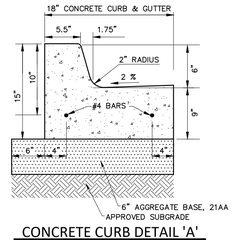
EXISTING TOPSOIL, VEGETATION AND ORGANIC MATERIALS SHALL BE STRIPPED AND REMOVED FROM PROPOSED PAVEMENT AREA PRIOR TO PLACEMENT OF BASE MATERIALS.

EXPANSION JOINTS SHOULD BE INSTALLED AT THE END OF ALL INTERSECTION RADII.

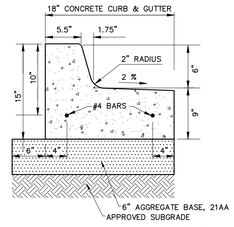
SIDEWALK RAMPS, CONFORMING TO PUBLIC ACT NO. 8, 1973, SHALL BE INSTALLED AS SHOWN AT ALL STREET INTERSECTIONS AND AT ALL BARRIER FREE PARKING AREAS AS INDICATED ON THE PLANS.

ALL PAVEMENT AREAS SHALL BE PROOF-ROLLED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF BASE MATERIALS AND PAVING MATERIALS.

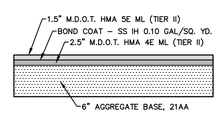
FILL AREAS SHALL BE MACHINE COMPACTED IN UNIFORM LIFTS NOT EXCEEDING 9 INCHES THICK TO 98% OF THE MAXIMUM DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT.



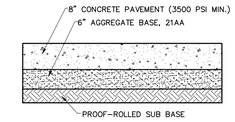
CONCRETE CURB DETAIL 'A'
N.T.S.



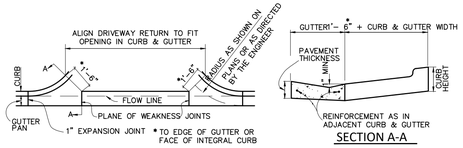
CONCRETE CURB DETAIL 'B'
N.T.S.



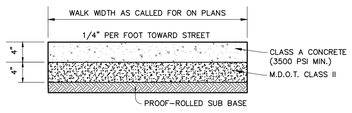
ASPHALT PAVEMENT SECTION
(DRIVE AND PARKING)



CONCRETE PAVEMENT SECTION
N.T.S.



MDOT DRIVEWAY OPENING DETAIL 'M'
N.T.S.



CONCRETE SIDEWALK SECTION
N.T.S.

SEAL

STATE OF MICHIGAN
PATRICK J. WILLIAMS
ENGINEER NO. 44351
LICENSED PROFESSIONAL ENGINEER

PROJECT
Southwest Corner of
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CLIENT
Lutz Roofing
4721 22 Mile Road
Utica, MI 48317

PROJECT LOCATION
Part of the Northeast $\frac{1}{4}$
of Section 30
T.3N., R.12E.,
Shelby Township,
Macomb County, Michigan

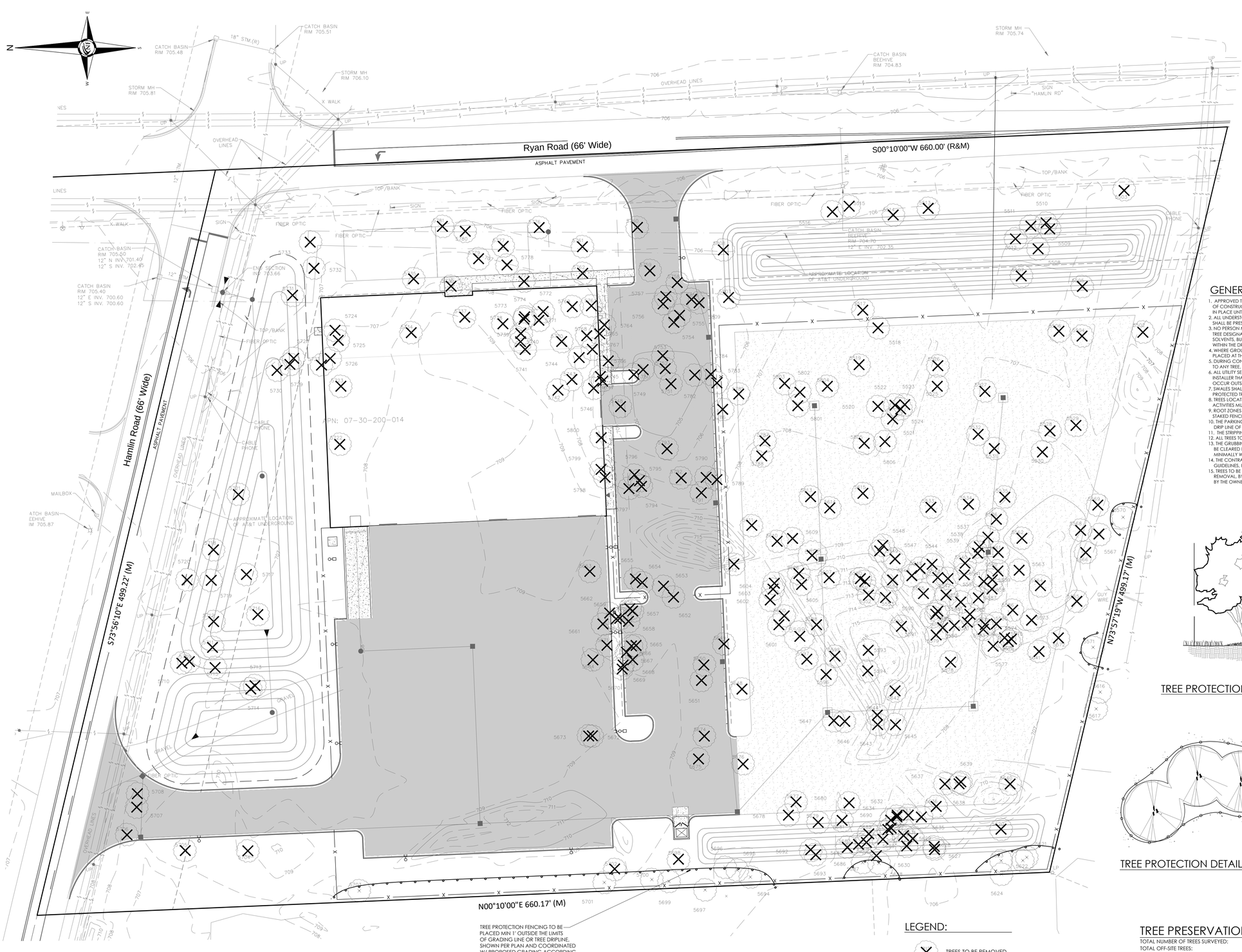
SHEET
Site Notes and Details

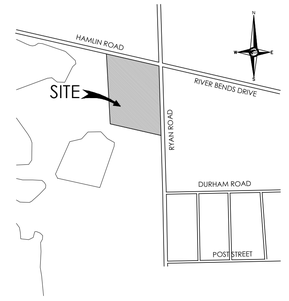
Know what's **below** **Call** before you dig.

DATE	ISSUED/REVISED
12-20-23	ISSUED FOR SP REVIEW

DRAWN BY: J. Lawrey
DESIGNED BY: A. Eizember
APPROVED BY: P. Williams
DATE: December 20, 2023
SCALE: 1" = 30'
30 15 0 15 30 45

NFE JOB NO. **D304-01**
SHEET NO. **SP04**

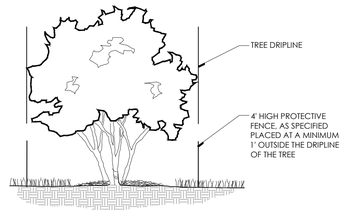




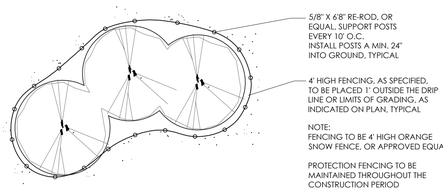
LOCATION MAP
N.T.S.

GENERAL TREE PROTECTION NOTES

1. APPROVED TREE PROTECTION SHALL BE ERECTED PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, AND SHALL REMAIN IN PLACE UNTIL THE IN PLACE UNTIL CONSTRUCTION IS COMPLETE.
2. ALL UNDERSTORY VEGETATION WITHIN THE LIMITS OF PROTECTIVE FENCING SHALL BE PRESERVED.
3. NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE DRIP LINE OF ANY TREE DESIGNATED TO REMAIN, INCLUDING BUT NOT LIMITED TO, PLACING SOLVENTS, BUILDING MATERIALS, CONSTRUCTION EQUIPMENT, OR SOIL DEPOSITS WITHIN THE DRIP LINE.
4. WHERE GROUPINGS OF TREES ARE TO REMAIN, TREE FENCING SHALL BE PLACED AT THE LIMITS OF GRADING LINE.
5. DURING CONSTRUCTION, NO PERSON SHALL ATTACH ANY DEVICE OR WIRE TO ANY TREE, SCHEDULED TO REMAIN.
6. ALL UTILITY SERVICE REQUESTS MUST INCLUDE NOTIFICATION TO THE INSTALLER THAT PROTECTED TREES MUST BE AVOIDED. ALL TRENCHING SHALL OCCUR OUTSIDE OF THE PROTECTIVE FENCING.
7. SWALES SHALL BE ROUTED TO AVOID THE AREA WITHIN THE DRIP LINES OF PROTECTED TREES.
8. TREES LOCATED ON ADJACENT PROPERTIES THAT MAY BE AFFECTED BY CONSTRUCTION ACTIVITIES MUST BE PROTECTED.
9. ROOT ZONES OF PROTECTED TREES SHOULD BE SURROUNDED WITH RIGIDLY STAKED FENCING.
10. THE PARKING OF IDLE AND RUNNING EQUIPMENT SHALL BE PROHIBITED UNDER THE DRIP LINE OF PROTECTED TREES.
11. THE STRIPPING OF TOPSOIL FROM AROUND PROTECTED TREES SHALL BE PROHIBITED.
12. ALL TREES TO BE REMOVED SHALL BE CUT AWAY FROM TREES TO REAMIN.
13. THE GRUBBING OF UNDERSTORY VEGETATION WITHIN CONSTRUCTION AREAS SHOULD BE CLEARED BY CUTTING VEGETATION AT THE GROUND WITH A CHAIN SAW OR MINIMALLY WITH A HYDRO-AXE.
14. THE CONTRACTOR IS RESPONSIBLE FOR THE REPLACEMENT PER ORDINANCE GUIDELINES, FOR THE DAMAGE OR REMOVAL OF ANY TREE DESIGNATED TO REMAIN.
15. TREES TO BE REMOVED SHALL BE FIELD VERIFIED, EVALUATED AND FLAGGED FOR REMOVAL, BY THE LANDSCAPE ARCHITECT OR FORESTER, ONLY AS DIRECTED BY THE OWNER OR OWNERS REPRESENTATIVE.



TREE PROTECTION DETAIL-SECTION
NTS



TREE PROTECTION DETAIL-PLAN
NTS

LEGEND:

- TREES TO BE REMOVED
- 950 — TREES TO REMAIN
- TREE PROTECTION FENCING

TREE PRESERVATION SUMMARY:

TOTAL NUMBER OF TREES SURVEYED:	305
TOTAL OFF-SITE TREES:	4
NET TREES ON-SITE:	301
TOTAL NUN=MBER OF TREES TO BE SAVED:	14
TOTAL NUMBER OF TREES TO BE REMOVED:	287
TOTAL REPLACEMENT TREES:	4 TREES

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SEAL

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of Section 30
T.3N., R.12E.,
Shelby Township,
Macomb County, Michigan

SHEET
Tree Preservation Plan

811 Know what's below Call before you dig.

REVISIONS

DRAWN BY:
G. Ostrowski

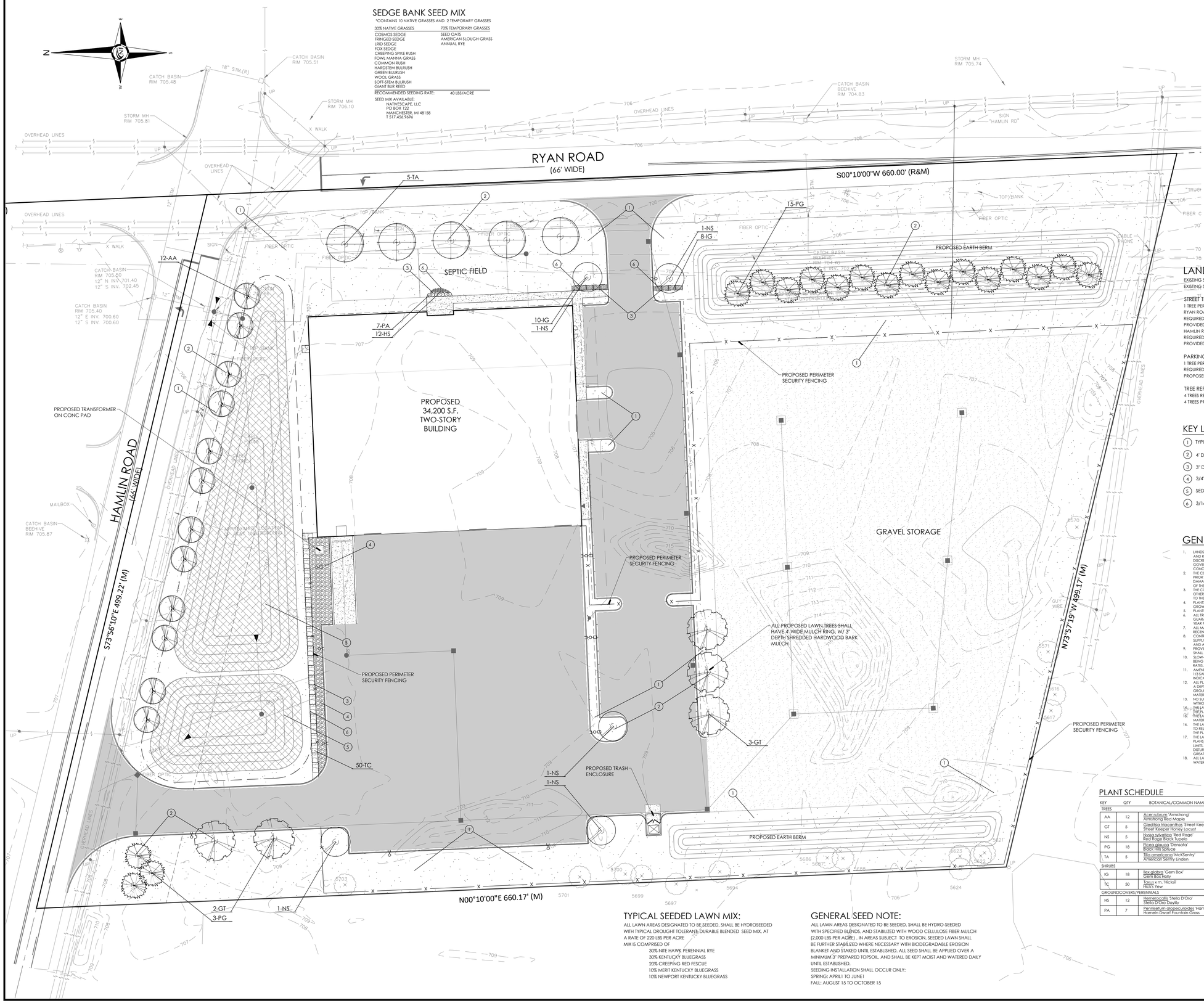
DESIGNED BY:
G. Ostrowski

APPROVED BY:
G. Ostrowski

DATE:
12-20-2023

SCALE: 1" = 30'
30 15 0 15 30 45

NFE JOB NO. **D304-01**
SHEET NO. **L1**



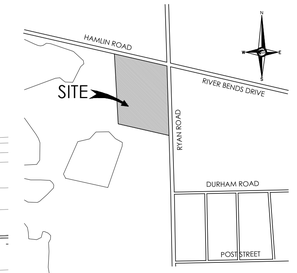
SEDGE BANK SEED MIX

*CONTAINS 10 NATIVE GRASSES AND 2 TEMPORARY GRASSES

30% NATIVE GRASSES	70% TEMPORARY GRASSES
COSMOS SEDGE	SEED OATS,
FRINGED SEDGE	AMERICAN SLOUGH GRASS
LRID SEDGE	ANNUAL RYE
FOX SEDGE	
CREEPING SPIKE RUSH	
FOWL MANNA GRASS	
COMMON RUSH	
HARDSTEM BULRUSH	
GREEN BULRUSH	
WOOL GRASS	
SOFT-STEM BULRUSH	
GIANT BUR REED	

RECOMMENDED SEEDING RATE: 40 LBS/ACRE

SEED MIX AVAILABLE:
NATIVESCAPE, LLC
PO BOX 122
MANCHESTER, MI 48158
T 517.456.9696



LOCATION MAP
N.T.S.

LANDSCAPE REQUIREMENTS

EXISTING SITE ZONING: LM, LIGHT MANUFACTURING
EXISTING SITE AREA: 279,803.43 S.F. OR 6.4 ACRES

STREET TREES
1 TREE PER 40 L.F. OF FRONTAGE
RYAN ROAD: 625.7 L.F.
REQUIRED: 625.7 L.F. / 40 L.F. = 15.6 OR 16 TREES
PROVIDED: 16 TREES
HAMLIN ROAD: 464.91 L.F.
REQUIRED: 464.91 L.F. / 40 L.F. = 11.6 OR 12 TREES
PROVIDED: 12 TREES

PARKING LOT LANDSCAPE REQUIREMENTS
1 TREE PER 6 SPACES
REQUIRED: 55 SPACES / 6 = 9.16 OR 9 TREES
PROPOSED: 9 TREES

TREE REPLACEMENT
4 TREES REQUIRED
4 TREES PROVIDED

KEY LEGEND

1. TYPICAL SEED LAWN AREAS, SOWN ON 3" TOPSOIL
2. 4" DIA SPADE CUT EDGE W/ 3" SHREDDED BARK MULCH
3. 3" DEPTH DOUBLE SHREDDED HARDWOOD BARK MULCH
4. 3/4" - 1 1/2" STONE MULCH, 3-4" DEPTH ON WEED BARRIER
5. SEDGE BANK SEED MIX, SOWN AT A RATE OF 40 LBS/AC
6. 3/16" X 4" METAL EDGING STAKED PER MANUFACTURER

GENERAL LANDSCAPE NOTES

1. LANDSCAPE CONTRACTOR SHALL VISIT SITE, INSPECT EXISTING CONDITIONS AND REVIEW PROPOSED PLANTING AND RELATED WORK. IN CASE OF DISCREPANCY BETWEEN PLAN AND PLANT LIST, THE PLAN SHALL GOVERN QUANTITIES. CONTACT THE LANDSCAPE ARCHITECT WITH ANY CONCERNS.
2. THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ON-SITE UTILITIES PRIOR TO BEGINNING CONSTRUCTION ON HIS/HER PHASE OF WORK. ANY DAMAGE DUE TO INTERRUPTION OF SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. THE CONTRACTOR SHALL COORDINATE ALL RELATED ACTIVITIES WITH OTHER TRADES, AND SHALL REPORT ANY UNACCEPTABLE SITE CONDITIONS TO THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT.
4. PLANTS SHALL BE FULL, WELL-BRANCHED, AND IN HEALTHY VIGOROUS GROWING CONDITION.
5. PLANTS SHALL BE WATERED BEFORE AND AFTER PLANTING IS COMPLETE.
6. ALL TREES MUST BE STAKED, FERTILIZED AND MULCHED AND SHALL BE GUARANTEED TO EXHIBIT A NORMAL GROWTH CYCLE FOR AT LEAST ONE (1) YEAR FOLLOWING PLANTING.
7. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED IN THE MOST RECENT EDITION OF THE "AMERICAN STANDARDS FOR NURSERY STOCK".
8. CONTRACTOR WILL SUPPLY FINISHED GRADE AND EXCAVATE AS NECESSARY TO SUPPLY PLANT MIX DEPTH IN ALL PLANTING BEDS AS INDICATED IN PLANT DETAILS AND A DEPTH OF 4" IN ALL LAWN AREAS.
9. PROVIDE CLEAN BACKFILL SOIL, USING MATERIAL STOCKPILED ON-SITE. SOIL SHALL BE SCREENED AND FREE OF DEBRIS, FOREIGN MATERIAL, AND STONE.
10. SLOW-RELEASE FERTILIZER SHALL BE ADDED TO THE PLANT PITS BEFORE BEING BACKFILLED. APPLICATION SHALL BE AT THE MANUFACTURERS RECOMMENDED RATES.
11. AMENDED PLANT MIX (PREPARED TOPSOIL) SHALL CONSIST OF 1/3 SCREENED TOPSOIL, 1/3 SAND, AND 1/3 "DAIRY DOO" COMPOST, MIXED WELL AND SPREAD TO A DEPTH AS INDICATED IN PLANTING DETAILS.
12. ALL PLANTINGS SHALL BE MULCHED WITH SHREDDED HARDWOOD BARK, SPREAD TO A DEPTH OF 3" FOR TREES AND SHRUBS, AND 2" ON ANNUALS, PERENNIALS, AND GROUNDCOVER PLANTINGS. MULCH SHALL BE FREE FROM DEBRIS AND FOREIGN MATERIAL, AND PIECES ON INCONSISTENT SIZE.
13. NO SUBSTITUTIONS OR CHANGES OF LOCATION, OR PLANT TYPE SHALL BE MADE WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT OR OWNERS REPRESENTATIVE.
14. THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS PRIOR TO INSTALLATION.
15. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL PLANT MATERIAL IN A VERTICAL CONDITION THROUGHOUT THE GUARANTEED PERIOD.
16. THE LANDSCAPE ARCHITECT OR OWNERS REPRESENTATIVE SHALL HAVE THE RIGHT TO REJECT ANY WORK OR MATERIAL THAT DOES NOT MEET THE REQUIREMENTS OF THE PLANS AND/OR SPECIFICATIONS.
17. THE LANDSCAPE CONTRACTOR SHALL SEED AND MULCH OR SOD (AS INDICATED ON PLANS) ALL AREAS DESIGNATED AS SUCH ON THE PLANS, THROUGHOUT THE CONTRACT LIMITS. FURTHER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING AREAS DISTURBED DURING CONSTRUCTION, NOT IN THE CONTRACT LIMITS, TO EQUAL OR GREATER CONDITION.
18. ALL LANDSCAPE AREAS SHALL HAVE PROPER DRAINAGE THAT PREVENTS EXCESSIVE WATER FROM PONDING ON LAWN AREAS OR AROUND TREES AND SHRUBS.

PLANT SCHEDULE

KEY	QTY	BOTANICAL/COMMON NAME	SIZE	SPACING	ROOT	COMMENT
TREES						
AA	12	Acer rubrum 'Armstrong' Armstrong Red Maple	2.5" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS
GT	5	Gleditsia triacanthos 'Street Keeper' Street Keeper Honey Locust	2.5" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS
NS	5	Nyssa sylvatica 'Red Rage' Red Rage Black Tupelo	2.5" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS
PG	18	Picea glauca 'Densata' Black Hills Spruce	8' HT	SEE PLAN	B&B	FULL TO GROUND
TA	5	Tilia americana 'McKSentry' American Sentry Linden	2.5" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS
SHRUBS						
IG	18	Ilex glabra 'Gem Box' Gem Box Holly	30" HT	3' OC	B&B	
TC	50	Taxus x m. 'Hicksii' Hick's Yew	36" HT	4' OC	B&B	MAINTAIN AS HEDGE
GROUNDCOVERS/PERENNIALS						
HS	12	Hemerocallis 'Stella D'Oro' Stella D'Oro Daylily	2 GAL	24" OC	CONT	
PA	7	Pennisetum alopecuroides 'Hameln' Hameln Dwarf Fountain Grass	3 GAL	30" OC	CONT	

TYPICAL SEEDED LAWN MIX:

ALL LAWN AREAS DESIGNATED TO BE SEEDED, SHALL BE HYDROSEEDED WITH TYPICAL DROUGHT TOLERANT, DURABLE BLENDED SEED MIX, AT A RATE OF 220 LBS PER ACRE
MIX IS COMPRISED OF
30% NITE HAWK PERENNIAL RYE
30% KENTUCKY BLUEGRASS
20% CREEPING RED FESCUE
10% MERIT KENTUCKY BLUEGRASS
10% NEWPORT KENTUCKY BLUEGRASS

GENERAL SEED NOTE:

ALL LAWN AREAS DESIGNATED TO BE SEEDED, SHALL BE HYDRO-SEEDED WITH SPECIFIED BLENDS, AND STABILIZED WITH WOOD CELLULOSE FIBER MULCH (2,000 LBS PER ACRE) . IN AREAS SUBJECT TO EROSION, SEEDED LAWN SHALL BE FURTHER STABILIZED WHERE NECESSARY WITH BIODEGRADABLE EROSION BLANKET AND STAKED UNTIL ESTABLISHED. ALL SEED SHALL BE APPLIED OVER A MINIMUM 3" PREPARED TOPSOIL, AND SHALL BE KEPT MOIST AND WATERED DAILY UNTIL ESTABLISHED.
SEEDING INSTALLATION SHALL OCCUR ONLY:
SPRING: APRIL1 TO JUNE1
FALL: AUGUST 15 TO OCTOBER 15

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL

STATE OF MICHIGAN
GEORGE A. OSTROWSKI
REGISTERED LANDSCAPE ARCHITECT

PROJECT
Southwest Corner of
Hamlin Rd. & Ryan Rd.

CLIENT
Lutz Roofing
4721 22 Mile Road
Utica, MI 48317

PROJECT LOCATION
Part of the Northeast $\frac{1}{4}$
of Section 30
T.3N., R.12E.,
Shelby Township,
Macomb County, Michigan

SHEET
Landscape Plan

811
Know what's below
Call before you dig.

REVISIONS

DRAWN BY:
G. Ostrowski

DESIGNED BY:
G. Ostrowski

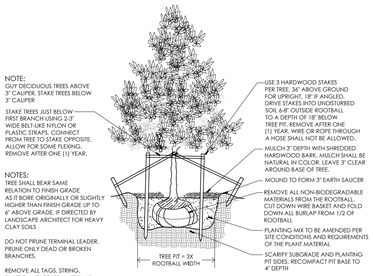
APPROVED BY:
G. Ostrowski

DATE:
12-20-2023

SCALE: 1" = 30'
30 15 0 15 30 45

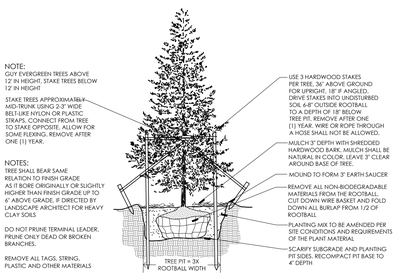
NFE JOB NO.
D304-01

SHEET NO.
L2



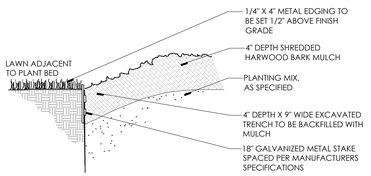
DECIDUOUS TREE PLANTING DETAIL

NTS



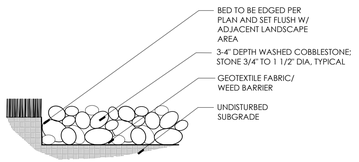
EVERGREEN TREE PLANTING DETAIL

NTS



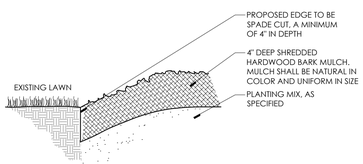
METAL EDGING DETAIL

NTS



COBBLESTONE MULCH DETAIL

NTS



SPADE CUT EDGE DETAIL

NTS

PLANT MIX SPECIFICATION

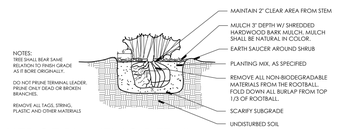
STANDARD PLANT MIX BACKFILL SHALL BE PROVIDED FOR ALL PROPOSED PLANTINGS. ONE CUBIC YARD OF PLANT MIX SHALL BE COMPOSED OF:

1/3 SCREENED TOPSOIL
1/3 CLEAN COARSE SAND
1/3 PEAT MOSS

PLANT MIX TYPE 'A' : TREE AND SHRUB PLANT BEDS SHALL BE AMENDED W/ OSMOCOTE 18-6-12 SLOW RELEASE FERTILIZER PER MANUFACTURER

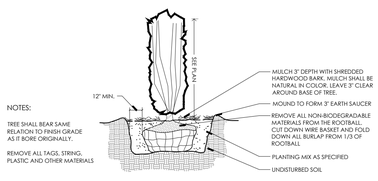
PLANT MIX TYPE 'B' : ANNUAL, PERENNIAL AND GROUNDCOVER PLANT BEDS SHALL INCLUDE STANDARD MIX WITH THE AMENDMENTS AND AT THE RATES DESCRIBED BELOW:

1. "DAIRY DOO"; OR APPROVED EQUAL APPLIED AT THE MANUFACTURERS RECOMMENDED RATES
2. 13-13-13 FERTILIZER; APPLIED AT THE MANUFACTURERS RECOMMENDED RATES
3. BONE MEAL; APPLIED AT 5 LBS PER CUBIC YARD OF SOIL MIX



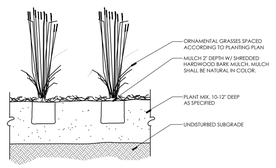
HEDGE PLANTING DETAIL

NTS



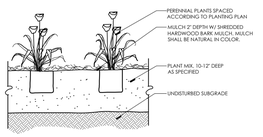
UPRIGHT EVERGREEN SHRUB PLANTING DETAIL

NTS



ORNAMENTAL GRASS PLANTING DETAIL

NTS



PERENNIAL PLANTING DETAIL

NTS

PLANTING NOTES:

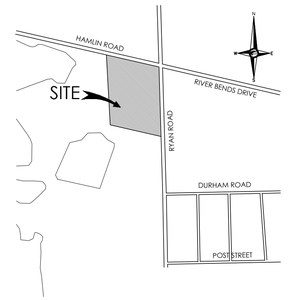
1. THE CONTRACTOR SHALL VERIFY ALL RIGHTS OF WAY, EASEMENTS, PROPERTY LINES AND LIMITS OF WORK, ETC. PRIOR TO COMMENCING WORK.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING AND COORDINATING WITH ALL PERTINENT UTILITY COMPANIES 72 HOURS IN ADVANCE OF ANY DIGGING TO MAKE HIMSELF FAMILIAR WITH ALL UNDERGROUND UTILITIES, PIPES AND STRUCTURES. THE CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR ANY COST INCURRED DUE TO DAMAGE OF SAID UTILITIES.
3. THE CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE AND/OR LANDSCAPE ARCHITECT. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.
4. ANY DISCREPANCIES BETWEEN DIMENSIONED LAYOUT AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT. FAILURE TO MAKE SUCH DISCREPANCIES KNOWN WILL RESULT IN CONTRACTOR'S RESPONSIBILITY AND LIABILITY FOR ANY CHANGES AND ASSOCIATED COST.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH CONSTRUCTION INSTALLATION OPERATIONS.
6. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN POSITIVE SURFACE DRAINAGE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, AND OR OWNER'S REPRESENTATIVE.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXISTING MATERIALS THAT ARE DAMAGED DURING CONSTRUCTION.
8. SEE SPECIFICATIONS, PLANT LIST AND PLANTING DETAILS FOR PLANTING REQUIREMENTS, MATERIALS AND EXECUTION.
9. ALL TREES TO HAVE CLAY LOAM OR CLAY BALLS - TREES WITH SAND BALLS SHALL NOT BE ACCEPTED.
10. ALL TREES TO BE APPROVED BY OWNER'S REPRESENTATIVE AND/OR LANDSCAPE ARCHITECT PRIOR TO DELIVERY TO THE SITE. ANY TREES DELIVERED TO THE SITE NOT PREVIOUSLY APPROVED MAY BE REJECTED AND ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
11. FINAL LOCATION OF ALL PLANT MATERIAL SHALL BE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT.
12. THE CONTRACTOR TO VERIFY PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION OF PLANT MATERIAL.
13. THE CONTRACTOR SHALL PLACE 3" DEPTH OF SHREDDED BARK MULCH IN ALL PLANTING BEDS, UNLESS OTHERWISE INDICATED.

CONSTRUCTION NOTES:

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING SURVEY INFORMATION INCLUDING THE UTILITY SYSTEMS BEFORE ANY DEMOLITION OR CONSTRUCTION WORK OCCURS. ANY DISCREPANCIES WITH THE SURVEY INFORMATION SHALL BE REPORTED TO THE ARCHITECT AND OWNER'S REPRESENTATIVE IMMEDIATELY.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING HIMSELF FAMILIAR WITH ALL UNDERGROUND UTILITIES, PIPES AND STRUCTURES. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR COST INCURRED DUE TO DAMAGE AND REPLACEMENT OF SAID UTILITIES.
3. CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS AND / OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING THE DESIGN. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CITY ENGINEER. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO LACK OF SUCH NOTIFICATION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH OPERATIONS.
5. CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT OF ANY EXISTING MATERIALS THAT ARE DAMAGED DURING CONSTRUCTION.
6. SEE SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS, MATERIALS, AND EXECUTION.
7. ALL PROPERTY LINES AND LOT LINES SHALL BE VERIFIED PRIOR TO COMMENCING WORK.
8. CONTRACTOR SHALL SUBMIT ALL SAMPLES PER SPECIFICATIONS. ALL SAMPLES SHALL BE APPROVED BY THE ARCHITECT OR OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
9. DIMENSIONAL FLEXIBILITY SHALL BE WITHIN PLANT BEDS ONLY.
10. CONTRACTOR SHALL COORDINATE ALL SITE LAYOUT WITH THE LANDSCAPE ARCHITECT AND REPORT ANY DIMENSIONAL DISCREPANCIES PRIOR TO CONSTRUCTION.
11. HANDICAPPED RAMPS SHALL MEET ALL CURRENT BARRIER FREE DESIGN CODES.

GRADING NOTES:

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING SURVEY INFORMATION INCLUDING THE UTILITY SYSTEMS BEFORE ANY DEMOLITION OR CONSTRUCTION WORK OCCURS. ANY DISCREPANCIES WITH THE SURVEY INFORMATION SHALL BE REPORTED TO THE ARCHITECT AND OWNER'S REPRESENTATIVE IMMEDIATELY.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING HIMSELF FAMILIAR WITH ALL UNDERGROUND UTILITIES, PIPES AND STRUCTURES. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR COST INCURRED DUE TO DAMAGE AND REPLACEMENT OF SAID UTILITIES.
3. CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS AND / OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING THE DESIGN. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CITY ENGINEER. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO LACK OF SUCH NOTIFICATION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH OPERATIONS.
5. CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT OF ANY EXISTING MATERIALS THAT ARE DAMAGED DURING CONSTRUCTION.
6. NO CHANGE IN CONTRACT PRICE WILL BE ALLOWED FOR ACTUAL OR CLAIMED BETWEEN EXISTING GRADE AND THOSE SHOWN ON PLANS AFTER CONTRACTOR HAS ACCEPTED EXISTING GRADES AND MOVED ON TO THE SITE.
7. ALL PROPOSED GRADES ARE TO MEET AND BLEND IN WITH THE EXISTING GRADE AT PROJECT LIMIT. PRECISE ELEVATIONS INDICATED ON THE PLANS TO BE VERIFIED IN FIELD TO AS-BUILT CONDITION.
8. ALL GRADING AND PLACEMENT OF DRAINAGE STRUCTURES TO BE SUPERVISED IN THE FIELD BY THE OWNER'S REPRESENTATIVE.
9. INSTALL 3" DEPTH TOPSOIL OVER ALL DISTURBED LAWN AREAS.
10. SEED ALL PROPOSED OR DISTURBED LAWN AREAS.



LOCATION MAP

N.T.S.

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL

PROJECT

Southwest Corner of
Hamlin rd. & Ryan Rd.

CLIENT

Lutz Roofing
4721 22 Mile Road
Utica, MI 48317

PROJECT LOCATION

Part of the Northeast $\frac{1}{4}$
of Section 30
T.3N., R.12E.,
Shelby Township,
Macomb County, Michigan

SHEET

Landscape Notes
and Details

811 Know what's **below** **Call** before you dig.

REVISIONS

DRAWN BY: G. Ostrowski

DESIGNED BY: G. Ostrowski

APPROVED BY: G. Ostrowski

DATE: 12-20-2023

SCALE: VARIES

X X 0 X X X

NFE JOB NO. **D304-01**

SHEET NO. **L3**

D-Series Size 0
LED Area Luminaire

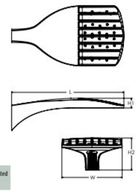
d-series

Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements

Specifications

EPA:	0.44 ft² (0.04 m²)
Length:	26.18" (66.5 cm)
Width:	14.06" (35.7 cm)
Height H1:	2.26" (5.7 cm)
Height H2:	7.46" (18.9 cm)
Weight:	23 lbs (10.4 kg)



Design Select options indicated by this color background.

Introduction

The modern styling of the D-Series features a highly refined aesthetic that blends seamlessly with its environment. The D-Series offers the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. D-Series outstanding photometry aids in reducing the number of poles required in area lighting applications, with typical energy savings of 70% and expected service life of over 100,000 hours.

design select

Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect. *See ordering tree for details

Ordering Information

EXAMPLE: DSX0 LED P6 40K 70CRI T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX0 LED

Series	LEDs	Color temperature[2]	Color Rendering Index[3]	Distribution		Voltage	Mounting
DSX0 LED	**Forward optics** P1 P5 P2 P6 P3 P7 P4 **Rotated optics** P10[1] P12[1] P11[1] P13[1]	(this section 70CRI only) 30K 3000K 40K 4000K 50K 5000K (this section 80CRI only, extended lead times apply) 27K 2700K 30K 3000K 35K 3500K 40K 4000K 50K 5000K	70CRI 70CRI 70CRI 80CRI 80CRI 80CRI 80CRI 80CRI	AFR Automotive front row T1S Type I short T2M Type II medium T3M Type III medium T3LG Type III low glare[1] T4M Type IV medium T4LG Type IV low glare[1] T5FTM Forward throw medium T5M Type V medium T5LG Type V low glare[1] T5W Type V wide BLC3 Type III backlight control[1] BLC4 Type IV backlight control[1] LCCO Left corner cutoff[1] RCCO Right corner cutoff[1]		MVOLT (120V-277V)[4,5] HVOLT (347V-480V)[5,6] XVOLT (277V-480V)[5,6] 120[7,8,9] 208[7,8,9] 240[7,8,9] 277[7,8,9] 347[7,8,9] 480[7,8,9]	**Shipped included** SPA Square pole mounting (4ft drilling, 3.5" min. SQ pole) RPA Round pole mounting (4ft drilling, 3" min. RND pole) SPA5 Square pole mounting (5ft drilling, 3" min. SQ pole)[1] RPA5 Round pole mounting (5ft drilling, 3" min. RND pole)[1] SPA8N Square narrow pole mounting (4ft drilling, 3" min. SQ pole) WBA Wall bracket[10] MA Mast arm adapter (mounts on 2 3/8" OD horizontal tenon)

Control options		Other options		Finish (required)	
Shipped installed		**Shipped installed**		DDBXD Dark Bronze	DWHGXD Textured white
NLTAIR2 PIRHN nLight AIR gen 2 enabled with bi-level motion / ambient sensor, 8–40' mounting height, ambient sensor enabled at 2fc[11,12,13,14]		HS Houseside shield (black finish standard)[20]		DBLXD Black	DSSTXD Textured sandstone
PIR High/low, motion/ambient sensor, 8–40' mounting height, ambient sensor enabled at 2fc[11,12,13]		L90 Left rotated optics[1]		DNAXD Natural Aluminum	
PER NEMA twist-lock receptacle only (controls ordered separately)[14]		R90 Right rotated optics[1]		DWHXD White	
PERS Five-pin receptacle only (controls ordered separately)[14,15]		CCE Coastal Construction[21]		DDBTXD Textured dark bronze	
PER7 Seven-pin receptacle only (controls ordered separately)[14,15]		HA 50°C ambient operation[22]		DBLBTXD Textured black	
FAO Field adjustable output[5,16]		BAA Buy American(a) Act Compliant		DNATXD Textured natural aluminum	
BL30 Bi-level switched dimming, 30%[4,16]		SF Single fuse (120, 277, 347V)[20]		DWHGXD Textured white	
BL50 Bi-level switched dimming, 50%[4,16]		DF Double fuse (208, 240, 480V)[20]			
DMG 0–10v dimming wires pulled outside fixture (for use with an external control, ordered separately)[17]		**Shipped separately**			
		EGSR External Glare Shield (reversible, field install required, matches housing finish)			
		BSDB Bird Spikes (field install required)			

D-Series Size 1
LED Wall Luminaire

d-series

Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements

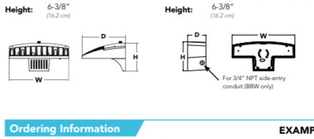
Specifications

Luminaire

Width:	13-3/4" (34.9 cm)	Weight:	12 lbs (5.4 kg)
Depth:	10" (25.4 cm)		
Height:	6-3/8" (16.2 cm)		

Back Box (BBW, E20WC)

Width:	13-3/4" (34.9 cm)	BBW Weight:	5 lbs (2.3 kg)
Depth:	4" (10.2 cm)	E20WC Weight:	10 lbs (4.5 kg)
Height:	6-3/8" (16.2 cm)		



Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 74% in energy savings over comparable 250W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

EXAMPLE: DSXW1 LED 20C 1000 40K T3M MVOLT DDBTXD

DSXW1 LED

Series	LEDs	Drive Current	Color temperature	Distribution	Voltage	Mounting	Control Options
DSXW1 LED	10C 10 LEDs (one engine) 20C 20 LEDs (two engines)[1]	350 350 mA 530 530 mA 700 700 mA 1000 1000 mA (1 A)[1]	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted	T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium	MVOLT[2] 120[3] 208[3] 240[3] 277[3] 347[3,4] 480[3,4]	**Shipped included** (blank) Surface-mounting bracket BBW Surface-mounted back box (for conduit entry)[5]	**Shipped included** PE Photoelectric cell, button type[6] DMG 0–10v dimming wires pulled outside fixture (for use with an external control, ordered separately) PIR 180° motion/ambient light sensor, <15' mtg ht[7,8] PIRH 180° motion/ambient light sensor, 15–30' mtg ht[7,8] PIR1FC3V Motion/ambient sensor, 8–15' mounting height, ambient sensor enabled at 1fc[7,8] PIRH1FC3V Motion/ambient sensor, 15–30' mounting height, ambient sensor enabled at 1fc[7,8] E20WC Emergency battery backup (includes external component enclosure), CA Title 20 compliant[9,10]

Other Options		Finish (required)			
Shipped installed		DDBXD Dark bronze	DSSXD Sandstone	DWHGXD Textured white	
SF Single fuse (120, 277 or 347V)[3,10]	**Shipped separately**[11]	DBLXD Black	DDBTXD Textured dark bronze	DSSTXD Textured sandstone	
DF Double fuse (208, 240 or 480V)[3,10]	BSW Bird-deterrent spikes	DNAXD Natural aluminum	DBLBXD Textured black		
HS House-side-shield[12]	VG Vandal guard	DWHXD White	DNATXD Textured natural aluminum		
SPD Separate surge protection[13]	DDL Diffused drop lens				

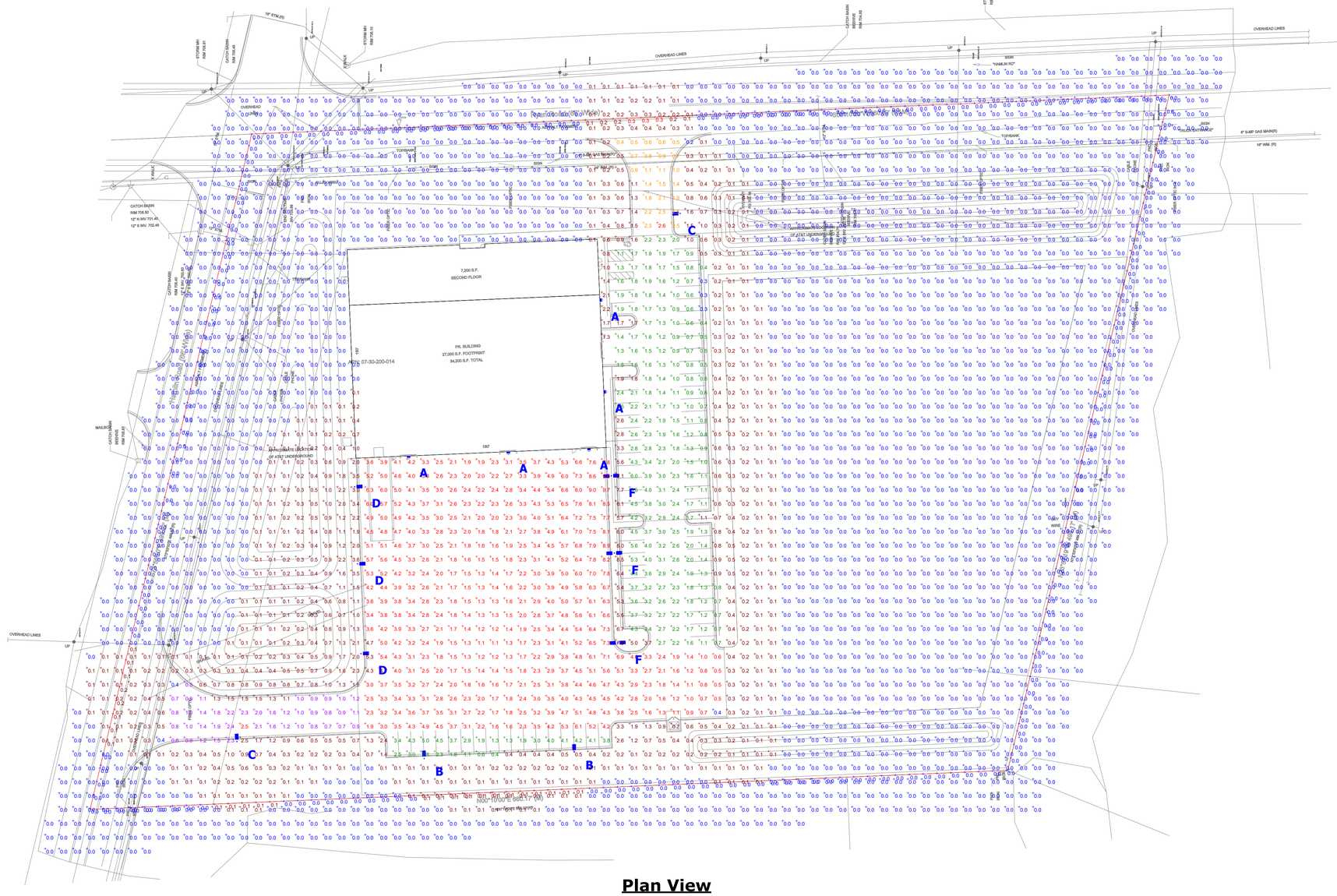
Accessories

Ordered and shipped separately.

DLBBWG U House-side shield (one per light engine)
DSXWEBW U Bird-deterrent spikes
DSXWVG U Vandal guard accessory

NOTES

1. 20C 1000 is not available with PIR, PIRH, PIR1FC3V or PIRH1FC3V.
2. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
3. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
4. Only available with 20C, 700mA or 1000mA. Not available with PIR or PIRH.
5. Back box ships installed on fixture. Cannot be field installed. Cannot be ordered as an accessory.
6. Photocontrol (PE) requires 120, 208, 240, 277 or 347 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
7. Reference Motion Sensor table on page 3.
8. Same as old ELCW. Cold weather (-20C) rated. Not compatible with conduit entry applications. Not available with BBW mounting option. Not available with fusing. Not available with 347 or 480 voltage options. Emergency components located in back box housing. Emergency mode IES files located on product page at www.lithonia.com.
9. Not available with SPD.
10. Not available with E20WC.
11. Also available as a separate accessory; see Accessories information.
12. Not available with E20WC.



Plan View

Scale - 1" = 40ft

Ordering Note

FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

Drawing Note

THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

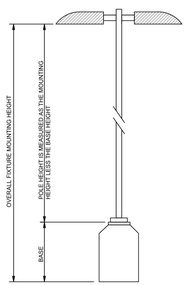
General Note

1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.
3. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' - 0".

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIRMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT ASG@GASSERBUSH.COM OR 734-266-6705



N

Statistics

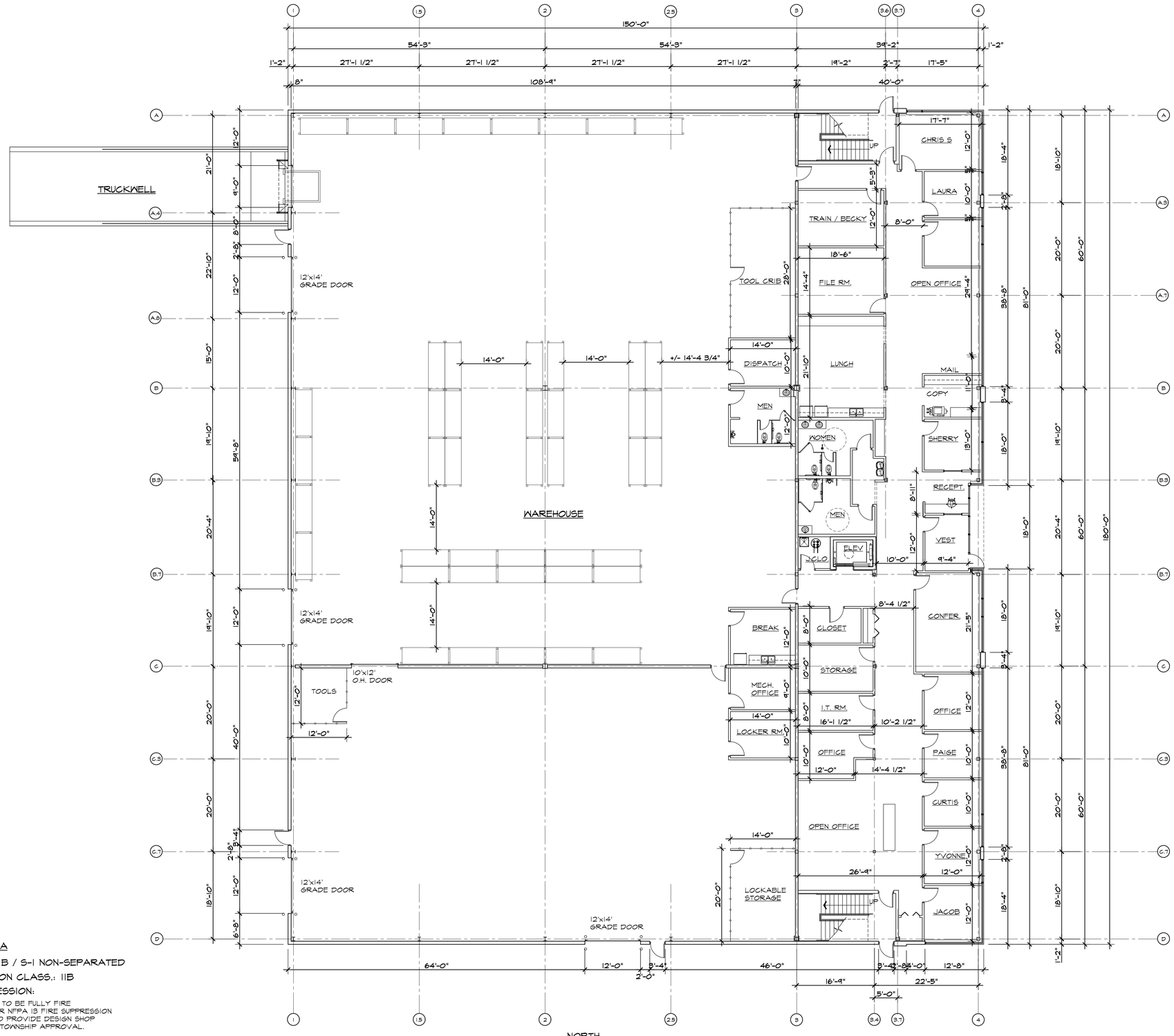
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
ENTRANCE #1	+	1.2 fc	2.5 fc	0.4 fc	6.3:1	3.0:1	0.5:1
ENTRANCE #2	+	1.3 fc	2.6 fc	0.2 fc	13.0:1	6.5:1	0.5:1
OVERALL	+	0.6 fc	9.7 fc	0.0 fc	N/A	N/A	0.1:1
PARKING	+	2.1 fc	6.1 fc	0.3 fc	20.3:1	7.0:1	0.3:1
PROPERTY LINE	+	0.0 fc	0.3 fc	0.0 fc	N/A	N/A	0.0:1
TRUCK TURNING AREA	+	3.5 fc	9.7 fc	0.4 fc	24.3:1	8.8:1	0.4:1

Schedule

Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Lumens per Lamp	LLF	Wattage	Mounting Height
	A	5	Lithonia Lighting	DSXW1 LED 20C 1000 40K TFTM MVOLT	DSXW1 LED WITH (2) 10 LED LIGHT ENGINES, TYPE TFTM OPTIC, 4000K, @ 1000mA.	LED	1	7711	0.9	73.2	18'-0"
	B	2	Lithonia Lighting	DSX0 LED P7 40K 70CRI BLC4	D-Series Size 0 Area Luminaire P7 Performance Package 4000K CCT 70 CRI Type 4 Extreme Backlight Control	LED	1	15265	0.9	170.81	20'-0"
	C	2	Lithonia Lighting	DSX0 LED P4 40K 70CRI T3M	D-Series Size 0 Area Luminaire P4 Performance Package 4000K CCT 70 CRI Type 3 Medium	LED	1	11130	0.9	93.04	20'-0"
	D	3	Lithonia Lighting	DSX0 LED P7 40K 70CRI TFTM	D-Series Size 0 Area Luminaire P7 Performance Package 4000K CCT 70 CRI Forward Throw	LED	1	20765	0.9	170.81	20'-0"
	F	3	Lithonia Lighting	[...]	[...]	[...]	1	[. . .]	0.9	341.62	
			Lithonia Lighting	DSX0 LED P7 40K 70CRI TFTM	D-Series Size 0 Area Luminaire P7 Performance Package 4000K CCT 70 CRI Forward Throw	LED	1	20765	0.9	170.81	20'-0"
			Lithonia Lighting	DSX0 LED P7 40K 70CRI TSW	D-Series Size 0 Area Luminaire P7 Performance Package 4000K CCT 70 CRI Type 5 Wide	LED	1	21561	0.9	170.81	20'-0"

LUTZ ROOFING - SHELBY TOWNSHIP
PHOTOMETRIC SITE PLAN
GASSER BUSH ASSOCIATES
PREPARED FOR: RICH OSTERMAN ELECTRIC CO. INC.
WWW.GASSERBUSH.COM

Designer NW/KB
Date 12/19/2023
Scale Not to Scale
Drawing No. #23-23612-V2
1 of 1



NORTH

MAIN LEVEL FLOOR PLAN

WAREHOUSE: 19,792 GROSS S.F.
OFFICE: 7,160 GROSS S.F.

SCALE: 3/32" = 1'-0"

DESIGN DATA

USE GROUP: B / S-1 NON-SEPARATED

CONSTRUCTION CLASS.: IIB

FIRE SUPPRESSION:

THE BUILDING IS TO BE FULLY FIRE SUPPRESSED PER NFPA 13 FIRE SUPPRESSION CONTRACTOR TO PROVIDE DESIGN SHOP DRAWINGS FOR TOWNSHIP APPROVAL.

MAXIMUM BUILDING SIZE: (TABLE 506.2)

WORST CASE, S-1 USE GROUP FULLY FIRE SUPPRESSED WITHOUT CONSIDERING SECTION 506.3 FRONTAGE INCREASE, S1 = 70,000 S.F., PROPOSED MAIN LEVEL = 26,952 S.F.

ISSUED FOR	DATE
	12.7.23
	12.8.23
	12.13.23
	12.15.23
SPA	12.19.23

ARCHITECTURAL DESIGN

RESIDENTIAL
COMMERCIAL
INDUSTRIAL

G.A.V. ASSOCIATES, INC
24001 ORCHARD LAKE RD., STE. 180A
FARMINGTON, MICHIGAN 48336
PH: (248) 985-9101
WEB: WWW.GAVASSOCIATES.COM

GAV ASSOCIATES

GENERAL DEVELOPMENT COMPANY
TWO TOWNE SQUARE SUITE 850
SOUTHFIELD, MI 48076
(248) 357-3777

PROPOSED NEW FACILITY FOR:
LUTZ ROOFING
RYAN ROAD
SHELBY TWP., MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
AV	.	.

SCALE : PER PLAN

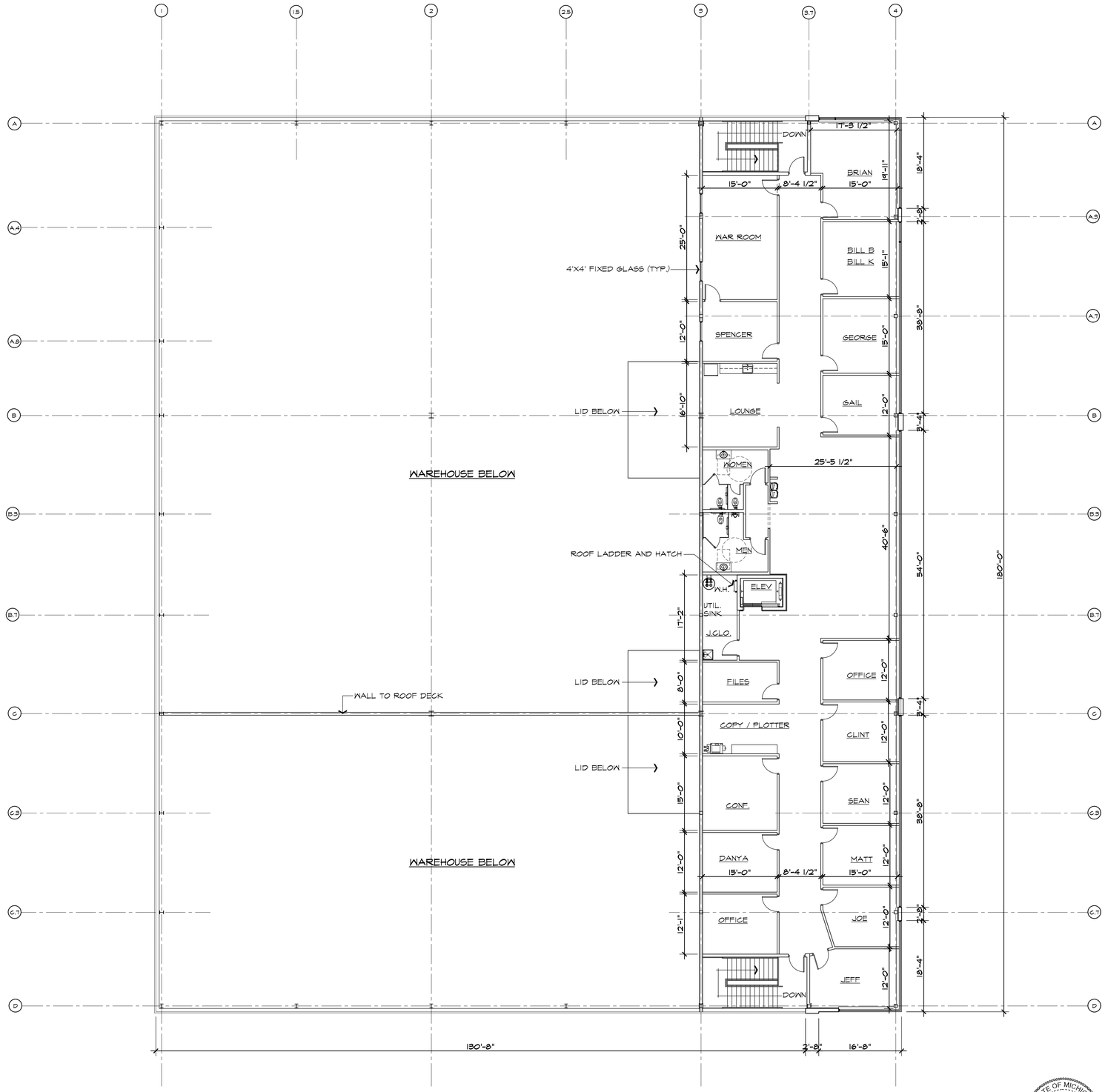
FILE NAME : .

JOB #: 22011

SHEET TITLE
FLOOR PLAN

SHEET #
A.101

STATE OF MICHIGAN
SAMIR M KARIM
ARCHITECT
No. 1301038452
LICENSED ARCHITECT



NORTH

UPPER LEVEL FLOOR PLAN

OFFICE: 7,208 GROSS S.F. SCALE: 3/32" = 1'-0"

ISSUED FOR	DATE
	12.7.23
	12.8.23
	12.18.23
	12.15.23
SPA	12.19.23

ARCHITECTURAL DESIGN

RESIDENTIAL
COMMERCIAL
INDUSTRIAL

G.A.V. ASSOCIATES, INC
24001 ORCHARD LAKE RD., STE. 180A
FARMINGTON, MICHIGAN 48336
PH: (248) 985-9101
WEB: WWW.GAVASSOCIATES.COM

GAV ASSOCIATES

GENERAL DEVELOPMENT COMPANY
TWO TOWNE SQUARE SUITE 850
SOUTHFIELD, MI 48076
(248) 357-3777

PROPOSED NEW FACILITY FOR:
LUTZ ROOFING
RYAN ROAD
SHELBY TWP., MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
AV	.	.

SCALE : PER PLAN

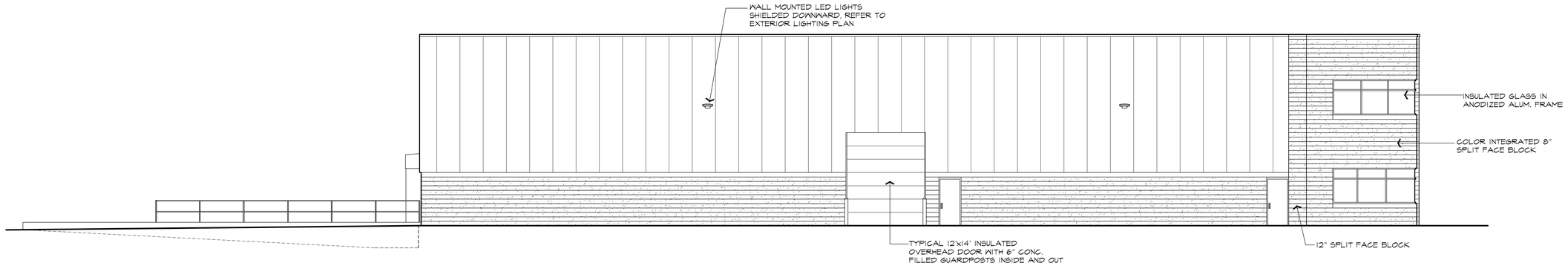
FILE NAME : .

JOB #: 22011

SHEET TITLE
FLOOR PLAN

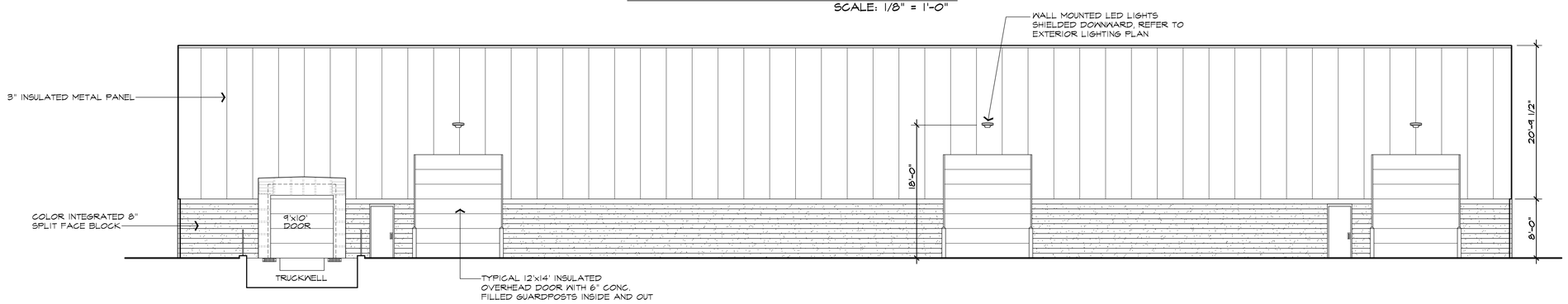
SHEET #
A.102

STATE OF MICHIGAN
SAMIR M KARIM
ARCHITECT
No. 1301038452
LICENSED ARCHITECT



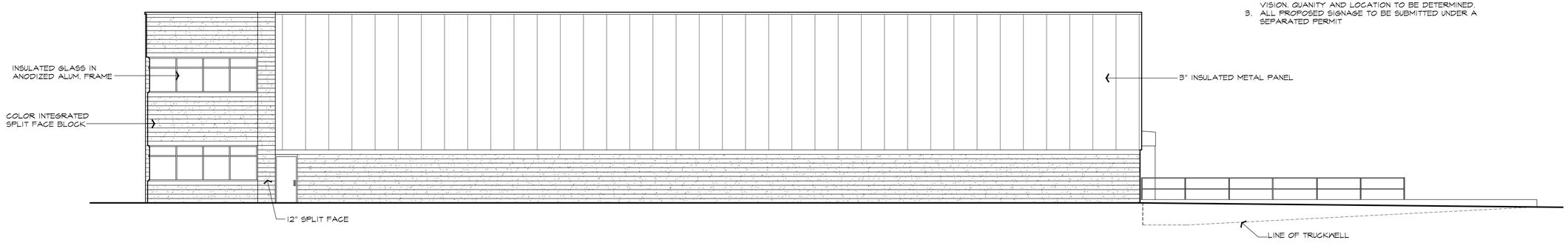
SOUTH ELEVATION

SCALE: 1/8" = 1'-0"



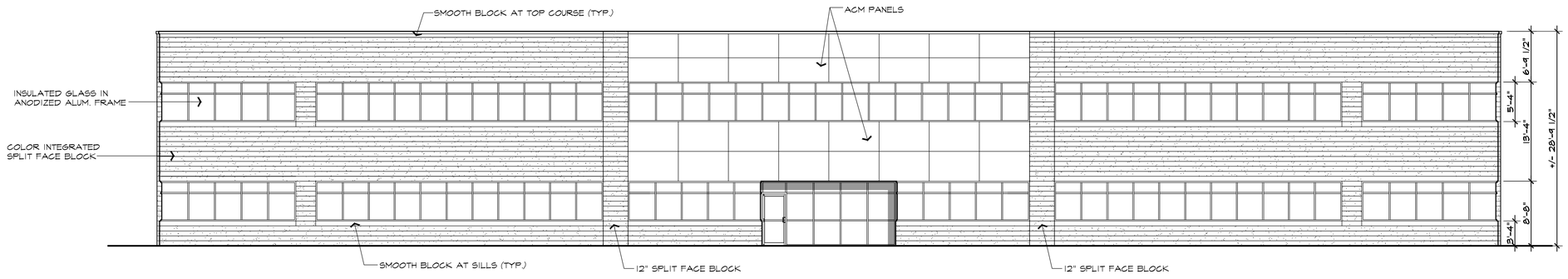
WEST ELEVATION

SCALE: 1/8" = 1'-0"



NORTH ELEVATION

SCALE: 1/8" = 1'-0"



EAST ELEVATION

SCALE: 1/8" = 1'-0"

NOTE:

1. ANY MODIFICATIONS TO THE FACADE PLAN, INCLUDING COLOR, MUST BE RESUBMITTED TO THE TOWNSHIP OF SHELBY FOR REVISED APPROVAL.
2. ALL ROOF TOP EQUIPMENT SHALL BE SCREENED FROM VISION, QUANITY AND LOCATION TO BE DETERMINED.
3. ALL PROPOSED SIGNAGE TO BE SUBMITTED UNDER A SEPARATED PERMIT

ISSUED FOR	DATE
	12.18.23
	12.15.23
SPA	12.14.23

ARCHITECTURAL DESIGN
RESIDENTIAL
COMMERCIAL
INDUSTRIAL

G.A.V. ASSOCIATES, INC
24001 ORCHARD LAKE RD., STE. 180A
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TWO TOWNE SQUARE SUITE 850
SOUTHFIELD, MI 48076
(248) 357-3777

PROPOSED NEW FACILITY FOR:
LUTZ ROOFING
RYAN ROAD
SHELBY TWP., MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
AV	.	.

SCALE : PER PLAN

FILE NAME : .

JOB #: 22011

SHEET TITLE
EXTERIOR ELEVATIONS

SHEET #
A.201

STATE OF MICHIGAN
SAMIR M. KARIM
ARCHITECT
No. 1301039452
LICENSED ARCHITECT

Attachment D

Documentation of Eligibility

AKTPEERLESS
ENVIRONMENTAL SERVICES

SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT

Southwest Corner of Hamlin and Ryan Roads,
Shelby Charter Township, Michigan

PREPARED FOR Hamlin-Ryan Properties LLC
4721 22 Mile Road
Utica, Michigan 48317

PROJECT # 4247F2-1-20

DATE February 4, 2022

Table of Contents

AKTPEERLESS

FIGURES

TABLES

APPENDICES

SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT

Southwest Corner of Hamlin and Ryan Roads,
Shelby Charter Township, Michigan
AKT Peerless Project No. 4247F2-1-20

1.0 Introduction

Hamlin-Ryan Properties LLC retained AKT Peerless to conduct a Supplemental Phase II Environmental Site Assessment (Phase II ESA) of a property located at the southwest corner of Hamlin and Ryan Roads in Shelby Charter Township, Michigan (subject property). This Phase II ESA was conducted in accordance with AKT Peerless' Proposal for a Phase II ESA (Proposal Number PF-29164), dated November 12, 2021, and is based on ASTM International Designation E 1903-19 "Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process."

The subject property formerly operated as a waste disposal site for construction fill materials, building debris, and incinerator ash with the potential for hazardous materials and petroleum product disposal. Based on the results of previous investigations conducted at the subject property, soil and/or groundwater contamination was identified at concentrations exceeding the current Michigan Department of Environment, Great Lakes, and Energy (EGLE) Part 201 Generic Residential Cleanup Criteria (RCC). Therefore, the subject property is a *facility* as defined in Part 201 of the Natural Resources and Environmental Protection Act, Michigan Public Act 451 of 1994, as amended (NREPA). A Baseline Environmental Assessment (BEA) was completed in November 2004/February 2005 and subsequently disclosed to the EGLE on behalf of the current owner, Hamlin-Ryan Properties, LLC.

At the time of this assessment, the subject property was proposed to be redeveloped with an approximately 30,000-square foot warehouse and office building with associated paved parking areas and driveways, storm water retention basins, and utility connections. Therefore, this Phase II ESA scope of work was intended to assist with compliance with future due care obligations associated with redevelopment activities at the subject property. Refer to Section 2.4 for further information.

AKT Peerless' Phase II ESA report documents the field activities, sampling protocols, and laboratory results conducted as part of this assessment. AKT Peerless' Phase II ESA was performed for the benefit of Hamlin-Ryan Properties LLC, who may rely on the contents and conclusions of this report.

2.0 Background

2.1 Site Description and Physical Setting

The subject property is located at the southwest corner of Hamlin and Ryan Roads in Shelby Charter Township, Macomb County, Michigan, and comprises one parcel (Parcel Identification Number 23-07-30-200-014) consisting of approximately 6.41 acres of land. The subject property is located in the northeast quarter of Section 30 (Township 3 North/ Range 12 East), Macomb County, Michigan. The subject property consists of an undeveloped, grassy, gravelly, and wooded lot that is being utilized for limited

truck and roofing materials storage. Hamlin-Ryan Properties, LLC is listed as the current owner of the subject property.

The subject property is currently zoned Light Manufacturing (LM) and is located in an area of Shelby Charter Township that is characterized by commercial and recreational properties, surface roadways municipal sanitary sewer and water, and electrical and natural gas utilities.

Refer to Figure 1 for a Topographic Site Location Map. See Figure 2 for a site map.

2.2 Subject Property History and Land Use

Based on a review of previous environmental investigations conducted on the subject property in 2004/2005, the subject property originally operated as a waste disposal site prior to 1940. Based on historical uses of the adjoining properties, the subject property was likely utilized as a mining site for sand and gravel that occurred sometime before the 1930s. Excavated areas located on the subject property were reportedly filled in with a variety of waste materials that include construction fill soils, building debris, incinerator ash, and potentially hazardous materials and petroleum products. Waste disposal activities at the subject property concluded by the mid-1950s, and by 1964, the subject property consisted of a generally level, undeveloped parcel of land covered in low lying vegetation and light tree cover. Construction yard equipment and debris storage from the adjoining properties encroached onto the western and southern boundaries of the subject property during the 1970s and at least through the early 1980s. Since the mid-1960s until approximately 2004, the subject property was not utilized for any significant or obvious purpose. In 2005, an area in the southwest portion of the subject property was cleared of vegetation and tanker trucks were parked on this area of the subject property. Currently, the subject property consists of a partially grassy, gravelly, and wooded lot that is being utilized for limited truck and roofing materials storage.

2.3 Adjacent Property Land Use

Based on previous environmental investigations conducted at the subject property, the adjoining properties have consisted of residential, agricultural, gravel mining, waste disposal, and/or undeveloped land since at least 1940. Currently, the adjoining properties consist of an auto repair and parts shop, an RV storage lot, a wood recycling business, and a recreational park.

2.4 Previous Environmental Investigations

In April 2004, AKT Peerless completed a Phase I ESA of the subject property that identified the following recognized environmental conditions (RECs):

REC 1 - The subject property was previously utilized as an unlicensed disposal site for fill materials and was identified as Detroit Fill No. 39 on the Macomb County Health Department's (MCHD's) disposal site list. Waste disposed of on-site reportedly consisted of construction debris and incinerator ash. The disposal operations appear to have begun prior to 1940 and continued through the late 1950s based on information obtained as part of the Phase I ESA. Since the mid-1960s, the subject property appears to have consisted of unimproved land.

REC 2 - Based on the results of the Phase I ESA property inspection, two abandoned underground storage tanks (USTs) and approximately twelve 55-gallon drums were identified on the subject property. At the time of the property inspection, these drums and USTs appeared to be empty, and the exterior condition of these drums appeared damaged.

REC 3 - Historical records identified as part of the Phase I ESA identified that the adjoining properties to the north, northwest, west, and south have been used for a variety of aggregate mining, landfill, construction storage yard, and automotive salvage yard activities. These activities appear to have begun prior to the 1940s and have continued through the present.

To further evaluate the RECs identified in the April 2004 Phase I ESA, in June 2004, AKT Peerless completed a subsurface investigation of the subject property. AKT Peerless (1) advanced ten soil borings (six geoprobe and four hand augers) to a maximum depth of 25 feet below ground surface (bgs), (2) installed five temporary groundwater monitoring wells, (3) collected 11 soil samples, (4) collected five groundwater samples, and (5) submitted soil and groundwater samples for laboratory analyses of select parameters, including volatile organic compounds (VOCs), semi-VOCs (SVOCs), Michigan 10 Metals (arsenic, barium, cadmium, total chromium, copper, lead, total mercury, selenium, silver, and zinc), and/or polychlorinated biphenyls (PCBs). The results of the investigation identified arsenic, cadmium, total chromium, and lead in subsurface soil at the subject property at concentrations above Michigan Department of Environmental Quality (MDEQ, now the EGLE) RCC established at that time. Various concentrations were identified above the Drinking Water Protection (DWP) and/or Direct Contact (DC) criteria. Additionally, lead and trichloroethylene were detected in groundwater at the subject property above MDEQ RCC and Commercial I Criteria established at that time. Various concentrations were identified above the Drinking Water (DW) and/or Groundwater Surface Water Interface (GSI) criteria.

In November 2004, AKT Peerless completed a BEA of the subject property on behalf of Hamlin-Ryan Properties, LLC in accordance with (1) Section 20126(1)(c) of Part 201 of the NREPA, and (2) MDEQ *Instructions for Preparing and Disclosing Baseline Environmental Assessments and Section 7a Compliance Analysis*, dated March 11, 1999. The BEA was completed in November 2004 and was submitted to MDEQ for a review of adequacy. A determination of adequacy was reportedly issued in December 2004. Based on this determination of adequacy, the BEA was re-submitted in February 2005. According to EGLE Remediation Information Data Exchange (RIDE), both BEAs are on file with the EGLE Remediation and Redevelopment Division (RRD).

Since the time of AKT Peerless' BEA, EGLE has updated the Part 201 Generic Cleanup Criteria and Screening Levels for soil and groundwater. AKT Peerless compared the analytical results from the previous subsurface investigation conducted at the subject property to the updated EGLE Part 201 RCC and Non-Residential Cleanup Criteria (NRCC) provided in Michigan Administrative Rules 299.1 through 299.50. In addition, AKT Peerless compared the analytical results to the EGLE September 2020 Non-Residential Volatilization to Indoor Air Pathway (VIAP) Screening Levels:

- Arsenic, cadmium, total chromium, lead, total mercury, selenium, silver, ethylbenzene, 1,2,4-trimethylbenzene, xylenes, benzo(a)pyrene, and fluoranthene were detected in subsurface soil at concentrations above the EGLE Part 201 RCC and/or NRCC (updated December 30, 2013; Groundwater Surface Water Interface Protection- GSIP Criteria Updated June 25, 2018) for DWP, GSIP, and/or DC.
- Arsenic, total chromium, lead, and trichloroethylene were detected in groundwater at the subject property at concentrations above the EGLE Part 201 RCC and NRCC (updated December 21, 2020) for DW and/or GSI.
- Total mercury, ethylbenzene, tetrachloroethene, and trichloroethene were detected in soil and/or groundwater at the subject property exceeding the EGLE September 2020 Non-Residential VIAP Screening Levels.

Refer to Table 1B for a summary of the soil analytical results from previous investigations and Table 2B for a summary of the groundwater analytical results from previous investigations. Refer to Figure 3 for a Site Map with Soil Analytical Results Exceeding EGLE Criteria/Screening Levels and Figure 4 for a Site Map with Groundwater Analytical Results Exceeding EGLE Criteria/Screening Levels.

3.0 Phase II Environmental Site Assessment Activities

The following sections summarize the site assessment activities conducted by AKT Peerless.

3.1 Preliminary Site Reconnaissance

On November 29, 2021, AKT Peerless conducted a preliminary site reconnaissance of the subject property, which consisted of visual and physical observations of the subject property and included and evaluation of the locations of proposed soil borings for the supplemental subsurface investigation activities. Based on AKT Peerless' observations, the subject property consisted of a partially grassy, gravelly, and wooded lot that was being utilized for limited truck and roofing materials storage. During AKT Peerless' preliminary site reconnaissance, an employee from Lutz Roofing was present and installing a fence at the northwestern portion of the subject property where a gravel driveway had been cleared for entry from Hamlin Road. AKT Peerless also noted an area along the northwest portion of the subject property where vegetation had been cleared and gravel was laid down to park trucks and tar tankers.

Two vegetated soil mounds were observed near the central and southwestern portions of the subject property and AKT Peerless added a proposed boring location in each mound for further investigation (AKT-14 and AKT-17). Additionally, AKT Peerless noted that the southern and eastern adjoining properties, which operated as a recycling business, was the source of landscaping debris and soil dumping which encroached over the parcel lines of the subject property in some areas, specifically to the south. AKT Peerless observed active dumping from the southern adjoining property. As a result, AKT Peerless intended to advance one soil boring where this dumping was occurring (AKT-16), however this boring location was unable to be completed due to a stop work order enacted during the subsurface investigation (refer to Section 3.2 for details related to the stop work order). AKT Peerless also observed several empty steel 55-gallon drums on the central portion of the subject property and placed the proposed soil boring location AKT-6 at this location for further investigation. Additionally, tanker trucks were observed to be stored on the southwest corner of the subject property. AKT Peerless placed proposed soil boring location AKT-15 near the tanker trucks for further investigation.

Refer to Figure 2 for a site map depicting the observed site features.

3.2 Scope of Assessment

To further evaluate the nature and extent of previously identified contamination at the subject property, to support future redevelopment activities, and to assist with compliance with future due care obligations, AKT Peerless conducted a supplemental subsurface investigation of the subject property that included: (1) the advancement of 14 soil borings, (2) the installation of six temporary groundwater monitoring wells, (3) the collection of 26 soil samples and six groundwater samples, and (4) the screening of 12 of the 14 soil borings and two of the six temporary groundwater monitoring wells for methane gas. The following samples were submitted for laboratory analyses:

- 12 soil samples for VOCs, polynuclear aromatic hydrocarbons (PNAs), Michigan 10 Metals, hexavalent chromium (chromium VI), fine and coarse fraction lead, and/or PCBs.

- Six groundwater sample for VOCs, PNAs, Michigan 10 Metals, and/or dissolved methane.

Soil borings were placed in areas of known contamination and within/near the proposed redevelopment area. Although 26 soil samples were collected, based on observed field conditions and project goals, 12 soil samples were submitted for laboratory analysis.

Additionally, although 12 soil borings were originally proposed as part of the supplemental subsurface investigation activities, based on the observations made during the preliminary site reconnaissance, AKT Peerless planned to advance 17 soil borings at the subject property for the subsurface investigation. However, on December 15, 2021, during the subsurface investigation, AKT Peerless was approached by Shelby Charter Township code enforcement officers on the subject property who demanded all investigation activities cease immediately. The code enforcement officers indicated that there was a stop work order on the subject property and there had been a complaint about the removal of trees and equipment being parked on the subject property. The code enforcement officers indicated that AKT Peerless needed to evacuate the subject property immediately, preventing the completion of three of the originally planned 17 soil borings.

3.2.1 Soil Evaluation

On December 14 and 15, 2022, AKT Peerless advanced 14 soil borings at the subject property, AKT-3 through AKT-15 and AKT-17 (AKT-1, AKT-2, and AKT-16 were not completed due to the stop work order). AKT Peerless used hydraulic drive/direct-push (Geoprobe®) and hand-auger sampling techniques and followed the guidance outlined in ASTM International Publication E 1903-19 “Standard Practice of Environmental Site Assessments: Phase II Environmental Site Assessment Process.” AKT Peerless collected continuous soil samples from the soil borings in five-foot and/or six-inch intervals to the maximum depth explored of 25 feet bgs. AKT Peerless personnel inspected, field-screened, and logged the samples collected at each soil boring location. Refer to Figure 2 for a site map depicting the soil boring locations. Boring logs are provided in **Appendix A.**

3.2.2 Groundwater Evaluation

AKT Peerless encountered groundwater in nine of the 14 of the soil borings advanced at the subject property (AKT-3, AKT-4, AKT-5, AKT-6, AKT-9, AKT-10, AKT-11, AKT-12, and AKT-15). AKT Peerless installed a temporary groundwater monitor well at six of these locations (AKT-3, AKT-6, AKT-9, AKT-10, AKT-11, and AKT-12). A one-inch polyvinyl chloride (PVC) riser with a five-foot screen was utilized for each temporary groundwater monitor well. Refer to Figure 2 for a site map depicting the temporary monitor well locations.

3.2.3 Methane Screening

During the subsurface investigation, AKT Peerless field screened 12 soil boring locations, AKT-3 through AKT-13 and AKT-15), and two temporary monitoring wells, AKT-9 (W) and AKT-12 (W), for methane gas using a Landtec-5000 landfill gas analyzer and extraction monitor. The Landtec-5000 is designed to specifically monitor landfill gas (LFG) collection and control systems and is capable of reading methane from 0.0% to 100% by volume in air. The Landtec-5000 samples and analyzes the methane, carbon dioxide, and oxygen content of gas with options for additional analysis. Readings were taken in each soil boring during the subsurface investigation from the open borehole after the Geoprobe was removed from the ground (in five foot intervals and/or at the completion of the boring). Once temporary monitoring wells were set, readings were taken from the well screen PVC pipe.

3.3 Quality Assurance/Quality Control

To ensure the accuracy of data collected during on site activities, AKT Peerless implemented proper quality assurance/quality control (QA/QC) measures. The QA/QC procedures included, but were not limited to, (1) decontamination of sampling equipment before and between sampling events, (2) calibration of field equipment, (3) documentation of field activities, and (4) sample preservation techniques.

3.3.1 Decontamination of Equipment

During sample collection, AKT Peerless adhered to proper decontamination procedures. Sampling equipment was decontaminated using the following methods to minimize potential cross-contamination of soil samples:

- Steam-cleaning or washing and scrubbing the equipment with non-phosphate detergent
- Rinsing the equipment
- Air-drying the equipment

3.3.2 Calibration of Field Equipment

During AKT Peerless' Phase II ESA, the organic vapor meter/photoionization detector (OVM/PID) was used to screen all soil samples. The PID was maintained in a calibrated condition using 100 parts per million (ppm) isobutylene span gas prior to subsurface investigation activities. Additionally, a Landtec-5000 landfill gas monitor was used to screen boreholes for methane gas. The Landtec-5000 was calibrated prior to first use on the site and was clean air purged prior to fist use at the subject property and between screening locations.

3.3.3 Documentation of Activities

During AKT Peerless' Phase II ESA activities, subject property conditions (i.e. soil boring locations, weather conditions) were documented. AKT Peerless visually inspected the soil and groundwater samples and prepared a geologic log for each soil boring. The logs include soil characteristics such as (1) color, (2) composition (e.g., sand, clay, or gravel), (3) soil moisture and water table depth, and (4) signs of possible contamination (i.e., stained or discolored soil, odors). Soil types were classified in accordance with ASTM International Publication D-2488 "Unified Soil Classification System." All soil and groundwater samples were delivered to ALS Environmental under chain-of-custody documentation. See **Appendix A** for AKT Peerless' soil boring logs. See Figure 2 for a Site Map with Sample Locations.

3.3.4 Sample Preservation Techniques

AKT Peerless collected soil samples according to USEPA Publication SW-846, "Test Methods for Evaluating Solid Waste." Soil and groundwater samples were collected in laboratory-supplied containers, stored on ice or at approximately four degrees Celsius, and submitted under chain-of-custody documentation.

Soil samples collected for volatile analyses were field preserved with methanol in accordance with USEPA Method 5035. Soil samples collected for PNAs, PCBs, and metals analyses were stored in unpreserved, eight-ounce wide-mouth jars.

Groundwater samples collected from temporary wells were collected with a peristaltic pump and dedicated tubing. Groundwater samples for VOC and dissolved methane analyses were collected with zero headspace into 40 milliliter (ml) glass vials and preserved with hydrochloric acid. Groundwater

samples for metal analyses were collected into plastic bottles and preserved with nitric acid. Groundwater samples collected for analysis of PNAs were collected into one-liter amber glass jars.

3.4 Laboratory Analysis and Methods

AKT Peerless submitted 12 soil samples and six groundwater samples for laboratory analyses. The following table summarizes the location, depth, matrix, and laboratory analysis for each sample.

Sample Collection Summary

Sample Identification	Sample Matrix	Soil Sample/Well Screen Interval (feet bgs)	Laboratory Analytical Parameter(s)
AKT-3	Soil	(8-10')	VOCs, PNAs, and Michigan 10 Metals
AKT-3 (W)	Groundwater	(14-19')	VOCs, PNAs, Michigan 10 Metals, and dissolved methane
AKT-4	Soil	(5-7')	VOCs, PNAs, Michigan 10 Metals, and PCBs
AKT-5	Soil	(16-18')	VOCs, PNAs, and Michigan 10 Metals
AKT-6	Soil	(5-7')	VOCs, PNAs, Michigan 10 Metals, and PCBs
AKT-6 (W)	Groundwater	(17-22')	VOCs, PNAs, Michigan 10 Metals, and dissolved methane
AKT-7	Soil	(16-18')	VOCs, PNAs, Michigan 10 Metals, hexavalent chromium, and fine and coarse fraction lead
AKT-8	Soil	(10-12')	VOCs, PNAs, Michigan 10 Metals, PCBs, hexavalent chromium, and fine and coarse fraction lead
AKT-9	Soil	(16-18')	VOCs, PNAs, Michigan 10 Metals, and PCBs
AKT-9 (W)	Groundwater	(17-22')	VOCs, PNAs, Michigan 10 Metals, and dissolved methane
AKT-10	Soil	(8-10')	VOCs, PNAs, and Michigan 10 Metals
AKT-10 (W)	Groundwater	(20-25')	VOCs, PNAs, Michigan 10 Metals, and dissolved methane
AKT-11	Soil	(10-12')	VOCs, PNAs, Michigan 10 Metals, and PCBs
AKT-11 (W)	Groundwater	(18-23')	VOCs, PNAs, Michigan 10 Metals, and dissolved methane
AKT-12	Soil	(16-18')	VOCs, PNAs, Michigan 10 Metals, and PCBs

Sample Identification	Sample Matrix	Soil Sample/Well Screen Interval (feet bgs)	Laboratory Analytical Parameter(s)
AKT-12 (W)	Groundwater	(18-23')	VOCs, PNAs, Michigan 10 Metals, and dissolved methane
AKT-15	Soil	(3-5')	VOCs, PNAs, Michigan 10 Metals, and PCBs
AKT-14-17 Composite	Soil	Grab (from observed mounds)	VOCs, PNAs, Michigan 10 Metals, PCBs, and fine and coarse fraction lead

The laboratory analyzed the samples for: (1) VOCs in accordance with USEPA Method 8260C; (2) PNAs in accordance with USEPA Methods 8270E; (3) Metals in accordance with USEPA Methods 7470A/7471B/6020B/7196A; (4) PCBs in accordance with USEPA Method 8082A; and (5) Methane in accordance with USEPA Method RSK-175.

4.0 Evaluation and Presentation of Results

4.1 Subsurface Conditions

The following sections summarize the physical soil and groundwater conditions at the subject property.

4.1.1 Soil and Groundwater Conditions based on Published Material

According to the United States Department of Agriculture, "*Soil Survey of Macomb County, Michigan,"* the soil in the area is classified as the Oakville-Boyer-Spinks association. This soil is described as *"nearly level to hilly, well-drained soils that are coarse textured of moderately coarse textured throughout; on lake plains, beach ridges, and outwash plains."* These soils; however, might have been disturbed and or removed in many areas due to historical land development activities.

According to the Michigan Geological Survey Division's publication, *Quaternary Geology of Southern Michigan*, soils in the area are end moraines of fine-textured till. These soils are described as gray, grayish brown or reddish brown, nonsorted glacial debris; matrix is dominantly clay, clay loam, or silty clay loam texture, variable amounts of cobbles and boulders. Typically, end moraines of fine-textured till are associated with low to moderate hydraulic permeability and may allow the movement of contaminants through groundwater.

AKT Peerless infers that groundwater in the vicinity of the subject property flows towards the north, with potential influence of the Clinton River. However, local manmade structures (e.g. buildings, roads, sewer systems, and utility service lines) may influence both surface water and groundwater flow. AKT Peerless was unable to document the groundwater flow direction, subsurface information would be necessary.

4.1.2 Soil and Groundwater Conditions based on Field Observations

In general, AKT Peerless encountered fill material at the subject property from below the surface to approximately 5.5 feet bgs. This fill consisted of sand, gravel, plastic, red brick, glass, wood, and paper. This encountered fill was generally underlain by sand. The encountered sand was brown to black in color and poorly sorted. Additionally, AKT Peerless encountered clay at soil borings AKT-7, AKT-11, and AKT-13 from below the surface cover to varying depths of up to 25 feet bgs, the maximum depth explored. This

clay was medium stiff, brown to black in color, and contained trace amounts of silt and gravel. Based on the historical use of the subject property, the encountered sand may not be indicative of native material.

AKT Peerless encountered groundwater in nine soil borings at depths ranging between 18.5 and 19.5 feet bgs. The groundwater was generally encountered within the observed sand and appears to be continuous across the site.

Based on the encountered fill and sand at the subject property, the subsurface soils at the subject property are not consistent with the description of end moraines of fine-textured till as described in the *Quaternary Geology of Southern Michigan.* See Figure 2 for a site map. See **Appendix A** for AKT Peerless' soil boring logs.

4.2 Laboratory Analytical Results

AKT Peerless collected soil and groundwater samples for the purpose of evaluating general site environmental conditions and support future land use planning. When appropriate, analytical results were compared with EGLE RCC and NRCC provided in Michigan Administrative Rules 299.1 through 299.50.

Due to the extensive fill material encountered at the subject property, generic soil and groundwater volatilization to indoor air inhalation criteria may not be appropriate for evaluating vapor intrusion concerns at the subject property. Therefore, soil and groundwater analytical results were also compared to the EGLE September 2020 Non-Residential VIAP Screening Levels.

4.2.1 Soil Analytical Results

AKT Peerless submitted 12 soil samples for laboratory analysis of VOCs, PNAs, Michigan 10 Metals, and/or PCBs. The results of the laboratory analyses of the soil samples are summarized in the table below:

Summary of Soil Analytical Results

Parameter	Chemical Abstract Service (CAS) Number	Sample Identification with Criteria Exceedance (depth)	EGLE Criteria Exceeded/Established Criteria (µg/kg)	Maximum Concentration (µg/kg)/Sample Location
Arsenic	7440-38-2	AKT-6 (5-7') AKT-7 (16-18') AKT-8 (10-12') AKT-15 (3-5')	RCC DW/4,600 RCC DC/7,600 GSIP/4,600 NRCC DWP/4,600 NRCC DC/37,000	52,000/AKT-7 (16-18')

Parameter	Chemical Abstract Service (CAS) Number	Sample Identification with Criteria Exceedance (depth)	EGLE Criteria Exceeded/Established Criteria (µg/kg)	Maximum Concentration (µg/kg)/Sample Location
Total Chromium	7440-47-3	AKT-3 (8-10') AKT-4 (5-7') AKT-5 (16-18') AKT-6 (5-7') AKT-9 (16-18') AKT-10 (8-10') AKT-11 (10-12') AKT-12 (16-18') AKT-15 (3-5') AKT-14/17 Composite	GSIP/3,300	11,000/AKT-6 (5-7') and AKT-15 (3-5')
Total Lead (calculated)	74-92-1_CALC	AKT-8 (10-12')	RCC DWP/700,000 NRCC DWP/700,000	910,000/AKT-8 (10-12')
Lead, coarse fraction	PB_COARSE	AKT-7 (16-18') AKT-8 (10-12')	RCC DC/400,000	740,000/AKT-8 (10-12')
Lead, fine fraction	PB_FINE	AKT-7 (16-18') AKT-8 (10-12')	RCC DC/400,000 NRCC DC/900,000	1,300,000/AKT-7 (16-18')
Total Mercury	7439-97-6	AKT-5 (16-18') AKT-6 (5-7') AKT-7 (16-18') AKT-8 (10-12') AKT-10 (8-10') AKT-12 (16-18')	GSIP/50 Non-Residential VIAP Screening Level/390	580/AKT-8 (10-12')
Selenium	7782-49-2	AKT-8 (10-12')	GSIP/400	510/AKT-8 (10-12')
Silver	7440-22-4	AKT-7 (16-18') AKT-8 (10-12')	GSIP/100	3,800/AKT-7 (16-18')
Benzo(a)pyrene	50-32-8	AKT-8 (10-12')	RCC DC/2,000	5,800/AKT-8 (10-12')
Fluoranthene	206-44-0	AKT-8 (10-12')	GSIP/5,500	18,000/AKT-8 (10-12')
2-Methyl-naphthalene (PNA)	91-57-6	AKT-7 (16-18')	GSIP/4,200	22,000/AKT-7 (16-18')
Naphthalene (PNA)	91-20-3	AKT-7 (16-18') AKT-8 (10-12')	GSIP/730 Non-Residential VIAP Screening Level/1,900	7,900/AKT-8 (10-12')

Parameter	Chemical Abstract Service (CAS) Number	Sample Identification with Criteria Exceedance (depth)	EGLE Criteria Exceeded/Established Criteria (µg/kg)	Maximum Concentration (µg/kg)/Sample Location
Phenanthrene	85-01-8	AKT-4 (5-7') AKT-7 (16-18') AKT-8 (10-12')	GSIP/2,100	25,000/AKT-8 (10-12')
Benzene	71-43-2	AKT-12 (16-18')	Non-Residential VIAP Screening Level/47	76/AKT-12 (16-18')
1,4-Dichloro-benzene	106-46-7	AKT-8 (10-12')	GSIP/360 Non-Residential VIAP Screening Level/660	970/AKT-8 (10-12')
Isopropyl benzene	98-82-8	AKT-6 (5-7')	Non-Residential VIAP Screening Level/110	300/AKT-6 (5-7')
2-Methyl-naphthalene (VOC)	91-57-6	AKT-7 (16-18')	GSIP/4,200	25,000/AKT-6 (5-7')
Naphthalene (VOC)	81-20-3	AKT-7 (16-18') AKT-8 (10-12')	GSIP/730 Non-Residential VIAP Screening Level/1,900	9,900/AKT-7 (16-18')
Trichloroethylene	79-01-6	AKT-8 (10-12')	RCC DWP/100 NRCC DWP/100 Non-Residential VIAP Screening Level/4.0	180/AKT-8 (10-12')
1,2,4-Trimethyl-benzene	95-63-6	AKT-6 (5-7') AKT-7 (16-18') AKT-8 (10-12')	RCC DWP/2,100 GSIP/570 NRCC DWP/2,100 Non-Residential VIAP Screening Level/2,600	6,700/AKT-7 (16-18')
1,3,5-Trimethyl-benzene	108-67-8	AKT-7 (16-18')	RCC DWP/1,800 GSIP/1,100 NRCC DWP/1,800 Non-Residential VIAP Screening Level/1,800	1,900/AKT-7 (16-18')
Xylenes	1330-20-7	AKT-12 (16-18')	GSIP/980	1,200/AKT-12 (16-18')

Notes:
Sample identification: AKT-# indicates soil boring and (#-#) indicates sample depth in feet.
µg/kg – micrograms per kilogram
DWP – Drinking Water Protection Criteria
GSIP – Groundwater Surface Water Interface Protection Criteria
DC – Direct Contact Criteria

NRCC – Non-Residential Cleanup Criterion
RCC – Residential Cleanup Criterion
VIAP – EGLE September 2020 Volatilization to Indoor Air Pathway Soil Screening Level

In addition to the exceedances listed above, based on a review of AKT Peerless' soil sampling laboratory analytical results, barium, copper, lead, and zinc were detected at concentrations exceeding the laboratory analytical method detection limits (MDLs) but were below the EGLE Part 201 RCC, NRCC and/or the Statewide Default Background Levels (SDBLs). It should be noted that the laboratory detection limits for several samples for selenium and silver exceeded the EGLE Part 201 RCC/NRCC.

AKT Peerless notes that the total chromium exceedances listed in the table above did not exceed SDBLs. The SBDLs includes data that represents what is assumed to be the naturally occurring background concentrations in Michigan soil. Additional concentrations of total chromium were detected at the subject property at the AKT-7 and AKT-8 soil boring locations above the SDBLs and the EGLE Part 201 RCC for DWP and NRCC for DWP and GSIP. Therefore, AKT Peerless submitted the AKT-7 (16-18') and AKT-8 (10-12') soil samples for laboratory analysis of hexavalent chromium. According to EGLE, it is assumed that hexavalent chromium (chromium VI) and trivalent chromium (chromium III) are the only forms of chromium found in the environment, and the concentrations of chromium III can be calculated by subtracting chromium VI results from total chromium results. The laboratory analytical results indicated that chromium VI was not present at the AKT-7 (16-18') or AKT-8 (10-12') soil samples. Therefore, the identified chromium at these boring locations are in the form of chromium III. The chromium III concentrations were detected below EGLE RCC/NRCC.

Lead was identified at concentrations above 75,000 µg/kg in soil samples AKT-7 (16-18'), AKT-8 (10-12'), and AKT-14/17 Composite. Therefore, these samples were submitted for laboratory analyses of the fine and coarse fractions of lead. According to Attachment 5 of the EGLE RRD's Operation Memorandum No. 2, exposure to lead through DC and Particulate Soil Inhalation (PSI) is best represented by the lead concentration in the fine soil fraction, which is defined as less than 250 microns in size. Attachment 5 therefore specifies that the concentration of lead in the fine and coarse fractions must be compared to the DC criteria separately. Only the concentration of lead in the fine fraction should be compared to the PSI criteria. Finally, the concentration of total lead should be compared to the remaining soil criteria. Based on the laboratory analytical results for the fine and coarse fractions of lead, the concentrations of total lead exceeded the EGLE Part 201 RCC and NRCC for DWP at the AKT-8 (10-12') soil sample location. Concentrations of coarse and fine fraction lead exceeded the EGLE Part 201 RCC and/or NRCC for DC at the AKT-7 (16-18') and AKT-8 (10-12') soil sample locations. Remaining lead concentrations (all forms analyzed) were below EGLE Part 201 RCC/NRCC.

Select PNAs (acenaphthene, anthracene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluorene, ideno(1,2,3-cd)pyrene, and pyrene) were detected at concentrations exceeding the laboratory analytical MDLs but were below the EGLE Part 201 RCC and NRCC. Select VOCs (2-butanone- MEK, ethylbenzene, n-propylbenzene, and toluene) were also detected above laboratory analytical MDLs but were below the EGLE Part 201 RCC and NRCC.

AKT-Peerless submitted eight soil samples for laboratory analysis of PCBs. Based on a review of soil sampling analytical results, PCBs were not detected in soil samples collected from the subject property at concentrations exceeding the laboratory analytical MDLs.

To evaluate relevant exposure pathways based on the soil sampling laboratory analytical results, AKT Peerless estimated the concentration of gasoline range organics (GRO) for soil samples exhibiting

detectable concentrations of benzene, toluene, ethylbenzene, and xylenes (BTEX); AKT-6 (5-7'), AKT-7 (16-18'), AKT-8 (10-12'), and AKT-12 (16-18'). The purpose of this evaluation was to identify sample locations where EGLE Part 201 RCC may not apply due to the presence of field conditions that are not represented by the assumptions used by EGLE to calculate these Generic Cleanup Criteria. According to EGLE remediation and Redevelopment Division's June 2014 publication, "Non-Aqueous Phase Liquid (NAPL) Characterization, Remediation, and Management for Petroleum Releases" (EGLE NAPL Characterization Document), NAPL is present when GRO concentrations exceed 250,000 µg/kg; Soil Volatilization to Indoor Air Inhalation (SVIAI) Cleanup Criteria do not apply when GRO concentrations exceed 350,000 µg/kg; and DC Cleanup Criteria do not apply when GRO concentrations exceed 900,000 µg/kg. In absence of direct GRO analytical results, GRO concentrations can be estimated by multiplying BTEX concentrations by 40.

The estimated GRO concentration in soil sample AKT-6 (5-7') is 42,800 µg/kg, AKT-7 (16-18') is 43,600 µg/kg, AKT-8 (10-12') is 33,600 µg/kg, and AKT-12 (16-18') is 73,440 µg/kg. Because estimated GRO concentrations do not exceed 250,000 µg/kg, NAPL does not appear to be present in these soil samples collected at the subject property.

As indicated in the table above, target parameters were detected above the soil EGLE September 2020 Non-Residential VIAP Screening Levels, indicating a potential vapor intrusion concern.

Refer to Figure 3 for a Site Map with Soil Analytical Results Exceeding EGLE Criteria/Screening Levels. Refer to Table 1A for a summary of soil analytical results. Refer to **Appendix B** for a complete analytical laboratory report.

4.2.2 Groundwater Analytical Results

AKT Peerless submitted six groundwater samples for laboratory analysis of VOCs, PNAs, Michigan 10 Metals, and/or dissolved methane. The results of the laboratory analyses of the groundwater samples are summarized in the table below:

Summary of Groundwater Analytical Results

Parameter	Chemical Abstract Service (CAS) Number	Sample Identification with Criteria Exceedance (depth)	EGLE Criteria Exceeded/Established Criteria (µg/L)	Maximum Concentration (µg/L)/Sample Location
Arsenic	744-38-2	AKT-9 (17-22') AKT-11 (18-23') AKT-12 (18-23')	RCC DW/10 GSI/10 NRCC DW/10	67/AKT-11 (18-23')
Lead	7439-92-1	AKT-3 (14-19') AKT-6 (17-22')	RCC DW/4.0 NRCC DW/4.0	28/AKT-3 (14-19')

Notes:
Sample identification: AKT-# indicates soil boring and (#-#) indicates sample depth in feet.
µg/L – micrograms per Liter
DW – Drinking Water
GSI – Groundwater Surface Water Interface Criteria

In addition to the exceedances listed above, based on a review of AKT Peerless' groundwater sampling laboratory analytical results, barium, copper, and zinc were detected at concentrations exceeding the laboratory analytical MDLs, but were below the EGLE Part 201 RCC and NRCC. Cadmium, total chromium, total mercury, selenium, and silver were not detected above the laboratory analytical MDLs. It should be noted that the laboratory analytical detected limit exceeded the EGLE Part 201 RCC and/or NRCC for samples of total mercury and silver. Additionally, dissolved methane was detected at concentrations exceeding laboratory analytical MDLs, but was below the EGLE Part 201 RCC/NRCC.

PNAs were not detected above laboratory analytical MDLs. Select VOCs (toluene and 1,2,4-trimethylbenzene) were detected at concentrations exceeding the laboratory analytical MDLs but were below the EGLE Part 201 RCC. Remaining VOCs were not detected above the laboratory analytical MDLs.

Target parameters were not detected in groundwater at the subject property above the EGLE 2020 Non-Residential VIAP Groundwater Not in Contact Screening Levels.

Refer to Figure 4 for a Site Map with Groundwater Analytical Results Exceeding EGLE Criteria/Screening Levels. Refer to Table 2 for a summary of groundwater analytical results. Refer to **Appendix B** for a complete analytical laboratory report.

4.2.3 Methane Screening Results

Methane is not known to be toxic; the principal health and safety concerns are its explosive, flammable, and asphyxiant properties. The EGLE Action level for vapor addresses the risk that gas-phase methane could enter an enclosed structure and create a fire and explosion risk or displace oxygen and present a risk of asphyxia or anoxia, or both. Methane is combustible between the lower explosivity limit (LEL) of 5% by volume in air, and the upper explosive limit (UEL) of 15% by volume in air. When methane is present above the UEL, there is the possibility of the concentration falling below the UEL into the explosive range.

AKT Peerless conducted methane field screening at 12 soil boring locations, AKT-3 through AKT-13 and AKT-15, and two temporary monitoring well locations, AKT-9 (W) and AKT-12 (W). AKT Peerless conducted methane field screening using the Landtec-5000 gas analyzer and extraction monitor and compared the readings to the EGLE Action Level of 1.25% (25% of the LEL).

AKT Peerless performed a clean air purge of the Landtec-5000 between screening at each location to re-calibrate the analyzer. Upon re-calibration, ambient air readings were observed prior to screening activities. Based on these observations, AKT Peerless noted ambient conditions to be stable between 0.0% and 0.2% methane (post-calibration). AKT Peerless detected methane at boring locations AKT-8, AKT-9, AKT-9 (TMW), AKT-11, AKT-12, AKT-12 (TMW), and AKT 13 at concentrations exceeding the EGLE Action Limit of 1.25%, the maximum concentration detected was 40.4 percent methane. The detected concentrations of methane represent a potential VI concern and potential fire and explosion hazard.

Refer to Figure 2 for a Site Map with Sample Locations. Refer to Table 3 for a summary of the methane screening results.

5.0 Summary, Conclusions, and Recommendations

The following sections summarize the investigation conducted by AKT Peerless at the subject property.

5.1 Summary of Environmental Concerns

Based on the results of a previous subsurface investigation conducted at the subject property in June 2004, the presence of former waste disposal site operations and contamination were identified at the subject property. AKT Peerless' Supplemental Phase II ESA was conducted to further evaluate the extent of known contamination associated with the former waste disposal operations and assist the current owner with evaluated exposure pathways to comply with due care obligations future due care obligations associated with anticipated redevelopment activities at the subject property.

5.2 Summary of Subsurface Investigation

On December 14 and 15, 2021, AKT Peerless conducted a subsurface investigation to further evaluate the nature and extent of previously identified contamination at the subject property, to support future redevelopment activities, and to assist with compliance with future due care obligations. AKT Peerless conducted a supplemental subsurface investigation of the subject property that included the advancement of 14 soil borings, (2) the installation of six temporary groundwater monitoring wells, (3) the collection of 26 soil samples and six groundwater samples, and (4) the screening of 12 of the 14 soil borings and two of the six temporary groundwater monitoring wells for methane gas. Soil samples were submitted for laboratory analysis of target parameters, including VOCs, PNAs, Michigan 10 Metals, dissolved methane, hexavalent chromium, fine and coarse fraction lead, and/or PCBs.

5.3 Conclusions

AKT Peerless conducted soil and groundwater sampling in areas most likely to be impacted by contaminants based on the past use of the subject property and within areas of anticipated redevelopment. The results of the investigation identified the following:

- Arsenic, total chromium, lead, total (calculated), lead, coarse fraction, lead, fine fraction, total mercury, selenium, silver, benzo(a)pyrene, fluoranthene, 2-methylnaphthalene, naphthalene, phenanthrene, benzene, 1,4-dichlorobenzene, isopropyl benzene, trichloroethylene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and xylenes were detected in subsurface soils at concentrations exceeding EGLE's Part 201 RCC and/or NRCC. Various concentrations in soil were detected above the DWP, GSIP, and/or DC criteria.
- Arsenic and lead were detected in groundwater at the subject property at concentrations exceeding EGLE's Part 201 RCC and/or NRCC. Various concentrations in groundwater were detected above the DW and GSI criteria.
- Total mercury, naphthalene, benzene, 1,4-dichlorobenzene, isopropyl benzene, trichloroethylene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were detected in soil at the subject property exceeding the EGLE September 2020 Non-Residential VIAP Soil Screening Levels, representing a potential vapor intrusion concern.
- The estimated GRO concentrations in soil samples at the subject property did not exceed 250,000 µg/kg, therefore NAPL does not appear to be present at the subject property.
- Methane was detected at the subject property in soil gas at soil boring locations, AKT-8, AKT-9, AKT-11, AKT-12, and AKT 13 and temporary monitoring well location AKT-9 at concentrations exceeding the EGLE Action Limit of 1.25%. The maximum concentration detected was 40.4% methane. These results represent a potential vapor intrusion concern as well as the potential to create a fire and explosion risk within an enclosed structure.

The laboratory analytical results confirm that the subject property continues to meet the definition of a *facility*, as defined in Part 201 of the NREPA.

Based on a review of the information provided in the November 2004/February 2005 BEA and the results of this supplemental subsurface investigation, a total of 23 soil borings and 11 temporary groundwater monitoring wells have been advanced/installed at the subject property. Select soil boring and temporary groundwater monitoring wells were screened for the presence of methane gas. Soil and groundwater samples have been submitted for laboratory analyses of VOCs, SVOCs, PNAs, Michigan 10 Metals, dissolved methane, hexavalent chromium, fine and coarse fraction lead, and/or PCBs.

The results of the investigation activities conducted at the subject property to date identified various metals, VOCs, and PNAs in soil and groundwater at the subject property at concentrations exceeding EGLE Part 201 RCC and/or NRCC.

Further, concentrations of mercury and select VOCs were detected in soil and/or groundwater at the subject property exceeding the EGLE September 2020 Non-Residential VIAP Soil Screening Levels, which represents a potential vapor intrusion concern. Additionally, methane gas was detected at five soil boring locations and one temporary monitoring well location (the maximum concentration detected being 40.4%) exceeding the EGLE Action Limit of 1.25%, presenting a potential vapor intrusion concern as well as the potential to create a fire and explosion risk within an enclosed structure.

5.4 Recommendations

This Supplemental Phase II ESA scope of work was intended to assist with compliance with future due care obligations associated with redevelopment activities at the subject property. The subject property meets the definition of a *facility*, therefore; due care obligations must be considered during the redevelopment and end use of the subject property. Due Care obligations include:

- Undertaking measures to prevent exacerbation of existing contamination.
- Exercising due care by undertaking response activities to mitigate unacceptable exposure to hazardous substances, mitigate fire and explosion hazards due to hazardous substances, and allow for the intended use of the subject property in a manner that protects health and safety.
- Taking reasonable precautions against the reasonably foreseeable acts or omissions of a third party and the consequences that could result from those acts or omissions.
- Provide notifications to EGLE and others in regard to mitigating fire and explosions hazards, discarded or abandoned containers, contamination migrating beyond property boundaries, as applicable.
- Comply with any land use or resource use restrictions established or relied on in connection with the response activities at the facility.
- Not impede the effectiveness or integrity of any land use or resource restriction employed at the facility in connection with response activities.

Additional subsurface investigation may be necessary to further evaluate for exposure pathways and screening levels at the subject property in connection with known contamination to comply with due care obligations and evaluate conditions specific to the final development plan. A property owner has a duty to manage contaminated soils and groundwater encountered on its property in compliance with applicable laws. Environmentally impacted soil and groundwater are expected to be generated during site preparation and redevelopment activities. Spoils generated during redevelopment activities, should be managed in a manner which: (1) conforms to Federal, State, and local solid waste and environmental response laws; (2) protects workers and the general public from unacceptable exposure to the residuals; and (3) reduces the potential for exacerbation of environmental conditions at the subject property.

Additionally, considerations should be made in the final building designs based on the presence of methane and vapor intrusion concerns.

6.0 Limitations

The information and opinions obtained in this report are for the exclusive use of Hamlin-Ryan Properties, LLC. No distribution to or reliance by other parties may occur without the express written permission of AKT Peerless. AKT Peerless will not distribute this report without your written consent or as required by law or by a Court order. The information and opinions contained in the report are given in light of that assignment. The report must be reviewed and relied upon only in conjunction with the terms and conditions expressly agreed upon by the parties and as limited therein. Any third parties who have been extended the right to rely on the contents of this report by AKT Peerless (which is expressly required prior to any third-party release), expressly agrees to be bound by the original terms and conditions entered into by AKT Peerless and Hamlin-Ryan Properties, LLC.

Subject to the above and the terms and conditions, AKT Peerless accepts responsibility for the competent performance of its duties in executing the assignment and preparing reports in accordance with the normal standards of the profession, but disclaims any responsibility for consequential damages. Although AKT Peerless believes that results contained herein are reliable, AKT Peerless cannot warrant or guarantee that the information provided is exhaustive or that the information provided by Hamlin-Ryan Properties, LLC or third parties is complete or accurate.

7.0 Signatures of Environmental Professionals

The following individuals contributed to the completion of this report.

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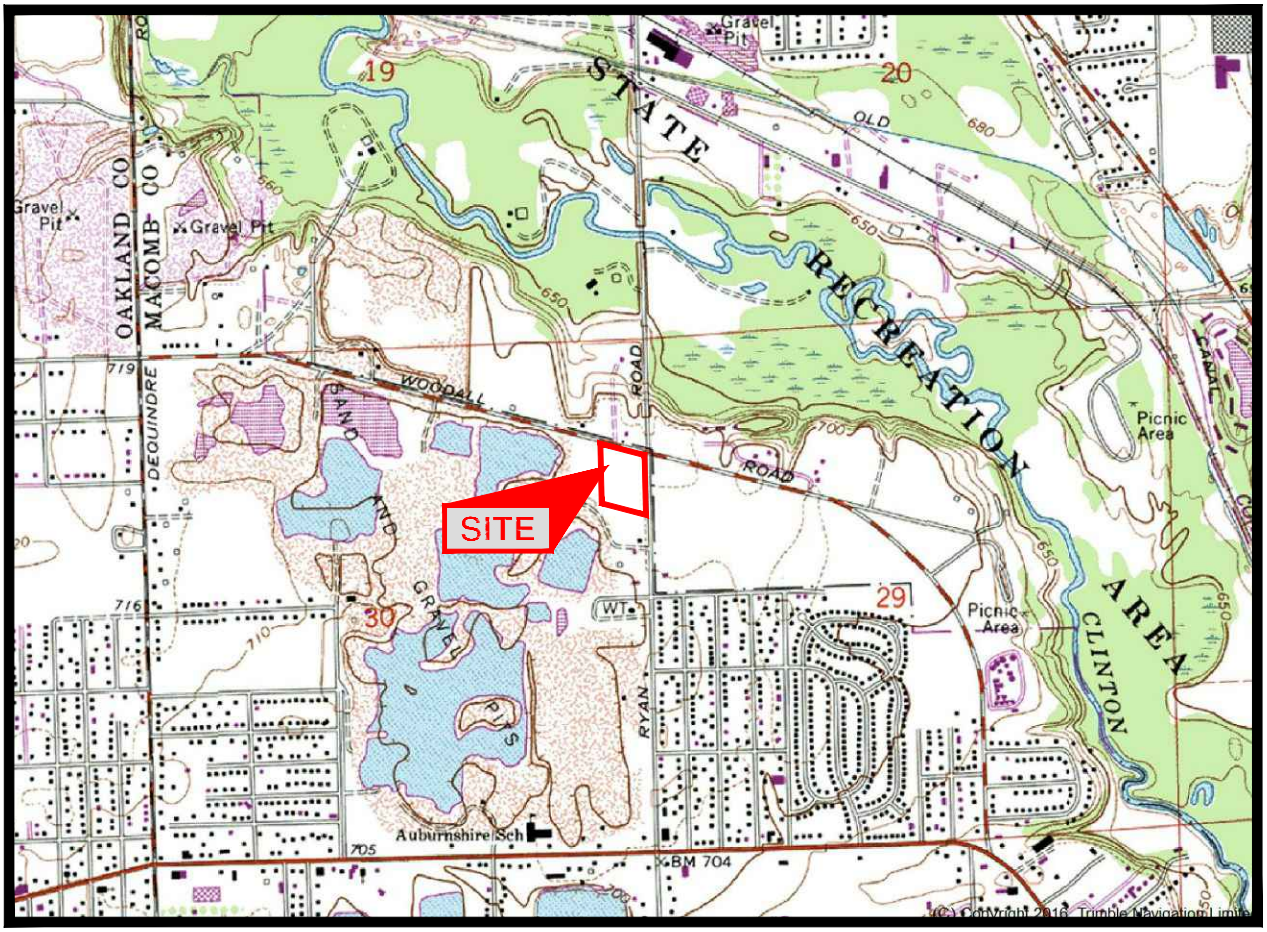
FIGURES

UTICA QUADRANGLE

MICHIGAN - MACOMB COUNTY

7.5 MINUTE SERIES (TOPOGRAPHIC)



T.3 N.-R.12 E.

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETER

MICHIGAN
QUADRANGLE LOCATION

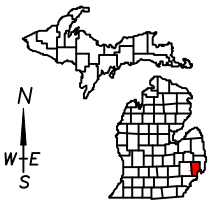


IMAGE TAKEN FROM 1968 U.S.G.S. TOPOGRAPHIC MAP
PHOTOREVISED 1983

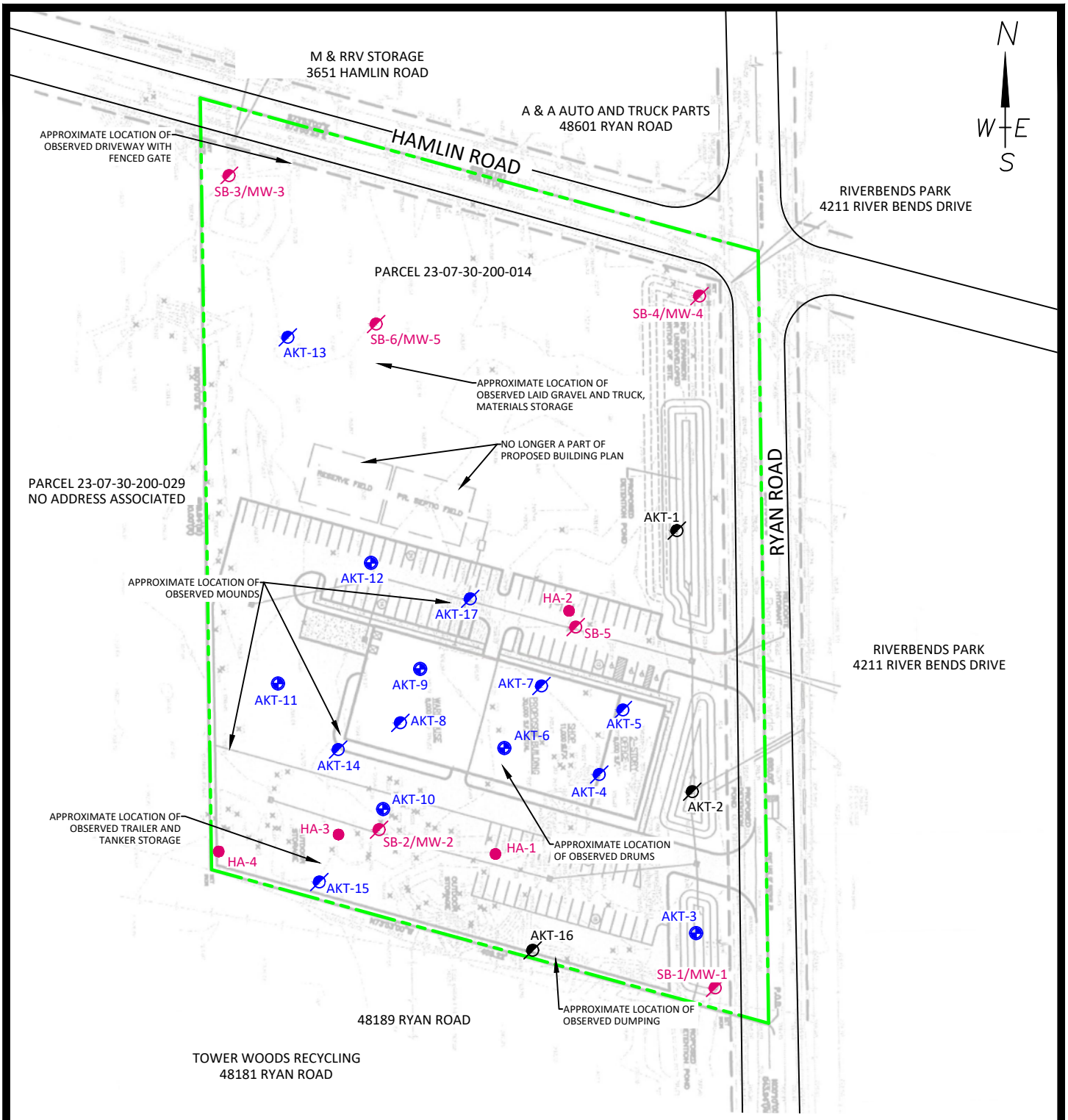
AKT PEERLESS
ENVIRONMENTAL SERVICES

TOPOGRAPHIC LOCATION MAP

PARCEL 23-07-30-200-014
SOUTHWEST CORNER OF HAMLIN & RYAN ROADS
SHELBY TOWNSHIP, MICHIGAN
PROJECT NUMBER: 4247F2-1-20

DRAWN BY: OGO
DATE: 01/11/2022

FIGURE 1



LEGEND

- = PROPERTY LINE
- = SOIL BORING, AKT PEERLESS 2004
- = HAND AUGER SOIL BORING, AKT PEERLESS 2004
- = SOIL BORING, AKT PEERLESS 12/2021
- = PROPOSED SOIL BORING, AKT PEERLESS 12/2021 (UNABLE TO BE COMPLETED)
- = SOIL BORING/TEMPORARY MONITORING WELL, AKT PEERLESS 12/2021

* Proposed building and site features are based on preliminary design provided by client. Subject property currently consists of an undeveloped vegetated and gravel lot

AKT PEERLESS ENVIRONMENTAL SERVICES

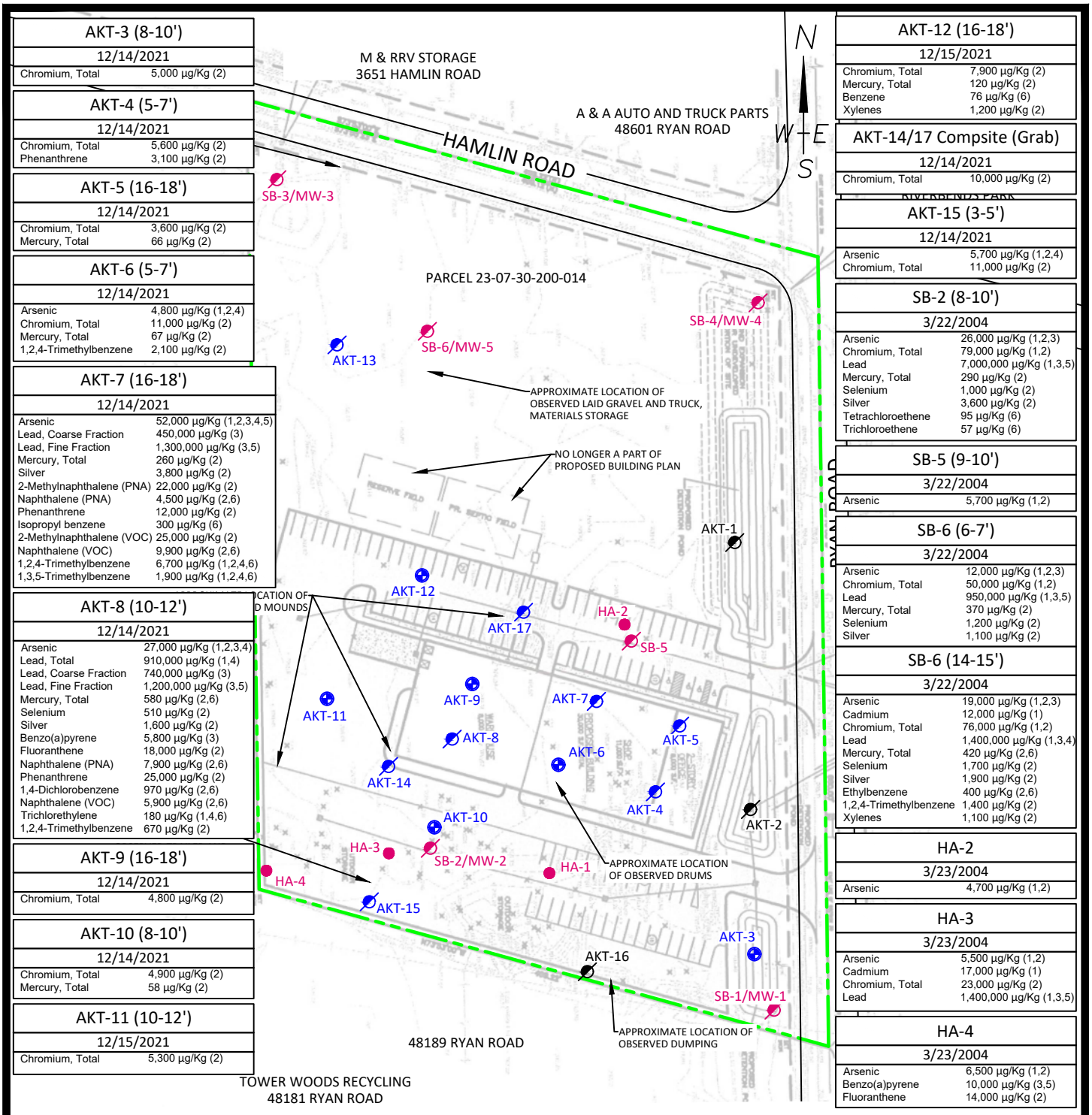
SITE MAP WITH SAMPLE LOCATIONS

PARCEL 23-07-30-200-014
SOUTHWEST CORNER OF HAMLIN & RYAN ROADS
SHELBY TOWNSHIP, MICHIGAN
PROJECT NUMBER: 4247F2-1-20

DRAWN BY: OGO
DATE: 01/11/2022

0 60 120
SCALE: 1" = 120'

FIGURE 2



AKT-3 (8-10')	
12/14/2021	
Chromium, Total	5,000 µg/Kg (2)

AKT-4 (5-7')	
12/14/2021	
Chromium, Total	5,600 µg/Kg (2)
Phenanthrene	3,100 µg/Kg (2)

AKT-5 (16-18')	
12/14/2021	
Chromium, Total	3,600 µg/Kg (2)
Mercury, Total	66 µg/Kg (2)

AKT-6 (5-7')	
12/14/2021	
Arsenic	4,800 µg/Kg (1,2,4)
Chromium, Total	11,000 µg/Kg (2)
Mercury, Total	67 µg/Kg (2)
1,2,4-Trimethylbenzene	2,100 µg/Kg (2)

AKT-7 (16-18')	
12/14/2021	
Arsenic	52,000 µg/Kg (1,2,3,4,5)
Lead, Coarse Fraction	450,000 µg/Kg (3)
Lead, Fine Fraction	1,300,000 µg/Kg (3,5)
Mercury, Total	260 µg/Kg (2)
Silver	3,800 µg/Kg (2)
2-Methylnaphthalene (PNA)	22,000 µg/Kg (2)
Naphthalene (PNA)	4,500 µg/Kg (2,6)
Phenanthrene	12,000 µg/Kg (2)
Isopropyl benzene	300 µg/Kg (6)
2-Methylnaphthalene (VOC)	25,000 µg/Kg (2)
Naphthalene (VOC)	9,900 µg/Kg (2,6)
1,2,4-Trimethylbenzene	6,700 µg/Kg (1,2,4,6)
1,3,5-Trimethylbenzene	1,900 µg/Kg (1,2,4,6)

AKT-8 (10-12')	
12/14/2021	
Arsenic	27,000 µg/Kg (1,2,3,4)
Lead, Total	910,000 µg/Kg (1,4)
Lead, Coarse Fraction	740,000 µg/Kg (3)
Lead, Fine Fraction	1,200,000 µg/Kg (3,5)
Mercury, Total	580 µg/Kg (2,6)
Selenium	510 µg/Kg (2)
Silver	1,600 µg/Kg (2)
Benzo(a)pyrene	5,800 µg/Kg (3)
Fluoranthene	18,000 µg/Kg (2)
Naphthalene (PNA)	7,900 µg/Kg (2,6)
Phenanthrene	25,000 µg/Kg (2)
1,4-Dichlorobenzene	970 µg/Kg (2,6)
Naphthalene (VOC)	5,900 µg/Kg (2,6)
Trichlorethylene	180 µg/Kg (1,4,6)
1,2,4-Trimethylbenzene	670 µg/Kg (2)

AKT-9 (16-18')	
12/14/2021	
Chromium, Total	4,800 µg/Kg (2)

AKT-10 (8-10')	
12/14/2021	
Chromium, Total	4,900 µg/Kg (2)
Mercury, Total	58 µg/Kg (2)

AKT-11 (10-12')	
12/15/2021	
Chromium, Total	5,300 µg/Kg (2)

AKT-12 (16-18')	
12/15/2021	
Chromium, Total	7,900 µg/Kg (2)
Mercury, Total	120 µg/Kg (2)
Benzene	76 µg/Kg (6)
Xylenes	1,200 µg/Kg (2)

AKT-14/17 Compsite (Grab)	
12/14/2021	
Chromium, Total	10,000 µg/Kg (2)

AKT-15 (3-5')	
12/14/2021	
Arsenic	5,700 µg/Kg (1,2,4)
Chromium, Total	11,000 µg/Kg (2)

SB-2 (8-10')	
3/22/2004	
Arsenic	26,000 µg/Kg (1,2,3)
Chromium, Total	79,000 µg/Kg (1,2)
Lead	7,000,000 µg/Kg (1,3,5)
Mercury, Total	290 µg/Kg (2)
Selenium	1,000 µg/Kg (2)
Silver	3,600 µg/Kg (2)
Tetrachloroethene	95 µg/Kg (6)
Trichloroethene	57 µg/Kg (6)

SB-5 (9-10')	
3/22/2004	
Arsenic	5,700 µg/Kg (1,2)

SB-6 (6-7')	
3/22/2004	
Arsenic	12,000 µg/Kg (1,2,3)
Chromium, Total	50,000 µg/Kg (1,2)
Lead	950,000 µg/Kg (1,3,5)
Mercury, Total	370 µg/Kg (2)
Selenium	1,200 µg/Kg (2)
Silver	1,100 µg/Kg (2)

SB-6 (14-15')	
3/22/2004	
Arsenic	19,000 µg/Kg (1,2,3)
Cadmium	12,000 µg/Kg (1)
Chromium, Total	76,000 µg/Kg (1,2)
Lead	1,400,000 µg/Kg (1,3,4)
Mercury, Total	420 µg/Kg (2,6)
Selenium	1,700 µg/Kg (2)
Silver	1,900 µg/Kg (2)
Ethylbenzene	400 µg/Kg (2,6)
1,2,4-Trimethylbenzene	1,400 µg/Kg (2)
Xylenes	1,100 µg/Kg (2)

HA-2	
3/23/2004	
Arsenic	4,700 µg/Kg (1,2)

HA-3	
3/23/2004	
Arsenic	5,500 µg/Kg (1,2)
Cadmium	17,000 µg/Kg (1)
Chromium, Total	23,000 µg/Kg (2)
Lead	1,400,000 µg/Kg (1,3,5)

HA-4	
3/23/2004	
Arsenic	6,500 µg/Kg (1,2)
Benzo(a)pyrene	10,000 µg/Kg (3,5)
Fluoranthene	14,000 µg/Kg (2)

CRITERIA NOTE

(1) - Exceeds Residential Drinking Water Protection Criteria
(2) - Exceeds Groundwater Surface Water Interface Protection Criteria
(3) - Exceeds Residential Direct Contact Criteria
(4) - Exceeds Non-Residential Drinking Water Protection Criteria
(5) - Exceeds Non-Residential Direct Contact Criteria
(6) - Exceeds EGLE September 2020 Non-Residential Volatilization to Indoor Air Pathway (VIAP) Soil Screening Levels

LEGEND

= PROPERTY LINE
= SOIL BORING, AKT PEERLESS 2004
= HAND AUGER SOIL BORING, AKT PEERLESS 2004
= SOIL BORING, AKT PEERLESS 12/2021
= PROPOSED SOIL BORING, AKT PEERLESS 12/2021 (UNABLE TO BE COMPLETED)
= SOIL BORING/TEMPORARY MONITORING WELL, AKT PEERLESS 12/2021

AKT PEERLESS ENVIRONMENTAL SERVICES

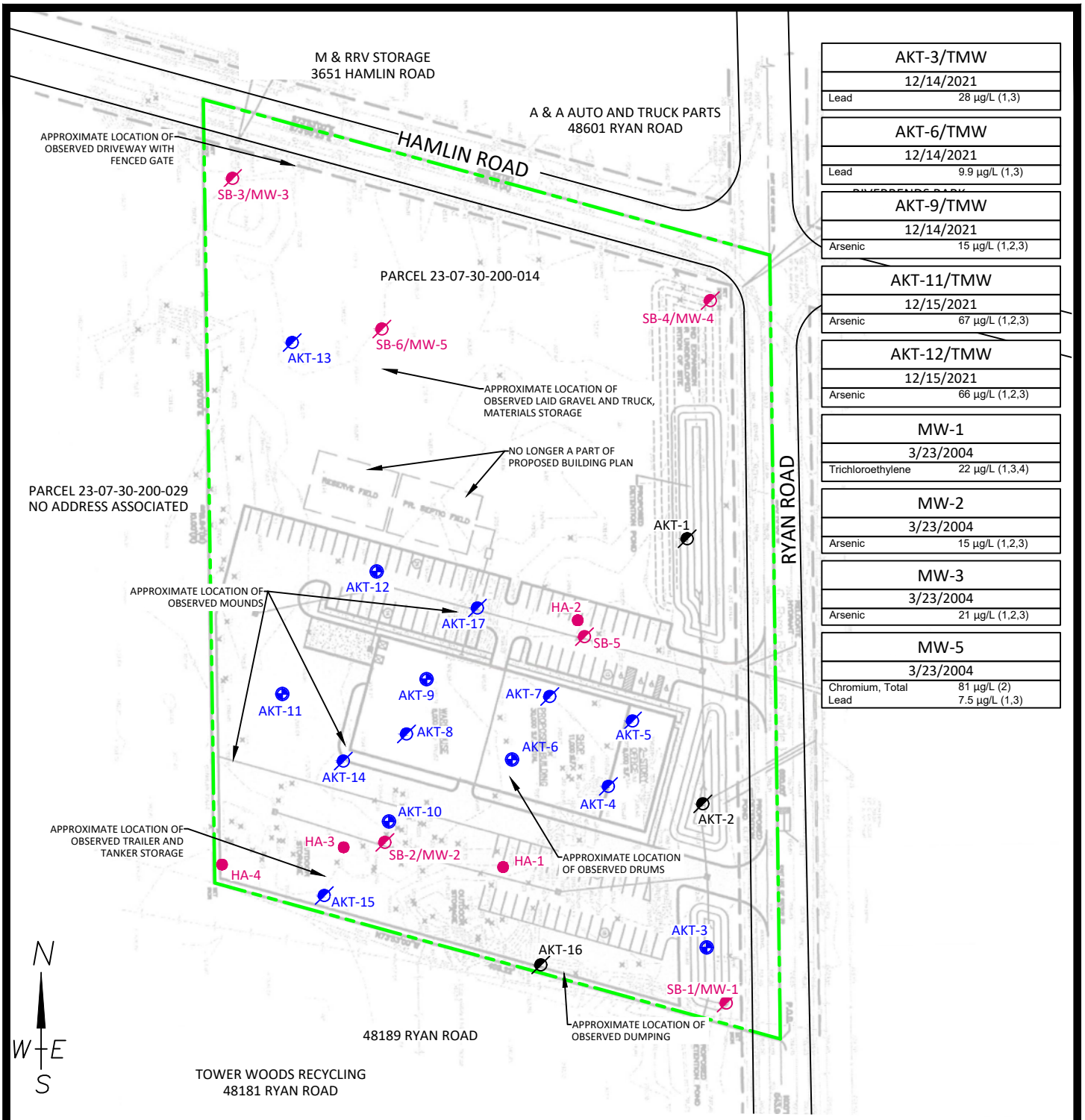
SITE MAP WITH SOIL ANALYTICAL RESULTS EXCEEDING EGLE CRITERIA/SCREENING LEVELS

PARCEL 23-07-30-200-014
SOUTHWEST CORNER OF HAMLIN & RYAN ROADS
SHELBY TOWNSHIP, MICHIGAN
PROJECT NUMBER: 4247F2-1-20

DRAWN BY: OGO
DATE: 01/18/2022

0 60 120
SCALE: 1" = 120'

FIGURE 3



AKT-3/TMW	
12/14/2021	
Lead	28 µg/L (1,3)

AKT-6/TMW	
12/14/2021	
Lead	9.9 µg/L (1,3)

AKT-9/TMW	
12/14/2021	
Arsenic	15 µg/L (1,2,3)

AKT-11/TMW	
12/15/2021	
Arsenic	67 µg/L (1,2,3)

AKT-12/TMW	
12/15/2021	
Arsenic	66 µg/L (1,2,3)

MW-1	
3/23/2004	
Trichloroethylene	22 µg/L (1,3,4)

MW-2	
3/23/2004	
Arsenic	15 µg/L (1,2,3)

MW-3	
3/23/2004	
Arsenic	21 µg/L (1,2,3)

MW-5	
3/23/2004	
Chromium, Total	81 µg/L (2)
Lead	7.5 µg/L (1,3)

CRITERIA NOTE

(1) - Exceeds Residential Drinking Water Criteria
(2) - Exceeds Groundwater Surface Water Interface Criteria
(3)- Exceeds Non-Residential Drinking Water Criteria
(4) - Exceeds EGLE September 2020 Non-Residential Groundwater Not in Contact VIAP Screening Levels

LEGEND

= PROPERTY LINE
= SOIL BORING, AKT PEERLESS 2004
= HAND AUGER SOIL BORING, AKT PEERLESS 2004
= SOIL BORING, AKT PEERLESS 12/2021
= PROPOSED SOIL BORING, AKT PEERLESS 12/2021 (UNABLE TO BE COMPLETED)
= SOIL BORING/TEMPORARY MONITORING WELL, AKT PEERLESS 12/2021

AKT PEERLESS ENVIRONMENTAL SERVICES

SITE MAP WITH GROUNDWATER ANALYTICAL RESULTS EXCEEDING EGLE CRITERIA/SCREENING LEVELS

PARCEL 23-07-30-200-014
SOUTHWEST CORNER OF HAMLIN & RYAN ROADS
SHELBY TOWNSHIP, MICHIGAN
PROJECT NUMBER: 4247F2-1-20

DRAWN BY: OGO
DATE: 01/18/2022

0 60 120
SCALE: 1" = 120'

FIGURE 4

TABLES

AKT PEERLESS ENVIRONMENTAL SERVICES

Table 1A: Summary of 2021 Soil Analytical Results
Southwest Corner of Hamlin and Ryan Roads,
Shleby Charter Township, Michigan
AKT Peerless Project No. 4247F2-1-20

Parameters* *(Refer to detailed laboratory report for method reference data)*	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Inhalation Criteria	Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Residential Particulate Soil Inhalation Criteria	Residential Direct Contact Criteria	Groundwater Surface Water Interface Protection Criteria	Non-Residential Drinking Water Protection Criteria	Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Non-Residential Particulate Soil Inhalation Criteria	Non-Residential Direct Contact Criteria	Soil Saturation Concentration Screening Levels	EGLE September 2020 Non-Residential Volatilization to Indoor Air Pathway (VIAP) Soil Screening Levels	Maximum Concentration Detected	Sample Location	AKT-3	AKT-4	AKT-5	AKT-6	AKT-7	AKT-8	AKT-9	AKT-10	AKT-11
																	Collection Date	12/14/2021	12/14/2021	12/14/2021	12/14/2021	12/14/2021	12/14/2021	12/14/2021	12/14/2021	12/15/2021
																	Depth	(8-10')	(5-7')	(16-18')	(5-7')	(16-18')	(10-12')	(16-18')	(8-10')	(10-12')
Metals (µg/kg)		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Arsenic (B)	7440-38-2	5,800	**4,600**	NLV	NLV	7.2E+5	**7,600**	**4,600**	**4,600**	NLV	NLV	9.1E+5	**37,000**	NA	NA	52,000		2,200	3,000	<2,000	**4,800**	**52,000**	**27,000**	2,500	<2,000	2,100
Barium (B)	7440-39-3	75,000	1.3E+6	NLV	NLV	3.3E+8	3.7E+7	(G)	1.3E+6	NLV	NLV	1.5E+8	1.3E+8	NA	NA	270,000		7,900	11,000	4,500	33,000	78,000	270,000	7,300	7,000	15,000
Cadmium (B)	7440-43-9	1,200	6,000	NLV	NLV	1.7E+6	5.5E+5	(G,X)	6,000	NLV	NLV	2.2E+6	2.1E+6	NA	NA	2,300		<200	<200	<200	<200	2,300	1,600	<200	<200	<200
Chromium, Total	7440-47-3	18,000 (total)	30,000	NLV	NLV	2.6E+5	2.5E+6	**3,300**	30,000	NLV	NLV	2.4E=5	9.2E+6	NA	-	11,000		**5,000**	**5,600**	**3,600**	**11,000**	-	-	**4,800**	**4,900**	**5,300**
Chromium III (B,H)	16065-83-1	18,000 (total)	1.0E+9 (D)	NLV	NLV	3.3E+8	7.9E+8	(G,X)	1.0E+9 (D)	NLV	NLV	1.5E+8	1.0E+9 (D)	NA	NA	860,000		NS	NS	NS	NS	860,000	110,000	NS	NS	NS
Chromium VI	18540-29-9	NA	30,000	NLV	NLV	2.6E+5	2.5E+6	3,300	30,000	NLV	NLV	2.4E+5	9.2E+6	NA	NA	<2,000		NS	NS	NS	NS	<2,000	<2,000	NS	NS	NS
Copper (B)	7440-50-8	32,000	5.8E+6	NLV	NLV	1.3E+8	2.0E+7	(G)	5.8E+6	NLV	NLV	5.9E+7	7.3E+7	NA	NA	1,000,000		4,000	9,200	3,300	12,000	1,000,000	150,000	5,400	3,700	5,600
Lead (B)	7439-92-1	21,000	7.0E+5	NLV	NLV	1.0E+8	4.0E+5	(G,X)	7.0E+5	NLV	NLV	4.4E+7	9.0E+5 (DD)	NA	NA	60,000		<10,000	17,000	<10,000	11,000	-	-	<10,000	<10,000	<10,000
Lead, Total (Calculated)	7439-92-1_CALC	21,000	**7.0E=5**	NLV	NLV	NA	NA	(G,X)	**7.0E+5**	NLV	NLV	NA	NA	NA	NA	910,000		NS	NS	NS	NS	670,000	**910,000**	NS	NS	NS
Lead, Coarse Fraction	PB_COARSE	21,000	NA	NA	NA	NA	**4.0E+5**	NA	NA	NA	NA	NA	9.0E+5 (DD)	NA	NA	740,000		NS	NS	NS	NS	**450,000**	**740,000**	NS	NS	NS
Lead, Fine Fraction	PB_FINE	21,000	NA	NA	NA	1.0E+8	**4.0E+5**	NA	NA	NA	NA	4.4E+7	**9.0E+5 (DD)**	NA	NA	1,300,000		NS	NS	NS	NS	**1,300,000**	**1,200,000**	NS	NS	NS
Mercury, Total	7439-97-6	130	1,700	48,000	52,000	2.0E+7	1.6E+5	**50 (M); 1.2**	1,700	89,000	62,000	8.8E+6	5.8E+5	NA	**390 nc**	580		<50	<50	**66**	**67**	**260**	**580**	<50	**58**	<50
Selenium (B)	7782-49-2	410	4,000	NLV	NLV	1.3E+8	2.6E+6	**400**	4,000	NLV	NLV	5.9E+7	9.6E+6	NA	NA	510		<340	<410**	<380	<470**	<3,700**	**510**	<440**	<340	<490**
Silver (B)	7440-22-4	1,000	4,500	NLV	NLV	6.7E+6	2.5E+6	**100 (M); 27**	13,000	NLV	NLV	2.9E+6	9.0E+6	NA	NA	3,800		<340**	<410**	<380**	<470**	**3,800**	**1,600**	<440**	<340**	<490**
Zinc (B)	7440-66-6	47,000	2.4E+6	NLV	NLV	ID	1.7E+8	(G)	5.0E+6	NLV	NLV	ID	6.3E+8	NA	NA	880,000		11,000	23,000	13,000	42,000	270,000	630,000	14,000	10,000	17,000
Polychlorinated Biphenyls, PCBs (µg/kg)																										
PCBs	Varies	NA	NLL	3.0E+6	2.4E+5	5.2E+6	4,000 (T)	NLL	NLL	1.6E+7	8.1E+5	6.5E+6	16,000 (T)	NA	DATA	<1,100		NS	<520	NS	<450	NS	<1,100	<330	NS	<330
Semivolatiles, PNAs (µg/kg)																										
Acenaphthene	83-32-9	NA	3.0E+5	1.9E+8	8.1E+7	1.4E+10	4.1E+7	8,700	8.8E+5	3.5E+8	9.7E+7	6.2E+9	1.3E+8	NA	3.6E+6 nc	3,500		<330	<330	<330	<330	<690	3,500	<330	<330	<330
Anthracene	120-12-7	NA	41,000	1.0E+9 (D)	1.4E+9	6.7E+10	2.3E+8	ID	41,000	1.0E+9 (D)	1.6E+9	2.9E+10	7.3E+8	NA	2.2E+8 nc	6,600		<330	<330	<330	<330	<690	6,600	<330	<330	<330
Benzo(a)anthracene (Q)	56-55-3	NA	NLL	NLV	NLV	ID	20,000	NLL	NLL	NLV	NLV	ID	80,000	NA	1.1E+7 ca	7,600		<330	<330	<330	<330	610	7,600	<330	<330	<330
Benzo(a)pyrene (Q)	50-32-8	NA	NLL	NLV	NLV	1.5E+6	**2,000**	NLL	NLL	NLV	NLV	1.9E+6	8,000	NA	NA	5,800		<330	<330	<330	<330	<690	**5,800**	<330	<330	<330
Benzo(b)fluoranthene (Q)	205-99-2	NA	NLL	ID	ID	ID	20,000	NLL	NLL	ID	ID	ID	80,000	NA	NA	6,900		<330	<330	<330	<330	<690	6,900	<330	<330	<330
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLV	NLV	8.0E+8	2.5E+6	NLL	NLL	NLV	NLV	3.5E+8	7.0E+6	NA	NA	2,900		<330	<330	<330	<330	<690	2,900	<330	<330	<330
Benzo(k)fluoranthene (Q)	207-08-9	NA	NLL	NLV	NLV	ID	2.0E+5	NLL	NLL	NLV	NLV	ID	8.0E+5	NA	NA	3,200		<330	<330	<330	<330	<690	3,200	<330	<330	<330
Chrysene (Q)	218-01-9	NA	NLL	ID	ID	ID	2.0E+6	NLL	NLL	ID	ID	ID	8.0E+6	NA	NA	7,200		<330	<330	<330	<330	600	7,200	<330	<330	<330
Dibenzo(a,h)anthracene (Q)	53-70-3	NA	NLL	NLV	NLV	ID	2,000	NLL	NLL	NLV	NLV	ID	8,000	NA	NA	530		<330	<330	<330	<330	<690	530	<330	<330	<330
Fluoranthene	206-44-0	NA	7.3E+5	1.0E+9 (D)	7.4E+8	9.3E+9	4.6E+7	**5,500**	7.3E+5	1.0E+9 (D)	8.9E+8	4.1E+9	1.3E+8	NA	NA	18,000		<330	<330	<330	<330	<690	**18,000**	<330	<330	<330
Fluorene	86-73-7	NA	3.9E+5	5.8E+8	1.3E+8	9.3E+9	2.7E+7	5,300	8.9E+5	1.0E+9 (D)	1.5E+8	4.1E+9	8.7E+7	NA	8.3E+6 nc	4,800		<330	<330	<330	<330	3,600	4,800	<330	<330	<330
Indeno(1,2,3-cd)pyrene (Q)	193-39-5	NA	NLL	NLV	NLV	ID	20,000	NLL	NLL	NLV	NLV	ID	80,000	NA	NA	4,500		<330	<330	<330	<330	<690	4,500	<330	<330	<330
2-Methylnaphthalene	91-57-6	NA	57,000	2.7E+6	1.5E+6	6.7E+8	8.1E+6	**4,200**	1.7E+5	4.9E+6	1.8E+6	2.9E+8	2.6E+7	NA	30,000 nc	22,000		<330	510	<330	<330	**22,000**	2,100	<330	<330	<330
Naphthalene	91-20-3	NA	35,000	2.5E+5	3.0E+5	2.0E+8	1.6E+7	**730**	1.0E+5	4.7E+5	3.5E+5	8.8E+7	5.2E+7	NA	**1,900 ca**	7,900		<330	<330	<330	<330	**4,500**	**7,900**	<330	<330	<330
Phenanthrene	85-01-8	NA	56,000	2.8E+6	1.6E+5	6.7E+6	1.6E+6	**2,100**	1.6E+5	5.1E+6	1.9E+5	2.9E+6	5.2E+6	NA	29,000 nc	25,000		<330	**3,100**	<330	<330	**12,000**	**25,000**	<330	<330	<330
Pyrene	129-00-0	NA	4.8E+5	1.0E+9 (D)	6.5E+8	6.7E+9	2.9E+7	ID	4.8E+5	1.0E+9 (D)	7.8E+8	2.9E+9	8.4E+7	NA	4.4E+08 nc	12,000		<330	<330	<330	<330	<690	12,000	<330	<330	<330
Remaining PNAs	Varies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<330		<330	<330	<330	<330	<330	<330	<330	<330	<330
Volatiles, VOCs (µg/kg)																										
Benzene (I)	71-43-2	NA	100	1,600	13,000	3.8E+8	1.8E+5	4,000 (X)	100	8,400	45,000	4.7E+8	8.4E+5 (C)	4.0E+5	**47 (M) ca**	76		<50	<90	<50	<50	<50	<78	<50	<50	<50
2-Butanone (MEK) (I)	78-93-3	NA	2.6E+5	5.4E+7 (C)	2.9E+7	6.7E+10	1.2E+8 (C,DD)	44,000	7.6E+5	9.9E+7 (C)	3.5E+7	2.9E+10	7.0E+8 (C,DD)	2.7E+7	3.7E+5 nc	1,400		<750	<750	<750	<750	<750	<750	<750	<750	<750
1,4-Dichlorobenzene	106-46-7	NA	1,700	19,000	77,000	4.5E+8	4.0E+5	**360**	1,700	1.0E+5	2.6E+5	5.7E+8	1.9E+6	NA	**660 ca**	970		<100	<100	<100	<100	<100	**970**	<100	<100	<100
Ethylbenzene (I)	100-41-4	NA	1,500	87,000	7.2E+5	1.0E+10	2.2E+7 (C)	360	1,500	4.6E+5 (C)	2.4E+6	1.3E+10	7.1E+7 (C)	1.4E+5	340 ca	290		<50	<90	<50	240	140	220	<50	<50	<50
Isopropyl benzene	98-82-8	NA	91,000	4.0E+5 (C)	1.7E+6	5.8E+9	2.5E+7 (C)	3,200	2.6E+5	7.3E+5 (C)	2.0E+6	2.6E+9	8.0E+7 (C)	3.9E+5	**110 (M) ca**	300		<250	<250	<250	<250	**300**	<250	<250	<250	<250
2-Methylnaphthalene	91-57-6	NA	57,000	2.7E+6	1.5E+6	6.7E+8	8.1E+6	**4,200**	1.7E+5	4.9E+6	1.8E+6	2.9E+8	2.6E+7	NA	30,000 nc	25,000		<330	2,100	<330	<330	**25,000**	2,900	<330	<330	<330
Naphthalene	91-20-3	NA	35,000	2.5E+05	3.0E+5	2.0E+8	1.6E+7	**730**	1.0E+5	4.7E+5	3.5E+5	8.8E+7	5.2E+7	NA	**1,900 ca**	9,900		<330	440	<330	<330	**9,900**	**5,900**	<330	<330	<330
n-Propylbenzene (I)	103-65-1	NA	1,600	ID	ID	1.3E+9	2.5E+6	ID	4,600	ID	ID	5.9E+8	8.0E+6	1.0E+7	21,000 (DD) dev	670		<100	<100	<100	170	670	<100	<100	<100	<100
Toluene (I)	108-88-3	NA	16,000	3.3E+5 (C)	2.8E+6	2.7E+10	5.0E+7 (C)	5,400	16,000	6.1E+5 (C)	3.3E+6	1.2E+10	1.6E+8 (C)	2.5E+5	64,000 (EE) st	270		<100	<100	<100	120	150	140	<100	<100	<100
Trichloroethylene	79-01-6	NA	**100**	1,000	11,000	1.3E+8	1.1E+5 (DD)	4,000 (X)	**100**	1,900	14,000	5.9E+7	6.6E+5 (C,DD)	5.0E+5	**4.0 (M) (DD) dev**	180		<50	<90	<50	<50	<50	**180**	<50	<50	<50
1,2,4-Trimethylbenzene (I)	95-63-6	NA	**2,100**	4.3E+6 (C)	2.1E+7	8.2E+10	3.2E+7 (C)	**570**	**2,100**	8.0E+6 (C)	2.5E+7	3.6E+10	1.0E+8 (C)	1.1E+5	**2,600 (JT) nc**	6,700		<100	370	<100	**2,100**	**6,700**	**670**	<100	<100	<100
1,3,5-Trimethylbenzene (I)	108-67-8	NA	**1,800**	2.6E+6 (C)	1.6E+7	8.2E+10	3.2E+7 (C)	**1,100**	**1,800**	4.8E+6 (C)	1.9E+7	3.6E+10	1.0E+8 (C)	94,000	**1,800 (JT) nc**	1,900		<130	<300	<120	190	**1,900**	<260	<160	<120	<170
Xylenes (I)	1330-20-7	NA	5,600	6.3E+6 (C)	4.6E+7	2.9E+11	4.1E+8 (C)	**980**	5,600	1.2E+7 (C)	5.4E+7	1.3E+11	1.0E+9 (C,D)	1.5E+5	5,000 (J) nc	1,200		<150	<270	<150	710	800	480	<150	<150	<150
Remaining VOCs	Varies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

**: Laboratory analytical detection limit exceeds EGLE Criteria

nc, DATA, ca, M, DD, dev, EE, st, JT, J: Refer to EGLE September 2020 VIAP Screening Levels

AKT PEERLESS ENVIRONMENTAL SERVICES

Table 1A: Summary of 2021 Soil Analytical Results
Southwest Corner of Hamlin and Ryan Roads,
Shleby Charter Township, Michigan
AKT Peerless Project No. 4247F2-1-20

Parameters* *(Refer to detailed laboratory report for method reference data)*	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Inhalation Criteria	Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Residential Particulate Soil Inhalation Criteria	Residential Direct Contact Criteria	Groundwater Surface Water Interface Protection Criteria	Non-Residential Drinking Water Protection Criteria	Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Non-Residential Particulate Soil Inhalation Criteria	Non-Residential Direct Contact Criteria	Soil Saturation Concentration Screening Levels	EGLE September 2020 Non-Residential Volatilization to Indoor Air Pathway (VIAP) Soil Screening Levels	Maximum Concentration Detected	Sample Location	AKT-12	AKT-15	AKT-14/17 Composite
																	Collection Date	12/15/2021	12/14/2021	12/14/2021
																	Depth	(16-18')	(3-5')	Grab
Metals (µg/kg)		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg		µg/kg	µg/kg	µg/kg
Arsenic (B)	7440-38-2	5,800	**4,600**	NLV	NLV	7.2E+5	**7,600**	**4,600**	**4,600**	NLV	NLV	9.1E+5	**37,000**	NA	NA	52,000		2,700	**5,700**	4,400
Barium (B)	7440-39-3	75,000	1.3E+6	NLV	NLV	3.3E+8	3.7E+7	(G)	1.3E+6	NLV	NLV	1.5E+8	1.3E+8	NA	NA	270,000		36,000	40,000	49,000
Cadmium (B)	7440-43-9	1,200	6,000	NLV	NLV	1.7E+6	5.5E+5	(G,X)	6,000	NLV	NLV	2.2E+6	2.1E+6	NA	NA	2,300		250	<200	420
Chromium, Total	7440-47-3	18,000 (total)	30,000	NLV	NLV	2.6E+5	2.5E+6	**3,300**	30,000	NLV	NLV	2.4E=5	9.2E+6	NA	-	11,000		**7,900**	**11,000**	**10,000**
Chromium III (B,H)	16065-83-1	18,000 (total)	1.0E+9 (D)	NLV	NLV	3.3E+8	7.9E+8	(G,X)	1.0E+9 (D)	NLV	NLV	1.5E+8	1.0E+9 (D)	NA	NA	860,000		NS	NS	NS
Chromium VI	18540-29-9	NA	30,000	NLV	NLV	2.6E+5	2.5E+6	3,300	30,000	NLV	NLV	2.4E+5	9.2E+6	NA	NA	<2,000		NS	NS	NS
Copper (B)	7440-50-8	32,000	5.8E+6	NLV	NLV	1.3E+8	2.0E+7	(G)	5.8E+6	NLV	NLV	5.9E+7	7.3E+7	NA	NA	1,000,000		15,000	23,000	27,000
Lead (B)	7439-92-1	21,000	7.0E+5	NLV	NLV	1.0E+8	4.0E+5	(G,X)	7.0E+5	NLV	NLV	4.4E+7	9.0E+5 (DD)	NA	NA	60,000		51,000	60,000	-
Lead, Total (Calculated)	7439-92-1_CALC	21,000	**7.0E=5**	NLV	NLV	NA	NA	(G,X)	**7.0E+5**	NLV	NLV	NA	NA	NA	NA	910,000		NS	NS	140,000
Lead, Coarse Fraction	PB_COARSE	21,000	NA	NA	NA	NA	NA	**4.0E+5**	NA	NA	NA	NA	9.0E+5 (DD)	NA	NA	740,000		NS	NS	150,000
Lead, Fine Fraction	PB_FINE	21,000	NA	NA	NA	1.0E+8	**4.0E+5**	NA	NA	NA	NA	4.4E+7	**9.0E+5 (DD)**	NA	NA	1,300,000		NS	NS	120,000
Mercury, Total	7439-97-6	130	1,700	48,000	52,000	2.0E+7	1.6E+5	**50 (M); 1.2**	1,700	89,000	62,000	8.8E+6	5.8E+5	NA	**390 nc**	580		**120**	<50	<50
Selenium (B)	7782-49-2	410	4,000	NLV	NLV	1.3E+8	2.6E+6	**400**	4,000	NLV	NLV	5.9E+7	9.6E+6	NA	NA	510		<450**	<380	<450**
Silver (B)	7440-22-4	1,000	4,500	NLV	NLV	6.7E+6	2.5E+6	**100 (M); 27**	13,000	NLV	NLV	2.9E+6	9.0E+6	NA	NA	3,800		<450**	<380**	<450**
Zinc (B)	7440-66-6	47,000	2.4E+6	NLV	NLV	ID	1.7E+8	(G)	5.0E+6	NLV	NLV	ID	6.3E+8	NA	NA	880,000		880,000	51,000	130,000
Polychlorinated Biphenyls, PCBs (µg/kg)																				
PCBs	Varies	NA	NLL	3.0E+6	2.4E+5	5.2E+6	4,000 (T)	NLL	NLL	1.6E+7	8.1E+5	6.5E+6	16,000 (T)	NA	DATA	<1,100		<330	<330	<580
Semivolatiles, PNAs (µg/kg)																				
Acenaphthene	83-32-9	NA	3.0E+5	1.9E+8	8.1E+7	1.4E+10	4.1E+7	8,700	8.8E+5	3.5E+8	9.7E+7	6.2E+9	1.3E+8	NA	3.6E+6 nc	3,500		<330	<330	<330
Anthracene	120-12-7	NA	41,000	1.0E+9 (D)	1.4E+9	6.7E+10	2.3E+8	ID	41,000	1.0E+9 (D)	1.6E+9	2.9E+10	7.3E+8	NA	2.2E+8 nc	6,600		<330	<330	<330
Benzo(a)anthracene (Q)	56-55-3	NA	NLL	NLV	NLV	ID	20,000	NLL	NLL	NLV	NLV	ID	80,000	NA	1.1E+7 ca	7,600		<330	<330	<330
Benzo(a)pyrene (Q)	50-32-8	NA	NLL	NLV	NLV	1.5E+6	**2,000**	NLL	NLL	NLV	NLV	1.9E+6	8,000	NA	NA	5,800		<330	<330	<330
Benzo(b)fluoranthene (Q)	205-99-2	NA	NLL	ID	ID	ID	20,000	NLL	NLL	ID	ID	ID	80,000	NA	NA	6,900		<330	<330	<330
Benzo(g,h,i)perylene	191-24-2	NA	NLL	NLV	NLV	8.0E+8	2.5E+6	NLL	NLL	NLV	NLV	3.5E+8	7.0E+6	NA	NA	2,900		<330	<330	<330
Benzo(k)fluoranthene (Q)	207-08-9	NA	NLL	NLV	NLV	ID	2.0E+5	NLL	NLL	NLV	NLV	ID	8.0E+5	NA	NA	3,200		<330	<330	<330
Chrysene (Q)	218-01-9	NA	NLL	ID	ID	ID	2.0E+6	NLL	NLL	ID	ID	ID	8.0E+6	NA	NA	7,200		<330	<330	<330
Dibenzo(a,h)anthracene (Q)	53-70-3	NA	NLL	NLV	NLV	ID	2,000	NLL	NLL	NLV	NLV	ID	8,000	NA	NA	530		<330	<330	<330
Fluoranthene	206-44-0	NA	7.3E+5	1.0E+9 (D)	7.4E+8	9.3E+9	4.6E+7	**5,500**	7.3E+5	1.0E+9 (D)	8.9E+8	4.1E+9	1.3E+8	NA	NA	18,000		<330	<330	<330
Fluorene	86-73-7	NA	3.9E+5	5.8E+8	1.3E+8	9.3E+9	2.7E+7	5,300	8.9E+5	1.0E+9 (D)	1.5E+8	4.1E+9	8.7E+7	NA	8.3E+6 nc	4,800		<330	<330	<330
Indeno(1,2,3-cd)pyrene (Q)	193-39-5	NA	NLL	NLV	NLV	ID	20,000	NLL	NLL	NLV	NLV	ID	80,000	NA	NA	4,500		<330	<330	<330
2-Methylnaphthalene	91-57-6	NA	57,000	2.7E+6	1.5E+6	6.7E+8	8.1E+6	**4,200**	1.7E+5	4.9E+6	1.8E+6	2.9E+8	2.6E+7	NA	30,000 nc	22,000		<330	<330	<330
Naphthalene	91-20-3	NA	35,000	2.5E+5	3.0E+5	2.0E+8	1.6E+7	**730**	1.0E+5	4.7E+5	3.5E+5	8.8E+7	5.2E+7	NA	**1,900 ca**	7,900		730	<330	<330
Phenanthrene	85-01-8	NA	56,000	2.8E+6	1.6E+5	6.7E+6	1.6E+6	**2,100**	1.6E+5	5.1E+6	1.9E+5	2.9E+6	5.2E+6	NA	29,000 nc	25,000		<330	<330	<330
Pyrene	129-00-0	NA	4.8E+5	1.0E+9 (D)	6.5E+8	6.7E+9	2.9E+7	ID	4.8E+5	1.0E+9 (D)	7.8E+8	2.9E+9	8.4E+7	NA	4.4E+08 nc	12,000		<330	<330	<330
Remaining PNAs	Varies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<330		<330	<330	<330
Volatiles, VOCs (µg/kg)																				
Benzene (I)	71-43-2	NA	100	1,600	13,000	3.8E+8	1.8E+5	4,000 (X)	100	8,400	45,000	4.7E+8	8.4E+5 (C)	4.0E+5	**47 (M) ca**	76		**76**	<50	<50
2-Butanone (MEK) (I)	78-93-3	NA	2.6E+5	5.4E+7 (C)	2.9E+7	6.7E+10	1.2E+8 (C,DD)	44,000	7.6E+5	9.9E+7 (C)	3.5E+7	2.9E+10	7.0E+8 (C,DD)	2.7E+7	3.7E+5 nc	1,400		1,400	<750	<750
1,4-Dichlorobenzene	106-46-7	NA	1,700	19,000	77,000	4.5E+8	4.0E+5	**360**	1,700	1.0E+5	2.6E+5	5.7E+8	1.9E+6	NA	**660 ca**	970		190	<100	<100
Ethylbenzene (I)	100-41-4	NA	1,500	87,000	7.2E+5	1.0E+10	2.2E+7 (C)	360	1,500	4.6E+5 (C)	2.4E+6	1.3E+10	7.1E+7 (C)	1.4E+5	340 ca	290		290	<50	<50
Isopropyl benzene	98-82-8	NA	91,000	4.0E+5 (C)	1.7E+6	5.8E+9	2.5E+7 (C)	3,200	2.6E+5	7.3E+5 (C)	2.0E+6	2.6E+9	8.0E+7 (C)	3.9E+5	**110 (M) ca**	300		<250	<250	<250
2-Methylnaphthalene	91-57-6	NA	57,000	2.7E+6	1.5E+6	6.7E+8	8.1E+6	**4,200**	1.7E+5	4.9E+6	1.8E+6	2.9E+8	2.6E+7	NA	30,000 nc	25,000		<330	<330	<330
Naphthalene	91-20-3	NA	35,000	2.5E+05	3.0E+5	2.0E+8	1.6E+7	**730**	1.0E+5	4.7E+5	3.5E+5	8.8E+7	5.2E+7	NA	**1,900 ca**	9,900		<330	<330	<330
n-Propylbenzene (I)	103-65-1	NA	1,600	ID	ID	1.3E+9	2.5E+6	ID	4,600	ID	ID	5.9E+8	8.0E+6	1.0E+7	21,000 (DD) dev	670		<100	<100	<100
Toluene (I)	108-88-3	NA	16,000	3.3E+5 (C)	2.8E+6	2.7E+10	5.0E+7 (C)	5,400	16,000	6.1E+5 (C)	3.3E+6	1.2E+10	1.6E+8 (C)	2.5E+5	64,000 (EE) st	270		270	<100	<100
Trichloroethylene	79-01-6	NA	**100**	1,000	11,000	1.3E+8	1.1E+5 (DD)	4,000 (X)	**100**	1,900	14,000	5.9E+7	6.6E+5 (C,DD)	5.0E+5	**4.0 (M) (DD) dev**	180		<50	<50	<50
1,2,4-Trimethylbenzene (I)	95-63-6	NA	**2,100**	4.3E+6 (C)	2.1E+7	8.2E+10	3.2E+7 (C)	**570**	**2,100**	8.0E+6 (C)	2.5E+7	3.6E+10	1.0E+8 (C)	1.1E+5	**2,600 (JT) nc**	6,700		420	<100	<100
1,3,5-Trimethylbenzene (I)	108-67-8	NA	**1,800**	2.6E+6 (C)	1.6E+7	8.2E+10	3.2E+7 (C)	**1,100**	**1,800**	4.8E+6 (C)	1.9E+7	3.6E+10	1.0E+8 (C)	94,000	**1,800 (JT) nc**	1,900		230	<100	<140
Xylenes (I)	1330-20-7	NA	5,600	6.3E+6 (C)	4.6E+7	2.9E+11	4.1E+8 (C)	**980**	5,600	1.2E+7 (C)	5.4E+7	1.3E+11	1.0E+9 (C,D)	1.5E+5	5,000 (J) nc	1,200		**1,200**	<150	<150
Remaining VOCs	Varies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL		BDL	BDL	BDL

**: Laboratory analytical detection limit exceeds EGLE Criteria

nc, DATA, ca, M, DD, dev, EE, st, JT, J: Refer to EGLE September 2020 VIAP Screening Levels

AKT PEERLESS
ENVIRONMENTAL SERVICES

Table 1B: Summary of Soil Analytical Results (Previous Investigations)
Southwest Corner of Hamlin and Ryan Roads
Shelby Charter Township, Michigan
AKT Peerless Project No. 16039F-2-20

Parameters* *(Refer to detailed laboratory report for method reference data)*	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Inhalation Criteria	Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Residential Particulate Soil Inhalation Criteria	Residential Direct Contact Criteria	Groundwater Surface Water Interface Protection Criteria	Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Non-Residential Particulate Soil Inhalation Criteria	Non-Residential Direct Contact Criteria	Soil Saturation Concentration Screening Levels	EGLE September 2020 Non-Residential Volatilization to Indoor Air Pathway (VIAP) Soil Screening Levels	Maximum Concentration Detected	Sample Location	SB-1	SB-2	SB-3	SB-4	SB-5	SB-6
																	Collection Date	3/22/2004	3/22/2004	3/22/2004	3/22/2004	3/22/2004	3/22/2004
																	Depth	(17-19')	(8-10')	(19-20')	(18-19')	(9-10')	(6-7')
Metals (µg/kg)		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg			µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Arsenic (B)	7440-38-2	5,800	**4,600**	NLV	NLV	7.2E+5	**7,600**	**4,600**	NLV	NLV	9.1E+5	37,000	NA	NA	26,000			2,200	**26,000**	2,700	2,700	**5,700**	**12,000**
Barium (B)	7440-39-3	75,000	1.3E+6	NLV	NLV	3.3E+8	3.7E+7	(G)	NLV	NLV	1.5E+8	1.3E+8	NA	NA	960,000			19,000	960,000	10,000	8,200	29,000	360,000
Cadmium (B)	7440-43-9	1,200	**6,000**	NLV	NLV	1.7E+6	5.5E+5	(G,X)	NLV	NLV	2.2E+6	2.1E+6	NA	NA	17,000			200	5,600	60	BDL	200	3,800
Chromium, Total	7440-47-3	18,000 (total)	**30,000**	NLV	NLV	2.6E+5	2.5E+6	**3,300**	NLV	NLV	2.4E+5	9.2E+6	NA	NA	79,000			**7,700**	**79,000**	**6,000**	**4,300**	**14,000**	**50,000**
Copper (B)	7440-50-8	32,000	5.8E+6	NLV	NLV	1.3E+8	2.0E+7	(G)	NLV	NLV	5.9E+7	7.3E+7	NA	NA	460,000			20,000	460,000	4,200	4,000	26,000	370,000
Lead (B)	7439-92-1	21,000	**7.0E+5**	NLV	NLV	1.0E+8	**4.0E+5**	(G,X)	NLV	NLV	4.4E+7	**9.0E+5 (DD)**	NA	NA	7,000,000			37,000	**7,000,000**	3,300	2,200	32,000	**950,000**
Mercury, Total	7439-97-6	130	1,700	48,000	52,000	2.0E+7	1.6E+5	**50 (M); 1.2**	89,000	62,000	8.8E+6	5.8E+5	NA	**390 nc**	420			BDL	**290**	BDL	BDL	BDL	**370**
Selenium (B)	7782-49-2	410	4,000	NLV	NLV	1.3E+8	2.6E+6	**400**	NLV	NLV	5.9E+7	9.6E+6	NA	NA	1,700			BDL	**1,000**	BDL	BDL	BDL	**1,200**
Silver (B)	7440-22-4	1,000	4,500	NLV	NLV	6.7E+6	2.5E+6	**100 (M); 27**	NLV	NLV	2.9E+6	9.0E+6	NA	NA	3,600			BDL	**3,600**	BDL	BDL	BDL	**1,100**
Zinc (B)	7440-66-6	47,000	2.4E+6	NLV	NLV	ID	1.7E+8	(G)	NLV	NLV	ID	6.3E+8	NA	NA	2,300,000			43,000	2,300,000	15,000	11,000	60,000	1,000,000
Polychlorinated Biphenyls, PCBs (µg/kg)																							
PCB, Aroclor 1254	11097-69-1	NA	NLL	3.0E+6	2.4E+5	5.2E+6	1,000 (T)	NLL	1.6E+7	8.1E+5	6.5E+6	(T)	NA	DATA	460			BDL	BDL	BDL	BDL	BDL	460
PCBs	Varies	NA	NLL	3.0E+6	2.4E+5	5.2E+6	4,000 (T)	NLL	1.6E+7	8.1E+5	6.5E+6	(T)	NA	DATA	BDL			BDL	BDL	BDL	BDL	BDL	BDL
Semivolatiles, PNAs (µg/kg)																							
Benzo(a)anthracene (Q)	56-55-3	NA	NLL	NLV	NLV	ID	20,000	NLL	NLV	NLV	ID	80,000	NA	1.1E+7 ca	6,300			BDL	BDL	BDL	BDL	BDL	BDL
Benzo(a)pyrene (Q)	50-32-8	NA	NLL	NLV	NLV	1.5E+6	**2,000**	NLL	NLV	NLV	1.9E+6	**8,000**	NA	NA	10,000			BDL	BDL	BDL	BDL	BDL	BDL
Benzo(b)fluoranthene (Q)	205-99-2	NA	NLL	ID	ID	ID	20,000	NLL	ID	ID	ID	80,000	NA	NA	9,500			BDL	BDL	BDL	BDL	BDL	BDL
Benzo(k)fluoranthene (Q)	207-08-9	NA	NLL	NLV	NLV	ID	2.0E+5	NLL	NLV	NLV	ID	8.0E+5	NA	NA	7,300			BDL	BDL	BDL	BDL	BDL	BDL
bis(2-Ethylhexyl)phthalate	117-81-7	NA	NLL	NLV	NLV	7.0E+8	2.8E+6	NLL	NLV	NLV	8.9E+8	1.2E+7 (C)	1.0E+7	NA	380			BDL	BDL	BDL	BDL	BDL	380
Butylbenzylphthalate	85-68-7	NA	2.2E+6 (C)	NLV	NLV	4.70E+10	3.6E+7 (C)	1.2E+5 (X)	NLV	NLV	8.9E+8	1.2E+7 (C)	3.1E=5	NA	5,100			BDL	BDL	BDL	BDL	BDL	BDL
Chrysene (Q)	218-01-9	NA	NLL	ID	ID	ID	2.0E+6	NLL	ID	ID	ID	8.0E+6	NA	NA	6,800			BDL	BDL	BDL	BDL	BDL	BDL
Fluoranthene	206-44-0	NA	7.3E+5	1.0E+9 (D)	7.4E+8	9.3E+9	4.6E+7	**5,500**	1.0E+9 (D)	8.9E+8	4.1E+9	1.3E+8	NA	NA	14,000			BDL	BDL	BDL	BDL	BDL	530
Phenanthrene	85-01-8	NA	56,000	2.8E+6	1.6E+5	6.7E+6	1.6E+6	2,100	5.1E+6	1.9E+5	2.9E+6	5.2E+6	NA	29,000 nc	1,800			BDL	BDL	BDL	BDL	BDL	430
Pyrene	129-00-0	NA	4.8E+5	1.0E+9 (D)	6.5E+8	6.7E+9	2.9E+7	ID	1.0E+9 (D)	7.8E+8	2.9E+9	8.4E+7	NA	4.4E+8 nc	15,000			BDL	BDL	BDL	BDL	BDL	420
Remaining PNAs	Varies	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL			BDL	BDL	BDL	BDL	BDL	BDL
Volatiles, VOCs (µg/kg)																							
2-Butanone (MEK) (I)	78-93-3	NA	2.6E+5	5.4E+7 (C)	2.9E+7	6.7E+10	1.2E+8 (C,DD)	44,000	9.9E+7 (C)	3.5E+7	2.9E+10	7.0E+8 (C,DD)	2.7E+7	3.7E+5 (DD) dev	880			BDL	BDL	BDL	BDL	BDL	BDL
n-Butylbenzene	104-51-8	NA	1,600	ID	ID	2.0E+9	2.5E+6	ID	ID	ID	8.8E+8	8.0E+6	1.0E+7	9,800 nc	400			BDL	BDL	BDL	BDL	BDL	50
sec-Butylbenzene	135-98-8	NA	1,600	ID	ID	4.0E+8	2.5E+6	ID	ID	ID	1.8E+8	8.0E+6	1.0E+7	66,000 (C) nc	180			BDL	BDL	BDL	BDL	BDL	BDL
Ethylbenzene (I)	100-41-4	NA	1,500	87,000	7.2E+5	1.0E+10	2.2E+7 (C)	**360**	4.6E+5 (C)	2.4E+6	1.3E+10	7.1E+7 (C)	1.4E+5	**340 ca**	400			BDL	81	BDL	BDL	BDL	BDL
n-Propylbenzene (I)	103-65-1	NA	1,600	ID	ID	1.3E+9	2.5E+6	ID	ID	ID	5.9E+8	8.0E+6	1.0E+7	21,000 (DD) dev	200			BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethene	127-18-4	NA	100	11,000	1.7E+5	2.7E+9	2.0E+5 (C)	1,200 (X)	21,000	2.1E+5	1.2E+9	9.3E+5 (C)	88,000	**74 (EE) st**	95			BDL	**95**	BDL	BDL	BDL	BDL
Toluene (I)	108-88-3	NA	16,000	3.3E+5 (C)	2.8E+6	2.7E+10	5.0E+7 (C)	5,400	6.1E+5 (C)	3.3E+6	1.2E+10	1.6E+8 (C)	2.5E+5	64,000 (EE) st	370			BDL	87	BDL	BDL	BDL	60
Trichloroethene	79-01-6	NA	100	1,000	11,000	1.3E+8	1.1E+5 (DD)	4,000 (X)	1,900	14,000	5.9E+7	6.6E+5 (C,DD)	5.0E+5	**4.0 (M) (DD) dev**	57			BDL	**57**	BDL	BDL	BDL	BDL
1,2,4-Trimethylbenzene (I)	95-63-6	NA	2,100	4.3E+6 (C)	2.1E+7	8.2E+10	3.2E+7 (C)	**570**	8.0E+6 (C)	2.5E+7	3.6E+10	1.0E+8 (C)	1.1E+5	2,600 (JT) nc	1,400			BDL	BDL	BDL	BDL	BDL	170
1,3,5-Trimethylbenzene	108-67-8	NA	1,800	2.6E+6 (C)	1.6E+7	8.20E+10	3.2E+7 (C)	1,100	4.8E+6 (C)	1.9E+7	3.60E+10	1.0E+8 (C)	94,000	1,800 (JT) nc	510			BDL	BDL	BDL	BDL	BDL	BDL
Xylenes (I)	1330-20-7	NA	5,600	6.3E+6 (C)	4.6E+7	2.90E+11	4.1E+8 (C)	**980**	5,600	1.2E+7 (C)	1.30E+11	1.0E+9 (C,D)	1.50E+05	5,000 (J) nc	1,100			BDL	460	BDL	BDL	BDL	BDL
Remaining VOCs	Varies	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL			BDL	BDL	BDL	BDL	BDL	BDL

nc, DATA, ca, DD, dev, C, EE, st, JT, J: Refer to EGLE September 2020 VIAP Screening Levels.

AKT PEERLESS
ENVIRONMENTAL SERVICES

Table 1B: Summary of Soil Analytical Results (Previous Investigations)
Southwest Corner of Hamlin and Ryan Roads
Shelby Charter Township, Michigan
AKT Peerless Project No. 16039F-2-20

Parameters* *(Refer to detailed laboratory report for method reference data)*	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Residential Soil Volatilization to Indoor Air Inhalation Criteria	Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Residential Particulate Soil Inhalation Criteria	Residential Direct Contact Criteria	Groundwater Surface Water Interface Protection Criteria	Non-Residential Soil Volatilization to Indoor Air Inhalation Criteria	Non-Residential Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Non-Residential Particulate Soil Inhalation Criteria	Non-Residential Direct Contact Criteria	Soil Saturation Concentration Screening Levels	EGLE September 2020 Non-Residential Volatilization to Indoor Air Pathway (VIAP) Soil Screening Levels	Maximum Concentration Detected	Sample Location	SB-6	HA-1	HA-2	HA-3	HA-4
																Collection Date	3/22/2004	3/23/2004	3/23/2004	3/23/2004	3/23/2004
																Depth	(14-15')	-	-	-	-
Metals (µg/kg)		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg		µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Arsenic (B)	7440-38-2	5,800	**4,600**	NLV	NLV	7.2E+5	**7,600**	**4,600**	NLV	NLV	9.1E+5	37,000	NA	NA	26,000		**19,000**	3,500	**4,700**	**5,500**	**6,500**
Barium (B)	7440-39-3	75,000	1.3E+6	NLV	NLV	3.3E+8	3.7E+7	(G)	NLV	NLV	1.5E+8	1.3E+8	NA	NA	960,000		770,000	22,000	34,000	220,000	29,000
Cadmium (B)	7440-43-9	1,200	**6,000**	NLV	NLV	1.7E+6	5.5E+5	(G,X)	NLV	NLV	2.2E+6	2.1E+6	NA	NA	17,000		**12,000**	280	230	**17,000**	610
Chromium, Total	7440-47-3	18,000 (total)	**30,000**	NLV	NLV	2.6E+5	2.5E+6	**3,300**	NLV	NLV	2.4E+5	9.2E+6	NA	NA	79,000		**76,000**	**7,300**	**9,600**	**23,000**	**9,600**
Copper (B)	7440-50-8	32,000	5.8E+6	NLV	NLV	1.3E+8	2.0E+7	(G)	NLV	NLV	5.9E+7	7.3E+7	NA	NA	460,000		320,000	11,000	12,000	89,000	13,000
Lead (B)	7439-92-1	21,000	**7.0E+5**	NLV	NLV	1.0E+8	**4.0E+5**	(G,X)	NLV	NLV	4.4E+7	**9.0E+5 (DD)**	NA	NA	7,000,000		**1,400,000**	19,000	20,000	**1,400,000**	34,000
Mercury, Total	7439-97-6	130	1,700	48,000	52,000	2.0E+7	1.6E+5	**50 (M); 1.2**	89,000	62,000	8.8E+6	5.8E+5	NA	**390 nc**	420		**420**	BDL	BDL	BDL	BDL
Selenium (B)	7782-49-2	410	4,000	NLV	NLV	1.3E+8	2.6E+6	**400**	NLV	NLV	5.9E+7	9.6E+6	NA	NA	1,700		**1,700**	BDL	BDL	350	240
Silver (B)	7440-22-4	1,000	4,500	NLV	NLV	6.7E+6	2.5E+6	**100 (M); 27**	NLV	NLV	2.9E+6	9.0E+6	NA	NA	3,600		**1,900**	BDL	BDL	**1,000**	BDL
Zinc (B)	7440-66-6	47,000	2.4E+6	NLV	NLV	ID	1.7E+8	(G)	NLV	NLV	ID	6.3E+8	NA	NA	2,300,000		1,900,000	46,000	39,000	430,000	120,000
Polychlorinated Biphenyls, PCBs (µg/kg)																					
PCB, Aroclor 1254	11097-69-1	NA	NLL	3.0E+6	2.4E+5	5.2E+6	1,000 (T)	NLL	1.6E+7	8.1E+5	6.5E+6	(T)	NA	DATA	460		360	BDL	BDL	BDL	BDL
PCBs	Varies	NA	NLL	3.0E+6	2.4E+5	5.2E+6	4,000 (T)	NLL	1.6E+7	8.1E+5	6.5E+6	(T)	NA	DATA	BDL		BDL	BDL	BDL	BDL	BDL
Semivolatiles, PNAs (µg/kg)																					
Benzo(a)anthracene (Q)	56-55-3	NA	NLL	NLV	NLV	ID	20,000	NLL	NLV	NLV	ID	80,000	NA	1.1E+7 ca	6,300		BDL	BDL	BDL	BDL	6,300
Benzo(a)pyrene (Q)	50-32-8	NA	NLL	NLV	NLV	1.5E+6	**2,000**	NLL	NLV	NLV	1.9E+6	**8,000**	NA	NA	10,000		BDL	BDL	BDL	BDL	**10,000**
Benzo(b)fluoranthene (Q)	205-99-2	NA	NLL	ID	ID	ID	20,000	NLL	ID	ID	ID	80,000	NA	NA	9,500		BDL	BDL	BDL	BDL	9,500
Benzo(k)fluoranthene (Q)	207-08-9	NA	NLL	NLV	NLV	ID	2.0E+5	NLL	NLV	NLV	ID	8.0E+5	NA	NA	7,300		BDL	BDL	BDL	BDL	7,300
bis(2-Ethylhexyl)phthalate	117-81-7	NA	NLL	NLV	NLV	7.0E+8	2.8E+6	NLL	NLV	NLV	8.9E+8	1.2E+7 (C)	1.0E+7	NA	380		BDL	BDL	BDL	BDL	BDL
Butylbenzylphthalate	85-68-7	NA	2.2E+6 (C)	NLV	NLV	4.70E+10	3.6E+7 (C)	1.2E+5 (X)	NLV	NLV	8.9E+8	1.2E+7 (C)	3.1E=5	NA	5,100		5,100	BDL	BDL	BDL	BDL
Chrysene (Q)	218-01-9	NA	NLL	ID	ID	ID	2.0E+6	NLL	ID	ID	ID	8.0E+6	NA	NA	6,800		BDL	BDL	BDL	BDL	6,800
Fluoranthene	206-44-0	NA	7.3E+5	1.0E+9 (D)	7.4E+8	9.3E+9	4.6E+7	**5,500**	1.0E+9 (D)	8.9E+8	4.1E+9	1.3E+8	NA	NA	14,000		BDL	BDL	BDL	460	**14,000**
Phenanthrene	85-01-8	NA	56,000	2.8E+6	1.6E+5	6.7E+6	1.6E+6	2,100	5.1E+6	1.9E+5	2.9E+6	5.2E+6	NA	29,000 nc	1,800		BDL	BDL	BDL	330	1,800
Pyrene	129-00-0	NA	4.8E+5	1.0E+9 (D)	6.5E+8	6.7E+9	2.9E+7	ID	1.0E+9 (D)	7.8E+8	2.9E+9	8.4E+7	NA	4.4E+8 nc	15,000		BDL	BDL	BDL	420	15,000
Remaining PNAs	Varies	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL		BDL	BDL	BDL	BDL	BDL
Volatiles, VOCs (µg/kg)																					
2-Butanone (MEK) (I)	78-93-3	NA	2.6E+5	5.4E+7 (C)	2.9E+7	6.7E+10	1.2E+8 (C,DD)	44,000	9.9E+7 (C)	3.5E+7	2.9E+10	7.0E+8 (C,DD)	2.7E+7	3.7E+5 (DD) dev	880		880	BDL	BDL	BDL	BDL
n-Butylbenzene	104-51-8	NA	1,600	ID	ID	2.0E+9	2.5E+6	ID	ID	ID	8.8E+8	8.0E+6	1.0E+7	9,800 nc	400		400	BDL	BDL	BDL	BDL
sec-Butylbenzene	135-98-8	NA	1,600	ID	ID	4.0E+8	2.5E+6	ID	ID	ID	1.8E+8	8.0E+6	1.0E+7	66,000 (C) nc	180		180	BDL	BDL	BDL	BDL
Ethylbenzene (I)	100-41-4	NA	1,500	87,000	7.2E+5	1.0E+10	2.2E+7 (C)	**360**	4.6E+5 (C)	2.4E+6	1.3E+10	7.1E+7 (C)	1.4E+5	**340 ca**	400		**400**	BDL	BDL	BDL	BDL
n-Propylbenzene (I)	103-65-1	NA	1,600	ID	ID	1.3E+9	2.5E+6	ID	ID	ID	5.9E+8	8.0E+6	1.0E+7	21,000 (DD) dev	200		200	BDL	BDL	BDL	BDL
Tetrachloroethene	127-18-4	NA	100	11,000	1.7E+5	2.7E+9	2.0E+5 (C)	1,200 (X)	21,000	2.1E+5	1.2E+9	9.3E+5 (C)	88,000	**74 (EE) st**	95		BDL	BDL	BDL	BDL	BDL
Toluene (I)	108-88-3	NA	16,000	3.3E+5 (C)	2.8E+6	2.7E+10	5.0E+7 (C)	5,400	6.1E+5 (C)	3.3E+6	1.2E+10	1.6E+8 (C)	2.5E+5	64,000 (EE) st	370		370	BDL	BDL	BDL	BDL
Trichloroethene	79-01-6	NA	100	1,000	11,000	1.3E+8	1.1E+5 (DD)	4,000 (X)	1,900	14,000	5.9E+7	6.6E+5 (C,DD)	5.0E+5	**4.0 (M) (DD) dev**	57		BDL	BDL	BDL	BDL	BDL
1,2,4-Trimethylbenzene (I)	95-63-6	NA	2,100	4.3E+6 (C)	2.1E+7	8.2E+10	3.2E+7 (C)	**570**	8.0E+6 (C)	2.5E+7	3.6E+10	1.0E+8 (C)	1.1E+5	2,600 (JT) nc	1,400		**1,400**	BDL	BDL	BDL	BDL
1,3,5-Trimethylbenzene	108-67-8	NA	1,800	2.6E+6 (C)	1.6E+7	8.20E+10	3.2E+7 (C)	1,100	4.8E+6 (C)	1.9E+7	3.60E+10	1.0E+8 (C)	94,000	1,800 (JT) nc	510		510	BDL	BDL	BDL	BDL
Xylenes (I)	1330-20-7	NA	5,600	6.3E+6 (C)	4.6E+7	2.90E+11	4.1E+8 (C)	**980**	5,600	1.2E+7 (C)	1.30E+11	1.0E+9 (C,D)	1.50E+05	5,000 (J) nc	1,100		**1,100**	BDL	BDL	BDL	BDL
Remaining VOCs	Varies	-	-	-	-	-	-	-	-	-	-	-	-	-	BDL		BDL	BDL	BDL	BDL	BDL

nc, DATA, ca, DD, dev, C, EE, st, JT, J: Refer to EGLE September 2020 VIAP Screening Levels.

AKT PEERLESS ENVIRONMENTAL SERVICES

Table 2A: Summary of 2021 Groundwater Analytical Results
Southwest Corner of Hamlin and Ryan Roads,
Shelby Charter Township, Michigan
AKT Peerless Project No. 4247F2-1-20

Parameters* *(Refer to detailed laboratory report for method reference data)*	Chemical Abstract Service Number	Residential Drinking Water Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	Groundwater Surface Water Interface Criteria	Non-Residential Drinking Water Criteria	Non-Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	Water Solubility	Flammability and Explosivity Screening Level	EGLE September 2020 Non-Residential Volatilization to Indoor Air Pathway (VIAP) Groundwater Not in Contact Screening Levels	Maximum Concentration Detected	Sample Location	AKT-3	AKT-6	AKT-9	AKT-10	AKT-11	AKT-12
											Collection Date	12/14/2021	12/14/2021	12/14/2021	12/14/2021	12/15/2021	12/15/2021
											Screen Depth	(14-19')	(17-22')	(17-22')	(20-25')	(18-23')	(18-23')
Metals		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Arsenic	7440-38-2	**10 (A)**	NLV	**10**	**10 (A)**	NLV	NA	ID	NA	67		<5.0	5.7	**15**	7.0	**67**	**66**
Barium	7440-39-3	2,000 (A)	NLV	(G)	2,000 (A)	NLV	NA	ID	NA	550		<100	<100	<100	<100	550	190
Cadmium	7440-43-9	5.0 (A)	NLV	(G,X)	5.0 (A)	NLV	NA	ID	NA	<2.0		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chromium, Total	7440-47-3	100 (A)	NLV	11	100 (A)	NLV	NA	ID	NA	<10		<10	<10	<10	<10	<10	<10
Copper	7440-50-8	1,000 (E)	NLV	(G)	1,000 (E)	NLV	NA	ID	NA	11		8.3	11	<5.0	9.1	<5.0	<5.0
Lead	7439-92-1	**4.0 (L)**	NLV	(G,X)	**4.0 (L)**	NLV	NA	ID	NA	28		**28**	**9.9**	<5.0**	<5.0**	<5.0**	<5.0**
Mercury, Total	7439-97-6	2.0 (A)	56 (S)	0.0013	2.0 (A)	56 (S)	56	ID	3.7 nc	<0.20		<0.20**	<0.20**	<0.20**	<0.20**	<0.20**	<0.20**
Selenium	7782-49-2	50 (A)	NLV	5.0	50 (A)	NLV	NA	ID	NA	<5.0		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Silver	7440-22-4	34	NLV	0.2 (M); 0.06	98	NLV	NA	ID	NA	<5.0		<5.0**	<5.0**	<5.0**	<5.0**	<5.0**	<5.0**
Zinc	7440-66-6	2,400	NLV	(G)	5,000 (E)	NLV	NA	ID	NA	120		<50	<50	<50	<50	120	<50
Nonspecific Grouping																	
Methane (K)	74-82-8	ID	(K)	NA	ID	(K)	NA	28,000	10,000 (AA)	2,700		<500	<500	<500	<500	690	2,700
Semivolatiles, PNAs (µg/L)																	
PNAs	Varies	-	-	-	-	-	-	-	-	BDL		BDL	BDL	BDL	BDL	BDL	BDL
Volatiles, VOCs (µg/L)																	
Toluene (I)	108-88-3	790 (E)	5.3E+5 (S)	270	790 (E)	5.3E+5 (S)	5.26E+5	61,000	59,000 (EE) st	1.4		1.4	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene (I)	95-63-6	63 (E)	56,000 (S)	17	63 (E)	56,000 (S)	55,890	56,000 (S)	990 (JT) nc	1.2		<1.0	<1.0	<1.0	<1.0	1.2	<1.0
Remaining VOCs	Varies	-	-	-	-	-	-	-	-	BDL		BDL	BDL	BDL	BDL	BDL	BDL

**: Laboratory analytical detection limit exceeds EGLE Criteria

nc, AA, EE, st, JT: Refer to EGLE September 2020 VIAP Screening Levels

AKT PEERLESS ENVIRONMENTAL SERVICES

Table 2B: Summary of Groundwater Analytical Results (Previous Investigations)
Southwest Corner of Hamlin and Ryan Roads,
Shelby Charter Township, Michigan
AKT Peerless Project No. 4247F2-1-20

Parameters* *(Refer to detailed laboratory report for method reference data)*	Chemical Abstract Service Number	Residential Drinking Water Criteria	Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	Groundwater Surface Water Interface Criteria	Non-Residential Drinking Water Criteria	Non-Residential Groundwater Volatilization to Indoor Air Inhalation Criteria	Water Solubility	Flammability and Explosivity Screening Level	EGLE September 2020 Non-Residential Volatilzation to indoor Air Pathway (VIAP) Screening Levels GW Not in Contact	Maximum Concentration Detected	Sample Location	MW-1	MW-2	MW-3	MW-4	MW-5
											Collection Date	3/23/2004	3/23/2004	3/23/2004	3/23/2004	3/23/2004
											Screen Depth	(19-24')	(18-23')	(19-24')	(19-24')	(19-24')
Metals		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		µg/L	µg/L	µg/L	µg/L	µg/L
Arsenic	7440-38-2	**10 (A)**	NLV	**10**	**10 (A)**	NLV	NA	ID	NA	21		BDL	**15**	**21**	BDL	10
Barium (B)	7440-39-3	2,000 (A)	NLV	(G)	2,000 (A)	NLV	NA	ID	NA	320		BDL	180	250	BDL	320
Cadmium (B)	7440-43-9	5.0 (A)	NLV	(G,X)	5.0 (A)	NLV	NA	ID	NA	BDL		BDL	BDL	BDL	BDL	BDL
Chromium, Total	7440-47-3	100 (A)	NLV	**11**	100 (A)	NLV	NA	ID	NA	81		BDL	BDL	6.2	BDL	**81**
Copper (B)	7440-50-8	1,000 (E)	NLV	(G)	1,000 (E)	NLV	NA	ID	NA	BDL		BDL	BDL	BDL	BDL	BDL
Lead (B)	7439-92-1	**4.0 (L)**	NLV	(G,X)	**4.0 (L)**	NLV	NA	ID	NA	7.5		BDL	BDL	BDL	BDL	**7.5**
Mercury, Total	7439-97-6	2.0 (A)	56 (S)	0.0013	2.0 (A)	56 (S)	56	ID	3.7 nc	BDL		BDL	BDL	BDL	BDL	BDL
Selenium (B)	7782-49-2	50 (A)	NLV	5.0	50 (A)	NLV	NA	ID	NA	BDL		BDL	BDL	BDL	BDL	BDL
Silver (B)	7440-22-4	34	NLV	0.2 (M); 0.06	98	NLV	NA	ID	NA	BDL		BDL	BDL	BDL	BDL	BDL
Zinc (B)	7440-66-6	2,400	NLV	(G)	5,000 (E)	NLV	NA	ID	NA	32		BDL	32	15	23	BDL
Semivolatiles, PNAs (µg/L)																
PNAs	Varies	-	-	-	-	-	-	-	-	BDL		BDL	BDL	BDL	BDL	BDL
Volatiles, VOCs (µg/L)																
Benzene (I)	71-43-2	5.0 (A)	5,600	200 (X)	5.0 (A)	35,000	1.75E+6	68,000	66 ca	1.2		BDL	1.2	BDL	BDL	BDL
n-Butylbenzene	104-51-8	80	ID	ID	230	ID	NA	ID	1,600 nc	1.1		BDL	BDL	BDL	BDL	1.1
Ethylbenzene (I)	100-41-4	74 (E)	1.1E+5	18	74 (E)	1.7E+5 (S)	1.69E+5	43,000	170 ca	1.2		BDL	BDL	BDL	BDL	1.2
Isopropyl benzene	98-82-8	800	56,000 (S)	28	2,300	56,000 (S)	56,000	29,000	36 ca	1.5		BDL	BDL	BDL	BDL	1.5
Toluene (I)	108-88-3	790 (E)	5.3E+5 (S)	270	790 (E)	5.3E+5 (S)	5.26E+5	61,000	59,000 (EE) st	1.1		BDL	BDL	BDL	BDL	1.1
Trichloroethylene	79-01-6	**5.0 (A)**	2,200	200 (X)	**5.0 (A)**	4,900	1.10E+06	ID	**10 (DD) dev**	22		**22**	BDL	BDL	BDL	BDL
1,2,4-Trimethylbenzene (I)	95-63-6	63 (E)	56,000 (S)	17	63 (E)	56,000 (S)	55,890	56,000 (S)	990 (JT) nc	16		BDL	BDL	BDL	BDL	16
1,3,5-Trimethylbenzene (I)	108-67-8	72 (E)	61,000 (S)	45	72 (E)	61,000 (S)	61,150	ID	690 (JT) nc	6.5		BDL	BDL	BDL	BDL	6.5
Xylenes (I)	1330-20-7	280 (E)	1.9E+5 (S)	49	280 (E)	1.9E+5 (S)	1.86E+5	70,000	3,000 (J) nc	7.5		BDL	BDL	BDL	BDL	7.5
Remaining VOCs	Varies	-	-	-	-	-	-	-	-	BDL		BDL	BDL	BDL	BDL	BDL

nc, ca, EE, st, DD, dev, JT, J: Refer to EGLE September 2020 VIAP Screening Levels.

Table 3: Summary of Methane Screening Results
Southwest Corner of Hamlin and Ryan Roads,
Shelby Charter Township, Michigan
AKT Peerless Project No.: 4247F2-1-20

Landtec-5000 Field Screening Results					
Screening Location	**Date**	**Peak Methane (%)***	**Steady Methane (%)***	**Carbon Dioxide (%)**	**Oxygen (%)**
AKT-3 (0-5')	12/14/2021	0.0	0.0	0.2	20.0
AKT-3 (5-10')	12/14/2021	0.0	0.0	0.2	20.2
AKT-3 (10-15')	12/14/2021	0.0	0.0	0.2	20.0
AKT-3 (15-20')	12/14/2021	0.0	0.0	0.2	19.9
AKT-3 (20-25')	12/14/2021	0.0	0.0	0.2	19.9
AKT-4 (0-5')	12/14/2021	0.1	0.1	0.2	20.6
AKT-4 (5-10')	12/14/2021	0.0	0.0	0.2	20.6
AKT-4 (10-15')	12/14/2021	0.0	0.0	0.2	20.7
AKT-4 (15-20')	12/14/2021	0.1	0.1	0.2	20.6
AKT-4 (20-25')	12/14/2021	0.0	0.0	0.2	20.9
AKT-5 (0-5')	12/14/2021	0.0	0.0	0.2	21.0
AKT-5 (5-10')	12/14/2021	0.0	0.0	0.2	20.9
AKT-5 (10-15')	12/14/2021	0.0	0.0	0.2	21.0
AKT-5 (15-20')	12/14/2021	0.0	0.0	0.2	21.0
AKT-5 (20-25')	12/14/2021	0.1	0.0	0.2	21.0
AKT-6 (0-5')	12/14/2021	0.1	0.1	0.2	21.0
AKT-6 (5-10')	12/14/2021	0.1	0.1	0.2	21.0
AKT-6 (10-15')	12/14/2021	0.0	0.0	0.1	20.9
AKT-6 (15-20')	12/14/2021	0.0	0.0	0.1	20.9
AKT-6 (20-25')	12/14/2021	0.0	0.0	0.1	20.9
AKT-7 (0-5')	12/14/2021	0.0	0.0	0.1	20.8
AKT-7 (5-10')	12/14/2021	0.0	0.0	0.1	20.8
AKT-7 (10-15')	12/14/2021	0.1	0.0	0.2	20.8
AKT-7 (15-20')	12/14/2021	0.1	0.0	0.2	20.8
AKT-7 (20-25')	12/14/2021	0.1	0.0	0.2	20.8
AKT-8	12/14/2021	14.4	14.4	12.1	0.6
AKT-9	12/14/2021	18.7	18.7	10.8	0.7
AKT-9 (TMW)	12/14/2021	16.7	16.7	10.3	0.2
AKT-10	12/14/2021	0.1	0.1	1.1	20.5
AKT-11	12/14/2021	6.3	6.3	13.0	6.2
AKT-12	12/15/2021	40.4	40.3	12.3	0.4
AKT-12 (TMW)	12/15/2021	0.3	0.2	0.2	21.2
AKT-13	12/14/2021	10.6	10.3	12.7	6.0
AKT-15	12/15/2021	0.1	0.1	1.1	19.9

* Methane is combustible between the lower explosivity limit (LEL) of 5% by volume in air, and the upper explosive limit (UEL) of 15% by volume in air. When methane is present above the UEL, there is the possibility of the concentration falling below the UEL into the explosive range.

EGLE Action Level: 1.25% (25% of the LEL).

AKTPEERLESS

R 299.49 FOOTNOTES
(as last revised by MDEQ on December 30, 2013)
FOR GENERIC CLEANUP CRITERIA TABLES
Cleanup Criteria Requirements for Response Activity (formerly the Part 201 Generic Cleanup Criteria and Screening Levels)

(A) Criterion is the state of Michigan drinking water standard established pursuant to Section 5 of 1976 PA 399, MCL 325.1005.

(B) Background, as defined in R 299.1(b), may be substituted if higher than the calculated cleanup criterion. Background levels may be less than criteria for some inorganic compounds.

(C) The criterion developed under R 299.20 to R 299.26 exceeds the chemical-specific soil saturation screening level (C_{sat}). The person proposing or implementing response activity shall document whether additional response activity is required to control free-phase liquids or NAPL to protect against risks associated with free-phase liquids by using methods appropriate for the free-phase liquids present. Development of a site-specific C_{sat} or methods presented in R 299.22, R 299.24(5), and R 299.26(8) may be conducted for the relevant exposure pathways.

(D) Calculated criterion exceeds 100 percent, hence it is reduced to 100 percent or 1.0E+9 parts per billion (ppb).

(E) Criterion is the aesthetic drinking water value, as required by Section 20120a(5) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). A notice of aesthetic impact may be employed as an institutional control mechanism if groundwater concentrations exceed the aesthetic drinking water criterion, but do not exceed the applicable health-based drinking water value [as provided in the table in Footnote (E) in R 299.49].

(F) Criterion is based on adverse impacts to plant life and phytotoxicity.

(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water. Where water hardness exceeds 400 mg $CaCO_3$/L, use 400 mg $CaCO_3$/L for the FCV calculation. The FCV formula provides values in units of ug/L or ppb. The generic GSI criterion is the lesser of the calculated FCV, the wildlife value (WV), and the surface water human non-drinking water value (HNDV). The soil GSI protection criteria for these hazardous substances are the greater of 20 times the GSI criterion or the GSI soil-water partition values using the GSI criteria developed with the procedure described in this footnote. [See table in Footnote (G) in R 299.49].

(H) Valence-specific chromium data (Cr III and Cr VI) shall be compared to the corresponding valence-specific cleanup criteria. If both Cr III and Cr VI are present in groundwater, the total concentration of both cannot exceed the drinking water criterion of 100 ug/L. If analytical data are provided for total chromium only, they shall be compared to the cleanup criteria for Cr VI. Cr III soil cleanup criterion for protection of drinking water can only be used at sites where groundwater is prevented from being used as a public water supply, currently and in the future, through an approved land or resource use restriction.

(I) Hazardous substance may exhibit the characteristic of ignitability as defined in 40 C.F.R. §261.21 (revised as of July 1, 2001), which is adopted by reference in these rules.

(J) Hazardous substance may be present in several isomer forms. Isomer-specific concentrations shall be added together for comparison to criteria.

(K) Hazardous substance may be flammable or explosive, or both.

(L) Criteria for lead are derived using a biologically based model, as allowed for under Section 20120a(9) of the NREPA, and are not calculated using the algorithms and assumptions specified in pathway-specific rules. The generic residential drinking water criterion of 4 ug/L is linked to the generic residential soil direct contact criterion of 400 mg/kg. A higher concentration in the drinking water, up to the state action level of 15 ug/L, may be allowed as a site-specific remedy and still allow for drinking water use, under Section 20120a(2) of the NREPA if soil concentrations are appropriately lower than 400 mg/kg. If a site-specific criterion is approved based on this subdivision, a notice shall be filed on the deed for all property where the groundwater concentrations will exceed 4 ug/L to provide notice of the potential for unacceptable risk if soil or groundwater concentrations increase. Acceptable concentrations of site-specific soil and drinking water concentrations are presented in the [table in Footnote (L) in R 299.49].

(M) Calculated criterion is below the analytical target detection limit, therefore, the criterion defaults to the target detection limit.

(N) The concentrations of all potential sources of nitrate-nitrogen (e.g., ammonia-N, nitrite-N, nitrate-N) in groundwater that is used as a source of drinking water shall not, when added together, exceed the nitrate drinking water criterion of 10,000 ug/L. Where leaching to groundwater is a relevant pathway, soil concentrations of all potential sources of nitrate-nitrogen shall not, when added together, exceed the nitrate drinking water protection criterion of 2.0E+5 ug/kg.

(O) The concentration of all polychlorinated and polybrominated dibenzodioxin and dibenzofuran isomers present at a facility, expressed as an equivalent concentration of 2,3,7,8-tetrachlorodibenzo-p-dioxin based upon their relative potency, shall be added together and compared to the criteria for 2,3,7,8-tetrachlorodibenzo-p-dioxin. The generic cleanup criteria for 2,3,7,8-tetrachlorodibenzo-p-dioxin are not calculated according to the algorithms presented in R 299.14 to R 299.26. The generic cleanup criteria are being held at the values that the DEQ has used since August 1998, in recognition of the fact that national efforts to reassess risks posed by dioxin are not yet complete. Until these studies are complete, it is premature to select a revised slope factor and/or reference dose for calculation of generic cleanup criteria.

(P) Amenable cyanide methods or method OIA-1677 shall be used to quantify cyanide concentrations for compliance with all groundwater criteria. Total cyanide methods or method OIA-1677 shall be used to quantify cyanide concentrations for compliance with soil criteria. Nonresidential direct contact criteria may not be protective of the potential for release of hydrogen cyanide gas. Additional land or resource use restrictions may be necessary to protect for the acute inhalation concerns associated with hydrogen cyanide gas.

(Q) Criteria for carcinogenic polycyclic aromatic hydrocarbons were developed using relative potential potencies to benzo(a)pyrene.

(R) Hazardous substance may exhibit the characteristic of reactivity as defined in 40 C.F.R. §261.23 (revised as of July 1, 2001), which is adopted by reference in these rules.

(S) Criterion defaults to the hazardous substance-specific water solubility limit.

(T) Refer to the federal Toxic Substances Control Act (TSCA), 40 C.F.R. §761, subpart D and 40 C.F.R. §761, Subpart G, to determine the applicability of TSCA cleanup standards. Subpart D and subpart G of 40 C.F.R. §761 (July 1, 2001) are adopted by reference in these rules. Alternatives to compliance with the TSCA standards listed below are possible under 40 C.F.R. §761 Subpart D. New releases may be subject to the standards identified in 40 C.F.R. §761, Subpart G. Use Part 201 soil direct contact cleanup criteria in the following table if TSCA standards are not applicable. [See table in Footnote (T) in R 299.49].

(U) Hazardous substance may exhibit the characteristic of corrosivity as defined in 40 C.F.R. §261.22 (revised as of July 1, 2001), which is adopted by reference in these rules.

(V) Criterion is the aesthetic drinking water value as required by Section 20120(a)(5) of the NREPA. Concentrations up to 200 ug/L may be acceptable, and still allow for drinking water use, as part of a site-specific cleanup under Section 20120a(2) and 20120b of the NREPA.

(W) Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 80 ug/L. Concentrations of trihalomethanes in soil shall be added together to determine compliance with the drinking water protection criterion of 1,600 ug/kg.

(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source. For a groundwater discharge to the Great Lakes and their connecting waters or discharge in close proximity to a water supply intake in inland surface waters, the generic GSI criterion shall be the surface water human drinking water value (HDV) listed in the [table in Footnote (X) in R 299.49], except for those HDV indicated with an asterisk. For HDV with an asterisk, the generic GSI criterion shall be the lowest of the HDV, the WV, and the calculated FCV. See formulas in [the table in Footnote (G) in R 299.49]. Soil protection criteria based on the HDV shall be as listed in the [table in Footnote (X) in R 299.49], except for those values with an asterisk. Soil GSI protection criteria based on the HDV shall be as listed in the [table in Footnote (X) in R 299.49], except for those values with an asterisk. Soil GSI protection criteria for compounds with an asterisk shall be the greater of 20 times the GSI criterion or the GSI soil-water partition values using the GSI criteria developed with the procedure described in this footnote.

(Y) Source size modifiers shown in the [table in Footnote (Y) in R 299.49] shall be used to determine soil inhalation criteria for ambient air when the source size is not one-half acre. The modifier shall be multiplied by the generic soil inhalation criteria shown in the table of generic cleanup criteria to determine the applicable criterion. See Footnote (C) [in R 299.49].

(Z) Mercury is typically measured as total mercury. The generic cleanup criteria, however, are based on data for different species of mercury. Specifically, data for elemental mercury, chemical abstract service (CAS) number 7439976, serve as the basis for the soil volatilization to indoor air criteria, groundwater volatilization to indoor air, and soil inhalation criteria. Data for methyl mercury, CAS number 22967926, serve as the basis for the GSI criterion; and data for mercuric chloride, CAS number 7487947, serve as the basis for the drinking water, groundwater contact, soil direct contact, and the groundwater protection criteria. Comparison to criteria shall be based on species-specific analytical data only if sufficient facility characterization has been conducted to rule out the presence of other species of mercury.

(AA) Use 10,000 ug/L where groundwater enters a structure through the use of a water well, sump or other device. Use 28,000 ug/L for all other uses.

(BB) The state drinking water standard for asbestos (fibers greater than 10 micrometers in length) is in units of a million fibers per liter of water (MFL). Soil concentrations of asbestos are determined by polarized light microscopy.

(CC) Groundwater: The generic GSI criteria are based on the toxicity of unionized ammonia (NH_3); the criteria are 29 ug/L and 53 ug/L for cold water and warm water surface water, respectively. As a result, the GSI criterion shall be compared to the percent of the total ammonia concentration in the groundwater that will become NH_3 in the surface water. This percent NH_3 is a function of the pH and temperature of the receiving surface water and can be estimated using the [table in Footnote (CC) in R 299.49], taken from Emerson, et al., (Journal of the Fisheries Research Board of Canada, Volume 32(12):2382, 1975). The generic approach for estimating NH_3 assumes a default pH of 8 and default temperatures of 68 °F and 85 °F for cold water and warm water surface water, respectively. The resulting NH_3 is 3.8 percent and 7.2 percent for cold water and warm water, respectively. This default percentage shall be multiplied by the total ammonia-nitrogen (NH_3-N) concentration in the groundwater and the resulting NH_3 concentration compared to the applicable GSI criterion. As an alternative, the maximum pH and temperature data from the specific receiving surface water can be used to estimate, from the [table in Footnote (CC) in R 299.49], a lower percent unionized ammonia concentration for comparison to the generic GSI.
Soil: The generic soil GSI protection criteria for unionized ammonia are 580 ug/kg and 1,100 ug/kg for cold water and warm water surface water, respectively.

(DD) Hazardous substance causes developmental effects. Residential direct contact criteria are protective of both prenatal and postnatal exposure. Nonresidential direct contact criteria are protective for a pregnant adult receptor.

(EE) The [values listed in the table in Footnote (EE) in 299.49] are applicable generic GSI criteria as required by Section 20120e of the NREPA.

(FF) The chloride GSI criterion shall be 125 mg/L when the discharge is to surface waters of the state designated as public water supply sources or 50 mg/L when the discharge is to the Great Lakes or connecting waters. Chloride GSI criteria shall not apply for surface waters of the state that are not designated as a public water supply source, however, the total dissolved solids criterion is applicable.

(GG) Risk-based criteria are not available for methane due to insufficient toxicity data. An acceptable soil gas concentration (presented for both residential and nonresidential land uses) was derived utilizing 25 percent of the lower explosive level for methane. This equates to 1.25 percent or 8.4E+6 ug/m^3.

(HH) The residential criterion for sodium is 230,000 ug/L in accordance with the Sodium Advisory Council recommendation and revised Groundwater Discharge Standards.

ID Insufficient data to develop criterion.

NA A criterion or value is not available or, in the case of background and CAS numbers, not applicable.

NLL Hazardous substance is not likely to leach under most soil conditions.

NLV Hazardous substance is not likely to volatilize under most conditions.

ug/kg Micrograms per kilogram

ug/L Micrograms per liter

NS Not sampled

BDL Below Laboratory Method Detection Limits

BOLD Exceeds highlighted criteria.

Attachment E

Documentation of Special Soil Concerns

McDowell & Associates

Geotechnical, Environmental & Hydrogeological Services • Materials Testing & Inspection

21355 Hatcher Avenue, Ferndale, MI 48220
Phone: (248) 399-2066 • Fax: (248) 399-2157
www.mcdowasc.com

February 15, 2024

General Development
Two Towne Square, Suite 850
Southfield, Michigan 48076

Job No. 04-112

Attention: Mr. Bruce Brickman

Subject: Existing Fill
Lutz Roofing
Hamlin and Ryan Roads
Shelby Township, Michigan

Gentlemen:

In accordance with your request, we are providing you with additional information in regard to the existing site conditions at the subject project.

Based on our Soils Investigation in March 2004 (Job No 04-112), six (6) Soil Borings were completed at the site. The boring depths varied from 20'6" to 40'6". The existing fill varied from 5'4" to 22'9". The type of fill encountered was described by our drillers as containing a mixture of debris that included sand, glass, brick, metal, paper and concrete. We would consider this fill material to be more in line with a landfill.

There are several options to utilize this property.

- Remove the existing fill and replace with engineered fill.
- Deep foundations, such as caissons, Geopiers, or steel piles.

It should be understood that Test Pits may be required if deep foundations are to be utilized to better qualify the existing fill.

Should you have any questions or need additional information, please do not hesitate to contact our office.

Very truly yours,

McDOWELL & ASSOCIATES

John Kalisz, III, P.E.
Staff Engineer

JK/ks

cc: Teresa Bruce

Mid-Michigan Office
3730 James Savage Road, Midland, MI 48642
Phone: (989) 496-3610 • Fax: (989) 496-3190

Attachment F

Shelby Township Resolution of Support

Charter Township of Shelby

Craig Cowper
Deputy Township Clerk

Phone: (586) 731-5102

E-mail: ccowper@shelbytwp.org

Fax: (586) 726-7227

March 20, 2024

Julijana Misich

Dear Julijana Misich,

Please be advised that at the Regular meeting of the Shelby Township Board of Trustees held on Tuesday, March 19, 2024, the following motion(s) was/were made:

Re: Brownfield Redevelopment Plan Resolution of Support

To approve the resolution of concurrence in support of the Brownfield Development project at the southwest corner of Ryan Road and Hamlin Road.

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Stanley Grot, Clerk
SECONDER:	Vince Viviano, Trustee
AYES:	Carabelli, Di Cicco, Grot, Stathakis, Vermeulen, Viviano, Casali

Motion(s) carried.

Sincerely,

Craig Cowper
Deputy Township Clerk

cc: Bill Borgiel, Teresa Bruce, Julijana Misich

CHARTER TOWNSHIP OF SHELBY
BOARD OF TRUSTEES SUPPORT RESOLUTION
BROWNFIELD REDEVELOPMENT PLAN
FOR HAMLIN-RYAN PROPERTIES, LLC (LUTZ ROOFING)

Motion by *Grot*, supported by *Viviano*, to approve the resolution of support for the Brownfield Plan for Hamlin-Ryan Properties, LLC as follows:

WHEREAS, the property located at the southwest corner of Ryan Road and Hamlin Road is vacant land and encompasses the following Parcel I.D. and legal description:

Parcel No. 23-07-30-200-014

*L 525A T3N R12E SEC 30 COMM AT NE COR SEC 30, TH S 0 DEG 10' W 1138.50 FT ALG E SEC LINE TO PT OF BEG, TH S 0 DEG 10' W 660.0 FT ALG SD SEC LINE, TH N 73 DEG 53' W 499.22 FT, TH N 0 DEG 10' E 660.0 FT, TH S 73 DEG 53' E 499.22 FT TO PT OF BEG. 7.26 A.

WHEREAS, the development of the property on the southwest corner or Ryan Road and Hamlin Road, Parcel No. 23-07-30-200-014, is one of the township's most important economic development objectives, and

WHEREAS, the development of this site will provide a source of jobs and will improve the township's tax base, and

WHEREAS, this site at the southwest corner of Ryan Road and Hamlin Road Parcel No. 23-07-30-200-014, has some environmental clean-up issues that require resolution as a condition of the development process, and

WHEREAS, the Shelby Township Planning Commission recommended approval for a site plan special land use for the development of an industrial building with outdoor storage on February 26, 2024, and

WHEREAS, the preparation of a brownfield plan is required to provide a financial mechanism for site clean-up activities.

NOW THEREFORE BE IT RESOLVED, the Charter Township of Shelby Board of Trustees hereby support the approval of the Brownfield Redevelopment Plan for property located at the southwest corner of Ryan Road and Hamlin Road, Parcel No. 23-07-30-200-014, by the Macomb County Brownfield Authority.

YEAS: *Grot, Viviano, Carabelli, Casali, Di Cicco, Stathakis, Vermeulen*
NAYS:
ABSENT:

I, Stanley Grot, Township Clerk, do hereby certify that the foregoing is a true and original copy of a resolution adopted by the Charter Township of Shelby Board of Trustees at a regular meeting thereof held on March 19, 2024.

Stanley Grot
Clerk
Charter Township of Shelby

TABLES

Table 1

Eligible Activity Cost Schedule

Table 1: Eligible Activities Cost Estimates

Item/Activity	Total Request (Local Only)
Pre-Approved Activities	
Phase II ESA Investigation	$ 8,957
Due Care Investigtation	$ 23,780
Baseline Environmental Assessments Sub-Total	**$ 32,737**
Department Specific Activities	
Vapor Barrier Design and Installation	$ 10,000
Vapor Barrier Installation	$ 126,500
Vapor Barrier (6AA Stone)	$ 40,000
VMS Construction and O&M Plan	$ 5,000
Contaminated Soil Transport and Disposal	$ 100,000
Groundwater Management	$ 20,000
Surface Cover for Greenbelt Area (demarcation barrier, clean fill etc.)	$ 60,000
Demarcation Barrier for Storage Lot	$ 18,000
Detention Pond Liner	$ 50,000
Oversight, Sampling and Reporting by Environmental Professional	$ 20,750
Department Specific Activities Sub-Total	**$ 450,250**
Infrastructure Improvements	
Side Walk Improvements	$ 58,000
Landscaping in ROW	$ 16,000
Roads	$ 150,000
Infrastructure Sub-Total	**$ 224,000**
Site Preparation	
Temporary Construction Access/Roads	$ 10,000
Temporary Traffic Control	$ 2,500
Temporary Erosion Control	$ 15,000
Temporary Facility	$ 4,000
Grading (including reasonable mass grading of entire project site)	$ 300,000
Staking	$ 12,000
Geotechnical Engineering Including Investigating Existing Subsurface Conditions, Soil Sampling, Assessing Risks Posed by Site Conditions, Designing Earthworks and Structure Foundations	$ 25,000
Clearing & Grubbing (including grass, shrubs, trees, other vegetation and their roots) and Related Disposal	$ 40,000
Excavation of Unstable Material	$ 25,000
Foundation Work to Address Special Soil Concerns	$ 140,000
Site Preparation Sub-Total	**$ 573,500**
Preparation of Brownfield Plan	
Brownfield Plan	$ 22,100
Brownfield Plan Implementation	$ 6,500
Brownfield Plan Sub-Total	**$ 28,600**
Eligible Activities Sub-Total	**$ 1,309,087**
15% Contingency*	$ 196,363
Developer Eligible Reimbursement Total	**$ 1,505,450**
Administrative Fee	$ 27,989
Total	**$ 1,533,439**

*15% Contingency excludes preparation of Brownfield Plan/381 Work Plan and Pre-Approved Activities

Table 2

Tax Increment Revenue Capture Estimates

Table 2:

Tax Increment Financing Capture Estimates

BROWNFIELD ONLY	Value (TV) Increase Rate:	1.50%	Multiplier	1.015
SHELBY TOWNSHIP				

Brownfield Plan Year		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Calendar Year		**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**
Parent Parcel	Base Taxable Value	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150
Ad Valorem	Estimated New TV		$ 1,800,000	$ 1,827,000	$ 1,854,405	$ 1,882,221	$ 1,910,454	$ 1,939,111	$ 1,968,198	$ 1,997,721	$ 2,027,687	$ 2,058,102	$ 2,088,973	$ 2,120,308	$ 2,152,113
Incremental Difference (New TV - Base TV)			$ 1,772,850	$ 1,799,850	$ 1,827,255	$ 1,855,071	$ 1,883,304	$ 1,911,961	$ 1,941,048	$ 1,970,571	$ 2,000,537	$ 2,030,952	$ 2,061,823	$ 2,093,158	$ 2,124,963
Local Capture															
General Fund - Twp.	1.0000		$ 1,773	$ 1,800	$ 1,827	$ 1,855	$ 1,883	$ 1,912	$ 1,941	$ 1,971	$ 2,001	$ 2,031	$ 2,062	$ 2,093	$ 2,125
Fire Fund - Twp.	3.2575		$ 5,775	$ 5,863	$ 5,952	$ 6,043	$ 6,135	$ 6,228	$ 6,323	$ 6,419	$ 6,517	$ 6,616	$ 6,716	$ 6,818	$ 6,922
Police Fund - Twp.	4.0424		$ 7,167	$ 7,276	$ 7,386	$ 7,499	$ 7,613	$ 7,729	$ 7,846	$ 7,966	$ 8,087	$ 8,210	$ 8,335	$ 8,461	$ 8,590
Pol/Fire Pension	1.0000		$ 1,773	$ 1,800	$ 1,827	$ 1,855	$ 1,883	$ 1,912	$ 1,941	$ 1,971	$ 2,001	$ 2,031	$ 2,062	$ 2,093	$ 2,125
HCMA	0.2070		$ 367	$ 373	$ 378	$ 384	$ 390	$ 396	$ 402	$ 408	$ 414	$ 420	$ 427	$ 433	$ 440
Smart Bus	0.9500		$ 1,684	$ 1,710	$ 1,736	$ 1,762	$ 1,789	$ 1,816	$ 1,844	$ 1,872	$ 1,901	$ 1,929	$ 1,959	$ 1,989	$ 2,019
County Tax	4.3200		$ 7,659	$ 7,775	$ 7,894	$ 8,014	$ 8,136	$ 8,260	$ 8,385	$ 8,513	$ 8,642	$ 8,774	$ 8,907	$ 9,042	$ 9,180
College Operating	1.4077		$ 2,496	$ 2,534	$ 2,572	$ 2,611	$ 2,651	$ 2,691	$ 2,732	$ 2,774	$ 2,816	$ 2,859	$ 2,902	$ 2,947	$ 2,991
Macomb ISD	4.7100		$ 8,350	$ 8,477	$ 8,606	$ 8,737	$ 8,870	$ 9,005	$ 9,142	$ 9,281	$ 9,423	$ 9,566	$ 9,711	$ 9,859	$ 10,009
Veterans Oper.	0.069		$ 122	$ 124	$ 126	$ 128	$ 130	$ 132	$ 134	$ 136	$ 138	$ 140	$ 142	$ 144	$ 147
Local Brownfield Capturable Total	**20.9636**		**$ 37,165**	**$ 37,731**	**$ 38,306**	**$ 38,889**	**$ 39,481**	**$ 40,082**	**$ 40,691**	**$ 41,310**	**$ 41,938**	**$ 42,576**	**$ 43,223**	**$ 43,880**	**$ 44,547**
Non-Capturable Millages															
Utica School Debt	3.5000		$ 6,205	$ 6,299	$ 6,395	$ 6,493	$ 6,592	$ 6,692	$ 6,794	$ 6,897	$ 7,002	$ 7,108	$ 7,216	$ 7,326	$ 7,437
Macomb Zoo Auth.	0.0945		$ 168	$ 170	$ 173	$ 175	$ 178	$ 181	$ 183	$ 186	$ 189	$ 192	$ 195	$ 198	$ 201
DIA	0.1956		$ 347	$ 352	$ 357	$ 363	$ 368	$ 374	$ 380	$ 385	$ 391	$ 397	$ 403	$ 409	$ 416
Total Non-Capturable Taxes	**3.7901**		**$ 6,719**	**$ 6,822**	**$ 6,925**	**$ 7,031**	**$ 7,138**	**$ 7,247**	**$ 7,357**	**$ 7,469**	**$ 7,582**	**$ 7,698**	**$ 7,815**	**$ 7,933**	**$ 8,054**
State and Local Total	**48.7537**		**$ 43,885**	**$ 44,553**	**$ 45,231**	**$ 45,920**	**$ 46,619**	**$ 47,328**	**$ 48,048**	**$ 48,779**	**$ 49,521**	**$ 50,274**	**$ 51,038**	**$ 51,813**	**$ 52,601**
State and Local Total Capturable	**44.9636**		$ 37,165	$ 37,731	$ 38,306	$ 38,889	$ 39,481	$ 40,082	$ 40,691	$ 41,310	$ 41,938	$ 42,576	$ 43,223	$ 43,880	$ 44,547

Table 2:

Tax Increment Financing Capture Estimates

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	TOTAL
2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	
$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	$ 27,150	
$ 2,184,394	$ 2,217,160	$ 2,250,418	$ 2,284,174	$ 2,318,437	$ 2,353,213	$ 2,388,511	$ 2,424,339	$ 2,460,704	$ 2,497,615	$ 2,535,079	$ 2,573,105	$ 2,611,702	$ 2,650,877	$ 2,690,640	$ 2,731,000	$ 2,771,965	
$ 2,157,244	$ 2,190,010	$ 2,223,268	$ 2,257,024	$ 2,291,287	$ 2,326,063	$ 2,361,361	$ 2,397,189	$ 2,433,554	$ 2,470,465	$ 2,507,929	$ 2,545,955	$ 2,584,552	$ 2,623,727	$ 2,663,490	$ 2,703,850	$ 2,744,815	
$ 2,157	$ 2,190	$ 2,223	$ 2,257	$ 2,291	$ 2,326	$ 2,361	$ 2,397	$ 2,434	$ 2,470	$ 2,508	$ 2,546	$ 2,585	$ 2,624	$ 2,663	$ 2,704	$ 2,745	$ 66,755
$ 7,027	$ 7,134	$ 7,242	$ 7,352	$ 7,464	$ 7,577	$ 7,692	$ 7,809	$ 7,927	$ 8,048	$ 8,170	$ 8,293	$ 8,419	$ 8,547	$ 8,676	$ 8,808	$ 8,941	$ 217,455
$ 8,720	$ 8,853	$ 8,987	$ 9,124	$ 9,262	$ 9,403	$ 9,546	$ 9,690	$ 9,837	$ 9,987	$ 10,138	$ 10,292	$ 10,448	$ 10,606	$ 10,767	$ 10,930	$ 11,096	$ 269,851
$ 2,157	$ 2,190	$ 2,223	$ 2,257	$ 2,291	$ 2,326	$ 2,361	$ 2,397	$ 2,434	$ 2,470	$ 2,508	$ 2,546	$ 2,585	$ 2,624	$ 2,663	$ 2,704	$ 2,745	$ 66,755
$ 447	$ 453	$ 460	$ 467	$ 474	$ 481	$ 489	$ 496	$ 504	$ 511	$ 519	$ 527	$ 535	$ 543	$ 551	$ 560	$ 568	$ 13,818
$ 2,049	$ 2,081	$ 2,112	$ 2,144	$ 2,177	$ 2,210	$ 2,243	$ 2,277	$ 2,312	$ 2,347	$ 2,383	$ 2,419	$ 2,455	$ 2,493	$ 2,530	$ 2,569	$ 2,608	$ 63,417
$ 9,319	$ 9,461	$ 9,605	$ 9,750	$ 9,898	$ 10,049	$ 10,201	$ 10,356	$ 10,513	$ 10,672	$ 10,834	$ 10,999	$ 11,165	$ 11,335	$ 11,506	$ 11,681	$ 11,858	$ 288,382
$ 3,037	$ 3,083	$ 3,130	$ 3,177	$ 3,225	$ 3,274	$ 3,324	$ 3,375	$ 3,426	$ 3,478	$ 3,530	$ 3,584	$ 3,638	$ 3,693	$ 3,749	$ 3,806	$ 3,864	$ 93,971
$ 10,161	$ 10,315	$ 10,472	$ 10,631	$ 10,792	$ 10,956	$ 11,122	$ 11,291	$ 11,462	$ 11,636	$ 11,812	$ 11,991	$ 12,173	$ 12,358	$ 12,545	$ 12,735	$ 12,928	$ 314,417
$ 149	$ 151	$ 153	$ 156	$ 158	$ 160	$ 163	$ 165	$ 168	$ 170	$ 173	$ 176	$ 178	$ 181	$ 184	$ 187	$ 189	$ 4,606
$ 45,224	**$ 45,911**	**$ 46,608**	**$ 47,315**	**$ 48,034**	**$ 48,763**	**$ 49,503**	**$ 50,254**	**$ 51,016**	**$ 51,790**	**$ 52,575**	**$ 53,372**	**$ 54,182**	**$ 55,003**	**$ 55,836**	**$ 56,682**	**$ 57,541**	**$ 1,399,428**
$ 7,550	$ 7,665	$ 7,781	$ 7,900	$ 8,020	$ 8,141	$ 8,265	$ 8,390	$ 8,517	$ 8,647	$ 8,778	$ 8,911	$ 9,046	$ 9,183	$ 9,322	$ 9,463	$ 9,607	$ 233,643
$ 204	$ 207	$ 210	$ 213	$ 217	$ 220	$ 223	$ 227	$ 230	$ 233	$ 237	$ 241	$ 244	$ 248	$ 252	$ 256	$ 259	$ 6,308
$ 422	$ 428	$ 435	$ 441	$ 448	$ 455	$ 462	$ 469	$ 476	$ 483	$ 491	$ 498	$ 506	$ 513	$ 521	$ 529	$ 537	$ 13,057
$ 8,176	**$ 8,300**	**$ 8,426**	**$ 8,554**	**$ 8,684**	**$ 8,816**	**$ 8,950**	**$ 9,086**	**$ 9,223**	**$ 9,363**	**$ 9,505**	**$ 9,649**	**$ 9,796**	**$ 9,944**	**$ 10,095**	**$ 10,248**	**$ 10,403**	**$ 253,009**
$ 53,400	**$ 54,211**	**$ 55,034**	**$ 55,870**	**$ 56,718**	**$ 57,579**	**$ 58,452**	**$ 59,339**	**$ 60,239**	**$ 61,153**	**$ 62,081**	**$ 63,022**	**$ 63,977**	**$ 64,947**	**$ 65,931**	**$ 66,930**	**$ 67,944**	**$ 1,652,436**
$ 45,224	$ 45,911	$ 46,608	$ 47,315	$ 48,034	$ 48,763	$ 49,503	$ 50,254	$ 51,016	$ 51,790	$ 52,575	$ 53,372	$ 54,182	$ 55,003	$ 55,836	$ 56,682	$ 57,541	$ 1,399,428

Table 3

Tax Increment Reimbursement Estimates

Table 3:

Tax Increment Reimbursement Estimates

Estimated Total Years of Plan:	30

Estimated Capture		
Administrative Fees	$	27,989
State Revolving Fund	$	-
LBRF	$	-
Developer Capture + Interest	$	1,371,439
Total	$	1,399,428

	Brownfield	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Total Local Incremental Revenue		$37,165	$37,731	$38,306	$38,889	$39,481	$40,082	$40,691	$41,310	$41,938	$42,576	$43,223	$43,880	$44,547	$45,224	$45,911
BRA Administrative Fee (2%)		$743	$755	$766	$778	$790	$802	$814	$826	$839	$852	$864	$878	$891	$904	$918
Local TIR Available for Reimbursement		**$36,422**	**$36,977**	**$37,540**	**$38,111**	**$38,691**	**$39,280**	**$39,878**	**$40,484**	**$41,100**	**$41,725**	**$42,359**	**$43,003**	**$43,656**	**$44,319**	**$44,992**
Total State & Local TIR Available		**$36,422**	**$36,977**	**$37,540**	**$38,111**	**$38,691**	**$39,280**	**$39,878**	**$40,484**	**$41,100**	**$41,725**	**$42,359**	**$43,003**	**$43,656**	**$44,319**	**$44,992**
DEVELOPER	Beginning Balance															
DEVELOPER Reimbursement Balance	***$1,505,450***	***$1,469,028***	***$1,432,051***	***$1,394,512***	***$1,356,400***	***$1,317,709***	***$1,278,429***	***$1,238,552***	***$1,198,068***	***$1,156,968***	***$1,115,243***	***$1,072,885***	***$1,029,882***	***$986,226***	***$941,907***	***$896,915***
Local Only Costs	**$1,505,450**															
Local Tax Reimbursement		$36,422	$36,977	$37,540	$38,111	$38,691	$39,280	$39,878	$40,484	$41,100	$41,725	$42,359	$43,003	$43,656	$44,319	$44,992
Developer Reimbursement Balance		**$1,469,028**	**$1,432,051**	**$1,394,512**	**$1,356,400**	**$1,317,709**	**$1,278,429**	**$1,238,552**	**$1,198,068**	**$1,156,968**	**$1,115,243**	**$1,072,885**	**$1,029,882**	**$986,226**	**$941,907**	**$896,915**
Total Annual Developer Reimbursement		**$36,422**	**$36,977**	**$37,540**	**$38,111**	**$38,691**	**$39,280**	**$39,878**	**$40,484**	**$41,100**	**$41,725**	**$42,359**	**$43,003**	**$43,656**	**$44,319**	**$44,992**

Table 3:
Tax Increment Reimbursement Estimates

16	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*	*27*	*28*	*29*	*30*	
2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	TOTAL
$46,608	$47,315	$48,034	$48,763	$49,503	$50,254	$51,016	$51,790	$52,575	$53,372	$54,182	$55,003	$55,836	$56,682	$57,541	$1,399,428
$932	$946	$961	$975	$990	$1,005	$1,020	$1,036	$1,052	$1,067	$1,084	$1,100	$1,117	$1,134	$1,151	$27,989
$45,676	**$46,369**	**$47,073**	**$47,787**	**$48,513**	**$49,249**	**$49,996**	**$50,754**	**$51,524**	**$52,305**	**$53,098**	**$53,903**	**$54,720**	**$55,549**	**$56,390**	**$1,371,439**
$45,676	**$46,369**	**$47,073**	**$47,787**	**$48,513**	**$49,249**	**$49,996**	**$50,754**	**$51,524**	**$52,305**	**$53,098**	**$53,903**	**$54,720**	**$55,549**	**$56,390**	**$ 1,371,439**
$851,239	***$804,870***	***$757,797***	***$710,010***	***$661,497***	***$612,249***	***$562,253***	***$511,499***	***$459,975***	***$407,670***	***$354,572***	***$300,670***	***$245,950***	***$190,401***	***$134,011***	
$45,676	$46,369	$47,073	$47,787	$48,513	$49,249	$49,996	$50,754	$51,524	$52,305	$53,098	$53,903	$54,720	$55,549	$56,390	**$1,371,439**
$851,239	**$804,870**	**$757,797**	**$710,010**	**$661,497**	**$612,249**	**$562,253**	**$511,499**	**$459,975**	**$407,670**	**$354,572**	**$300,670**	**$245,950**	**$190,401**	**$134,011**	
$45,676	**$46,369**	**$47,073**	**$47,787**	**$48,513**	**$49,249**	**$49,996**	**$50,754**	**$51,524**	**$52,305**	**$53,098**	**$53,903**	**$54,720**	**$55,549**	**$56,390**	**$1,371,439**
$45,676	**$46,369**	**$47,073**	**$47,787**	**$48,513**	**$49,249**	**$49,996**	**$50,754**	**$51,524**	**$52,305**	**$53,098**	**$53,903**	**$54,720**	**$55,549**	**$56,390**	**$1,371,439**