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**ENVIRONMENTAL REVIEW  
ASSESSMENT  
FOR THE**

**STANWOOD CROSSINGS  
AFFORDABLE HOUSING DEVELOPMENT  
HUD GRANT# B-24-CP-MI-1204**

**CITY OF PORTAGE  
7900 South Westnedge Avenue  
Portage, MI 49002**

**February 17, 2025**

**Prepared by:**





**U.S. Department of Housing and Urban Development**

451 Seventh Street, SW  
Washington, DC 20410  
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## **Environmental Assessment Determinations and Compliance Findings for HUD-assisted Projects 24 CFR Part 58**

**This is a suggested format that may be used by Responsible Entities to document completion of an Environmental Assessment.**

### **Project Information**

**Project Name:** Stanwood Crossings

**Responsible Entity:** City of Portage

**Grant Recipient** (if different than Responsible Entity):

**State/Local Identifier:**

**Preparer:** Anita Johnson

**Certifying Officer Name and Title:** Patricia Randall, Mayor

**Grant Recipient** (if different than Responsible Entity):

**Consultant** (if applicable):

Wightman & Associates, Inc.: Aaron Neitling, P.E.; 1670 Lincoln Road; Allegan, MI 49010  
Orbis Environmental:

**Direct Comments to:** Anita Johnson, City of Portage

### **Project Location:**

The vacant parcel is located in Kalamazoo County, within the City of Portage, The property consists of two parcels addressed at 9617 Portage Road and 2010 Woodbine Avenue, Portage, Michigan with tax identification numbers of 00026-070-J and 05160-054-T. The project site is approximately 13.58 acres in total and is in the Southeast side of Portage, known as the Lake Center District. The coordinates are 42.176946° latitude and -85.565487° longitude. The legal description of the parcel for 9617 Portage Road is SECTION 26-3-11 BEG AT SW COR OF LOT 32 PLAT OF MCCAMLEY MANOR, TH S 10 DEG W 221.72 FT, TH W 165 FT, TH S 10 DEG W 67.13 FT, TH E 165 FT, TH S10 DEG W 369.2 FT, TH W 165 FT, TH S 10 DEG W 67.13 FT, TH E 165 FT, TH S 10 DEG W 64.94 FT, TH E 165.15 FT, TH S 10 DEG W 134.13 FT, TH E 382.08 FT, TH N200 FT, TH E 220 FT, TH N 712.60 FT, TH W TO P.O.B.

The legal description for 2010 Woodbine Ave is MCCAMLEY MANOR, OUTLOT B



**Description of the Proposed Project** [24 CFR 50.12 & 58.32; 40 CFR 1508.25]:

The proposed project site will be developed into 45 single family site condominiums. The home will be situated on 13.58 acres and approximately 3.2 homes per acre and developed over phases. Currently the parcel is vacant and will be developed into Stanwood Crossings. There will be two access points, with the main entry being developed on the south side of the community, located along Stanley Ave and the secondary entry is to be developed on the north side of the property connected to Woodbine Ave.

Infrastructure - The roadways to develop this community include a 60' to 66' wide right of way with up to 32' wide public streets with concrete curbs. Sidewalks will be developed within the community on both sides of the roadway. The sidewalks will connect to an 8' wide walking trail that leads to existing sidewalks on Portage Road. The storm water system will be developed, and utilities will be served by municipal sanitary sewer and water, underground gas, electric and communication lines. A storm sewer system will be constructed in accordance with the City of Portage standards and storm water runoff will be directed to the open infiltration basin.

Homesites- The homes will consist of a mix of four floor designs. The community will have two styles of ranch homes and two plans for 2-story homes. 45 new single family homes will be completed over several phases and completion of the project around 2028

**Statement of Purpose and Need for the Proposal** [40 CFR 1508.9(b)]:

The currently vacant parcel will be used to develop single-family homes and provide the City of Portage with additional affordable housing while increasing the city's housing stock. Based on Kalamazoo's County Housing Plan one of the goals is to ensure housing supply is built to meet demand. The goal is to build 7,750 units by 2030 according to the plan created in 2022. It is further noted in the Michigan first Statewide Housing Plan, released in 2022 it addresses a broad array of intersecting challenges limiting access to safe, healthy, affordable, accessible and attainable housing for all in a community of their choice. Goal 4.6 of the Statewide Housing Plan is to increase the missing middle and workforce housing stock to facilitate greater housing choice while providing more incentives and fund income and appraisal gaps to support the development of missing middle housing types and workforce housing. Stanwood Crossing is considered workforce housing as it will serve families with incomes ranging from 80%-120% AMI. The property itself is located in the desirable Lacke Centre District of Portage within walking distance of established parks and recreation areas aligning with West and Austin Lakes and is convenient to a variety of consumer service providers, banking facilities and terries throughout the general area.

**Existing Conditions and Trends** [24 CFR 58.40(a)]:

The property is 13.58 acres of rolling and wooded land with approximately 10' of elevation change. The location is between Woodbine Avenue and Stanley Avenue in the Southeast area within the City of Portage. The property is at an elevation of 863 feet above mean sea level. The land surrounding the property is relatively level sloping generally to the east.

As the same trends appear in many cities throughout Michigan demographic growth is occurring in the City of Portage and putting a strain on available housing stock and increasing demand

**Funding Information**

<b>Grant Number</b>	<b>HUD Program</b>	<b>Funding Amount</b>
B-24-CP-MI-1204	CPF	\$1,000,000

**Estimated Total HUD Funded Amount:**

**\$1,000,000**

**Estimated Total Project Cost (HUD and non-HUD funds) [24 CFR 58.32(d)]:**

**\$17,960,333**

## **Compliance with 24 CFR 50.4, 58.5, and 58.6 Laws and Authorities**

Record below the compliance or conformance determinations for each statute, executive order, or regulation. Provide credible, traceable, and supportive source documentation for each authority. Where applicable, complete the necessary reviews or consultations and obtain or note applicable permits of approvals. Clearly note citations, dates/names/titles of contacts, and page references. Attach additional documentation as appropriate.

<b>Compliance Factors:</b> Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
<b>STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 and 58.6</b>		
<b>Airport Hazards</b>  24 CFR Part 51 Subpart D	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	The project site is not within 15,000 feet of a military airport or 2,500 feet of a civilian airport. The project is in compliance with Airport Hazards requirements.  See attachment #1 for map of site relative to airports.
<b>Coastal Barrier Resources</b>  Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	This project is not located in a CBRS Unit. Therefore, this project has no potential to impact a CBRS Unit and is in compliance with the Coastal Barrier Resources Act.  See attachment #2 for map
<b>Flood Insurance</b>  Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	The structure or insurable property is not located in a FEMA-designated Special Flood Hazard Area.  While flood insurance may not be mandatory in this instance, HUD recommends that all insurable structures maintain flood insurance under the National Flood Insurance Program (NFIP).  The project is in compliance with flood insurance requirements.  Per the FIRMETTE panel 26077C0315D (eff date 2/17/2010) site is in Zone X, minimal flood hazard area and is not in a Special Flood Hazard Area. No Flood Insurance is required.  See attachment #3 for map.

**STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 & 58.5**

<p><b>Clean Air</b></p> <p>Clean Air Act, as amended, particularly section 176(c) &amp; (d); 40 CFR Parts 6, 51, 93</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>The project's county or air quality management district is in attainment status for all criteria pollutants. The project is in compliance with the Clean Air Act.</p> <p>Per EGLE Air Quality Division, the entire State of Michigan has currently achieved Attainment for Carbon Monoxide, Lead, Nitrogen Dioxide and Particulate Matter (PM10 &amp; PM2.5).</p> <p>Kalamazoo County has achieved Attainment for Sulfur Dioxide and Ozone.</p> <p>See attachment #4 – Attainment Status for the NAAQS</p>
<p><b>Coastal Zone Management</b></p> <p>Coastal Zone Management Act, sections 307(c) &amp; (d)</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>This project is not located in or does not affect a Coastal Zone as defined in the state Coastal Management Plan.</p> <p>The project is in compliance with the Coastal Zone Management Act.</p> <p>Per a review of the Michigan Department of Transportation Dynamic Environmental GIS Resource (DEGR) mapping program, the project site is not located within a Coastal Zone Management Area</p> <p>See attachment #5 for map.</p>
<p><b>Contamination and Toxic Substances</b></p> <p>24 CFR Part 50.3(i) &amp; 58.5(i)(2)</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>On-site or nearby toxic, hazardous, or radioactive substances that could affect the health and safety of project occupants or conflict with the intended use of the property were not found. Radon analysis indicated elevated levels of radon or consideration of radon will occur following construction. Adverse radon impacts can be mitigated. With mitigation, identified in the mitigation section of this review, the project will be in compliance with contamination and toxic substances requirements.</p> <p>Utilizing the Michigan Department of Environment, Great Lakes, and Energy interactive mapper (<a href="https://www.michigan.gov/egle/about/Organization/Materials-Management/Indoor-Radon">https://www.michigan.gov/egle/about/Organization/Materials-Management/Indoor-Radon</a>), it</p>

		<p>identified that the average radon tests around Portage are in the 2 – 3.9 pCi/L range where mitigation is suggested. As such steps for considering and mitigating of potential Radon is included in the attachment listed as "Radon Consideration / Mitigation". All residential construction work will be completed in accordance with the Michigan Residential Building Code. Referenced on the Michigan Department of Environment, Great Lakes, and Energy website on Radon Resistant New Construction.</p> <p><a href="https://www.michigan.gov/egle/about/organization/materials-management/indoor-radon/new-construction">https://www.michigan.gov/egle/about/organization/materials-management/indoor-radon/new-construction</a>.</p> <p>The Phase 1 ESA referenced was completed on April 24, 2023 by Fishbeck and is available at the City of Portage. There have been no changes to the property since the original Phase 1 was completed. There were no issues found on the properties (9617 Portage Road and 2010 Woodbine Avenue). Phase 1 indicates that there are no REC's present at this time.</p> <p>See attachment #6 for maps.</p>
<p><b>Endangered Species</b></p> <p>Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402</p>	<p>Yes    No</p> <p><input checked="" type="checkbox"/>    <input type="checkbox"/></p>	<p>This project May Affect, but is Not Likely to Adversely Affect, listed species. This project is in compliance with the Endangered Species Act without mitigation. The project will need to be in compliance as noted below.</p> <p>Indiana Bat and Northern Long-Eared Bat: Tree removals will be required to be performed during the inactive period of August 1 through May 31.</p> <p>Eastern Massasauga Rattlesnake: Project will require the use of wildlife friendly products for soil erosion control and site restoration. Staff working on the project must review the EMR factsheet and watch MDNR's EMR video. Any sightings shall be reported to the USFWS within 24 hours.</p> <p>There will be no effect on state listed threatened or endangered species per an on-site survey and consultation with the MNFI database.</p>

		See attachment 7 for reports and information.
<b>Explosive and Flammable Hazards</b>  24 CFR Part 51 Subpart C	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	<p>There are no current or planned stationary aboveground storage containers of concern within 1 mile of the project site. The project is in compliance with explosive and flammable hazard requirements.</p> <p>City of Portage GIS Aerial Maps were reviewed to determine the 1 mile radius, shown on the attached maps. Surrounding areas is primarily residential properties and lake. Along Portage Road there are two commercial/industrial type districts. On the attached aerials we have zoomed in to the two areas and as shown on the maps there are no visible exterior containers that would appear larger than 100 gallons</p> <p>On the northern end of the search radius, there are several businesses that deal with auto repair, marine sales, outdoor power equipment, and a hardware store. The Do-It Best Hardware Store approximately 1/2 mile north of the site sells residential propane tanks.</p> <p>The City of Portage Fire Department was contacted to find out if they had any records of highly flammable/combustible/explosive material at any of the properties within the radius of the development. There was no response provided to the email correspondence.</p> <p>See attachment #8 for maps.</p>
<b>Farmlands Protection</b>  Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	<p>The project includes activities that could convert agricultural land to a non-agricultural use, but "prime farmland", "unique farmland", or "farmland of statewide or local importance" regulated under the Farmland Protection Policy Act does not occur on the project site. The project is in compliance with the Farmland Protection Policy Act.</p>

		<p>Per a USDA Soil Conservation Map from 1979-80, attached, the site is identified as "other" land.</p> <p>Per EPA NEPAassist 2024 mapping documentation site is located within Urban Areas</p> <p>See attachment #9 for map.</p>
<p><b>Floodplain Management</b></p> <p>Executive Order 11988, particularly section 2(a); 24 CFR Part 55</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>This project does not occur in the FFRMS floodplain. The project is in compliance with Executive Orders 11988 and 13690.</p> <p>Per the FIRMETTE panel 26077C0315D (eff date 2/17/2010) site is in Zone X (unshaded).</p> <p>Per EPA NEPAassist 2024 the site does not appear in the 0.2% annual chance flood hazard. The map show the Zone AE E1 of Austin Lake at 656.6. No portion of our project site is below that elevation and all proposed residential units and roadways are shown as no lower than an elevation of 860</p> <p>Austin Lake and West Lake have a legally established lake level of 856 (est 6/02/1925) per the Kalamazoo County Drain Commissioners office</p> <p>See attachment #10 for FIRMETTE.</p>
<p><b>Historic Preservation</b></p> <p>National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>Project has been submitted to Michigan SHPO for review. Site required an above and below ground surveys to verify findings and to confirm whether or not historic properties are affected.</p> <p>Federally listed Native American Tribes have been invited to consult.</p> <p>Upon completion of the above and below ground survey, it was determined that there will be No Adverse Effect on Historic Properties.</p> <p>See attachment #11 for Reports, Studies, and correspondence.</p>
<p><b>Noise Abatement and Control</b></p> <p>Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B</p>	<p>Yes    No</p> <p><input type="checkbox"/>    <input checked="" type="checkbox"/></p>	<p>A Noise Assessment was conducted. The noise level was acceptable: 65.0 db. See noise analysis. The project is in compliance with HUD's Noise regulation.</p>

		<p>Portage Road, a four-lane roadway located west of the project site is the nearest major roadway to the subject property. The property is bounded on the north and south by two local streets.</p> <p>According to the Kalamazoo Area Transportation Study (KATS) and the Michigan Department of Transportation (MDOT) MS2 webportal, the 2023 ADT for this stretch of roadway was 17,340 veh/day. The traffic count indicated that 10% were medium/large trucks. Based on this the ADT is approximately 15,780 automotive vehicles and 1,560 medium/heavy trucks. The site was measured to be approximately 240' from the nearest proposed residential unit to Portage Road. Using this information and the on-line HUD Exchange Day/Night Noise Level (DNL) Calculator, the DNL for Portage Road was found to be 64 dB, which is considered "Acceptable" according to HUD guidelines. Since the KATS/MDOT data did not differentiate the type of trucks (medium vs heavy) all commercial vehicles were counted as "heavy" in the analysis.</p> <p>The Kalamazoo/Battle Creek International Airport is located approximately 3 miles from the project site, it is within the 15 mile radius required for noise generators. Due to proposed runway expansion plans, the airport had an Environmental Assessment completed which was available on-line (<a href="https://flyazo.com/about-the-airport/documents-plans-projects-reports/airport-projects/">https://flyazo.com/about-the-airport/documents-plans-projects-reports/airport-projects/</a>). In Appendix M of the report their were DNL contour maps for the existing and proposed runway improvements. Based on those contour maps it was identified that a 60 DNL line was located approximately 0.3 miles south of the airport property, which was approx 2.3 miles from the site. Adding this additional information to the DNL Calculator it was shown that the total DNL including the airport, was found to be 65 dB, which is considered "Acceptable".</p> <p>See attachment #12 for the maps and DNL Calculator results.</p>
<b>Sole Source Aquifers</b>	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	<p>The project is not located on a sole source aquifer area. The project is in compliance with Sole Source Aquifer requirements.</p>



Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149		As shown on the attached map there are no sole source aquifers in the project area. The site will be connected to municipally owned and maintained water/sewer systems. No concerns are noted and no action is warranted at this time.  See attachment #13 for map.
<b>Wetlands Protection</b>  Executive Order 11990, particularly sections 2 and 5	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	The project will not impact on- or off-site wetlands. The project is in compliance with Executive Order 11990.  The USFWS National Wetlands Inventory mapping system was used to identify if any potential wetlands exist on or directly adjacent to the project site. Per the attached map, no wetlands were present.  The Phase 1 ESA conducted in April 24, 2023 also identified no wetlands present on the site.  See attachment #14 for maps
<b>Wild and Scenic Rivers</b>  Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	This project is not within proximity of a NWSRS river. The project is in compliance with the Wild and Scenic Rivers Act.  See attachment #15 for map.
<b>ENVIRONMENTAL JUSTICE</b>		
<b>Environmental Justice</b>  Executive Order 12898	Yes    No <input type="checkbox"/> <input checked="" type="checkbox"/>	Adverse environmental impacts are not disproportionately high for low-income and/or minority communities. The project is in compliance with Executive Order 12898.  See attachment #16 for data

**Environmental Assessment Factors** [24 CFR 58.40; Ref. 40 CFR 1508.8 & 1508.27] Recorded below is the qualitative and quantitative significance of the effects of the proposal on the character, features and resources of the project area. Each factor has been evaluated and documented, as appropriate and in proportion to its relevance to the proposed action. Verifiable source documentation has been provided and described in support of each determination, as appropriate. Credible, traceable and supportive source documentation for each authority has been provided. Where applicable, the necessary reviews or consultations have been completed and applicable permits of approvals have been obtained or noted. Citations, dates/names/titles of contacts, and page references are clear. Additional documentation is attached, as appropriate. **All conditions, attenuation or mitigation measures have been clearly identified.**

**Impact Codes:** Use an impact code from the following list to make the determination of impact for each factor.

- (1) Minor beneficial impact
- (2) No impact anticipated
- (3) Minor Adverse Impact – May require mitigation
- (4) Significant or potentially significant impact requiring avoidance or modification which may require an Environmental Impact Statement

Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>LAND DEVELOPMENT</b>		
Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design	2	<p>The subject property is a proposed single-family development located within an area zoned for residential development per the City of Portage zoning map.</p> <p>According to historical and current site information, the subject property appears to be suitable and no unusual conditions were identified at the subject property during site visits. In addition, based on the proposed land use; building size and type, the subject property will be compatible with the surrounding area, which is a mix of single-family and multi-family units.</p>
Soil Suitability/ Slope/ Erosion/ Drainage/ Storm Water Runoff	2	<p>A topographic and boundary survey of the project site was completed and reviewed for this evaluation. Based on the contours, the site naturally slopes toward the east and southwest corners of the property. There are no existing buildings/structures on the site.</p> <p>The subject property currently consists of a wooded, rolling parcel. Tree removal will be required. A geotechnical soils report was completed by Soils and Structures, Inc dated August 28, 2024. Site consists of primarily sandy soils.</p> <p>Stormwater runoff will be conveyed through an on-site storm sewer to an on-site retention pond to utilize infiltration. No concerns regarding slope, erosion, drainage, and/or storm water runoff have been noted at the subject property.</p>
Hazards and Nuisances including Site Safety and Noise	2	<p>There are no observed high pressure natural gas, petroleum pipelines or pipeline easements on or adjacent to the subject property.</p> <p>There is an electrical power line that crosses through the subject property that provides power to the adjacent properties. City of Portage has been in contact with Consumers Energy regarding the relocation and/or undergrounding of the existing power line as part of the plan to supply power to the development.</p> <p>During the Phase I ESA, a Tier 1 and Tier 2 Vapor Encroachment Study was completed to determine the effect of the adjacent industrial properties. There was no negative impact identified from these nearby buildings.</p>

		<p>Stormwater ponds will be fenced in accordance with the City of Portage ordinances.</p> <p>Other than the typical winter weather observed in Michigan, and the occasional severe thunderstorm or rare tornado, the area is not known for regular or re-occurring natural disasters that could create a natural hazard as part of this development.</p> <p>During the construction, which will be completed in phases, there will be short-term noise generated that will be during daylight hours in conformance with the City of Portage noise ordinance. Being a single-family development, these are not considered to be significant noise generators that create loud noises, not generally found in similar neighborhoods.</p>
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Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>SOCIOECONOMIC</b>		
Employment and Income Patterns	2	<p>The proposed development is residential and is not intended to create jobs beyond what temporary jobs may be created during the construction of the project.</p> <p>This development will provide a place of residence for people that currently work in the community or surrounding area that can't afford to own their own home in the current real estate market. The type of residents that would qualify for this is the "blue" collar workers that earn within the 80% -120% of the AMI.</p> <p>When the project is completed and fully developed, it is not expected to have a negative impact on the number of jobs or type of jobs available in the area. Due to the increase in lower middle income workers, there may be an increase in indirect jobs as part of this at the nearby businesses that are needed to serve this population demographic. This is also the population that would be working at the types of businesses available nearby thereby creating a suitable local workforce for the adjacent businesses</p>
Demographic Character Changes, Displacement	2	<p>Since the subject project is currently unoccupied, vacant land there are no displacements anticipated.</p> <p>The character changes are limited to converting a wooded vacant parcel of land into single-family homes consistent with the surrounding neighborhood.</p> <p>The project will benefit middle income home buyer within the 80-120% AMI.</p>
Environmental Justice	2	<p>The project does not dis proportionally impact an area of low income or minority population.</p>

Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>COMMUNITY FACILITIES AND SERVICES</b>		
Educational and Cultural Facilities	2	<p>Since the development is planned residential it is anticipated that several of the families may have school aged children. An estimate of number of additional children is not known at this time since the housing distribution will be a mix of size, types, and will be based on the eligibility of the homeowner and the income level based on number of occupants and employment status (retired / employed) as long as they meet the income requirements.</p> <p>The Portage Public Schools has 8 elementary schools, which this development would be near the Lake Center Elementary School; 3 middle schools and 2 high schools, which this project would be included in the Central MS/HS complex. It currently serves approximately 8,600 students, with approx. 1,400 at Portage Central HS. The proposed development could result in a potential increase in student population of less than 1% if each house had 2 school age children and would potentially be spread out among the grade classes as the homes develop and residents move in.</p> <p>The city does not anticipate a negative impact to the existing cultural facilities and is not aware of any current issues with servicing the current population.</p>
Commercial Facilities	2	<p>There are several locations within the City of Portage where commercial facilities are available.</p> <p>One small commercial area is located less than 1 mile from the site with variety of small businesses along Portage Road.</p> <p>Along Westnedge Avenue and Shaver Road there is a much larger commercial corridor with a larger mix of commercial businesses consisting of the larger big box retail stores (Walmart, Meijer, Home Depot, etc.) that are located within 3 miles.</p> <p>Since the development is residential in nature, there is no anticipated displacement of existing commercial business as a result of this project.</p>
Health Care and Social Services	2	<p>The City of Portage has a wide variety of medical and dental facilities located approximately 5 miles from the proposed development site. These facilities are primarily located in the commercial areas of Westnedge Avenue on the north end of town and on W. Centre Avenue west of Oakland Drive.</p> <p>The primary hospital facilities in the area are located in Kalamazoo which is approx. 8 – 10 miles away.</p> <p>Many of the social service facilities such as senior centers, day cares, mental health, and community services are located approximately 5 miles from the proposed development. In</p>

		<p>addition, Portage Public Schools provides early childhood programs for the community. All locations are readily accessible via private transportation. Public transportation is currently not yet available in this portion of the City.</p> <p>Since the development will consist of a mixture of residents within the 80 – 120% AMI, it is unknown what the full impact would be on these associated services since the needs could vary greatly depending on the particular occupant. However, it is concluded that since this is primarily geared toward the average worker, there is an assumption that the service needs would be geared more toward the average general health care/ dental care and day care/child care over the senior/assisted living programs.</p> <p>Therefore, the projected increase in residents created by this 44 unit development is not anticipated to add a significant impact to the current health and social service programs currently available.</p>
Solid Waste Disposal / Recycling	2	<p>No solid waste is generated at the subject property.</p> <p>No evidence of illegal dumping of solid waste or reportable quantities of hazardous substance was observed on the site.</p> <p>Residential refuse will be handled by local garbage collection services.</p>
Waste Water / Sanitary Sewers	2	<p>Project will be served with public sanitary sewer, which currently exists and serves the adjacent properties.</p> <p>There are no anticipated capacity issues with the existing sewer systems.</p>
Water Supply	2	<p>The site will be served with a public water distribution system. The site has existing water main running adjacent to the parcel. There are no anticipated capacity issues with the existing water supply system.</p> <p>The water in this area of the city is adequate to service use and any future increase of usage.</p>
Public Safety - Police, Fire and Emergency Medical	2	<p>The City of Portage maintains its own Public Safety Department, which includes a police and fire division.</p> <p>The nearest fire station is approximately 2.4 miles. This project will not put a significant burden on the capacity of police, fire or healthcare providers.</p>
Parks, Open Space and Recreation	2	<p>Parks, open space and recreation areas are available within walking and/or biking distance from the subject property.</p> <p>The nearby Lakeview Park is currently undergoing renovations to expand the park amenities. There is a boat launch just east of the project site to allow residents access onto the nearby Austin Lake.</p> <p>The proposed development is not anticipated to have any negative impact to these existing facilities.</p>

Transportation and Accessibility	2	<p>The subject property will be accessible to employment, shopping and various services by private transportation. Project will include extending a walking/non-motorized pathway to the existing Portage Road corridor for walkability.</p> <p>The City is currently working on a corridor study of Portage Road to improve safety, reduce speeds, and add non-motorized capacity to the road network and improve the connectivity of the Portage bike network.</p> <p>Part of the Portage Road Corridor improvements will include looking at opportunities to add public transportation stops in the vicinity of Lakeview Park and this development.</p>
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Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>NATURAL FEATURES</b>		
Unique Natural Features, Water Resources	2	<p>Although the existing parcel is wooded and consists of rolling, wooded terrain, there are no unique environmental natural features located on the project site. This was determined based upon the findings of the MNFI database search completed as part of the T&amp;E species review.</p> <p>The project will be utilizing native plantings for completion of site restoration and landscaping which would limit the introduction of invasive or nuisance species.</p> <p>By utilizing an on-site storm water infiltration system to convey storm water there will be no runoff directed to the adjacent waterbodies.</p>
Vegetation, Wildlife	3	<p>As part of the construction project tree clearing will be required. The tree clearing will be completed within the areas of the proposed grading/site development and will take means to keep existing trees and vegetation where grading impacts are limited. Currently there are plans to keep some of the existing vegetation along the rear parcel lines of the units located on the interior ring road and to maintain existing trees along the rear properties of the lots that abut existing residences.</p> <p>During review of the USFWS Threatened and Endangered Species review there are three species that qualify for protection. It is the Indiana Bat, Northern Long Eared Bat and Eastern Massasauga Rattlesnake (EMR).</p> <p>For the Northern Long Eared Bat and Indiana Bat: Compliance with USFWS regulations and MDNR can be met by performing the removal of trees during the inactive period for bats, which is August 1 thru May 31. This will also minimize impacts to other species that may use the habitat for habitat and breeding.</p>

		<p>For the EMR it was determined that the site is in the range of the EMR but is not a Tier 1 (known to be occupied) or Tier 2 (high potential to be occupied) Habitat. Therefore in order to be in compliance with USFWS and MDNR requirements the project will be required to use wildlife friendly materials for the site restoration and soil erosion control measures, education training for the Contractors and on-site workers, and notifying the USFWS and MDNR of any sightings within 24 hours.</p> <p>Consultation with the USFWS through the IPaC system confirms that following the above guidelines will have a “May Affect, but is Not Likely to Adversely Affect” determination for those listed species.</p>
Other Factors		No other factors of concern were identified at or in the vicinity of the project not previously noted above.

Environmental Assessment Factor	Impact Code	Impact Evaluation
CLIMATE AND ENERGY		
Climate Change Impacts	2	<p>The project site is located inland from the Great Lakes shoreline and would not be affected by any increase in sea level or Great Lakes level increases.</p> <p>The area has seen an increase in the severity and number of storms over time and the development will take this into account as the development proceeds. All houses are designed to the minimum standard of the building codes for residential construction. Building codes take into account requirements for wind loads, insulation, earthquakes, and other environmental factors that a house needs to withstand.</p> <p>Site design standards follow the city design standards for storm water which are regularly updated to account for changes in precipitation intensities. Such designs require accounting for the 1% rain events and storm water quality treatment before discharging to surface bodies of water.</p> <p>With these being single family homes, rather than larger multi-family homes, the amount of hard surface for parking is minimized allowing for more greenspace and tree plantings to minimize future heat island effects.</p> <p>The project has looked at future possibilities of public transportation in the area and have considered that through the installation of public sidewalks and the pathway that will connect to the existing sidewalk and future non-motorized facilities along Portage Road. The City is looking into the ability</p>

		<p>to install bus stops in the vicinity of the project along Portage Road as part of the Portage Road corridor improvements project</p> <p>The project will include the installation of infrastructure to support EV charging connections at each unit..</p>
Energy Efficiency	2	<p>Appliances included in the house will be energy star rated.</p> <p>High-efficiency rated furnaces will be utilized.</p> <p>As the development process has transpired, the team has been in contact with the energy supplier (gas, electric) to discuss potential energy efficiency measures for this project. The energy company offers rebates that the potential homeowner will be able to obtain for adding efficiency upgrades beyond what is included in the initial unit.</p>



## **Additional Studies Performed:**

ASTM Phase I Environmental Site Assessment, prepared by Fishbeck, dated April 24, 2023 (Revised)  
Vapor Encroachment Screening, prepared by Fishbeck (included in the Phase I ESA)  
Active Adjacent Industry Site Assessment, dated July 28, 2023 by Fishbeck  
ALTA Survey, prepared by Wightman, dated 5/1/2023  
Geotechnical Investigation, prepared by Soils & Structures, dated 8/228/2024

## **Field Inspection (Date and completed by):**

Courtney Dunaj (Fishbeck); February 24, 2023  
Regina Shettler (Fishbeck); February 24, 2023  
Aaron Neitling, P.E (Wightman); various times  
Soils & Structures, Inc. (Geotechnical); July 29 – 31, 2024  
Orbis Environmental (Archaeological); November 2024

## **List of Sources, Agencies and Persons Consulted** [40 CFR 1508.9(b)]:

### Laws & Authorities Section

HUD - <https://www.hudexchange.info/programs/environmental-review/>

#### 1. Map -

APZ Guidelines/DOD: <https://www.govinfo.gov/content/pkg/CFR-2011-title32-vol2/pdf/CFR-2011-title32-vol2-sec256-8.pdf>

HUD Exchange - <https://www.hudexchange.info/programs/environmental-review/airport-hazards/>

#### 2. US Fish and Wildlife Service (USFWS), Coastal Barrier Resource Mapper;

<https://fwsprimary.wim.usgs.gov/CBRSMapper-v2/>

#### 3. FEMA Flood Map Service Center; <https://msc.fema.gov/portal/search>

#### 4. EGLE – Air Quality Division, Attainment Status for the National Ambient Air Quality Standards

#### 5. MDOT Dynamic Environmental GIS Resource (DEGR) mapping program

#### 6. MDOT DEGR mapping program

Phase I Environmental Site Assessment, including VES, dated April 24, 2023 by Fishbeck

Active Adjacent Industry Site Assessment, dated July 28, 2023 by Fishbeck

Department of Environment, Great Lakes, and Energy website mapper

<https://www.michigan.gov/egle/about/Organization/Materials-Management/Indoor-Radon>

Department of Environment, Great Lakes, and Energy website on Radon Resistant New Construction.

<https://www.michigan.gov/egle/about/organization/materials-management/indoor-radon/new-construction>

American Village Builders

#### 7. Orbis Environmental

USFWS IPaC website

Michigan Department of Natural Resources through Michigan Natural Features Inventory (MNFI)

#### 8. City of Portage GIS Aerial Maps (2024 layer)

City of Portage Fire Department

#### 9. Prime Farmland Maps of Michigan

<https://alabamamaps.ua.edu/historicalmaps/primefarmland/Michigan/michigan.html>

Kalamazoo County link (10/14/2024)

Aerial Photographs – City of Portage GIS system (9/10/2024)

10. FEMA Flood Map Service Center; <https://msc.fema.gov/portal/search>  
Kalamazoo County Drain Commission; <https://www.kalcounty.com/drain/lake-levels.htm>
11. Orbis Environmental  
Michigan State Historic Preservation Office (SHPO) via Section 106 application  
Various Native American Tribes (THPO)
12. <https://www.hudexchange.info/programs/environmental-review/noise-abatement-and-control/>  
Traffic Count Data: KATS website: <https://www.katsmpo.org/documents-resources>  
MDOT MS2 portal: <https://mdot.public.ms2soft.com/tcds/tsearch.asp>  
FAA Airport Noise Compatibility Planning Info:  
[https://www.faa.gov/airports/environmental/airport\\_noise/noise\\_exposure\\_maps](https://www.faa.gov/airports/environmental/airport_noise/noise_exposure_maps)  
HUD Exchange – Day/Night Noise Level Electronic Assessment Tool (DNL Calculator):  
<https://www.hudexchange.info/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/>  
HUD Noise Guidebook: <https://www.hudexchange.info/resource/313/hud-noise-guidebook/>  
Kalamazoo Airport Noise Curfew (Appendix A – Environmental Assessment for Runway 17/35 Extension and Taxiway C Realignment: <https://flyazo.com/about-the-airport/documents-plans-projects-reports/airport-projects/>  
Kalamazoo Airport – Noise and Vibration Analysis: DNL Contours Map: (Appendix M):  
<https://flyazo.com/about-the-airport/documents-plans-projects-reports/airport-projects/>  
Project site is outside of the 60 DNL line.
13. US EPA NEPAassist: <https://www.epa.gov/nepa/nepassist>
14. USFWS National Wetlands Inventory Mapping  
City of Portage GIS Wetland Mapping Layer
15. USGS Wild and Scenic Rivers, supplied by City of Portage
16. US EPA NEPAassist (EJ Screen): <https://www.epa.gov/nepa/nepassist>

#### Environmental Assessment Factors Section:

US News and World Report: <https://www.usnews.com/education/k12/michigan/districts/portage-public-schools-106643>

City of Portage GIS Maps: School Districts Layer, Public Services Layer

Report of Geotechnical Investigation for Stanwood Crossings dated August 28, 2024 by Soils & Structures, Inc.

#### **List of Permits Obtained: (To Be Obtained)**

Sanitary Sewer Construction Permit - EGLE

Water Main Construction Permit - EGLE

Soil Erosion Control Permit - City of Portage

NPDES (SESC) Permit - EGLE

#### **Public Outreach [24 CFR 50.23 & 58.43]:**

In June 2023 the Portage City Council established a Task Force dedicated to the collection of questions and concerns of residents directly affected by the Stanwood Crossings Housing Development. The City used this Task Force to seek public comments and the City created a webpage for the Lake Center Housing Task Force which provided a summary of questions/concerns the public had related to the proposed developments and provided a response from the City. The City used the results of the Task Force into the guidance for the determination of a 44 unit development. The City webpage for the Task Force is located here: <https://www.portagemi.gov/911/Lake-Center-Housing-Task-Force>

The City held a public neighborhood meeting in June 2024 to present the project to the adjacent neighbors. The meeting was held at Lakeview Park and was a presentation with questions and answers. During the meeting the primary concerns of the residents were the type of housing, traffic, and general project intent.

This project is also going through the site plan review process as a Planned Development and re-zoning, which requires approval by the Planning Commission and City Council. During the approval process, the site plan and re-zoning will have/or have had public hearings held as part of the plan review/approval process. The City maintains minutes of those meetings/public hearings which are available on the City website.

#### **Cumulative Impact Analysis [24 CFR 58.32]:**

A full analysis of the cumulative impact of this development is difficult to provide for a project of this type. However, it is understood that since each lot or parcel will be privately owned and maintained there will be changes occurring that could impact the variety and numbers of existing and future trees on this project site. This means that additional trees that were left as buffers may be removed by the property owners or may plant other vegetation types.

#### **Alternatives [24 CFR 58.40(e); 40 CFR 1508.9]**

During the planning phase of this project the City developed several different plan alternatives before selecting the proposed option. Since this project is to provide affordable housing, the project needs to balance out the number of housing units relative to the amount of infrastructure to make the project economically feasible. Not only did the alternates look at the construction costs, but also at the long term costs that the property owner would have to maintain and upkeep the residence. As such the City had reviewed three plans options prior to selecting the current site layout.

Alternate #1: The alternative consisted of 64 residential units between a combination of single family homes, townhomes, and clustered homes. In this alternate the site layout allowed for more open space to preserve existing vegetation. There were several reasons why this option was not selected. One reason for this alternate not to be selected was that there was uncertainty in who would be responsible for ownership and maintenance of the open spaces since they would be

common area and not part of the individual ownership, as well as the responsibility for the upkeep of the townhome structures. These type of activities are generally owned and maintained by a home owners association which has dues and fees on-top of a typical mortgage payment that might not be affordable to the average homeowner. The size of the single family lots were smaller than allowed by the zoning ordinance. There are concerns with parking and safety since the size of the lots doesn't allow room for visitor parking or sidewalks. The overall mix of units doesn't appear to fit the character of the adjacent neighborhood. Although the surrounding residential units have some multi-family units mixed in with the single-family units, they are more duplex units and fit the look of the single-family units better than 6-unit single story townhouse would.

Alternative #2: This alternative consisted of 75 total living units utilizing a mix of 43 single family homes and 32 town homes in quadplexes. In this alternative the site layout allowed for preserving approximately 25% of the site as natural open space. Again, with this alternate there was the concern of the requirements to create an association responsible for the ownership of the common areas. The layout changed the multi-family units from 6-unit to 4-unit quadplexes which allowed for more ability to provide parking areas and these units could be used as the transition/buffer along the Portage Road corridor. The single-family units were adjusted to provide better parking and garage facilities and provide room for sidewalks within the neighborhood. However, the home lot sizes were smaller than the alternative #1 and installation of sidewalk required a reduction in road width and eliminated any potential on-street parking due to the lot widths.

Alternative #3: This alternative consisted of 63 single-family homes with the City taking ownership of the stormwater management areas. With the creation of this option, the amount of public open space was eliminated, but each parcel was larger allowing for more lawn area and open space on each lot. This layout also provided room for more off-street parking in the driveways allowing for a narrower street to help in reduction of stormwater runoff. The trade-off was more clearing and grading work to allow for a rear yard detached garage. This alternative was not selected as a result of the findings of the Task Force and public comments. The layout of the homes with detached garages did not fit the character of the surrounding property, the lots were to be larger to better meet city requirements, a lower density was preferred.

Selected Alternative: The selected alternative is a modification of alternative #3 that used input from the Task Force (see public outreach section). The selected alternate provides for 42 single-family homes allowing for larger lots, providing attached garages, keeping the homes similar in nature to the neighborhood (ranch style and 2-story), while lowering the density. With the wider lots, the roadway will be wider allowing for on-street parking, but will allow the houses to be located closer to the roadway and reducing the overall grading impact and tree clearing.

In addition to the alternatives that we prepared for the layout of this particular site, there are other alternatives that could be considered other than this parcel of land.

If the City selected an alternate location, it would most likely require that the affordable housing development be located beyond the limits of the City of Portage. There is a limited amount of developable property left and available at a reasonable cost that would make a project like this feasible within the City. The City has large sections of undeveloped property, but many of those areas are currently left as open public space, state land, city parks, lakes, or wetland areas. So looking at alternative sites leaves the options of re-development of existing residential properties, redevelopment of existing commercial property, or acquiring vacant property outside of the Portage city limits.

So if the City elected to redevelop an existing residential property or an older commercial development (such as malls, department stores, etc.) there would be other environmental impacts that might be present on that site that isn't on the preferred site. Those type of concerns could be related to lead, asbestos, underground contamination, disposal of demolition debris, etc. Some of these items can be more challenging and costly to the project to perform proper remediation work making the project no longer economically viable. Another negative to the redevelopment of these types of projects is that they are sometime located in the more heavily congested / traffic areas of the City thereby making it more walkable to nearby services, but can be less attractive due to concerns with safety and noise due to traffic and nearby businesses. A benefit of redevelopment would be the low impact to existing vegetation, trees, soils, etc. that may have already been cleared or removed during initial construction.

If the City elected to utilize available property outside of the City there are both positive and negative to that option as well. Surrounding Portage on the east, south and west there is many large tracts of land that could be available for this sort of development. However, much of that property is currently farmland and is unserved by public services such as sewer and water. To make a property of this type feasible, you would need to extend those services out to the development, being converting farmland into residential areas, and changing the character of those areas. You could use private wells and septic, but that would require larger lots, less homes, and you are now creating an impact on ground water and creating additional discharge of septic to the ground. The development is further from the availability of potential public transportation routs and would add to additional traffic since they would need to have a mode of private transportation to get into the city for their employment and use of commercial business.

#### **No Action Alternative [24 CFR 58.40(e)]:**

If the project is not constructed at this location, then there is a chance that a development still occurs on this site. The difference is that the site could be developed to attract those residents with the higher incomes that can afford the larger homes. The property is zoned residential, has public sewer and water nearby and is one of the few remaining larger parcels in the area around Austin Lake and East Lake that is developable and not currently developed.

By not utilizing this property for affordable housing, it still leaves a void in the Greater Kalamazoo areas for this type of housing.

**Summary of Findings and Conclusions:**

The findings and conclusion of this Environmental Review can be found summarized in the tables noted above.

**Mitigation Measures and Conditions [40 CFR 1505.2(c)]**

Summarize below all mitigation measures adopted by the Responsible Entity to reduce, avoid, or eliminate adverse environmental impacts and to avoid non-compliance or non-conformance with the above-listed authorities and factors. These measures/conditions must be incorporated into project contracts, development agreements, and other relevant documents. The staff responsible for implementing and monitoring mitigation measures should be clearly identified in the mitigation plan.

Law, Authority, or Factor	Mitigation Measure
Contamination and Toxic Substances	Radon is considered a Natural Hazard and Nuisance. Per HUD Guidelines, radon mitigation activities are required to be implemented during the construction phase of the project. In accordance with Michigan Residential Building Code,
Endangered Species	Indiana Bat and Northern Long Eared Bat protection is to be completed by performing any tree removal or trimming during the inactive period of August 1 – May 31
Endangered Species	Eastern Massasauga Rattlesnake protection requirements are to be completed as follows; Project will require the use of wildlife friendly products for soil erosion control and site restoration. Staff working on the project must review the EMR factsheet and watch MDNR's EMR video. Any sightings shall be reported to the USFWS within 24 hours

**Determination:**

☒ **Finding of No Significant Impact** [24 CFR 58.40(g)(1); 40 CFR 1508.27]

The project will not result in a significant impact on the quality of the human environment.

☐ **Finding of Significant Impact** [24 CFR 58.40(g)(2); 40 CFR 1508.27]

The project may significantly affect the quality of the human environment.

Preparer Signature: \_\_\_\_\_ Date: February 17, 2025

Name/Title/Organization: Aaron Neitling, P.E.

Wightman and Associates, Inc. 1670 Lincoln Road, Allegan, MI 49010

Certifying Officer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name/Title: \_\_\_\_\_

This original, signed document and related supporting material must be retained on file by the Responsible Entity in an Environmental Review Record (ERR) for the activity/project (ref: 24 CFR Part 58.38) and in accordance with recordkeeping requirements for the HUD program(s).

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# **APPENDIX A**

## **Site Photos**





# PHOTOS

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Photo #1

On Stanley Avenue, looking north along existing clearing path (running north south direction)



Photo #2

On Stanley Avenue, looking east along parcel frontage near proposed road entrance.

March 2023.



Photo #3

Site photo located near middle of site, facing westerly direction.

November 2024



# PHOTOS

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Photo #4

Site photo, north end of project  
looking north toward existing  
houses along Woodbine

November 2024



Photo #5

Site photo, south end looking  
east along overhead power  
line corridor

November 2024

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## **APPENDIX B**

### **Laws and Authorities Supporting Documents**



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# **ATTACHMENT 1**

## **Airport Hazards**





## Airport Runway Clear Zones (CENST) – PARTNER

<https://www.hudexchange.info/environmental-review/airport-hazards>

**1. Does the project involve the sale or acquisition of developed property?**

☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

☒ Yes → *Continue to Question 2.*

**2. Is the project in the Runway Protection Zone/Clear Zone (RPZ/CZ)<sup>1</sup>?**

☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within either zone.*

☐ Yes → Written notice must be provided to prospective buyers to inform them of the potential hazards from airplane accidents as well as the potential for the property to be purchased as part of an airport expansion project. [A sample notice is available through the HUD Exchange.](#)

*Provide a map showing that the site within RPZ/CZ. Work with the RE/HUD to provide written notice to the prospective buyers. Continue to the Worksheet Summary below.*

### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

### **Include all documentation supporting your findings in your submission to HUD.**

Map is included as Attachment #1 and shows that there is no military or civilian airport within 15,000' or 2,500' of the project site.

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<sup>1</sup> Runway Protection Zone/Clear Zones are defined as areas immediately beyond the ends of runways. The standards are established by FAA regulations. The term in 24 CFR Part 51, Runway Clear Zones, was redefined in FAA's Airport Design Advisory Circular (AC) 150/5300-13 to refer to Runway Protection Zones for civil airports. See link above for additional information.



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

## Airport Hazards (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/airport-hazards>

- 1. To ensure compatible land use development, you must determine your site's proximity to civil and military airports. Is your project within 15,000 feet of a military airport or 2,500 feet of a civilian airport?**

☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within the applicable distances to a military or civilian airport.*

☐ Yes → *Continue to Question 2.*

- 2. Is your project located within a Runway Potential Zone/Clear Zone (RPZ/CZ) or Accident Potential Zone (APZ)?**

☐ Yes, project is in an APZ → *Continue to Question 3.*

☐ Yes, project is an RPZ/CZ → *Project cannot proceed at this location.*

☐ No, project is not within an APZ or RPZ/CZ

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Continue to the Worksheet Summary below. Provide a map showing that the site is not within either zone.*

- 3. Is the project in conformance with DOD guidelines for APZ?**

☐ Yes, project is consistent with DOD guidelines without further action.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documentation supporting this determination.*

☐ No, the project cannot be brought into conformance with DOD guidelines and has not been approved. → *Project cannot proceed at this location.*

**If mitigation measures have been or will be taken, explain in detail the proposed measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

[Click here to enter text.](#)

→ *Work with the RE/HUD to develop mitigation measures. Continue to the Worksheet Summary below. Provide any documentation supporting this determination.*

### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

### **Include all documentation supporting your findings in your submission to HUD.**

Map is included as Attachment #1 showing proximity to Kalamazoo/Battle Creek International Airport (civilian) and the Battle Creek Executive Airport (Military).

No civilian airport is within 2,500' of the site.

No military airport is within 15,000' of the site and site is not within the APZ or clear zone as defined in DOD guidelines 32 CFR 256.7, 256.8 & 256.9

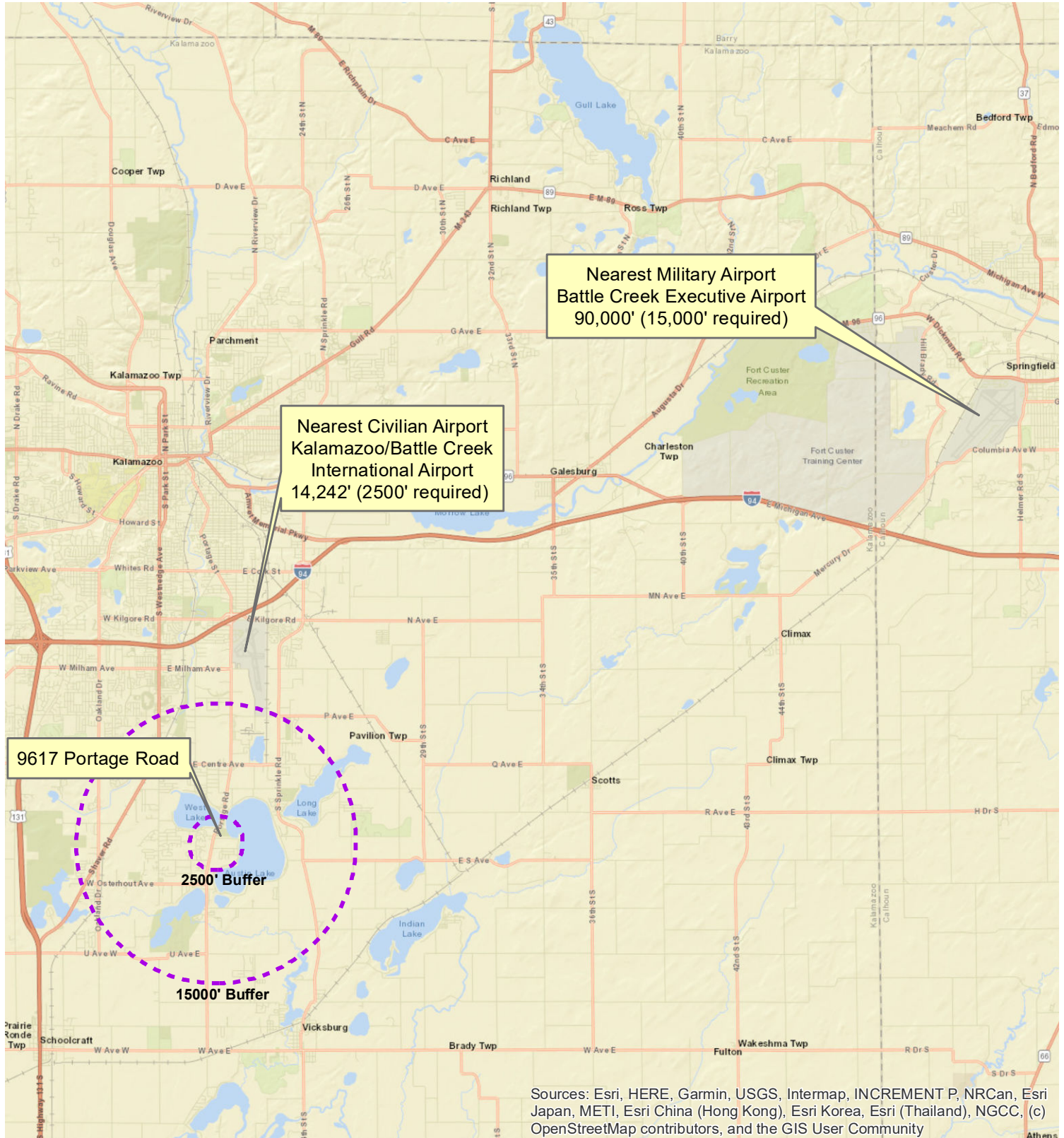
HUD - <https://www.hudexchange.info/programs/environmental-review/airport-hazards/>



# Environmental Review Map

## Nearest Airports: Civilian, Military

### 9617 Portage Road



1 inch = 15,000 feet



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## **ATTACHMENT 2**

### **Coastal Barrier Resources**





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

## Coastal Barrier Resources (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/coastal-barrier-resources>

Projects located in the following states must complete this form.

Alabama	Georgia	Massachusetts	New Jersey	Puerto Rico	Virgin Islands
Connecticut	Louisiana	Michigan	New York	Rhode Island	Virginia
Delaware	Maine	Minnesota	North Carolina	South Carolina	Wisconsin
Florida	Maryland	Mississippi	Ohio	Texas	

### 1. Is the project located in a CBRS Unit?

- ☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within a CBRS Unit.*
- ☐ Yes → *Continue to 2.*

Federal assistance for most activities may not be used at this location. You must either choose an alternate site or cancel the project. In very rare cases, federal monies can be spent within CBRS units for certain exempted activities (e.g., a nature trail), after consultation with the Fish and Wildlife Service (FWS) (see [16 USC 3505](#) for exceptions to limitations on expenditures).

### 2. Indicate your recommended course of action for the RE/HUD

- ☐ Consultation with the FWS
- ☐ Cancel the project

### Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

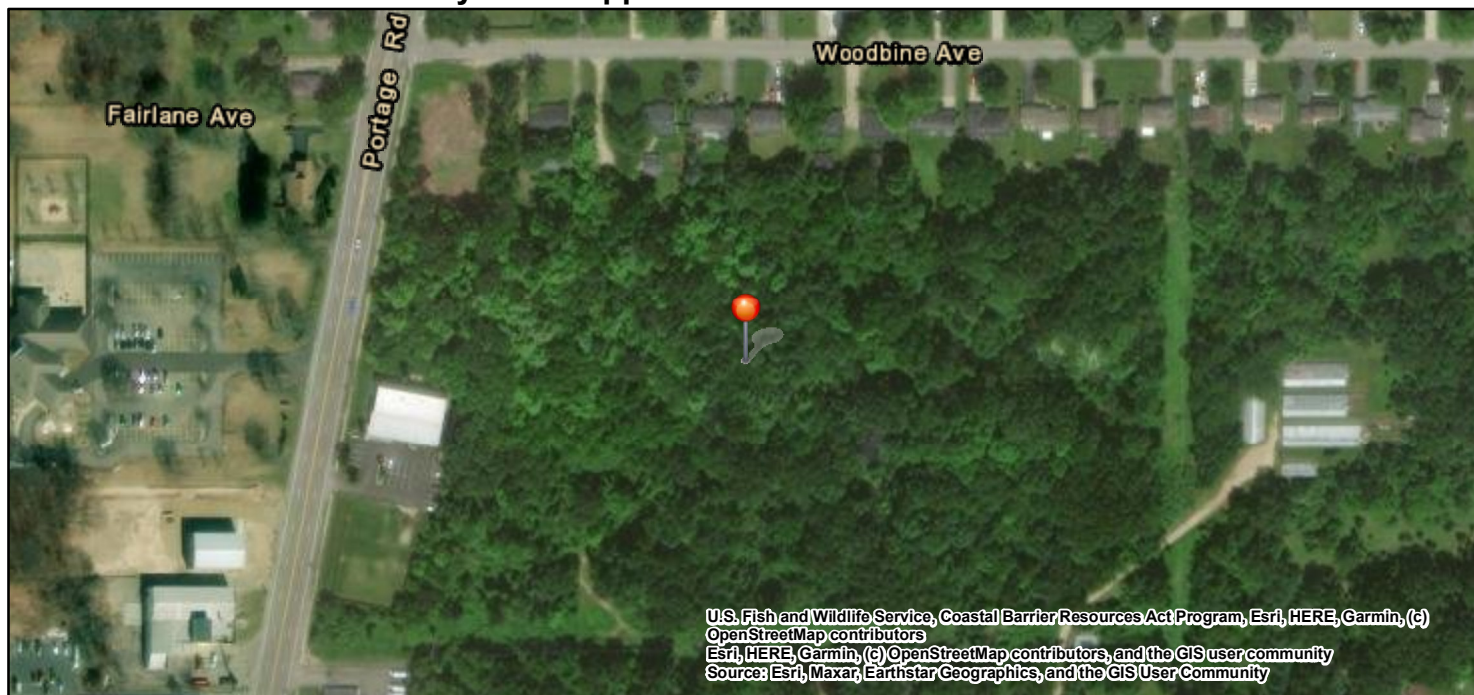
- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

### Include all documentation supporting your findings in your submission to HUD.

City of Portage mapped out the site using the USFWS Coastal Barrier Resources Mapper and it did not identify any buffer zones or protected areas on the map.

USFWS - <https://fwsprimary.wim.usgs.gov/CBRSMapper-v2/>

## Coastal Barrier Resources System Mapper Documentation



### CBRS Units

- Otherwise Protected Area
- CBRS Buffer Zone
- System Unit
- 85.56504, 42.177419

0 65 130 260 390 ft  
1:4,514

The pin location displayed on the map is a point selected by the user. Failure of the user to ensure that the pin location displayed on this map correctly corresponds with the user supplied address/location description below may result in an invalid federal flood insurance policy. **The U.S. Fish and Wildlife Service (Service) has not validated the pin location with respect to the user supplied address/location description below. The Service recommends that all pin locations be verified by federal agencies prior to use of this map for the provision or denial of federal funding or financial assistance.** Please note that a structure bisected by the Coastal Barrier Resources System (CBRS) boundary (i.e., both "partially in" and "partially out") is within the CBRS and therefore affected by CBRA's restrictions on federal flood insurance. A pin placed on a bisected structure must be placed on the portion of the structure within the unit (including any attached features such as a deck or stairs).

**User Name:** City of Portage City Hall

**User Organization:** Municipality

**User Supplied Address/Location Description:** 9617 Portage Road, Portage Michigan

**Pin Location:** Outside CBRS

**Pin Flood Insurance Prohibition Date:** N/A

**Pin System Unit Establishment Date:** N/A

The user placed pin location is not within the CBRS. The official CBRS maps are accessible at <https://www.fws.gov/library/collections/official-coastal-barrier-resources-system-maps>.

The CBRS information is derived directly from the CBRS web service provided by the Service. This map was exported on 7/12/2024 and does not reflect changes or amendments subsequent to this date. The CBRS boundaries on this map may become superseded by new boundaries over time.

This map image may be void if one or more of the following map elements do not appear: basemap imagery, CBRS unit labels, prohibition date labels, legend, scale bar, map creation date. For additional information about flood insurance and the CBRS, visit: <https://www.fws.gov/node/263838>.



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# **ATTACHMENT 3**

## **Flood Insurance**





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

## Flood Insurance (CEST and EA) – PARTNER

General requirements	Legislation	Regulation
Certain types of federal financial assistance may not be used in floodplains unless the community participates in National Flood Insurance Program and flood insurance is both obtained and maintained.	Flood Disaster Protection Act of 1973 as amended (42 USC 4001-4128)	24 CFR 50.4(b)(1) and 24 CFR 58.6(a) and (b); 24 CFR 55.5.
<b>Reference</b>		
<a href="https://www.hudexchange.info/environmental-review/flood-insurance">https://www.hudexchange.info/environmental-review/flood-insurance</a>		

1. Does this project involve mortgage insurance, refinance, acquisition, repairs, rehabilitation, or construction of a structure, mobile home, or insurable personal property?

☐ No. This project does not require flood insurance or is excepted from flood insurance.

*Continue to the Worksheet Summary.*

☒ Yes *Continue to Question 2.*

2. Provide a FEMA/FIRM map showing the site.

The Federal Emergency Management Agency (FEMA) designates floodplains. The [FEMA Map Service Center](#) provides this information in the form of FEMA Flood Insurance Rate Maps (FIRMs).

**Is the structure, part of the structure, or insurable property located in a FEMA-designated Special Flood Hazard Area?**

☒ No *Continue to the Worksheet Summary.*

☐ Yes *Continue to Question 3.*

3. Is the community participating in the National Flood Insurance Program or has less than one year passed since FEMA notification of Special Flood Hazards?

☐ Yes, the community is participating in the National Flood Insurance Program.

Flood insurance is required. Provide a copy of the flood insurance policy declaration or a paid receipt for the current annual flood insurance premium and a copy of the application for flood insurance.

*Continue to the Worksheet Summary.*

☐ Yes, less than one year has passed since FEMA notification of Special Flood Hazards.  
If less than one year has passed since notification of Special Flood Hazards, no flood Insurance is required.

*Continue to the Worksheet Summary.*

- ☐ No. The community is not participating, or its participation has been suspended.  
Federal assistance may not be used at this location. Cancel the project at this location.

**Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

**Include all documentation supporting your findings in your submission to HUD.**

Per the FIRMETTE panel 26077C0315D (eff date 2/17/2010) site is in Zone X, minimal flood hazard area and is not in a Special Flood Hazard Area. No Flood Insurance is required.

FEMA Flood Map Service Center; <https://msc.fema.gov/portal/search>









## Legend

 Project Boundary

### Flood Hazard

-  0.2% Annual Chance Flood Hazard
-  Area of Undetermined Flood Hazard
-  Special Floodway
-  Regulatory Floodway
-  1% Annual Chance Flood Hazard

MKM  
2024/10/16



Stanwood Crossings  
City of Portage  
Portage, Kalamazoo County, Michigan

Mapping Documentation  
FEMA Flood Hazard  
Project #2407009



# National Flood Hazard Layer FIRMette



85°34'21"W 42°10'52"N



1:6,000

85°33'43"W 42°10'25"N

Basemap Imagery Source: USGS National Map 2023

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/8/2024 at 9:23 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



---

## **ATTACHMENT 4**

**Clean Air**





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

## Air Quality (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/air-quality>

1. Does your project include new construction or conversion of land use facilitating the development of public, commercial, or industrial facilities OR five or more dwelling units?

☒ Yes → Continue to Question 2.

☐ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Provide any documents used to make your determination.

2. Is your project's air quality management district or county in non-attainment or maintenance status for any criteria pollutants?

Follow the link below to determine compliance status of project county or air quality management district:

<http://www.epa.gov/oaqps001/greenbk/>

☒ No, project's county or air quality management district is in attainment status for all criteria pollutants

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.

☐ Yes, project's management district or county is in non-attainment or maintenance status for one or more criteria pollutants. → Continue to Question 3.

3. Determine the estimated emissions levels of your project for each of those criteria pollutants that are in non-attainment or maintenance status on your project area. Will your project exceed any of the *de minimis* or threshold emissions levels of non-attainment and maintenance level pollutants or exceed the screening levels established by the state or air quality management district?

☐ No, the project will not exceed *de minimis* or threshold emissions levels or screening levels

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Explain how you determined that the project would not exceed *de minimis* or threshold emissions.

☐ Yes, the project exceeds *de minimis* emissions levels or screening levels.

→ Continue to Question 4. Explain how you determined that the project would not exceed de minimis or threshold emissions in the Worksheet Summary.

- 4. For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

Click here to enter text.

### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

### **Include all documentation supporting your findings in your submission to HUD.**

Per EGLE Air Quality Division, the entire State of Michigan has currently achieved Attainment for Carbon Monoxide, Lead, Nitrogen Dioxide and Particulate Matter (PM10 & PM2.5).

Kalamazoo County has achieved Attainment for Sulfur Dioxide and Ozone.

EGLE Air Quality Division <https://www.michigan.gov/egle>

<https://www.michigan.gov/egle/about/organization/air-quality/state-implementation-plan>

Attainment Status Map (10/14/2024)

# Attainment Status for the National Ambient Air Quality Standards

The National Ambient Air Quality Standards (NAAQS) are health-based pollution standards set by EPA.

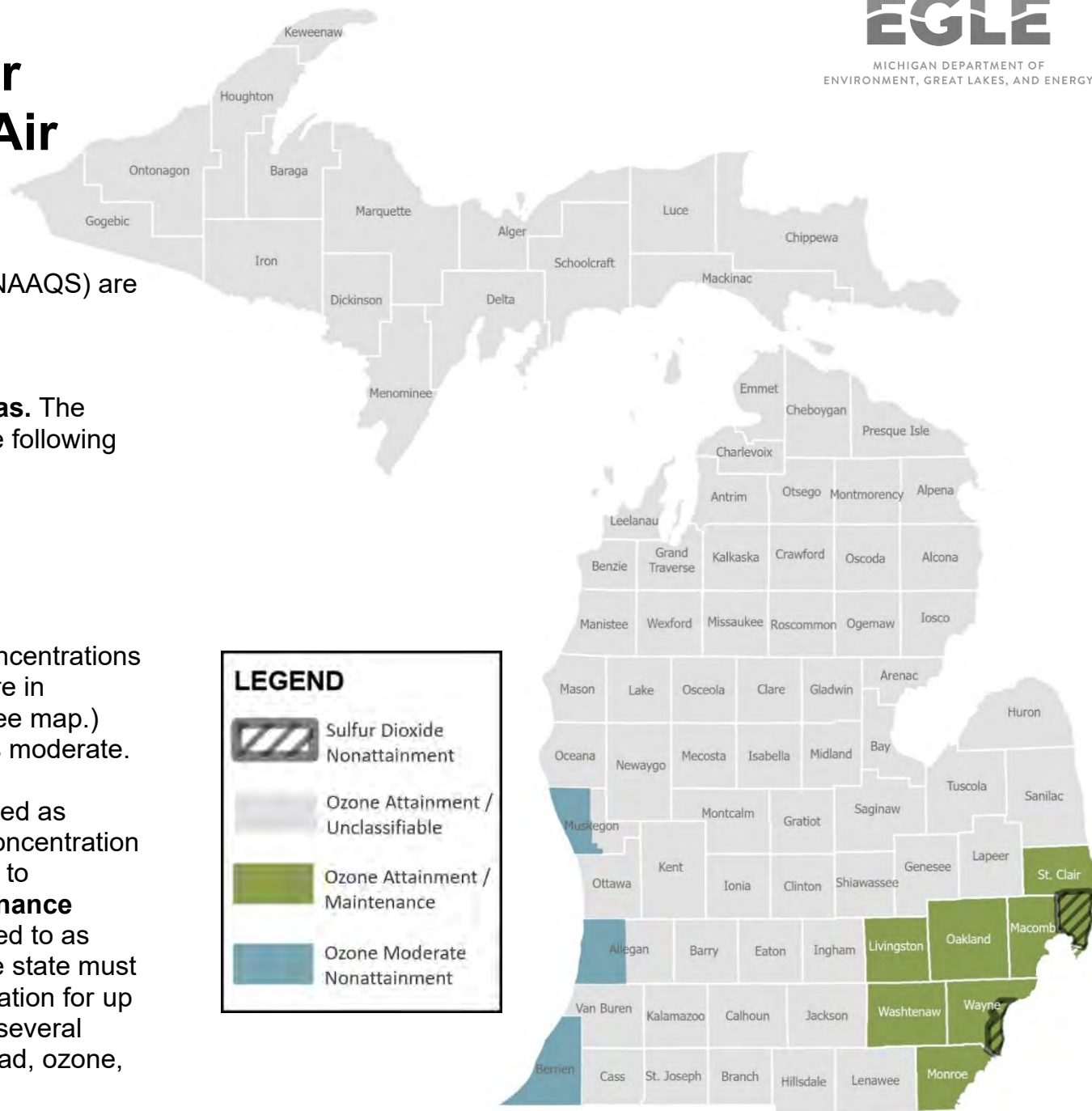
Areas of the state that are below the NAAQS concentration level are called **attainment areas**. The entire state of Michigan is in attainment for the following pollutants:

- Carbon Monoxide (CO)
- Lead (Pb)
- Nitrogen Dioxide (NO<sub>2</sub>)
- Particulate Matter (PM<sub>10</sub> & PM<sub>2.5</sub>)

**Nonattainment areas** are those that have concentrations over the NAAQS level. Portions of the state are in nonattainment for sulfur dioxide and ozone (see map.) The ozone nonattainment area is classified as moderate.

Areas of the state that were previously classified as nonattainment but have since reduced their concentration levels below the NAAQS can be redesignated to attainment and are called **attainment/maintenance areas**. These areas are also commonly referred to as “attainment” after reclassification, however the state must continue monitoring and submitting documentation for up to 20 years after the redesignated. There are several maintenance areas throughout the state for lead, ozone, and particulate matter.

*\*For readability purposes the map only includes the most recently reclassified ozone maintenance area in southeast Michigan. For more information, please consult the [Michigan.gov/AIR](https://www.michigan.gov/AIR) webpage or contact the division directly.*



*\*See Page 2 for close-up maps of partial county nonattainment areas.*



# Close-Up Maps of Partial County Nonattainment Areas

## Sulfur Dioxide Nonattainment Areas

*St. Clair County*



*Wayne County*



## Ozone Moderate Nonattainment Areas

*Allegan County*



*Muskegon County*



---

# **ATTACHMENT 5**

## **Coastal Zone Management**





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

## Coastal Zone Management Act (CEST and EA) – PARTNER

<https://www.onecpd.info/environmental-review/coastal-zone-management>

Projects located in the following states must complete this form.

Alabama	Florida	Louisiana	Mississippi	Ohio	Texas
Alaska	Georgia	Maine	New Hampshire	Oregon	Virgin Islands
American Samoa	Guam	Maryland	New Jersey	Pennsylvania	Virginia
California	Hawaii	Massachusetts	New York	Puerto Rico	Washington
Connecticut	Illinois	Michigan	North Carolina	Rhode Island	Wisconsin
Delaware	Indiana	Minnesota	Northern Mariana Islands	South Carolina	

**1. Is the project located in, or does it affect, a Coastal Zone as defined in your state Coastal Management Plan?**

☐ Yes → Continue to Question 2.

☒ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing that the site is not within a Coastal Zone.

**2. Does this project include activities that are subject to state review?**

☐ Yes → Continue to Question 3.

☐ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination.

**3. Has this project been determined to be consistent with the State Coastal Management Program?**

☐ Yes, with mitigation. → The RE/HUD must work with the State Coastal Management Program to develop mitigation measures to mitigate the impact or effect of the project.

☐ Yes, without mitigation. → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination.

☐ No → Project cannot proceed at this location.

### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates

- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

**Include all documentation supporting your findings in your submission to HUD.**

Per a review of the Michigan Department of Transportation Dynamic Environmental GIS Resource (DEGR) mapping program, the project site is not located within a Coastal Zone Management Area as shown on the attached map. Mapping was completed on Oct 14, 2024.



DEGR Landing Page

MDOT Dynamic Environmental GIS Resource

Aaron Neitling

Michigan

Street

Aerial

Best

Hybrid

Topo

Recreation (Section 4f.6f)

Water Quality

Species Concerns

Sensitive Landscapes

Coastal Zone Mgmt Area (DEQ)

Critical Dunes (DEQ)

High Risk Erosion Areas (DEQ)

Part 323 Environmental Areas (DEQ)

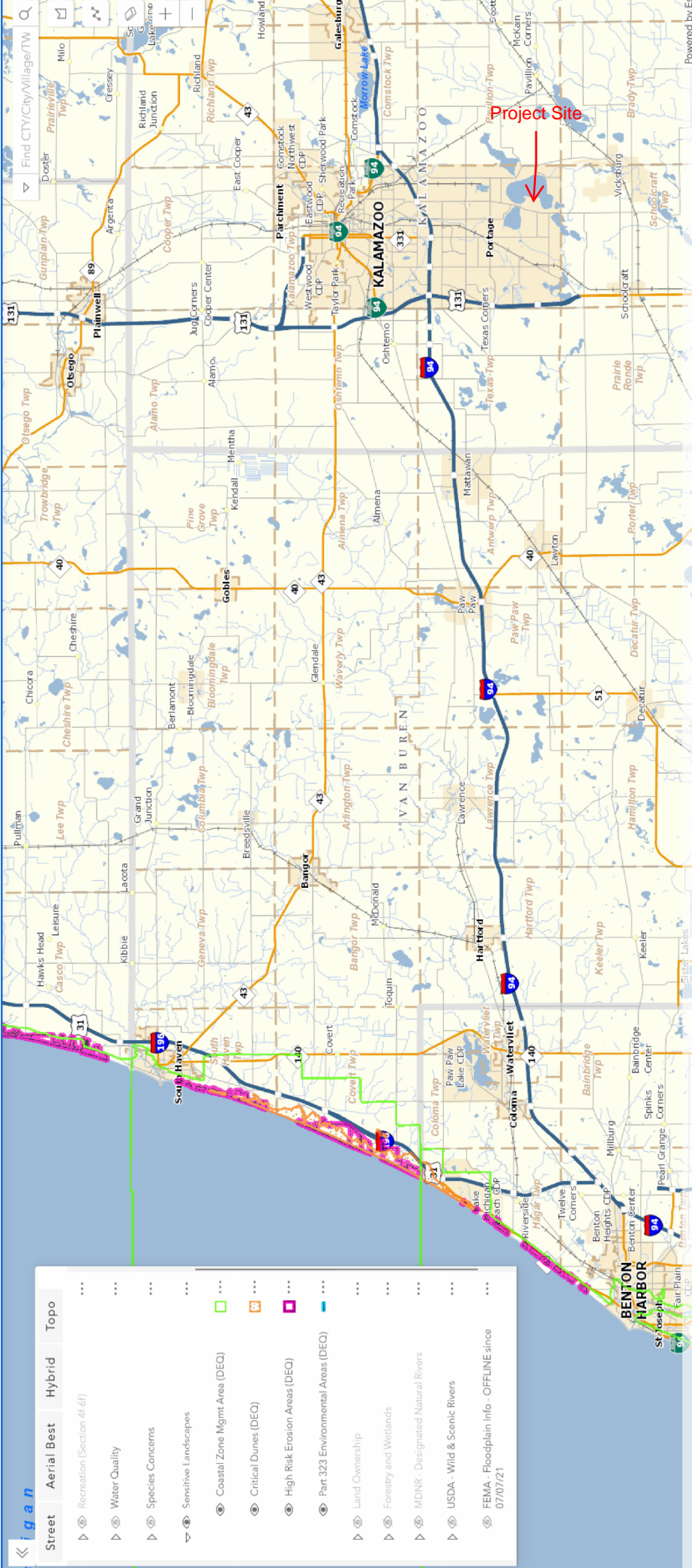
Land Ownership

Forestry and Wetlands

MDNR - Designated Natural Rivers

USDA - Wild & Scenic Rivers

FEMA - Floodplain Info - OFFLINE since 07/07/21



---

## **ATTACHMENT 6**

### **Contamination and Toxic Substances**





## Contamination and Toxic Substances (Single Family Properties) – PARTNER

<https://www.hudexchange.info/programs/environmental-review/site-contamination>

- 1. Evaluate the site for contamination. Were any on-site or nearby toxic, hazardous, or radioactive substances found that could affect the health and safety of project occupants or conflict with the intended use of the property?**

Provide a map or other documentation of absence or presence of contamination<sup>1</sup> and explain evaluation of site contamination in the Worksheet below.

☒ No → **Explain below.**

Phase 1 ESA was completed on the project site in April 2023. The site itself had no identified substances on it. An adjacent property, 9702 Portage Road, was found to have an underground storage tank, that appeared to have leaked when it was removed in 1993. They excavated approximately 120 Cyds of contaminated soil and the site was granted closure in 1994. Tank was located west of the existing building on site at 9702 Portage Road. As noted in the Phase 1 ESA, based on the closed status of the release, the offsite property does not represent a REC at this time.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

☐ Yes → *Describe the findings, including any recognized environmental conditions (RECs), in Worksheet Summary below. Continue to Question 2.*

☒ Check here if an ASTM Phase I Environmental Site Assessment (ESA) report was utilized.  
[Note: HUD regulations does not require an ASTM Phase I ESA report for single family homes]

- 2. Can adverse environmental impacts be mitigated?**

☐ Adverse environmental impacts cannot feasibly be mitigated → HUD assistance may not be used for the project at this site. Project cannot proceed at this location.

☐ Yes, adverse environmental impacts can be eliminated through mitigation.  
→ *Provide all mitigation requirements<sup>2</sup> and documents. Continue to Question 3.*

---

<sup>1</sup> Utilize EPA's Enviromapper and state/tribal databases to identify nearby dumps, junk yards, landfills, hazardous waste sites, and industrial sites, including EPA National Priorities List Sites (Superfund sites), CERCLA or state-equivalent sites, RCRA Corrective Action sites with release(s) or suspected release(s) requiring clean-up action and/or further investigation. Additional supporting documentation may include other inspections and reports.

<sup>2</sup> Mitigation requirements include all clean-up actions required by applicable federal, state, tribal, or local law. Additionally, provide, as applicable, the long-term operations and maintenance plan, Remedial Action Work Plan, and other equivalent documents.

**3. Describe how compliance was achieved. Include any of the following that apply: State Voluntary Clean-up Program, a No Further Action letter, use of engineering controls<sup>3</sup>, or use of institutional controls<sup>4</sup>.**

Click here to enter text.

**If a remediation plan or clean-up program was necessary, which standard does it follow?**

- ☐ Complete removal
- ☐ Risk-based corrective action (RBCA)

→ *Continue to the Worksheet Summary.*

**Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

**Include all documentation supporting your findings in your submission to HUD.**

On-site or nearby toxic, hazardous, or radioactive substances that could affect the health and safety of project occupants or conflict with the intended use of the property were not found. Radon analysis indicated elevated levels of radon or consideration of radon will occur following construction. Adverse radon impacts can be mitigated. With mitigation, identified in the mitigation section of this review, the project will be in compliance with contamination and toxic substances requirements.

Utilizing the Michigan Department of Environment, Great Lakes, and Energy interactive mapper (<https://www.michigan.gov/egle/about/Organization/Materials-Management/Indoor-Radon>), it identified that the average radon tests around Portage are in the 2 – 3.9 pCi/L range where mitigation is suggested. As such steps for considering and mitigating of potential Radon is included in the attachment listed as "Radon Consideration / Mitigation". All residential construction work will be completed in accordance with the Michigan Residential Building Code. Referenced on the Michigan Department of Environment, Great Lakes, and Energy website on Radon Resistant New Construction. <https://www.michigan.gov/egle/about/organization/materials-management/indoor-radon/new-construction>.

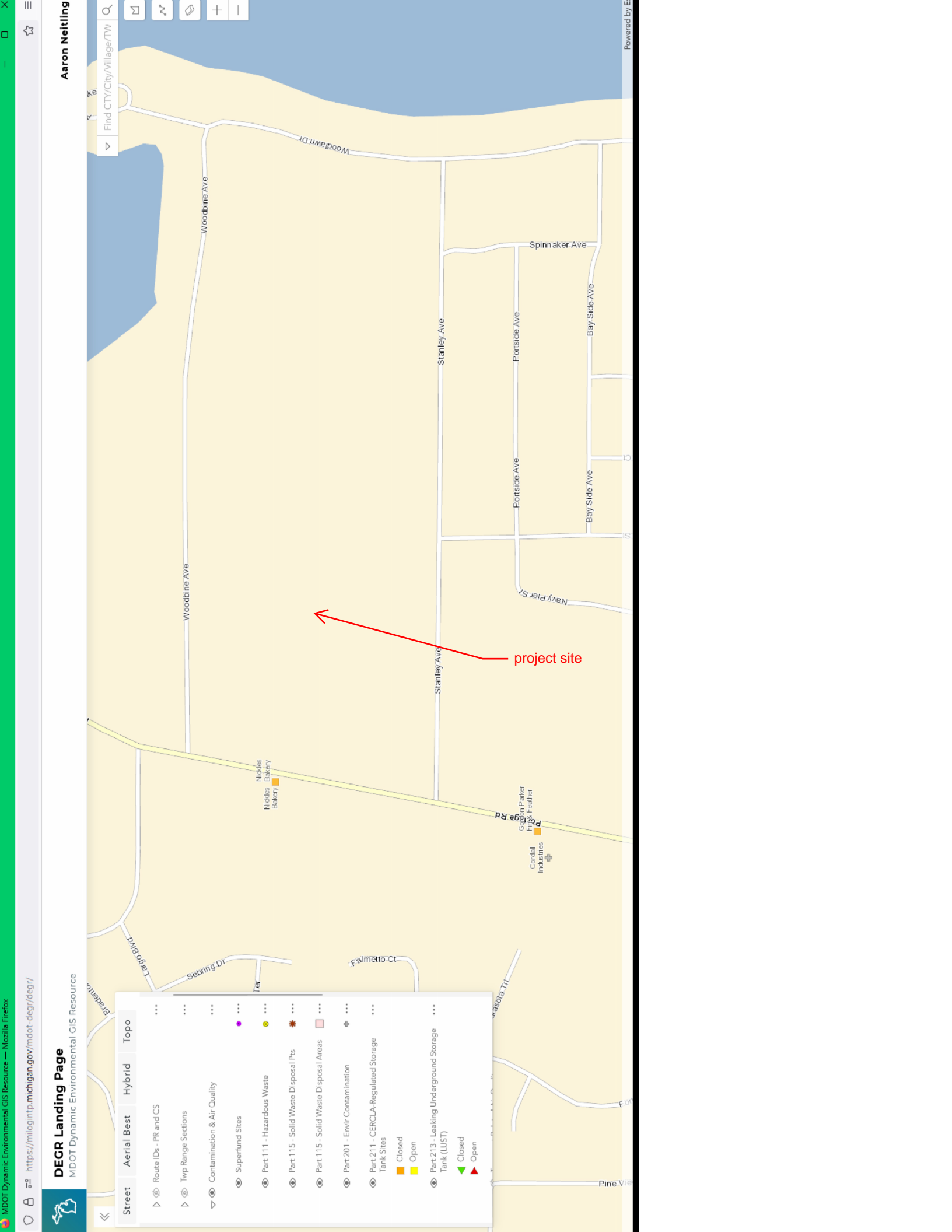
The Phase 1 ESA referenced was completed on April 24, 2023 by Fishbeck and is available at the City of Portage. There have been no changes to the property since the original Phase 1 was completed. There

---

<sup>3</sup> Engineering controls are any physical mechanism used to contain or stabilize contamination or ensure the effectiveness of a remedial action. Engineering controls may include, without limitation, caps, covers, dikes, trenches, leachate collection systems, signs, fences, physical access controls, ground water monitoring systems and ground water containment systems including, without limitation, slurry walls and ground water pumping systems.

<sup>4</sup> Institutional controls are mechanisms used to limit human activities at or near a contaminated site, or to ensure the effectiveness of the remedial action over time, when contaminants remain at a site at levels above the applicable remediation standard which would allow for unrestricted use of the property. Institutional controls may include structure, land, and natural resource use restrictions, well restriction areas, classification exception areas, deed notices, and declarations of environmental restrictions.

were no issues found on the properties (9617 Portage Road and 2010 Woodbine Avenue). Phase 1 indicates that there are no REC's present at this time.



Find CTY/City/Millage/TW

Street

Aerial Best

Hybrid

Topo

Route IDs - PR and CS

Twop Range Sections

Contamination & Air Quality

Superfund Sites

Part 111 - Hazardous Waste

Part 115 - Solid Waste Disposal Pts

Part 115 - Solid Waste Disposal Areas

Part 201 - Envir Contamination

Part 211 - CERCLA Regulated Storage Tank Sites

Part 213 - Leaking Underground Storage Tank (LUST)

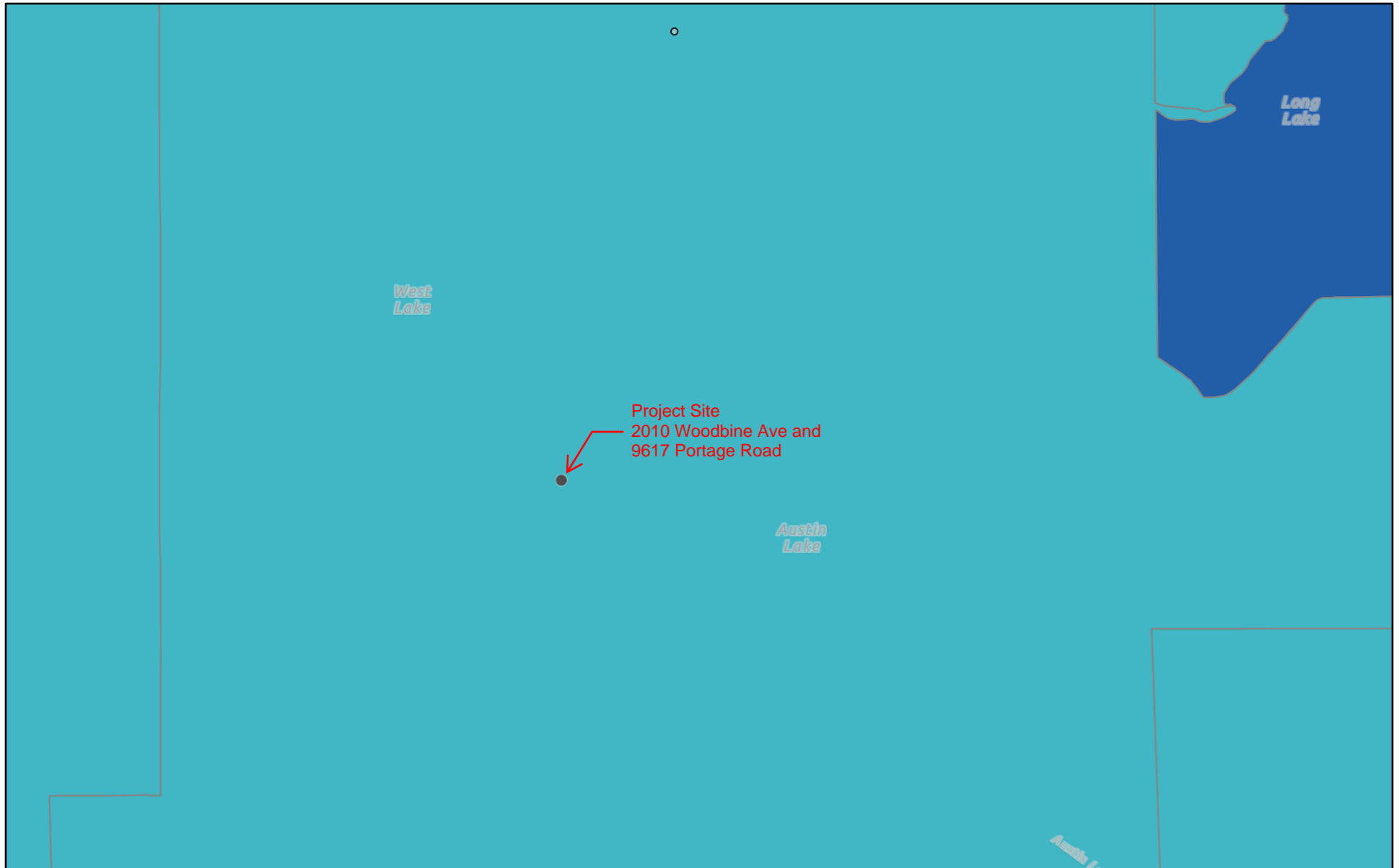
Closed

Open

Closed

Open

# EGLE Web App

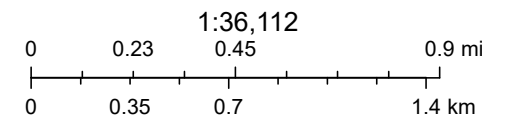


1/6/2025, 10:17:47 AM

Average Test Results (pCi/L)

$\geq 2 - 3.9$  pCi/L (Mitigation Suggested)

$\geq 4$  pCi/L (Mitigation Recommended)



City of Portage, MI, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

EGLE  
Copyright 2021 State of Michigan

## Radon Consideration / Mitigation

Upon review of the MDEGLE mapping sites, Kalamazoo County is shown as a county of concern where radon mitigation is suggested. Also the Michigan Building Code also notes that homes located in Kalamazoo County should take radon into consideration. As such the following steps are to be taken as part of the project to take radon into consideration on this project.

1. All houses will be constructed in accordance with the Michigan Residential Building Code.
  - a. The building code requires that radon-resistant construction techniques be utilized for project in 9 Michigan counties, which includes Kalamazoo County as noted on the Department of Environment, Great Lakes, and Energy website on Radon Resistant New Construction  
<https://www.michigan.gov/egle/about/organization/materials-management/indoor-radon/new-construction>
2. In accordance with the building code a “passive” radon system will be installed as part of the home construction
3. Upon completion of the home, the unit will be tested for radon
4. If there is a positive reading, greater than 4 pCi/L, the passive system can be activated with the addition of a fan to the system.

This radon consideration and mitigation would be completed during the construction process of the home and any issues would need to be addressed after the home was completed and prior to the new occupant taking occupancy of the home.



---

# **ATTACHMENT 7**

## **Endangered Species**





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

## Endangered Species Act (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/endangered-species>

### 1. Does the project involve any activities that have the potential to affect species or habitats?

☐ No, the project will have No Effect due to the nature of the activities involved in the project.

*à If the RE/HUD agrees with this recommendation, the review is in compliance with this section.*

*Continue to the Worksheet Summary below. Provide any documents used to make your determination.*

☐ No, the project will have No Effect based on a letter of understanding, memorandum of agreement, programmatic agreement, or checklist provided by local HUD office.

**Explain your determination:**

[Click here to enter text.](#)

*à If the RE/HUD agrees with this recommendation, the review is in compliance with this section.*

*Continue to the Worksheet Summary below. Provide any documents used to make your determination.*

☒ Yes, the activities involved in the project have the potential to affect species and/or habitats. *à*

*Continue to Question 2.*

### 2. Are federally listed species or designated critical habitats present in the action area?

Obtain a list of protected species from the Services. This information is available on the [FWS Website](#).

☐ No, the project will have No Effect due to the absence of federally listed species and designated critical habitat.

*à If the RE/HUD agrees with this recommendation, the review is in compliance with this section.*

*Continue to the Worksheet Summary below. Provide any documents used to make your determination. Documentation may include letters from the Services, species lists from the Services' websites, surveys or other documents and analysis showing that there are no species in the action area.*

☒ Yes, there are federally listed species or designated critical habitats present in the action area. *à*

*Continue to Question 3.*

### 3. Recommend one of the following effects that the project will have on federally listed species or designated critical habitat:

☐ No Effect: Based on the specifics of both the project and any federally listed species in the action area, you have determined that the project will have absolutely no effect on listed species or critical habitat.

*à If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination. Documentation should include a species list and explanation of your conclusion, and may require maps, photographs, and surveys as appropriate.*

☒ May Affect, Not Likely to Adversely Affect: Any effects that the project may have on federally listed species or critical habitats would be beneficial, discountable, or insignificant.

*à Partner entities should not contact the Services directly. If the RE/HUD agrees with this recommendation, they will have to complete Informal Consultation. Provide the RE/HUD with a biological evaluation or equivalent document. They may request additional information, including surveys and professional analysis, to complete their consultation.*

☐ Likely to Adversely Affect: The project may have negative effects on one or more listed species or critical habitat.

*à Partner entities should not contact the Services directly. If the RE/HUD agrees with this recommendation, they will have to complete Formal Consultation. Provide the RE/HUD with a biological evaluation or equivalent document. They may request additional information, including surveys and professional analysis, to complete their consultation.*

### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

### **Include all documentation supporting your findings in your submission to HUD.**

This project May Affect, but is Not Likely to Adversely Affect (NLAA), three federally listed species. To achieve NLAA, this project must follow best management practices for eastern massasauga rattlesnake, Indiana bat, and northern long-eared bat. On-site surveys were performed for three state listed plants: white or prairie false indigo, prairie coreopsis, and Virginia flax. These items were identified via a search of the MNFI database as having potential habitat in the project area. The on-site survey, attached, identified there was no habitat present and therefore a no effect determination is made for the three (3) state listed plants.

Consulted parties include US Fish and Wildlife Service through the Information for Planning and Consultation website (IPaC) and the Michigan Department of Natural Resources through the Michigan Natural Features Inventory (MNFI).

See attached expert report that includes mapping and letters from USFWS and MNFI.

Indiana Bat and Northern Long-Eared Bat: Tree removals will be required to be performed during the inactive period of August 1 through May 31

Eastern Massasauga Rattlesnake: Project will require the use of wildlife friendly products for soil erosion control and site restoration. Staff working on the project must review the EMR factsheet and watch MDNR's EMR video. Any sightings shall be reported to the USFWS within 24 hours.

# Threatened and Endangered Species Desktop Review

Stanwood Crossings  
City of Portage  
Kalamazoo County, Michigan

December 9, 2024

Prepared for:  
Wightman

Project #2407009



Orbis Environmental Consulting  
P.O. Box 10235 • South Bend, Indiana 46680  
Phone: (574) 635-1338

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## APPENDIX

Appendix A – MNFI and IPaC Results
Appendix B – Qualifications
Appendix C – Impacts and Avoidance Measures

# THREATENED AND ENDANGERED SPECIES DESKTOP REVIEW STANWOOD CROSSINGS CITY OF PORTAGE, KALAMAZOO COUNTY, MICHIGAN

December 9, 2024

Megan Martin and Brad Slaughter  
Orbis Environmental Consulting  
P.O. Box 10235  
South Bend, Indiana 46680

## EXECUTIVE SUMMARY

Orbis Environmental Consulting conducted a desktop review of Federal Threatened and Endangered species and Michigan Endangered, Threatened, and Special Concern species documented to occur in the vicinity of the Stanwood Crossings residential project in the City of Portage, Kalamazoo County, Michigan. Twenty-six species known from the vicinity of the project were reviewed to determine if suitable habitat exists for them on or near the project boundary. The project intersects the range of Eastern Massasauga Rattlesnake (EMR, *Sistrurus catenatus*), the Indiana bat (*Myotis sodalis*), and the northern long-eared bat (*Myotis septentrionalis*). A total of nine species may have habitat within or near the project boundary. Best Management Practices (BMPs) such as avoiding impacts to hydrology and clearing within certain timeframes are recommended to avoid potential impacts these nine species, although candidate species do not legally require avoidance and minimization.



## INTRODUCTION

Orbis Environmental Consulting (Orbis) was contracted by Wightman to conduct a Threatened and Endangered Species review for the Stanwood Crossings residential project in the City of Portage, Kalamazoo County, Michigan (Figures 1 and 2). The City of Portage will be developing 45 single-family owner-occupied site condominium homes. These homes will be both ranch style and two-story with attached two-car garages. The development will consist of 3.2 homes per acre and will be developed over 3 to 4 years, with a completion date approximately Spring, 2028. A stormwater system will be developed as a natural area with a trail system encompassing and linking to the Portage Road sidewalk. Storm runoff will be directed to an open infiltration basin.

A desktop review of Federal Threatened and Endangered (TE) and Michigan Threatened and Endangered (TE) species was conducted for the entire project.



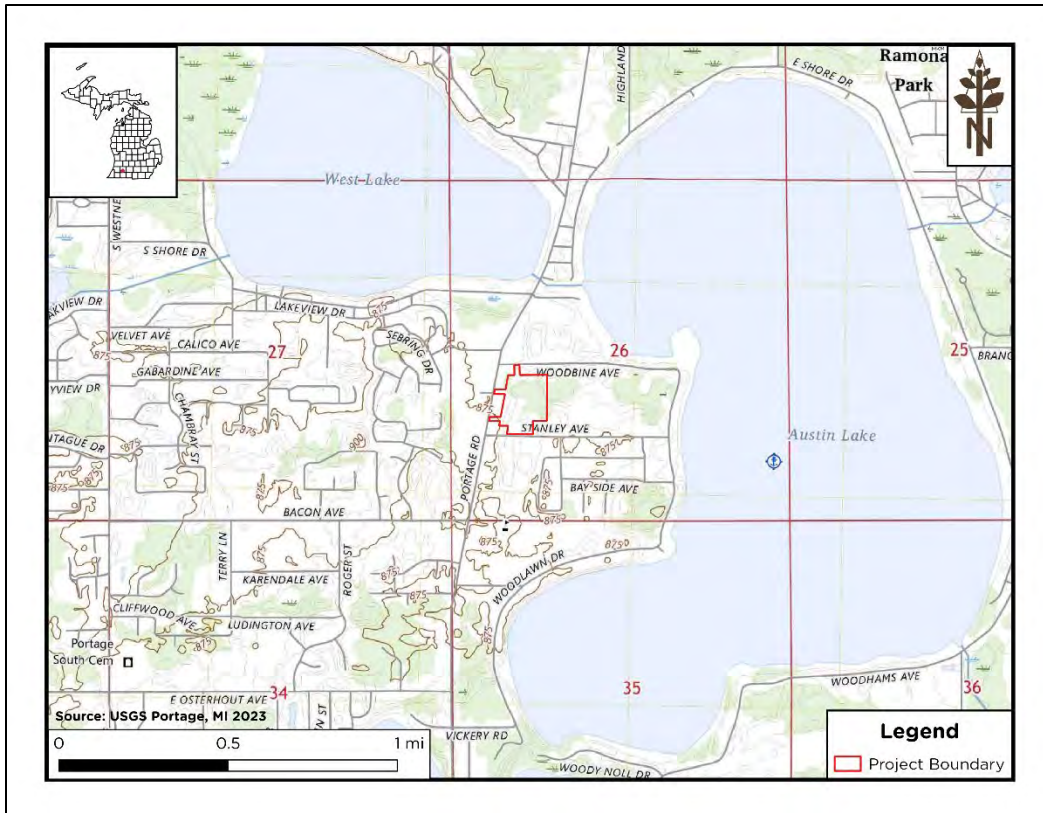


FIGURE 1. TOPOGRAPHIC MAP.

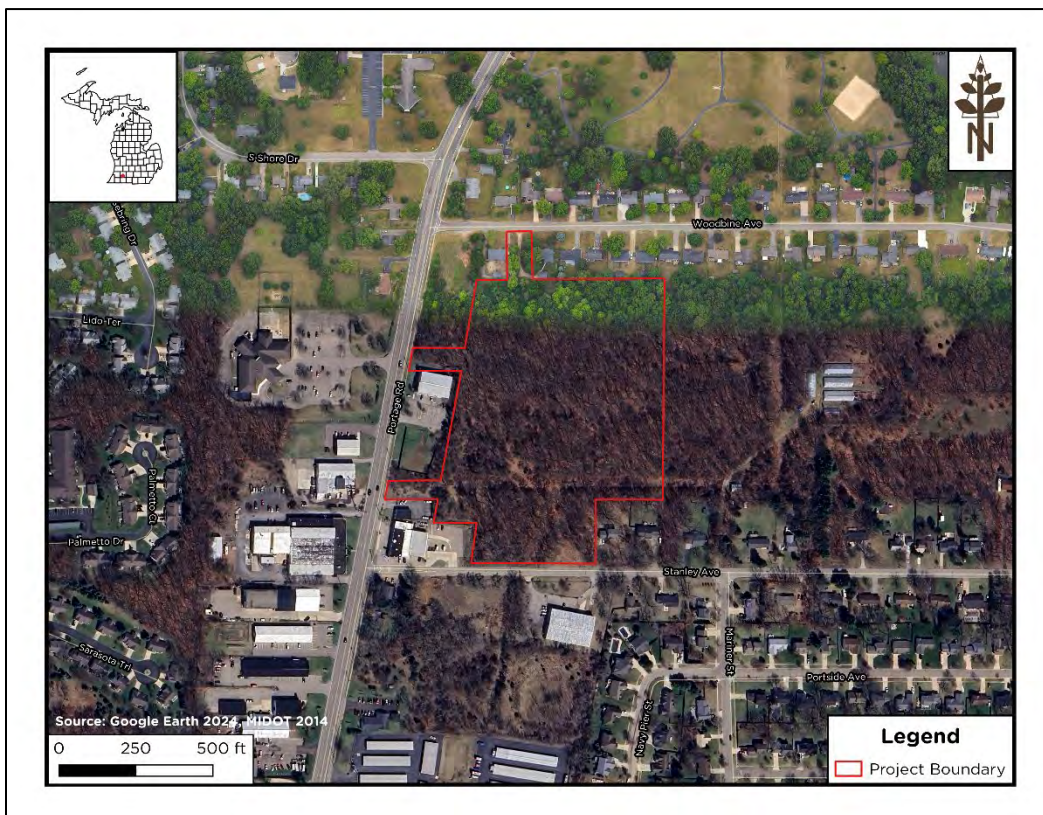


FIGURE 2. AERIAL MAP.





## METHODS

### *Desktop Review*

A desktop review was completed for the project. Orbis submitted a request to Michigan Natural Features Inventory (MNFI) for a rare species review that provided information on known element occurrence records for state TE animals and plants. The MNFI query was submitted August 28, 2024, and results were received September 17, 2024. Orbis consulted the Information for Planning and Consultation (IPaC) database to determine federally listed species with ranges that overlap the project. The IPaC query was initially completed by the City of Portage in July 2024 and was updated by Orbis August 29, 2024. The eBird sightings database was consulted in October 2024 to review occurrences of listed birds sighted in 2024 and within 0.5 miles of the project (eBird 2024). These references were reviewed in conjunction with aerial photography of the project area to assess the potential presence of suitable habitat for TE species known from the surrounding area. See Appendix A for IPaC and MNFI results.



## RESULTS

### *Desktop Review*

The combined MNFI and IPaC results indicated a total of 26 TE species known or potentially present within the project vicinity. MNFI indicated 16 state TE species have been documented within 1.5 miles of the project site, including five endangered and 11 threatened species. IPaC indicated the potential presence of five federally listed species, and candidate species, two species protected by the Bald and Golden Eagle Protection Act (BGEPA), one experimental non-essential species population (EXPN). MNFI Section 7 review also added an additional three federally listed species.

The federal species analyzed for habitat include the federally endangered Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), snuffbox mussel (*Epioblasma triquetra*), and Mitchell's satyr butterfly (*Neonympha mitchellii mitchellii*) and the federally threatened eastern massasauga rattlesnake (EMR, *Sistrurus catenatus*) and copperbelly water snake (*Nerodia erythrogaster neglecta*). The candidate species analyzed for habitat is the monarch butterfly (*Danaus plexippus*) and the BGEPA species are the bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*).

Orbis experts evaluated the potential presence of species within or near the project (qualifications in Appendix B). A total of eight species may have habitat within or adjacent to the project (Table 1). See Appendix D for detailed documentation of species potentially occurring within the project, suitable habitats, agency comments, and detailed potential impacts and avoidance measures.

TABLE 1. LISTED SPECIES WITH HABITAT OCCURRING ON THE PROJECT, IMPACTS, AND AVOIDANCE MEASURES. BLUE INDICATES STATE TE SPECIES AND ORANGE FEDERAL TE SPECIES.

Species	State Listing Status <sup>1</sup>	Federal Listing Status <sup>2</sup>	Avoidance Measures
Eastern box turtle / <i>Terrapene carolina carolina</i>	T	-	Do not separate foraging and overwintering habitat with construction, and do not impact wetlands.
Eastern massasauga/ <i>Sistrurus catenatus</i>	SC	LT	Project occurs within EMR range and BMPs must be followed whether or not there is habitat present in the project area. Materials used for erosion control and site restoration must be wildlife friendly. Those staff implementing the project must review the EMR factsheet and watch MDNR's EMR video. Report sightings of any federally listed species including EMR to USFWS within 24 hours.
Indiana bat/ <i>Myotis sodalis</i>	E	LE	Clear and/or trim all trees outside of the pup season; August 1 through May 31.
Monarch butterfly/ <i>Danaus plexippus</i>	-	C	Conservation measures are not needed for candidate species.
Northern long-eared bat/ <i>Myotis septentrionalis</i>	SC	LT	Clear and/or trim all trees outside of the pup season; August 1 through May 31.
Prairie coreopsis / <i>Coreopsis palmata</i>	E	-	On-site surveys are recommended to determine if habitat exists within the project area.
Virginia flax / <i>Linum virginianum</i>	T	-	On-site surveys are recommended to determine if habitat exists within the project area.
White or prairie false indigo / <i>Baptisia lactea</i>	T	-	On-site surveys are recommended to determine if habitat exists within the project area.

<sup>1</sup> E: Endangered; T: Threatened

<sup>2</sup> LE: Endangered; LT: Threatened; C: Candidate species being considered for federal status; BGEPA: protected by the Bald and Golden Eagle Protection Act; Avoidance measures not required for C -only species.



## CONCLUSIONS AND RECOMMENDATIONS

A desktop review revealed 26 protected species with the potential to occur within the vicinity of the project boundary. Among these, eight may have habitat potentially occurring within or near the project boundaries.

Surveys are recommended for prairie coreopsis (*Coreopsis palmata*), Virginia flax (*Linum virginianum*), and white or prairie false indigo (*Baptisia lactea*) to determine if habitat for these species occurs within the project boundaries.

Avoidance and minimization measures will be needed for all other species with habitat on or near the project (although candidate species do not legally require avoidance or minimization). Avoidance measures primarily include avoiding permanently altering hydrology and avoiding tree, shrub, or brush clearing during time periods when animals are active (Table 1). Clearing outside of the bat pup season (August 1 through May 31) will avoid impacts to federally listed bats.



## LITERATURE CITED

- eBird. 2024. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: <http://www.ebird.org>. (Accessed: October 2024).
- NatureServe. 2024. NatureServe Explorer [web application]. NatureServe, Arlington, Virginia. Available <https://explorer.natureserve.org/>. Accessed: October 2024.
- [USFWS] U.S. Fish and Wildlife Service. 2022. Eastern massasauga (=rattlesnake) (*Sistrurus catenatus*). <https://ecos.fws.gov/ecp/species/2202>. Accessed October 2024.

## Threatened and Endangered Species Desktop Review

Stanwood Crossings

City of Portage, Kalamazoo County,  
Michigan





## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Michigan Ecological Services Field Office  
2651 Coolidge Road Suite 101  
East Lansing, MI 48823-6360  
Phone: (517) 351-2555 Fax: (517) 351-1443

In Reply Refer To:  
Project code: 2024-0112771  
Project Name: Stanwood Crossings

09/04/2024 14:32:23 UTC

Subject: Verification letter for 'Stanwood Crossings' for specified federally threatened and endangered species and designated critical habitat that may occur in your proposed project area consistent with the Michigan Determination Key for project review and guidance for federally listed species (Michigan Dkey).

Dear Megan Martin:

The U.S. Fish and Wildlife Service (Service) received on **September 04, 2024** your effect determination(s) for the 'Stanwood Crossings' (the Action) using the Michigan DKey within the Information for Planning and Consultation (IPaC) system. The Service developed this system in accordance with the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based on your answers and the assistance in the Service's Michigan DKey, you made the following effect determination(s) for the proposed action.

Species	Listing Status	Determination
Eastern Massasauga (=rattlesnake) ( <i>Sistrurus catenatus</i> )	Threatened	NLAA
Indiana Bat ( <i>Myotis sodalis</i> )	Endangered	NLAA
Mitchell's Satyr Butterfly ( <i>Neonympha mitchellii mitchellii</i> )	Endangered	No effect
Monarch Butterfly ( <i>Danaus plexippus</i> )	Candidate	May affect
Whooping Crane ( <i>Grus americana</i> )	Experimental Population, Non-Essential	No effect

The Service will notify you within 30 calendar days if we determine that this proposed Action does not meet the criteria for a "may affect, not likely to adversely affect" (NLAA) determination for Federally listed species in Michigan. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the Michigan Ecological Services Field Office to apply local

knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that were unanticipated. In such instances, the Michigan Ecological Services Field Office may request additional information to verify the effects determination reached through the Michigan DKey.

Your agency has met consultation requirements by informing the Service of your “No Effect” determination(s). No consultation for is required for species that you determined will not be affected by the Action.

Please provide sufficient project details on your project homepage in IPaC (Define Project, Project Description) to support your conclusions and the Service’s 30-day review period. Failure to disclose important aspects of your project that would influence the outcome of your effects determinations may negate your determinations and invalidate this letter. If you have site-specific information that leads you to believe a different determination is more appropriate for your project than what the Dkey concludes, you can and should proceed based on the best available information.

The Service recommends that you contact the Service or re-evaluate the project in IPaC if: 1) the scope or location of the proposed Action is changed; 2) new information reveals that the action may affect listed species or designated critical habitat in a manner or to an extent not previously considered; 3) the Action is modified in a manner that causes effects to listed species or designated critical habitat; or 4) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Service should take place before project changes are final or resources committed.

**Bats of Conservation Concern:**

Implementing protective measures for bats, including both federally listed and non-listed species, indirectly helps to protect Michigan’s agriculture and forests. Bats are significant predators of nocturnal insects, including many crop and forest pests. For example, Whitaker (1995) estimated that a single colony of 150 big brown bats (*Eptesicus fuscus*) would eat nearly 1.3 million pest insects each year. Boyles et al. (2011) noted the “loss of bats in North America could lead to agricultural losses estimated at more than \$3.7 billion/year, and Maine and Boyles (2015) estimated that the suppression of herbivory by insectivorous bats is worth >1 billion USD globally on corn alone. In captive trials, northern long-eared bats were found to significantly reduce the egg-laying activity of mosquitoes, suggesting bats may also play an important role in controlling insect-borne disease (Reiskind and Wund 2009). Mosquitoes have also been found to be a consistent component of the diet of Indiana bats and are eaten most heavily during pregnancy (6.6%; Kurta and Whitaker 1998). Taking proactive steps to help protect bats may be very valuable to agricultural and forest product yields and pest management costs in and around a project area. Such conservation measures include limiting tree clearing during the bat active season (varies by location) and/or the non-volant period (June through July), when young bats are unable to fly, and minimizing the extent of impacts to forests, wetlands, and riparian habitats.

**Monarch:**

In December 2020, after an extensive status assessment of the monarch butterfly, we determined that listing the monarch under the Endangered Species Act is warranted but precluded by higher priority actions to amend the Lists of Endangered and Threatened Wildlife and Plants. Therefore,

the Service added the monarch butterfly to the candidate list. The Service will review its status each year until we are able to begin developing a proposal to list the monarch.

The Endangered Species Act does not establish protections or consultation requirements for candidate species. Some Federal and State agencies may have policy requirements to consider candidate species in planning. We encourage implementing measures that will remove or reduce threats to these species and possibly make listing unnecessary. Please refer to our recommendations in the Monarch and Pollinators section, below.

**Bald and Golden Eagles:**

Bald eagles, golden eagles, and their nests are protected under the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended, 16 U.S.C. 668a-d) (Eagle Act). The Eagle Act prohibits, except when authorized by an Eagle Act permit, the “taking” of bald and golden eagles and defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” The Eagle Act’s implementing regulations define disturb as “...to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

If the Action may impact bald or golden eagles, additional coordination with the Service under the Eagle Act may be required. For more information on eagles and conducting activities in the vicinity of an eagle nest, please visit <https://www.fws.gov/library/collections/all-about-eagles>. In addition, the Service developed the National Bald Eagle Management Guidelines (May 2007) in order to assist landowners in avoiding the disturbance of bald eagles. The full Guidelines are available at <https://www.fws.gov/media/national-bald-eagle-management-guidelines-0>.

If you have further questions regarding potential impacts to eagles, please contact Chris Mensing, [Chris\\_Mensing@fws.gov](mailto:Chris_Mensing@fws.gov) or 517-351-2555.

**Monarch butterfly and other pollinators**

In December 2020, after an extensive status assessment of the monarch butterfly, we determined that listing the monarch under the Endangered Species Act is warranted but precluded by higher priority actions to amend the Lists of Endangered and Threatened Wildlife and Plants. Therefore, the Service added the monarch butterfly to the candidate list. The Service will review its status each year until we are able to begin developing a proposal to list the monarch.

The Endangered Species Act does not establish protections or consultation requirements for candidate species. Some Federal and State agencies may have policy requirements to consider candidate species in planning. We encourage implementing measures that will remove or reduce threats to these species and possibly make listing unnecessary.

For all projects, we recommend the following best management practices (BMPs) to benefit monarch and other pollinators.

Monarch and Pollinator BMP Recommendations



Consider monarch and other pollinators in your project planning when possible. Many pollinators are declining, including species that pollinate key agricultural crops and help maintain natural plant communities. Planting a diverse group of native plant species will help support the nutritional needs of Michigan's pollinators. We recommend a mix of flowering trees, shrubs, and herbaceous plants so that something is always blooming and pollen is available during the active periods of the pollinators, roughly early spring through fall (mid-March to mid-October). To benefit a wide variety of pollinators, choose a wide range of flowers with diverse colors, heights, structure, and flower shape. It is important to provide host plants for any known butterfly species at your site, including native milkweed for Monarch butterfly. Incorporating a water source (e.g., ephemeral pool or low area) and basking areas (rocks or bare ground) will provide additional resources for pollinators.

Many pollinators need a safe place to build their nests and overwinter. During spring and summer, leave some areas unmowed or minimize the impacts from mowing (e.g., decrease frequency, increase vegetation height). In fall, leave areas unraked and leave plant stems standing. Leave patches of bare soil for ground nesting pollinators.

Avoid or limit pesticide use. Pesticides can kill more than the target pest. Some pesticide residues can kill pollinators for several days after the pesticide is applied. Pesticides can also kill natural predators, which can lead to even worse pest problems.

Planting native wildflowers can also reduce the need to mow and water, improve bank stabilization by reducing erosion, and improve groundwater recharge and water quality.

Resources:

<https://www.fws.gov/initiative/monarchs>

<https://www.fws.gov/library/collections/pollinators>

### **Wetland impacts:**

Section 404 of the Clean Water Act of 1977 (CWA) regulates the discharge of dredged or fill material into waters (including wetlands) of the United States. Regulations require that activities permitted under the CWA (including wetland permits issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE)) not jeopardize the continued existence of species listed as endangered or threatened. Permits issued by the U.S. Army Corps of Engineers must also consider effects to listed species pursuant to section 7 of the Endangered Species Act. The Service provides comments to the agencies that may include permit conditions to help avoid or minimize impacts to wildlife resources including listed species. For this project, we consider the conservation measures you agreed to in the determination key and/or as part of your proposed action to be non-discretionary. If you apply for a wetland permit, these conservation measures should be explicitly incorporated as permit conditions. Include a copy of this letter in your wetland permit application to streamline the threatened and endangered species review process.

### **Bat References**

Boyles, J.G., P.M. Cryan, G.F. McCracken, T.H. Kunz. 2011. Economic Importance of Bats in Agriculture. *Science* 332(1):41-42.

Kurta, A. and J.O. Whitaker. 1998. Diet of the Endangered Indiana Bat (*Myotis sodalis*) on the Northern Edge of Its Range. *The American Midland Naturalist* 140(2):280-286.

Reiskind, M.H. and M.A. Wund. 2009. Experimental assessment of the impacts of northern long-eared bats on ovipositing *Culex* (Diptera: Culicidae) mosquitoes. *Journal of Medical Entomology* 46(5):1037-1044.

Whitaker, Jr., J.O. 1995. Food of the big brown bat *Eptesicus fuscus* from maternity colonies in Indiana and Illinois. *American Midland Naturalist* 134(2):346-360.

**Summary of conservation measures for your project** You agreed to the following conservation measures to avoid adverse effects to listed species and our concurrence is only valid if the measures are fully implemented. These must be included as permit conditions if a permit is required and/or included in any contract language.

**Eastern massasauga:** Materials used for erosion control and site restoration must be wildlife-friendly. Do not use erosion control products containing plastic mesh netting or other similar material that could entangle eastern massasauga rattlesnake (EMR). Several products for soil erosion and control exist that do not contain plastic netting including net-less erosion control blankets (for example, made of excelsior), loose mulch, hydraulic mulch, soil binders, unreinforced silt fences, and straw bales. Others are made from natural fibers (such as jute) and loosely woven together in a manner that allows wildlife to wiggle free.

**Eastern massasauga:** To increase human safety and awareness of EMR, those implementing the project must first review the EMR factsheet (available at <https://www.fws.gov/media/eastern-massasauga-rattlesnake-fact-sheet>), and watch MDNR's "60-Second Snakes: The Eastern Massasauga Rattlesnake" video (available at [https://www.youtube.com/watch?v=-PFnXe\\_e02w](https://www.youtube.com/watch?v=-PFnXe_e02w)).

**Eastern massasauga:** During project implementation, report sightings of any federally listed species, including EMR, to the Service within 24 hours.

**Eastern massasauga:** The project will not result in permanent loss of more than one acre of wetland or conversion of more than 10 acres of EMR upland habitat (uplands associated with high quality wetland habitat) to other land uses.

**Listed bats:** Any cutting/trimming of potential roost trees for Indiana bat (trees  $\geq 5$  inches in diameter [at breast height] with cracks, crevices and/or exfoliating bark) must occur OUTSIDE the non-volant ("pup") season for Indiana bat (June 1 through July 31). Prescribed fire and/or pesticide application must also occur outside June-July where potential roost trees are present.

Tree cutting/trimming and/or prescribed burning will not clear  $\geq 20$  contiguous acres of forest or fragment a connective corridor between 2 or more forest patches of at least 5 acres.

**Listed bats:** When installing new or replacing existing permanent lights, you will use downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting); or for those transportation agencies using the BUG system developed by the Illuminating Engineering Society, the goal is to be as close to 0 for all three ratings with a priority of "uplight" of 0 and "backlight" as low as practicable. You will direct temporary lighting away from suitable listed bat habitat during the active season.

**Listed bats:** When installing new or replacing existing permanent lights, you will use downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting); or for those transportation agencies using the BUG system developed by the Illuminating Engineering Society, the goal is to be as close to 0 for all three ratings with a priority of "uplight" of 0 and "backlight" as low as practicable. You will direct temporary lighting away from suitable northern long-eared bat habitat during the active season.

**Action Description**

You provided to IPaC the following name and description for the subject Action.

**1. Name**

Stanwood Crossings

**2. Description**

The following description was provided for the project 'Stanwood Crossings':

Location is 9617 Portage Rd and 2010 Woodbine. The existing conditions of the property consist of a rolling and wooded land parcel with approximately 10' elevation change. The size of the parcel is 13.36 acres owned by the City of Portage, in Portage, Michigan. The City of Portage will be developing 45 single-family owner-occupied site condominium homes. This will involve the removal of native trees, shrubs and grasses. The adjacent property is mostly undeveloped with a large, wooded area and a few greenhouses located on the parcel. This vacant lot is considered not developed. These homes throughout the development will consist of ranch style homes, as well as two-story homes with two car attached garages. The development will consist of 3.2 homes per acre and will be developed over 3/4 years, with a completion date approximately Spring, 2028. There will be no structures more than 45' feet in height with the required setbacks as outline by the City. There will be two new access points, one on the southside of the community along Stanley Rd and the other entry is on the north side along Woodbine Avenue. A stormwater system will be developed to be a natural area with a trail system encompassing and linking to the portage Road sidewalk. Roads will be developed which include 60' to 66' wide right of way with up to 32' wide public streets. There will be internal sidewalk system at 5' wide and the sidewalks will connect to an 8' wide walking trail that leads to existing public sidewalk along Portage Rd. All homes will be serviced by municipal sanitary sewer and water, underground gas, electric and communication lines. Utilites will be located between the curb and sidewalk with a 10' utility easement. The storm sewer system will be constructed on accordance with the City of Portage and standards dedicated to the City. Storm runoff will be directed to the open infiltration basin. The development will be connected via a walking trail to the existing sidewalk and bike path along Portage Road. There are no wetlands, and the property is in Zone X- area of minimal flood hazards.

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@42.17683785,-85.56540781646623,14z>



## QUALIFICATION INTERVIEW

1. Are there any possible effects to any listed species or to designated critical habitat from your project or effects from any other actions or projects subsequently made possible by your project?

Select "Yes" even if the expected effects to the species or critical habitat are expected to be 1) extremely unlikely (discountable), 2) can't meaningfully be measured, detected, or evaluated (insignificant), or 3) wholly beneficial.

Select "No" to confirm that the project details and supporting information allow you to conclude that listed species and their habitats will not be exposed to any effects (including discountable, insignificant, or beneficial effects) and therefore, you have made a "no effect" determination for all species. If you are unsure, select YES to answer additional questions about your project.

Yes

2. This determination key is intended to assist the user in the evaluating the effects of their actions on Federally listed species in Michigan. It does not cover other prohibited activities under the Endangered Species Act (e.g., for wildlife: import/export, Interstate or foreign commerce, possession of illegally taken wildlife, purposeful take for scientific purposes or to enhance the survival of a species, etc.; for plants: import/export, reduce to possession, malicious destruction on Federal lands, commercial sale, etc.) or other statutes. Click yes to acknowledge that you must consider other prohibitions of the ESA or other statutes outside of this determination key.

Yes

3. Is the action the approval of a long-term (i.e., in effect greater than 10 years) permit, plan, or other action? (e.g., a new or re-issued hydropower license, a large-scale land management plan, or other kinds of documents that provide direction for projects or actions that may be conducted over a long term (>10 years) without the need for additional section 7 consultation).

No

4. Is the action being funded, authorized, or carried out by a Federal agency?

Yes

5. Does the action involve the installation or operation of wind turbines?

No

6. Are there at least 30 days prior to your action occurring? Endangered species consultation must be completed before taking any action that may have effects to listed species. The Service also needs 30 days to review projects before we can verify conclusions in some dkey output letters. For example, if you have already started some components of the project on the ground (e.g., removed vegetation) before completing this key, answer “no” to this question. The only exception is if you have a Michigan Field Office pre-approved emergence survey (i.e., if you have conducted pre-approved emergence surveys for listed bats before tree removal, you can still answer yes to this question).

Yes

7. Does the action involve constructing a new communications tower or modifying an existing communications tower?

No

8. Does the activity involve aerial or other large-scale application of any chemical (including insecticide, herbicide, etc.)?

No

9. Does your project include water withdrawal (ground or surface water) greater than 10,000 gallons/day?

No

10. Will your action permanently affect hydrology?

No

11. Will your action temporarily affect hydrology?

Yes

12. Will your project have any direct impacts to a stream or river (e.g., Horizontal Directional Drilling (HDD), hydrostatic testing, stream/road crossings, new storm-water outfall discharge, dams, other in-stream work, changes to water quality or hydrology, etc.)?

No

13. Does your project have the potential to indirectly impact the stream/river or the riparian zone (e.g., cut and fill, horizontal directional drilling, hydrostatic testing, construction, vegetation removal, discharge, changes to water quality or hydrology, etc.)?

No

14. Will your action disturb the ground or existing vegetation? This includes any off road vehicle access, soil compaction, digging, seismic survey, directional drilling, heavy equipment, grading, trenching, placement of fill, pesticide application, vegetation management (including removal or maintenance using equipment or chemicals), cultivation, development, etc.

Yes

15. Is the action a utility-scale solar development project?

**Note:**Solar projects are considered utility scale if they will be 1 megawatt or larger.

No



16. [Hidden semantic] Does the action intersect the MOBU AOI?

**Automatically answered**

Yes

17. Under the ESA, monarchs remain warranted but precluded by listing actions of higher priority. The monarch is a candidate for listing at this time. The Endangered Species Act does not establish protections or consultation requirements for candidate species. Some Federal and State agencies may have policy requirements to consider candidate species in planning. We encourage implementing measures that will remove or reduce threats to these species and possibly make listing unnecessary. If your project will have no effect on monarch butterflies (for example, if your project won't affect their habitat or individuals), then you can make a "no effect" determination for this project. Are you making a "no effect" determination for monarch?

No

18. Is this project funded, authorized, or carried out by the U.S. Fish and Wildlife Service?

No

19. [Hidden Semantic] Does the action intersect the Eastern massasauga rattlesnake area of influence?

**Automatically answered**

Yes

20. Does your action involve prescribed fire?

No

21. Will this action occur entirely in the Eastern massasauga rattlesnake inactive season (October 16 through April 14)?

No

22. Will this action occur entirely in the Eastern massasauga rattlesnake active season (April 15 through October 15)?

No

23. Will the action result in permanent loss of more than one acre of wetland or conversion of more than 10 acres of uplands of potential Eastern massasauga rattlesnake habitat (uplands associated with high quality wetland habitat) to other land uses?

No

24. Will you use [wildlife safe materials](#) for erosion control and site restoration and eliminate the use of erosion control products containing plastic mesh netting or other similar material that could ensnare Eastern massasauga rattlesnake?

Yes

25. Will you watch MDNR's ["60-Second Snakes: The Eastern Massasauga Rattlesnake \(EMR\)"](#) video, review the [EMR factsheet](#) or call 517-351-2555 to increase human safety and awareness of EMR?

Yes

26. Will all action personnel report any Eastern massasauga rattlesnake observations, or observation of any other listed threatened or endangered species, during action implementation to the Service within 24 hours?  
*Yes*
27. [Hidden Semantic] Does the action area intersect the Mitchell's satyr area of influence?  
**Automatically answered**  
*Yes*
28. Does your project include alteration or fill of 3 or more acres of wetland?  
*No*
29. [Hidden Semantic] Does the action area intersect the whooping crane (ex. Pop) area of influence?  
**Automatically answered**  
*Yes*
30. Have you determined that the action will have no effect on individuals within the whooping crane nonessential experimental population (NEP)?  
*Yes*
31. The project has the potential to affect federally listed bats. Does the action area contain any known or potential bat hibernacula (natural caves, abandoned mines, or underground quarries)?  
*No*
32. Has a presence/absence bat survey or field-based habitat assessment following the Service's Range-wide [Indiana Bat and Northern Long-eared Bat Summer Survey Guidelines](#) been conducted within the action area?  
*No*
33. Does the action involve removal/modification of a human structure (barn, house or other building) known to contain roosting bats?  
*No*
34. Does the action include removal/modification of an existing bridge or culvert?  
*No*
35. Does the action include temporary or permanent lighting of roadway(s), facility(ies), and/or parking lot(s)?  
*Yes*

36. Will you apply the following Avoidance and Minimization Measures for bats?

1. When installing new or replacing existing permanent lights, use [downward-facing, full cut-off lens lights](#) (with same intensity or less for replacement lighting); or for those transportation agencies using the [BUG system developed by the Illuminating Engineering Society](#), the goal is to be as close to 0 for all three ratings with a priority of "uplight" of 0 and "backlight" as low as practicable.

2. Direct temporary lighting away from suitable habitat during the active season.

Yes

37. Does the action include one or more of the following: (1) tree cutting/trimming, (2) prescribed fire, (3) pesticide (including insecticide and/or rodenticide), and/or (4) herbicide/fungicide application?

Yes

38. Does the action include herbicide application?

No

39. Will the action clear >10 acres of contiguous forest (i.e., connected by 1,000 feet or less) or fragment a riparian or other connective forested corridor (e.g., tree line) between 2 or more forest patches of at least 5 acres? For more information, see [Appendix II](#).

Yes

40. Will the action clear > 20 acres of forest or fragment a connective corridor between 2 or more forest patches of at least 5 acres? For more information, see [Appendix II](#).

No

41. Does the action area contain potential NLEB bat roost trees (trees  $\geq 3$  inches in diameter [at breast height] with cracks, crevices, cavities and/or exfoliating bark)? For more information, see [Appendix IV](#).

Yes

42. Does the action area contain potential Indiana bat roost trees (trees  $\geq 5$  inches in diameter [at breast height] with cracks, crevices and/or exfoliating bark)? For more information, see [Appendix III](#).

Yes

43. Does the action include emergency cutting/trimming of hazard trees in order to prevent imminent loss of human life and/or property?

No

44. [Semantic] Is any portion of the action area within 5 miles of a known bat hibernaculum?

**Automatically answered**

No

45. Will all tree cutting/trimming, prescribed fire, and/or insecticide/rodenticide application occur OUTSIDE the non-volant ("pup") season for listed bats (that is, no cutting/trimming, prescribed fire, or pesticide application during June 1 through July 31)? Select N/A if the project does not include at least one of these activities.

**Note:** that based on the project's location, conducting these activities outside the months of June and July may be sufficient to avoid adverse effects to/take of listed bats.

Yes

46. [Hidden Semantic] Does the action area intersect the Indiana bat AOI?

**Automatically answered**

Yes

## IPAC USER CONTACT INFORMATION

Agency: County of Eaton  
Name: Megan Martin  
Address: P.O. Box 10235  
City: South Bend  
State: IN  
Zip: 46680  
Email: mmartin@orbisec.com  
Phone: 3178004421



## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
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In Reply Refer To:  
Project Code: 2024-0112771  
Project Name: Stanwood Crossings

08/29/2024 19:38:34 UTC

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

**Migratory Birds:** In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see [Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service \(fws.gov\)](#).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List



- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

## OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Michigan Ecological Services Field Office**

2651 Coolidge Road Suite 101

East Lansing, MI 48823-6360

(517) 351-2555

## PROJECT SUMMARY

Project Code: 2024-0112771

Project Name: Stanwood Crossings

Project Type: Residential Construction

Project Description: Location is 9617 Portage Rd and 2010 Woodbine. The existing conditions of the property consist of a rolling and wooded land parcel with approximately 10' elevation change. The size of the parcel is 13.36 acres owned by the City of Portage, in Portage, Michigan. The City of Portage will be developing 45 single-family owner-occupied site condominium homes. This will involve the removal of native trees, shrubs and grasses. The adjacent property is mostly undeveloped with a large, wooded area and a few greenhouses located on the parcel. This vacant lot is considered not developed. These homes throughout the development will consist of ranch style homes, as well as two-story homes with two car attached garages. The development will consist of 3.2 homes per acre and will be developed over 3/4 years, with a completion date approximately Spring, 2028. There will be no structures more than 45' feet in height with the required setbacks as outline by the City. There will be two new access points, one on the southside of the community along Stanley Rd and the other entry is on the north side along Woodbine Avenue. A stormwater system will be developed to be a natural area with a trail system encompassing and linking to the portage Road sidewalk. Roads will be developed which include 60' to 66' wide right of way with up to 32' wide public streets. There will be internal sidewalk system at 5' wide and the sidewalks will connect to an 8' wide walking trail that leads to existing public sidewalk along Portage Rd. All homes will be serviced by municipal sanitary sewer and water, underground gas, electric and communication lines. Utilites will be located between the curb and sidewalk with a 10' utility easement. The storm sewer system will be constructed on accordance with the City of Portage and standards dedicated to the City. Storm runoff will be directed to the open infiltration basin. The development will be connected via a walking trail to the existing sidewalk and bike path along Portage Road. There are no wetlands, and the property is in Zone X- area of minimal flood hazards.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@42.17683785,-85.56540781646623,14z>



Counties: Kalamazoo County, Michigan

## ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## MAMMALS

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/5949">https://ecos.fws.gov/ecp/species/5949</a> General project design guidelines: <a href="https://ipac.ecosphere.fws.gov/project/GA6ZAITQJ5FMXHTWMYRQWNKPNY/documents/generated/6982.pdf">https://ipac.ecosphere.fws.gov/project/GA6ZAITQJ5FMXHTWMYRQWNKPNY/documents/generated/6982.pdf</a>	Endangered

## BIRDS

NAME	STATUS
Whooping Crane <i>Grus americana</i> Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/758">https://ecos.fws.gov/ecp/species/758</a>	Experimental Population, Non-Essential

## REPTILES

NAME	STATUS
Eastern Massasauga (=rattlesnake) <i>Sistrurus catenatus</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"><li>For all Projects: Project is within EMR Range</li></ul> Species profile: <a href="https://ecos.fws.gov/ecp/species/2202">https://ecos.fws.gov/ecp/species/2202</a> General project design guidelines: <a href="https://ipac.ecosphere.fws.gov/project/GA6ZAITQJ5FMXHTWMYRQWNKPNY/documents/generated/5280.pdf">https://ipac.ecosphere.fws.gov/project/GA6ZAITQJ5FMXHTWMYRQWNKPNY/documents/generated/5280.pdf</a>	Threatened

## INSECTS

NAME	STATUS
Mitchell's Satyr Butterfly <i>Neonympha mitchellii mitchellii</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/8062">https://ecos.fws.gov/ecp/species/8062</a>	Endangered
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate

## CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

# USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

## BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act<sup>1</sup> and the Migratory Bird Treaty Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats<sup>3</sup>, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the ["Supplemental Information on Migratory Birds and Eagles"](#).

- 
1. The [Bald and Golden Eagle Protection Act](#) of 1940.
  2. The [Migratory Birds Treaty Act](#) of 1918.
  3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<b>Bald Eagle <i>Haliaeetus leucocephalus</i></b> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a>	Breeds Dec 1 to Aug 31
<b>Golden Eagle <i>Aquila chrysaetos</i></b> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a>	Breeds elsewhere

## PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

### Breeding Season (■)

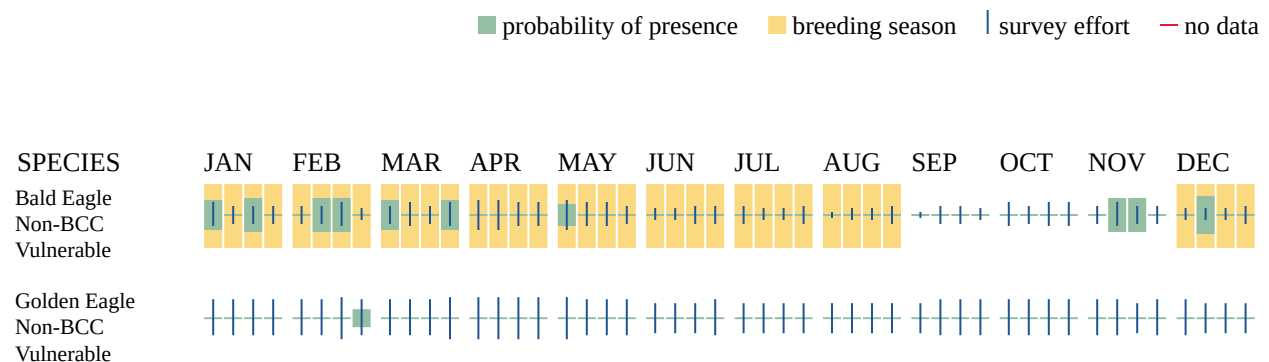
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

### Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

### No Data (—)

A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

# MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats<sup>3</sup> should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a>	Breeds Dec 1 to Aug 31
<b>Black-billed Cuckoo</b> <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9399">https://ecos.fws.gov/ecp/species/9399</a>	Breeds May 15 to Oct 10
<b>Bobolink</b> <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9454">https://ecos.fws.gov/ecp/species/9454</a>	Breeds May 20 to Jul 31
<b>Canada Warbler</b> <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9643">https://ecos.fws.gov/ecp/species/9643</a>	Breeds May 20 to Aug 10
<b>Chimney Swift</b> <i>Chaetura pelagica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9406">https://ecos.fws.gov/ecp/species/9406</a>	Breeds Mar 15 to Aug 25



NAME	BREEDING SEASON
<b>Eastern Whip-poor-will <i>Antrastomus vociferus</i></b> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/10678">https://ecos.fws.gov/ecp/species/10678</a>	Breeds May 1 to Aug 20
<b>Golden Eagle <i>Aquila chrysaetos</i></b> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a>	Breeds elsewhere
<b>Grasshopper Sparrow <i>Ammodramus savannarum perpallidus</i></b> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/8329">https://ecos.fws.gov/ecp/species/8329</a>	Breeds Jun 1 to Aug 20
<b>Henslow's Sparrow <i>Centronyx henslowii</i></b> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/3941">https://ecos.fws.gov/ecp/species/3941</a>	Breeds May 1 to Aug 31
<b>Lesser Yellowlegs <i>Tringa flavipes</i></b> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9679">https://ecos.fws.gov/ecp/species/9679</a>	Breeds elsewhere
<b>Pectoral Sandpiper <i>Calidris melanotos</i></b> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9561">https://ecos.fws.gov/ecp/species/9561</a>	Breeds elsewhere
<b>Red-headed Woodpecker <i>Melanerpes erythrocephalus</i></b> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9398">https://ecos.fws.gov/ecp/species/9398</a>	Breeds May 10 to Sep 10
<b>Rusty Blackbird <i>Euphagus carolinus</i></b> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/9478">https://ecos.fws.gov/ecp/species/9478</a>	Breeds elsewhere
<b>Wood Thrush <i>Hylocichla mustelina</i></b> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9431">https://ecos.fws.gov/ecp/species/9431</a>	Breeds May 10 to Aug 31

## PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read ["Supplemental](#)

[Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

### Breeding Season (■)

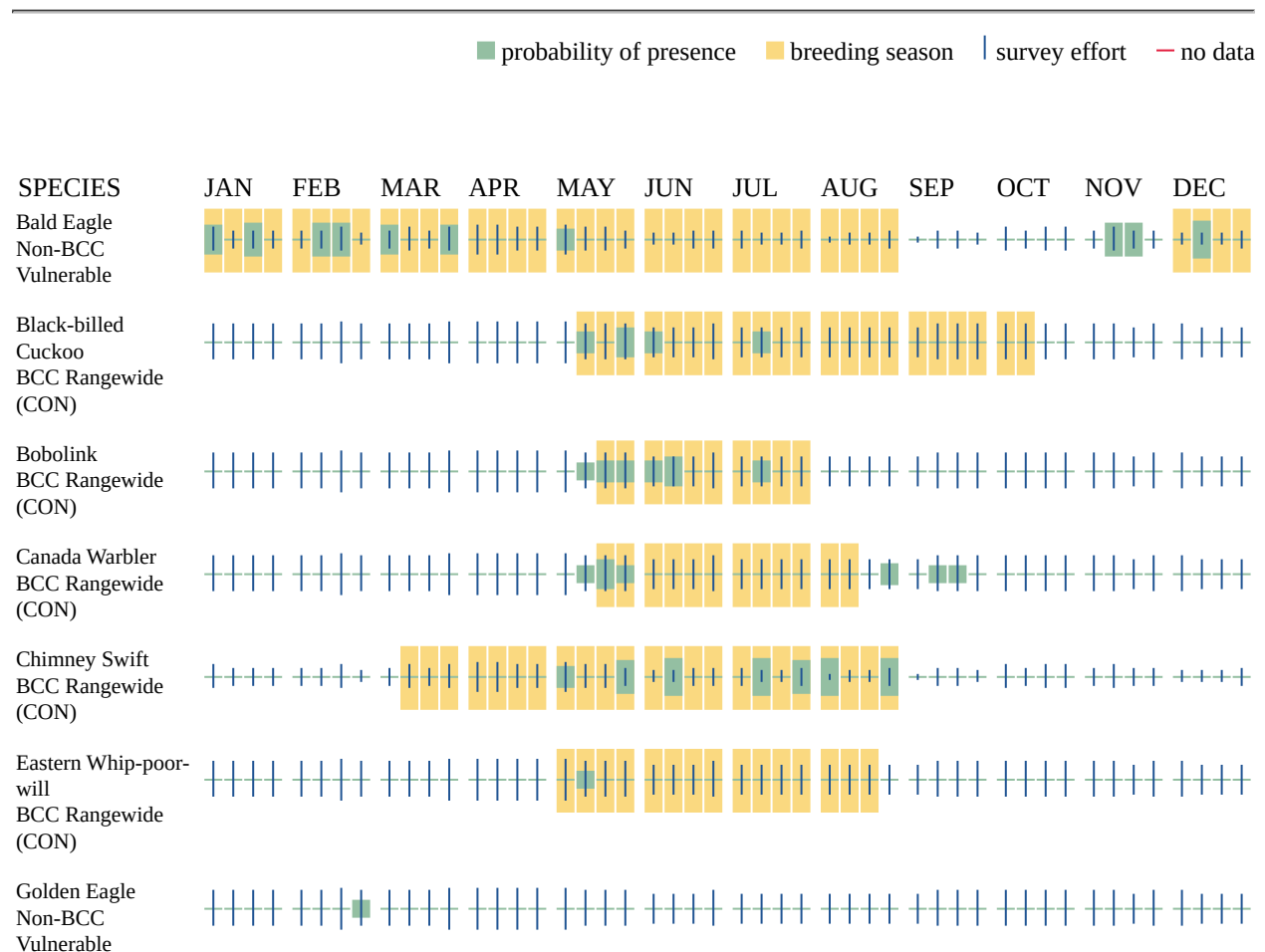
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

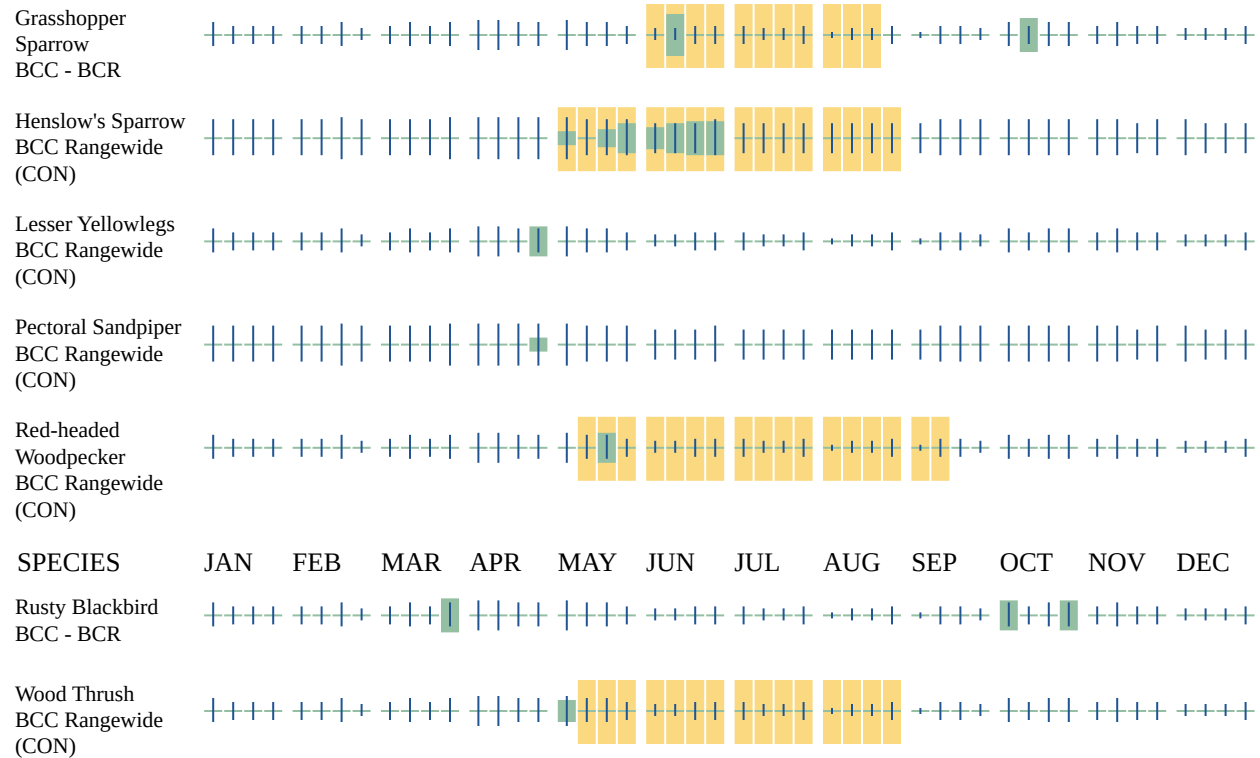
### Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

**No Data (—)**

A week is marked as having no data if there were no survey events for that week.





Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

## WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

## IPAC USER CONTACT INFORMATION

Agency: County of Eaton  
Name: Megan Martin  
Address: P.O. Box 10235  
City: South Bend  
State: IN  
Zip: 46680  
Email: mmartin@orbisec.com  
Phone: 3178004421

Megan Martin  
Orbis Environmental Consulting  
PO Box 10235  
South Bend, IN 46680

September 17, 2024

**Re: Rare Species Review #5150 – Stanwood Crossings Residential Development, City of Portage, Kalamazoo County, MI**

Hello:

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

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



**MSU EXTENSION**

**Michigan Natural  
Features Inventory**

PO Box 13036  
Lansing MI 48901

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

mnfi.anr.msu.edu

**Several at-risk species and/or natural communities have been documented within 1.5 miles of the project location and it is possible that adverse impacts will occur.** This response reflects a desktop review of the database and MNFI cannot fully evaluate this project without visiting the area. MNFI offers several levels of [Rare Species Reviews](#), including field surveys which I would be happy to discuss with you.

Sincerely,

*Michael Sanders*

Michael Sanders  
Environmental Review Specialist/Zoologist  
Michigan Natural Features Inventory

## Comments for Rare Species Review #5150

It is important to note that it is the applicant's responsibility to comply with both state and federal threatened and endangered species legislation. Therefore, if a state listed species occurs at a project site, and you think you need an endangered species permit please contact: DNR-Wildlife Division, [DNR-StateTEPermit@michigan.gov](mailto:DNR-StateTEPermit@michigan.gov). If a federally listed species is involved and, you think a permit is needed, please contact Jessica Pruden, U.S. Fish and Wildlife Service, East Lansing office, 517-351-8316, or [Jessica.Pruden@fws.gov](mailto:Jessica.Pruden@fws.gov).

**NOTE:** Special concern species and natural communities are not protected under endangered species legislation, but efforts should be taken to minimize any or all impacts. Please consult MNFI's [Rare Species Explorer](#) for additional information on Michigan's rare plants and animals.

**Table 1: Occurrences of Threatened & Endangered Species within 1.5 miles of Project Site**

Element Category	Scientific Name	Common Name	Federal Status	State Status	G Rank	S Rank	EO Rank	First Observed Date	Last Observed Date
Animal	<i>Acris blanchardi</i>	Blanchard's cricket frog		T	G5	S2S3	H	1988-SPR	1990-05-12
Animal	<i>Bombus affinis</i>	Rusty-patched bumble bee	LE	E	G2	SH	H	1963-09-10	1963-09-10
Animal	<i>Bombus pensylvanicus</i>	American bumble bee		E	G3G4	S1	H	1963-09-05	1963-09-05
Animal	<i>Clemmys guttata</i>	Spotted turtle		T	G5	S2	H	1952	1952-04-29
Animal	<i>Clemmys guttata</i>	Spotted turtle		T	G5	S2	BD	1987?	2022-07-07
Animal	<i>Terrapene carolina carolina</i>	Eastern box turtle		T	G5T5	S2S3	AC	1953	2022-07-16
Animal	<i>Terrapene carolina carolina</i>	Eastern box turtle		T	G5T5	S2S3	CD	2021-10-04	2022-08-20
Plant	<i>Baptisia lactea</i>	White or prairie false indigo		T	G4Q	S3	F	1969	1981-08-06
Plant	<i>Baptisia lactea</i>	White or prairie false indigo		T	G4Q	S3	H	1947	1947
Plant	<i>Coreopsis palmata</i>	Prairie coreopsis		E	G5	S2	X	1934	1947-PRE
Plant	<i>Coreopsis palmata</i>	Prairie coreopsis		E	G5	S2	H	1941	1943-08-14
Plant	<i>Draba reptans</i>	Creeping whitlow grass		T	G5	S1	X?	1937-05-06	1937-05-06
Plant	<i>Eleocharis compressa</i>	Flattened spike rush		T	G5T5	S2	H	1924-pre	1924-pre
Plant	<i>Eryngium yuccifolium</i>	Rattlesnake-master or button snakeroot		E	G5	S2	X	1947-PRE	1947-PRE
Plant	<i>Juncus scirpoides</i>	Scirpus-like rush		T	G5	S2	F	1937	1942-07-16
Plant	<i>Lechea pulchella</i>	Leggett's pinweed		T	G5	S1S2	X?	1930	1954-08-10
Plant	<i>Linum virginianum</i>	Virginia flax		T	G5?	S2	H	1947	1947
Plant	<i>Platanthera ciliaris</i>	Orange- or yellow-fringed orchid		E	G5	S1S2	B?	1947 pre	2009-08-06

Plant	<i>Platanthera ciliaris</i>	Orange- or yellow-fringed orchid		E	G5	S1S2	E	1995-08-06	1997
Plant	<i>Sabatia angularis</i>	Rosepink		T	G5	S2	H	1838	1838-07-30
Plant	<i>Silphium integrifolium</i>	Rosinweed		T	G5	S2	F	1937	1937-08-19

### **Comments for Table 1**

#### **Eastern box turtle (*Terrapene carolina carolina*)**

##### **Habitat**

The Eastern Box Turtle is Michigan's only truly terrestrial turtle. It typically occurs in forested habitats with sandy soils near a source of water such as a stream, pond, lake, marsh or swamp. They also may be found in adjacent thickets, old fields, pastures, or vegetated dunes. Access to unshaded nesting sites in sandy, open areas, is critical for successful reproduction.

##### **Management Recommendations**

Conservation efforts should concentrate on protecting large tracts of habitat especially on public land to provide the box turtle additional protection from the effects of development. Wetland hydrology and quality should be maintained by preventing improper off-road vehicle use, implementing minimum development set-back distances, leaving buffer zones during timber harvest, grazing and agricultural operations, minimizing use of herbicides and pesticides in or near wetlands, and/or controlling invasive plants. Upland nesting areas should be identified, protected and in some cases created. Construction of new roads should be minimized or routed to avoid separating foraging and/or overwintering habitat from nesting areas. Finally, the public should be educated about the laws protecting reptiles and amphibians and encouraged to leave wild turtles in their natural habitats rather than collecting them for pets.

For more information, see the [Terrapene carolina carolina](#) species page on the MNFI website.

**Table 2: Occurrences of Special Concern Species and Natural Communities within 1.5 miles of Project Site**

Element Category	Scientific Name	Common Name	Federal Status	State Status	G Rank	S Rank	EO Rank	First Observed Date	Last Observed Date
Animal	<i>Emydoidea blandingii</i>	Blanding's turtle		SC	G4	S2S3	AC	1952-04-28	2020-05-22
Animal	<i>Lepisosteus oculatus</i>	Spotted gar		SC	G5	S2S3	E	1926-05-29	2018-03-04
Animal	<i>Lepisosteus oculatus</i>	Spotted gar		SC	G5	S2S3	E	1987-04-20	1993-05-04
Animal	<i>Lepisosteus oculatus</i>	Spotted gar		SC	G5	S2S3	E	2005-03-23	2005-03-23

Animal	<i>Lithobates palustris</i>	Pickerel frog		SC	G5	S3S4	E	2005-04-10	2016-04-24
Animal	<i>Necturus maculosus</i>	Mudpuppy		SC	G5	S3S4	E	2021-12-17	2021-12-17
Plant	<i>Betula populifolia</i>	Gray birch		SC	G5	S3	E	2018-06-16	2018-06-16
Plant	<i>Juncus dichotomus</i>	Forked rush		SC	G5	SNR	H	1937-07-09	1937-07-09
Plant	<i>Lipocarpa micrantha</i>	Dwarf-bulrush		SC	G5	S3	E	1930-09-15	1996
Plant	<i>Lipocarpa micrantha</i>	Dwarf-bulrush		SC	G5	S3	F	1838	1938-07-30
Plant	<i>Poa paludigena</i>	Bog bluegrass		SC	G3G4	S2	H	1945	1945-06-09
Plant	<i>Polygala cruciata</i>	Cross-leaved milkwort		SC	G5	S3	F	1935	1954-08-10
Plant	<i>Rhynchospora macrostachya</i>	Tall beakrush		SC	G4	S3S4	H	1931	1931-09
Plant	<i>Rhynchospora macrostachya</i>	Tall beakrush		SC	G4	S3S4	E	1938-08-08	1997
Plant	<i>Rhynchospora macrostachya</i>	Tall beakrush		SC	G4	S3S4	H	1936-09-07	1936-09-07
Plant	<i>Rhynchospora scirpoides</i>	Bald-rush		SC	G4	S2	H	1931	1955-09-09
Plant	<i>Rhynchospora scirpoides</i>	Bald-rush		SC	G4	S2	H	1947	1947-PRE
Plant	<i>Scleria triglomerata</i>	Tall nut rush		SC	G5	S3	H	1937	1937-07-02

## **Comments for Table 2**

### **Blanding's turtle (*Emydoidea blandingii*)**

#### **Habitat**

Blanding's Turtles inhabit clean, shallow waters with abundant aquatic vegetation and soft muddy bottoms over firm substrates. This species is found in ponds, marshes, swamps, bogs, wet prairies, river backwaters, embayments, sloughs, slow-moving rivers, and lake shallows and inlets. Blanding's Turtles also occupy terrestrial habitats in the spring and summer during the mating and nesting seasons and in the fall to a lesser extent. Females nest in open uplands adjacent to wetland habitats, preferring sunny areas with moist but well-drained sandy or loamy soil. They will nest in lawns, gardens, plowed fields or even gravel road embankments if suitable natural nesting habitat is not available.

#### **Management Recommendations**

The most critical conservation need for this species is protection and management of suitable wetland and adjacent upland habitats. Maintaining good water quality, restricting herbicide and pesticide use in or near wetlands, implementing minimum development set-back distances, leaving buffer zones during timber harvest, grazing and agricultural operations, and minimizing the construction of roads in or near



suitable wetlands would be beneficial to this species. Timber harvesting can benefit this species by creating or maintaining open habitat conditions for thermoregulation and nesting. Minimizing adult mortality or removal is crucial for population viability given this species' life history. Thus, habitat management activities should be conducted in such a manner so as to minimize the potential for causing take of adults (e.g., timber harvesting during the inactive season). Minimizing road mortality and illegal collection also would be beneficial to this species. In some cases, on-site protection of nest sites and predator control may be necessary to facilitate or increase successful reproduction or population recruitment.

For more information, see the [\*Emydoidea blandingii\*](#) species page on the MNFI website.

## **Codes to accompany tables**

### **State Protection Status Code Definitions**

E = Endangered

T = Threatened

SC = Special concern

### **Federal Protection Status Code Definitions**

LE = listed endangered

LT = listed threatened

LELT = partly listed endangered and partly listed threatened

PDL = proposed delist

E(S/A) = endangered based on similarities/appearance

PS = partial status (federally listed in only part of its range)

C = species being considered for federal status

### **Global Heritage Status Rank Definitions (G RANK)**

The priority assigned by [NatureServe](#)'s national office for data collection and protection based upon the element's status throughout its entire world-wide range. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.

G1 = critically imperiled globally because of extreme rarity (5 or fewer occurrences range-wide or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.

G2 = imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.

G3 = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g. a single western state, a physiographic region in the East) or because of other factor(s) making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.

G4 = Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.

G5 = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

Q = Taxonomy uncertain

### **State Heritage Status Rank Definitions (S RANK)**

The priority assigned by the Michigan Natural Features Inventory for data collection and protection based upon the element's status within the state. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.

S1 = Critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation in the state.

S2 = Imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.

S3 = Rare or uncommon in state (on the order of 21 to 100

occurrences). S4 = apparently secure in state, with many occurrences.

S5 = demonstrably secure in state and essentially ineradicable under present conditions.

SX = apparently extirpated from state.

## EO Rank Codes

Element Occurrence (EO) ranks refer to the viability or ecological integrity of the occurrence; they provide an assessment of the likelihood that if current conditions prevail the EO will persist for a defined period of time, typically 20-100 years.

- A - Excellent estimated viability/ecological integrity
- A? - Possibly excellent estimated viability/ecological integrity
- AB - Excellent or good estimated viability/ecological integrity
- AC - Excellent, good, or fair estimated viability/ecological integrity
- B - Good estimated viability/ecological integrity
- B? - Possibly good estimated viability/ecological integrity
- BC - Good or fair estimated viability/ecological integrity
- BD - Good, fair, or poor estimated viability/ecological integrity
- C - Fair estimated viability/ecological integrity
- C? - Possibly fair estimated viability/ecological integrity
- CD - Fair or poor estimated viability/ecological integrity
- D - Poor estimated viability/ecological integrity
- D? - Possibly poor estimated viability/ecological integrity
- E - Verified extant (viability/ecological integrity not assessed)
- F - Failed to find
- F? - Possibly failed to find
- H - Historical
- H? - Possibly historical
- X - Extirpated
- X? - Possibly extirpated
- U - Unrankable
- NR - Not ranked

## Section 7 Comments for Rare Species Review #5150

### Stanwood Crossings Residential Development, City of Portage, Kalamazoo County, MI

Megan Martin

Orbis Environmental Consulting

PO Box 10235

South Bend, IN 46680

September 17, 2024

#### **For projects involving Federal funding or a federal agency authorization**

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

The project falls within the range of the following federally listed/proposed/candidate species which have been identified by the U.S. Fish and Wildlife Service (USFWS) to occur in **Kalamazoo County, Michigan:**

#### **Federally Endangered**

**Indiana bat** – there does appear to be suitable habitat within 1.5 miles of the project. Indiana bats (*Myotis sodalis*) are found only in the eastern United States and are typically confined to the southern three tiers of counties in Michigan. Indiana bats that summer in Michigan winter in caves in Indiana and Kentucky. This species forms colonies and forages in riparian and mature floodplain habitats. Nursery roost sites are usually located under loose bark or in hollows of trees near riparian habitat. Indiana bats typically avoid houses or other artificial structures and typically roost underneath loose bark of dead elm, maple and ash trees. Other dead trees used include oak, hickory and cottonwood. Foraging typically occurs over slow-moving, wooded streams and rivers as well as in the canopy of mature trees. Movements may also extend into the outer edge of the floodplain and to nearby solitary trees. A summer colony's foraging area usually encompasses a stretch of stream over a half-mile in length. Upland areas isolated from floodplains and non-wooded streams are generally avoided.

*Management and Conservation:* Every March, the USFWS publishes [survey guidelines](#) to assist project proponents (both Federal and non-Federal) with conservation planning for Federally listed bats in Michigan. We strongly encourage project managers and their designated representatives to use the U.S. Fish and Wildlife Service (USFWS) online planning tool [Information for Planning and Consultation](#) (IPaC) to evaluate potential effects of proposed activities on listed bats and other Federally listed species in Michigan. Projects that complete consultation or coordination through IPaC automatically adhere to the recommendations provided in these guidelines and are not required to implement any additional conservation measures for listed bats.

**Snuffbox** – there does not appear to be suitable habitat within 1.5 miles of the project. The state and federally endangered snuffbox mussel (*Epioblasma triquetra*) inhabits rivers and streams with cobble, gravel, or sand bottoms in swift currents and usually is deeply buried in the substrate. Glochidia, the parasitic larval stage of the mussel, are released from May to mid-July. In Michigan, the only host fish known for snuffbox is the log perch (*Percina caprodes*). In other parts of their range the banded sculpin (*Cottus caroliniae*) is also a known host. After completing the parasitic stage and reaching adulthood, snuffbox remain relatively sessile on the river bottom, living between 8-10 years. The best time to survey for snuffbox is April through September.

*Management and Conservation:* the snuffbox mussel is sensitive to river impoundment, siltation, and disturbance, due to its requirement for clean, swift current and relative immobility as an adult. To maintain the current populations in Michigan, rivers need to be protected to reduce silt loading and run-off. Maintaining or establishing vegetated riparian buffers can aid in controlling many of the threats to mussels. Control of zebra mussels is critical to preserving native

mussels. And as with all mussels, protection of their hosts habitat is also crucial. Because the life cycle of the snuffbox is inherently linked with that of the logperch in Michigan, conservation and management of this fish species is needed to ensure that of the snuffbox.

**Mitchell's satyr butterfly** – there does not appear to be suitable habitat within 1.5 miles of the project. The federally endangered and state endangered Mitchell's satyr butterfly (*Neonympha mitchellii mitchellii*) is restricted to calcareous wetlands known as prairie fens. In Michigan, this habitat is characterized by scattered tamaracks, poison sumac, and dogwood with a ground cover of sedges, shrubby cinquefoil, and a variety of herbaceous species with prairie affinities. Adult Mitchell's satyr butterflies are active two to three weeks each summer, with males emerging before females. Adult flight dates are from mid-June to mid-July. Larvae hibernate near the bottom of a sedge. The larval food plant is thought to be several species of sedge. The caterpillar is green with white stripes.

*Management and Conservation:* the primary threat to the continued survival of this species is habitat loss and modification. Many of the wetland complexes occupied currently have been altered or drained for agriculture or development. Wetland alteration is responsible for extirpating the single known satyr population in Ohio. Wetland alteration also can lead to invasion by exotic plant species such as glossy buckthorn (*Rhamnus frangula*), purple loosestrife (*Lythrum salicaria*), common buckthorn (*Rhamnus cathartica*), and the common reed (*Phragmites australis*). In addition, landscape-scale processes that may be important for maintaining suitable satyr habitat and/or creating new habitat, such as wildfires, fluctuations in hydrologic regimes, and flooding from beaver (*Castor canadensis*) activity, have been virtually eliminated or altered throughout the species' range.

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

Although no known hibernacula or roost trees have been documented within 1.5 miles of the project site, this activity occurs within the designated WNS zone (i.e., within 150 miles of positive counties/districts impacted by WNS). Also, there does appear to be suitable habitat within 1.5 miles of the project.

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

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

*Management and Conservation:* Every March, the USFWS publishes [survey guidelines](#) to assist project proponents (both Federal and non-Federal) with conservation planning for Federally listed bats in Michigan. We strongly encourage project managers and their designated representatives to use the U.S. Fish and Wildlife Service (USFWS) online planning tool [Information for Planning and Consultation](#) (IPaC) to evaluate potential effects of proposed activities on listed bats and other Federally listed species in Michigan. Projects that complete consultation or coordination through IPaC automatically adhere to the recommendations provided in these guidelines and are not required to implement any additional conservation measures for listed bats.

## **Federally Threatened**

**Eastern massasauga rattlesnake (EMR) – the project falls outside Tier 1/Tier 2 EMR habitat as designated by the U.S. Fish & Wildlife Service (USFWS).** The federally threatened and state special concern Eastern massasauga rattlesnake (*Sistrurus catenatus*) is Michigan's only venomous snake and is found in a variety of wetland habitats including bogs, fens, shrub swamps, wet meadows, marshes, moist grasslands, wet prairies, and floodplain forests. Eastern massasaugas occur throughout the Lower Peninsula but are not found in the Upper Peninsula. Populations in southern Michigan are typically associated with open wetlands, particularly prairie fens, while those in northern Michigan are better known from lowland coniferous forests, such as cedar swamps. These snakes normally overwinter in crayfish or small mammal burrows often close to the groundwater level and emerge in spring as water levels rise. During late spring, these snakes move into adjacent uplands they spend the warmer months foraging in shrubby fields and grasslands in search of mice and voles, their favorite food.

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

*Management and Conservation:* protection of extant populations and suitable wetland and adjacent upland habitats is crucial for successful conservation of the Eastern Massasauga. Maintaining or restoring open habitat conditions is critical for this species. Fragmentation of suitable wetland-upland habitat complexes by roads or other barriers should be avoided or minimized. Land management practices such as timber harvesting, mowing, disking or prescribed burning should be conducted in such a manner so as to minimize the potential for adverse impacts to massasaugas (e.g., conducting management activities during the snakes' inactive season (November through early March) or on days when snakes are less likely to be active on the surface during the active season). Protecting suitable hibernation sites also is critical.

**Copperbelly water snake** – there does appear to be suitable habitat within 1.5 miles of the project. The federally threatened and state endangered copperbelly water snake (*Nerodia erythrogaster neglecta*) can grow to a length of 4-5 feet. Adult snakes are easily identified by their deep brown or black back which contrasts easily with the unmarked reddish-to-orange belly and chin.

Copperbelly water snakes are usually found in or near shrub swamps, ponds, lakes, oxbow sloughs, fens, and slow-moving streams. They can also be found in mature or second-growth woodlands and in more open habitats adjacent to wetland areas. In spring these snakes often inhabit the open edges of shallow ponds and buttonbush swamps and frequently bask on shoreline vegetation, muskrat lodges, or woody debris. When temperatures rise, and these seasonal waters begin to dry up in early summer, the snakes migrate to permanent waters (lake and stream edges), often using fairly dry wooded or grassy upland corridors. They may become largely nocturnal during hot weather. As excellent swimmers, they hunt aquatic species including tadpoles, frogs, salamanders, insect larvae, and crayfish. In the spring, tadpoles seem to be especially tasty to hungry copper-bellied water snakes.

*Management and Conservation:* a copperbelly water snake travels often during spring, summer, and fall. It moves to different wetlands as water levels and food availability change and then travels to and from its hibernation site. When moving to various locations, these snakes are vulnerable to predators (e.g., skunks, raccoons, raptors, and snapping turtles), especially if the snakes must travel across cleared areas, such as roads, mowed areas and farmlands. The decline of this species can be attributed to habitat loss and fragmentation, collection for the pet trade and predation. Conservation efforts should protect or create riparian corridors and habitat corridors between wetlands, protect existing and expand upland forest habitats, and reduce forest fragmentation. Permanently lowering water tables can cause seasonally inundated wetlands and hibernacula sites to become permanently dry which could lead to local population extirpations. Maintaining adequate prey base (i.e., mainly frogs) and shrub and log cover along the edge of wetlands for

cover and thermoregulation also is crucial. Please inform field crews that snakes should not be killed, harmed, or harassed. Any copperbelly water snake sightings should be reported to this office.

USFWS Section 7 Consultation Technical Assistance can be found at:

<https://www.fws.gov/service/esa-section-7-consultation>

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

Please let us know if you have questions.

Michael Sanders  
Environmental Review Specialist/Zoologist  
Michigan Natural Features Inventory

## Threatened and Endangered Species Desktop Review

Stanwood Crossings

City of Portage, Kalamazoo County,  
Michigan







Orbis Environmental Consulting  
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mmartin@orbisec.com

## Megan K. Martin

Megan has 17 years' experience conducting terrestrial wildlife surveys in the mid-western, eastern, and southern U.S. She is a bat specialist, but also has experience with birds (emphasis in raptors), small mammals, reptiles, amphibians, and invertebrates. She helps clients (government and private) assess and minimize the risk of impacting places with ecological and wildlife value. She also coordinates with agencies and consulting parties to comply with the Endangered Species Act, including writing portions of large regulatory documents such as Habitat Conservation Plans, Biological Assessments, and Environmental Impact Statements. Her bat-related work expertise includes summer and winter habitat assessments, winter bat hibernacula surveys, radio-telemetry, diet analysis, acoustic surveys and qualitative call analysis, mist-netting surveys, harp-trap surveys, and post-construction wind farm mortality surveys. She is familiar with 13 species of bats and has conducted bat surveys in twelve states including: Indiana, Kentucky, Virginia, West Virginia, Illinois, Michigan, Missouri, Ohio, Pennsylvania, Texas, New York, and Iowa. Her survey experience with birds includes auditory and visual surveys for birds (point counts) and visual surveys for eagle or other raptor nests. She also has experience completing pest bird abatement with falconry-trained hawks and falcons.

### Examples of Relevant Work Experience

- Completed NEPA forms and TE species desktop habitat assessments for seven transportation projects in southern Michigan. 2023.
- Completed one site with five nets/night (10 net-nights) at an abandoned mine land reclamation site in Columbiana, Ohio. Captured 14 bats. Authored technical report. 2023.
- Completed six acoustic sites with 60 acoustic-nights and four net-sites with 20 net-nights at Owen-Putnam State Forest for Indiana Forest Alliance. A total of 28,181 files were recorded with acoustic detectors, and 455 were manually identified to tricolored bat, Indiana bat, northern long-eared bat, and little brown bat. A total of 20 bats were captured. Co-authored technical report. 2023.
- Completed a building inspection for bats at the former Franklin School in Princeton, Gibson County, Indiana. Collected guano from multiple sources within the building and collected bat skeletons from the gymnasium basement. Signs of previous bat activity but no signs of current bat activity were recorded. All collected bats were identified as big brown bats. Co-authored technical report. 2023.

- Completed six sites with five nets/night (60 net-nights) at Camp Crowder Training Site in Newton County, Missouri for the Missouri Army National Guard. Captured 85 bats including one tricolored bat. Co-authored technical report analyzing data collected and suggesting potential future management. 2023.
- Completed 56 acoustic-nights at 28 sites in Hardin and Linn counties, Iowa. Visually analyzed 28 acoustic-nights with positive TE bat hits and assigned 64,733 labels, including 36 Indiana bat, nine northern long-eared bat, 263 little brown bat, and 685 tricolored bat labels. Co-authored technical report analyzing data collected and suggesting potential future management. 2022.
- Identified 65 species of birds during point counts across three separate visits to Camp Clark Training Center, Vernon County, Missouri, for the Missouri Army National Guard. Included both diurnal and nocturnal birds. Co-authored technical report analyzing data collected and suggesting potential future management. 2022.
- Identified 55 species of birds during point counts across three separate visits to Wappapello Training Center, Wayne County, Missouri, for the Missouri Army National Guard. Included both diurnal and nocturnal birds. Co-authored technical report analyzing data collected and suggesting potential future management. 2022.
- Completed one mist-netting site following updated 2022 NLEB and Indiana bat survey protocols in Boone County, Indiana. Captured 10 bats over 14 net-nights. 2022. Co-authored technical report analyzing data collected and suggesting potential future management.
- Completed three mist-netting sites in Clermont County, Ohio. Captured five bats over six net-nights. 2022.
- Completed a building inspection in Wayne County, Michigan for potential TE bats inhabiting the structure. Followed INDOT Bridge, Culvert, and Building Bat Presence Inspection Protocol. Co-authored technical report documenting bat use and suggesting potential future management. 2022.
- Completed five mist-netting sites in Greene County, PA for a pipeline. Captured a total of 50 bats over 45 net-nights. 2021.
- Completed potential roost tree (PRT) and acoustic surveys for federally listed bats for Schmidt Associates. A total of 48 PRTs were identified by Orbis. A single acoustic site was completed on the nights of May 15 and May 16, 2021. Co-authored technical report analyzing data collected and suggesting potential future management.
- Completed mist-netting presence/absence survey for federally listed bats for Graythorne Development, LLC. Followed newly established COVID-19 procedures and precautions to reduce potential COVID-19 transmission to bats. Co-authored technical report analyzing data collected and suggesting potential future management. 2020.

- Completed NABat survey for Ozark National Scenic Riverways including 1) stationary acoustic surveys, 2) mobile transect acoustic surveys, 3) writing final accomplishment report and 4) creating species occurrence summary. Drafted long-term passive monitoring report with OZAR-collected data. 2020.
- Completed acoustic survey fieldwork for AEP including placement and monitoring of detectors, and drafted report to determine presence/absence of federally listed bats. Acoustic detectors recorded 576 visually identifiable bats. 2020.
- Successfully abated over 31,000 pest birds (primarily brown-headed cowbirds and house sparrows) from sorghum small plots using falconry-trained lanner falcons, peregrine falcons, and Harris's hawks. Provided detailed wildlife management analysis and recommendations post-abatement. 2019 - 2020.
- Completed two years of a three-year bat presence/absence survey for the Indiana Department of Natural Resources on Division of Fish and Wildlife lands. Was present for 6 of 15 federally endangered Indiana bats captured, two little brown bats captured, and nine tricolored bats captured. 2018-2019.
- Completed survey for Titley Scientific, assessing viability of potential mitigation sites through listed bat species surveys. Completed both evening and morning mist-netting. Captured and tagged 2 Indiana bats and captured one little brown bat. 2019.
- Completed bridge survey for INDOT, including physical and photographic documentation of roosting bats and guano collection for RNA analysis to determine species. Co-authored technical report documenting bat use and suggesting potential future management. 2018.
- Completed potential roost tree documentation and emergence counts on multiple projects for American Electric Power (AEP) and Northern Indiana Public Service Company (NIPSCO). 2018.
- Directed and completed four years of bat acoustic, mist-net, and radio-telemetry surveys in an interstate corridor in Indiana as part of pre- and post-construction surveys. 2014-2017.
- Prepared technical writing for Lake States Forest Management Habitat Conservation Plan (HCP) to allow forest management of four bat species impacted by White-nose Syndrome in Michigan, Wisconsin, and Minnesota. 2016-2017.
- Prepared Myotis Bat Conservation Plans (MBCP) for seven proposed pipeline projects in West Virginia. 2015-2017.
- Completed two years of mist-net and acoustic surveys for federally listed bats as part of coordinated effort among multiple private organizations to document wildlife species composition and distribution in Morgan-Monroe and

Yellowwood State Forests. Co-authored technical report analyzing data collected and suggesting potential future management. 2016-2017.

- Completed mist-net surveys for proposed pipeline project in Roanoke County, Virginia. Captured two eastern small-footed bats. 2017.
- Completed rare bird point count surveys and listed bat mist-net surveys for electrical transmission line upgrades in Noble, DeKalb, and Allen counties, Indiana. 2017.
- Conducted searches for habitat, roost trees, and portals suitable for listed bat habitat for proposed pipeline in Braxton, Doddridge, Greenbrier, Harrison, Nicholas, and Webster counties, West Virginia. 2014-2016.
- Completed mist-net surveys and emergence counts to avoid and minimize impacts of tree removal on tree-roosting bats within an approximately 40-acre transmission line rebuild project in Van Buren, Cass, and St. Joseph counties, Michigan. 2016.
- Completed winter hibernacula survey at Wyandotte Cave with Indiana Department of Natural Resources. Counted, photographed, and identified bats hibernating on cave surfaces. 2015.
- Completed summer and winter habitat assessments for federally listed bats in preparation of MBCPs for multiple natural gas pipeline projects in West Virginia. 2015.
- Completed hibernacula survey for Indiana and northern long-eared bats for proposed construction of borehole pad, access road, and waterline to support existing mining operation in Washington County, Ohio. 2015.
- Completed hibernacula survey for Indiana and northern long-eared bats for a 29-acre mining project in Washington County, Pennsylvania. 2015.
- Completed mist-netting along two proposed natural gas pipelines in Greene County, Pennsylvania resulting in capture of 265 bats representing six species. Tagged three northern long-eared bats and tracked them to roosts. 2015.
- Completed mist-netting for federally listed bats on portions of proposed natural gas pipeline transversing Allegheny, Washington, and Greene counties, Pennsylvania. 2015.
- Evaluated three mitigation site locations for potential suitability for use by Indiana bats for natural gas pipeline company. 2015.
- Conducted field surveys of bats using bridges over two streams within an area considered known occupied habitat for the Indiana bat, gray bat, and northern long-eared bat for proposed interstate bypass in Trigg County, Kentucky. 2014.
- Assisted with preliminary study of summer bat community and performed mist-net surveys within a Wind Resource Area (WRA) consisting of approximately 10,984 acres in Grand Traverse and Wexford counties, Michigan. 2014.

- Assisted with preliminary study of the summer bat community and performed mist-net surveys within a WRA consisting of approximately 30,332 acres in Osceola, Wexford, and Missaukee counties, Michigan. 2014.
- Participated in general survey of bats to identify species and determine distribution within Wayne National Forest, as well as inventory bats as part of White-Nose Syndrome monitoring in Athens, Hocking, and Perry counties, Ohio. 2014.
- Conducted mist-net surveys for federally listed bats for natural gas pipeline in eastern Ohio. 2014.
- Conducted mist-net surveys for federally listed bats for proposed transmission line upgrades in Allen County, Indiana. 2014.
- Supervised emergence counts for Indiana bats at proposed pipeline stream crossing site along Clinton River in Rochester, Michigan. 2014.
- Completed mist-net and acoustic monitoring surveys in support of Tier 2 Environmental Impact Studies in Indiana; authored technical report and appendix to Biological Assessment, assisted with editing portions of the Environmental Impact Statement. 2013-2014.
- Completed habitat assessment, mist-netting and acoustic surveys for federally endangered Indiana bat along a pipeline corridor in Livingston, McLean, DeWitt, Macon, Christian, Shelby, Fayette, and Marion counties in Illinois. Three Indiana bats were captured and tracked with radio-telemetry. 2013.
- Completed habitat assessment for Indiana bat on a facility in St. Clair County, Michigan including literature review, desktop review, and on-site assessment. 2013.
- Completed reporting and data management for wildlife hazard assessment in Muskegon County, Michigan. 2013.
- Completed mist-net surveys for federally endangered Indiana bat within an area infested with the Asian long-horned beetle in Clermont County, Ohio. Captured 1 Indiana bat and 14 northern long-eared bats. Radio-tracked two Indiana bats. 2012 and 2013.
- Completed mist-net and acoustic surveys on 20,000-acre site in Saginaw Bay and Tuscola counties, Michigan. 2013.
- Completed mist-netting and acoustic monitoring for federally endangered Indiana bat in Marshall and St. Joseph counties, Indiana for WRA. 2012.
- Completed mist-net and acoustic monitoring surveys in Jennings County, for Indiana for Department of Defense. 2012.
- Completed mortality surveys for bats and birds and insect population inventories on an existing wind farm in Texas. 2012.

## **Education**

Indiana State University, Terre Haute, IN, August 2011

- Master of Science in Biology – Specialization in Forestry and Bat Ecology  
“Impacts of Different Forest Tree-Harvest Methods on Diets and Populations of Insectivorous Forest Bats” – Spring 2011 M.S. Thesis

Ball State University, Muncie, IN, May 2008

- Bachelor of Arts in Biology, minor in Creative Writing

## **Job-Related Training and Certifications**

- Certified Wildlife Biologist, The Wildlife Society, 2023.
- Acoustic ID of Eastern Bats, Vesper Bat Detection Services, May 2021.
- Certified Ecologist, Ecological Society of America, 2017
- Habitat Conservation Planning for Endangered Species, certificate of completion, U.S. Department of the Interior, 2016
- Endangered Species Act of 1973 – Overview, certificate of completion, U.S. Department of the Interior, 2016
- Bat Investigations for Field Personnel, certificate of completion, INDOT University, 2016
- Acoustic analysis including qualitative analysis of eastern bat species and use of acoustic analysis automated programs EchoClass, BCID, and Kaleidoscope, West, Inc., March 2013
- Master Class Falconer (Indiana Permit #525)

## **Presentations**

Martin, Megan K. “Evening bat population resurgence and expansion in Indiana and the upper Midwest.” Presented to North American Symposium for Bat Research, October 2016.

Caylor, Megan K. “*Myotis septentrionalis* observations of roost selection: Midwest & Northeast Regions.” Presented to North American Symposium for Bat Research, October 2014.

Caylor, Megan K. “Atypical American beech tree used by Indiana bat maternity colony.” Presented to Midwest Bat Working Group, March 2014.

Caylor, Megan K. “Impacts of different forest tree-harvest methods on diets and populations of insectivorous forest bats.” Presented to the Indiana Academy of Science and Midwest Bat Working Group, March 2011.

Caylor, Megan K. “HEE Project Results 2011: Bat Mist Netting, Guano Analysis, WNS Impact.” Presented at the Hardwood Ecosystem Experiment Meeting, September 2011.



Caylor, Megan K. "Diets of insectivorous forest bats." Presented at the Hardwood Ecosystem Experiment Meeting, November 2010.

Caylor, Megan K. "Bats of Hardwood Ecosystem Experiment. Presented at the Hardwood Ecosystem Experiment Meeting, September 2009.

### **Publications**

Martin, M.K., J. J Sheets, D. W. Sparks, J. O. Whitaker, Jr. 2020. Diet of bats before and after forest management. Proceedings of the Indiana Academy of Science. 129: 56-64.

Bishop, L., R. Schnapp, J. Stant, J.E. Belth, R. Brodman, R. Carlson, L. Cole, S. Dunbar, J.D. Holland, R. Kerner, S. Russel, R.P. Jean, L. Koehn, J. Lendemer, T. Maloney, M.A. Milne, G. Mynhardt, P. Rothrock, D. Rupp, J.J Sheets, D.W. Sparks, M.K. Martin, C. Strange, T.M. Rice, J.O. Whitaker, Jr., & A. Chamberlain. 2019. Results of the Indiana Forest Alliance Ecoblitz at Morgan-Monroe/Yellowwood State Forest in Indiana. Proceedings of the Indiana Academy of Science. 128: 153-169.

Sheets, J. J and M. K. Martin. 2018. Atypical American Beech Tree Used by Indiana Bat Maternity Colony. Proceedings of the Indiana Academy of Science. 127: 55-56.

Holland, J.D. R.W. Dolan, J.J Sheets, M.S. Finkler, B.E. Fisher, R. Hedge, T. Swinford, N. Harby, R.P. Jean, M.K. Martin, B. McKnight, M. Milne, K. Roth, P. Rothrock. C. Strang. 2017. Results of the 2016 Indianapolis biodiversity survey, Marion County, Indiana. Proceedings of the Indiana Academy of Science. 126: 166-175.

Sheets, J. J.; Duchamp, J. E.; M. K. Caylor; L. D'Acunto; J. O. Whitaker, Jr.; V. Brack, Jr.; and D. W. Sparks, 2013. Habitat use by bats in two Indiana forests prior to silvicultural treatments for oak regeneration. General Technical Report NRS-P-108: 203-217.

### **Current Memberships and Affiliations**

- Midwest Bat Working Group (MWBWG)
- Ecological Society of America (ESA)
- The Wildlife Society (TWS)
- Center for Bat Research, Outreach and Conservation
- Indiana Geographic Information Council (IGIC)
- North American Falconers Association (NAFA)
- Indiana Falconers Association (IFA)

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### **Professional References**

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## Bradford S. Slaughter

Brad is a botanist and vegetation ecologist with nearly 20 years of experience managing and conducting projects, specializing in ecological and floristic inventories, rare plant surveys, and vegetation monitoring. He also performs wetland evaluations and teaches plant identification workshops. Brad is a coauthor of *A Field Guide to the Natural Communities of Michigan* and the *3rd Edition of the Floristic Quality Assessment of Michigan*. In addition to his writings, Brad delivers presentations and leads field trips for a variety of audiences.

### Examples of Relevant Work Experience

- Coauthor of several integral resources on Michigan's natural communities and native and non-native flora, including *A Field Guide to the Natural Communities of Michigan*, *A Field Guide to Invasive Plants of Aquatic and Wetland Habitats for Michigan*, and the *3rd Edition of the Floristic Quality Assessment of Michigan*
- Conducted vascular plant inventories and Floristic Quality Assessments (FQAs) at over 400 sites in Michigan and Indiana
- Developed, conducted, and managed inventories of state- and federally-listed plants throughout Michigan
- Conducted ecological inventories and evaluations of over 200,000 acres in Michigan
- Developed habitat evaluation and monitoring protocols for the Indiana Department of Natural Resources and The Nature Conservancy in the Grand Calumet River Area of Concern in Lake County, Indiana
- Instructed plant identification training workshops for a variety of clients
- Conducted rare species surveys and wetland delineations for infrastructure and development projects in Michigan and Indiana

### Education

- M.S. (Botany), 2005. Miami University, Oxford, Ohio.
- B.A. (Biology), 2002. Albion College, Albion, Michigan.

### Job-Related Training and Certifications

- Certified in Wetland Delineation (Midwest Biodiversity Institute)
- Wetland Permitting Training (Richard Chinn Environmental Training, Inc.)
- Core Methodology Training (NatureServe)
- Natural Heritage Workshop on Identification, Mapping, Ranking, and Management of Forested Natural Communities I and II (NatureServe)
- Vegetation Monitoring in a Management Context (Natural Areas Training Academy)

- LANDFIRE Vegetation Modeling Workshop: Forest, Woodland, and Wetland Systems of MRLC Map Zone 51 (The Nature Conservancy)
- FFI Ecological Monitoring Utilities Training (United States Forest Service)
- Fire Effects & Smoke Management Training (Michigan Department of Natural Resources)
- Certified in First Aid and CPR/AED (American Heart Association)

### **Publications**

- Slaughter, B.S. 2020. Vascular flora of Pierce Cedar Creek Institute, Barry County, Michigan. *The Great Lakes Botanist* 59: 99-158.
- Slaughter, B.S., and A.K. Klain. 2019. Additions to the vascular flora, and notes on the phytogeography, of Lake County, Michigan. *The Great Lakes Botanist* 58: 144-182.
- Slaughter, B.S., and T. Walters. 2018. *Juncus validus* Coville (Juncaceae) new to the Great Lakes region. *The Great Lakes Botanist* 57: 42-44.
- Slaughter, B.S. 2016. Reports of four rare plants in Michigan, including two non-native species. *The Michigan Botanist* 55: 54-60.
- Slaughter, B.S., A.A. Reznicek, M.R. Penskar, and B.S. Walters. 2015. Notes on the third edition of the Floristic Quality Assessment of Michigan. *Wetland Science and Practice* 32: 28-32.
- Cohen, J.G., M.A. Kost, B.S. Slaughter, and D.A. Albert. 2014. *A Field Guide to the Natural Communities of Michigan*. Michigan State University Press, East Lansing, MI. 362 pp.
- Slaughter, B.S., and J. Schultz. 2012. The distribution, ecology, and conservation status of *Rubus acaulis* Michx. (dwarf or arctic raspberry) in Michigan. *The Michigan Botanist* 51: 133-148.
- Namestnik, S.A., J.R. Thomas, and B.S. Slaughter. 2012. Two recent plant discoveries in Missouri: *Cladium mariscus* subsp. *jamaicense* (Cyperaceae) and *Utricularia minor* (Lentibulariaceae). *Phytoneuron* 2012-92: 1-6.
- Hochstedler, W.W., B.S. Slaughter, D.L. Gorchov, L.P. Saunders, and M.H.H. Stevens. 2007. Forest floor plant community response to experimental control of the invasive biennial *Alliaria petiolata* (garlic mustard). *Journal of the Torrey Botanical Society* 134: 155-165.
- Slaughter, B.S., W.W. Hochstedler, D.L. Gorchov, and A.M. Carlson. 2007. Response of *Alliaria petiolata* (garlic mustard) to five years of fall herbicide application in a southern Ohio deciduous forest. *Journal of the Torrey Botanical Society* 134: 18-26.
- Slaughter, B.S., and J.D. Skean, Jr. 2003. Comparison of cedar and tamarack stands in a relict conifer swamp at Pierce Cedar Creek Institute, Barry County, Michigan. *The Michigan Botanist* 42: 111-126.
- Slaughter, B.S., and J.D. Skean, Jr. 2003. Annotated checklist of vascular plants in the vicinity of Cedar Creek and Brewster Lake, Pierce Cedar Creek Institute, Barry County, Michigan. *The Michigan Botanist* 42: 127-148.

### **Selected Technical Reports**

- Slaughter, B.S. 2023. Ecological and floristic inventory, Halladay-Blackhurst-Chowning Nature Preserve, Grand Traverse County, Michigan. Orbis Environmental Consulting, Project No. 2305006, South Bend, Indiana. 22 pp.
- Slaughter, B.S. 2023. Ecological and floristic inventory, The Ranch, Antrim County, Michigan. Orbis Environmental Consulting, Project No. 2207007, South Bend, Indiana. 177 pp.
- Slaughter, B.S. 2023. Floristic inventories of Jones North, Little Grand Canyon, and Mary Pierce Parcels, Pierce Cedar Creek Institute, Barry County, Michigan. Orbis Environmental Consulting, Project No. 2203017, South Bend, Indiana. 102 pp.
- Slaughter, B.S. 2022. Ecological and floristic assessment, Arcadia Dunes: The C.S. Mott Nature Preserve, Manistee County, Michigan. Orbis Environmental Consulting, Project No. 2203011, South Bend, Indiana. 105 pp.
- Slaughter, B.S. 2021. Ecological and floristic inventory, Armintrout-Milbocker Nature Preserve, Allegan County, Michigan. Orbis Environmental Consulting, Project No. 2103012, South Bend, Indiana. 67 pp.
- Slaughter, B.S. 2020. Effects of fire management on vegetation: 2019 and 2020 pre-burn monitoring, Ten O’Clock Line Nature Preserve, Brown County, Indiana. Orbis Environmental Consulting, Project No. 1706004, South Bend, Indiana. 54 pp.
- Slaughter, B.S. 2019. Rapid assessment protocol and evaluation metrics for habitat delisting, Grand Calumet River Area of Concern, Lake County, Indiana. Orbis Environmental Consulting, Project No. 1403005, South Bend, Indiana. 84 pp.
- Slaughter, B.S. 2019. A revised inventory of vascular plants, Pierce Cedar Creek Institute, Barry County, Michigan. Orbis Environmental Consulting, Project No. 1801002, South Bend, Indiana. 131 pp.
- Slaughter, B.S., and D.L. Cuthrell. 2017. Status assessment of Pitcher’s thistle and Hart’s tongue fern: Acquiring contemporary information for recovery planning and Five-year Reviews. Michigan Natural Features Inventory, Report No. 2017-02, Lansing, MI. 106 pp.
- Slaughter, B.S., and M.R. Penskar. 2015. An ecological interpretation of the Humbug Marsh Unit, Detroit River International Wildlife Refuge, Wayne County, Michigan. Michigan Natural Features Inventory, Report No. 2015-22, Lansing, MI. 79 pp.
- Reznicek, A.A., M.R. Penskar, B.S. Walters, and B.S. Slaughter. 2014. Michigan Floristic Quality Assessment Database. Herbarium, University of Michigan, Ann Arbor, MI and Michigan Natural Features Inventory, Michigan State University, Lansing, MI. (<http://michiganflora.net/home.aspx>).
- Slaughter, B.S., D.A. Hyde, D.L. Cuthrell, Y. Lee, and R.A. Norris. 2013. The conservation and management of prairie fens and associated species: Accomplishments and lessons from the MDNR Landowner Incentive Program 2004–2013. Michigan Natural Features Inventory, Report No. 2013-16, Lansing, MI. 87 pp.

### **Memberships and Affiliations**

- Michigan Botanical Society
- Michigan Rare Plant Technical Advisory Committee
- Michigan Wetlands Association
- Natural Areas Association

### **Professional References**

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## Appendix C

## Impacts and Avoidance Measures

### Threatened and Endangered Species Desktop Review

Stanwood Crossings

City of Portage, Kalamazoo County,  
Michigan



# THREATENED AND ENDANGERED SPECIES DESKTOP REVIEW

Common/Scientific Name	State Listed Status <sup>1</sup>	Federally Listed Status <sup>2</sup>	Typical Habitat <sup>3</sup>	Desktop Review Habitat Observed	Agency Comment <sup>4</sup>	Survey	Potential Impacts and Avoidance Measures
American bumble bee/ <i>Bombus pensylvanicus</i>	E	-	Favors prairies and grasslands, rarely associated with extensive forests; visits floral resources in dunes, marshes, forest edges, farmland, and urban areas.	No: record is historical.	MNFI: Last observed date 1963-09-05.	No	Record is historical. No impacts and no avoidance measures necessary.
Bald eagle/ <i>Haliaeetus leucocephalus</i>	-	BGEPA	Nests in tall trees near large bodies of water such rivers, lakes, or reservoirs (NatureServe 2024)	Not in the project area. Habitat occurs to north and east (Austin Lake and West Lake). No known bald eagle nests have been reported at the project area in the last year.	USFWS: Warrants attention because of the Eagle Act.	No	No impacts and no avoidance measures necessary.
Blanchard's cricket frog/ <i>Acris blanchardi</i>	T	-	Edges of permanent ponds, lakes, floodings, bogs, seeps and slow-moving streams and rivers; temporary water bodies near permanent water.	No	MNFI: No comment.	No	No impacts and no avoidance measures necessary.

# THREATENED AND ENDANGERED SPECIES DESKTOP REVIEW

Common/Scientific Name	State Listed Status <sup>1</sup>	Federally Listed Status <sup>2</sup>	Typical Habitat <sup>3</sup>	Desktop Review Habitat Observed	Agency Comment <sup>4</sup>	Survey	Potential Impacts and Avoidance Measures
Copperbelly water snake/ <i>Nerodia erythrogaster neglecta</i>	E	LT	Generally prefer forested floodplains and shrubby wetlands adjacent small shallow lakes and ponds, including ephemeral ponds and slow-moving rivers. Sites tend to be dominated by buttonbush and willow. In summer, copperbellies utilize forested corridors to migrate to more permanent bodies of water and upland forest. Hibernation sites include crayfish burrows, felled tree-root networks, dense brush piles, fieldstone piles, and muskrat and beaver lodges.	Not in project area. Habitat may exist in the forested wetland complex to the east or may occur along the shores of Austin or West Lake.	USFWS: Not listed in IPaC.  MNFI: There appears to be suitable habitat within 1.5 miles.	No	No impacts and no avoidance measures necessary.
Creeping whitlow grass/ <i>Draba reptans</i>	T	-	Found in oak savanna remnants on steep hillsides (black oak-white oak), especially those adjacent to large rivers and lakes.	No	MNFI: No comment.	No	No impacts and no avoidance measures necessary.
Eastern box turtle / <i>Terrapene carolina carolina</i>	T	-	Fields in spring and shrubby or brushy forest openings with sandy soils in summer, near shallow pools of water (NatureServe 2024, MNFI 2024)	Yes; summer habitat, including forest openings with sandy soils near water	MNFI: Detailed comments attached, including management recommendations.	No, provided management recommendations are followed.	BMPs: New roads will not separate foraging and overwintering habitat from nesting areas. Wetlands will not be impacted.

# THREATENED AND ENDANGERED SPECIES DESKTOP REVIEW

Common/Scientific Name	State Listed Status <sup>1</sup>	Federally Listed Status <sup>2</sup>	Typical Habitat <sup>3</sup>	Desktop Review Habitat Observed	Agency Comment <sup>4</sup>	Survey	Potential Impacts and Avoidance Measures
Eastern massasauga/ <i>Sistrurus catenatus</i>	T	LT	Seasonal wetlands along forest edges with a short, closed canopy, as with tall grasses and sedges or low shrubs (NatureServe 2024, USFWS 2024a). Southern Michigan populations associated with open wetlands such as prairie fens.	No, although BMPs must still be followed because the project occurs within the EMR range.	USFWS: Project intersects EMR range. MNFI: Project falls outside Tier 1/Tier 2 EMR habitat.	No	<b>BMPs:</b> Materials used for erosion control and site restoration must be wildlife friendly. Those staff implementing the project must review the EMR factsheet and watch MDNR's EMR video. Report sightings of any federally listed species including EMR to USFWS within 24 hours.
Flattened spike rush/ <i>Eleocharis compressa</i>	T	-	Limestone pavement in rock crevices and local depressions, primarily on Drummond Island	No	MNFI: No comment.	No	No impacts and no avoidance measures necessary.
Golden eagle/ <i>Aquila chrysaetos</i>	-	BGEPA	Semi-open country such as prairies, sagebrush, arctic and alpine tundra, savannah or sparse woodland, barren areas in hilly or mountainous regions. (NatureServe 2024)	No	USFWS: Warrants attention because of the Eagle Act.	No	No impacts and no avoidance measures necessary.



# THREATENED AND ENDANGERED SPECIES DESKTOP REVIEW

Common/Scientific Name	State Listed Status <sup>1</sup>	Federally Listed Status <sup>2</sup>	Typical Habitat <sup>3</sup>	Desktop Review Habitat Observed	Agency Comment <sup>4</sup>	Survey	Potential Impacts and Avoidance Measures
Indiana bat/ <i>Myotis sodalis</i>	E	LE	Summer foraging habitat consists of forest, woods, forest edge, riparian, agricultural fields, wooded fencerows, wooded corridors, wetlands, old fields, pasture. Roosting habitat includes trees ≥5 inches DBH with exfoliating bark, cracks, crevices (USFWS 2024b) and bridge cracks/crevices if present.	Yes: any trees within the project that have potential roost tree characteristics.	USFWS: Does not occur within modeled Indiana bat habitat. Final critical habitat exists, but project does not overlap.  MNFI: There does appear to be suitable habitat within 1.5 miles of the project.	No	Potential impacts during the active period include habitat removal, removal or disturbance of trees containing colonies.  BMPs: All trees will be cleared during the bat inactive season, or August 1 through May 31 during any given year.
Leggett's pinweed/ <i>Lechea pulchella</i>	T	-	Edges of seasonally inundated intermittent wetlands.	No	MNFI: No comment.	No	No impacts and no avoidance measures necessary.
Mitchell's satyr butterfly/ <i>Neonympha mitchellii mitchellii</i>	E	LE	Calcerous fen complexes or sedge meadows with <i>Carex stricta</i> (NatureServe 2024)	No	USFWS: Critical habitat has not been designated for this species.  MNFI: There does not appear to be suitable habitat within 1.5 miles of the project.	No	No impacts and no avoidance measures necessary.
Monarch butterfly/ <i>Danaus plexippus</i>	-	C	All patches of milkweed ( <i>Asclepias</i> sp., NatureServe 2024).	Yes:  Milkweed host plant may grow anywhere with full sun along project boundaries.	USFWS: Critical habitat has not been designated for this species.	No	Likely present, but low impact to species. Avoidance and minimization measures are not necessary for candidate species.

# THREATENED AND ENDANGERED SPECIES DESKTOP REVIEW

Common/Scientific Name	State Listed Status <sup>1</sup>	Federally Listed Status <sup>2</sup>	Typical Habitat <sup>3</sup>	Desktop Review Habitat Observed	Agency Comment <sup>4</sup>	Survey	Potential Impacts and Avoidance Measures
Northern long-eared bat/ <i>Myotis septentrionalis</i>	T	LE	Summer foraging habitat consists of forest, woods, forest edge, riparian, agricultural fields, wooded fencerows, wooded corridors, wetlands, old fields, pasture. Roosting habitat includes trees ≥3 inches DBH with exfoliating bark, cracks, crevices and human-made structures	Yes: any trees within the project that have potential roost tree characteristics.	USFWS: Not listed in IPaC. MNFI: There appears to be suitable habitat within 1.5 miles and activity occurs within the designated WNS zone.	No, provided BMPs are followed.	Potential impacts during the active period include habitat removal, removal or disturbance of trees containing colonies.  BMPs: All trees will be cleared during the bat inactive season, or August 1 through May 31 during any given year.
Orange- or yellow-fringed orchid/ <i>Platanthera ciliaris</i>	E	-	Found in acidic soils, primarily in sphagnum bogs but occasionally at fen margins or, at least historically, moist sandy prairies.	No	MNFI: No comment.	No	No impacts and no avoidance measures necessary.
Prairie coreopsis/ <i>Coreopsis palmata</i>	E	-	Found in remnant dry to mesic prairies and savanna habitats. Can be found on remnant prairies with deep loam soils along rights-of-way.	Yes	MNFI: No comment.	Yes	Survey necessary to determine if habitat for this plant occurs in project area. Avoidance, minimization or mitigation measures needed if plant does occur.
Rattlesnake-master or button snakeroot/ <i>Eryngium yuccifolium</i>	E	-	Found in prairie fen complexes dominated in sedge and grass portions, includes thickets along drainages. Typically, in sandy soils and wet prairies.	No	MNFI: No comment.	No	No impacts and no avoidance measures necessary.

# THREATENED AND ENDANGERED SPECIES DESKTOP REVIEW

Common/Scientific Name	State Listed Status <sup>1</sup>	Federally Listed Status <sup>2</sup>	Typical Habitat <sup>3</sup>	Desktop Review Habitat Observed	Agency Comment <sup>4</sup>	Survey	Potential Impacts and Avoidance Measures
Rosepink/ <i>Sabatia angularis</i>	T	-	Along moist sandy shores, depressions in dunes, marshy ground and on the edges of lakes.	No	MNFI: No comment.	No	No impacts and no avoidance measures necessary.
Rosinweed/ <i>Silphium integrifolium</i>	T	-	Occurs in prairie remnants along roads and railroad tracks or in cemeteries, in wet-mesic prairies and fens on peaty mucks and loams, and on dry-mesic to mesic loams and sandy loams.	No	MNFI: No comment.	No	No impacts and no avoidance measures necessary.
Rusty-patched bumble bee/ <i>Bombus affinis</i>	E	LE	Found in forest/woodlands, urban parks, orchards, gardens, grasslands, and prairies. Overwintering sites need undisturbed soil (NatureServe 2024)	No: all records for RPBB in Michigan are historical and the project does not occur in designated high or low probability zones.	USFWS: No comment. MNFI: Last observed date 1963-09-10.	No	No impacts and no avoidance measures necessary.
Scirpus-like rush/ <i>Juncus scirpoides</i>	T	-	Found in areas with a fluctuating water table such as coastal plain marshes, sandy lake edges, dune swales, seepages, sandy marshes, sandy and peaty edges of wetlands, and intermittent wetlands.	No	MNFI: No comment.	No	No impacts and no avoidance measures necessary.

# THREATENED AND ENDANGERED SPECIES DESKTOP REVIEW

Common/Scientific Name	State Listed Status <sup>1</sup>	Federally Listed Status <sup>2</sup>	Typical Habitat <sup>3</sup>	Desktop Review Habitat Observed	Agency Comment <sup>4</sup>	Survey	Potential Impacts and Avoidance Measures
Snuffbox/ <i>Epioblasma triquetra</i>	E	LE	Sand, gravel, or cobble substrates in swift small and medium-sized rivers; individuals often buried deep in sediment.	No	USFWS: Not listed in IPaC. MNFI: There does not appear to be suitable habitat within 1.5 miles.	No	No impacts and no avoidance measures necessary.
Spotted turtle/ <i>Clemmys guttata</i>	T	-	Aquatic, found near marshes, drainage ditches, and woodland ponds with clean, still or slow-flowing water with muddy or mucky bottoms and aquatic or emergent vegetation (Minton 1972, MNFI 2024, NatureServe 2024)	No	MNFI: No comment.	No	No impacts and no avoidance measures necessary.
Virginia flax/ <i>Linum virginianum</i>	T	-	Found in open oak forests, upland woods, dry and mesic lakeside and riparian forests in the southern Lower Peninsula.	Yes	MNFI: No comment.	Yes	Survey necessary to determine if habitat for this plant occurs in project area. Avoidance, minimization or mitigation measures needed if plant does occur.
White or prairie false indigo/ <i>Baptisia lactea</i>	T	-	Occurs in dry to mesic prairies and savannas, dry open roadsides, along railroads, and in fencerows. Most records consist of a few plants.	Yes	MNFI: No comment.	Yes	Survey necessary to determine if habitat for this plant occurs in project area. Avoidance, minimization or mitigation measures needed if plant does occur.

## THREATENED AND ENDANGERED SPECIES DESKTOP REVIEW

Common/Scientific Name	State Listed Status <sup>1</sup>	Federally Listed Status <sup>2</sup>	Typical Habitat <sup>3</sup>	Desktop Review Habitat Observed	Agency Comment <sup>4</sup>	Survey	Potential Impacts and Avoidance Measures
Whooping crane/ <i>Grus americana</i>	-	EXPN	Breeding habitat includes wetlands with soft marl bottoms separated by narrow ridges interspersed with potholes. Migration stopover habitat includes small to large seasonally and semi permanently flooded wetlands, crop wetlands, riverine habitats, and sandbars isolated from disturbance (CWS and USFWS 2007).	No	USFWS: No critical habitat has been designated for this species.	No	No impacts and no avoidance measures necessary.

<sup>1</sup> E: Endangered; T: Threatened

<sup>2</sup> LE: Endangered; LT: Threatened; C: Candidate species being considered for federal status; BGEPA: protected by the Bald and Golden Eagle Protection Act; PE: Proposed Endangered; EXPN: Experimental population, non-essential.

<sup>3</sup> MNFI 2024a and MNFI 2024b unless otherwise noted.

<sup>4</sup> Detailed agency comments are attached.

## LITERATURE CITED

- [CWS and USFWS] Canadian Wildlife Service and U.S. Fish and Wildlife Service. 2007. International recovery plan for the whooping crane (*Grus americana*). Ottawa: Recovery of Nationally Endangered Wildlife (RENEW) and U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 162pp.
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- [USFWS] U.S. Fish and Wildlife Service. 2024a. Eastern massasauga (=rattlesnake) (*Sistrurus catenatus*). <https://ecos.fws.gov/ecp/species/2202>. Accessed October 2024.
- [USFWS] U.S. Fish and Wildlife Service. 2024b. Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>. Accessed October 2024.



January 8, 2025

Aaron Neitling  
Wightman  
1670 Lincoln Road  
Allegan, MI 49010

Re: Stanwood Crossings and Portage Road Listed Plant Survey (Orbis #2407009)

Dear Mr. Neitling:

Orbis Environmental Consulting (Orbis) was contracted by Wightman to conduct a habitat evaluation for three state-listed plants at the proposed Stanwood Crossings residential project and a nearby stretch of Portage Road in Kalamazoo County, Michigan (Orbis #2407009). The following report summarizes the results of the survey.

## INTRODUCTION

Orbis Environmental Consulting (Orbis) was contracted by Wightman in August 2024 to conduct a Threatened and Endangered Species review for the Stanwood Crossings residential project in the City of Portage, Kalamazoo County, Michigan. Stanwood Crossings is a proposed 45-home development of an approximately 13-acre parcel located at 9617 Potage Road and owned by the City of Portage (Figure). Based on a desktop review of the project area, Orbis recommended a field survey to evaluate whether suitable habitat is present for three state-listed plant species previously recorded from the general area—the state threatened *Baptisia lactea* (white false indigo), state endangered *Coreopsis palmata* (prairie coreopsis), and state threatened *Linum virginianum* (slender yellow flax). Wightman also requested Orbis to evaluate whether potentially suitable habitat for these species occurs along an approximately 2.8-mile stretch of Portage Road (Figure). The field survey was conducted on November 17, 2024.

## METHODS

On November 17, 2024, Orbis conducted a field survey of the project areas. Orbis evaluated and photographed landcover types (including anthropogenic features and natural habitats) and visually inspected the survey areas using untimed meander surveys for evidence of the three target plant species. Following the field surveys, Orbis made an effect determination for *Baptisia lactea*, *Coreopsis palmata*, and *Linum virginianum*.

## RESULTS

The project area is situated in a suburban landscape on the southeast side of Portage, Kalamazoo County, Michigan. The field survey was conducted at the Stanwood Crossings parcel and within the right-of-way on both sides of Portage Road between East Centre Avenue (north) and Vickery Road (south). Most of the project area was found to be significantly disturbed, consisting primarily of commercial properties (including lawns and parking lots) and weedy waste areas bordering Portage Road. Degraded woodlots occur on both sides of Portage Road. These woodlots were characterized by orchard grass (*Dactylis glomerata*), fescue (*Lolium arundinaceum*), and honeysuckles (*Lonicera* spp.) interspersed with other weedy species. Two areas (photographs 14 and 40) were observed to have an appropriate soil type (dry and sandy) for all three of the target species but were both heavily disturbed with no evidence of the target species. Therefore, a determination of “No Effect” was made for all three target species (Table). See Discussion.

TABLE. EFFECT DETERMINATIONS FOR LISTED PLANT SPECIES REPORTED BY MNFI.

Scientific Name Common Name	Status <sup>1</sup>	Effect Determination
<i>Baptisia lactea</i> prairie false indigo	T	No Effect. Habitat is not present.
<i>Coreopsis palmata</i> prairie coreopsis	E	No Effect. Habitat is not present.
<i>Linum virginianum</i> Virginia flax	T	No Effect. Habitat is not present.

<sup>1</sup>E: Endangered; T: Threatened

## DISCUSSION

In Michigan, *Baptisia lactea* and *Coreopsis palmata* grow in prairies and other dry open areas such as near railroads and roadsides; *Linum virginianum* grows in sandy dry woods (Michigan Flora Online 2011; MNFI 2024). The three target species were not observed in the project area. The only natural habitats observed near the project area (along Portage Road and in the Stanwood Crossings site) are heavily disturbed and/or somewhat mesic, and do not provide suitable habitat for any of the target species.



## CONCLUSIONS AND RECOMMENDATIONS

No state-listed plant species were observed during a field survey of the Stanwood Crossings and Portage Road project area. No suitable habitat was observed for *Baptisia lactea*, *Coreopsis palmata*, or *Linum virginianum*.

Sincerely,

Nic Garza

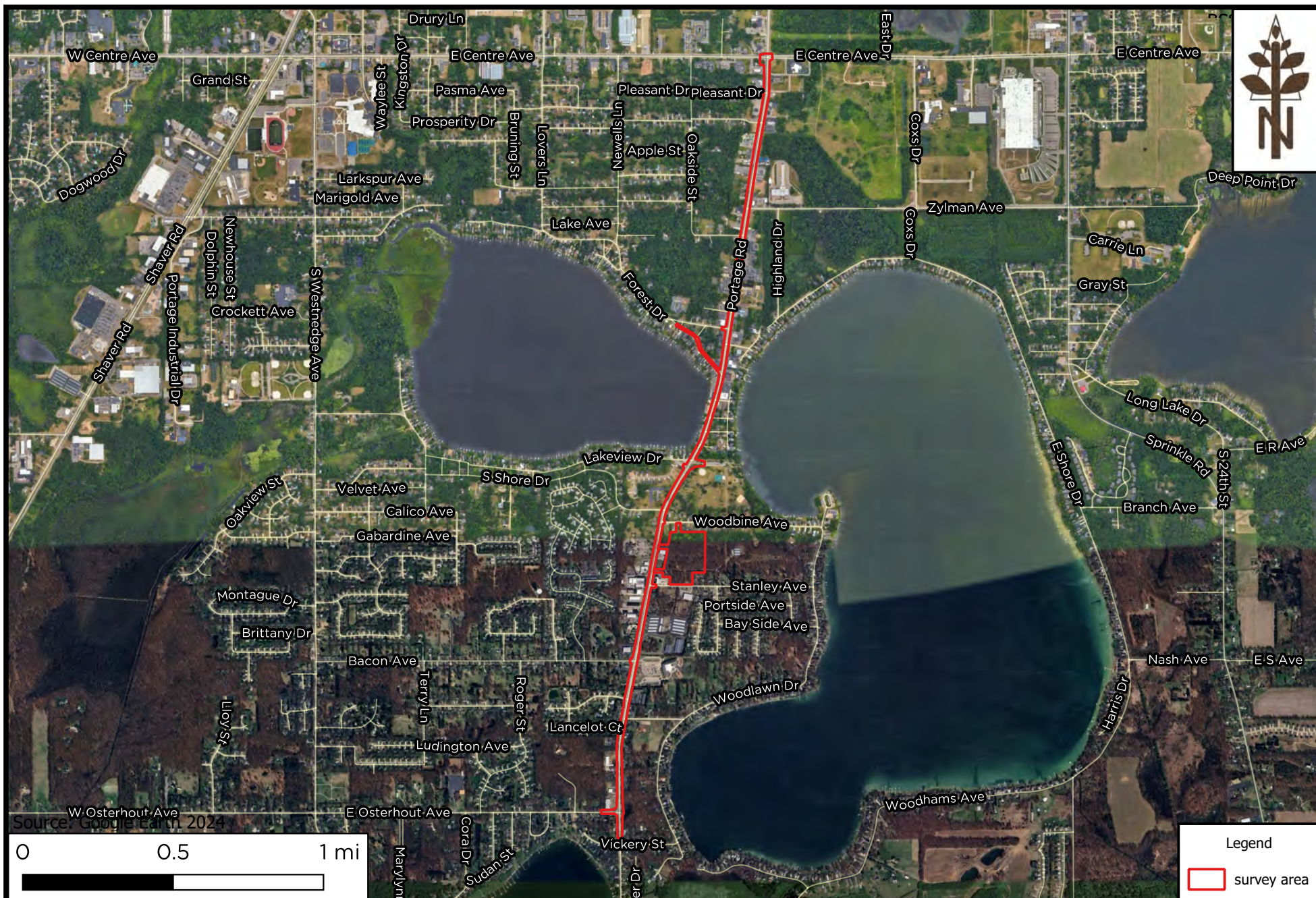
Botanist

attachments: Figure; Photographs  
#2407009

## LITERATURE CITED

MICHIGAN FLORA ONLINE. A. A. Reznicek, E. G. Voss, & B. S. Walters. February 2011. University of Michigan. Web. Available at <https://michiganflora.net/species.aspx?id=2735> (Accessed December 19, 2024).

MNFI. 2024. Michigan's Rare Plants. Available at <https://mnfi.anr.msu.edu/species/plants> (Accessed December 19, 2024).



Stanwood Crossings and Portage Road  
Wightman  
Portage, Kalamazoo County, Michigan

Figure 1  
Survey Area  
Project #2407009





01 - Portage Rd. x E. Centre Ave - West Side - Facing North, Commercial Lawn and Retention Pond



02 - Portage Rd. - West Side - Facing South, Commercial Lawns, Lots, and Sidewalk



03 - Portage Rd. - West Side - Facing South, Median Strips, Sidewalk Parking Lot



04 - Portage Rd. - West Side - Facing South, Weedy Culvert Between Two Commercial Lots



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

Photographs  
11/17/2024  
#2407009



05 - Portage Rd. - West Side - Facing South, Sidewalk, Parking Lot, Road



06 - Portage Rd. - West Side - Facing South, Weedy Shrubby Lot, Sidewalk, Road Verge



07 - Portage Rd. - West Side - Facing South, Commercial Lawns, Sidewalk, Parking Lot



08 - Portage Rd. - West Side - Facing South, Sidewalk, Parking Lots, Road Verge



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

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09 - Portage Rd. - West Side - Facing South, Sidewalk, Verge, Parking Lot



10 - Portage Rd. - West Side - Facing South, Commercial Landscaping, Parking Lots



11 - Portage Rd. x Ames Dr. - West Side - Facing South, Commercial Landscaping, Verge



12 - Ames Dr. - Facing West, Residential Lawns, Driveways



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

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13 - Ames Dr. - Facing West, Residential Lawns, Driveways



14 - Ames Dr. - Facing West, Driveways, Sandy Road Verge with Weedy Vegetation, Target Species Not Located



15 - Portage Rd. - West Side - Facing South, Parking Lots, Commercial Landscaping



16 - Portage Rd. - West Side - Facing South, Commercial Landscaping, Parking Lot



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

Photographs  
11/17/2024  
#2407009





17 - Portage Rd. - East Side - Facing South, Driveways, Residential Landscaping



18 - Portage Rd. - East Side - Facing South, Sidewalk, Verge, Parking Lot



19 - Portage Rd. - West Side - Facing South, Sidewalk, Road Verge, Commercial Landscaping



20 - Portage Rd. - West Side - Facing South, Commercial Landscaping, Parking Lot



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

Photographs  
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21 - Portage Rd. - West Side - Facing South, Residential Landscaping



22 - Portage Rd. - West Side - Facing South, Commercial Landscaping



23 - Portage Rd. - West Side - Facing South, Parking Lot, Verge, Commercial Landscaping



24 - Portage Rd. x Bacon Ave. - West Side - Facing South, Commercial Landscaping, Artificial Drainage



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

Photographs  
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#2407009





25 - Portage Rd. - West Side - Facing South, Verge, Sidewalk, Residential Landscaping



26 - Portage Rd. - West Side - Facing South, Sidewalk, Residential Landscaping, Driveways



27 - Portage Rd. - West Side - Facing West, Weedy Overgrown Woodlot



28 - Portage Rd. - West Side - Facing South, Residential Landscaping



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

Photographs  
11/17/2024  
#2407009



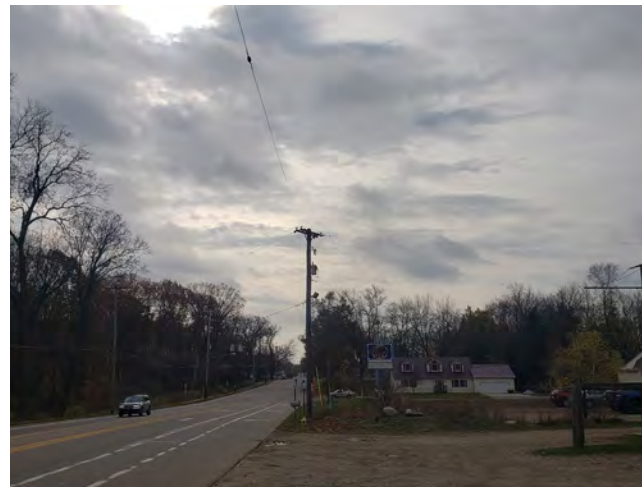
29 - Portage Rd. - West Side - Facing South, Weedy Overgrown Woodlot



30 - Portage Rd. - West Side - Facing South, Residential Landscaping, Driveways



31 - Portage Rd. - West Side - Facing South, Residential Landscaping, Weedy Overgrown Woodlot



32 - Portage Rd. - West Side - Facing South, Driveways, Parking Lot, Landscaping



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

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33 - Portage Rd. X E Osterhout Ave - West Side - Facing South, Commercial Landscaping, Parking Lot



34 - E Osterhout Ave. - North Side - Facing West, Commercial Landscaping, Weedy Woodlot



35 - Portage Rd. - West Side - Facing South, Residential Landscaping, Driveways



36 - Portage Rd. - West Side - Facing South, Commercial Landscaping



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

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37 - Portage Rd. - East Side - Facing North, Residential Landscaping, Sidewalk, Verge



38 - Portage Rd. - East Side - Facing North, Residential Landscaping, Weedy Woodlot



39 - Portage Rd. - East Side - Facing North, Sidewalk, Weedy Woodlot Edge



40 - Portage Rd. - East Side - Facing North, Sidewalk, Woodlot Continue. Soils Appropriate for Target Species, Habitat too Disturbed. Target Species Not Located



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

Photographs  
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#2407009





41 - Portage Rd. - East Side - Facing North, Verge, Sidewalk, Residential Landscaping



42 - Portage Rd. - East Side - Facing North, Verg, Sidewalk, Driveway, Residential Landscaping



43 - Portage Rd. - East Side - Facing East, Artificial Retention Pond



44 - Portage Rd. - East Side - Facing East, Artificial Retention Pond



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

Photographs  
11/17/2024  
#2407009



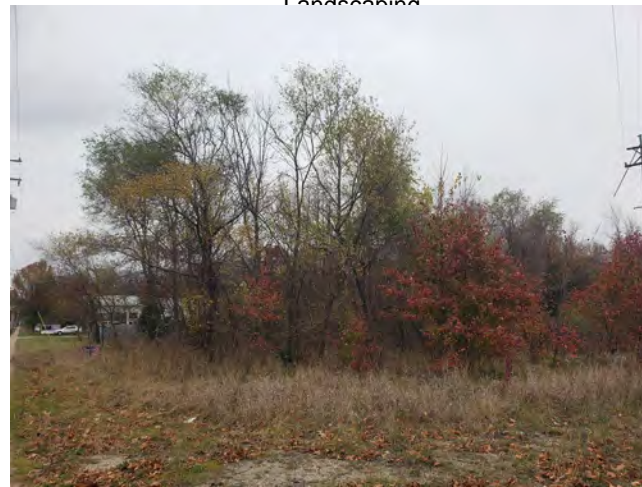
45 - Portage Rd. - East Side - Facing North, Sidewalk, Commercial Landscaping



46 - Portage Rd. - East Side - Facing North, Driveway, Verge, Sidewalk, Commercial Landscaping



47 - Portage Rd. - East Side - Facing North, *Ulmus pumila* thicket edge



48 - Portage Rd. - East Side - Facing North, SW Corner of Surveyed Woodlot



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

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11/17/2024  
#2407009





49 - Portage Rd. - East Side - Facing North, Verge,  
Sidewalk, Commercial Landscaping



50 - Portage Rd. - East Side - Facing North, Verge,  
Sidewalk, Commercial Landscaping, Driveways



51 - Portage Rd. - East Side - Facing North, Verge,  
Sidewalk, Lakeview Park Lawn



52 - Portage Rd. - East Side - Facing North, Bridge,  
Verge, Residential Landscaping



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

Photographs  
11/17/2024  
#2407009





53 - Entrance to Lakeview Park - Facing West, Driveway, Lakeview Park Landscaping



54 - Portage Rd. - East Side - Facing North, Verge, Sidewalk, Residential Street and Landscaping



55 - Portage Rd. - East Side - Facing North, Sidewalk, Parking Lot



56 - Portage Rd. - East Side - Facing North, Sidewalk, Parking Lots



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

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57 - Portage Rd. - East Side - Facing North, Verge, Sidewalk, Driveway, Commercial Landscaping



58 - Portage Rd. - East Side - Facing North, Verge, Sidewalk, Commercial Landscaping



59 - Portage Rd. - East Side - Facing North, Sidewalk, Parking Lots



60 - Portage Rd. - East Side - Facing North, Verge, Sidewalk, Commercial Landscaping, Parking Lot



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

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61 - Portage Rd. - East Side - Facing North, Parking Lot, Verge, Sidewalk, Commercial Landscaping



62 - Portage Rd. - East Side - Facing North, Verge, Sidewalk, Commercial Landscaping



63 - Portage Rd. x E. Centre Ave. - East Side - Facing North, Commercial Landscaping



64 - Portage Rd. X E. Centre Ave. - East Side - Facing North, Commercial Landscaping



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

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65 - Portage Rd. x E. Centre Ave. - NW Side, Facing  
West, Commercial Landscaping



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

Photographs  
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66 - Stanwood Crossings Site - Forest structure, flagging in SW corner of site, facing south



67 - Stanwood Crossings Site - Forest structure, flagging in SW corner of site



68 - Stanwood Crossings Site - Forest structure, flagging in south central section of site



69 - Stanwood Crossings Site - South edge, Stanley Ave, facing north



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

Photographs  
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#2407009





70 - Stanwood Crossings Site - South edge, Stanley Ave. facing south



71 - Stanwood Crossings Site - Forest structure, flagging in SE corner of site



72 - Stanwood Crossings Site - Powerline Cut thicket, facing east: *Elaeagnus umbellata*



73 - Stanwood Crossings Site - Forest structure: dense shrub coverage: *Elaeagnus umbellata*, *Lonicera japonica*, *Lonicera morrowii*



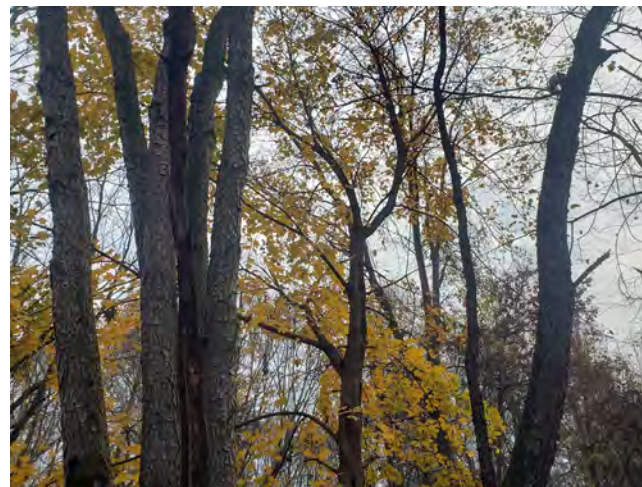
Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

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11/17/2024  
#2407009





74 - Stanwood Crossings Site - Forest structure,  
*Celastus orbiculatus* population



75 - Stanwood Crossings Site - *Acer platanoides*,  
indicative of old homesite



76 - Stanwood Crossings Site - *Acer platanoides*



77 - Stanwood Crossings Site - Wide branching  
pattern indicates historic sunlight abundance



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

Photographs  
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78 - Stanwood Crossings Site - NE corner of site, Forest structure



79 - Stanwood Crossings Site - NE corner, facing SW, Forest structure



80 - Stanwood Crossings Site - Flagging in north central part of site



81 - Stanwood Crossings Site - *Celastrus orbiculatus* overtaking *Prunus serotina*



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

Photographs  
11/17/2024  
#2407009





82 - Stanwood Crossings Site - *Celastrus orbiculatus*  
overtaking *Prunus serotina*



83 - Stanwood Crossings Site - NW corner lobe  
extending northward



84 - Stanwood Crossings Site - Herb composition:  
*Hackelia virginiana*, *Persicaria filiformis*, *Alliaria petiolata*,  
*Allium vineale*



85 - Stanwood Crossings Site - *Persicaria filiformis*  
colony



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

Photographs  
11/17/2024  
#2407009





86 - Stanwood Crossings Site - NW corner, narrow lobe extending westward



87 - Stanwood Crossings Site - Thicket at western edge of site



88 - Stanwood Crossings Site - Forest structure, north central section of site, facing south: *Carex* spp., *Dactylis glomerata*, *Geum vernum*, *Allium vineale*



89 - Stanwood Crossings Site - Slope leading to roadcut, central section of site



Listed Plant Survey  
Wightman  
Stanwood Crossings and Portage Rd., Portage, MI

Photographs  
11/17/2024  
#2407009

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# **ATTACHMENT 8**

## **Explosive and Flammable Hazards**





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

**Explosive and Flammable Hazards (CEST and EA) – PARTNER**

<https://www.hudexchange.info/environmental-review/explosive-and-flammable-facilities>

- 1. Does the proposed HUD-assisted project include a hazardous facility (a facility that mainly stores, handles or processes flammable or combustible chemicals such as bulk fuel storage facilities and refineries)?**

☒ No

→ Continue to Question 2.

☐ Yes

**Explain:**

[Click here to enter text.](#)

→ Continue to Question 5.

- 2. Does this project include any of the following activities: development, construction, rehabilitation that will increase residential densities, or conversion?**

☐ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.

☒ Yes → Continue to Question 3.

- 3. Within 1 mile of the project site, are there any current *or planned* stationary aboveground storage containers:**

- Of more than 100-gallon capacity, containing common liquid industrial fuels OR
- Of any capacity, containing hazardous liquids or gases that are not common liquid industrial fuels?

☒ No → If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide all documents used to make your determination.

☐ Yes → Continue to Question 4.

- 4. Is the Separation Distance from the project acceptable based on standards in the Regulation?**

Please visit HUD's website for information on calculating Acceptable Separation Distance.

☐ Yes

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.

Provide map(s) showing the location of the project site relative to any tanks and your separation distance calculations. If the map identifies more than one tank, please identify the tank you have chosen as the "assessed tank."



☐ No

→ Continue to Question 6.

*Provide map(s) showing the location of the project site relative to any tanks and your separation distance calculations. If the map identifies more than one tank, please identify the tank you have chosen as the “assessed tank.”*

**5. Is the hazardous facility located at an acceptable separation distance from residences and any other facility or area where people may congregate or be present?**

Please visit HUD’s website for information on calculating Acceptable Separation Distance.

☐ Yes

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.

*Provide map(s) showing the location of the project site relative to residences and any other facility or area where people congregate or are present and your separation distance calculations.*

☐ No

→ Continue to Question 6.

*Provide map(s) showing the location of the project site relative to residences and any other facility or area where people congregate or are present and your separation distance calculations.*

**6. For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to make the Separation Distance acceptable, including the timeline for implementation. If negative effects cannot be mitigated, cancel the project at this location.**

Note that only licensed professional engineers should design and implement blast barriers. If a barrier will be used or the project will be modified to compensate for an unacceptable separation distance, provide approval from a licensed professional engineer.

[Click here to enter text.](#)

**Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

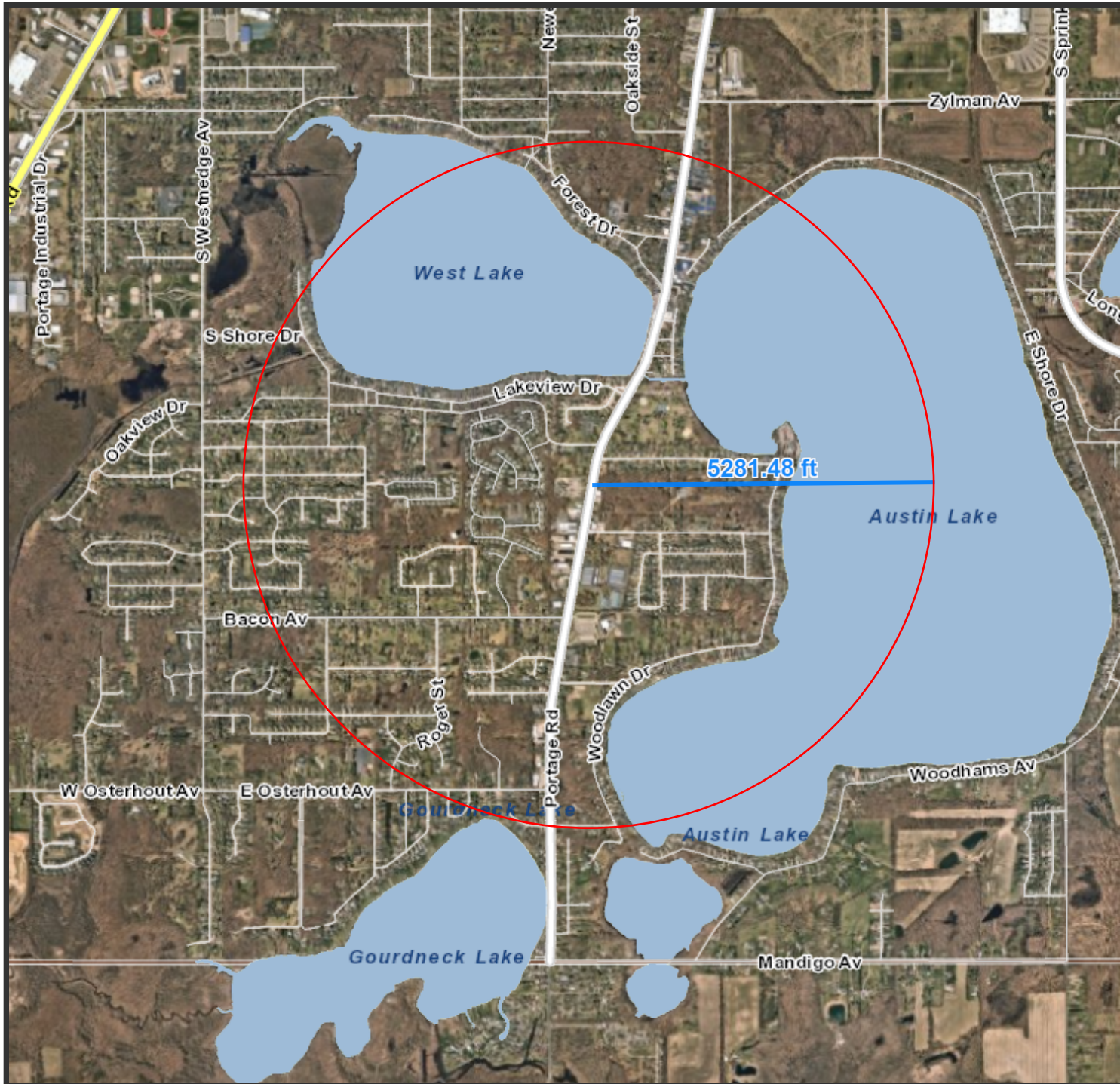
**Include all documentation supporting your findings in your submission to HUD.**

There are no current or planned stationary aboveground storage containers of concern within 1 mile of the project site. The project is in compliance with explosive and flammable hazard requirements.

City of Portage GIS Aerial Maps were reviewed to determine the 1 mile radius, shown on the attached maps. Surrounding areas is primarily residential properties and lake. Along Portage Road there are two commercial/industrial type districts. On the attached aerials we have zoomed in to the two areas and as shown on the maps there are no visible exterior containers that would appear larger than 100 gallons

On the northern end of the search radius, there are several businesses that deal with auto repair, marine sales, outdoor power equipment, and a hardware store. The Do-It Best Hardware Store approximately 1/2 mile north of the site sells residential propane tanks.

The City of Portage Fire Department was contacted to find out if they had any records of highly flammable/combustible/explosive material at any of the properties within the radius of the development. There was no response provided to the email correspondence.



## Portage GIS



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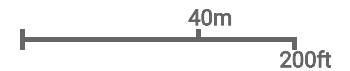


## Portage GIS



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## Portage GIS



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## Portage GIS



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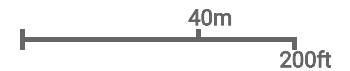


## Portage GIS



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# **ATTACHMENT 9**

## **Farmlands Protection**





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

## Farmlands Protection (CEST and EA) - PARTNER

<https://www.hudexchange.info/environmental-review/farmlands-protection>

**1. Does your project include any activities, including new construction, acquisition of undeveloped land or conversion, that could convert agricultural land to a non-agricultural use?**

☒ Yes → *Continue to Question 2.*

☐ No

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

**2. Does your project meet one of the following exemptions?**

- Project on land already in or committed to urban development or used for water storage ([7 CFR 658.2\(a\)](#)). To check whether the project location is located in an urbanized area, use the following US Census Bureau application: [TIGERweb](#)
- Construction limited to on-farm structures needed for farm operations
- Construction is limited to new minor secondary (accessory) structures such as a garage or storage shed

☐ Yes → *Based on the response, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination*

☒ No → *Continue to Question 3.*

**3. Does “important farmland,” including prime farmland, unique farmland, or farmland of statewide or local importance regulated under the Farmland Protection Policy Act, occur on the project site?**

You may use the links below to determine important farmland occurs on the project site:

- Utilize USDA Natural Resources Conservation Service’s (NRCS) Web Soil Survey <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>
- Check with your city or county’s planning department and ask them to document if the project is on land regulated by the FPPA (zoning important farmland as non-agricultural does not exempt it from FPPA requirements)
- Contact NRCS at the local USDA service center <http://offices.sc.egov.usda.gov/locator/app?agency=nrcs> or your NRCS state soil scientist [http://soils.usda.gov/contact/state\\_offices/](http://soils.usda.gov/contact/state_offices/) for assistance

☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.*

☐ Yes → *Continue to Question 4.*

**4. Consider alternatives to completing the project on important farmland and means of avoiding impacts to important farmland.**

- Complete form [AD-1006, "Farmland Conversion Impact Rating"](#) and contact the state soil scientist before sending it to the local NRCS District Conservationist.
- Work with NRCS to minimize the impact of the project on the protected farmland. When you have finished with your analysis, return a copy of form AD-1006 to the USDA-NRCS State Soil Scientist or his/her designee informing them of your determination.

**Work with the RE/HUD to determine how the project will proceed. Document the conclusion:**

☐ Project will proceed with mitigation.

**Explain in detail the proposed measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

[Click here to enter text.](#)

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide form AD-1006 and all other documents used to make your determination.*

☐ Project will proceed without mitigation.

**Explain why mitigation will not be made here:**

[Click here to enter text.](#)

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide form AD-1006 and all other documents used to make your determination.*

**Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

**Include all documentation supporting your findings in your submission to HUD.**

The project includes activities that could convert agricultural land to a non-agricultural use, but "prime farmland", "unique farmland", or "farmland of statewide or local importance" regulated under the Farmland Protection Policy Act does not occur on the project site. The project is in compliance with the Farmland Protection Policy Act.

Per a USDA Soil Conservation Map from 1979-80, attached, the site is identified as "other" land.

<https://alabamamaps.ua.edu/historicalmaps/primefarmland/Michigan/michigan.html>

Kalamazoo County link (10/14/2024)

Per EPA NEPAassist 2024 mapping documentation site is located within Urban Areas

The site may have been used as agricultural land previously, but it is currently forested land and has been forested land since at least 1981, which is the earliest aerial that shows forest. A 1974 aerial shows open space. So for at least 43 years it has been overgrown.

City of Portage GIS Aerial Maps





## Legend

 Project Boundary

 Urban Areas  


MKM  
2024/10/16



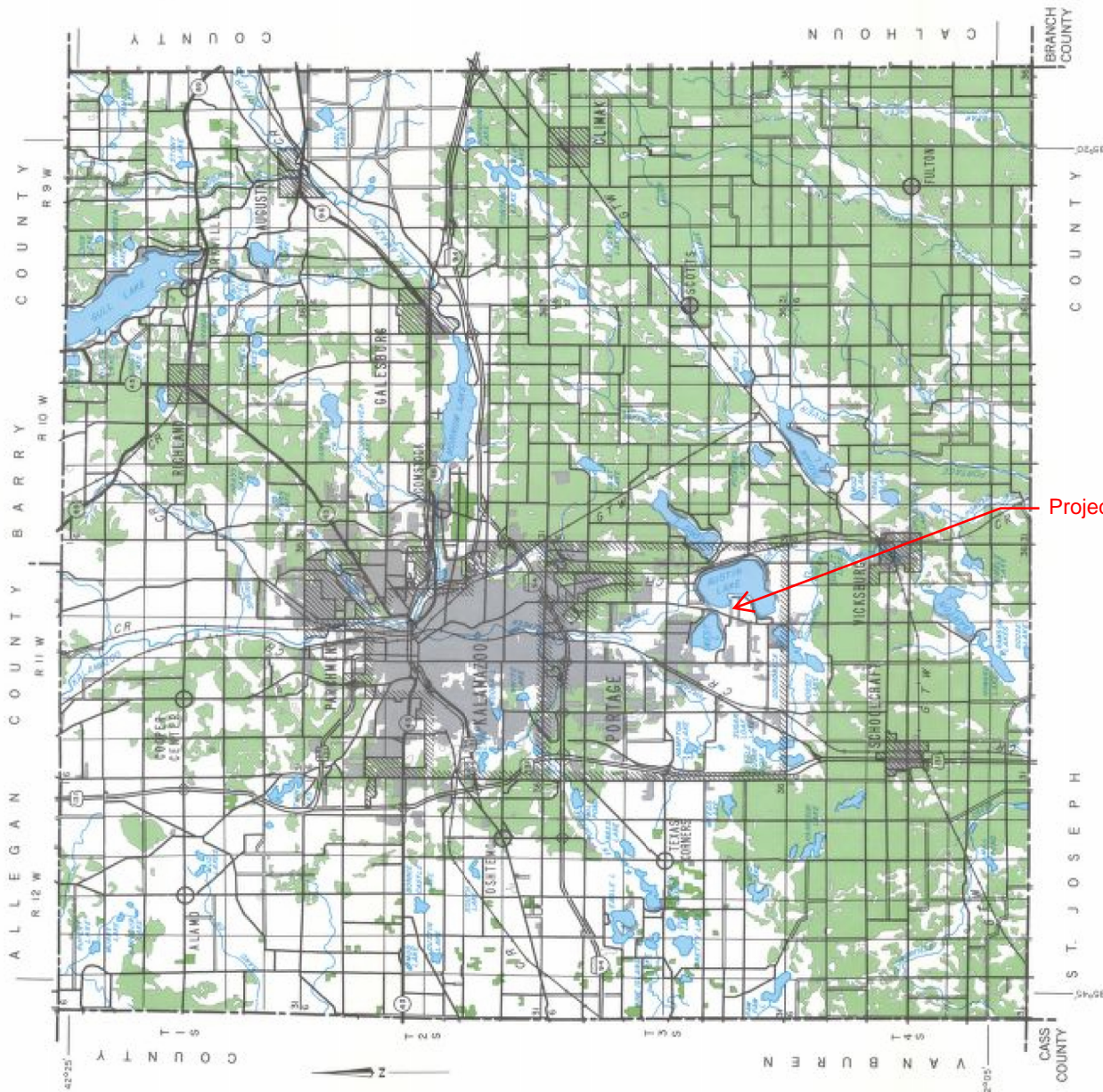
Source: EPA NEPAassist 2024



Stanwood Crossings  
City of Portage  
Portage, Kalamazoo County, Michigan

Mapping Documentation  
Urban Areas  
Project #2407009





LEGEND

- COUNTY BOUNDARY
- INCORPORATED TOWN
- UNINCORPORATED TOWN
- DRAINAGE
- INTERSTATE HIGHWAY
- U.S. HIGHWAY
- STATE HIGHWAY
- MULTILANE HIGHWAY
- OTHER PAVED ROAD
- UNCLASSIFIED ROAD
- RAILROAD
- AIRPORT
- G.L.O. TOWNSHIP LINE
- SECTION LINE

LEGEND

- Prime farmland, Total acres - 146,338
- Unique farmland, other than prime, Total acres - 2,520
- Additional farmland of statewide importance
- Additional farmland of local importance
- Other land
- Water areas
- Approximate limits of urban growth

LEGEND

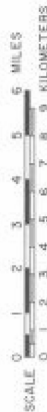
**PRIME FARMLAND**  
Prime farmland is land that is well suited to the production of food, fiber, and other agricultural products. It has a special conservation value because of its high productivity and the need to protect it from non-agricultural uses. The map shows the location of prime farmland in Kalamazoo County, Michigan. The map also shows the location of unique farmland, other than prime, and additional farmland of statewide and local importance.

**UNIQUE FARMLAND**  
Unique farmland is land that is well suited to the production of food, fiber, and other agricultural products. It has a special conservation value because of its high productivity and the need to protect it from non-agricultural uses. The map shows the location of unique farmland in Kalamazoo County, Michigan. The map also shows the location of prime farmland, other than prime, and additional farmland of statewide and local importance.

IMPORTANT FARMLAND

KALAMAZOO COUNTY  
MICHIGAN

Information derived from soil conservation maps and other sources. The map is not a guarantee of accuracy. The map is for informational purposes only. The map is not to be used for legal purposes.



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# **ATTACHMENT 10**

## **Floodplain Management**





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

OMB No. 2506-0177  
(exp.2/28/2025)

## Floodplain Management (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/floodplain-management>

1. Does [24 CFR 55.12\(c\)](#) exempt this project from compliance with HUD's floodplain management regulations in Part 55?

☐ Yes

Provide the applicable citation at 24 CFR 55.12(c) here. If project is exempt under 55.12(c)(6) or (8), provide supporting documentation.

[Click here to enter text.](#)

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Continue to the Worksheet Summary.

☒ No → Continue to Question 2.

2. Provide a FEMA/FIRM map showing the site.

The Federal Emergency Management Agency (FEMA) designates floodplains. The [FEMA Map Service Center](#) provides this information in the form of FEMA Flood Insurance Rate Maps (FIRMs).

Does your project occur in a floodplain?

☒ No → Continue to the Worksheet Summary below.

☐ Yes

Select the applicable floodplain using the FEMA map or the best available information:

☐ Floodway → Continue to Question 3, Floodways

☐ Coastal High Hazard Area (V Zone) → Continue to Question 4, Coastal High Hazard Areas

☐ 500-year floodplain (B Zone or shaded X Zone) → Continue to Question 5, 500-year Floodplains

☐ 100-year floodplain (A Zone) → The 8-Step Process is required. Continue to Question 6, 8-Step Process

3. **Floodways**

Is this a functionally dependent use?

☐ Yes

The 8-Step Process is required. Work with HUD or the RE to assist with the 8-Step Process.

→ Continue to Worksheet Summary.

- ☐ No → *Federal assistance may not be used at this location unless an exception in 55.12(c) applies. You must either choose an alternate site or cancel the project.*

**4. Coastal High Hazard Area**

**Is this a critical action such as a hospital, nursing home, fire station, or police station?**

- ☐ Yes → *Critical actions are prohibited in coastal high hazard areas unless an exception in 55.12(c) applies. You must either choose an alternate site or cancel the project.*

- ☐ No

**Does this action include new construction that is not a functionally dependent use, existing construction (including improvements), or reconstruction following destruction caused by a disaster?**

- ☐ Yes, there is new construction of something that is not a functionally dependent use.  
New construction must be designed to FEMA standards for V Zones at 44 CFR 60.3(e) (24 CFR 55.1(c)(3)(i)).

→ *Continue to Question 6, 8-Step Process*

- ☐ No, this action concerns only existing construction.

Existing construction must have met FEMA elevation and construction standards for a coastal high hazard area or other standards applicable at the time of construction.

→ *Continue to Question 6, 8-Step Process*

**5. 500-year Floodplain**

**Is this a critical action?**

- ☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Continue to the Worksheet Summary below.*

- ☐ Yes → *Continue to Question 6, 8-Step Process*

**6. 8-Step Process.**

**Is this 8-Step Process required? Select one of the following options:**

- ☐ 8-Step Process applies.

This project will require mitigation and may require elevating structure or structures. See the link to the HUD Exchange above for information on HUD's elevation requirements.

→ *Work with the RE/HUD to assist with the 8-Step Process. Continue to Worksheet Summary.*

- ☐ 5-Step Process is applicable per 55.12(a)(1-4).

**Provide the applicable citation at 24 CFR 55.12(a) here.**

[Click here to enter text.](#)

→ *Work with the RE/HUD to assist with the 5-Step Process. Continue to Worksheet Summary.*

- ☐ 8-Step Process is inapplicable per 55.12(b)(1-5).

**Provide the applicable citation at 24 CFR 55.12(b) here.**

[Click here to enter text.](#)

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

### **Include all documentation supporting your findings in your submission to HUD.**

This project does not occur in the FFRMS floodplain. The project is in compliance with Executive Orders 11988 and 13690.

Per the FIRMETTE panel 26077C0315D (eff date 2/17/2010) site is in Zone X (unshaded).

Per EPA NEPAssist 2024 the site does not appear in the 0.2% annual chance flood hazard. The map show the Zone AE El of Austin Lake at 656.6. No portion of our project site is below that elevation and all proposed residential units and roadways are shown as no lower than an elevation of 860

Austin Lake and West Lake have a legally established lake level of 856 (est 6/02/1925) per the Kalamazoo County Drain Commissioners office  
<https://www.kalcounty.com/drain/lake-levels.htm>







## Legend

 Project Boundary

### Flood Hazard

-  0.2% Annual Chance Flood Hazard
-  Area of Undetermined Flood Hazard
-  Special Floodway
-  Regulatory Floodway
-  1% Annual Chance Flood Hazard

MKM  
2024/10/16



Stanwood Crossings  
City of Portage  
Portage, Kalamazoo County, Michigan

Mapping Documentation  
FEMA Flood Hazard  
Project #2407009



# National Flood Hazard Layer FIRMette



85°34'21"W 42°10'52"N



1:6,000

85°33'43"W 42°10'25"N

Basemap Imagery Source: USGS National Map 2023

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/8/2024 at 9:23 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

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# **ATTACHMENT 11**

## **Historic Preservation**





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

## Historic Preservation (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/historic-preservation>

### Threshold

#### Is Section 106 review required for your project?

- ☐ No, because a Programmatic Agreement states that all activities included in this project are exempt. (See the [PA Database](#) to find applicable PAs.)

**Either provide the PA itself or a link to it here. Mark the applicable exemptions or include the text here:**

[Click here to enter text.](#)

→ *Continue to the Worksheet Summary.*

- ☐ No, because the project consists solely of activities included in a No Potential to Cause Effects memo or other determination [36 CFR 800.3(a)(1)].

**Either provide the memo itself or a link to it here. Explain and justify the other determination here:**

[Click here to enter text.](#)

→ *Continue to the Worksheet Summary.*

- ☒ Yes, because the project includes activities with potential to cause effects (direct or indirect). → *Continue to Step 1.*

#### **The Section 106 Process**

After determining the need to do a Section 106 review, HUD or the RE will initiate consultation with regulatory and other interested parties, identify and evaluate historic properties, assess effects of the project on properties listed on or eligible for the National Register of Historic Places, and resolve any adverse effects through project design modifications or mitigation.

Step 1: Initiate consultation

Step 2: Identify and evaluate historic properties

Step 3: Assess effects of the project on historic properties

Step 4: Resolve any adverse effects

### Step 1 - Initiate Consultation

The following parties are entitled to participate in Section 106 reviews: Advisory Council on Historic Preservation; State Historic Preservation Officers (SHPOs); federally recognized Indian tribes/Tribal Historic Preservation Officers (THPOs); Native Hawaiian Organizations (NHOs); local governments; and project grantees. The general public and individuals and organizations with a demonstrated interest in a

project may participate as consulting parties at the discretion of the RE or HUD official. Participation varies with the nature and scope of a project. Refer to HUD's website for guidance on consultation, including the required timeframes for response. Consultation should begin early to enable full consideration of preservation options.

Use the [When To Consult With Tribes checklist](#) within [Notice CPD-12-006: Process for Tribal Consultation](#) to determine if the RE or HUD should invite tribes to consult on a particular project. Use the [Tribal Directory Assessment Tool \(TDAT\)](#) to identify tribes that may have an interest in the area where the project is located. Note that only HUD or the RE may initiate consultation with Tribes. Partner entities may prepare a draft letter for the RE or HUD to use to initiate consultation with tribes, but may not send the letter themselves.

**List all organizations and individuals that you believe may have an interest in the project here:**

Michigan State Historic Preservation Office (SHPO) – Section 106 application is attached

The following Native American Tribes (correspondence/responses are attached)

Citizen Potawatomi Nation, Oklahoma  
Forest County Potawatomi Community, Wisconsin  
Hannahville Indian Community, Michigan  
Lac Vieux Desert Band of Lake Superior Chippewa Indians of Michigan  
Little Traverse Bay Bands of Odawa Indians, Michigan  
Menominee Indian Tribe of Wisconsin  
Miami Tribe of Oklahoma  
Ottawa Tribe of Oklahoma  
Pokagon Band of Potawatomi Indians, Michigan and Indiana  
Prairie Band Potawatomi Nation  
Saginaw Chippewa Indian Tribe of Michigan  
Sault Ste Marie Tribe of Chippewa Indians, Michigan

→ *Continue to Step 2.*

**Step 2 - Identify and Evaluate Historic Properties**

**Provide a preliminary definition of the Area of Potential Effect (APE), either by entering the address(es) or providing a map depicting the APE.** Attach an additional page if necessary.

See Section 106 application that was submitted to the Michigan SHPO that describes the direct and indirect effect APE.

Gather information about known historic properties in the APE. Historic buildings, districts and archeological sites may have been identified in local, state, and national surveys and registers, local historic districts, municipal plans, town and county histories, and local history websites. If not already listed on the National Register of Historic Places, identified properties are then evaluated to see if they are eligible for the National Register. Refer to HUD's website for guidance on identifying and evaluating historic properties.

**In the space below, list historic properties identified and evaluated in the APE.**



Every historic property that may be affected by the project should be listed. For each historic property or district, include the National Register status, whether the SHPO has concurred with the finding, and whether information on the site is sensitive. Attach an additional page if necessary.

[Click here to enter text.](#)

*Provide the documentation (survey forms, Register nominations, concurrence(s) and/or objection(s), notes, and photos) that justify your National Register Status determination.*

**Was a survey of historic buildings and/or archeological sites done as part of the project?**

If the APE contains previously unsurveyed buildings or structures over 50 years old, or there is a likely presence of previously unsurveyed archeological sites, a survey may be necessary. For Archeological surveys, refer to HP Fact Sheet #6, [Guidance on Archeological Investigations in HUD Projects](#).

☒ Yes → *Provide survey(s) and report(s) and continue to Step 3.*

Additional notes:

Subsurface archaeological survey completed and no historic properties were identified. Report attached.

Above ground survey was completed and no historic properties were present on site (direct APE). There was a property at 9718 Portage Road that was constructed in 1951 and is eligible for NRHP listing, but would not be adversely affected by the project due to the location of the site.

☐ No → *Continue to Step 3.*

**Step 3 - Assess Effects of the Project on Historic Properties**

Only properties that are listed on or eligible for the National Register of Historic Places receive further consideration under Section 106. Assess the effect(s) of the project by applying the Criteria of Adverse Effect. ([36 CFR 800.5](#)) Consider direct and indirect effects as applicable as per HUD guidance.

**Choose one of the findings below to recommend to the RE or HUD.**

☐ No Historic Properties Affected

**Document reason for finding:**

☐ No historic properties present.

☐ Historic properties present, but project will have no effect upon them.

☒ No Adverse Effect

**Document reason for finding and provide any comments below.**

Comments may include recommendations for mitigation, monitoring, a plan for unanticipated discoveries, etc.

Based on site surveys completed by Orbis Environmental and Harvey Research and Consulting who have confirmed there would be "No Adverse Effect"

☐ Adverse Effect

**Document reason for finding:**

Copy and paste applicable Criteria into text box with summary and justification.



Criteria of Adverse Effect: [36 CFR 800.5](#)]

[Click here to enter text.](#)

**Provide any comments below:**

Comments may include recommendations for avoidance, minimization, and/or mitigation.

[Click here to enter text.](#)

Reports are attached showing documentation of findings, and correspondence with Tribes.



## APPLICATION FOR SHPO SECTION 106 CONSULTATION

Submit one application for each project for which comment is requested. Consult the *Instructions for the Application for SHPO Section 106 Consultation Form* when completing this application.

Submit application materials online at [www.michigan.gov/shposection106](http://www.michigan.gov/shposection106) or mail to: Michigan State Historic Preservation Office, 300 North Washington Square, Lansing, MI 48913

### I. GENERAL INFORMATION

☒ New submittal

☐ More information relating to SHPO ER# [SHPO Project #](#)

☐ Submitted under a Programmatic Agreement (PA)

PA Name/Date: [PA name/date, if applicable](#)

a. Project Name: **Stanwood Crossings**

b. Project Location(s):

If there is more than one location for your project, additional rows may be added to the table below. Township, Range, Section/Private Claim refer to the public land survey sections. Each Township/Range group must have its own row in the table below and must include the corresponding county and municipal unit.

County	Municipality	Street Address	Township (N/S)	Range (E/W)	Section(s) or Private Claim
Kalamazoo	Portage	2010 Woodbine Ave, Portage, MI	3 S	11 W	26
Kalamazoo	Portage	9617 Portage Road, Portage, MI	3 S	11 W	26

### II. FEDERAL AGENCY INVOLVEMENT AND RESPONSE CONTACT INFORMATION

a. Federal Agency: HUD

Contact Name: Mary Weidel

Contact Address: 477 Michigan Avenue City: Detroit State: MI Zip: 48226

Email: [Mary.T.Weidel@hud.gov](mailto:Mary.T.Weidel@hud.gov)

Specify the federal agency involvement in the project: HUD is the funding agency for the project



## APPLICATION FOR SHPO SECTION 106 CONSULTATION

- b. If HUD is the Federal Agency: 24 CFR Part 50 ☐ or Part 58 ☒

**Responsible Entity (RE):** City of Portage

**Contact Name:** Anita Johnson

**Contact Address:** 7900 S. Westnedge Ave **City:** Portage **State:** MI **Zip:** 49002

**RE Email:** ajohnson@portagemi.gov **Phone:** 269-329-4510

- c. **State Agency Contact (if applicable):** N/A

**Contact Name:** Name of state agency contact

**Contact Address:** State agency contact's mailing address **City:** State contact's city **Zip:** State contact's zip code

**Email:** State contact's email **Phone:** State contact's phone #

- d. **Applicant (if different than federal agency):** City of Portage

**Contact Name:** Anita Johnson

**Contact Address:** 7900 S. Westnedge Ave **City:** Portage **State:** MI **Zip:** 49002

**Email:** ajohnson@portagemi.gov **Phone:** 269-329-4510

- e. **Consulting Firm (if applicable):** Wightman

**Contact Name:** Aaron Neitling

**Contact Address:** 1670 Lincoln Road **City:** Allegan **State:** MI **Zip:** 49010

**Email:** aneitling@gowightman.com **Phone:** 269-692-9627

### III. PROJECT INFORMATION

- a. **Project Work Description**

Describe all work to be undertaken as part of the project:

The proposed project is to develop 13.36 acres of vacant land and construct 44 single-family homes with public sanitary sewer, water main, and storm sewer. The site development will consist of the installation of a new 32' wide asphalt roadway with concrete curb and gutter and a 5' wide concrete sidewalk on each side of the road. The underground utilities will consist of a new sanitary sewer and services, water main and



## APPLICATION FOR SHPO SECTION 106 CONSULTATION

services, storm sewer and stormwater management pond. In addition, private utilities consisting of phone, cable, gas, and electric will also be installed. The roadway, sidewalk, and utilities are proposed to be located within a new 60' wide public right-of-way with a 10' private utility easement on each side for the private utilities. Ground disturbance for installation of the roadway and utilities will consist of excavations to depths of up to 20' for installation of the sanitary sewer. The water main and storm sewer will be 5-8' below ground and ground disturbance outside of the utility work will be in the depths of 4-5'. A preliminary site plan is attached that shows the general layout of the site related to the project site.

### b. Project Location and Area of Potential Effect (APE)

i. **Maps.** Please indicate all maps that will be submitted as attachments to this form.

- ☒ Street map, clearly displaying the direct and indirect APE boundaries
- ☐ Site map
- ☒ USGS topographic map Name(s) of topo map(s): Portage, MI USGS
- ☒ Aerial map
- ☒ Map of photographs
- ☒ Other: Site Plan

ii. **Site Photographs**

iii. **Describe the APE:**

The APE for direct effects includes the area of proposed ground disturbance for construction of the homes and associated utilities (approx. 13.36 acres). The APE for indirect effects includes the adjacent parcels along both sides of Woodbine Avenue, Stanley Avenue, and Woodlawn Drive north of Stanley Avenue. In addition, it would include the properties along Portage Road located between Stanley Avenue and Woodbine Avenue.

iv. **Describe the steps taken to define the boundaries of the APE:**

The APE for direct effects includes the area of proposed ground disturbance. The APE for indirect effects includes the extent of visual and noise effects from construction and permanent effects from the change of use of the area, including the additional homes and associated traffic.

## IV. IDENTIFICATION OF HISTORIC PROPERTIES

a. **Scope of Effort Applied**

i. **List sources consulted for information on historic properties in the project area** (including but not limited to SHPO office and/or other locations of inventory data).

In order to identify which properties, have structures of 50 years of age or greater, aerial maps available from the City of Portage GIS website were reviewed. The City had an aerial map from 1974 (50 yrs)



## APPLICATION FOR SHPO SECTION 106 CONSULTATION

available and there were maps available back to 1938 which are included as attachments. We also reviewed historic atlas maps, NRHP files, and internal Orbis records on projects in Portage. Note – the above-ground records are not currently available at SHPO.

- ii. Provide documentation of previously identified sites as attachments.
- iii. **Provide a map** showing the relationship between the previously identified properties and sites, your project footprint and project APE.
- iv. Have you reviewed existing site information at the SHPO: ☒ Yes ☐ No – Above ground resources are not available
- v. Have you reviewed information from non-SHPO sources: ☒ Yes ☐ No

### b. Identification Results

#### i. Above-ground Properties

A. **Are you submitting above-ground identification information?** ☒ Yes ☐ No -

B. **If yes, please indicate level:**

☐ Literature Review ☒ Reconnaissance Survey Report ☐ Intensive Survey Report

C. **Total number of properties surveyed** 64:

D. **Total number of previously identified Historic Properties in your APE** Zero

E. **Total number of newly identified properties recommended eligible for listing in the National Register of Historic Places** One

F. **Summarize, briefly, your findings for above-ground resources.**

The Area of Potential Effects (APE) for the study includes the approximately 13 acre proposed development tract and the lands adjoining the undeveloped surroundings on Stanley Avenue, Woodbine Avenue, Woodlawn Drive, and Portage Road. The APE includes a mix of industrial and commercial buildings on Portage Road, scattered residences on Stanley Avenue, a dense cluster of residences oriented to Austin Lake on Woodlawn Drive, and a subdivision on Woodbine Avenue. The survey identified 64 resources that were built in or prior to 1983, and thus potentially historic under ordinary standards of significance. One potential historic district was considered, a largely intact subdivision on Woodbine Avenue first developed in 1960 with houses constructed through the early 1980s. Only one historic architectural resource within the APE is recommended eligible for the NRHP. A factory building at 9718 Portage Road is an excellent and intact example of a factory designed in the International Style. Because of





## APPLICATION FOR SHPO SECTION 106 CONSULTATION

its setting on a busy thoroughfare, we recommend that the proposed Stanwood Crossings residential district will have no adverse effect on this building. No other resources within the APE possess sufficient architectural significance or significant historical associations with trends, events, or persons to be eligible for the NRHP.

- G. **Attach the appropriate Michigan SHPO Architectural Identification Form for each resource or site 50 years of age or older in the APE.** Refer to the *Instructions for the Application for SHPO Section 106 Consultation Form* for guidance on this.
- H. **Provide the name and qualifications of the person who made recommendations of eligibility for the above-ground identification forms.**

**Name** Bruce Harvey **Agency/Consulting Firm:** Harvey Research and Consulting

Is the individual a 36CFR Part 61 Qualified Historian or Architectural Historian ☒ Yes ☐ No

Are their credentials currently on file with the SHPO? ☒ Yes ☐ No

*If NO* attach this individual's qualifications form and resume.

### ii. Archaeology

Submit the following information using attachments, as necessary.

A. **Are you submitting archaeological information?** ☒ Yes ☐ No

B. **If yes, please indicate:** ☐ Assessment (Desktop Review) ☒ Archeological Report

C. **Width(s), length(s), and depth(s) of proposed ground disturbance(s):** The proposed project is to develop 13.36 acres of vacant land and construct 44 single-family homes with public sanitary sewer, water main, and storm sewer. The site development will consist of the installation of a new 32' wide asphalt roadway with concrete curb and gutter and a 5' wide concrete sidewalk on each side of the road. The underground utilities will consist of a new sanitary sewer and services, water main and services, storm sewer and stormwater management pond. In addition, private utilities consisting of phone, cable, gas, and electric will also be installed. The roadway, sidewalk, and utilities are proposed to be



## APPLICATION FOR SHPO SECTION 106 CONSULTATION

located within a new 60' wide public right-of-way with a 10' private utility easement on each side for the private utilities. Ground disturbance for installation of the roadway and utilities will consist of excavations to depths of up to 20' for installation of the sanitary sewer. The water main and storm sewer will be 5-8' below ground and ground disturbance outside of the utility work will be in the depths of 4-5'. Depth of disturbance across the area will be variable.

- D. **Is a portion of the APE underwater?** ☐ Yes ☒ No

**If the assessment did not include the underwater portions of the APE, please briefly justify:**

*Justification for not assessing the potential for submerged historic resources:*

- E. **Potential to adversely affect significant archaeological resources:**

☐ Low ☒ Moderate ☐ High

**Is fieldwork recommended?** ☒ Yes ☐ No

**Briefly justify the recommendation:**

MSHPO records list zero known archaeological sites within one mile of the project and a very small portion of the project area has been surveyed. We have little known information about past human activity in this area. Given that the project area is close to multiple bodies of water, there is increased potential for archaeological sites in this area. Additionally, there is little reason to believe that the project area has been disturbed by previous development.

- F. **Have you attached an Archaeological Sensitivity Map?** ☒ Yes ☐ No

- G. **Summary of previously reported archaeological sites and surveys:**

See the archaeological report.

- H. **If archaeological fieldwork has been conducted, please attach a copy of the report copy and provide full report reference here:**

Duddleson J Ryan and Elizabeth Straub

2024 Phase I Archaeological Survey for Stanwood Crossings in the City of Portage,  
Kalamazoo County, Michigan.

- I. **Provide the name and qualifications of the person who provided the information for the Archaeology section:**

**Name:** J Ryan Duddleson **Agency/Firm:** Orbis Environmental Consulting

Is the person a 36CFR Part 61 Qualified Archaeologist? ☒ Yes ☐ No

Are their credentials currently on file with the SHPO? ☒ Yes ☐ No

*If NO, attach this individual's qualifications form and resume.*



## APPLICATION FOR SHPO SECTION 106 CONSULTATION

*Archaeological site locations are legally protected.*

*This application may not be made public without first redacting sensitive archaeological information.*

### V. IDENTIFICATION OF CONSULTING PARTIES

- a. **Provide a list of all consulting parties**, including Native American tribes, local governments, applicants for federal assistance/permits/licenses, parties with a demonstrated interest in the undertaking, and public comment:

Letters were sent to contacts on the attached list of Native American Tribes on September 23, 2024. The City has received two responses and will update the SHPO as appropriate when other responses are received.

- b. **Provide a summary of consultation with consultation parties:**

City received two responses to date.

Forest County Potawatomi Community, Wisconsin; Luke Heider (THPO): They have issued a finding of “No Historic Properties affected of significance to the FCPC”. They did want to remain as a consulting party for the project.

Pokagon Band of Potawatomi, Michigan and Indiana; Matthew J.N. Bussler (THPO): They have issued a determination of “No Adverse Effect”. They did have known archaeological sites, historic sites or features that are considered sensitive located within a mile of the project site.

- c. **Provide summaries of public comment and the method by which that comment was sought:**

In June 2023 the Portage City Council established a Task Force dedicated to the collection of questions and concerns of residents directly affected by the Stanwood Crossings Housing Development. The City used this Task Force to seek public comments and the City created a webpage for the Lake Center Housing Task Force which provided a summary of questions/concerns the public had related to the proposed developments and provided a response from the City. The City used the results of the Task Force into the guidance for the determination of a 44 unit development.

The City held a public neighborhood meeting in June 2024 to present the project to the adjacent neighbors. The meeting was held at Lakeview Park and was a presentation with questions and answers. During the meeting the primary concerns of the residents were the type of housing, traffic, and general project intent.

This project is also going through the site plan review process as a Planned Development and re-zoning, which requires approval by the Planning Commission and City Council. During the approval process, the site plan and re-zoning will have/or have had public hearings held as part of the plan review/approval process. The City maintains minutes of those meetings/public hearings which are available on the City website.

The project is currently going through the site planning review process.



## APPLICATION FOR SHPO SECTION 106 CONSULTATION

During a review of the on-line public comments, attendance of the neighborhood meeting and on-going public hearings there were only a couple questions raised related to desire to keep the site vacant. No comments were raised with regards to known historical or archaeological findings on the site.

### VI. DETERMINATION OF EFFECT

**Guidance for applying the Criteria of Adverse Effect can be found in *the Instructions for the Application for SHPO Section 106 Consultation Form*.**

**a. Basis for determination of effect:**

Orbis performed a phase I archaeological survey of the APE of Direct Effects. This survey identified zero archaeological resources

A reconnaissance level architectural survey of the APE identified 64 resources built in or prior to 1983. The survey identified one architectural resource within the APE is recommended eligible for the NRHP. A factory building at 9718 Portage Road is an excellent and intact example of a factory designed in the International Style. Because of its setting on a busy thoroughfare, we recommend that the proposed Stanwood Crossings residential district will have no adverse effect on this building.

**b. Determination of effect**

☐ **No historic properties will be affected**

☐ **Historic properties will be affected** and the project will (check one):

☒ have **No Adverse Effect** on historic properties within the APE.

☐ have an **Adverse Effect** on one or more historic properties in the APE and the federal agency, or federally authorized representative, will consult with the SHPO and other parties to resolve the adverse effect under 800.6.

☐ **More Information Needed:** We are initiating early consultation. A determination of effect will be submitted to the SHPO at a later date, pending results of survey.

Federally Authorized Signature: \_\_\_\_\_ Date: February, 12, 2024\_\_

Type or Print Name: Adam Herringa

Title: Chief Operating Officer



## APPLICATION FOR SHPO SECTION 106 CONSULTATION

### ATTACHMENT CHECKLIST

**Identify any materials submitted as attachments to the form:**

☐ Additional federal, state, local government, applicant, consultant contacts

☒ Maps of project location

Number of maps attached: 10

☒ Site Photographs

☒ Map of photographs

☐ Plans and specifications

☐ Other information pertinent to the work description: [Identify the type of materials attached](#)

☐ Updated documentation of previously identified historic properties

☒ New Architectural Properties Identification Forms

☒ Map showing the relationship between identified historic properties, your project footprint, and project APE

☐ Above-ground qualified person's qualification form and resume

☒ Above-ground survey report

☒ Archaeological sensitivity map

☒ Archaeology survey report

☐ Archaeologist and Historian qualifications and resume- if not on file already.

☐ Other:



# Phase I Archaeological Survey



## Stanwood Crossings In the City of Portage, Kalamazoo County, Michigan

December 17, 2024

Prepared for:



Project #2407009.01



Orbis Environmental Consulting  
P.O. Box 10235 • South Bend, Indiana 46680  
Phone: (574) 635-1338

# ARCHAEOLOGICAL SURVEY SHORT REPORT FORM



SHPO  
USE  
ONLY

ER NUMBER: \_\_\_\_\_

REVIEWER: \_\_\_\_\_ DATE: \_\_\_\_\_

SURVEY No: \_\_\_\_\_ BIB No: \_\_\_\_\_

*\*Confidential - this document is exempt from public dissemination under Michigan Freedom of Information Act (MCL 15.231)\**

**Read Instructions (available at [www.michigan.gov/archaeology](http://www.michigan.gov/archaeology)) prior to completing this form.**

## MANAGEMENT SUMMARY

SURVEY TITLE: Phase I Archaeological Survey for Stanwood Crossings in the City of Portage, Kalamazoo County, Michigan

AUTHOR: J Ryan Duddleson and Elizabeth Straub

ACRES SURVEYED: 13.36

ABSTRACT: Orbis personnel surveyed approximately 13.4 acres of a wooded parcel bounded by Stanley Avenue, Portage Avenue, and Woodbine Avenue in Portage, Michigan. The property was selected for the construction of a new housing development. Surveyors did not locate any archaeological sites or materials. Historic structures are present within the APE for indirect effects, but these will be evaluated separately.

## LOCATIONAL INFORMATION & SURVEY ENVIRONMENT

COUNTY: Kalamazoo

USGS 7.5 MIN. TOPOGRAPHIC QUADRANGLE: Portage, MI

TOWNSHIP NAME	TOWNSHIP	RANGE	SECTION/PRIVATE CLAIM
City of Portage	03S	11W	26

TOPOGRAPHY/LANDFORM: Upland flat

RIVER DRAINAGE: Gourneck Creek – St. Joseph River (EGLE 2024)

NEAREST WATER SOURCE: Austin Lake (500m) DIRECTION TO WATER SOURCE: ENE

SOILS ASSOCIATION & SLOPE: Oshtemo sandy loam, 0 to 6 percent slopes OsB; Oshtemo sandy loam, 6 to 12 percent slopes OsC (Web Soil Survey 2024)

SOIL DRAINAGE CHARACTERISTICS: Well drained throughout.

GROUND COVER & VISIBILITY: Forested and scrub/shrub. 0%.

CURRENT LAND USE (Include description of any disturbances – be sure to discuss the type of disturbance, origin, & how determined. Note: locations of any disturbances must be included on project map): Undeveloped woodlot and utility right-of-way, surrounded by commercial and residential development.

## ARCHAEOLOGICAL & HISTORICAL CONTEXT

HISTORIC MAPS & OTHER SOURCES EXAMINED:

Orbis consulted three historic atlas maps of the project area (F.W. Beers 1873, Sauer 1890, W.W. Hixson 1919). The earliest atlas, dating to 1873, indicates that the area was once rural. The project area is located

on land that was part of a 106-acre plot owned by D. McCamley. There was at least one standing structure on the property, but it was located on the west side of what is now Portage Avenue (Figure 3) (F.W. Beers 1873). Little changed between 1873 and 1919, though the property appears to have been inherited by A. MacCamley by 1890 (Figure 4) (Sauer 1890) and K. McCamley by 1919 (Figure 5) (W.W. Hixson 1919).

Orbis also consulted Hinsdale's (1931) *Archaeological Atlas of Michigan*. This atlas does not show any archaeological resources in the study area (Figure 6).

SHPO SITE FILE EXAMINED: ☒ YES ☐ NO, IF NO, PROVIDE EXPLANATION:

PRE-CONTACT VEGETATION: Black Oak Barren (Comer and Albert 1997).

PREVIOUS SURVEYS:

MSHPO records indicate that there have been three previous CRM reports in the study area. The earliest of these took place in 1975, along Centre Street and Portage Avenue. This 210-acre survey area included a narrow corridor at the western edge of the current project area. Surveyors did not encounter any archaeological sites or materials (Baldwin 1975).

A second survey took place in 1977, prior to the construction of new sewer lines in the city of Portage. The survey included 50 acres and discovered a single projectile point, well outside of the current study area. No other archaeological sites or materials were documented (Kingsley 1977).

The final survey, by Commonwealth Associates, was conducted in 1978. The survey included 10 acres of pedestrian survey and did not identify any new archaeological sites (Weir and Demeter 1978).

PREVIOUSLY REPORTED SITES:

MSHPO records list no previously documented archaeological sites in the study area (Figure 7).

PREVIOUSLY REPORTED ABOVE-GROUND ARCHITECTURAL RESOURCES:

MSHPO records of known above-ground resources are not currently available because the office is developing an online database. Orbis consulted the National Register of Historic Places (NRHP) to determine whether significant resources have been documented within the study area and found no listed historic properties in the study area. We also found that there are no documented cemeteries within the project area.

SUMMARY OF CONTEXT & EXPECTATIONS FOR CULTURAL RESOURCE SENSITIVITY:

The cultural context also shows that we have little information about past human activity in this area. Given that the project area is close to multiple bodies of water, is undeveloped, and largely unsurveyed, there is increased potential for archaeological sites in this area. More information was necessary to recommend a determination of effects.

For these reasons, Orbis performed a phase I archaeological survey of the APE of Direct Effects.

Recent photographs show that the area is abutted to the north and south by neighborhoods consisting of modern, single-family homes, while commercial structures face the area on the west side of Portage. These areas would be within an Area of Potential Effects (APE) (Figure 8). Mature trees are visible in the project area. The houses in these neighborhoods were built primarily from the late 1960s to the mid-1970s. Because the houses in the neighborhoods to the north and south were built approximately fifty or more years ago, they are now subject to Section 106 review by the SHPO and would need to be surveyed to determine their NRHP eligibility status. The proposed project involves housing development consistent with the current

use of the surrounding area, but potential effects would depend primarily on the NRHP status of the residences.

Orbis coordinated with Harvey Research and Consulting, who will perform a reconnaissance level architectural survey of the APE of Indirect Effects and will submit the results under a separate report.

## SURVEY METHODS

**SURVEY METHODS** (If multiple methods used, describe and include location of each method on attached project map):

Orbis performed a shovel probe survey throughout the project area (Figure 9). Round shovel test probes 40 cm in diameter were excavated at 15 m intervals across the project area. Probes were excavated to at least 10 cm into culturally sterile soil horizons, unless disturbed soils were encountered. All soil was passed through ¼" mesh to determine whether artifacts were present. All probes were backfilled after excavation.

**SURVEY LIMITATIONS:** Probes were occasionally offset due to trees/root impasse.

**TYPICAL SOIL PROFILE** (if applicable): 10-30cm of very dark grayish brown (10YR3/2) or brown (10YR3/3) sandy loam above dark yellowish brown (10YR5/6) to yellowish brown (10YR4/6) sandy loam with occasional gravels

**DISTURBED SOIL HORIZONS ENCOUNTERED IN APE:** ☒ YES ☐ NO

**IF DISTURBANCE, DESCRIBE** (Photograph & show location on project map): Mixed and mottled soils occurred along the southern and western margins of the project area near the commercial development and along the overhead transmission line that crosses the southern part of the project area (Figure 9). Also see the photolog and photolocation map (Figure 10).

**SITE(S) ENCOUNTERED:** ☐ YES ☒ NO

**IF YES, LIST SITE NUMBER(S) OBTAINED FROM SHPO\*:**

\*Note: site number(s) must be requested from SHPO prior to submitting Short Report. Completed Site Form(s) must be submitted with the Short Report.

**DESCRIBE ALL SITE(S)** (Include location, density of artifacts & features and how site boundaries were delineated in the field):

**CULTURAL MATERIALS:**

**COLLECTION TECHNIQUES:**

**CURATION LOCATION:**

**FIELD RECORDS REPOSITORY:**

## SURVEY RESULTS & RECOMMENDATIONS (Check one)

- ☒ PHASE I ARCHAEOLOGICAL RECONNAISSANCE HAS NOT LOCATED ARCHAEOLOGICAL SITES; NO HISTORIC PROPERTIES RECOMMENDATION.
- ☐ PHASE I ARCHAEOLOGICAL RECONNAISSANCE HAS LOCATED ARCHAEOLOGICAL SITES; SITE(S) DOES (DO) NOT MEET CRITERIA FOR NATIONAL REGISTER ELIGIBILITY; NO HISTORIC PROPERTIES RECOMMENDATION.

## PROJECT INFORMATION

**FUNDING/PERMITTING AGENCY:** HUD Part 58

**AGENCY CONTACT PERSON:** Responsible Entity – City of Portage; Anita Johnson

**CONTACT PHONE:** 269-32-4510

**CONTACT ADDRESS:** 7900 S. Westnedge Ave., Portage, MI 49002

**CONTACT EMAIL:** ajohnson@portagemi.gov

**PROPERTY OWNERSHIP NAMES(s) & ADDRESS(s):** City of Portage

## CONTRACTOR INFORMATION

ARCHAEOLOGICAL CONSULTANT/COMPANY: Orbis Environmental Consulting

SURVEYOR(S): J Ryan Duddleson, Elizabeth Straub, Amy Swenson, Ian Plunkett

SURVEY DATE(S): November 19-20, 2024

SUBCONSULTANT SERVICES (name & Address): Harvey Research and Consulting 4948 Limehill Drive  
Syracuse, NY 13215 – above ground reconnaissance for the same undertaking. Qualified Professional  
credentials on file with SHPO.

FORM PREPARED BY: J Ryan Duddleson

DATE: December 16, 2024

SUBMITTED BY: J Ryan Duddleson

## REFERENCES (Use American Antiquities format)

Baldwin, Elizabeth

1975 Report of an Archaeological Survey of Portage Road and Centre Street, Portage, Michigan. United States  
Department of Agriculture, Ottawa National Forest.

F.W. Beers

1873 Atlas of Kalamazoo Co. Michigan. F.W. Beers & Co, New York.

Hinsdale, Wilbert B.

1931 *Archaeological Atlas of Michigan*. Michigan Handbook Series, No. 4. University of Michigan Press, Ann  
Arbor.

Kingsley, Robert G.

1977 *Archaeological Survey of Proposed Sewer Line Rights-of-Way in the City of Portage, Michigan*. Report  
No. 21. United States Department of Agriculture, Ottawa National Forest.

Michigan Dept. of Environment, Great Lakes, and Energy (EGLE)

2024 Watershed Boundary – 8 Digit. EGLE. <https://gis-michigan.opendata.arcgis.com/>. Accessed Nov 2024.

Sauer, Wm. C.

1890 *Illustrated Atlas of Kalamazoo County, Michigan*. Wm. C. Sauer, Detroit, Michigan.

W.W. Hixson & Co.

1919 *Plat Book and Rural Directory of Kalamazoo, County, Mich.* W.W. Hixson & Co., Rockford, Illinois.

Weir, Donald J. and C. Stephan Demeter

1978 *Archaeological Investigation: Austin Lake marsh Fill Area*. Commonwealth Associates, Inc.

Web Soil Survey

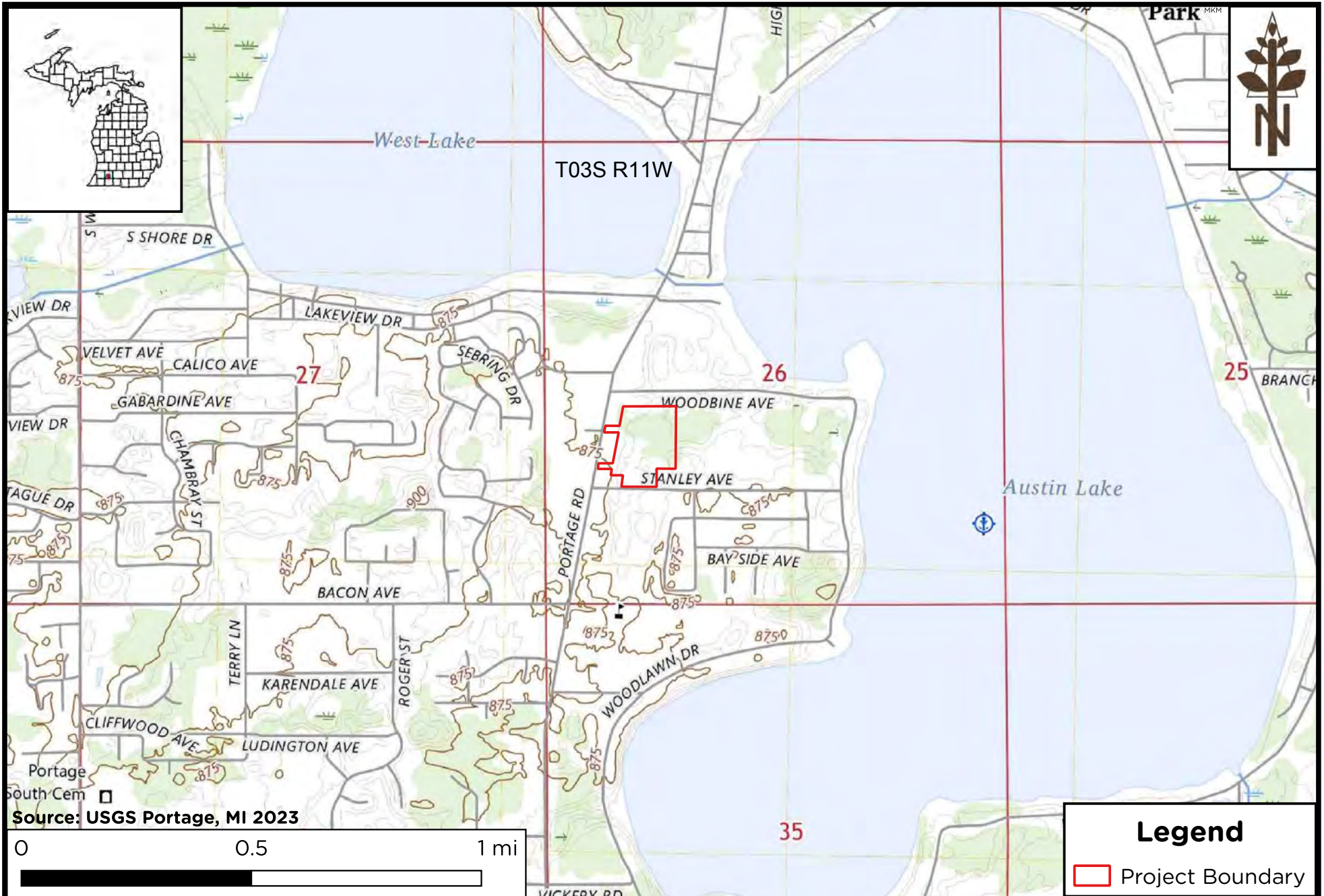
2024 USDA Natural Resources Conservation Service. Web Soil Survey. <https://websoilsurvey.nrcs.usda.gov/>.  
Accessed Nov 2024.



### **REQUIRED ATTACHMENTS CHECKLIST**

- ☒ QUAD MAP OF SURVEY AREA (& SITE LOCATION, if applicable)
- ☒ SHAPE FILES OF SURVEY AREA (& SITE LOCATION, if applicable)\*
- ☒ PHOTOS OF FIELD CONDITIONS & VISIBILITY
- ☒ PROJECT AREA MAP(S) (showing locations of APE, survey limits, and location of site boundaries, when appropriate)
- ☒ HISTORIC PLATS/MAPS & OTHER SOURCES (include all maps, aerial photographs, etc. referenced in Context section)
- ☐ SITE FORM(S) (if applicable)
- ☐ SITE SKETCH MAP(S) (if applicable)
- ☐ SITE & ARTIFACT PHOTOS (if applicable)

Form revised 8/16/23



Stanwood Crossings  
Wightman  
City of Portage, Kalamazoo County, Michigan

Figure 1  
Topographic Map  
Project #2407009

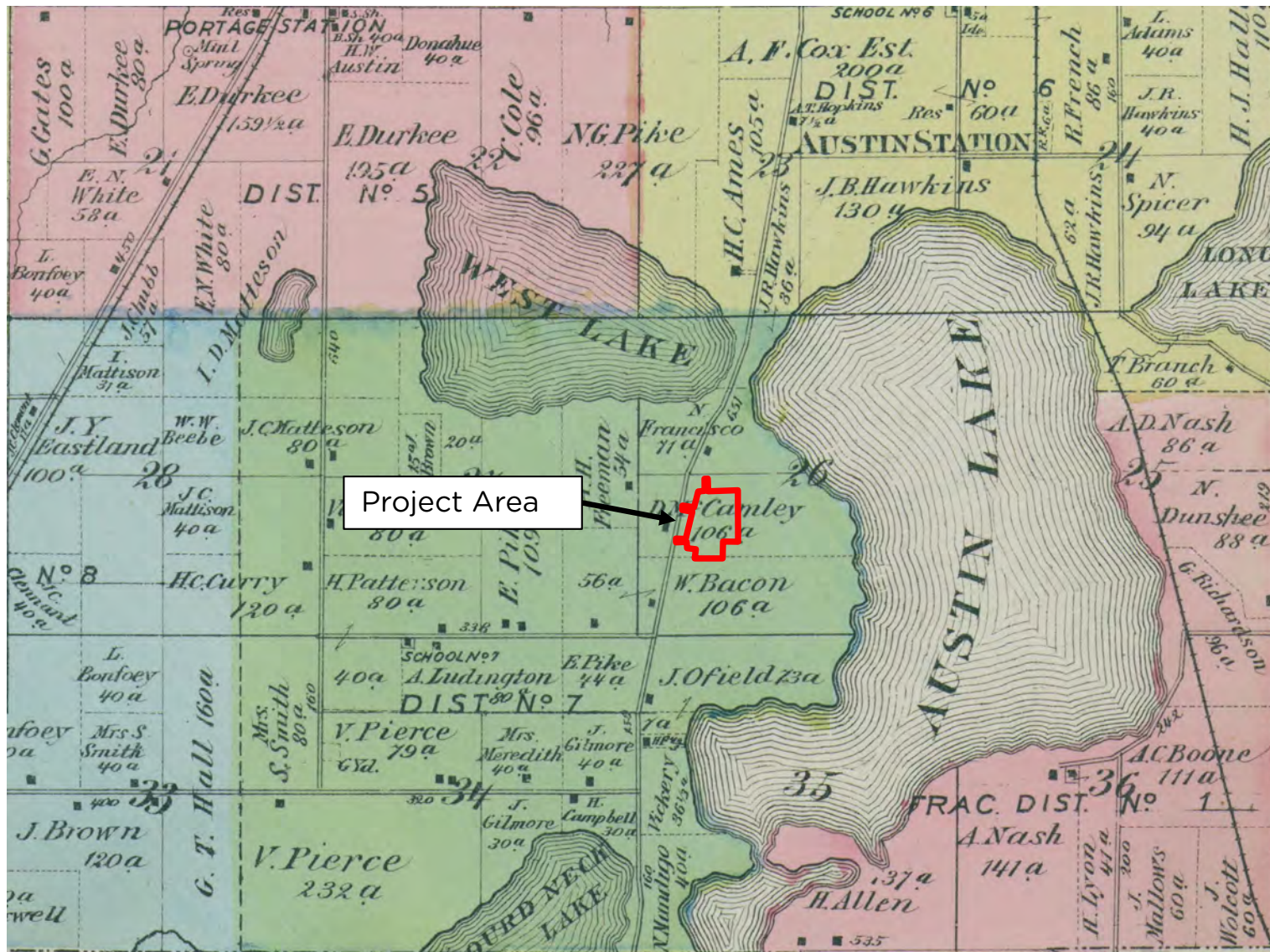




Stanwood Crossings  
Wightman  
City of Portage, Kalamazoo County, Michigan

Figure #2  
Project Aerial  
#2407009

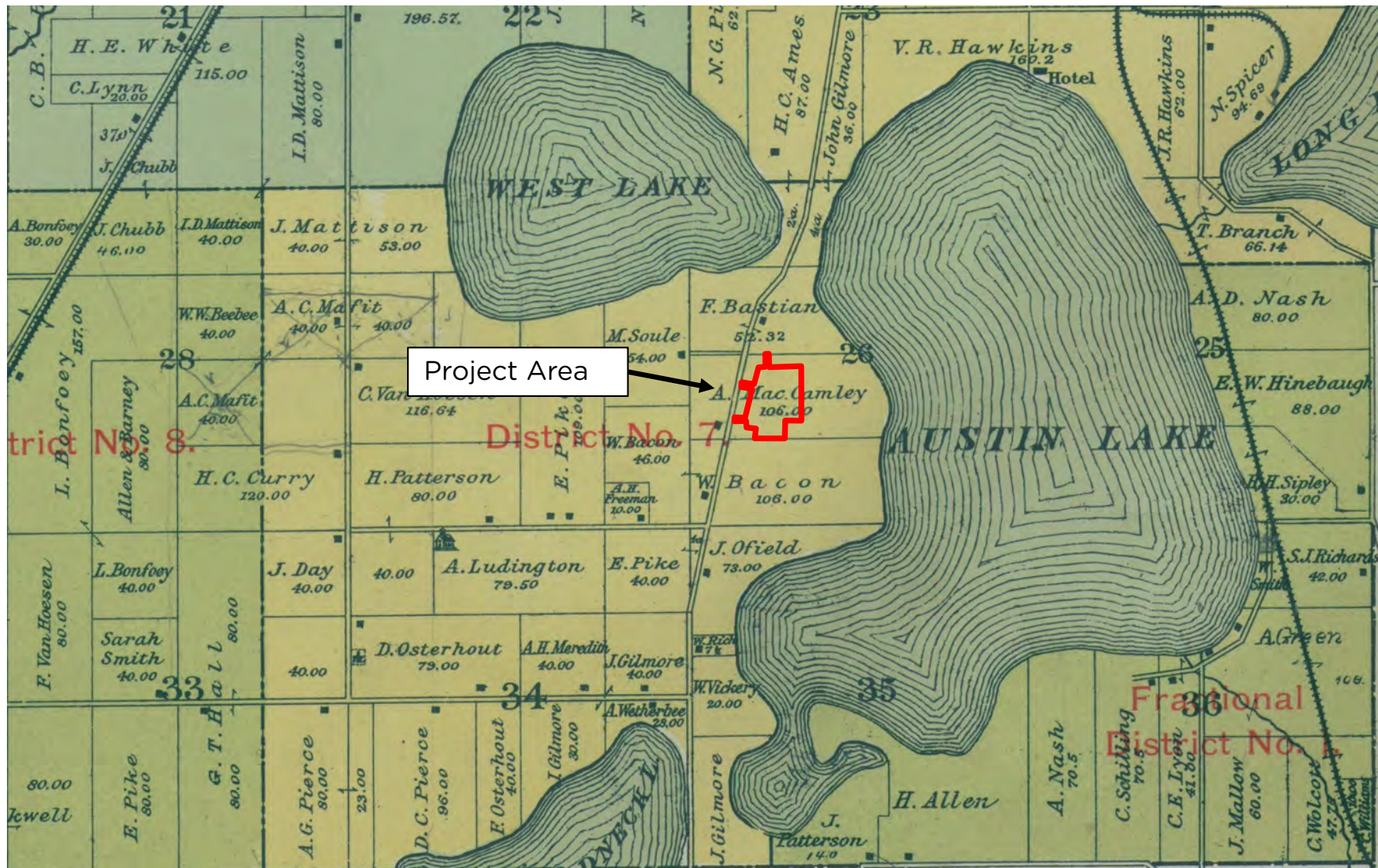




Stanwood Crossings  
Wightman  
City of Portage, Kalamazoo County, Michigan

Figure #3  
Beers 1873  
#2407009

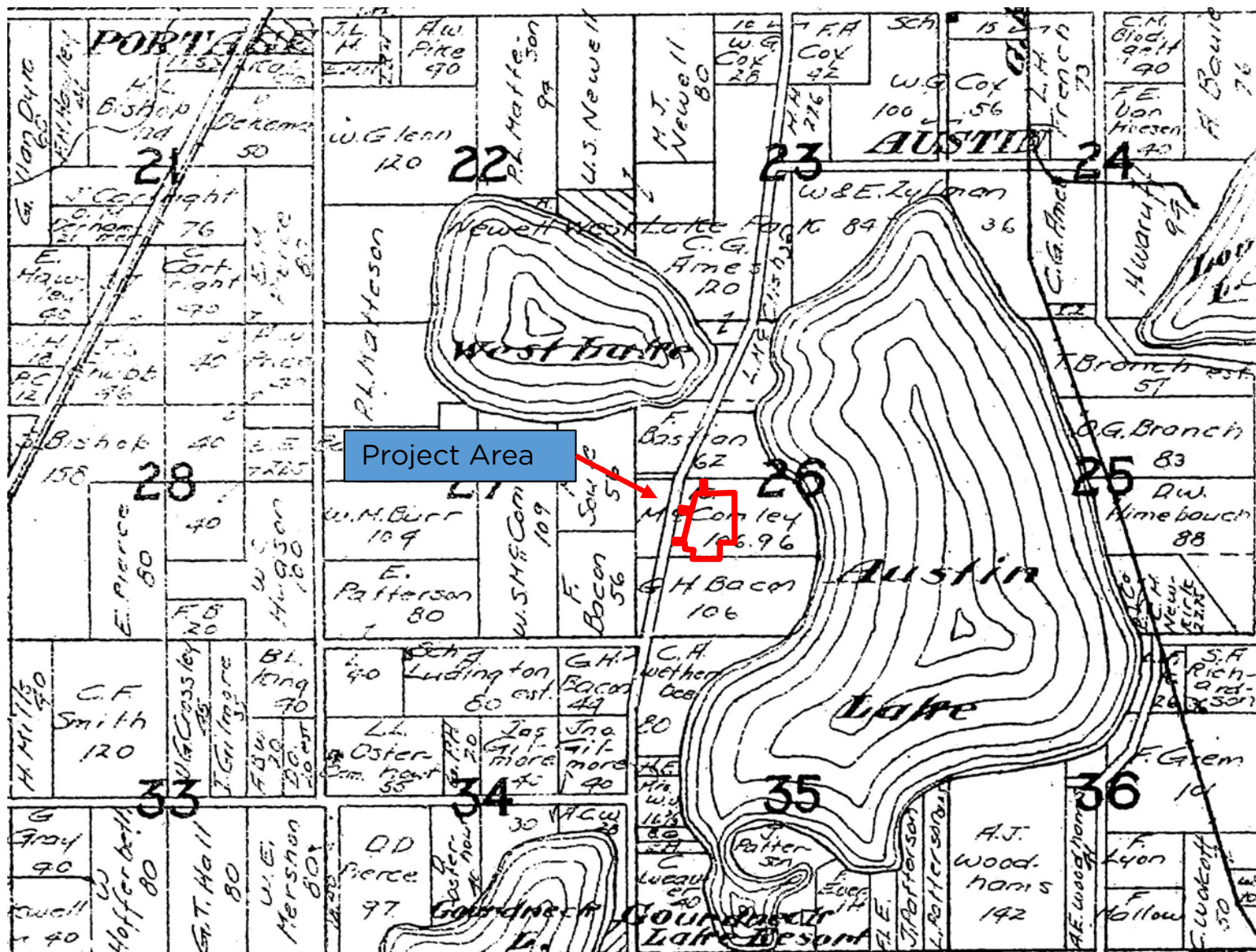




Stanwood Crossings  
Wightman  
City of Portage, Kalamazoo County, Michigan

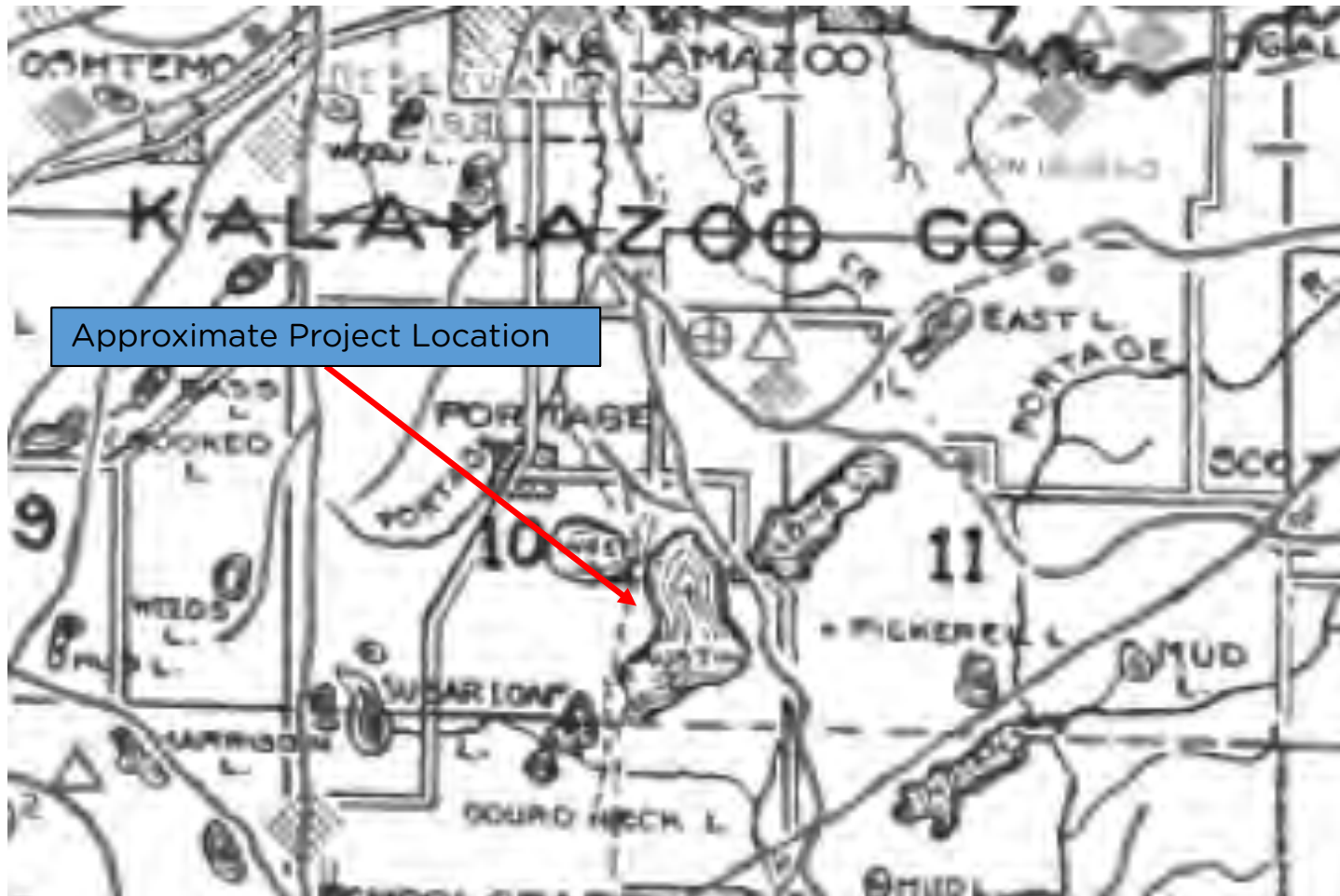
Figure #4  
Sauer 1890  
#2407009





Stanwood Crossings  
Wightman  
City of Portage, Kalamazoo County, Michigan

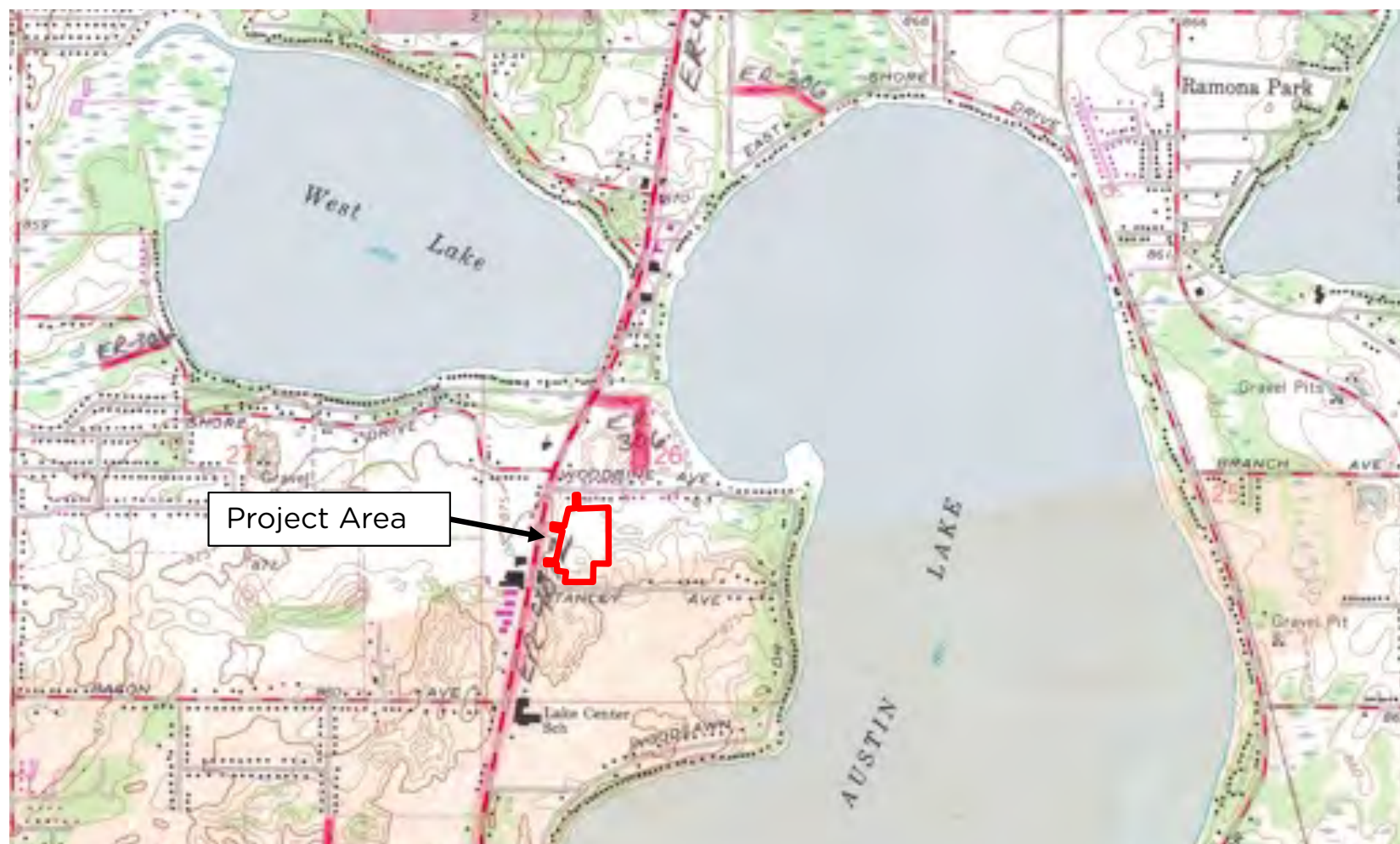
Figure #5  
W.W. Hixson 1919  
#2407009



Stanwood Crossings  
Wightman  
City of Portage, Kalamazoo County, Michigan

Figure #6  
Hinsdale 1931  
#2407009





The cultural context shows that we have little information about past human activity in the project area. Given that the project area is near multiple bodies of water, is undeveloped, and largely unsurveyed, there is high sensitivity for archaeological sites in this area.



Stanwood Crossings  
Wightman  
City of Portage, Kalamazoo County, Michigan

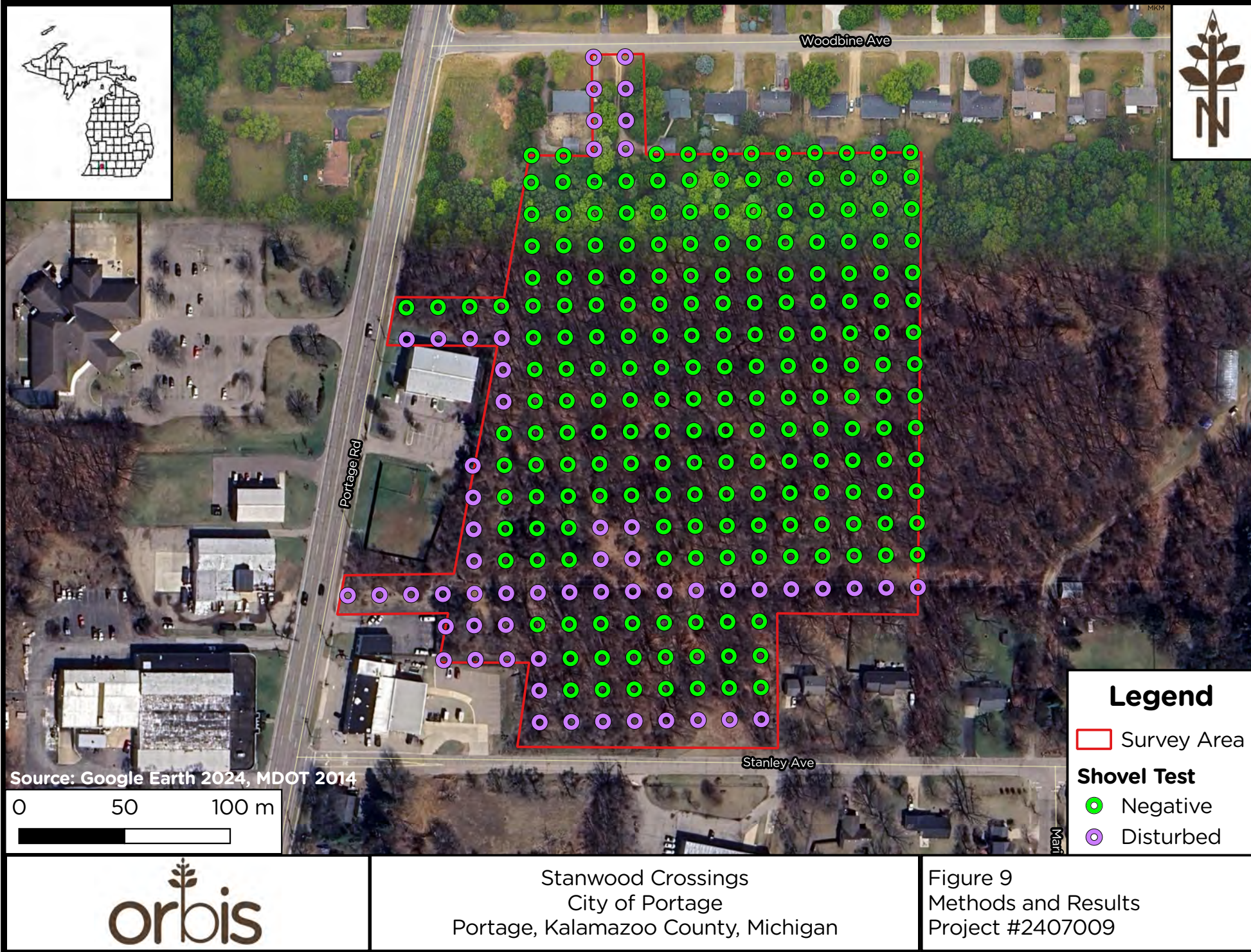
Figure #7  
Archaeological Sensitivity  
Map  
#2407009



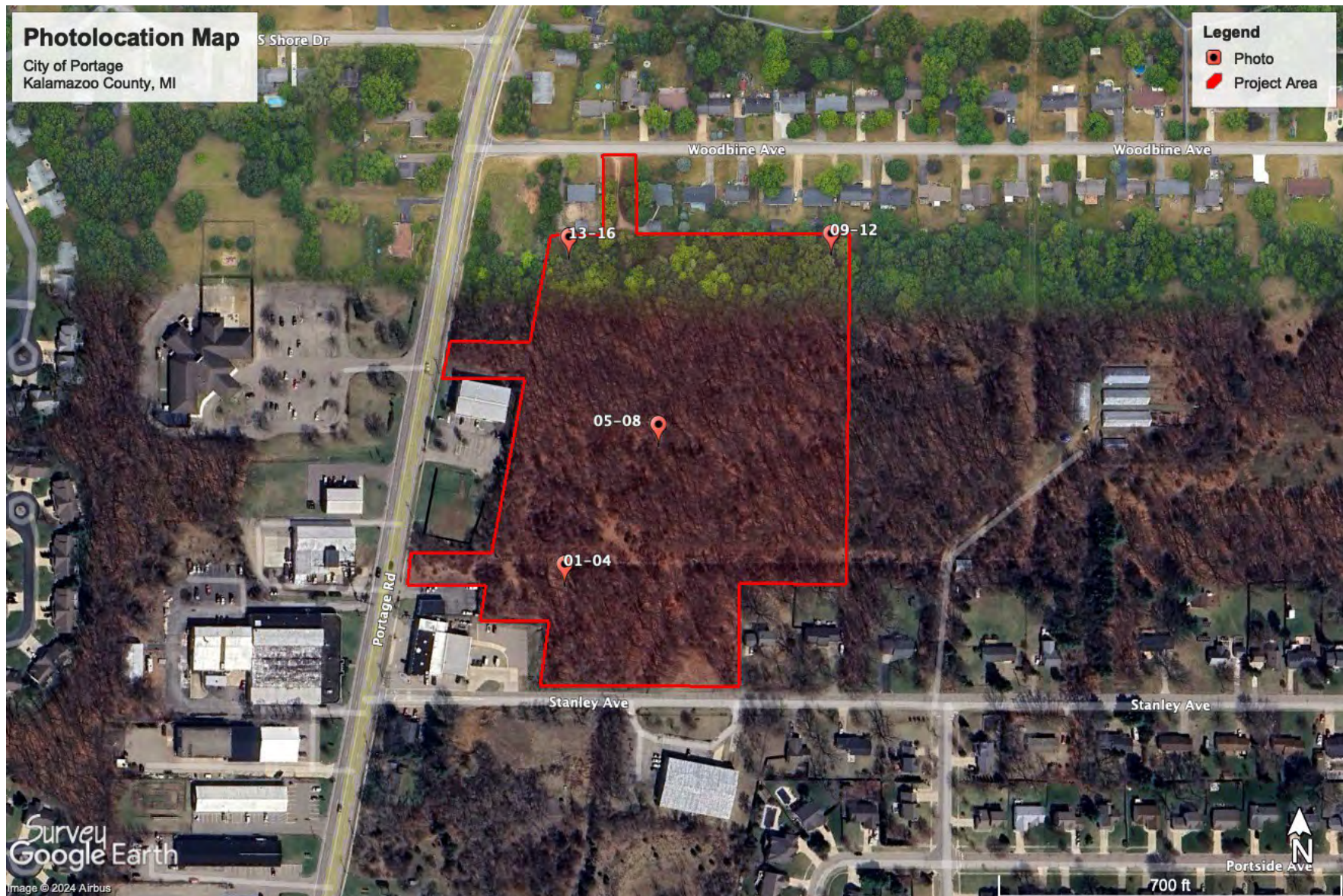
Stanwood Crossings  
Wightman  
City of Portage, Kalamazoo County, Michigan

Figure #8  
Area of Potential Effects  
#2407009









Stanwood Crossings  
Wightman  
City of Portage, Kalamazoo County, Michigan

Figure #10  
Photolocation Map  
#2407009





1 – SW corner of project area, face N.



2 – SW corner of project area, face N



3 – SW corner of project area, face N



4 – SW corner of project area, face N



Stanwood Crossings  
Wightman  
City of Portage, Kalamazoo County, Michigan

Photographs  
November 2024  
#2407009.01





5 - Center of Project Area, face N



6 - Center of Project Area, face E.



7 - Center of Project Area, face S.



8 - Center of Project Area, face W.



Stanwood Crossings  
Wightman  
City of Portage, Kalamazoo County, Michigan

Photographs  
November 2024  
#2407009.01





9 - NE corner of Project Area, face N.



10 - NE corner of Project Area, face E.



11 - NE corner of Project Area, face S.



12 - NE corner of Project Area, face W.



Stanwood Crossings  
Wightman  
City of Portage, Kalamazoo County, Michigan

Photographs  
November 2024  
#2407009.01





13 - NW corner of Project Area, face N.



14 - NW corner of Project Area, face E..



15 - NW corner of Project Area, face S.



16 - NW corner of Project Area, face W.



Stanwood Crossings  
Wightman  
City of Portage, Kalamazoo County, Michigan

Photographs  
November 2024  
#2407009.01



# **STANWOOD CROSSINGS**

*PORTAGE, KALAMAZOO COUNTY, MICHIGAN*

## **HISTORIC RESOURCES SURVEY**

*FEBRUARY 2025*

*Prepared for:*

City of Portage, MI

and

Orbis Environmental Consulting, LLC  
South Bend, IN

*Prepared by:*

Bruce G. Harvey  
Harvey Research and Consulting  
Syracuse, NY

## **Management Summary**

In December 2024, under subcontract to Orbis Environmental, LLC on behalf of the City of Portage, Bruce G. Harvey conducted a historic resources survey of areas that may be affected by the proposed Stanwood Crossings residential housing development in the City of Portage. This survey includes lands on the east side of Portage Road that included Woodbine and Stanley Avenues, and Woodlawn Drive, in the southeastern portion of the City of Portage. The proposed project is to develop 13.36 acres of vacant land and construct 44 single-family homes with public sanitary sewer, water main, and storm sewer. The project will receive funding from the U.S. Department of Housing and Urban Development (HUD), a federal agency. The purpose of this survey is to identify historic properties as a portion of HUD's compliance with Section 106 of the National Historic Preservation Act of 1966 (as amended) and as implemented in 36 CFR 800. The survey was conducted concurrently with an archaeological survey and in coordination with the Michigan State Historic Preservation Office (SHPO).

This report presents a historic overview of the City of Portage, particularly the area of the proposed development located near West Lake and Austin Lake. The proposed development is located in a primarily undeveloped area on the east side of Portage Avenue bordered by Woodbine Avenue to the north, Stanley Avenue to the south, and Woodlawn Drive to the east. Access to the proposed develop will be from two points on the east side of Portage Road. The Area of Potential Effects (APE) for the study includes the approximately 13 acre proposed development tract and the lands adjoining the undeveloped surroundings on Stanley Avenue, Woodbine Avenue, Woodlawn Drive, and Portage Road. The APE includes a mix of industrial and commercial buildings on Portage Road, scattered residences on Stanley Avenue, a dense cluster of residences oriented to Austin Lake on Woodlawn Drive, and a subdivision on Woodbine Avenue. The survey identified 64 resources that were built in or prior to 1983, and thus potentially historic under ordinary standards of significance. One potential historic district was considered, a largely intact subdivision on Woodbine Avenue first developed in 1960 with houses constructed through the early 1980s. Only one historic architectural resource

within the APE is recommended eligible for the NRHP. A factory building at 9718 Portage Road is an excellent and intact example of a factory designed in the International Style. Because of its setting on a busy thoroughfare, we recommend that the proposed Stanwood Crossings residential district will have no adverse effect on this building. No other resources within the APE possess sufficient architectural significance or significant historical associations with trends, events, or persons to be eligible for the NRHP.

**STANWOOD CROSSINGS**  
**PORTAGE, KALAMAZOO COUNTY, MICHIGAN**  
**HISTORIC ARCHITECTURAL SURVEY**

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**STANWOOD CROSSINGS  
PORTAGE, MICHIGAN  
HISTORIC ARCHITECTURAL SURVEY**

***1.0 OVERVIEW***

***1.1 Introduction: Proposed Action***

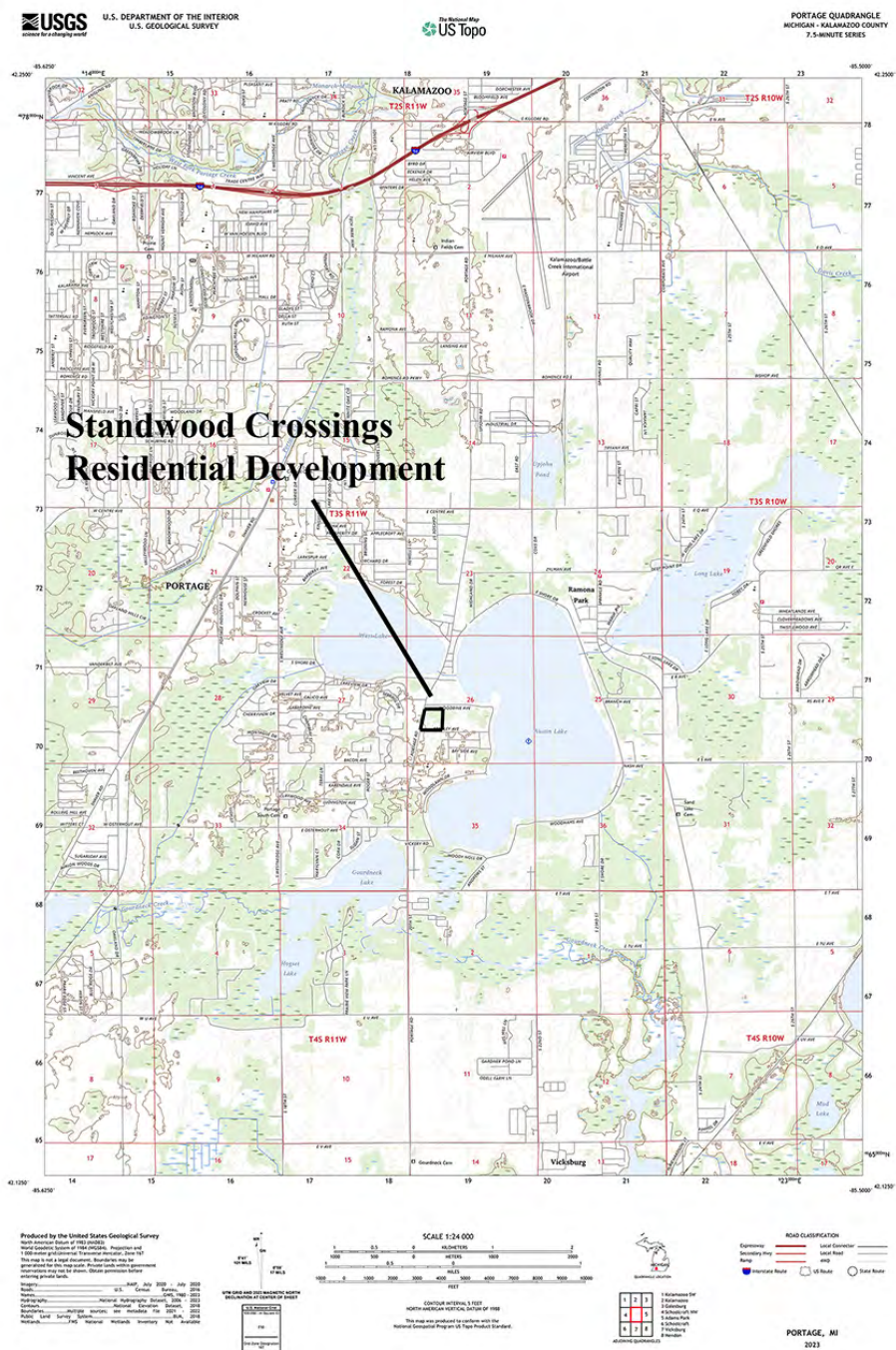
Under subcontract to Orbis Environmental, LLC (Orbis) on behalf of the City of Portage, Bruce G. Harvey carried out a historic resources survey of the proposed Stanwood Crossings residential development in December 2024. The purpose of this survey was to identify any above-ground historic resources within the Area of Potential Effects (APE), and to evaluate these resources for their eligibility for inclusion in the National Register of Historic Places (NRHP). The project will receive funding from the U.S. Department of Housing and Urban Development (HUD), a federal agency. These investigations were designed to provide partial compliance with Section 106 of the National Historic Preservation Act of 1966 (as amended).

The proposed Stanwood Crossings development is located along Portage Avenue, between Woodbine and Stanley Avenues on the southeast side of Portage, Michigan. The proposed project is to develop 13.36 acres of vacant land and construct 44 single-family homes with public sanitary sewer, water main, and storm sewer. The site development will consist of the installation of a new 32' wide asphalt roadway with concrete curb and gutter and a 5' wide concrete sidewalk on each side of the road. The underground utilities will consist of a new sanitary sewer and services, water main and services, storm sewer and stormwater management pond. In addition, private utilities consisting of phone, cable, gas, and electric will also be installed. The roadway, sidewalk, and utilities are proposed to be located within a new 60' wide public right-of-way with a 10' private utility easement on each side for the private utilities.

The proposed development is to be located on land that is primarily undeveloped, but surrounded on four sides by developed streets. The survey of historic resources associated with the proposed Stanwood Crossings residential development included all lands bounded by Portage Avenue, Stanley Avenue, Woodlawn Drive, and Woodbine Avenue. This included 64 buildings built within the past 43 years. These resources will be discussed in greater detail in Section 3.2.

## 1.2 Project Location

The proposed Stanwood Crossings residential development is bordered on the west by Portage Avenue, which contains a mix of residential, commercial, and light industrial buildings; on the south by Stanley Avenue, where there are residential buildings built between the late 1920s and 1990s; and on the north by Woodbine Avenue, which was created as part of the McCamley Manor subdivision in 1960, with houses ranging in date of construction from 1961 to the 2000s. The land to the east of the proposed development is undeveloped by bounded by Woodbine Avenue to the north and Stanley Avenue to the south, and Woodlawn Avenue to the east, which fronts on Austin Lake and contains houses built from the 1920s to the 2000s. Figure 1 shows the location of the proposed Stanwood Crossings residential development.



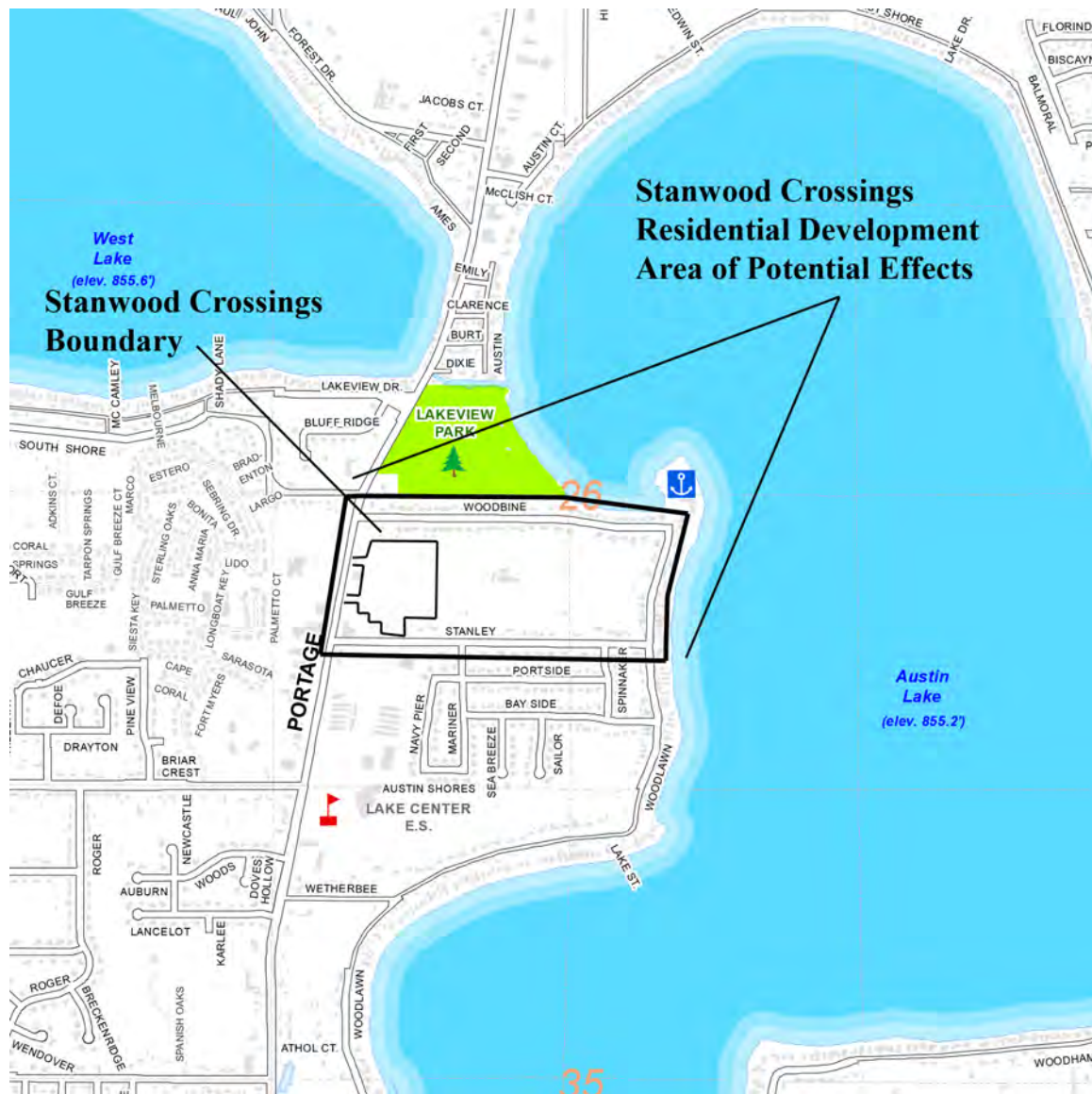
### 1.3 Area of Potential Effects

The Area of Potential Effects (APE) means the geographic area or areas within which an action may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE for the proposed Stanwood Crossings residential development is the block that surrounds the development area, bounded by Portage Road on the west, Woodbine Avenue on the north, Woodlawn Drive on the east, and Stanley Avenue on the south, including both sides of all four streets. Although there is no potential for direct effects resulting from the proposed development on Woodlawn Drive, given that the eastern edge of the proposed development is approximately 0.3 miles west of Woodlawn Drive, the APE had to take into account the potential for a historic district on Woodbine Avenue that extends from Portage Road to Woodlawn Drive. Potential impacts to areas on west of Portage Road are mitigated by the high level of development Portage Road which consists of mixed residential, commercial, and industrial buildings on this road which also serves as a thoroughfare between the City of Kalamazoo and points south. No actions associated with the proposed Stanwood Crossings residential development have the potential to affect historic properties that are outside the APE. Figure 2 shows boundary of the APE.

### 1.4 Methods of Survey and Evaluation

The field survey was completed in December 2024 by Bruce G. Harvey, Architectural Historian and Principal of Harvey Research and Consulting. This survey was designed to record and evaluate all historic architectural resources (buildings, structures, objects, designed landscapes, and/or sites with above-ground components) within the APE. Field survey methods complied with *National Register Bulletin 24* (Parker 1985) and with the *Michigan Above-Ground Survey Manual* (Kolokithas and Tunistra, 2018). In accordance with the scope of work and standard statewide survey practice, the Architectural Historian conducted a pedestrian inspection of all potential historic architectural resources within the APE. Field survey included physically





inspecting each historic architectural resource identified within the APE, and taking written notes regarding architectural styles and details, construction materials, and the integrity of historical materials. In addition, the Architectural Historian took both overview and, where appropriate, detail photographs of each resource, both interior and exterior as available, and conducted primary and secondary historic research. Research

was conducted in the City of Portage Assessor's Office records, historic newspapers and historic maps, and secondary sources.

The principal criterion used to define historic architectural resources is the 50-year minimum age recommended for inclusion in the NRHP (pre-1975). In addition, certain other classes of architectural resources are eligible for intensive survey, including properties constructed within the past 50 years which have exceptional architectural or historical significance and properties already listed in the NRHP.

Historic architectural resources within the APE were evaluated for listing in the NRHP. Following *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (Savage and Pope 1998), evaluation of any resource requires a twofold process. First, the significance of a resource must be determined. The basis for determining the significance of a resource is an understanding of the historic context. As per 36 CFR Part 60.4, there are four broad evaluative criteria for determining the significance of a resource and its eligibility for the NRHP within its historic context. Any resource (building, structure, site, object, or district) may be eligible for the NRHP if it:

- A. is associated with events that have made a significant contribution to the broad pattern of history;
- B. is associated with the lives of persons significant in the past;
- C. embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, possesses high artistic value, or represents a significant and distinguishable entity whose components may lack individual distinction; or
- D. has yielded, or is likely to yield, information important to history or prehistory.

A resource may be eligible under one or more of these criteria. Criteria A, B, and C are most frequently applied to historic buildings, structures, objects, non-archaeological sites (e.g., battlefields, natural features, designed landscapes, or cemeteries), or districts. The eligibility of archaeological sites is most frequently considered with respect to Criterion D. Also, a general guide of 50 years of age is

employed to define “historic” in the NRHP evaluation process. That is, all resources greater than 50 years of age (pre-1966 for the purposes of this report) may be considered. However, more recent resources may be considered if they display “exceptional” significance (Sherfy and Luce 1998), as discussed below.

If a historical association as defined by one of the four criteria above is demonstrated, the integrity of the resource must be evaluated to ensure that it conveys the significance of its context. After a resource is specifically associated with a significant historic context, one must determine which physical features of the resource are necessary to reflect its significance. This must include a consideration of the aspects of integrity applicable to a resource. Integrity is defined in seven aspects of a resource; one or more may be applicable depending on the nature of the resource under evaluation. These aspects are *location, design, setting, materials, workmanship, feeling, and association* (36 CFR 60.4; Savage and Pope 1998). If a resource does not possess integrity with respect to these aspects, it cannot adequately reflect or represent its associated historical context and cannot be eligible for the NRHP. To be considered eligible under Criteria A and B, a resource must retain its essential physical characteristics that were present during the event(s) with which it is associated. Under Criterion C, a resource must retain enough of its physical characteristics to reflect the style, type, etc., or work of the artisan that it represents. Under Criterion D, a resource must be able to generate information that can address specific research questions that are important in reconstructing or interpreting the past.

While in the field, the Architectural Historian evaluated the integrity of each historic architectural resource in the Project APE. Resources exhibiting poor integrity were not recorded. For the purpose of this project, four levels of architectural integrity were employed. These include:

- Excellent* - All original construction materials and design remain intact and unchanged.
- Good* - The majority of original construction materials remain intact and unchanged except for renewable elements such as roofing and

window panes, and in-kind replacements such as windows, doors, and siding.

*Fair* - A substantial number of original architectural elements have been altered, such as the installation of aluminum, asbestos, or vinyl siding, the substitution of historic doors and windows with non-historic replacements, and the construction of non-historic additions.

*Poor* - Has been radically altered from its original design by non-historic renovations and/or additions.



## **2.0 REGIONAL OVERVIEW**

### **2.1 Early Settlement**

The French were the first European explorers to navigate the upper Great Lakes and the Mississippi River, locating and mapping the various waterways that they hoped would facilitate trade between the Europe and this new world. French mariners first explored the St. Lawrence River in the early sixteenth century, and established a base in their colony of Quebec. From this base, French traders, fur trappers, and missionaries began exploring further into the upper Great Lakes region, eventually finding the headwaters of the Mississippi River which, with its many tributaries including the Illinois, Ohio, Arkansas, and Missouri Rivers, gave access to the vast interior of the continent. During the early seventeenth century the French established several forts along the upper Great Lakes, including at St. Ignace on the Mackinac Straights, In one of these attempts to map the upper reaches of the Mississippi River's headwaters, René-Robert Cavelier, sieur de La Salle, led expeditions of the Illinois River in the late 1670s and early 1680s that included traversing what is now Lake Michigan; in early 1680, La Salle became the first European to pass through what is now Kalamazoo County. Although the French established a fort at Detroit in 1701, few European explorers returned to the banks of Lake Michigan through the late eighteenth century. During the Seven Years War of the late 1750s and early 1760s, British forces captured Quebec in September 1760 and were in possession of Detroit two months later; France then ceded all of its lands in Canada to Great Britain in the Treaty of 1763.

Despite the terms of the Treaty of Paris in 1763 that concluded the American Revolution, Great Britain maintained a hold on many of its forts along the lower Great Lakes, including at Detroit. Throughout the 1780s relations among the new United States, Great Britain, and the several Native American tribes were tempestuous throughout northern Ohio and Indiana and southern Michigan. The British fort at Detroit, which had been protected through an alliance between Great Britain and several Native American tribes, finally was transferred to American control in 1796

after American General Anthony Wayne defeated the combined British and Native American forces at the Battle of Fallen Timbers in Ohio in 1795, and forced new treaties. Michigan was then accepted as a Territory of the United States in 1805. The British re-captured Detroit early in the War of 1812, but Americans then regained the city in 1815 with the defeat of the British.

This reestablishment of American control of Detroit allowed American settlement in Michigan, which commenced in the eastern part of the state. Within a decade, however new settlers from the eastern United States pushed the boundary further to the west. The principal obstacle to these American settlers' westward expansion was the continuing presence of the region's ancestral occupants, the Pottawatomini Indians, an Algonquian speaking tribe who had lived in western Michigan for centuries. Relations between the Americans and the Pottawatomini, who had allied at different times with the French and British in an effort to withstand the threat of encroachment from member nations of the Haudenosaunee Nation in the east, were initially peaceable. However, land hunger on the part of new American settlers led to increased pressure on the Pottawatomini to cede land through treaties, the last of which, the Treaty of Chicago in 1836, led to their final loss of lands in Michigan and removal to lands in Kansas and Nebraska. The treaty allowed them three years to vacate lands, and U.S. armed forces finally removed the remaining members in 1840. By that time, waves of settlers from New York and New England had arrived in Michigan, facilitated by the completion of the Erie Canal in New York in 1825. This canal, which linked the Hudson River at Albany to Lake Ontario at Buffalo, prompted the creation of dozens of new communities across the state and made it far easier, faster, and less expensive to move west in search of new lands.

## 2.2 Establishment of Portage

Thousands of new settlers began arriving in Detroit in the late 1820s and soon headed west to the newly-opened lands in southern Michigan, bringing with them many

of the place names from New York. By 1830, the first group of immigrants arrived in what is now Portage, the name likely being given in memory of the community of Portageville in Genesee County, New York. The first settlement was established at Indian Fields, where the precursor to the Kalamazoo-Battle Creek International Airport was created a century later. Other settlements were soon created in other parts of what is now the Town of Portage by the mid-1830s, with the first saw and grist mills built in 1834. Settlement in the area was made challenging by the presence of wet and marshy lands surrounding what are now West and Austin Lakes, which occupy much of the central and eastern parts of the town. These conditions limited the growth of the new Township of Portage, established in 1838, which had a population of less than 1,000 in 1860.

The Town of Portage gained its first railroad connection in 1867 when the Kalamazoo and Schoolcraft Railroad was built, becoming part of the Lake Shore and Michigan Southern Railroad in 1869. A second railroad passed through the town a year later, the Grand Rapids & Indiana Railroad. Unlike the first rail connection, this new railroad built a station in the Town of Portage on a proposed town center that had first been surveyed and platted in 1867. This station then served as the core of a central village for the town. These railroad connections soon made possible the emergence of Portage's first industry, the production of celery in the town's muck lands. Largely through the efforts of immigrants from Holland in the late nineteenth century, the muck lands were drained to reveal rich land that was perfect for growing celery using methods that Dutch farmers had developed. Portage's celery crop, which was shipped by way of the town's new railroad connections, began gaining a national reputation by the 1890s which continued throughout the early twentieth century.

The development of the celery industry, combined with the close proximity of Kalamazoo which by the early twentieth was an important and quickly-growing regional commercial and industrial center, spurred the development of Portage. The presence of several lakes within the small Town of Portage, particularly the adjoining West Lake and Austin Lake, also prompted the town's status as a resort center. A resort

hotel had been built on Austin Lake by 1890, with cottages lining West Lake by 1910 and a growing number of subdivisions on Austin Lake in the 1920s and early 1930s. These included McCamley's Beach along the west shore of Austin Lake and adjacent to the Stanwood Crossings residential development. As seen in Figure 3, the land was owned by the McCamley family, and in 1923 Stuart McCamley, later the long-serving Portage Town Supervisor, announced plans to develop 27 lakefront lots.<sup>1</sup> The family continued to sell lots at McCamley beach through the 1930s and 1940s, and real estate advertisements and transactions listed only McCamley Beach, with no addresses, until 1948, while the first printed reference to Woodlawn Drive on Austin Lake was in 1942. Other nearby subdivisions included Wiona Acres along the southeastern edge of Austin Lake, platted in May 1923, Bacon's Beach, immediately south of McCamley's Beach, where lots were being sold in the early 1920s; and Dixie-Mac Park, immediately north of the Stanwood Crossings property between Austin Lake and West Lake, which was platted in March 1937.

### 2.3 Portage in the Post-War Era

The town's residential development overall slowed during the 1930s and the early 1940s, but resumed quickly in 1945 when Upjohn Pharmaceuticals in Kalamazoo announced its decision to expand with a vast new facility that was intended to focus on the development of antibiotics<sup>2</sup>. Planning began immediately for an enormous manufacturing and administrative complex on 1500 acres of farmland on the east side of Portage Road immediately south of the Kalamazoo-Battle Creek International Airport. Located approximately two miles north of the proposed Stanwood Crossings residential development, the complex was completed in 1951 with the principal building, Building 41, covering approximately 33 acres of floor space.

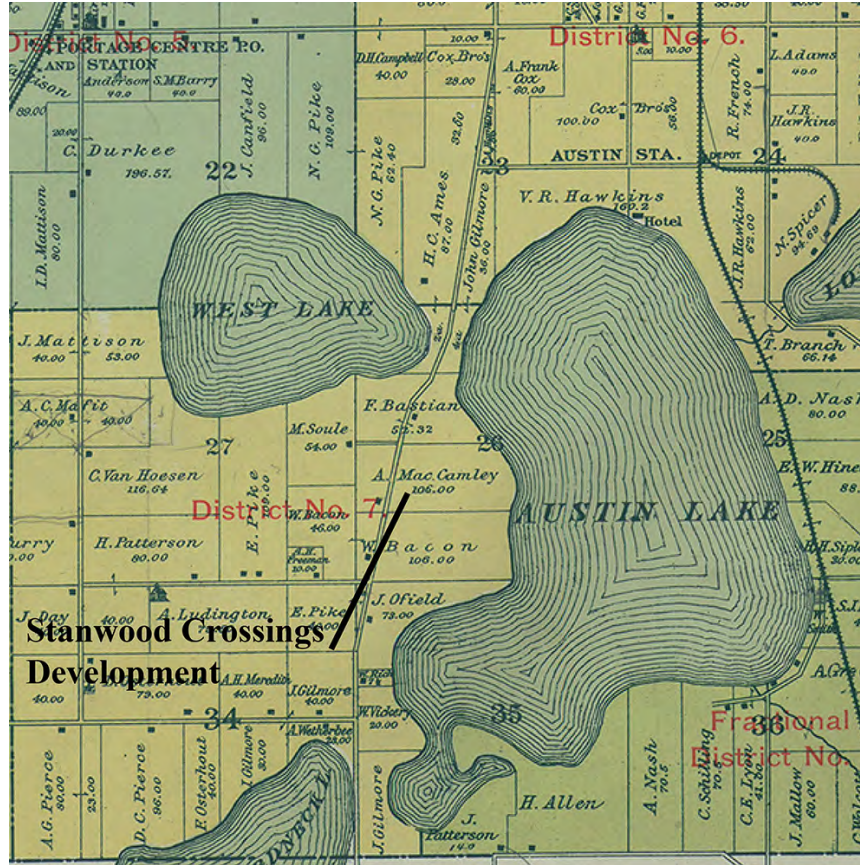
This vast new facility brought thousands of new residents to the area and spurred the development of new residential subdivisions in Portage. Among the earliest

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<sup>1</sup> "Open New Plats Between Austin and West Lakes," *The Kalamazoo Gazette*, May 12, 1923, 6.

<sup>2</sup> "Kalamazoo Employment Reaches All-Time High as 1946 Comes to Close," *The Kalamazoo Gazette* (Kalamazoo, MI), January 1, 1947, 17.



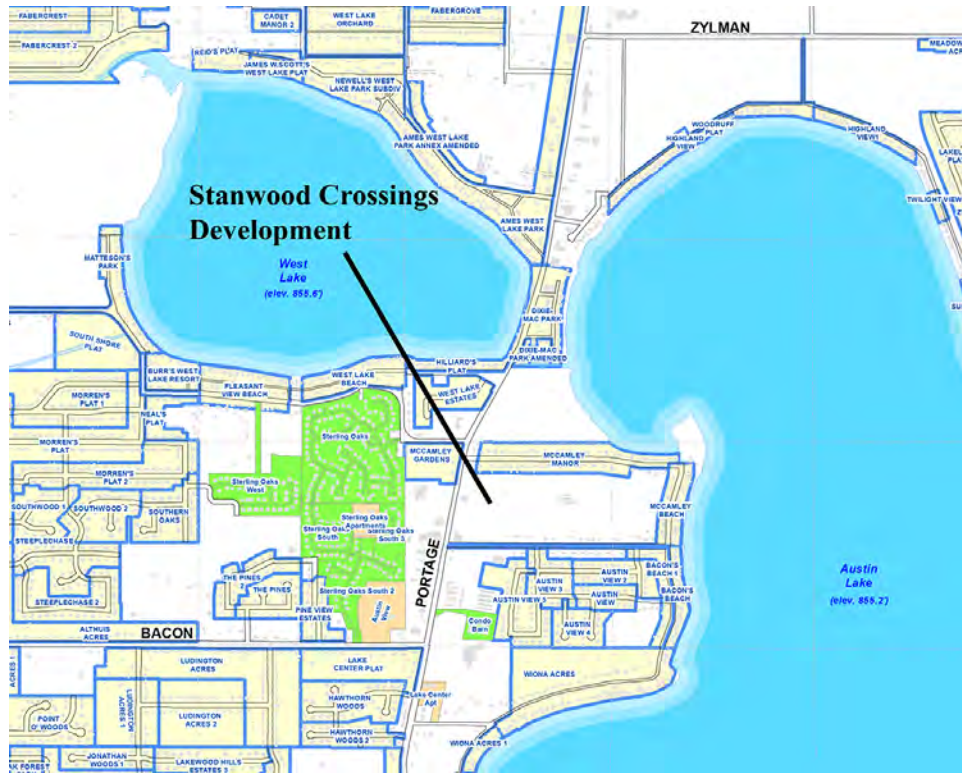


**Figure 3. Excerpt of 1890 Kalamazoo County Atlas showing location of the proposed Stanwood Crossings development**

subdivisions to take advantage of the town's growing population was McCamley's Gardens, laid out in July 1951 by Portage Town Supervisor Stuart McCamley with 24 lots.<sup>3</sup> This small subdivision is located on the west side of Portage Road across from of the proposed Stanwood Crossings development. Closer to the Upjohn complex and north of the proposed Stanwood Crossings development, Ambling Acres was platted in 1958, and Holiday Village was platted in 1960. Figure 4 shows the subdivisions surrounding the proposed Stanwood Crossings residential development.

Throughout the 1950s, the only residential developments near the proposed Stanwood Crossings development were the McCamley's Beach neighborhood lining the

<sup>3</sup> "Two Plats Dedicated," *The Kalamazoo Gazette*, July 28, 1951, 9.



**Figure 4. Excerpt of the City of Portage Plat Map showing the location of the project area.**

western edge of Austin Lake, and small number of widely-scattered houses on Stanley Avenue dating from the early 1920s to the 1950s. Already by this time, Portage Road south of the neck between West and Austin Lakes was becoming occupied by a mix of scattered houses, commercial buildings, and light industrial plants. Two industrial buildings are located within the APE for the proposed Stanwood Crossings development. The Kalamazoo Screw Products Company was founded in 1932 in Kalamazoo, and by the early 1960s was located in a factory at 9702 Portage Road.<sup>4</sup> The company remained in the Portage Road plant through 1973, and by the late 1970s the building was home to the Nickles Bakery Company, which continues to occupy the building. Immediately to the south was the Viking Products Company plant, which milled and fabricated metal products for multiple industries. The company built their new factory at 9718 Portage

<sup>4</sup> “Screw Products Company Formed,” *The Kalamazoo Gazette*, September 25, 1932, 1; a remodeling permit was issued for the plant on Portage Road in December 1962, though no other reference to the company moving to this location was located, “Portage OKs Three Homes,” *The Kalamazoo Gazette*, December 8, 1962, 6.

Road in 1951, but remained there only until March 1954 when the plant was advertised for sale at public auction.<sup>5</sup> In 1957, the Precision Spring Corporation began leasing the plant, which continued in operation until 1991 when the parent company reorganized its operations and closed the Portage Road plant.<sup>6</sup> The building remains in use for light industrial purposes.

The proposed Stanwood Crossings development itself is located on land that remained undeveloped through the 1950s. Finally in February 1960 a new subdivision was proposed for this land. The proposed McCamley Manor tract would include the construction of a new street, Woodbine Avenue, extending east from Portage Road toward Woodlawn Drive, and would have 54 lots on either side of the new street. The Kalamazoo County Road Commission approved the new road in March 1960, and construction on the new development began immediately.<sup>7</sup> By mid-July 1960, the Town of Portage issued the first construction permit for McCamley Manor, for a house at 2404 Woodbine Avenue, near the eastern end of the new street.<sup>8</sup> The Ranch-style house was built in the summer of 1961 by R.J. Grofvert. A second house, at 2619 Woodbine, received a building permit in 1961. Other houses soon followed beginning in 1965. All but one of the houses built in the 1960s were in the Ranch style; one bi-level house, 2521 Woodbine Avenue, was built in 1966, but all other bi-level and tri-level houses were built in the 1970s and early 1980s. An extension at the eastern end of Woodbine Avenue where it now connects with the earlier Woodlawn Drive, was only lightly developed prior to the early 1980s, and now features primarily more recent construction.

The rapid growth in Portage that followed the completion of the Upjohn Pharmaceutical complex in the early 1950s soon led to calls for the incorporation of Portage as a city. At the same time, the enormous tax assessment paid by Upjohn was a

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<sup>5</sup> Advertisements for employees for Viking Products referenced the new factory on Portage Road, the first of which was in *The Kalamazoo Gazette*, April 26, 1951, 40; advertisement for sale of the plant is in *The Kalamazoo Gazette*, March 14, 1954, 41, with the auction scheduled for March 23-24, 1954.

<sup>6</sup> "Peterson Plant to Close," *The Kalamazoo Gazette*, June 16, 1991, 91.

<sup>7</sup> "Rezoning, Water District Considered by Portage Board," *The Kalamazoo Gazette*, February 2, 1960, 3; "Road Board Acts on New 131 Routing," *The Kalamazoo Gazette*, March 1, 1960, 12.

<sup>8</sup> "24 Homes Approved for Portage Twp.," *The Kalamazoo Gazette*, July 16, 1960, 7.

power lure to the City of Kalamazoo, which sought to annex lands in Portage. This set up a conflict between the Town of Portage and Kalamazoo in early 1962, when each filed petitions for incorporation and annexation, respectively. Portage was first with its incorporation petition in February 1962.<sup>9</sup> It became a contentious issue among the Townships of Portage and Kalamazoo and the City of Kalamazoo throughout the summer of 1962 with widely varying opinions and threats of lawsuits, but in September the Kalamazoo County Board of Supervisors voted to allow Portage to proceed with a vote on incorporation, while also voting against a proposal that would have allowed City of Kalamazoo voters to vote in the Portage incorporation election.<sup>10</sup> The City of Kalamazoo filed an unsuccessful lawsuit to block the election, and on February 18, 1963 Portage residents voted strongly in favor of incorporation as a city.

One of the priorities for the new City of Portage was to develop more public parks. When the city was incorporated in 1963, it had only one park, an eight-acre lot near city hall.<sup>11</sup> In early 1968 the city's Parks Board took the first step toward a city-wide parks program when it determined that "available lake accesses were inadequate for substantial development," and sought to locate lakefront property for park development. In April 1968, the City purchased 24 acres on the neck between West Lake and Austin Lake, immediately north of the McCamley Manor development on the east side of Portage Road. Lakeview Park was then opened to the public on August 31, 1968.<sup>12</sup>

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<sup>9</sup> "Annexation Battle Rages Here," *The Kalamazoo Gazette*, February 28, 1962, 1.

<sup>10</sup> "Portage Incorporation Election Set for Feb. 18," *The Kalamazoo Gazette*, September 17, 1962, 1.

<sup>11</sup> "Parks Play Role in Portage's Development," *The Kalamazoo Gazette*, September 24, 1969, 55.

<sup>12</sup> "Portage Acquires 24 Acres for Park Site On Austin Lake," *The Kalamazoo Gazette*, April 22, 1968, 34; "Portage Park Dedicated," *The Kalamazoo Gazette*, September 1, 1968, 30.



### **3.0 RESULTS AND RECOMMENDATIONS**

#### **3.1 Overview**

The project Architectural Historian conducted an intensive historic architectural survey as defined in Chapter 1. The survey included all lands within the APE as defined in Section 1.3 that includes Woodbine Avenue, Woodlawn Drive, Stanley Avenue, and a portion of Portage Road. All of the historic resources are buildings, primarily residential, with two industrial buildings on Portage Road. The survey included 64 buildings that were built between 1920 and 1983.

The Architectural Historian conducted research that included an examination of local history sources, including maps and secondary sources, to evaluate the significance of the facility in its historic context. As described below, only one building has been recommended eligible for the NRHP: a factory building at 9718 Portage Road. All other historic architectural resources identified within the APE are recommended not eligible for the NRHP. In addition, Woodbine Avenue, which is the only street in the McCamley Manor subdivision that was platted in 1960, was considered as a potential historic district but is also recommended not eligible for the NRHP.

#### **3.2 Index of Surveyed Properties**

<b>Address</b>	<b>Date of Construction</b>	<b>Type</b>	<b>Style</b>	<b>NRHP Eligible</b>
9518 Portage Rd	1944	Residential	Vernacular	No
9526 Portage Rd	1954	Residential	Vernacular	No
9540 Portage Rd	1956	Residential	Vernacular	No
9702 Portage Rd	1949	Industrial	Modern	No
<b>9718 Portage Rd</b>	<b>1951</b>	<b>Industrial</b>	<b>International</b>	<b>Yes</b>
9735 Portage Rd	1952	Residential- duplex	Vernacular	No

9741 Portage Rd	1950	Residential	Ranch	No
2319 Stanley Ave	1950	Residential	Vernacular	No
2329 Stanley Ave	1959	Residential	Vernacular	No
2360 Stanley Ave	1977	Residential	Ranch	No
2390 Stanley Ave	1977	Residential	Ranch	No
2409 Stanley Ave	1952	Residential	Ranch	No
2420 Stanley Ave	1977	Residential	Ranch	No
2472 Stanley Ave	1977	Residential	Ranch	No
2504 Stanley Ave	1977	Residential	Ranch	No
2505 Stanley Ave	1955	Residential	Vernacular	No
2514 Stanley Ave	1964	Residential	Ranch	No
2529 Stanley Ave	1946	Residential	Vernacular	No
2609 Stanley Ave	1951	Residential	Ranch	No
2610 Stanley Ave	1953	Residential	Ranch	No
2615 Stanley Ave	1920	Residential	Bungalow	No
2616 Stanley Ave	1958	Residential	Ranch	No
2003 Woodbine Ave	1969	Residential	Ranch	No
2016 Woodbine Ave	1966	Residential	Ranch	No
2019 Woodbine Ave	1974	Residential	Ranch	No
2024 Woodbine Ave	1973	Residential	Ranch	No
2027 Woodbine Ave	1970	Residential	Bi-level	No
2102 Woodbine Ave	1973	Residential	Bi-level	No
2105 Woodbine Ave	1970	Residential	Bi-level	No
2110 Woodbine Ave	1965	Residential	Ranch	No
2113 Woodbine Ave	1972	Residential	Bi-level	No
2116 Woodbine Ave	1963	Residential	Ranch	No
2121 Woodbine Ave	1968	Residential	Ranch	No
2124 Woodbine Ave	1972	Residential	Ranch	No
2129 Woodbine Ave	1971	Residential	Ranch	No
2132 Woodbine Ave	1967	Residential	Ranch	No
2206 Woodbine Ave	1972	Residential	Ranch	No
2209 Woodbine Ave	1966	Residential	Ranch	No
2214 Woodbine Ave	1972	Residential	Ranch	No
2217 Woodbine Ave	1969	Residential	Ranch	No
2222 Woodbine Ave	1973	Residential	Bi-level	No
2230 Woodbine Ave	1983	Residential	Bi-level	No
2233 Woodbine Ave	1974	Residential	Ranch	No

2304 Woodbine Ave	1971	Residential	Bi-level	No
2307 Woodbine Ave	1966	Residential	Ranch	No
2310 Woodbine Ave	1971	Residential	Vernacular	No
2315 Woodbine Ave	1975	Residential	Ranch	No
2318 Woodbine Ave	1968	Residential	Ranch	No
2329 Woodbine Ave	1974	Residential	Ranch	No
2404 Woodbine Ave	1961	Residential	Ranch	No
2407 Woodbine Ave	1966	Residential	Ranch	No
2412 Woodbine Ave	1964	Residential- duplex	Ranch	No
2430 Woodbine Ave	1967	Residential	Ranch	No
2521 Woodbine Ave	1966	Residential	Bi-level	No
2603 Woodbine Ave	1959	Residential	Vernacular	No
2611 Woodbine Ave	1967	Residential	Ranch	No
2619 Woodbine Ave	1961	Residential	Ranch	No
2627 Woodbine Ave	1958	Residential- duplex	Ranch	No
2705 Woodbine Ave	1966	Residential	Ranch	No
9533 Woodlawn Dr	1926	Residential	Vernacular	No
9545 Woodlawn Dr	1925	Residential	Vernacular	No
9602 Woodlawn Dr	1965	Residential	Vernacular	No
9614 Woodlawn Dr	1974	Residential	Ranch	No
9718 Woodlawn Dr	1948	Residential	Vernacular	No

### 3.3 Recommendations

Overall, the buildings within the APE exhibit fair integrity, with nearly all of the houses having been altered to varying degrees including replacement siding, windows, and doors, and occasionally more substantial additions. The two industrial buildings in the APE, meanwhile, have seen substantial additions, primarily to the rear.

The APE contains three streets that are exclusively residential: Stanley Avenue at the southern end, Woodlawn Drive at the eastern end, and Woodbine Avenue, constructed as McCamley Manor, forming the northern border. Stanley Avenue and Woodlawn Drive were laid out by the early twentieth century and were not planned as

subdivisions. The placement and conditions of the building reflects this gradual and more organic development, with uneven lot sizes, and buildings built over the course of decades with widely varying levels of integrity. In general, the older buildings on Stanley Avenue are located in the center and eastern ends closer to Austin Lake, with the houses at the western end closer to Portage Avenue built in from the late 1980s into the early 2000s. One house at the eastern end of Stanley Avenue, No. 2615, is a small bungalow house with a hipped roof and curved window awnings, likely built as a lake house in 1920. This house is in fair condition but has retained generally good integrity despite the presence of a wheelchair-accessible ramp at the front and a large bay window on the front. Woodlawn Drive, originally identified as McCamley Beach in the 1930s but not formally platted, features a wide range of house types from the 1920s to modern construction. The two houses that were built in the 1920s, Nos. 9533 and 9545, are small-scale lake houses that have been extensively modified with multiple additions, making the original buildings difficult to discern.

Of the three residential streets in the APE, only Woodbine Avenue was developed as a neighborhood. McCamley Manor was platted in early 1960 and called for the construction of one street, Woodbine Avenue, to extend approximately one-third of a mile east from Portage Road, where it would connect with the earlier Woodlawn Avenue and houses extending west from the northern end of Woodlawn Avenue that backed up to a cove on the western side of Austin Lake. Woodbine Avenue makes a slight curve to the south near its eastern end, which marks the extent of development of the original McCamley Manor. The houses from Portage Avenue east to this point were built primarily in the 1960s and 1970s, with two in the early 1980s and one, No. 2009, a more recent infill house. Woodbine Avenue to the east of this original development, with the exception of five houses that back up to the cove on Austin Lake, was developed beginning in the early 2000s, with the most recent house being constructed in 2019.

The original section of Woodbine Avenue retains generally good integrity from its period of construction from the early 1960s to the early 1980s, with only one building constructed in the 1990s. The houses from the 1960s are primarily Ranch style houses,



with bi-level and tri-level houses built mostly during the 1970s and early 1980s. These houses have seen varying levels of alterations including siding, windows, doors, and occasional additions, but the houses contribute to an overall feeling of a neighborhood from the 1970s.

Portage Avenue is one of the principal thoroughfares extending south from Kalamazoo, and from at least the 1940s contained a mix of residential, commercial, and industrial buildings as it passed through Portage. This pattern remains in the one-quarter mile section within the APE from Woodbine Avenue south to Stanley Avenue. Only three buildings occupy the east side of Portage Road in the APE, all of them either of recent construction or extensively modified. The west side of Portage Road, however, features several buildings included in the survey, including two industrial buildings at the southern end of the APE. 9702 Portage Road retains the core of a one-story brick industrial building that was built in 1949, but which has seen several additions to the side and rear. 9718 Portage Road was built in 1951 for Viking Products, a manufacturer of metal products for use by several industries. It was designed and built in the Modern style with rounded corners and horizontal banded windows. The building has retained these characteristics despite having large additions to the rear.

The Architectural Historian evaluated the significance of the historic architectural resources within the APE and their potential eligibility for the NRHP, under the four criteria identified in Section 1.4. Under Criterion A, there were different potential historic contexts within which the buildings could be significant: industrial developments, lakefront resorts, and planned subdivisions. The APE contains two industrial buildings, both of them on Portage Avenue with factories originally built in approximately 1950. Research for this project found no significant associations between the original firms or the subsequent occupants and events or trends that are important in local, state, or national history, and neither is recommend eligible for the NRHP under Criterion A.

What is now Woodlawn Drive was created in the early 1940s to provide access to lakefront properties on Austin Lake. The McCamley family, which owned the lot parcel

extending from Portage Road east to the west shore of Austin Lake, began developing McCamley Beach in 1923. Both lots and houses were being sold through the 1930s and 1940s, with access provided by Stanley Avenue, which extended east from Portage Road, and Woodlawn Drive which paralleled the shoreline behind the houses. The development of lakefront resorts and houses was growing in popularity in Portage during the 1920s, but did not constitute a significant theme in the town's development. McCamley Beach was one of several lakefront developments in Portage in the early and mid-twentieth century, but only three houses remain from its period of development in the 1920s, two on Woodlawn Drive that have been substantially altered, and one on Stanley Drive that has retained fair to good integrity. The remaining houses at the eastern end of Stanley Avenue and on Woodlawn Drive were constructed primarily from the 1960s to well into the 2000s, and the area no longer represents a historic lakefront neighborhood. The APE therefore contains no resources that are eligible for the NRHP under Criterion A for their association with lakefront resorts.

The APE contains one planned subdivision: McCamley Manor was platted in early 1960, with Woodbine Avenue as its only street. Woodbine Avenue was constructed in the early 1960s, extending approximately one-third of a mile east from Portage Avenue toward the lakefront houses on Woodlawn Avenue. The north and south sides of Woodbine Avenue were divided into 75-foot-wide lots for residential use, and construction of houses began in 1961. With one exception, all houses on the original plat were completed between 1961 and 1983; the lot 2201 Woodbine Avenue was sold in 1995, the house was constructed in 1996. Other houses not associated with McCamley Manor were built on the south shore of a cove on Austin Lake from the 1960s to the 2000s, and the easternmost section of Woodbine Avenue, where it joins Woodlawn Drive, was not developed until the early 2000s. Because the originally platted section of Woodbine Avenue retains the feel of neighborhood from the 1970s despite some loss of integrity affecting nearly all of the houses, it was considered as a potential historic district. McCamley Manor was platted in early 1960, nearly a decade after Upjohn completed its enormous manufacturing facility in Portage which stimulated a great deal of residential construction. Woodbine Drive is one of many subdivisions that were built

in response to the Upjohn plant, and does not stand out from any of the other subdivisions, many of which were larger and built before it. Woodbine Avenue lacks any other associations with significant trends or events in local, state, or national history, and is recommended not eligible for the NRHP under Criterion A.

Under Criterion B, the research conducted for this survey identified no direct associations with persons who are significant in local, state, or national history. The APE for the proposed Stanwood Crossings residential development is recommended not eligible for the NRHP under Criterion B.

For Criterion C, the Architectural Historian considered the significance of historic architectural resources within the APE with regard to architecture and landscape design. The principal resource to be considered with regard to landscape design is Woodbine Avenue, which was designed and constructed as the defining aspect of the McCamley Manor subdivision. This is a single, straight street extending approximately one-third of a mile east of Portage Road, constructed in 1960 and 1961 through previously undeveloped land. The street represents only minimal design considerations, and is recommended not eligible under Criterion C for landscape design.

Three resources and sets of resources were considered with regard to architectural resources. The houses that constitute Woodbine Avenue were, with one exception, constructed between 1961 and 1983. All of the houses in the original plat were built according to one of three types: Ranch, bi-level, and tri-level, and thus represent a particular era in American architectural history: post-World War II suburban expansion. Figures 5, 6, and 7 show typical houses of the three styles. The one exception, at 2201 Woodbine Avenue, was built on a similar scale and setback as the other neighborhood's original houses. The houses have all seen varying levels of alteration that include replacement siding, windows, and doors, as well as occasional additions. Although the concentration of houses primarily from the 1960s and 1970s is appealing as a representative of an era, it is one of many such neighborhoods throughout the state and the nation from the post-war years, a period of rapid proliferation of suburban



**Figure 5. 2209 Woodbine Avenue looking northwest. Ranch, built 1966.**



**Figure 6. 2102 Woodbine Avenue, looking southeast. Bi-level house, built 1973.**





**Figure 7. 2230 Woodbine Avenue looking southeast. Tri-level house, built 1983.**

neighborhoods. The McCamley Manor/Woodbine Avenue neighborhood lacks any additional significant architectural or historical associations or characteristics, and is recommended not eligible for the NRHP under Criterion C: architecture.

Two individual buildings were also considered for their architectural significance. The factory building at 9718 Portage Road was built in 1951 for the Viking Products Company, manufacturer of metal parts for a variety of industries. The factory building has a distinctive front entrance design, and the band of metal-framed industrial windows and rounded front corners are typical for mid-century factory buildings. The building has retained good integrity, including the tile siding, metal banded windows, rounded front corners, and the distinctive three-bay entrance bay with cantilevered roof. In addition, it remains on its original lot where the setting has changed relatively little, as Portage Road has since the 1930s and 1940s been a busy thoroughfare with a mix of residential, commercial, and light industrial buildings. Moreover, the building remains in use for



**Figure 8. 9718 Portage Road looking northwest.**



**Figure 9. 9718 Portage Road, entrance detail looking southwest.**



light industrial purposes, similar to its original uses. Figures 8 and 9 show views of the building. This is an excellent and intact example of an International Style factory building on a relatively small scale, and is recommended eligible for the NRHP under Criterion C: Architecture.



**Figure 10. 2615 Stanley Avenue looking northeast.**

Finally, 2615 Stanley Avenue is a small one-story house that, according to the City of Portage Assessor's Office, was built in 1920. The house is located near the eastern end of Stanley Avenue, not directly on Austin Lake but separated by only two lots. The house has a nearly square footprint, measuring 33 feet by 27 feet, beneath a hipped roof that ends at the eave line. The symmetrical façade features three bays with a center door flanked by a double-hung window on the left and a large square single-pane window on the right, that likely is an alteration. The house appears to have retained good integrity, though it is unclear if the stucco siding is original, and there is no indication of it having been relocated. Figure 10 shows a view of the house. Despite its interest, the house is not otherwise distinctive architecturally, and the current research has failed to

locate any information about its construction or historical associations. As a result, 2615 Stanley Avenue is recommended not eligible for the NRHP under Criterion C: Architecture.

The potential for eligibility under Criterion D, potential to yield additional information, is addressed in an archaeological survey report that is a companion to this historic architectural resources survey report.

### 3.4 Potential Effects

As discussed in Section 3.3, only one building in the APE is recommended eligible for the NRHP: the factory building at 9718 Portage Road. No other historic architectural resources within the APE have the potential to be affected by the proposed Stanwood Crossings residential development.

As described in Section 1.1, the proposed Stanwood Crossings residential development would build 44 homes on 13.36 acres of vacant land located within the block bound by Portage Road, Woodbine Avenue, Woodlawn Drive, and Stanley Avenue. The proposed development parcel is located behind the buildings that front on the east side of Portage Road, with two driveways giving access from the proposed development to Portage Road. Portage Road is one of the main thoroughfares that extends south from the City of Kalamazoo. The principal potential for effects to the factory building at 9718 Portage Road is from increased traffic that would occur from the new single-family residences. Particularly in the area to the south of West and Austin Lakes where the APE is located, however, Portage Road has, since at least the 1940s, been actively developed with a mix of residential, commercial, and light industrial buildings that includes this factory building. The building at 9718 Portage Road, therefore, has throughout its existence been located on a busy road with substantial traffic. The incremental increase in traffic volume resulting from the proposed Stanwood Crossings residential development is expected to be minor. We recommend that the



proposed Stanwood Crossings residential development will have no adverse effects on 9718 Portage Road.

## REFERENCES

Durant, Samuel. *History of Kalamazoo County*. Philadelphia, PA: Everts & Abbott, 1880.

Massie, Larry B. *This Place Called Portage: Its Past and Present*. Allegan Forest, MI: The Priscilla Press, 2006.

Historic newspaper articles as cited in text.



# Tribal Directory Assessment Information



## Contact Information for Tribes with Interests in Kalamazoo County, Michigan

Tribal Name				County Name		
Citizen Potawatomi Nation, Oklahoma				Kalamazoo		
Contact Name	Title	Mailing Address	Work Phone	Fax Number	Email Address	URL
John "Rocky" Barrett	Chairman	1601 South Gordon Cooper Drive, Shawnee, OK - 74801	(405) 275-3121	(405) 275-0198	jbarrett@potawatomi.org	www.potawatomi.org
Tracy Wind	THPO (Acting)	1601 S. Gordon Cooper Drive, Shawnee, OK - 74801	(405) 878-5830	(405) 878-5840	tracy.wind@potawatomimi.org	www.potawatomi.org
Forest County Potawatomi Community, Wisconsin				Kalamazoo		
Contact Name	Title	Mailing Address	Work Phone	Fax Number	Email Address	URL
James Crawford	Chairman	5416 Everybodys Road, Crandon, WI - 54520	(715) 478-7200	(715) 478-5280	james.crawford@fcpsnsn.gov	https://www.fcpotawatomi.com/
Ben Rhodd	THPO	P.O. Box 340, Crandon, WI - 54520	715-478-7354	715-478-7225	benjamin.rhodd@fcpsnsn.gov	https://www.fcpotawatomi.com/
Hannahville Indian Community, Michigan				Kalamazoo		
Contact Name	Title	Mailing Address	Work Phone	Fax Number	Email Address	URL
Kenneth Meshigaud	Chairperson	N14911 Hannahville B1 Road, Wilson, MI - 49896	(906) 723-2602	(906) 466-2933	tyderyien@hannahville.org	www.hannahville.net
1 - 12 of 12 Results Desert Band of Lake Superior Chippewa Indians of Michigan				Kalamazoo		

Contact Name	Title	Mailing Address	Work Phone	Fax Number	Email Address	URL
James Williams	Chairman	East 23968 Pow Wow Trail, Watersmeet, MI - 49969	(906) 358-4577	(906) 358-4785	jim.williams@lvd-nsn.gov	www.ldftribe.com
Alina Shively	THPO Director	P.O. Box 249, Watersmeet, MI - 49969	906-358-0137		alina.shively@lvd-nsn.gov	www.ldftribe.com
—	Little Traverse Bay Bands of Odawa Indians, Michigan			Kalamazoo		
Contact Name	Title	Mailing Address	Work Phone	Fax Number	Email Address	URL
Regina Gasco-Bentley	Chairperson	7500 Odawa Circle, Harbor Springs, MI - 49740	(231) 242-1418	(231) 242-1411	tribalchair@ltbbodawa-nsn.gov	www.ltbbodawa-nsn.gov
Melissa Wiatrolik	THPO	7500 Odawa Circle, Harbor Springs, MI - 49740	231-242-1408	231-242-1416	mwiatrolik@ltbbodawa-nsn.gov	www.ltbbodawa-nsn.gov
—	Menominee Indian Tribe of Wisconsin			Kalamazoo		
Contact Name	Title	Mailing Address	Work Phone	Fax Number	Email Address	URL
Gena Kakkak	Chairwoman	W2908 Tribal Office Loop, Keshena, WI - 54135	(715) 799-5100	(715) 799-3373	chairman@mitw.org	http://www.menominee-nsn.gov/
David Grignon	Tribal Historic Preservation Officer	P.O. Box 910, Keshena, WI - 54135	(715) 799-5258	(715) 799-5295	dgrignon@mitw.org	http://www.menominee-nsn.gov/
—	Miami Tribe of Oklahoma			Kalamazoo		



Contact Name	Title	Mailing Address	Work Phone	Fax Number	Email Address	URL
Douglas Lankford	Chief	3410 P St., Miami, OK - 74354	(918) 541-1300	(918) 542-7260	thpo@miamination.com	http://www.miamination.com
Logan York	THPO	P.O. Box 1326, Miami, OK - 74355	918-541-7885		thpo@miamination.com	http://www.miamination.com
—	Ottawa Tribe of Oklahoma			Kalamazoo		
Contact Name	Title	Mailing Address	Work Phone	Fax Number	Email Address	URL
Rhonda Hayworth	THPO	13 S. 69a, Miami, OK - 74354	918-540-1536	918-542-3214	rhonda.oto@gmail.com	http://www.ottawatribe.org
Kalisha Dixon	Chief	13 South Highway 69a, Miami, OK - 74354	(918) 540-1536	(918) 542-3214	kalisha.oto@gmail.com	http://www.ottawatribe.org
—	Pokagon Band of Potawatomi Indians, Michigan and Indiana			Kalamazoo		
Contact Name	Title	Mailing Address	Work Phone	Fax Number	Email Address	URL
Matthew Bussler	THPO	P.O. Box 180, Dowagiac, MI - 49047	(269) 462-4316	(269) 783-9041	matthew.bussler@pokagonband-nsn.gov	http://www.pokagonband-nsn.gov
Rebecca J. Richards	Chairperson	58620 Sink Road, Dowagiac, MI - 49047	(269) 782-6323	(269) 782-9625	rebecca.richards@pokagonband-nsn.gov	http://www.pokagonband-nsn.gov
—	Prairie Band Potawatomi Nation			Kalamazoo		
Contact Name	Title	Mailing Address	Work Phone	Fax Number	Email Address	URL
Raphael Wahwassuck	THPO	16281 Q Road, Mayetta, KS - 66509	(785) 966-4048	(785) 966 4009	raphaelwahwassuck@pbpnation.org	http://www.pbpindiantribe.com/
Joseph Rupnick	Chairperson	16281 Q Road, Mayetta, KS - 66509	(785) 966-4000	(785) 966-4009	josephrupnick@pbpnation.org	http://www.pbpindiantribe.com/
—	Saginaw Chippewa Indian Tribe of Michigan			Kalamazoo		

Contact Name	Title	Mailing Address	Work Phone	Fax Number	Email Address	URL
Marcella Hadden	THPO	6650 E. Broadway, Mt. Pleasant, MI - 48858	(989) 775-4751	989-775-4770	mlhadden@sagchip.org	http:// www.sagchip.org
Tim Davis	Chief	7500 Soaring Eagle Boulevard, Mt Pleasant, MI - 48858	(989) 775-4000	(989) 775-4131	tidavis@sagchip.org	http:// www.sagchip.org
—	Sault Ste. Marie Tribe of Chippewa Indians, Michigan			Kalamazoo		
Contact Name	Title	Mailing Address	Work Phone	Fax Number	Email Address	URL
Marie Richards	Cultural Repatriation Specialist	531 Ashmun Street, Sault Ste. Marie, MI - 49783	(906) 635-6050	(906) 635-8644	mrichards@saulttribe.net	http:// www.saulttribe.com
Austin Lowes	Chairperson	523 Ashmun Street, Sault Ste. Marie, MI - 49783	(906) 635-6050	(906) 635-4969	alowes@saulttribe.net	http:// www.saulttribe.com

## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 7:56 AM  
**To:** 'jbarrett@potawatomi.org'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Citizen Potawatomi OK Barrett (2).pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting parties in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)



September 18, 2024

David Grignon, THPO  
Menominee Indian Tribe of Wisconsin  
P.O. Box 910,  
Keshena, WI 54135  
dgrignon@mitw.org

Re: Stanwood Crossings – 2010 Woodbine Avenue and 9617 Portage Road, Portage,  
Michigan, Kalamazoo County  
Community Project Funding

Dear THPO Grignon,

The City of Portage is considering funding the project listed above with federal funds from the U.S. Department of Housing and Urban Development (HUD). Under HUD regulation 24 CFR 58.4, the City of Portage has assumed HUD's environmental review responsibilities for the project, including tribal consultation related to historic properties. Historic properties include archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places and landscapes, plant and animal communities, and buildings and structures with significant tribal association.

The City of Portage will conduct a review of this project to comply with Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR Part 800. We would like to invite you to be a consulting party in this review to help identify historic properties in the project area that may have religious and cultural significance to your tribe, and if such properties exist, to help assess how the project might affect them. If the project might have an adverse effect, we would like to discuss possible ways to avoid, minimize or mitigate potential adverse effects.

To meet project timeframes, if you would like to be a consulting party on this project, can you please let us know of your interest within 30 days? If you have any initial concerns with impacts of the project on religious or cultural properties, can you please note them in your response?

Enclosed is a map that shows the project area and, if applicable, an additional area of potential indirect effects. The project consists of the construction of 44 single family homes on 13.36 acres of vacant land. The site will include the installation of a new 32' wide asphalt roadway with concrete curb and gutter and a 5' wide sidewalk on each side



of the road. Underground utilities will consist of new sanitary sewer, water main, storm sewer and stormwater management ponds, and new private utilities consisting of phone, cable, gas, and electric. Additional site work will consist of clearing the existing trees, mass site grading, slope restoration with new landscaping, fencing, and grass. Ground disturbance will consist of depths up to 20' to install the sanitary sewer with the average ground disturbance outside of the utility work to be 4 – 5' in depth.

More information on the Section 106 review process is available at <http://www.onecpd.info/environmental-review/historic-preservation/>.

HUD's process for tribal consultation under Section 106 is described in a Notice available at <https://www.onecpd.info/resource/2448/notice-cpd-12-006-tribal-consultation-under-24-cfr-part-58>.

If you do not wish to consult on this project, can you please inform us? If you do wish to consult, can you please include in your reply the name and contact information for the tribe's principal representative in the consultation? Thank you very much. We value your assistance and look forward to consulting further if there are historic properties of religious and cultural significance to your tribe that may be affected by this project.

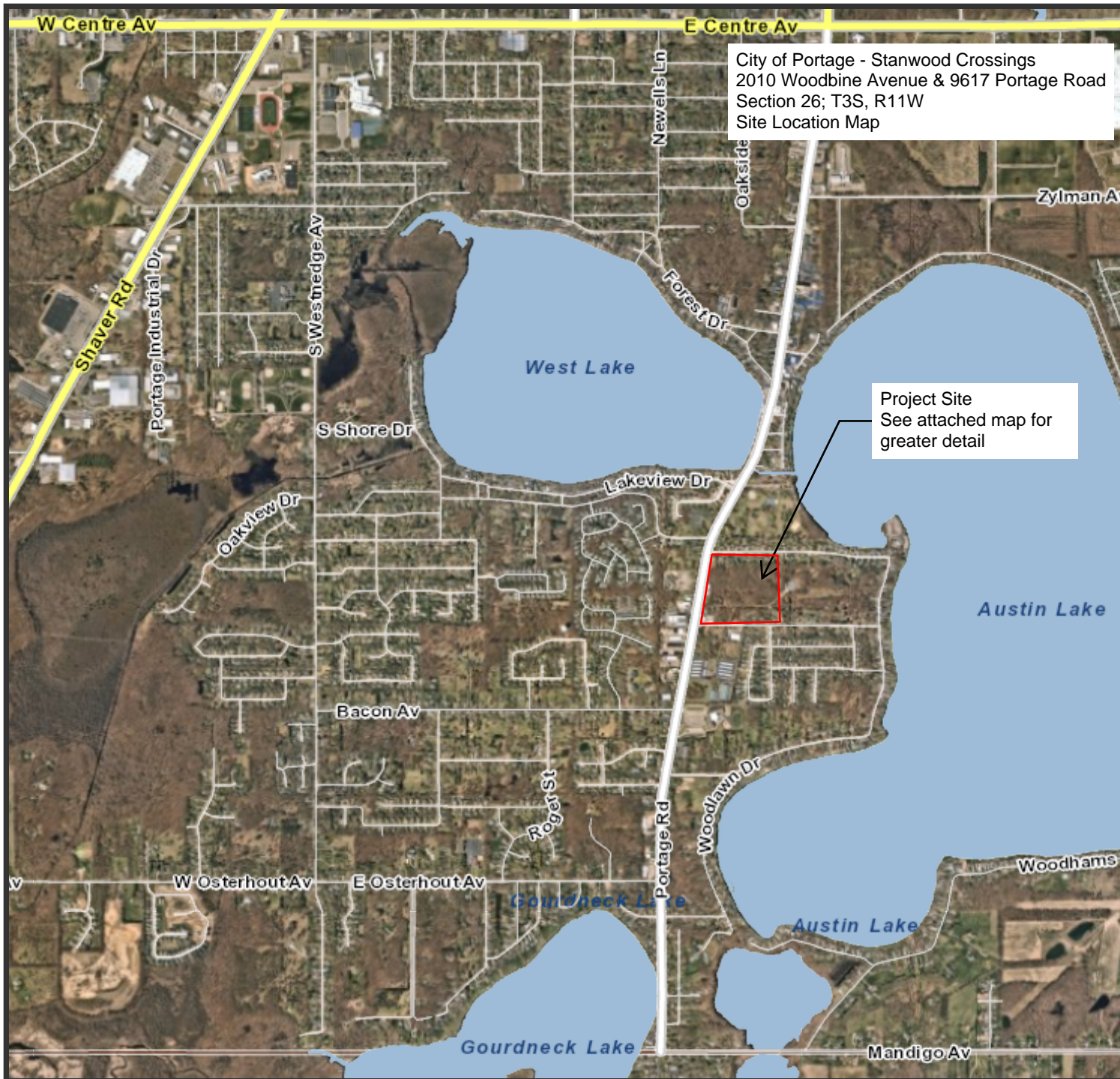
Sincerely,



Anita Johnson  
Housing Resource Specialist  
269-329-4510  
ajohnson@portagemi.gov  
FAX # 269-324-0537

Attachments: Location Map

cc: Aaron Neitling, P.E. – Wightman & Associates  
ERR Review File



## Portage GIS



Map Publication:

09/12/2024 9:26 AM



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**FetchGIS**

**Disclaimer:** This map does not represent a survey or legal document and is provided on an "as is" basis. City of Portage expresses no warranty for the information displayed on this map document.



City of Portage - Stanwood Crossings  
2010 Woodbine Avenue & 9617 Portage Road  
Section 26; T3S, R11W  
APE/Site Map



## Portage GIS



Map Publication:  
09/10/2024 11:42 AM



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**FetchGIS** 

**Disclaimer:** This map does not represent a survey or legal document and is provided on an "as is" basis. City of Portage expresses no warranty for the information displayed on this map document.



## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 7:56 AM  
**To:** 'jbarrett@potawatomi.org'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Citizen Potawatomi OK Barrett (2).pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting parties in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)



## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 7:58 AM  
**To:** 'tracy.wind@potawatomi.org'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Citizen Potawatomi OK Wind.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting parties in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)





## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:00 AM  
**To:** 'james.crawford@fcp-nsn.gov'  
**Subject:** Section 106 of the Historic Preservation Act  
**Attachments:** Forest Potawatomi WI Crawford.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
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7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:37 AM  
**To:** 'benjamin.rhodd@fcp-nsn.gov'  
**Subject:** Section 106 of the Historic Preservation Act  
**Attachments:** Forest Potawatomi WI Rhodd.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:04 AM  
**To:** 'tyderyien@hannahville.org'  
**Subject:** Section 106 of the Historic Preservation Act  
**Attachments:** Hannahville Meshigaud.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:07 AM  
**To:** 'tribalchair@ltbbodawa-nsn.gov'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** LTB Odawa Gasco-Bentley.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:09 AM  
**To:** 'mwiatrolik@ltbbodawa-nsn.gov'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** LTB Odawa Wiatrolik.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*





## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:11 AM  
**To:** 'alina.shively@lvd-nsn.gov'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** LVD Chippewa Shively.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:13 AM  
**To:** 'jim.williams@lvd-nsn.gov'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** LVD Chippewa Williams.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:14 AM  
**To:** 'dgrignon@mitw.org'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Menominee Grignon.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:16 AM  
**To:** 'chairman@mitw.org'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Menominee Kakkak.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:18 AM  
**To:** 'thpo@miamination.com'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Miami Lankford.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*





## Aaron Neitling

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**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:19 AM  
**To:** 'thpo@miamination.com'  
**Subject:** Section 106 of the National Historic Preservation Act-THPO  
**Attachments:** Miami York.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:20 AM  
**To:** 'kalisha.oto@gmail.com'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Ottawa Dixon.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
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7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

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**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:22 AM  
**To:** 'rhonda.oto@gmail.com'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Ottawa Hayworth.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:23 AM  
**To:** 'matthew.bussler@pokagonband-nsn.gov'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Pokagon Potawatomi MI Bussler.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

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**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:25 AM  
**To:** 'rebecca.richards@pokagonband-nsn.gov'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Pokagon Potawatomi MI Richards.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*





## Aaron Neitling

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**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:27 AM  
**To:** 'josephrupnick@pbpnation.org'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Prairie Band Potawatomi KS Rupnick.pdf

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)



## Aaron Neitling

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**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:28 AM  
**To:** 'raphaelwahwassuck@pbnation.org'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Prairie Band Potawatomi KS Wahwassuck.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:30 AM  
**To:** 'tidavis@sagchip.org'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Saginaw Chippewa Davis.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

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**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:31 AM  
**To:** 'mlhadden@sagchip.org'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Saginaw Chippewa Hadden.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

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**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 9:48 AM  
**To:** 'edonmyer1@saulttribe.net'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Sault Chippewa Donmyer.docx

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days, your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*





## Aaron Neitling

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**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:32 AM  
**To:** 'alowes@saulttribe.net'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Sault Chippewa Lowes.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

---

**From:** Anita Johnson  
**Sent:** Monday, September 23, 2024 8:34 AM  
**To:** 'mrichards@saulttribe.net'  
**Subject:** Section 106 of the National Historic Preservation Act  
**Attachments:** Sault Chippewa Richards.pdf

Good Morning,

The City of Portage wishes to invite you to be a consulting party in the review process to help identify historic properties in our project area that may have religious or cultural significance to your tribe. Please respond within 30 days and your assistance is greatly appreciated.

Thank you,

*Anita Johnson | Housing Resource Specialist  
City of Portage, Community Development Department  
7900 S. Westnedge Ave., Portage, MI 49002  
Office: (269)329-4510 Email: [ajohnson@portagemi.gov](mailto:ajohnson@portagemi.gov)*



## Aaron Neitling

---

**From:** Luke Heider <Luke.Heider@fcp-nsn.gov>  
**Sent:** Tuesday, October 1, 2024 8:15 AM  
**To:** Anita Johnson  
**Subject:** FCPC Response to City of Portage, Michigan, 2010 Woodbine Ave & 9617 Portage Rd

### CAUTION: THIS EMAIL IS FROM AN EXTERNAL SENDER

Do not click on links or open attachments unless this is from a sender you know and trust.

Pursuant to consultation under Section 106 of the National Historic Preservation Act (1966 as amended) the Forest County Potawatomi Community (FCPC), a Federally Recognized Native American Tribe, reserves the right to comment on Federal undertakings, as defined under the act.

The Tribal Historic Preservation Office (THPO) staff has reviewed the information you provided for the project. Upon review of site data and supplemental cultural history within our Office, the FCPC THPO is pleased to offer a finding of No Historic Properties affected of significance to the FCPC, however, we do wish to remain as a consulting party for this project.

As a standard caveat sent with each proposed project reviewed by the FCPC THPO, the following applies. In the event an Inadvertent Discovery (ID) occurs at any phase of a project or undertaking as defined, and human remains or archaeological materials are exposed as a result of project activities, work should cease immediately, and the Tribe(s) must be included with the SHPO in any consultation regarding treatment and disposition of the find.

Thank you for protecting cultural and historic properties and if you have any questions or concerns, please contact me at the email or number listed below.

Respectfully,

**Luke Heider | Tribal Historic Preservation Officer | Land & Natural Resources**

Forest County Potawatomi | 5320 Wensaut Lane | PO Box 340, Crandon, WI 54520

P: 715-478-7354 | C: 715-889-0585 | Main: 715-478-7222

[www.fcpotawatomi.com](http://www.fcpotawatomi.com) | [luke.heider@fcp-nsn.gov](mailto:luke.heider@fcp-nsn.gov)

*Please note the office hours are Monday – Thursday: 7:00 am – 5:00 pm. Our office is closed on Fridays*



## Pokégnek Bodéwadmik

POKAGON BAND OF POTAWATOMI  
HISTORY & CULTURE CENTER

10/09/2024

Anita Johnson  
7900 South Westnedge Avenue  
Portage  
MICHIGAN  
49002  
269-329-4510  
[AJohnson@portagemi.gov](mailto:AJohnson@portagemi.gov)

Single Family Homes Construction – 2010 Woodbine Avenue & 9617 Portage Road

Dear Responsible Party:

Migwêthh for contacting me regarding this project. As THPO, I am responsible for handling Section 106 Consultations on behalf of the tribe. I am writing to inform you that I have reviewed the details for the project referenced above. The proposed work is occurring within a mile of known archaeological sites, historic sites or features that are considered sensitive or recorded in the Pokagon Band Historic Inventory Database. I have made the determination that the project will have **No Adverse Effect** on any historic, religious, or culturally significant resources to the Pokagon Band of Potawatomi Indians.

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

Sincerely,

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

## Appendix A

### When To Consult With Tribes Under Section 106

Section 106 requires consultation with federally-recognized Indian tribes when a project may affect a historic property of religious and cultural significance to the tribe. Historic properties of religious and cultural significance include: archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, traditional cultural places, traditional cultural landscapes, plant and animal communities, and buildings and structures with significant tribal association. The types of activities that may affect historic properties of religious and cultural significance include: ground disturbance (digging), new construction in undeveloped natural areas, introduction of incongruent visual, audible, or atmospheric changes, work on a building with significant tribal association, and transfer, lease or sale of properties of the types listed above.

**If a project includes any of the types of activities below, invite tribes to consult:**

**X significant ground disturbance (digging)**

Examples: new sewer lines, utility lines (above and below ground), foundations, footings, grading, access roads

**X new construction in undeveloped natural areas**

Examples: industrial-scale energy facilities, transmission lines, pipelines, or new recreational facilities, in undeveloped natural areas like mountaintops, canyons, islands, forests, native grasslands, etc., and housing, commercial, and industrial facilities in such areas

**incongruent visual changes**

Examples: construction of a focal point that is out of character with the surrounding natural area, impairment of the vista or viewshed from an observation point in the natural landscape, or impairment of the recognized historic scenic qualities of an area

**incongruent audible changes**

Examples: increase in noise levels above an acceptable standard in areas known for their quiet, contemplative experience

**incongruent atmospheric changes**

Examples: introduction of lights that create skyglow in an area with a dark night sky

**work on a building with significant tribal association**

Examples: rehabilitation, demolition or removal of a surviving ancient tribal structure or village, or a building or structure that there is reason to believe was the location of a significant tribal event, home of an important person, or that served as a tribal school or community hall

**transfer, lease or sale of a historic property of religious and cultural significance**

Example: transfer, lease or sale of properties that contain archeological sites, burial grounds, sacred landscapes or features, ceremonial areas, plant and animal communities, or buildings and structures with significant tribal association

**None of the above apply**

**Portage Road Attainable Housing Project**  
Project

**Aaron Neitling, P.E.**  
Reviewed By

**September 19, 2024**  
Date



---

# **ATTACHMENT 12**

## **Noise Abatement and Control**





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

## Noise (EA Level Reviews) – PARTNER

<https://www.hudexchange.info/programs/environmental-review/noise-abatement-and-control>

**1. What activities does your project involve? Check all that apply:**

- ☒ New construction for residential use

NOTE: HUD assistance to new construction projects is generally prohibited if they are located in an Unacceptable zone, and HUD discourages assistance for new construction projects in Normally Unacceptable zones. See 24 CFR 51.101(a)(3) for further details.

→ Continue to Question 2.

- ☐ Rehabilitation of an existing residential property

NOTE: For major or substantial rehabilitation in Normally Unacceptable zones, HUD encourages mitigation to reduce levels to acceptable compliance standards. For major rehabilitation in Unacceptable zones, HUD strongly encourages mitigation to reduce levels to acceptable compliance standards. See 24 CFR 51 Subpart B for further details.

→ Continue to Question 2.

- ☐ None of the above

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.

**2. Complete the Preliminary Screening to identify potential noise generators in the vicinity (1000' from a major road, 3000' from a railroad, or 15 miles from an airport).**

**Indicate the findings of the Preliminary Screening below:**

- ☐ There are no noise generators found within the threshold distances above.

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map showing the location of the project relative to any noise generators.

- ☒ Noise generators were found within the threshold distances.

→ Continue to Question 3.

**3. Complete the Noise Assessment Guidelines to quantify the noise exposure. Indicate the findings of the Noise Assessment below:**

- ☒ Acceptable (65 decibels or less; the ceiling may be shifted to 70 decibels in circumstances described in §24 CFR 51.105(a))

**Indicate noise level here:** 65 (see attached DNL Calculator printout)

→ If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide noise analysis, including noise level and data used to complete the analysis.

☐ Normally Unacceptable: (Above 65 decibels but not exceeding 75 decibels; the floor may be shifted to 70 decibels in circumstances described in 24 CFR 51.105(a))

**Indicate noise level here:** [Click here to enter text.](#)

If project is rehabilitation:

→ *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis.*

If project is new construction:

**Is the project in a largely undeveloped area<sup>1</sup>?**

☐ No

☐ Yes → ***The project requires completion of an Environmental Impact Statement (EIS) pursuant to 51.104(b)(1)(i).***

→ *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis.*

☐ Unacceptable: (Above 75 decibels)

**Indicate noise level here:** [Click here to enter text.](#)

If project is rehabilitation:

*HUD strongly encourages conversion of noise-exposed sites to land uses compatible with high noise levels. Consider converting this property to a non-residential use compatible with high noise levels.*

→ *Continue to Question 4. Provide noise analysis, including noise level and data used to complete the analysis, and any other relevant information.*

If project is new construction:

***The project requires completion of an Environmental Impact Statement (EIS) pursuant to 51.104(b)(1)(i). Work with HUD or the RE to either complete an EIS or obtain a waiver signed by the appropriate authority.***

→ *Continue to Question 4.*

**4. HUD strongly encourages mitigation be used to eliminate adverse noise impacts. Work with the RE/HUD on the development of the mitigation measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**

☐ Mitigation as follows will be implemented:

[Click here to enter text.](#)

→ *Provide drawings, specifications, and other materials as needed to describe the project's noise mitigation measures.*

*Continue to the Worksheet Summary.*

☐ No mitigation is necessary.

---

<sup>1</sup> A largely undeveloped area means the area within 2 miles of the project site is less than 50 percent developed with urban uses and does not have water and sewer capacity to serve the project.

**Explain why mitigation will not be made here:**

Click here to enter text.

→ *Continue to the Worksheet Summary.*

**Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

**Include all documentation supporting your findings in your submission to HUD.**

Portage Road, a four-lane roadway located west of the project site is the nearest major roadway to the subject property. The property is bounded on the north and south by two local streets. According to the Kalamazoo Area Transportation Study (KATS) and the Michigan Department of Transportation (MDOT) MS2 webportal, the 2023 ADT for this stretch of roadway was 17,340 veh/day. The traffic count indicated that 10% were medium/large trucks. Based on this the ADT is approximately 15,780 automotive vehicles and 1,560 medium/heavy trucks. The site was measured to be approximately 240' from the nearest proposed residential unit to Portage Road. Using this information and the on-line HUD Exchange Day/Night Noise Level (DNL) Calculator, the DNL for Portage Road was found to be 64 dB, which is considered "Acceptable" according to HUD guidelines. Since the KATS/MDOT data did not differentiate the type of trucks (medium vs heavy) all commercial vehicles were counted as "heavy" in the analysis.

The Kalamazoo/Battle Creek International Airport is located approximately 3 miles from the project site, it is within the 15 mile radius required for noise generators. Due to proposed runway expansion plans, the airport had an Environmental Assessment completed which was available on-line (<https://flyazo.com/about-the-airport/documents-plans-projects-reports/airport-projects/>). In Appendix M of the report their were DNL contour maps for the existing and proposed runway improvements. Based on those contour maps it was identified that a 60 DNL line was located approximately 0.3 miles south of the airport property, which was approx 2.3 miles from the site. Adding this additional information to the DNL Calculator it was shown that the total DNL including the airport, was found to be 65 dB, which is considered "Acceptable".

<https://www.hudexchange.info/programs/environmental-review/noise-abatement-and-control/>

Traffic Count Data: KATS website: <https://www.katsmpo.org/documents-resources>

MDOT MS2 portal: <https://mdot.public.ms2soft.com/tcds/tsearch.asp>

FAA Airport Noise Compatibility Planning Info:

[https://www.faa.gov/airports/environmental/airport\\_noise/noise\\_exposure\\_maps](https://www.faa.gov/airports/environmental/airport_noise/noise_exposure_maps)

There is no report/map for Kalamazoo/Battle Creek Airport

No railroads within 3,000'

Airport within 15 miles, it is about 3 miles away

Portage Road (minor arterial) is the major street less than 1000' away, but there are no stop signs on Portage Road

HUD Exchange – Day/Night Noise Level Electronic Assessment Tool (DNL Calculator):

<https://www.hudexchange.info/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/>

HUD Noise Guidebook: <https://www.hudexchange.info/resource/313/hud-noise-guidebook/>  
Kalamazoo Airport Noise Curfew (Appendix A – Environmental Assessment for Runway 17/35 Extension and Taxiway C Realignment: <https://flyazo.com/about-the-airport/documents-plans-projects-reports/airport-projects/>  
Kalamazoo Airport – Noise and Vibration Analysis: DNL Contours Map: (Appendix M ): <https://flyazo.com/about-the-airport/documents-plans-projects-reports/airport-projects/>  
Project site is outside of the 60 DNL line.



[Home \(/\)](#) > [Programs \(/programs/\)](#) > [Environmental Review \(/programs/environmental-review/\)](#) > Day/Night Noise Level (DNL) Calculator


## Day/Night Noise Level (DNL) Calculator

The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the [Day/Night Noise Level Calculator Electronic Assessment Tool Overview \(/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/\)](#).

### Guidelines

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.
- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- **Note #2:** DNL Calculator assumes roadway data is always entered.

### DNL Calculator

Site ID	Stanwood Crossings
Record Date	10 / 14 / 2024 
User's Name	Aaron Neitling

Road # 1 Name:	Portage Road
----------------	--------------

Vehicle Type	Cars <input checked="" type="checkbox"/>	Medium Trucks <input type="checkbox"/>	Heavy Trucks <input checked="" type="checkbox"/>
Effective Distance	<input type="text" value="240"/>	<input type="text"/>	<input type="text" value="240"/>
Distance to Stop Sign	<input type="text"/>	<input type="text"/>	<input type="text"/>
Average Speed	<input type="text" value="45"/>	<input type="text"/>	<input type="text" value="45"/>
Average Daily Trips (ADT)	<input type="text" value="15780"/>	<input type="text"/>	<input type="text" value="1560"/>
Night Fraction of ADT	<input type="text" value="10"/>	<input type="text"/>	<input type="text" value="5"/>
Road Gradient (%)	<input type="text"/>	<input type="text"/>	<input type="text" value="1"/>
Vehicle DNL	<input type="text" value="57"/>	<input type="text" value="0"/>	<input type="text" value="63"/>
<div>Calculate Road #1 DNL</div>	<input type="text" value="64"/>	<div>Reset</div>	

Add Road Source

Add Rail Source

Airport Noise Level

Loud Impulse Sounds?

☐ Yes ☒ NoCombined DNL for all  
Road and Rail sources

Combined DNL including Airport

Site DNL with Loud Impulse Sound

Calculate

Reset

## Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative:** Cancel the project at this location
- **Other Reasonable Alternatives:** Choose an alternate site
- **Mitigation**
  - Contact your Field or Regional Environmental Officer (</programs/environmental-review/hud-environmental-staff-contacts/>)
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers. See *The Noise Guidebook* (</resource/313/hud-noise-guidebook/>)
  - Construct noise barrier. See the Barrier Performance Module (</programs/environmental-review/bpm-calculator/>)

## Tools and Guidance

Day/Night Noise Level Assessment Tool User Guide (</resource/3822/day-night-noise-level-assessment-tool-user-guide/>)

Day/Night Noise Level Assessment Tool Flowcharts (</resource/3823/day-night-noise-level-assessment-tool-flowcharts/>)

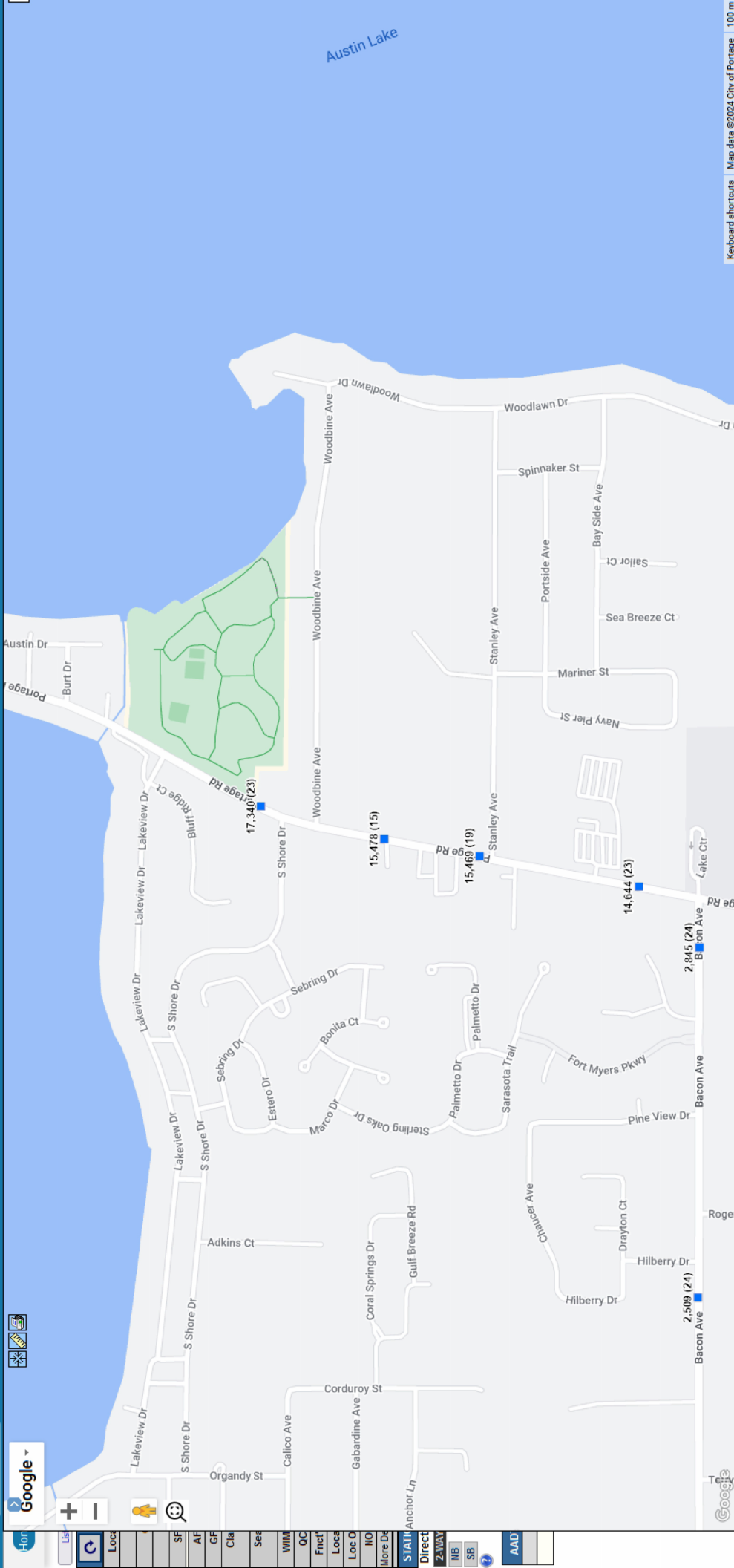
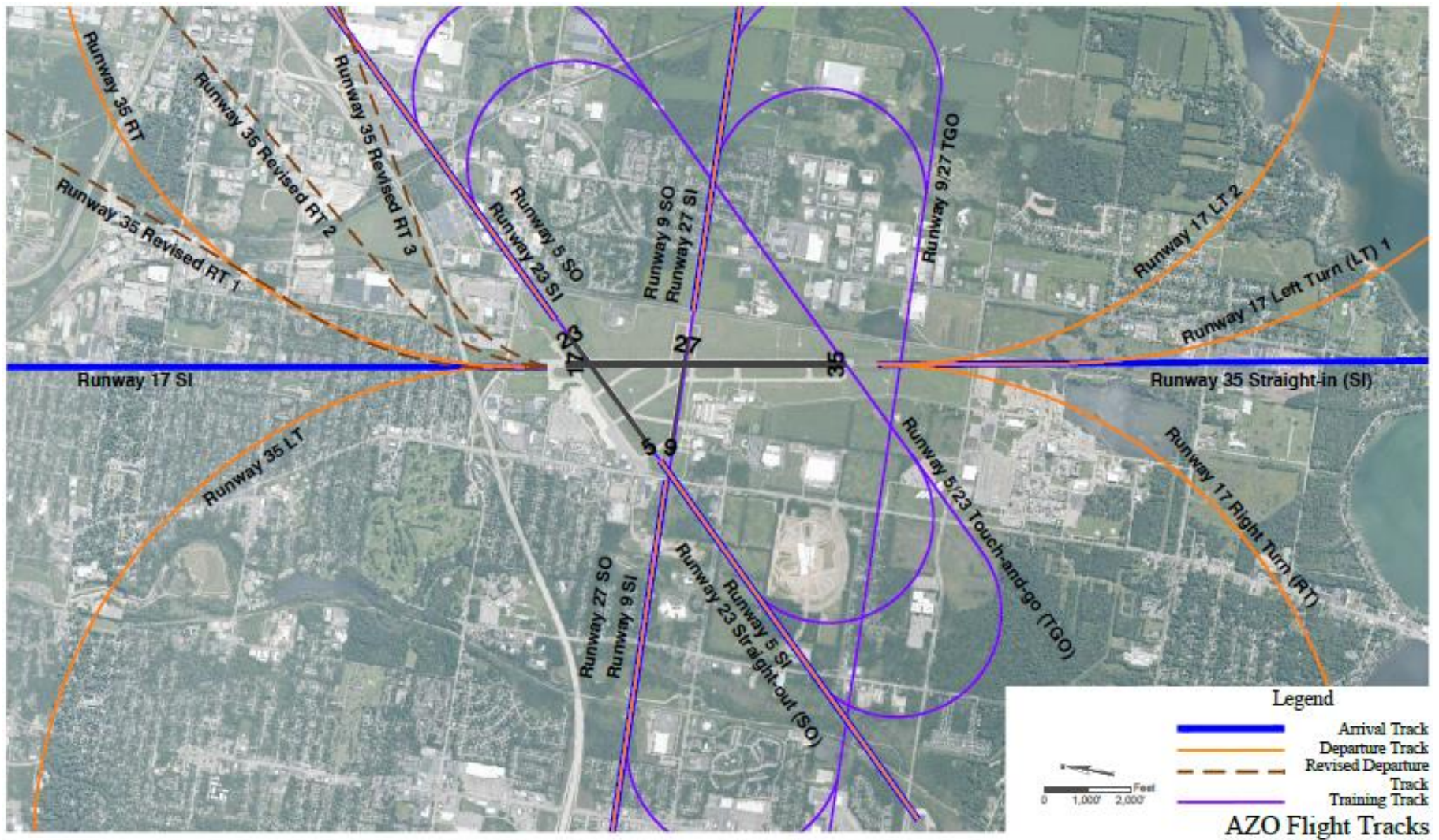
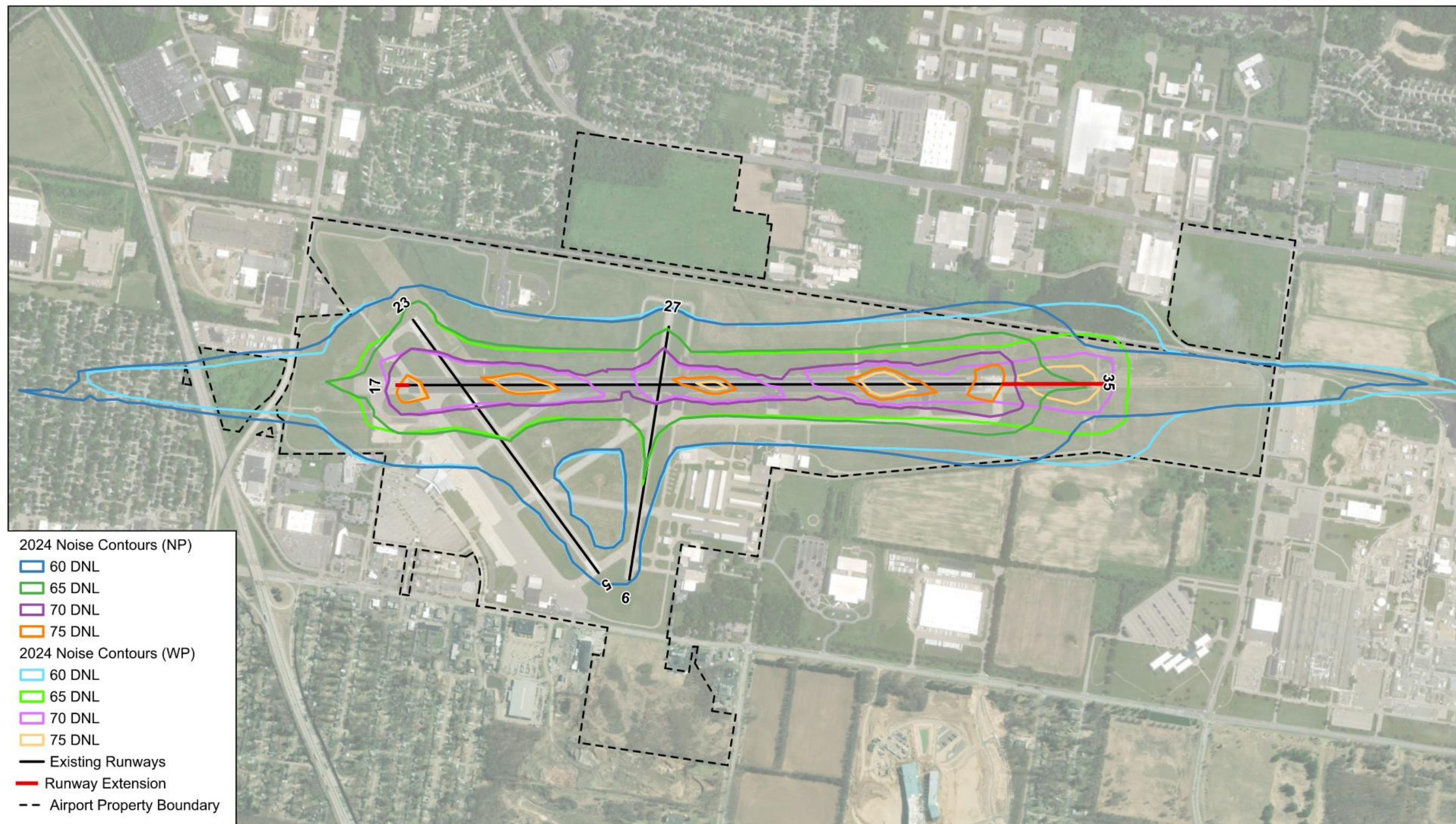


Figure 2.0: AZO Flight Tracks for Noise Modeling



Source: AZO ATCT



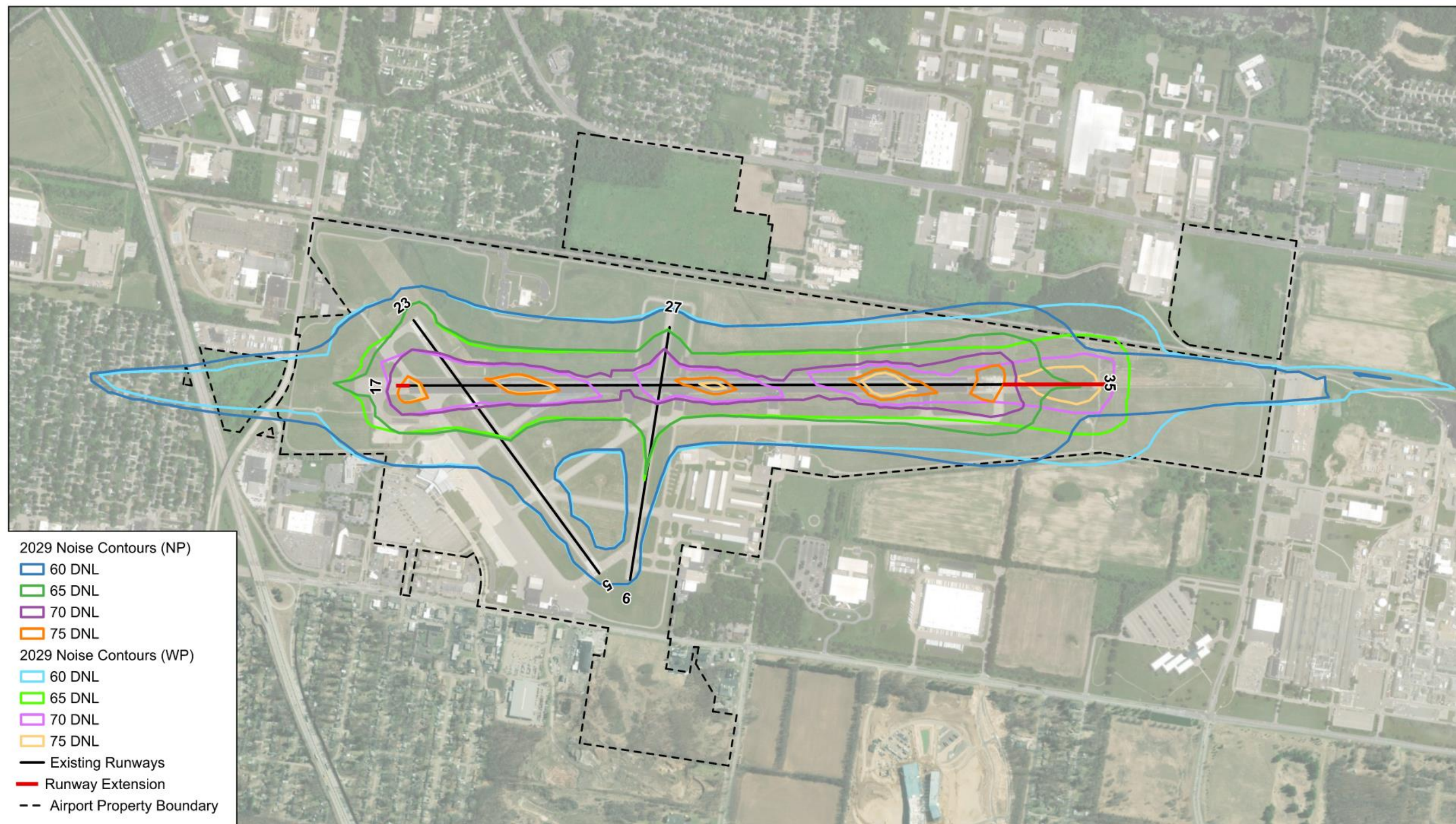


NP - No Project / No Runway Extension  
 WP - With Project / Runway Extension is Constructed

0 1,000 2,000 Feet

Kalamazoo-Battle Creek International Airport  
 2024 EA Noise Contours - Comparison





NP - No Project / No Runway Extension  
 WP - With Project / Runway Extension is Constructed



Kalamazoo-Battle Creek International Airport  
 2029 EA Noise Contours - Comparison



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## **ATTACHMENT 13**

### **Sole Source Aquifers**





**U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT**  
WASHINGTON, DC 20410-1000

## **Sole Source Aquifers (CEST and EA) - PARTNER**

<https://www.hudexchange.info/environmental-review/sole-source-aquifers>

### **1. Is the project located on a sole source aquifer (SSA)<sup>1</sup>?**

☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination, such as a map of your project or jurisdiction in relation to the nearest SSA.*

☐ Yes → *Continue to Question 2.*

### **2. Does the project consist solely of acquisition, leasing, or rehabilitation of an existing building(s)?**

☐ Yes → *The review is in compliance with this section. Continue to the Worksheet Summary below.*

☐ No → *Continue to Question 3.*

### **3. Does your region have a memorandum of understanding (MOU) or other working agreement with EPA for HUD projects impacting a sole source aquifer?**

Contact your Field or Regional Environmental Officer or visit the HUD webpage at the link above to determine if an MOU or agreement exists in your area.

☐ Yes → *Continue to Question 4.*

☐ No → *Continue to Question 5.*

### **4. Does your MOU or working agreement exclude your project from further review?**

☐ Yes → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide documentation used to make your determination and document where your project fits within the MOU or agreement.*

☐ No → *Continue to Question 5.*

### **5. Will the proposed project contaminate the aquifer and create a significant hazard to public health?**

Consult with your Regional EPA Office. Your consultation request should include detailed information about your proposed project and its relationship to the aquifer and associated streamflow source area. EPA will also want to know about water, storm water and waste water at the proposed project. Follow your MOU or working agreement or contact your Regional EPA office for specific information you may need to provide. EPA may request additional information if impacts to the aquifer are questionable after this information is submitted for review.

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<sup>1</sup> A sole source aquifer is defined as an aquifer that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. This includes streamflow source areas, which are upstream areas of losing streams that flow into the recharge area.

- ☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide your correspondence with the EPA and all documents used to make your determination.*
- ☐ Yes → *The RE/HUD will work with EPA to develop mitigation measures. If mitigation measures are approved, attach correspondence with EPA and include the mitigation measures in your environmental review documents and project contracts. If EPA determines that the project continues to pose a significant risk to the aquifer, federal financial assistance must be denied. Continue to Question 6.*

### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

### **Include all documentation supporting your findings in your submission to HUD.**

The project is not located on a sole source aquifer area. The project is in compliance with Sole Source Aquifer requirements.

As shown on the attached map there are no sole source aquifers in the project area. The site will be connected to municipally owned and maintained water/sewer systems. No concerns are noted and no action is warranted at this time.

Per mapping from the EPA NEPAassist there were no sole source aquifers in Michigan. See attached map.

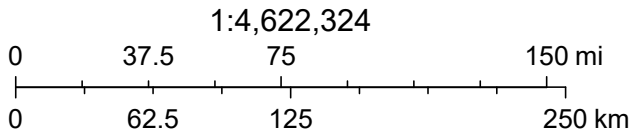


# ArcGIS Web AppBuilder



7/12/2024, 9:51:24 AM

 Sole\_Source\_Aquifers



Esri, HERE, Garmin, NGA, USGS, NPS

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# **ATTACHMENT 14**

## **Wetlands Protection**







U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

## Wetlands (CEST and EA) – Partner

<https://www.hudexchange.info/environmental-review/wetlands-protection>

**1. Does this project involve new construction as defined in Executive Order 11990, expansion of a building's footprint, or ground disturbance?**

The term "new construction" includes draining, dredging, channelizing, filling, diking, impounding, and related activities and construction of any any structures or facilities.

☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

☒ Yes → *Continue to Question 2.*

**2. Will the new construction or other ground disturbance impact a wetland as defined in E.O. 11990?**

☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide a map or any other relevant documentation to explain your determination.*

☐ Yes → *Work with HUD or the RE to assist with the 8-Step Process.* *Continue to Question 3.*

**3. Does Section 55.12 state that the 8-Step Process is not required?**

☐ No, the 8-Step Process applies.

This project will require mitigation and may require elevating structure or structures. See the link to the HUD Exchange above for information on HUD's elevation requirements.

→ *Work with the RE/HUD to assist with the 8-Step Process. Continue to Worksheet Summary.*

☐ 5-Step Process is applicable per 55.12(a).

**Provide the applicable citation at 24 CFR 55.12(a) here.**

[Click here to enter text.](#)

→ *Work with the RE/HUD to assist with the 5-Step Process. This project may require mitigation or alternations. Continue to Worksheet Summary.*

☐ 8-Step Process is inapplicable per 55.12(b).

**Provide the applicable citation at 24 CFR 55.12(b) here.**

[Click here to enter text.](#)

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to Worksheet Summary.*

☐ 8-Step Process is inapplicable per 55.12(c).

**Provide the applicable citation at 24 CFR 55.12(c) here.**

Click here to enter text.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to Worksheet Summary.*

### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

### **Include all documentation supporting your findings in your submission to HUD.**

The project will not impact on- or off-site wetlands. The project is in compliance with Executive Order 11990.

Per a review of the USFWS National Wetlands Inventory as shown on the attached map, there is no wetlands present on the project site.

As part of the Phase 1 ESA conducted in April 24, 2023, there were no wetlands noted as identified on Page 11 of this report.



U.S. Fish and Wildlife Service

# National Wetlands Inventory

## Wetlands Map



July 15, 2024

### Wetlands

	Estuarine and Marine Deepwater		Freshwater Emergent Wetland		Lake
	Estuarine and Marine Wetland		Freshwater Forested/Shrub Wetland		Other
			Freshwater Pond		Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.



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## **ATTACHMENT 15**

### **Wild and Scenic Rivers**





U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

## Wild and Scenic Rivers (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/wild-and-scenic-rivers>

**1. Is your project within proximity of a Wild and Scenic River, Study River, or Nationwide Rivers Inventory River?**

☒ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Provide documentation used to make your determination.*

☐ Yes → *Continue to Question 2.*

**2. Could the project do *any* of the following?**

- Have a direct and adverse effect within Wild and Scenic River Boundaries,
- Invade the area or unreasonably diminish the river outside Wild and Scenic River Boundaries, or
- Have an adverse effect on the natural, cultural, and/or recreational values of a NRI segment.

Consult with the appropriate federal/state/local/tribal Managing Agency(s), pursuant to Section 7 of the Act, to determine if the proposed project may have an adverse effect on a Wild & Scenic River or a Study River and, if so, to determine the appropriate avoidance or mitigation measures.

**Select one:**

☐ The Managing Agency has concurred that the proposed project will not alter, directly, or indirectly, any of the characteristics that qualifies or potentially qualifies the river for inclusion in the NWSRS.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Provide documentation of the consultation (including the Managing Agency's concurrence) and any other documentation used to make your determination.*

☐ The Managing Agency was consulted and the proposed project may alter, directly, or indirectly, any of the characteristics that qualifies or potentially qualifies the river for inclusion in the NWSRS.

→ *The RE/HUD must work with the Managing Agency to identify mitigation measures to mitigate the impact or effect of the project on the river.*

### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

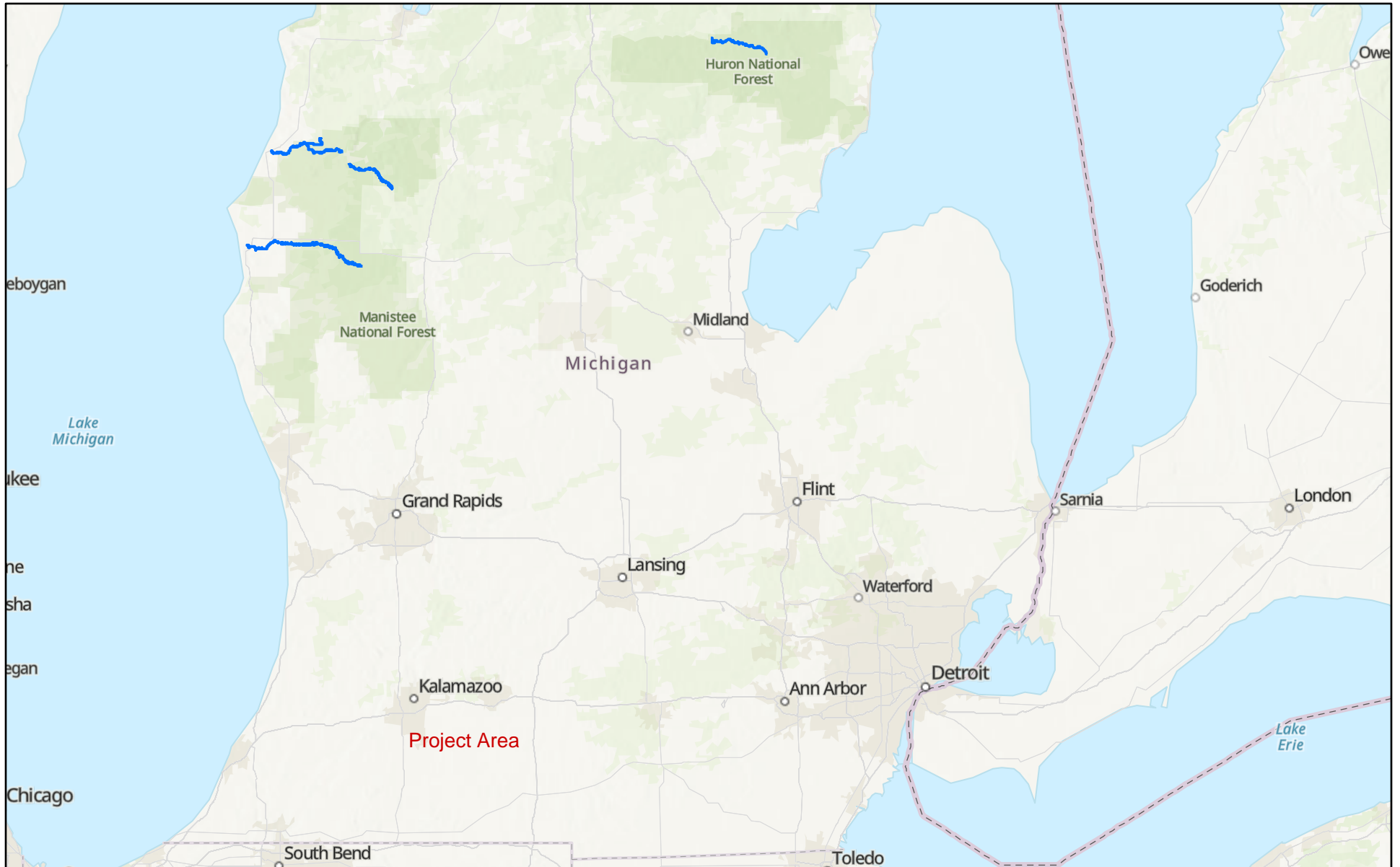
**Include all documentation supporting your findings in your submission to HUD.**

Per attached map from National Wild and Scenic River website.

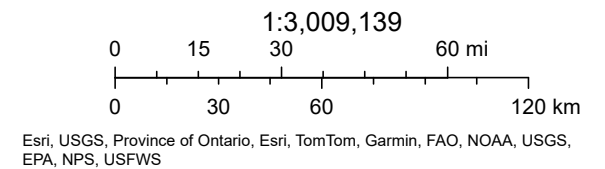
No wild or scenic rivers in project area.

Mapping provided by Anita Johnson, City of Portage

# Wild and Scenic Rivers



7/15/2024



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# **ATTACHMENT 16**

## **Environmental Justice**







U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
WASHINGTON, DC 20410-1000

This Worksheet was designed to be used by those “Partners” (including Public Housing Authorities, consultants, contractors, and nonprofits) who assist Responsible Entities and HUD in preparing environmental reviews, but legally cannot take full responsibilities for these reviews themselves. Responsible Entities and HUD should use the RE/HUD version of the Worksheet.

## Environmental Justice (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/environmental-justice>

**HUD strongly encourages starting the Environmental Justice analysis only after all other laws and authorities, including Environmental Assessment factors if necessary, have been completed.**

**1. Were any adverse environmental impacts identified in any other compliance review portion of this project’s total environmental review?**

☒ Yes → *Continue to Question 2.*

☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

**2. Were these adverse environmental impacts disproportionately high for low-income and/or minority communities?**

☐ Yes

**Explain:**

*Click here to enter text.*

→ *The RE/HUD must work with the affected low-income or minority community to decide what mitigation actions, if any, will be taken. Provide any supporting documentation.*

☒ No

**Explain:**

The project area contains proportionally fewer low-income and minority individuals than the surrounding area. An analysis of individuals within 0.2 mile vs 1 mile was completed to determine the potentially affected individuals. See EJSscreen Community Reports and ACS Summary Reports of 0.2 mile and 1 mile.

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below.*

### **Worksheet Summary**

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

**Include all documentation supporting your findings in your submission to HUD.**

Adverse environmental impacts are not disproportionately high for low-income and/or minority communities. The project is in compliance with Executive Order 12898.

See attached reports from the USEPA EJScreen website



# EJScreen Community Report

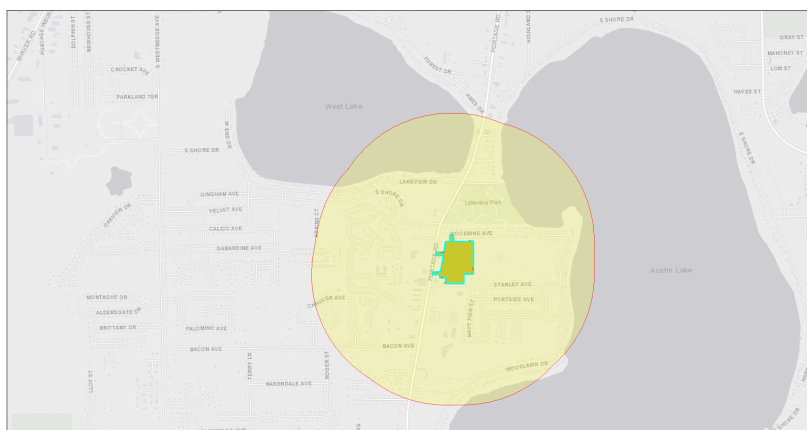
This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

## EJ Report

.5 miles Ring around the Area

Population: 2,032

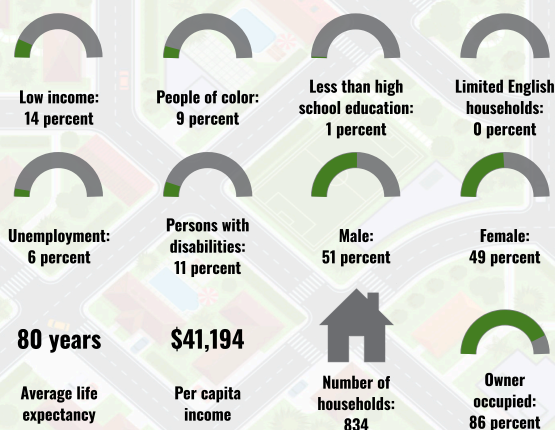
Area in square miles: 1.12



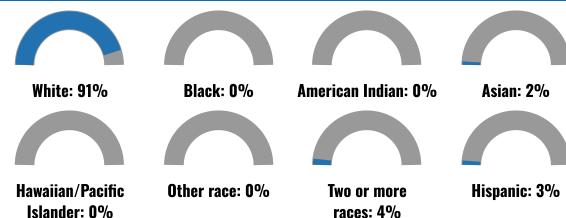
October 18, 2024  
EJ Report  
project boundary

1:18,056  
0 0.15 0.3 0.6 mi  
0 0.28 0.55 1.1 km  
EPA, HERE, City of Portage, MI, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA

### COMMUNITY INFORMATION



### BREAKDOWN BY RACE



### BREAKDOWN BY AGE



### LIMITED ENGLISH SPEAKING BREAKDOWN



Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race. Source: U.S. Census Bureau, American Community Survey (ACS) 2018-2022. Life expectancy data comes from the Centers for Disease Control.

### LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	94%
Spanish	3%
Other Indo-European	1%
Vietnamese	2%
Total Non-English	6%

Report for .5 miles Ring around the Area

Report produced October 18, 2024 using EJScreen Version 2.3

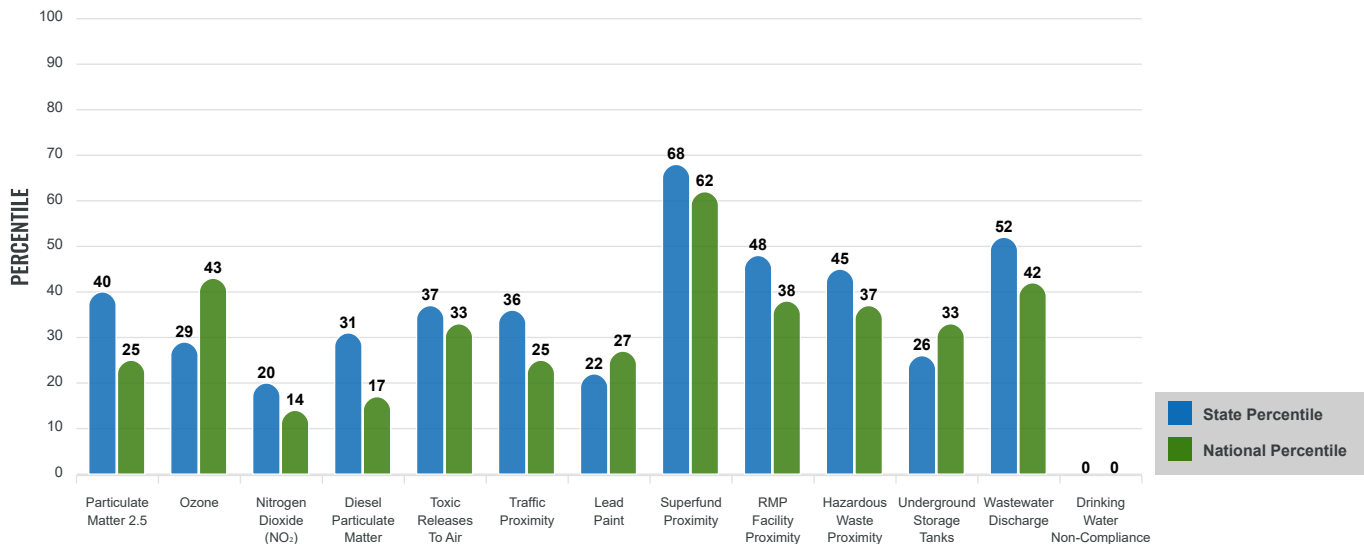
## Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the [EJScreen website](#).

### EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

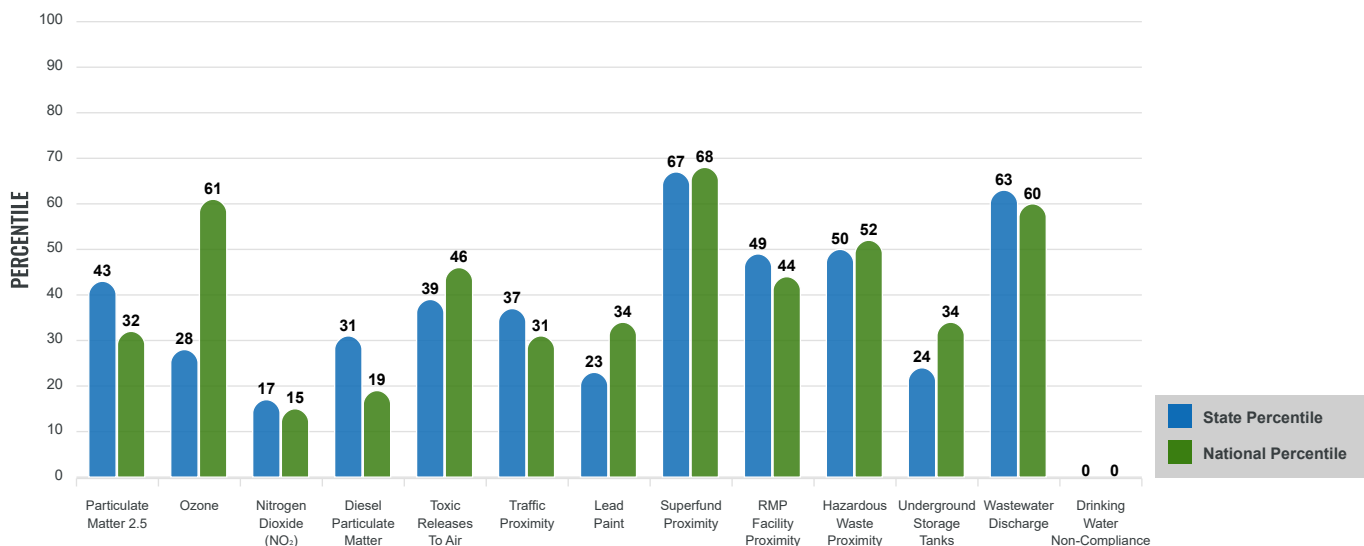
#### EJ INDEXES FOR THE SELECTED LOCATION



### SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low income, percent persons with disabilities, percent less than high school education, percent limited English speaking, and percent low life expectancy with a single environmental indicator.

#### SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



Report for .5 miles Ring around the Area

Report produced October 18, 2024 using EJScreen Version 2.3

# EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
<b>ENVIRONMENTAL BURDEN INDICATORS</b>					
Particulate Matter 2.5 ( $\mu\text{g}/\text{m}^3$ )	7.86	7.84	52	8.45	39
Ozone (ppb)	67	67.3	36	61.8	78
Nitrogen Dioxide ( $\text{NO}_2$ ) (ppbv)	4.5	7.7	21	7.8	18
Diesel Particulate Matter ( $\mu\text{g}/\text{m}^3$ )	0.0921	0.116	35	0.191	25
Toxic Releases to Air (toxicity-weighted concentration)	950	2,500	47	4,600	58
Traffic Proximity (daily traffic count/distance to road)	450,000	910,000	44	1,700,000	38
Lead Paint (% Pre-1960 Housing)	0.16	0.38	29	0.3	43
Superfund Proximity (site count/km distance)	0.38	0.28	80	0.39	79
RMP Facility Proximity (facility count/km distance)	0.32	0.38	63	0.57	53
Hazardous Waste Proximity (facility count/km distance)	2.4	2	63	3.5	63
Underground Storage Tanks (count/ $\text{km}^2$ )	1.4	7.6	41	3.6	56
Wastewater Discharge (toxicity-weighted concentration/m distance)	1800	880	93	700000	78
Drinking Water Non-Compliance (points)	0	0.39	0	2.2	0
<b>SOCIOECONOMIC INDICATORS</b>					
Demographic Index USA	0.48	N/A	N/A	1.34	13
Supplemental Demographic Index USA	1.09	N/A	N/A	1.64	22
Demographic Index State	0.49	1.18	20	N/A	N/A
Supplemental Demographic Index State	0.91	1.5	18	N/A	N/A
People of Color	9%	26%	34	40%	20
Low Income	14%	31%	25	30%	26
Unemployment Rate	5%	6%	57	6%	61
Limited English Speaking Households	0%	2%	0	5%	0
Less Than High School Education	1%	9%	16	11%	14
Under Age 5	4%	5%	46	5%	45
Over Age 64	21%	18%	66	18%	69

\*Diesel particulate matter index is from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>.

## Sites reporting to EPA within defined area:

Superfund .....	0
Hazardous Waste, Treatment, Storage, and Disposal Facilities .....	0
Water Dischargers .....	0
Air Pollution .....	0
Brownfields .....	1
Toxic Release Inventory .....	0

## Other community features within defined area:

Schools .....	1
Hospitals .....	0
Places of Worship .....	2

## Other environmental data:

Air Non-attainment .....	Yes
Impaired Waters .....	Yes

Selected location contains American Indian Reservation Lands* .....	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community .....	No
Selected location contains an EPA IRA disadvantaged community .....	No

Report for .5 miles Ring around the Area

Report produced October 18, 2024 using EJScreen Version 2.3



## EJScreen Environmental and Socioeconomic Indicators Data

### HEALTH INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	18%	20%	30	20%	40
Heart Disease	5.1	6.3	20	5.8	37
Asthma	10.1	11.4	13	10.3	45
Cancer	7.5	7	62	6.4	72
Persons with Disabilities	11.3%	14.9%	28	13.7%	39

### CLIMATE INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	4%	7%	37	12%	33
Wildfire Risk	0%	0%	0	14%	0

### CRITICAL SERVICE GAPS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	5%	13%	23	13%	29
Lack of Health Insurance	4%	5%	40	9%	28
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access Burden	Yes	N/A	N/A	N/A	N/A
Food Desert	No	N/A	N/A	N/A	N/A

Report for .5 miles Ring around the Area

Report produced October 18, 2024 using EJScreen Version 2.3



# EJScreen Community Report

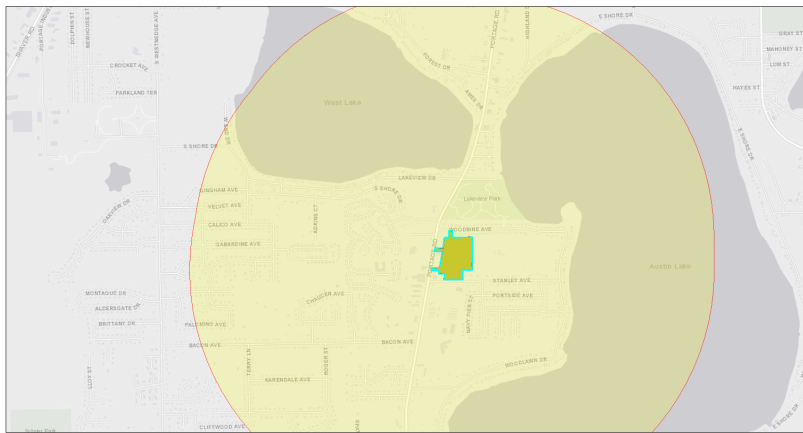
This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

## EJ Report

1 mile Ring around the Area

Population: 5,083

Area in square miles: 3.79

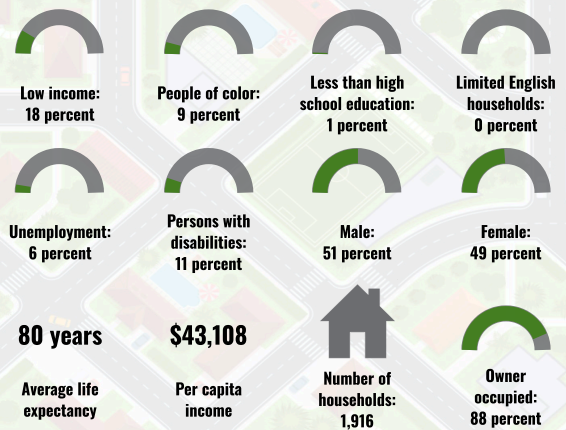


October 18, 2024  
EJ Report  
project boundary

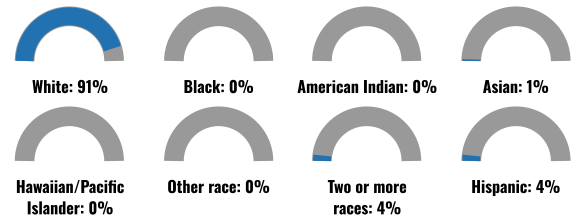
1:18,056  
0 0.15 0.3 0.6 mi  
0 0.28 0.55 1.1 km

Esri, HERE, City of Portage, MI, Esri, HERE, Garmin, GeoTechnology, Inc., USGS, EPA

### COMMUNITY INFORMATION



### BREAKDOWN BY RACE



### BREAKDOWN BY AGE



### LIMITED ENGLISH SPEAKING BREAKDOWN



Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race. Source: U.S. Census Bureau, American Community Survey (ACS) 2018-2022. Life expectancy data comes from the Centers for Disease Control.

### LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	95%
Spanish	2%
Russian, Polish, or Other Slavic	2%
Vietnamese	1%
Arabic	1%
Total Non-English	5%

Report for 1 mile Ring around the Area

Report produced October 18, 2024 using EJScreen Version 2.3

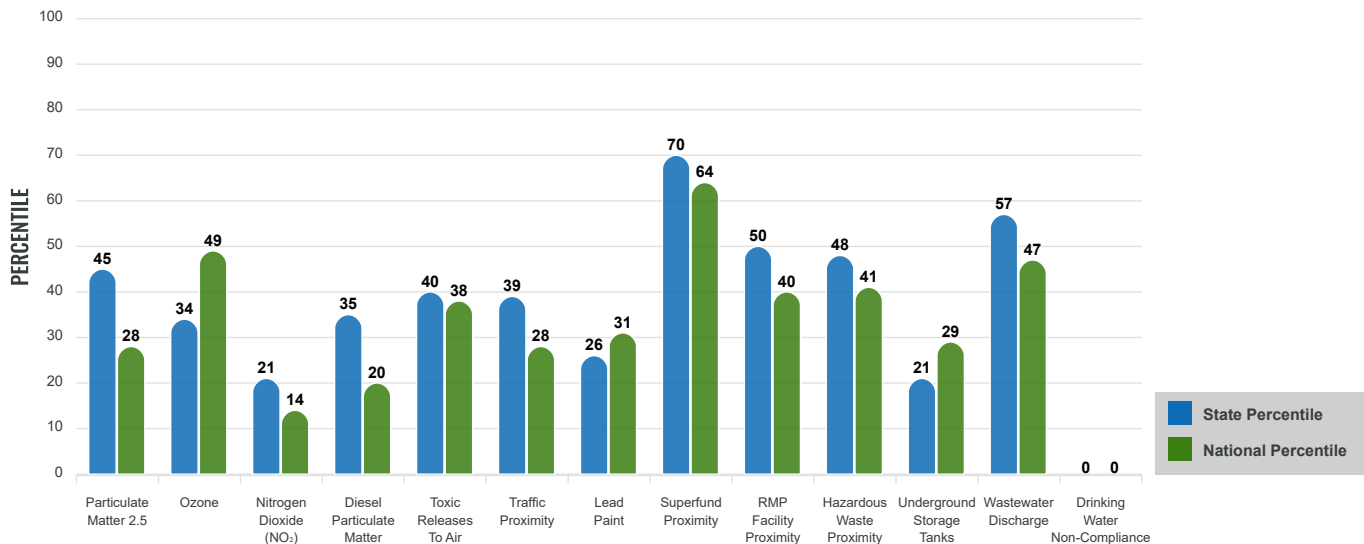
## Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the [EJScreen website](#).

### EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

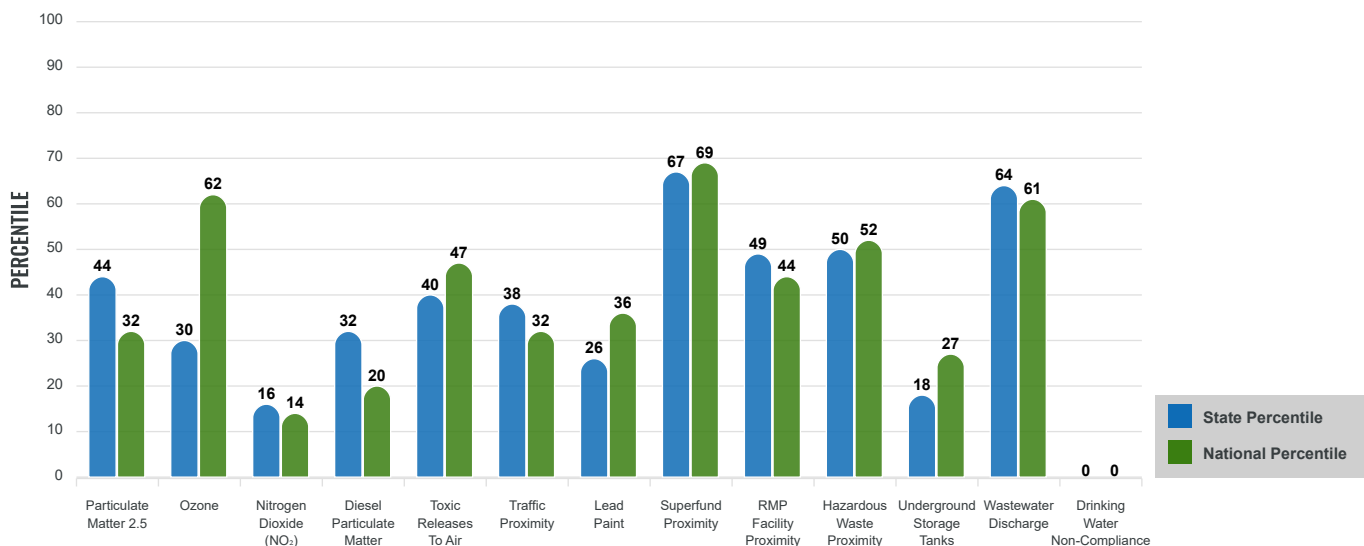
#### EJ INDEXES FOR THE SELECTED LOCATION



### SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low income, percent persons with disabilities, percent less than high school education, percent limited English speaking, and percent low life expectancy with a single environmental indicator.

#### SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



Report for 1 mile Ring around the Area

Report produced October 18, 2024 using EJScreen Version 2.3

# EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
<b>ENVIRONMENTAL BURDEN INDICATORS</b>					
Particulate Matter 2.5 ( $\mu\text{g}/\text{m}^3$ )	7.86	7.84	52	8.45	39
Ozone (ppb)	67	67.3	37	61.8	78
Nitrogen Dioxide (NO <sub>2</sub> ) (ppbv)	4.4	7.7	20	7.8	17
Diesel Particulate Matter ( $\mu\text{g}/\text{m}^3$ )	0.0939	0.116	36	0.191	26
Toxic Releases to Air (toxicity-weighted concentration)	930	2,500	46	4,600	58
Traffic Proximity (daily traffic count/distance to road)	460,000	910,000	45	1,700,000	38
Lead Paint (% Pre-1960 Housing)	0.19	0.38	33	0.3	47
Superfund Proximity (site count/km distance)	0.38	0.28	80	0.39	79
RMP Facility Proximity (facility count/km distance)	0.31	0.38	62	0.57	52
Hazardous Waste Proximity (facility count/km distance)	2.4	2	62	3.5	62
Underground Storage Tanks (count/km <sup>2</sup> )	0.86	7.6	36	3.6	50
Wastewater Discharge (toxicity-weighted concentration/m distance)	1900	880	94	700000	78
Drinking Water Non-Compliance (points)	0	0.39	0	2.2	0
<b>SOCIOECONOMIC INDICATORS</b>					
Demographic Index USA	0.56	N/A	N/A	1.34	18
Supplemental Demographic Index USA	1.12	N/A	N/A	1.64	23
Demographic Index State	0.57	1.18	25	N/A	N/A
Supplemental Demographic Index State	0.93	1.5	19	N/A	N/A
People of Color	9%	26%	32	40%	19
Low Income	18%	31%	33	30%	34
Unemployment Rate	6%	6%	62	6%	66
Limited English Speaking Households	0%	2%	0	5%	0
Less Than High School Education	1%	9%	14	11%	13
Under Age 5	4%	5%	44	5%	43
Over Age 64	25%	18%	77	18%	79

\*Diesel particulate matter index is from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>.

## Sites reporting to EPA within defined area:

Superfund	0
Hazardous Waste, Treatment, Storage, and Disposal Facilities	0
Water Dischargers	0
Air Pollution	0
Brownfields	1
Toxic Release Inventory	0

## Other community features within defined area:

Schools	1
Hospitals	0
Places of Worship	3

## Other environmental data:

Air Non-attainment	Yes
Impaired Waters	Yes

Selected location contains American Indian Reservation Lands*	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community	No
Selected location contains an EPA IRA disadvantaged community	No

Report for 1 mile Ring around the Area

Report produced October 18, 2024 using EJScreen Version 2.3

## EJScreen Environmental and Socioeconomic Indicators Data

### HEALTH INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	18%	20%	29	20%	39
Heart Disease	5.3	6.3	26	5.8	44
Asthma	10.1	11.4	13	10.3	46
Cancer	7.7	7	71	6.4	78
Persons with Disabilities	11%	14.9%	27	13.7%	37

### CLIMATE INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	3%	7%	37	12%	32
Wildfire Risk	0%	0%	0	14%	0

### CRITICAL SERVICE GAPS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	4%	13%	19	13%	24
Lack of Health Insurance	5%	5%	60	9%	41
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access Burden	Yes	N/A	N/A	N/A	N/A
Food Desert	No	N/A	N/A	N/A	N/A

Report for 1 mile Ring around the Area

Report produced October 18, 2024 using EJScreen Version 2.3



Location: User-specified polygonal location

Ring (buffer): 1-miles radius

Description:

Summary of ACS Estimates		2018 - 2022	
Population		5,083	
Population Density (per sq. mile)		1,995	
People of Color Population		440	
% People of Color Population		9%	
Households		1,916	
Housing Units		2,178	
Housing Units Built Before 1950		146	
Per Capita Income		43,108	
Land Area (sq. miles) (Source: SF1)		2.55	
% Land Area		65%	
Water Area (sq. miles) (Source: SF1)		1.39	
% Water Area		35%	
		2018 - 2022 ACS Estimates	Percent MOE (±)
<b>Population by Race</b>			
Total		5,083	100% 728
Population Reporting One Race		4,774	94% 857
White		4,703	93% 709
Black		23	0% 46
American Indian		2	0% 18
Asian		46	1% 62
Pacific Islander		0	0% 11
Some Other Race		0	0% 11
Population Reporting Two or More Races		309	6% 197
Total Hispanic Population		183	4% 151
Total Non-Hispanic Population		4,900	
White Alone		4,643	91% 711
Black Alone		23	0% 46
American Indian Alone		2	0% 18
Non-Hispanic Asian Alone		46	1% 62
Pacific Islander Alone		0	0% 11
Other Race Alone		0	0% 11
Two or More Races Alone		186	4% 197
<b>Population by Sex</b>			
Male		2,583	51% 406
Female		2,500	49% 498
<b>Population by Age</b>			
Age 0-4		202	4% 101
Age 0-17		1,049	21% 223
Age 18+		4,034	79% 467
Age 65+		1,260	25% 303

**Data Note:** Detail may not sum to totals due to rounding. Hispanic population can be of any race.

N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2018 - 2022

Location: User-specified polygonal location  
 Ring (buffer): .2-miles radius  
 Description:

Summary of ACS Estimates		2018 - 2022	
Population		542	
Population Density (per sq. mile)		2,518	
People of Color Population		46	
% People of Color Population		8%	
Households		258	
Housing Units		310	
Housing Units Built Before 1950		21	
Per Capita Income		49,994	
Land Area (sq. miles) (Source: SF1)		0.22	
% Land Area		72%	
Water Area (sq. miles) (Source: SF1)		0.08	
% Water Area		28%	
	2018 - 2022 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	542	100%	728
Population Reporting One Race	510	94%	838
White	501	92%	709
Black	3	1%	34
American Indian	0	0%	11
Asian	7	1%	62
Pacific Islander	0	0%	11
Some Other Race	0	0%	11
Population Reporting Two or More Races	31	6%	149
Total Hispanic Population	23	4%	151
Total Non-Hispanic Population	518		
White Alone	496	92%	711
Black Alone	3	1%	34
American Indian Alone	0	0%	11
Non-Hispanic Asian Alone	7	1%	62
Pacific Islander Alone	0	0%	11
Other Race Alone	0	0%	11
Two or More Races Alone	13	2%	81
Population by Sex			
Male	260	48%	304
Female	282	52%	498
Population by Age			
Age 0-4	17	3%	71
Age 0-17	84	16%	122
Age 18+	457	84%	467
Age 65+	155	29%	294

**Data Note:** Detail may not sum to totals due to rounding. Hispanic population can be of any race.

N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2018 - 2022

Location: User-specified polygonal location

Ring (buffer): .2-miles radius

Description:

	2018 - 2022 ACS Estimates	Percent	MOE (±)
<b>Population 25+ by Educational Attainment</b>			
Total	401	100%	581
Less than 9th Grade	2	0%	35
9th - 12th Grade, No Diploma	1	0%	34
High School Graduate	64	16%	232
Some College, No Degree	94	24%	225
Associate Degree	26	6%	75
Bachelor's Degree or more	214	53%	252
<b>Population Age 5+ Years by Ability to Speak English</b>			
Total	525	100%	728
Speak only English	509	97%	631
Non-English at Home <sup>1+2+3+4</sup>	16	3%	82
<sup>1</sup> Speak English "very well"	13	3%	73
<sup>2</sup> Speak English "well"	0	0%	38
<sup>3</sup> Speak English "not well"	3	0%	44
<sup>4</sup> Speak English "not at all"	0	0%	38
<sup>3+4</sup> Speak English "less than well"	3	0%	58
<sup>2+3+4</sup> Speak English "less than very well"	3	0%	70
<b>Limited English Speaking Households*</b>			
Total	0	0%	22
Speak Spanish	0	0%	11
Speak Other Indo-European Languages	0	0%	11
Speak Asian-Pacific Island Languages	0	0%	11
Speak Other Languages	0	0%	11
<b>Households by Household Income</b>			
Household Income Base	258	100%	210
< \$15,000	7	3%	32
\$15,000 - \$25,000	14	5%	47
\$25,000 - \$50,000	37	14%	87
\$50,000 - \$75,000	41	16%	131
\$75,000 +	158	61%	160
<b>Occupied Housing Units by Tenure</b>			
Total	258	100%	210
Owner Occupied	222	86%	193
Renter Occupied	36	14%	72
<b>Employed Population Age 16+ Years</b>			
Total	475	100%	708
In Labor Force	278	59%	450
Civilian Unemployed in Labor Force	11	4%	82
Not In Labor Force	196	41%	410

**Data Note:** Detail may not sum to totals due to rounding. Hispanic population can be of anyrace.

N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS)

\*Households in which no one 14 and over speaks English "very well" or speaks English only.

Location: User-specified polygonal location

Ring (buffer): .2-miles radius

Description:

	2018 - 2022 ACS Estimates	Percent	MOE (±)
<b>Population by Language Spoken at Home*</b>			
Total (persons age 5 and above)	N/A	N/A	N/A
English	N/A	N/A	N/A
Spanish	N/A	N/A	N/A
French, Haitian, or Cajun	N/A	N/A	N/A
German or other West Germanic	N/A	N/A	N/A
Russian, Polish, or Other Slavic	N/A	N/A	N/A
Other Indo-European	N/A	N/A	N/A
Korean	N/A	N/A	N/A
Chinese (including Mandarin, Cantonese)	N/A	N/A	N/A
Vietnamese	N/A	N/A	N/A
Tagalog (including Filipino)	N/A	N/A	N/A
Other Asian and Pacific Island	N/A	N/A	N/A
Arabic	N/A	N/A	N/A
Other and Unspecified	N/A	N/A	N/A
Total Non-English	N/A	N/A	N/A

**Data Note:** Detail may not sum to totals due to rounding. Hispanic population can be of any race.

N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2018 - 2022.

\*Population by Language Spoken at Home is available at the census tract summary level and up.

Location: User-specified polygonal location

Ring (buffer): 1-miles radius

Description:

	2018 - 2022 ACS Estimates	Percent	MOE (±)
<b>Population 25+ by Educational Attainment</b>			
Total	3,546	100%	581
Less than 9th Grade	13	0%	35
9th - 12th Grade, No Diploma	24	1%	43
High School Graduate	576	16%	232
Some College, No Degree	728	21%	225
Associate Degree	260	7%	85
Bachelor's Degree or more	1,946	55%	338
<b>Population Age 5+ Years by Ability to Speak English</b>			
Total	4,881	100%	728
Speak only English	4,660	95%	631
Non-English at Home <sup>1+2+3+4</sup>	221	5%	139
<sup>1</sup> Speak English "very well"	203	4%	139
<sup>2</sup> Speak English "well"	1	0%	45
<sup>3</sup> Speak English "not well"	18	0%	44
<sup>4</sup> Speak English "not at all"	0	0%	38
<sup>3+4</sup> Speak English "less than well"	18	0%	58
<sup>2+3+4</sup> Speak English "less than very well"	18	0%	70
<b>Limited English Speaking Households*</b>			
Total	0	0%	22
Speak Spanish	0	0%	11
Speak Other Indo-European Languages	0	0%	11
Speak Asian-Pacific Island Languages	0	0%	11
Speak Other Languages	0	0%	11
<b>Households by Household Income</b>			
Household Income Base	1,916	100%	280
< \$15,000	49	3%	35
\$15,000 - \$25,000	79	4%	47
\$25,000 - \$50,000	250	13%	87
\$50,000 - \$75,000	374	20%	161
\$75,000 +	1,164	61%	244
<b>Occupied Housing Units by Tenure</b>			
Total	1,916	100%	280
Owner Occupied	1,684	88%	280
Renter Occupied	232	12%	72
<b>Employed Population Age 16+ Years</b>			
Total	4,245	100%	708
In Labor Force	2,556	60%	450
Civilian Unemployed in Labor Force	161	6%	117
Not In Labor Force	1,690	40%	431

**Data Note:** Detail may not sum to totals due to rounding. Hispanic population can be of anyrace.

N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS)

\*Households in which no one 14 and over speaks English "very well" or speaks English only.



Location: User-specified polygonal location

Ring (buffer): 1-miles radius

Description:

	2018 - 2022 ACS Estimates	Percent	MOE (±)
<b>Population by Language Spoken at Home*</b>			
Total (persons age 5 and above)	5,332	100%	805
English	5,050	95%	863
Spanish	89	2%	68
French, Haitian, or Cajun	0	0%	15
German or other West Germanic	16	0%	33
Russian, Polish, or Other Slavic	80	2%	168
Other Indo-European	25	0%	28
Korean	0	0%	15
Chinese (including Mandarin, Cantonese)	0	0%	15
Vietnamese	33	1%	62
Tagalog (including Filipino)	0	0%	15
Other Asian and Pacific Island	1	0%	15
Arabic	38	1%	86
Other and Unspecified	0	0%	15
Total Non-English	282	5%	1,180

**Data Note:** Detail may not sum to totals due to rounding. Hispanic population can be of any race.

N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2018 - 2022.

\*Population by Language Spoken at Home is available at the census tract summary level and up.

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## **APPENDIX C**

### **Alternative and Selected Plans**



① 52' x 120' LOTS

② 20' - 24' x 70' TOWNHOME  
LOTS W/ ALLEY ACCESS

③ 40' x 70' CLUSTER LOTS ON  
SHARED DRIVE

④ TREE PRESERVATION

⑤ LOCAL STREET, 60' ROW

⑥ POCKET PARK W/ TRAIL TO  
PORTAGE ROAD

⑦ POCKET PARK

⑧ STORM WATER DETENTION

## LAND USE SUMMARY

28- 52' x 120' LOTS

18 - 40' x 70' CLUSTER LOTS

18 - 20 - 24' TOWNHOME LOTS

64 - LOTS TOTAL

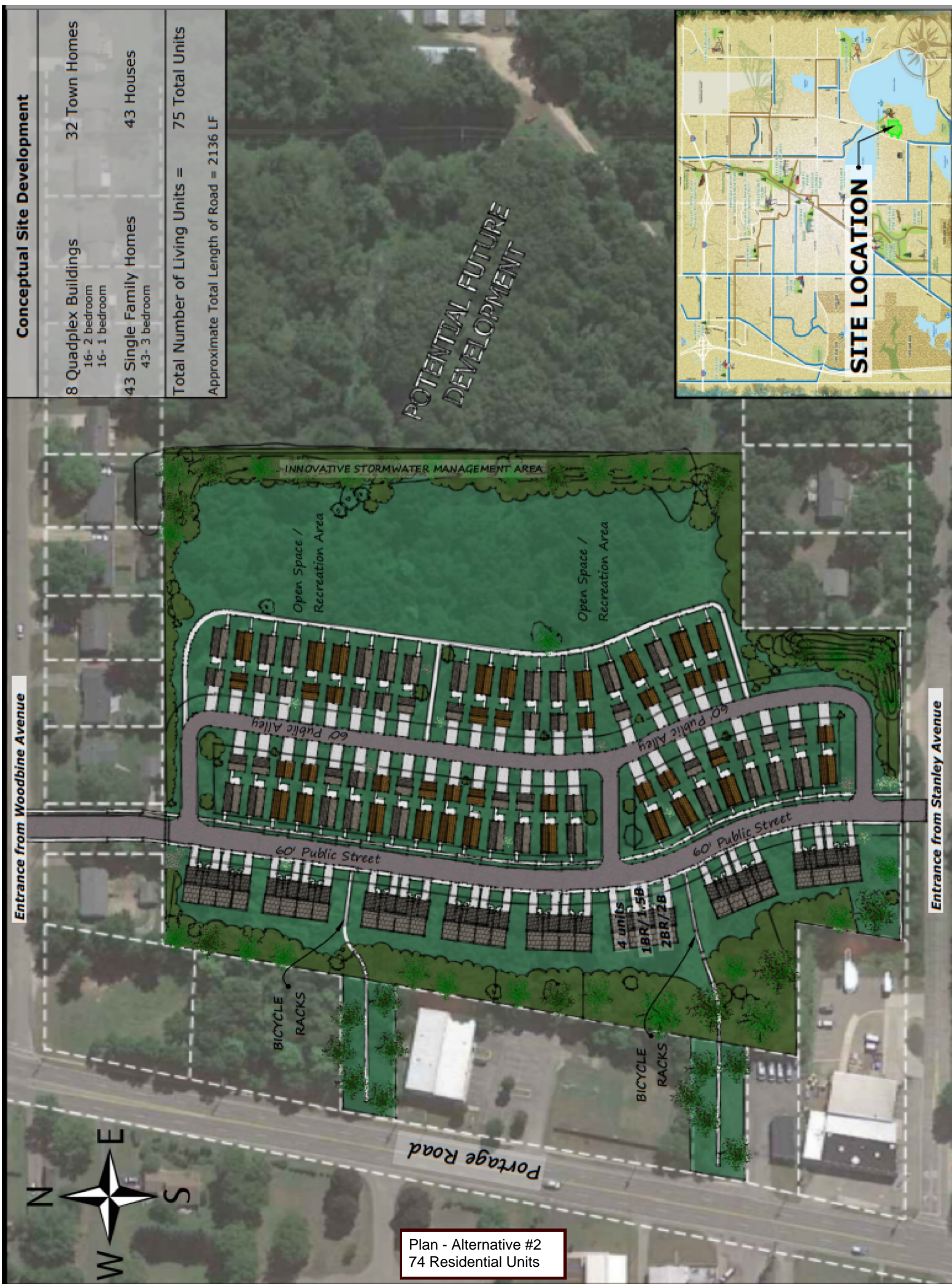
13.4 AC +/- , 4.8 DU / AC

RESIDENTIAL HOUSING PARTNERSHIP | PORTAGE, MI

0' 25' 50' 100'

Plan - Alternative #1  
64 Residential Units



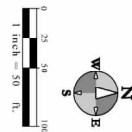






Plan - Alternative #3  
63 Residential Units

# RESIDENTIAL DEVELOPMENT WORKFORCE HOUSING



BUILD SOMETHING BETTER.  
4200 WEST CENTRE AVENUE  
PORTAGE, MI 49024  
(269)323-2022  
**hurley & Stewart**  
hurley & Stewart, LLC  
2800 S. 11th Street  
Kalamazoo, Michigan 49009  
269.552.4960 fax 269.552.4961  
www.hurleystewart.com





**Alternate #1:** The alternative consisted of 64 residential units between a combination of single family homes, townhomes, and clustered homes. In this alternate the site layout allowed for more open space to preserve existing vegetation. There were several reasons why this option was not selected. One reason for this alternate not to be selected was that there was uncertainty in who would be responsible for ownership and maintenance of the open spaces since they would be common area and not part of the individual ownership, as well as the responsibility for the upkeep of the townhome structures. These type of activities are generally owned and maintained by a home owners association which has dues and fees on-top of a typical mortgage payment that might not be affordable to the average homeowner. The size of the single family lots were smaller than allowed by the zoning ordinance. There are concerns with parking and safety since the size of the lots doesn't allow room for visitor parking or sidewalks. The overall mix of units doesn't appear to fit the character of the adjacent neighborhood. Although the surrounding residential units have some multi-family units mixed in with the single-family units, they are more duplex units and fit the look of the single-family units better than 6-unit single story townhouse would.

**Alternative #2:** This alternative consisted of 75 total living units utilizing a mix of 43 single family homes and 32 town homes in quadplexes. In this alternative the site layout allowed for preserving approximately 25% of the site as natural open space. Again, with this alternate there was the concern of the requirements to create an association responsible for the ownership of the common areas. The layout changed the multi-family units from 6-unit to 4-unit quadplexes which allowed for more ability to provide parking areas and these units could be used as the transition/buffer along the Portage Road corridor. The single-family units were adjusted to provide better parking and garage facilities and provide room for sidewalks within the neighborhood. However, the home lot sizes were smaller than the alternative #1 and installation of sidewalk required a reduction in road width and eliminated any potential on-street parking due to the lot widths.

**Alternative #3:** This alternative consisted of 63 single-family homes with the City taking ownership of the stormwater management areas. With the creation of this option, the amount of public open space was eliminated, but each parcel was larger allowing for more lawn area and open space on each lot. This layout also provided room for more off-street parking in the driveways allowing for a narrower street to help in reduction of stormwater runoff. The trade-off was more clearing and grading work to allow for a rear yard detached garage. This alternative was not selected as a result of the findings of the Task Force and public comments. The layout of the homes with detached garages did not fit the character of the surrounding property, the lots were to be larger to better meet city requirements, a lower density was preferred.

**Selected Alternative:** The selected alternative is a modification of alternative #3 that used input from the Task Force (see public outreach section). The selected alternate provides for 42 single-family homes allowing for larger lots, providing attached garages, keeping the homes similar in nature to the neighborhood (ranch style and 2-story), while lowering the density. With the wider

lots, the roadway will be wider allowing for on-street parking, but will allow the houses to be located closer to the roadway and reducing the overall grading impact and tree clearing.

### **Other Alternatives Evaluated**

In addition to the alternatives that we prepared for the layout of this particular site, there are other alternatives that could be considered other than this parcel of land.

If the City selected an alternate location, it would most likely require that the affordable housing development be located beyond the limits of the City of Portage. There is a limited amount of developable property left and available at a reasonable cost that would make a project like this feasible within the City. The City has large sections of undeveloped property, but many of those areas are currently left as open public space, state land, city parks, lakes, or wetland areas. So looking at alternative sites leaves the options of re-development of existing residential properties, redevelopment of existing commercial property, or acquiring vacant property outside of the Portage city limits.

So if the City elected to redevelop an existing residential property or an older commercial development (such as malls, department stores, etc.) there would be other environmental impacts that might be present on that site that isn't on the preferred site. Those type of concerns could be related to lead, asbestos, underground contamination, disposal of demolition debris, etc. Some of these items can be more challenging and costly to the project to perform proper remediation work making the project no longer economically viable. Another negative to the redevelopment of these types of projects is that they are sometime located in the more heavily congested / traffic areas of the City thereby making it more walkable to nearby services, but can be less attractive due to concerns with safety and noise due to traffic and nearby businesses. A benefit of redevelopment would be the low impact to existing vegetation, trees, soils, etc. that may have already been cleared or removed during initial construction.

If the City elected to utilize available property outside of the City there are both positive and negative to that option as well. Surrounding Portage on the east, south and west there is many large tracts of land that could be available for this sort of development. However, much of that property is currently farmland and is unserved by public services such as sewer and water. To make a property of this type feasible, you would need to extend those services out to the development, being converting farmland into residential areas, and changing the character of those areas. You could use private wells and septic, but that would require larger lots, less homes, and you are now creating an impact on ground water and creating additional discharge of septic to the ground. The development is further from the availability of potential public transportation routs and would add to additional traffic since they would need to have a mode of private transportation to get into the city for their employment and use of commercial business.

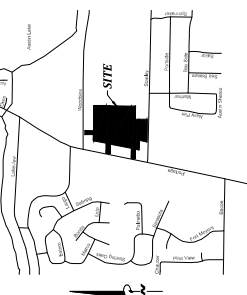
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## **APPENDIX D**

### **Other Reports and Attachments**



LINE NO.	BEARING
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## SIGNIFICANT OBSERVATIONS

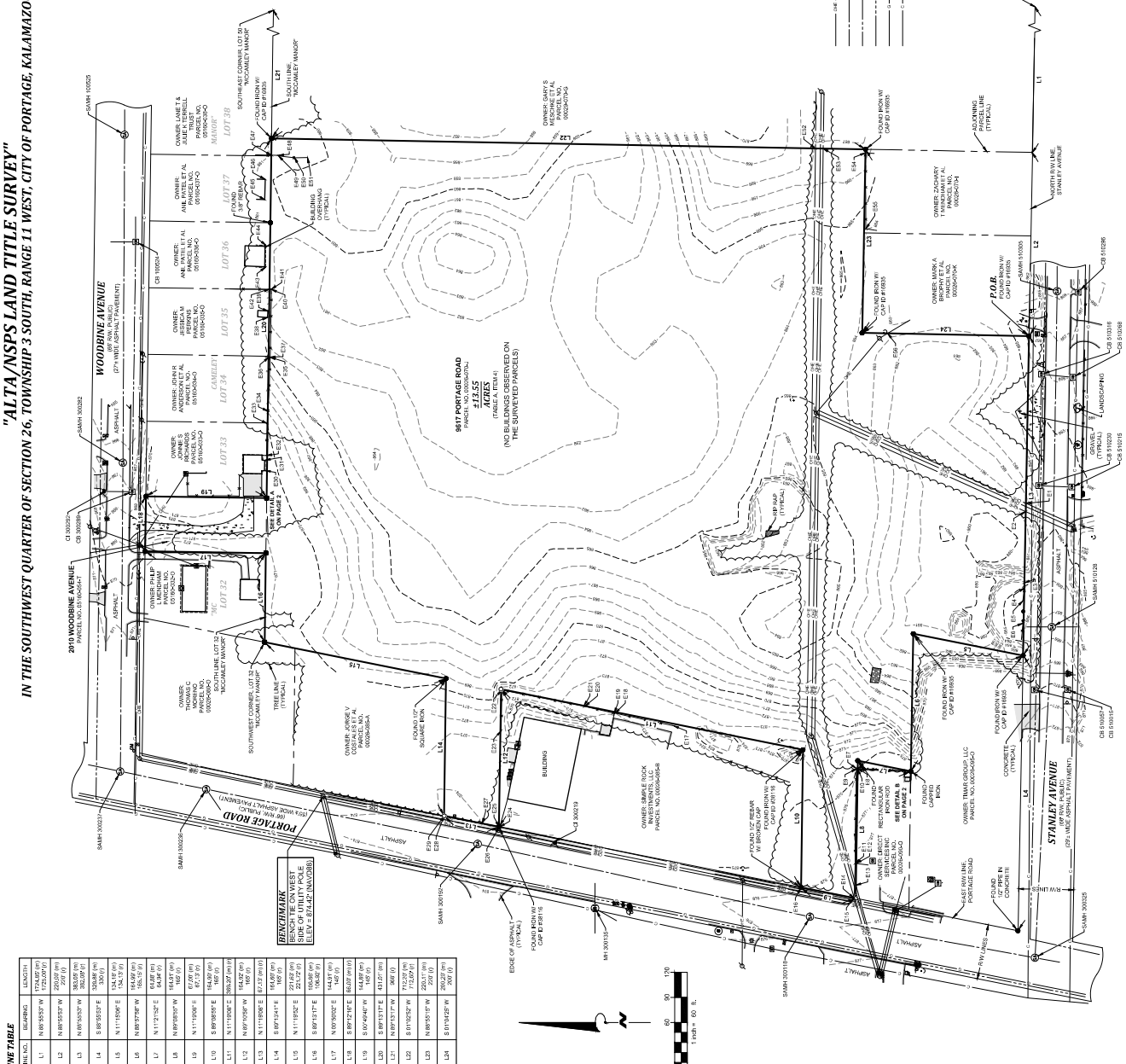
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**CERTIFICATION:**

TO: CITY OF PORTAGE, A MICHIGAN MUNICIPAL CORPORATION; OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY; DEVON TITLE AGENCY;  
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM  
STANDARD DETAIL REQUIREMENTS FOR ALTA SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND  
INCLUDES ITEMS 1, 3, 4, 5, 6, 9, 11(a), 11(b), 16, AND 18 OF TABLE A THRECEOF THE FIELDWORK WAS COMPLETED ON MAY 2023.

05/01/2023

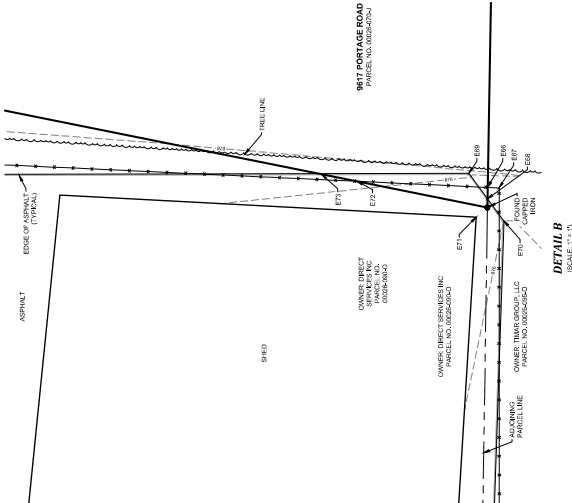
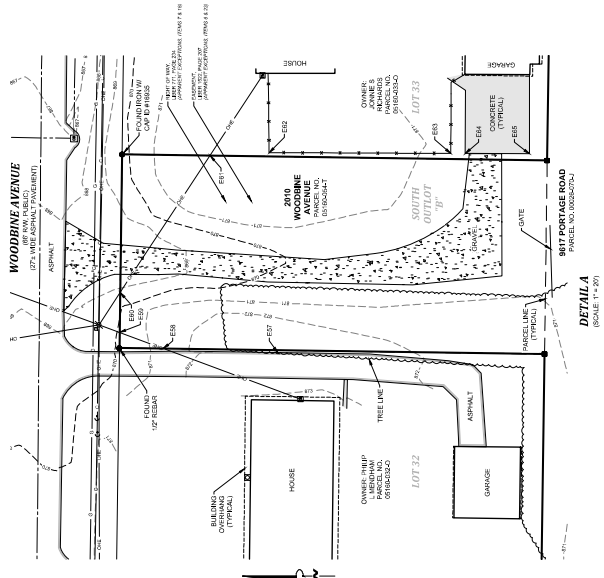
JOEL J. EAST PS • 4001056181  
joast@gowightman.com

[illegible]



IN THE SOUTHWEST QUARTER OF SECTION 26, TOWNSHIP 3 SOUTH, RANGE 11 WEST, CITY OF PORTAGE, KALAMAZOO COUNTY, MICHIGAN

LEGAL DESCRIPTION PER SCHEDULE C, COMMITMENT FOR TITLE INSURANCE PREPARED BY DEVON TITLE AGENCY, FILE NO. 20017900, POLICY NO. OX-13947093, POLICY DATE SEPTEMBER 29, 2021;



### SANITARY SEWER INFORMATION

SAND-1002027	SAND-1002028	SAND-1002029	SAND-1002030	SAND-1002031	SAND-1002032	SAND-1002033	SAND-1002034	SAND-1002035	SAND-1002036	SAND-1002037	SAND-1002038	SAND-1002039	SAND-1002040	SAND-1002041	SAND-1002042	SAND-1002043	SAND-1002044	SAND-1002045	SAND-1002046	SAND-1002047	SAND-1002048	SAND-1002049	SAND-1002050	SAND-1002051	SAND-1002052	SAND-1002053	SAND-1002054	SAND-1002055	SAND-1002056	SAND-1002057	SAND-1002058	SAND-1002059	SAND-1002060	SAND-1002061	SAND-1002062	SAND-1002063	SAND-1002064	SAND-1002065	SAND-1002066	SAND-1002067	SAND-1002068	SAND-1002069	SAND-1002070	SAND-1002071	SAND-1002072	SAND-1002073	SAND-1002074	SAND-1002075	SAND-1002076	SAND-1002077	SAND-1002078	SAND-1002079	SAND-1002080	SAND-1002081	SAND-1002082	SAND-1002083	SAND-1002084	SAND-1002085	SAND-1002086	SAND-1002087	SAND-1002088	SAND-1002089	SAND-1002090	SAND-1002091	SAND-1002092	SAND-1002093	SAND-1002094	SAND-1002095	SAND-1002096	SAND-1002097	SAND-1002098	SAND-1002099	SAND-1002100	SAND-1002101	SAND-1002102	SAND-1002103	SAND-1002104	SAND-1002105	SAND-1002106	SAND-1002107	SAND-1002108	SAND-1002109	SAND-1002110	SAND-1002111	SAND-1002112	SAND-1002113	SAND-1002114	SAND-1002115	SAND-1002116	SAND-1002117	SAND-1002118	SAND-1002119	SAND-1002120	SAND-1002121	SAND-1002122	SAND-1002123	SAND-1002124	SAND-1002125	SAND-1002126	SAND-1002127	SAND-1002128	SAND-1002129	SAND-1002130	SAND-1002131	SAND-1002132	SAND-1002133	SAND-1002134	SAND-1002135	SAND-1002136	SAND-1002137	SAND-1002138	SAND-1002139	SAND-1002140	SAND-1002141	SAND-1002142	SAND-1002143	SAND-1002144	SAND-1002145	SAND-1002146	SAND-1002147	SAND-1002148	SAND-1002149	SAND-1002150	SAND-1002151	SAND-1002152	SAND-1002153	SAND-1002154	SAND-1002155	SAND-1002156	SAND-1002157	SAND-1002158	SAND-1002159	SAND-1002160	SAND-1002161	SAND-1002162	SAND-1002163	SAND-1002164	SAND-1002165	SAND-1002166	SAND-1002167	SAND-1002168	SAND-1002169	SAND-1002170	SAND-1002171	SAND-1002172	SAND-1002173	SAND-1002174	SAND-1002175	SAND-1002176	SAND-1002177	SAND-1002178	SAND-1002179	SAND-1002180	SAND-1002181	SAND-1002182	SAND-1002183	SAND-1002184	SAND-1002185	SAND-1002186	SAND-1002187	SAND-1002188	SAND-1002189	SAND-1002190	SAND-1002191	SAND-1002192	SAND-1002193	SAND-1002194	SAND-1002195	SAND-1002196	SAND-1002197	SAND-1002198	SAND-1002199	SAND-1002200	SAND-1002201	SAND-1002202	SAND-1002203	SAND-1002204	SAND-1002205	SAND-1002206	SAND-1002207	SAND-1002208	SAND-1002209	SAND-1002210	SAND-1002211	SAND-1002212	SAND-1002213	SAND-1002214	SAND-1002215	SAND-1002216	SAND-1002217	SAND-1002218	SAND-1002219	SAND-1002220	SAND-1002221	SAND-1002222	SAND-1002223	SAND-1002224	SAND-1002225	SAND-1002226	SAND-1002227	SAND-1002228	SAND-1002229	SAND-1002230	SAND-1002231	SAND-1002232	SAND-1002233	SAND-1002234	SAND-1002235	SAND-1002236	SAND-1002237	SAND-1002238	SAND-1002239	SAND-1002240	SAND-1002241	SAND-1002242	SAND-1002243	SAND-1002244	SAND-1002245	SAND-1002246	SAND-1002247	SAND-1002248	SAND-1002249	SAND-1002250	SAND-1002251	SAND-1002252	SAND-1002253	SAND-1002254	SAND-1002255	SAND-1002256	SAND-1002257	SAND-1002258	SAND-1002259	SAND-1002260	SAND-1002261	SAND-1002262	SAND-1002263	SAND-1002264	SAND-1002265	SAND-1002266	SAND-1002267	SAND-1002268	SAND-1002269	SAND-1002270	SAND-1002271	SAND-1002272	SAND-1002273	SAND-1002274	SAND-1002275	SAND-1002276	SAND-1002277	SAND-1002278	SAND-1002279	SAND-1002280	SAND-1002281	SAND-1002282	SAND-1002283	SAND-1002284	SAND-1002285	SAND-1002286	SAND-1002287	SAND-1002288	SAND-1002289	SAND-1002290	SAND-1002291	SAND-1002292	SAND-1002293	SAND-1002294	SAND-1002295	SAND-1002296	SAND-1002297	SAND-1002298	SAND-1002299	SAND-1002300	SAND-1002301	SAND-1002302	SAND-1002303	SAND-1002304	SAND-1002305	SAND-1002306	SAND-1002307	SAND-1002308	SAND-1002309	SAND-1002310	SAND-1002311	SAND-1002312	SAND-1002313	SAND-1002314	SAND-1002315	SAND-1002316	SAND-1002317	SAND-1002318	SAND-1002319	SAND-1002320	SAND-1002321	SAND-1002322	SAND-1002323	SAND-1002324	SAND-1002325	SAND-1002326	SAND-1002327	SAND-1002328	SAND-1002329	SAND-1002330	SAND-1002331	SAND-1002332	SAND-1002333	SAND-1002334	SAND-1002335	SAND-1002336	SAND-1002337	SAND-1002338	SAND-1002339	SAND-1002340	SAND-1002341	SAND-1002342	SAND-1002343	SAND-1002344	SAND-1002345	SAND-1002346	SAND-1002347	SAND-1002348	SAND-1002349	SAND-1002350	SAND-1002351	SAND-1002352	SAND-1002353	SAND-1002354	SAND-1002355	SAND-1002356	SAND-1002357	SAND-1002358	SAND-1002359	SAND-1002360	SAND-1002361	SAND-1002362	SAND-1002363	SAND-1002364	SAND-1002365	SAND-1002366	SAND-1002367	SAND-1002368	SAND-1002369	SAND-1002370	SAND-1002371	SAND-1002372	SAND-1002373	SAND-1002374	SAND-1002375	SAND-1002376	SAND-1002377	SAND-1002378	SAND-1002379	SAND-1002380	SAND-1002381	SAND-1002382	SAND-1002383	SAND-1002384	SAND-1002385	SAND-1002386	SAND-1002387	SAND-1002388	SAND-1002389	SAND-1002390	SAND-1002391	SAND-1002392	SAND-1002393	SAND-1002394	SAND-1002395	SAND-1002396	SAND-1002397	SAND-1002398	SAND-1002399	SAND-1002400	SAND-1002401	SAND-1002402	SAND-1002403	SAND-1002404	SAND-1002405	SAND-1002406	SAND-1002407	SAND-1002408	SAND-1002409	SAND-1002410	SAND-100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D-1002796	SAND-1002797	SAND-1002798	SAND-1002799	SAND-1002800	SAND-1002801	SAND-1002802	SAND-1002803	SAND-1002804	SAND-1002805	SAND-1002806	SAND-1002807	SAND-1002808	SAND-1002809	SAND-1002810	SAND-1002811	SAND-1002812	SAND-1002813	SAND-1002814	SAND-1002815	SAND-1002816	SAND-1002817	SAND-1002818	SAND-1002819	SAND-1002820	SAND-1002821	SAND-1002822	SAND-1002823	SAND-1002824	SAND-1002825	SAND-1002826	SAND-1002827	SAND-1002828	SAND-1002829	SAND-1002830	SAND-1002831	SAND-1002832	SAND-1002833	SAND-1002834	SAND-1002835	SAND-1002836	SAND-1002837	SAND-1002838	SAND-1002839	SAND-1002840	SAND-1002841	SAND-1002842	SAND-1002843	SAND-1002844	SAND-1002845	SAND-1002846	SAND-1002847	SAND-1002848	SAND-1002849	SAND-1002850	SAND-1002851	SAND-1002852	SAND-1002853	SAND-1002854	SAND-1002855	SAND-1002856	SAND-1002857	SAND-1002858	SAND-1002859	SAND-1002860	SAND-1002861	SAND-1002862	SAND-1002863	SAND-1002864	SAND-1002865	SAND-1002866	SAND-1002867	SAND-1002868	SAND-1002869	SAND-1002870	SAND-1002871	SAND-1002872	SAND-1002873	SAND-1002874	SAND-1002875	SAND-1002876	SAND-1002877	SAND-1002878	SAND-1002879	SAND-1002880	SAND-1002881	SAND-1002882	SAND-1002883	SAND-1002884	SAND-1002885	SAND-1002886	SAND-1002887	SAND-1002888	SAND-1002889	SAND-1002890	SAND-1002891	SAND-1002892	SAND-1002893	SAND-1002894	SAND-1002895	SAND-1002896	SAND-1002897	SAND-1002898	SAND-1002899	SAND-1002900	SAND-1002901	SAND-1002902	SAND-1002903	SAND-1002904	SAND-1002905	SAND-1002906	SAND-1002907	SAND-1002908	SAND-1002909	SAND-1002910	SAND-
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### CATCH BASIN INFORMATION

[illegible]

### CURB INLET INFORMATION

CI 300219  
RIM = 874.05'  
BOTTOM = 867.99'  
NO PIPES WERE SEEN AND/OR OBSERVED.

## MISCELLANEOUS UTILITY INFORMATION

MH 300135  
 RM = 874,06  
 8° METAL. WEST  
 865,89  
 03/03/44  
 03/03/44

ALTA/NSPS LAND  
TITLE SURVEY



REPORT OF  
GEOTECHNICAL INVESTIGATION FOR  
STANWOOD CROSSINGS

PORTAGE  
KALAMAZOO COUNTY  
MICHIGAN

AUGUST 28, 2024



*Wightman*  
1670 Lincoln Road  
Allegan, Michigan 49010

*Project No. 2024.1260*



August 28, 2024

Wightman  
1670 Lincoln Road  
Allegan, Michigan 49010

Attention: Mr. Aaron Neitling

Regarding: Stanwood Crossings  
Geotechnical Report  
Portage, Kalamazoo County, Michigan  
Project No. 2024.1260

Dear Mr. Neitling:

Soils & Structures is pleased to present this geotechnical investigation report for the Stanwood Crossings project located in Portage, Kalamazoo County, Michigan.

The investigation included fourteen (14) test borings drilled to depths ranging from 15.0 to 25.0 feet. The test borings were conducted in accordance with ASTM D 1586 procedures.

The report, test boring location plan, and test boring logs are enclosed. The report provides recommendations for site preparation, foundations, fill, floors, and pavement.

We appreciate the opportunity to provide engineering services to Wightman. If you have any questions regarding this report, please contact our office.

Sincerely,  
Soils & Structures, Inc.

Madie E. Czajka  
MEC/mc

Reviewed by:

Vincent O. Oderah, P.E.

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### Location of Soil Investigation

The soil investigation was conducted at the site located at 9617 Portage Road, Portage, Kalamazoo County, Michigan. The parcel number for the site is 10-00026-070-J.

### Purpose of Investigation

The purpose of this investigation is to provide geotechnical engineering recommendations for the proposed housing development.

### Design Information

The housing development project consists of forty-four (44) single-family lots, pavement, and a stormwater retention basin. The proposed residences will consist of two-story wood-framed buildings with slab on grade floors. The stormwater retention area will be constructed on the southwest portion of the site. Pavement for this project will include new roads, driveways, and sidewalks.

The maximum column load is anticipated to be 50,000 pounds and the maximum wall load is anticipated to be 5,000 pounds per linear foot. Allowable settlements of 0.6 inches for total settlement and 0.4 inches for differential settlement are assumed. If the actual loads are significantly greater than the anticipated loads listed in this report, then Soils & Structures should be contacted so that the recommendations included in this report may be reviewed and revised if necessary.

The final floor elevations of the proposed residences have not been determined at the time of this report. The existing surface elevation of the site ranges from 860.0 to 873.0 feet. Fill and excavation will be required to achieve the desired grade. The amount of fill required to achieve the desired grade is anticipated to be less than 4.0 feet. Fill for this project will also include backfill over foundations and utilities. The thickness of backfill over foundations and utilities is anticipated to be less than 4.0 feet. Groundwater control and dewatering will probably not be necessary to construct foundations and utilities.

An equivalent single axle load (ESAL) of 250,000 was assumed for the design of the preliminary pavement sections. Pavement for this project is assumed to be subjected to automobile and occasional truck traffic. A service life of twenty years was assumed for the pavement subgrade recommendations. The subgrade is assumed to be prepared as recommended in this report. The final pavement design should be based on site-specific traffic conditions.



### Tests Performed

The investigation included fourteen (14) test borings drilled to depths ranging from 15.0 to 25.0 feet. The test borings are designated as Test Boring One (TB-01) through Test Boring Fourteen (TB-14). The locations were determined by Wightman. Soils & Structures reviewed the locations for accessibility and revised as necessary. The test borings were conducted in accordance with ASTM D 1586 procedures. The ASTM D 1586 standard describes the procedure for sampling and testing soil using the Standard Penetration Test. An automatic hammer was used to obtain the soil samples.

The surface elevations at the test boring locations and additional points of reference were obtained with a Global Navigation Satellite System (GNSS) Receiver. The receiver was connected to the local MDOT CORS base station. Through this system, vertical measurements are obtained and referenced to the North American Vertical Datum (NAVD88). Horizontal measurements are also obtained at the test boring locations which are referenced to the Michigan State Plane Coordinate System. Both the vertical and horizontal measurements typically have an accuracy of approximately 0.5 inches. The measured test boring locations and surface elevations are represented in Table 1.

**Table 1:** Measured Test Boring and Points of Reference  
Locations and Surface Elevations

Test Boring / Location	Elevation (feet)	Northing (feet)	Easting (feet)	Surface Cover
Test Boring One*	868.2	249603.1	12798328.7	Topsoil
Test Boring Two*	869.7	249367.7	12798211.8	Topsoil
Test Boring Three*	865.5	249376.6	12798423.9	Topsoil
Test Boring Four*	859.2	249368.1	12798686.8	Topsoil
Test Boring Five*	863.5	249261.7	12798355.7	Topsoil
Test Boring Six*	860.3	249243.5	12798704.6	Topsoil
Test Boring Seven*	865.5	249095.2	12798269.4	Topsoil
Test Boring Eight*	861.8	249085.5	12798445.5	Topsoil
Test Boring Nine*	863.2	249019.0	12798613.5	Topsoil
Test Boring Ten*	869.7	248887.8	12798122.9	Topsoil
Test Boring Eleven*	867.3	248869.3	12798700.5	Topsoil
Test Boring Twelve*	864.5	248744.1	12798172.2	Topsoil
Test Boring Thirteen*	861.4	248692.3	12798429.4	Topsoil
Test Boring Fourteen*	865.4	248548.5	12798217.3	Topsoil
Base Setup	871.5	266714.8	12807291.5	-

\*Note: Elevation data are based on the topographical survey data provided by Wightman. The GNSS northings and easting data may be inaccurate due to overhead obstructions.

Soil samples were classified according to the Unified Soil Classification System. This method is a standardized system for classifying soil according to its engineering properties. Please refer to the appendix of this report for the Unified Classification System Chart. The classification is shown in the "Material Description" column of the test boring logs.

The soil strength and the allowable soil bearing value were evaluated using the "N" value. The "N" value is the number of blows required to drive a soil sampler one foot with a standard 140-pound drop hammer. The sampler is driven 18.0 inches. The number of blows for each 6.0-inch increment is recorded. The sum of the second and third intervals is the "N" value. The number of blows for each 6.0-inch interval is shown on the test boring logs under the column labeled "Blow Counts." The "N" value for each sample is shown in the adjacent column.

Laboratory testing consisted of natural moisture content (ASTM D 2216) and particle size (sieve) analysis (ASTM D 6913). The tests were performed in accordance with the ASTM standards listed above. The tests were performed on representative soil samples. The moisture content documents the presence of groundwater in a soil sample. The sieve analysis determines the particle distribution which is used to classify the soil and estimate its properties.

The U.S. Geological Survey Topographic map and the Quaternary Geology map of Michigan were reviewed. These maps provide general geological information about the region. Publicly available well logs were reviewed to determine the depth of bedrock.

#### Description of Soil

The general soil profile consists of a layer of sand which extends to a depth of at least 25.0 feet. The soil profile is a deposit of glacial outwash and postglacial alluvium resulting from glacial melting. Outwash deposits are primarily well-rounded sand deposited by rapidly flowing water and are typically composed of sand of varying gradation.

Topsoil is present at the surface of the site. The topsoil thickness ranges from 7.0 to 15.0 inches. The average topsoil thickness is 11.3 inches.

The upper portion of the sand layer consists of dark brown to brown, fine to medium sand and extends to depths of 9.0 to 14.0 feet. The upper portion of the sand layer contains frequent pockets of clayey sand with varying amounts of gravel, predominantly, above a depth of 4.0 to 6.5 feet. The "N" values of the upper portion of the sand layer range from 2 to 10, indicating the sand is in a loose to compact state. The majority of the upper portion of the sand layer is in a loose to slightly compact state. The "N" values correspond to an internal friction angle ranging from 25 to 28 degrees. The upper portion of the sand layer is suitable to support the foundations and pavement following site preparation.



The lower portion of the sand layer consists of brown and gray, fine to coarse sand with varying amounts of gravel and extends to a depth of at least 25.0 feet. The "N" values of the lower portion of the sand layer range from 10 to 25, indicating the sand is in a compact to very compact state. The majority of the lower portion of the sand layer is in a compact state. The "N" values correspond to an internal friction angle ranging from 30 to 33.

Bedrock is present below a depth of approximately 105.0 feet. The bedrock is part of the Coldwater Shale Formation which consists primarily of bluish gray shale.

#### Description of Groundwater Conditions

The water table is present at depths ranging from 7.0 to 15.0 feet. These depths correspond to elevations ranging from 856.5 to 851.8 feet. The water table elevation is anticipated to fluctuate based on seasonal changes. Long-term groundwater monitoring was not performed as part of this investigation.

#### Description of Site

The site is located at 9617 Portage Road in Portage, Kalamazoo County, Michigan. The site is heavily vegetated and wooded. The north side of the site is bordered by Woodbine Avenue and residential properties. The south side of the site is bordered by Stanley Avenue and residential properties. The site is bordered to the west by Portage Road and commercial properties, and to the east by wooded land. The existing surface elevation of the site ranges from 860.0 to 873.0 feet. Photographs #1 and #2 show the condition of the site at the time of the investigation.



Photograph #1: Southern portion of the site. View could be to the east or west. (Project No. 2024.1260, Stanwood Crossings, Portage, Kalamazoo County, Michigan, July 2024)



Photograph #2: Location of Test Boring Nine. (Project No. 2024.1260, Stanwood Crossings, Portage, Kalamazoo County, Michigan, July 2024)



## Recommendations

### Site & Subgrade Preparation

Trees and vegetation in the construction area should be cleared and removed as part of subgrade preparation. Significant tree and bush clearing will be required. Organic soil, including topsoil and soil containing topsoil, roots, and wood should be removed where fill will be placed and from the building area. The topsoil should be removed to the extent that all soil with an organic content of 3.0 percent or greater is removed. Soil containing roots should be removed to the extent that the root content by volume is 5.0 percent or less. All roots over 0.5 inches in diameter should be removed. The average amount of topsoil anticipated to be removed is 11.3 inches.

The construction areas should be excavated or backfilled to achieve the desired subgrade elevation as necessary. Excavated sand may be retained for use as fill. Excavated sand with high fines content should not be used as fill in areas where free-drainage material or drainage is a consideration. Fill should be placed in accordance with the recommendations in the "Fill" section of this report. The fill should be compacted to 95.0 percent of its maximum density to its full depth. In-situ sand should be compacted to 95.0 percent of its maximum density prior to placement of fill. Sand not meeting this requirement should be recompacted.

Soil brought to the site for fill should be clean sand meeting MDOT Class II specifications. Fill should be placed in accordance with the "Fill" section of this report. The fill should be compacted to 95.0 percent of its maximum density, as determined by the modified proctor method per the ASTM D 1557 standard. The soil which will be used for fill should be kept free of topsoil and other organic materials. Compaction tests are recommended to check the compaction of the new fill.

The pavement subgrade, subbase, and aggregate base should be proof-rolled using a fully loaded triaxial dump truck prior to construction. The proof roll should consist of single, overlapping passes. Areas that experience yielding during the proof roll should be recompacted. Areas that continue to experience yielding following recompaction may require undercutting or the placement of a geogrid to stabilize the subgrade.

### Foundations

Spread foundations are recommended to support the buildings provided the subgrade is prepared as discussed in this section as well as the "Site & Subgrade Preparation" and "Fill" sections of this report including compaction. The foundations will be supported on compacted fill or the in-situ sand following site preparation.

Fill below the buildings should be compacted to 95.0 percent of the soil's maximum density to its full depth. In-situ sand below foundations should be compacted to 95.0 percent of the sand's maximum density to a minimum depth of 4.0 feet. Compaction tests should be performed in the foundation subgrade to verify these levels of compaction. Soils not exceeding the minimum density should be recompacted.



The recommended minimum cover over the bottom of exterior foundations is 42 inches for protection against frost heave. Foundations should not be constructed on frozen soil. During cold weather construction, the foundation subgrade and foundations should be protected from freezing with insulated blankets until backfill is placed over both sides of the foundation. Foundations that are damaged by frost heave should be replaced.

The site classification for seismic design is "D" based on ASCE-7 Table 20.3-1. The final seismic parameters including the seismic design category of the structure should be verified by the structural engineer on record.

Foundations may be designed using an allowable bearing value of 2,500 pounds per square foot for isolated column footings and 2,000 pounds per square foot for wall foundations provided the recommendations for subgrade preparation in the previous section are followed including compaction. A minimum width of 16.0 inches is recommended for new foundations. The allowable bearing values may be increased by 25.0 percent when considering transient loads such as earthquakes and wind.

#### Settlement

The maximum settlement of the buildings is anticipated to be less than 0.4 inches provided the recommendations in this report are observed including compaction. Differential settlement will be approximately one half of the maximum value. These levels of settlement are within the recommended acceptable limits of 0.6 inches of total settlement and 0.4 inches of differential settlement.

#### Floors

A slab on grade is recommended for the floors. A modulus of subgrade reaction of 140 pounds per cubic inch is recommended for the design of slabs on grade.

A base of 6.0 inches of clean sand is recommended under the floors. The sand should meet MDOT Class II specifications. Fill under floors should be compacted as specified in the "Fill" section of this report. The in-situ sand is suitable for use as a base below the floors. In-situ sand with high fines content should be replaced with clean sand meeting MDOT Class II specifications.

#### Lateral Earth Pressure

Foundation walls with different soil levels on either side should be designed as retaining walls. Sand should be used as backfill behind retaining and foundation walls. The sand should meet MDOT Class II specifications. The walls should be designed using a soil density of 120 pounds per cubic foot, a coefficient of active earth pressure of 0.37, and a coefficient of at-rest earth pressure of 0.45 for level sand backfill. The effects of any surcharge or sloping backfill should also be included in the design. Coefficients of passive earth pressure of 2.7 may be used for the in-situ sand.

### Excavations

The in-situ sand is an OSHA type “C” soil. Excavations that will be entered by personnel should be based on OSHA requirements for type “C” soil. Based on OSHA requirements, a maximum allowable side slope of 34 degrees (1.5H:1V) is recommended for excavations 4.0 to 20.0 feet deep. Excavations less than 4.0 feet deep may have vertical side slopes. Excavations adjacent to property lines, or structures may require temporary shoring.

### Fill

Fill, including aggregate layers under pavement, should be compacted to a density of 95.0 percent of its maximum density to its full depth. The maximum density should be determined in accordance with the ASTM D 1557 standard. A maximum thickness per layer of 6.0 inches is recommended. The lift thickness may be increased to 12.0 inches for granular material if a vibratory roller or hoe-pack is used for compaction. Compaction tests are recommended to confirm that the fill is compacted to the required density.

Excavated sand may be used as fill. However, excavated sand containing significant amounts of clay should not be used as fill in areas where free-draining material or drainage is required. If the amount of fill required to establish the final grade exceeds the amount of material available on site, additional material will have to be imported. Soil brought to the site for structural fill should be sand meeting MDOT Class II requirements or ASTM requirements for an SP or SW which are the designations for clean sand.

Fill should not be placed over frozen ground, snow, or ice. Soil which contains frozen material should not be used as fill. During winter construction, removal of frozen ground may be necessary prior to placing fill.

### Groundwater Management

Groundwater controls and dewatering will probably not be necessary for the construction of the foundations and utilities. Groundwater will probably not be encountered in excavations. If excavations encounter groundwater, the excavation bottom may be stabilized by placing a 6.0 to 8.0 inch layer of porous stone over the bottom of the excavation. The stone will stabilize the bottom of the excavation.

A vapor barrier is recommended under the floor in areas that will be enclosed and heated. The vapor barrier should consist of a 6-mil polyethylene sheet and should be located immediately below the floor slab. The vapor barrier may be omitted in portions of the buildings that will not be heated.

A stormwater retention basin is proposed in the area of Test Boring Twelve. The soil profile in this area consists of a layer of sand with a pocket of clayey sand which extends to a depth of at least 20.0 feet. The infiltration rate of the in-situ sand is anticipated to be sufficient for the internal drainage of the site. However, stormwater will only infiltrate to the current elevation of the water table and may be impeded by the presence of sand containing clay.

Drains around the exterior foundations may be omitted. The majority of the in-situ sand meets the exception for drains in Section 1805.4 of the Michigan Building Code. If required by others, the drains should consist of a 4.0-inch diameter slotted plastic pipe wrapped in filter fabric. Pea gravel should be used for backfill within a 6.0-inch circumference of the drain. The drains should be connected to a storm sewer or have an outlet a minimum of 30.0 inches below the lowest floor elevation.

Pavement areas should be properly drained to minimize the effects of frost heaving and the loss of subgrade due to water infiltration. Parking areas should be sloped towards low points with catch basins or curb inlets.

#### Hot Mix Asphalt (HMA) Pavement

The recommended preliminary HMA pavement sections listed in Table 2 were developed based on the discussions and assumptions included in this report and the design procedures outlined in the "AASHTO Guide for Design of Pavement Structures." The subgrade should be prepared as described in the "Site & Pavement Subgrade Preparation" and "Fill" sections of this report. The recommended pavement section materials listed in Table 2 refer to and should comply with the standard material designations included in applicable MDOT specifications and guidelines including the 2020 MDOT "Standard Specifications for Construction." The final pavement design should be based on site specific traffic loading.

The following recommendations assume that maintenance repairs such as joint sealing, patching, and overlays are regularly performed throughout the lifespan of the pavement and that proper drainage has been established throughout the site. Proper drainage includes the installation of stormwater controls, underdrains, and establishing positive drainage in the subgrade and pavement layers.

**Table 2: Recommended Pavement Sections**

Pavement Cross Section Materials	Standard Duty		Heavy Duty	
	Material	Thickness [in]	Material	Thickness [in]
HMA Wearing Course	4EML	2.0	4EML	2.5
HMA Base Course	4EML	2.0	4EML	2.5
Aggregate Base	21AA Crushed Limestone	8.0	21AA Crushed Limestone	10.0
Sand Subbase	Class II	12.0	Class II	12.0

The recommended asphaltic binder is PG 64-28. Tier 1 recycled asphalt (RAP) specifications may be used in combination with the PG 64-28 binder for the wearing course. Tier 2 RAP specifications may be used for the base course. A softer binder may be necessary to achieve desired performance characteristics when utilizing Tier 2 RAP contents, per the MDOT Special Provision for Recycled Asphalt Pavement. The compacted asphalt should be between 94.0 and 97.0 percent of the Theoretical Maximum Density, as determined via the Superpave "Rice" Method. The target void content should be 3.5 percent for both the base and wearing course. A tack or "bond coat" of SS-1h emulsion shall be applied between the base and wearing course layers at a rate of 0.1 gallons per square yard.



The paving contractor should submit the proposed mix design to the owner for review and approval prior to placement. The HMA pavement should be placed in at least two lifts. The pavement section should be constructed in accordance with MDOT guidelines and specifications as well as applicable state and local requirements.

Paved areas that display poor workmanship, which may include segregation, “cold screed scrapes”, wearing courses not flush with curbs or rims, roller marks, shoving, smearing, or tearing of the mat, flushing, or excessive cold joints should be repaired or replaced by the contractor immediately.

Pavement subgrade, subbase, and aggregate base should be proof rolled prior to aggregate base and pavement placement. The proof rolls should be conducted in accordance with the recommendations in the “Site & Subgrade Preparation” section of this report. The in-situ sand is suitable for use as a subbase material.

The pavement section should be constructed in accordance with MDOT guidelines and specifications as well as applicable state and local requirements. Support conditions and compaction should be assessed during construction in accordance with the “Quality Control and Testing” section of this report. This assessment should occur prior to the installation of individual pavement layers.

#### Portland Cement Concrete (PCC) Pavement

The subgrade should be prepared in accordance with the “Site & Subgrade Preparation” and “Fill” sections of this report. A modulus of subgrade reaction of 140 pounds per cubic inch is recommended for the design of concrete pavement provided the recommendations in this report are observed. The paving contractor should submit the proposed mix design to the owner for review and approval prior to concrete placement.

A base of 12.0 inches of clean sand or aggregate that meets MDOT Class II or 21AA specifications respectively is recommended under the slab on grade concrete pavement. The in-situ soil is suitable for use as a base. The minimum base thickness may be reduced to 6.0 inches for sidewalk slabs. A minimum slab on grade concrete pavement thickness of 4.0 to 6.0 inches is recommended for standard and heavy-duty concrete pavement. In the areas of dumpster pads, a minimum pavement thickness of 8.0 inches is recommended. The pavement and reinforcement, if required, should be designed based on site-specific loading conditions. The recommended minimum concrete pavement thickness of 4.0 inches for sidewalks surrounded by greenbelt and 5.0 inches for revealed-face slabs.

### Quality Control Testing

Compaction tests in accordance with ASTM D 6938 are recommended to confirm that sand and fill in the construction areas are compacted to the specified density. While fill is being placed, compaction tests should be performed at the rate of one test per 400 cubic yards of fill and throughout the depth of the fill with a minimum of five tests at each 1.0-foot elevation interval. Full time inspection is recommended while sand and fill are compacted in the building areas. Compaction tests should be performed under foundations at the rate of one test per 50 linear feet for wall foundations and one test per column foundation. The recommended testing frequency in the floor is one test per 2,500 square feet. Tests should also be performed in the backfill over foundations and utilities. The maximum density should be determined in accordance with ASTM D 1557 or ASTM D 4253 procedures.

Unless otherwise specified in the design documents or project plans, the following testing procedures and frequencies should be observed for slab on grade concrete. Both asphalt and concrete quality testing should adhere to the 2020 MDOT Standards for Construction.

Asphalt temperatures during placement should be at least 275 degrees Fahrenheit; material that arrives at temperatures below 250 degrees Fahrenheit shall be rejected. Asphalt density testing should be performed with a nuclear density gauge at a minimum rate of one test per 500 square feet of pavement. At least five total verification cores in each course are recommended to assess relative compaction, calibrate the nuclear density gauge, and evaluate thickness. A minimum of two loose mix samples per mix per day should be taken at the plant and delivered to the quality-assurance firm's laboratory for vacuum extraction-gradations. The asphalt contractor should provide a minimum of two (2) theoretical maximum density verifications per day.

Concrete testing should be performed by a certified concrete technician (MCA Michigan Level I or II). One set of concrete tests should be performed for every fifty (50) cubic yards of concrete placed. Concrete should be sampled in accordance with ASTM C172. A set of concrete tests should consist of a concrete slump, air content, and concrete temperature. Slump testing should be performed in accordance with ASTM C143. Air content testing should be performed in accordance with ASTM C231. Concrete temperature testing should be performed in accordance with ASTM C1064. Air temperature should also be recorded at the time of testing. A set of test cylinders should be molded at the time of testing. A minimum of two (2) test cylinders should be molded per cylinder set for 28-day compressive strength testing. Test cylinders should be prepared in accordance with ASTM C31 and tested in accordance with ASTM C39.

A smooth 0.5-to-0.75-inch diameter rod should be used in conjunction with compaction tests to probe for loose areas under foundations, in fill, and under floors. A dynamic cone should not be substituted for compaction tests for evaluating fill. Testing should be performed by technicians supervised by a registered geotechnical engineer.





### General Conditions & Reliance

The report was prepared in accordance with generally accepted practices of the geotechnical engineering profession. The scope of work consisted of performing fourteen (14) test borings and providing soil related recommendations for the design and construction of the proposed housing development. The scope of work did not include an environmental study or wetland determination.

The report and the associated test borings were prepared specifically for the previously described project and site. Soils & Structures should be consulted if a significant change in the scope of the project is made.

The test borings represent point information and may not have encountered all of the soil types and materials present on this site. This report does not constitute a guarantee of the soil or groundwater conditions or that the test borings are an exact representation of the soil or groundwater conditions at all points on this site.

The descriptions and recommendations contained in this report are based on an interpretation of the test borings and laboratory tests. The test borings should not be used independently of the report. If soil conditions are encountered which are significantly different from the test borings, Soils & Structures should be consulted for additional recommendations.

The report and test borings may be relied upon by Wightman for the design, construction, permitting, and financing associated with the construction of the Stanwood Crossings project located in Portage, Kalamazoo County, Michigan. The use of the report and test borings by third parties not associated with this project or for other sites has not been agreed upon by Soils & Structures. Soils & Structures does not recommend or consent to third party use or reliance of the report or test borings unless allowed to review the proposed use of these materials. Unless obtained in writing, consent to third party use should not be assumed. Third parties using the report or test boring logs do so at their own risk and are offered no guarantee or promise of indemnity.

## Appendix

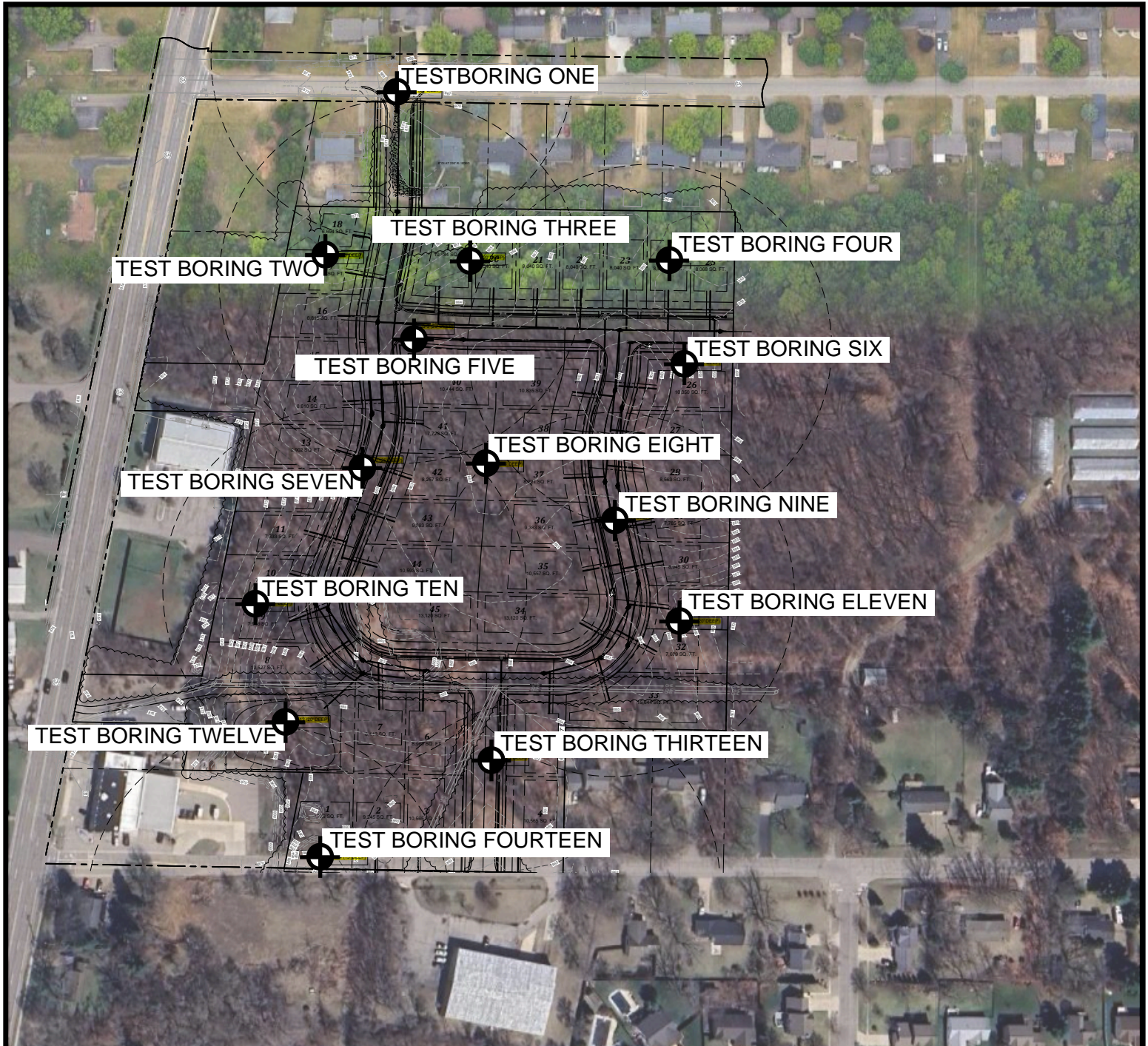
Test Boring Location Plan

General Soil Profile

Test Boring Logs

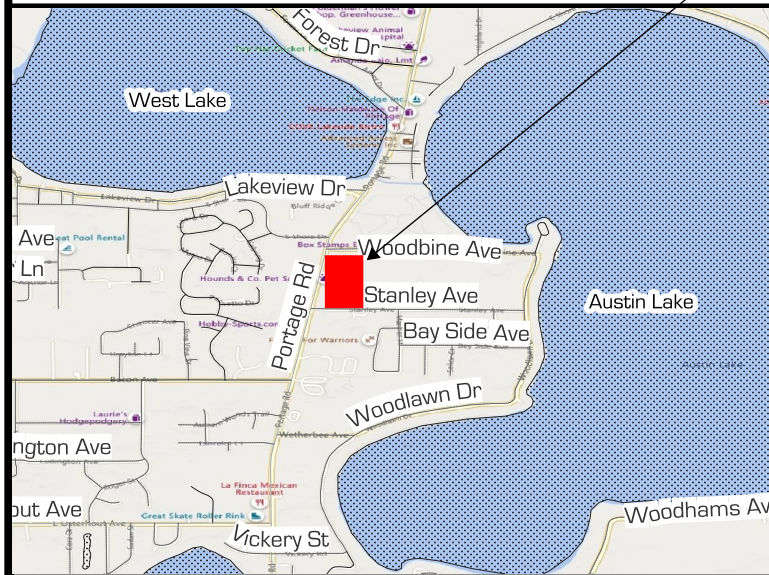
Laboratory Tests

General Soil Information



VICINITY MAP (NTS)

SITE



## TEST BORING LOCATION PLAN

NTS



Note: The background of the test boring plan is a portion of an aerial photograph from Google Earth.

Stanwood Crossings

Portage, Kalamazoo County, Michigan

Soils & Structures, Inc.  
6480 Grand Haven Road  
Muskegon, Michigan 49441

JOB NO.: 2024.1260

DATE: 08-28-2024

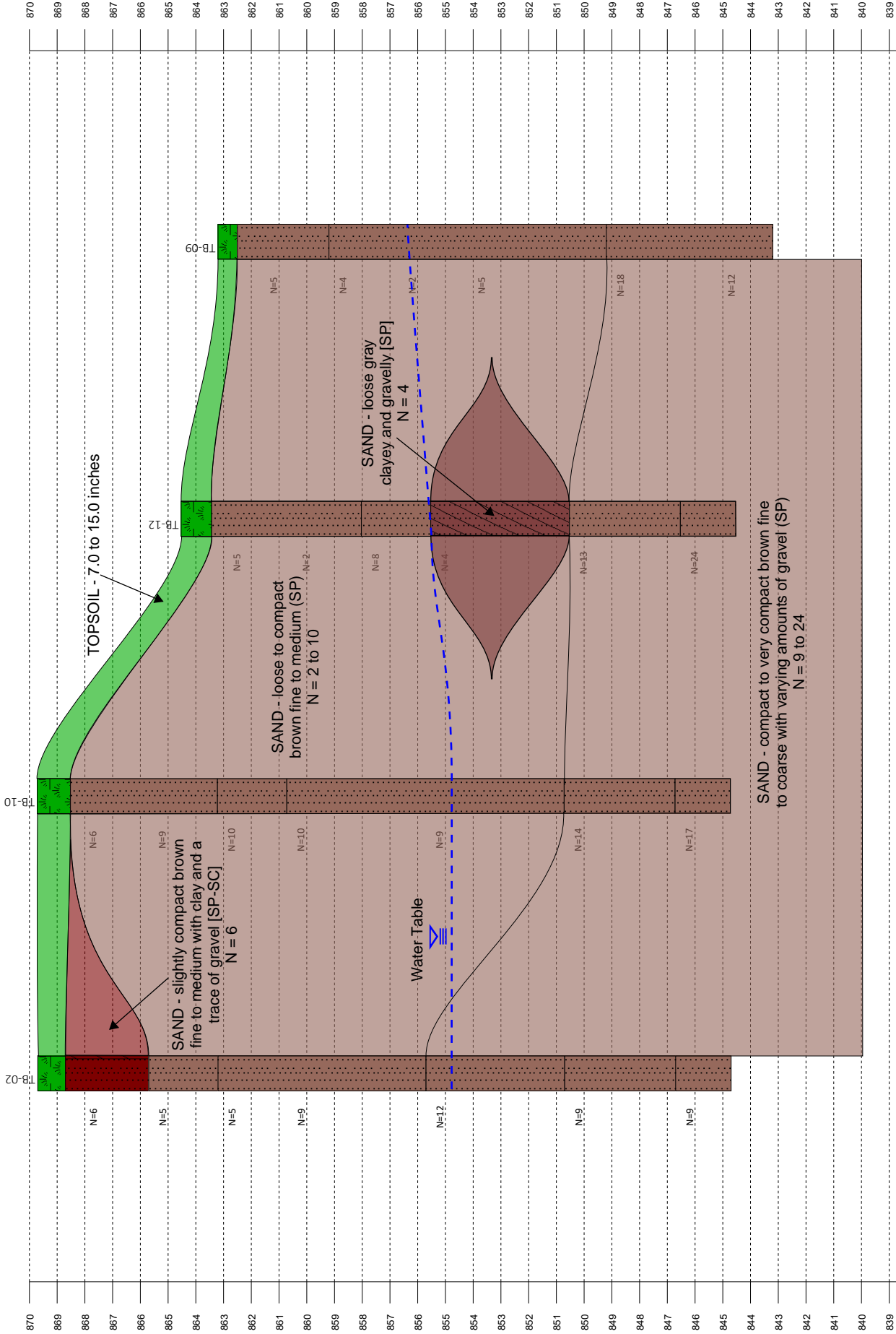


Project id: 2024.1260  
Project Title: Stanwood Crossings  
Location: Portage, Michigan  
Client: Wightman

Title: Section line 1  
Vertical Scale: 1:60  
Horizontal Scale: Not to scale  
Engineer: Vincent Oderah, P.E.

# GENERAL SOIL PROFILE

NOTE: The water table is present at depths of 7.0 to 15.0 feet


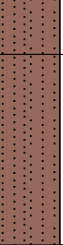

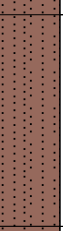









## Legend Key

- Topsoil
- Poorly Graded SAND with CLAY
- Poorly Graded SAND
- CLAYEY SAND



Project Name:	Stanwood Crossings	Project Number:	2024.1260						
Project Location:	Portage, Michigan	Logged By:	J Carnes	Reviewed By:	K Martella				
Client:	Wightman	Survey Datum:	NAD 1983 StatePlane Michigan South	Hole Depth:	25.00				
Date Started:	Jul 31 2024	Completed:	Jul 31 2024	Northing:	249603.1	Easting:	12798328.7	Elevation:	868.20
Drilling Method:	3-1/4" Hollow Stem Auger	Frost Depth							
Equipment:	Diedrich D-25	Ground Water Levels							
Hammer Type:	Automatic Hammer	At Time of Drilling	15.00' on Jul 31 2024						
Notes:									

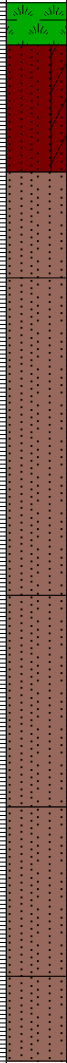
Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS		
											Liquid Limit	Plastic Limit	Plasticity Index				
1		TOPSOIL - dark brown sandy gravelly (7.0")															
2		SAND - dark brown fine to medium gravelly														SP	
3		SAND - loose to slightly compact brown fine to medium	▼	SPT-A	87	4-3-3	6										
4			▼														SP
5	▼		SPT-B	87	2-1-1	2				6.9							
6		SAND - compact brown fine to medium	▼														
7			▼	SPT-C	87	3-3-7	10										SP
8			▼														
9		SAND - compact brown fine to medium with a trace of gravel	▼														
10			▼	SPT-D	87	5-7-8	15				2.7						SP
11			▼														
12		SAND - compact brown fine to medium	▼														
13			▼														
14			▼	SPT-E	87	5-6-8	14				17.0						
15			▼														
16	▼																
17	▼																
18			▼	SPT-F	87	6-6-9	15									SP	
19			▼														
20			▼														
21			▼														
22			▼														
23			▼														
24			▼	SPT-G	87	4-6-7	13										
25			▼														
26			▼														
27			▼														
28			▼														
29			▼														
30			▼														

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<b>Project Name:</b> Stanwood Crossings	<b>Project Number:</b> 2024.1260
<b>Project Location:</b> Portage, Michigan	<b>Logged By:</b> J Carnes <b>Reviewed By:</b> K Martella
<b>Client:</b> Wightman	<b>Survey Datum:</b> NAD 1983 StatePlane Michigan South <b>Hole Depth:</b> 25.00
<b>Date Started:</b> Jul 30 2024 <b>Completed:</b> Jul 30 2024	<b>Northing:</b> 249367.7 <b>Easting:</b> 12798211.8 <b>Elevation:</b> 869.70
<b>Drilling Method:</b> 3-1/4" Hollow Stem Auger	<b>Frost Depth</b>
<b>Equipment:</b> Diedrich D-25	<b>Ground Water Levels</b>
<b>Hammer Type:</b> Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling 15.00' on Jul 30 2024
<b>Notes:</b>	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS
											Liquid Limit	Plastic Limit	Plasticity Limit	Index	
1		TOPSOIL - dark brown sandy (12.0")													
2		SAND - slightly compact brown fine to medium with clay and a trace of gravel													
3			▲	SPT-A	73	2-4-2	6			15.4					SP-SC
4		SAND - slightly compact brown fine to medium with a trace of clay	▲												
5			▲	SPT-B	80	3-2-3	5								SP
6			▲												
7		SAND - slightly compact to compact brown fine to medium	▲							3.4					
8			▲	SPT-C	73	2-2-3	5								
9			▲												
10			▲	SPT-D	80	3-3-6	9								SP
11			▲												
12			▲												
13			▲												
14		SAND - compact brown fine to coarse	▲												
15			▲	SPT-E	73	4-5-7	12			15.2					SP
16			▲												
17			▲												
18			▲												
19		SAND - compact brown fine to medium	▲												
20			▲	SPT-F	73	2-4-5	9								SP
21			▲												
22			▲												
23		SAND - compact brown fine to coarse	▲												
24			▲	SPT-G	47	2-4-5	9			14.5					SP
25			▲												
26															
27															
28															
29															
30															

Ann Arbor

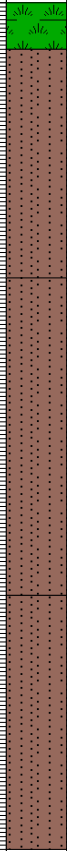
Muskegon

Traverse City











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<b>Project Name:</b> Stanwood Crossings <b>Project Location:</b> Portage, Michigan <b>Client:</b> Wightman <b>Date Started:</b> Jul 29 2024 <b>Completed:</b> Jul 29 2024 <b>Drilling Method:</b> 3-1/4" Hollow Stem Auger <b>Equipment:</b> Diedrich D-25 <b>Hammer Type:</b> Automatic Hammer <b>Notes:</b>	<b>Project Number:</b> 2024.1260 <b>Logged By:</b> J Carnes <b>Reviewed By:</b> K Martella <b>Survey Datum:</b> NAD 1983 StatePlane Michigan South <b>Hole Depth:</b> 20.00 <b>Northing:</b> 249376.6 <b>Easting:</b> 12798423.9 <b>Elevation:</b> 865.47 <b>Frost Depth</b> <b>Ground Water Levels</b> <input checked="" type="checkbox"/> At Time of Drilling 10.00' on Jul 29 2024
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Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS
											Liquid Limit	Plastic Limit	Plasticity Limit	Index	
1		TOPSOIL - dark brown sandy (13.0")													
2		SAND - slightly compact brown fine to medium with a trace of clay													
3			▲	SPT-A	73	2-2-3	5								
4			▲												SP
5		SAND - loose to slightly compact brown fine to medium	▲	SPT-B	87	2-3-3	6			6.9					
6			▲												
7			▲	SPT-C	87	3-3-3	6								
8			▲												
9			▲												
10			▲	SPT-D	100	2-1-2	3			20.2					SP
11		SAND - compact to very compact brown fine	▲												
12			▲												
13			▲												
14			▲	SPT-E	73	2-4-4	8			26.0					
15			▲												
16			▲												
17			▲												SP
18			▲												
19			▲	SPT-F	47	8-11-14	25								
20															
21															
22															
23															
24															
25															
26															
27															
28															
29															
30															

<b>Project Name:</b> Stanwood Crossings <b>Project Location:</b> Portage, Michigan <b>Client:</b> Wightman <b>Date Started:</b> Jul 29 2024 <b>Completed:</b> Jul 29 2024 <b>Drilling Method:</b> 3-1/4" Hollow Stem Auger <b>Equipment:</b> Diedrich D-25 <b>Hammer Type:</b> Automatic Hammer <b>Notes:</b>	<b>Project Number:</b> 2024.1260 <b>Logged By:</b> J Carnes <b>Reviewed By:</b> K Martella <b>Survey Datum:</b> NAD 1983 StatePlane Michigan South <b>Hole Depth:</b> 20.00 <b>Northing:</b> 249368.1 <b>Easting:</b> 12798686.8 <b>Elevation:</b> 859.23 <b>Frost Depth</b> <b>Ground Water Levels</b> <input checked="" type="checkbox"/> At Time of Drilling 7.00' on Jul 29 2024
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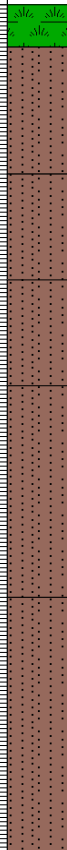
Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS
											Liquid Limit	Plastic Limit	Plasticity Limit	Index	
1		TOPSOIL - dark brown sandy (8.0")													
2		SAND - slightly compact brown fine to medium clayey													
3			▲	SPT-A	67	2-2-3	5								SC
4			▲												
5		SAND - slightly compact brown fine to coarse clayey and gravelly						1.5		14.0					SC
6			▲	SPT-B	67	2-3-2	5								
7		☒ SAND - slightly compact brown fine to coarse with a trace of gravel and lenses of clay								18.5					SP
8			▲	SPT-C	73	2-3-4	7								
9		SAND - compact brown fine to coarse with a trace of gravel													
10			▲	SPT-D	100	5-6-6	12								
11															
12			▲												
13															SP
14			▲	SPT-E	100	8-9-11	20			12.3					
15															
16			▲												
17															
18		SAND - compact brown fine to medium													
19			▲	SPT-F	47	6-6-10	16								SP
20															
21															
22															
23															
24															
25															
26															
27															
28															
29															
30															

<b>Project Name:</b> Stanwood Crossings <b>Project Location:</b> Portage, Michigan <b>Client:</b> Wightman <b>Date Started:</b> Jul 30 2024 <b>Completed:</b> Jul 30 2024 <b>Drilling Method:</b> 3-1/4" Hollow Stem Auger <b>Equipment:</b> Diedrich D-25 <b>Hammer Type:</b> Automatic Hammer <b>Notes:</b>	<b>Project Number:</b> 2024.1260 <b>Logged By:</b> J Carnes <b>Reviewed By:</b> K Martella <b>Survey Datum:</b> NAD 1983 StatePlane Michigan South <b>Hole Depth:</b> 20.00 <b>Northing:</b> 249261.7 <b>Easting:</b> 12798355.7 <b>Elevation:</b> 863.54 <b>Frost Depth</b> <b>Ground Water Levels</b> <input checked="" type="checkbox"/> At Time of Drilling 7.00' on Jul 30 2024
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Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS
											Liquid Limit	Plastic Limit	Plasticity Limit	Index	
1		TOPSOIL - dark brown sandy (11.0")													
2		SAND - slightly compact brown fine with a trace of silt													
3			▲	SPT-A	80	2-2-4	6								SP
4			▲												
5		SAND - slightly compact to compact brown fine to medium	▲	SPT-B	53	3-4-4	8			4.1					SP
6			▲												
7			▲												
8			▲	SPT-C	80	2-3-3	6			19.5					
9			▲												
10		SAND - slightly compact brown fine to medium with a trace of gravel	▲	SPT-D	67	1-2-3	5								SP
11			▲												
12															
13															
14															
15		SAND - compact brown fine to medium	▲	SPT-E	47	3-6-4	10								SP
16			▲												
17															
18															
19			▲	SPT-F	20	4-6-7	13			22.1					
20															
21															
22															
23															
24															
25															
26															
27															
28															
29															
30															

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<b>Project Name:</b> Stanwood Crossings <b>Project Location:</b> Portage, Michigan <b>Client:</b> Wightman <b>Date Started:</b> Jul 29 2024 <b>Completed:</b> Jul 29 2024 <b>Drilling Method:</b> 3-1/4" Hollow Stem Auger <b>Equipment:</b> Diedrich D-25 <b>Hammer Type:</b> Automatic Hammer <b>Notes:</b>	<b>Project Number:</b> 2024.1260 <b>Logged By:</b> J Carnes <b>Reviewed By:</b> K Martella <b>Survey Datum:</b> NAD 1983 StatePlane Michigan South <b>Hole Depth:</b> 20.00 <b>Northing:</b> 249243.5 <b>Easting:</b> 12798704.6 <b>Elevation:</b> 860.30 <b>Frost Depth</b> <b>Ground Water Levels</b> <input checked="" type="checkbox"/> At Time of Drilling 7.00' on Jul 29 2024
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Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS
											Liquid Limit	Plastic Limit	Plasticity Index			
1		TOPSOIL - dark brown sandy clayey (12.0")														
2		SAND - loose brown fine to medium with a trace of clay														
3			▲	SPT-A	80	2-1-2	3			7.9					SP	
4																
5			SAND - loose brown fine with a trace of gravel	▲	SPT-B	33	2-2-2	4			10.0				SP	
6																
7			☒ SAND - compact brown fine to coarse with a trace of gravel	▲	SPT-C	87	2-4-4	8							SP	
8				▲												
9			SAND - slightly compact brown fine to coarse	▲	SPT-D	53	2-2-3	5			14.2				SP	
10																
11																
12																
13																
14			SAND - compact brown fine to coarse with a trace of gravel	▲	SPT-E	87	4-4-5	9								
15																
16																
17															SP	
18																
19				▲	SPT-F	80	5-6-7	13			17.5					
20				▲												
21																
22																
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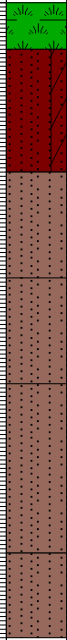
Project Name:	Stanwood Crossings	Project Number:	2024.1260						
Project Location:	Portage, Michigan	Logged By:	J Carnes	Reviewed By:	K Martella				
Client:	Wightman	Survey Datum:	NAD 1983 StatePlane Michigan South	Hole Depth:	25.00				
Date Started:	Jul 30 2024	Completed:	Jul 30 2024	Northing:	249095.2	Easting:	12798269.4	Elevation:	865.50
Drilling Method:	Mud Rotary	Frost Depth							
Equipment:	Diedrich D-25	Ground Water Levels							
Hammer Type:	Automatic Hammer	At Time of Drilling	10.00' on Jul 30 2024						
Notes:									

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS
											Liquid Limit	Plastic Limit	Plasticity Limit	Index	
1		TOPSOIL - dark brown sandy (12.0")													
2		SAND - slightly compact brown fine to coarse gravelly with clay													
3			▲	SPT-A	67	3-3-2	5			7.3					SW- SC
4			▲												
5		SAND - loose to slightly compact brown fine to medium	▲	SPT-B	80	3-3-3	6								SP
6			▲												
7			▲												
8			▲	SPT-C	47	1-2-2	4								
9			▲												
10		SAND - compact to very compact brown fine to medium	▲	SPT-D	100	3-4-7	11			15.3					
11			▲												
12															
13															
14			▲												
15			▲	SPT-E	100	3-4-5	9			22.7					SP
16			▲												
17															
18															
19			▲												
20			▲	SPT-F	107	7-10-14	24								
21			▲												
22															
23			▲												
24		SAND - very compact brown fine to coarse with a trace of gravel	▲	SPT-G	80	7-11-11	22			14.5					SP
25			▲												
26															
27															
28															
29															
30															

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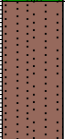
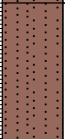

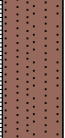
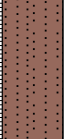
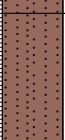
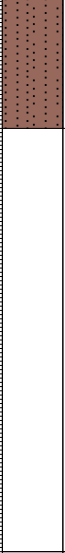
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<b>Project Name:</b> Stanwood Crossings	<b>Project Number:</b> 2024.1260
<b>Project Location:</b> Portage, Michigan	<b>Logged By:</b> J Carnes <b>Reviewed By:</b> K Martella
<b>Client:</b> Wightman	<b>Survey Datum:</b> NAD 1983 StatePlane Michigan South <b>Hole Depth:</b> 15.00
<b>Date Started:</b> Jul 30 2024 <b>Completed:</b> Jul 30 2024	<b>Northing:</b> 249085.5 <b>Easting:</b> 12798445.5 <b>Elevation:</b> 861.84
<b>Drilling Method:</b> 3-1/4" Hollow Stem Auger	<b>Frost Depth</b>
<b>Equipment:</b> Diedrich D-25	<b>Ground Water Levels</b>
<b>Hammer Type:</b> Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling 10.00' on Jul 30 2024
<b>Notes:</b>	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS
											Liquid Limit	Plastic Limit	Plasticity Limit	Index	
1		TOPSOIL - dark brown sandy (14.0")													
2		SAND - slightly compact brown fine with clay													
3			▲	SPT-A	47	3-4-2	6			8.1					SP-SC
4		SAND - loose brown fine to medium	▲												
5			▲	SPT-B	67	2-1-3	4								SP
6			▲												
7		SAND - compact brown fine to medium with lenses of clay	▲												
8			▲	SPT-C	100	3-4-5	9								SP
9		SAND - loose brown fine to medium	▲												
10			▲	SPT-D	80	2-2-2	4			19.2					SP
11			▲												
12			▲												
13		SAND - compact brown fine to medium	▲												
14			▲	SPT-E	67	3-3-6	9								SP
15															
16															
17															
18															
19															
20															
21															
22															
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28															
29															
30															



Sheet 1 of 1

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits					USCS	
											Liquid	Limit	Plastic	Limit	Plasticity Index		
1		TOPSOIL - dark brown sandy (9.0")															
2		SAND - slightly compact brown fine to medium with a trace of clay and gravel	⚡	SPT-A	53	2-2-3	5										SP
3																	
4			SAND - loose to slightly compact brown fine to medium	⚡	SPT-B	87	3-2-2	4			4.3						
5																	
6																	
7				⚡	SPT-C	87	2-1-1	2			21.7						
8			⚡														
9																	
10				⚡	SPT-D	67	1-2-3	5									
11																	
12																	
13																	
14				⚡	SPT-E	100	6-7-11	18									
15																	
16		SAND - compact brown fine to medium	⚡														
17																	
18																	
19				⚡	SPT-F	73	5-5-7	12			18.8						
20																	
21																	
22																	
23																	
24																	
25																	
26																	
27																	
28																	
29																	
30																	
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Project Name:

Stanwood Crossings

Project Location:

Portage, Michigan

Client:

Wightman

Date Started:

Jul 30 2024

Completed:

Jul 30 2024

Drilling Method:

3-1/4" Hollow Stem Auger

Equipment:

Diedrich D-25

Hammer Type:

Automatic Hammer

Notes:

Project Number:

2024.1260

Logged By:

J Carnes

Reviewed By:

K Martella

Survey Datum:

NAD 1983 StatePlane Michigan South

Hole Depth:

25.00

Northing:

248887.8

Easting:

12798122.9

Elevation:


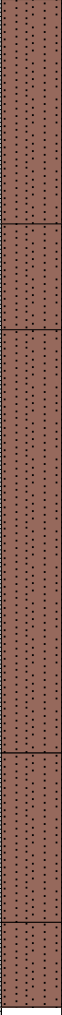

















869.72

Frost Depth

Ground Water Levels

☒ At Time of Drilling

15.00' on Jul 30 2024

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS
											Liquid Limit	Plastic Limit	Plasticity Limit	Index	
1		TOPSOIL - dark brown sandy (15.0")													
2		SAND - slightly compact to compact brown fine to medium		SPT-A	67	2-2-4	6								SP
3															
4				SPT-B	100	3-4-5	9								
5		SAND - compact brown fine to medium with a trace of gravel													SP
6				SPT-C	80	3-4-6	10			4.2					
7		SAND - compact brown fine to medium													SP
8				SPT-D	80	4-4-6	10			3.6					
9															
10		SAND - compact brown fine to coarse with gravel													SP
11				SPT-E	87	2-4-5	9			18.0					
12															
13		SAND - compact brown fine to coarse with a trace of gravel													SP
14				SPT-F	80	4-6-8	14								
15															
16		SAND - compact brown fine to coarse with a trace of gravel													SP
17				SPT-G	67	8-10-7	17			18.6					
18															
19															
20															
21															
22															
23															
24															
25															
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Sheet 1 of 1

**Notes:**

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS
											Liquid Limit	Plastic Limit	Plasticity Index		
1		TOPSOIL - dark brown sandy (13.0")													
2		SAND - loose to slightly compact brown fine to medium	⚡												
3			SPT-A	100	2-2-2	4			4.8						
4															
5			⚡	SPT-B	73	2-3-3	6								
6															
7			⚡	SPT-C	80	2-1-2	3			3.0					
8		⚡													
9															
10			⚡	SPT-D	73	2-3-2	5							SP	
11															
12															
13															
14															
15		Σ		⚡	SPT-E	67	1-2-2	4							
16															
17															
18			SAND - compact brown fine to medium	⚡											
19				SPT-F	53	3-3-5	8			22.3				SP	
20															
21															
22															
23															
24															
25															
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30															

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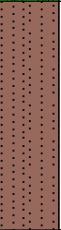

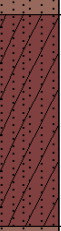
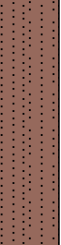
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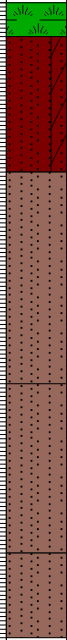


Sheet 1 of 1
















**Notes:**

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS
											Liquid Limit	Plastic Limit	Plasticity Index		
1		TOPSOIL - dark brown sandy (14.0")													
2		SAND - loose to slightly compact brown fine with a trace of clay	▼	SPT-A	0	2-2-3	5								SP
3															
4															
5			▼	SPT-B	47	1-1-1	2								
6		SAND - compact brown fine to coarse with gravel and lenses of clay	▼	SPT-C	73	3-3-5	8			9.2				SP	
7															
8		SAND - loose gray clayey and gravelly	▼	SPT-D	27	3-2-2	4			21.8				SC	
9															
10															
11															
12		SAND - compact to very compact brown fine to medium	▼	SPT-E	60	6-6-7	13			15.5				SP	
13															
14															
15															
16			▼	SPT-F	13	9-11-13	24								
17															
18															
19															
20															
21															
22															
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28															
29															
30															
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(800) 933-3959															

<b>Project Name:</b> Stanwood Crossings	<b>Project Number:</b> 2024.1260
<b>Project Location:</b> Portage, Michigan	<b>Logged By:</b> J Carnes <b>Reviewed By:</b> K Martella
<b>Client:</b> Wightman	<b>Survey Datum:</b> NAD 1983 StatePlane Michigan South <b>Hole Depth:</b> 15.00
<b>Date Started:</b> Jul 29 2024 <b>Completed:</b> Jul 29 2024	<b>Northing:</b> 248692.3 <b>Easting:</b> 12798429.4 <b>Elevation:</b> 861.40
<b>Drilling Method:</b> 3-1/4" Hollow Stem Auger	<b>Frost Depth</b>
<b>Equipment:</b> Diedrich D-25	<b>Ground Water Levels</b>
<b>Hammer Type:</b> Automatic Hammer	<input checked="" type="checkbox"/> At Time of Drilling 7.00' on Jul 29 2024
<b>Notes:</b>	

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS
											Liquid Limit	Plastic Limit	Plasticity Limit	Index	
1		TOPSOIL - dark brown sandy (10.0")													
2		SAND - slightly compact brown fine to medium with clay													
3			▲	SPT-A	67	4-2-3	5			7.3					SP-SC
4			▲												
5		SAND - loose to slightly compact brown fine to medium with a trace of gravel	▲	SPT-B	73	3-3-3	6								
6			▲												
7			▲												SP
8			▲	SPT-C	100	1-1-2	3			22.9					
9			▲												
10		SAND - slightly compact brown fine to coarse with a trace of gravel	▲	SPT-D	67	1-3-4	7			17.4					SP
11			▲												
12			▲												
13			▲												
14		SAND - compact brown fine to coarse with a trace of gravel	▲	SPT-E	53	5-8-8	16								SP
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															
26															
27															
28															
29															
30															

<b>Project Name:</b> Stanwood Crossings <b>Project Location:</b> Portage, Michigan <b>Client:</b> Wightman <b>Date Started:</b> Jul 31 2024 <b>Completed:</b> Jul 31 2024 <b>Drilling Method:</b> 3-1/4" Hollow Stem Auger <b>Equipment:</b> Diedrich D-25 <b>Hammer Type:</b> Automatic Hammer <b>Notes:</b>	<b>Project Number:</b> 2024.1260 <b>Logged By:</b> J Carnes <b>Reviewed By:</b> K Martella <b>Survey Datum:</b> NAD 1983 StatePlane Michigan South <b>Hole Depth:</b> 15.00 <b>Northing:</b> 248548.5 <b>Easting:</b> 12798217.3 <b>Elevation:</b> 865.40 <b>Frost Depth</b> <b>Ground Water Levels</b> <input checked="" type="checkbox"/> At Time of Drilling 10.00' on Jul 31 2024
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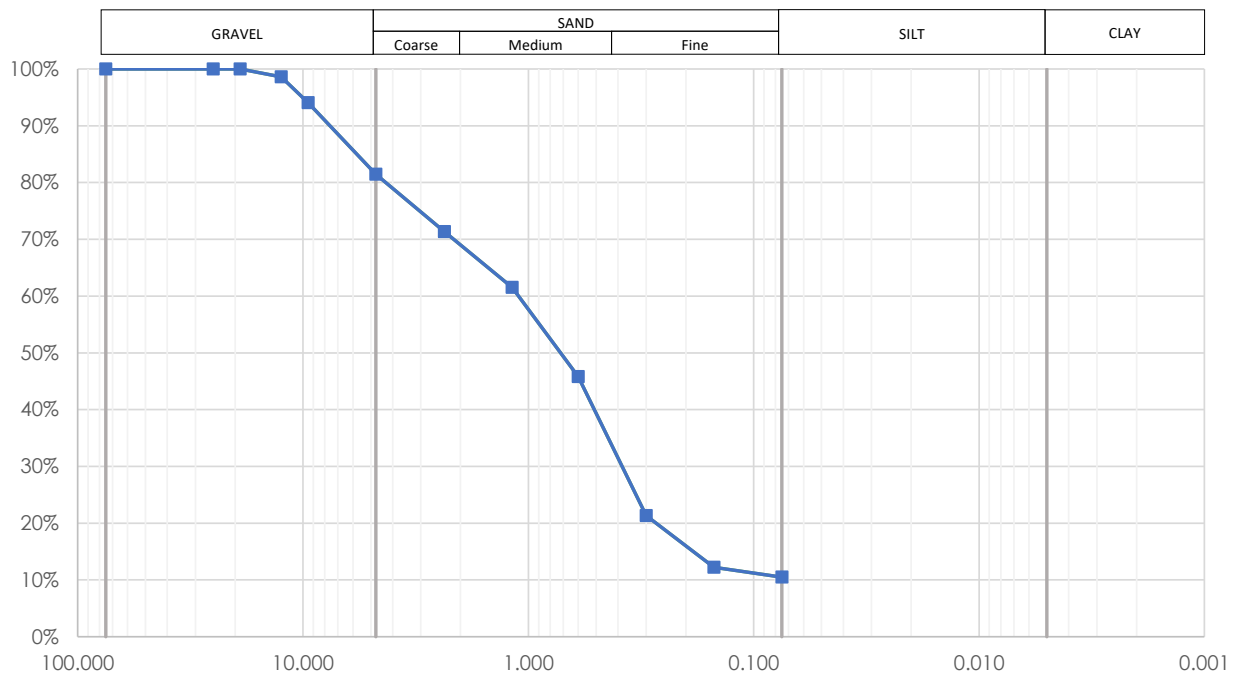
Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits				USCS
											Liquid Limit	Plastic Limit	Plasticity Limit	Index	
1		TOPSOIL - dark brown sandy gravelly (8.0")													
2		SAND - slightly compact brown fine to medium clayey with gravel													
3			▲	SPT-A	80	5-3-4	7								SC
4			▲												
5			▲	SPT-B	80	4-4-3	7			5.6					
6			▲												
7		SAND - loose brown fine to medium	▲												SP
8			▲	SPT-C	87	2-1-3	4								
9			▲												
10		SAND - compact brown fine to medium	▲												SP
11			▲	SPT-D	87	3-4-4	8			15.1					
12			▲												
13			▲												SP-SM
14		SAND - compact brown fine to medium with silt	▲	SPT-E	87	3-5-6	11			14.4					
15			▲												
16															
17															
18															
19															
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## Particle Size Distribution Report

Project Name Stanwood Crossings  
 Project Number 2024.1260  
 Client Wightman  
 Date 8/14/2024  
 Sample Location TB-07 Sample ID A Depth (ft) 2.0



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0%	0.0%	18.5%	13.1%	36.8%	21.0%	0.0%	0.0%
<b>D85</b>	<b>D60</b>	<b>D50</b>	<b>D30</b>	<b>D15</b>	<b>D10</b>	<b>Loss By Wash</b>	
6.0826	1.1233	0.7547	0.4063	0.1956	0.0715	10.5%	

Particle Size		Hydrometer		Material Description
Sieve	% Passing	Particle Size (mm)	% Passing	Fine to Coarse Gravelly SAND with Clay (SW-SC)
3 in.	100%			
1 in.	100%			
3/4 in.	100%			
1/2 in.	99%			
3/8 in.	94%			
No. 4	81%			
No. 8	71%			
No. 16	62%			
No. 30	46%			
No. 50	21%			
No. 100	12%			
No. 200	10.5%			
				Remarks

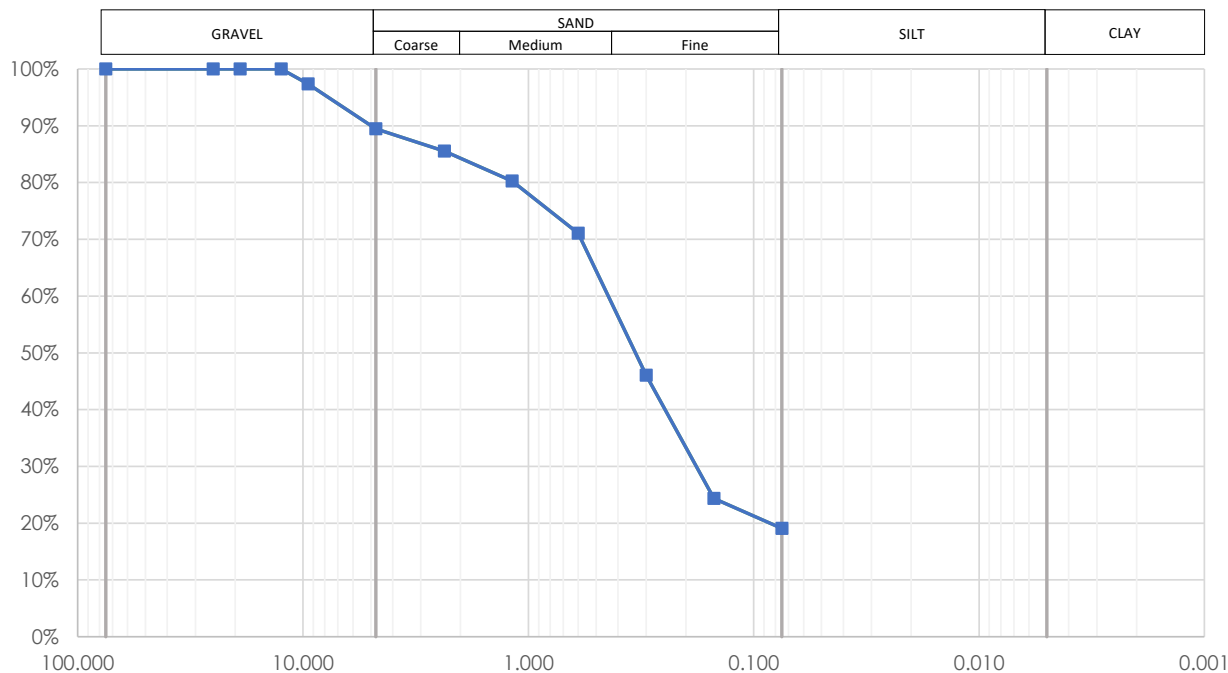
Technician  
bfritz

Checked

Approved  
mvanweelden

## Particle Size Distribution Report

Project Name Stanwood Crossings  
 Project Number 2024.1260  
 Client Wightman  
 Date 8/14/2024  
 Sample Location TB-14 Sample ID B Depth (ft) 4.5



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0%	0.0%	10.5%	5.6%	27.5%	37.4%	0.0%	0.0%
<b>D85</b>	<b>D60</b>	<b>D50</b>	<b>D30</b>	<b>D15</b>	<b>D10</b>	<b>Loss By Wash</b>	
2.2420	0.4674	0.3474	0.1891	0.0590	0.0393	19.1%	

Particle Size		Hydrometer		Material Description
Sieve	% Passing	Particle Size (mm)	% Passing	Fine to Medium Clayey with Gravel (SC)
3 in.	100%			
1 in.	100%			
3/4 in.	100%			
1/2 in.	100%			
3/8 in.	97%			
No. 4	89%			
No. 8	86%			
No. 16	80%			
No. 30	71%			
No. 50	46%			
No. 100	24%			Remarks
No. 200	19.1%			

Technician  
bfritz

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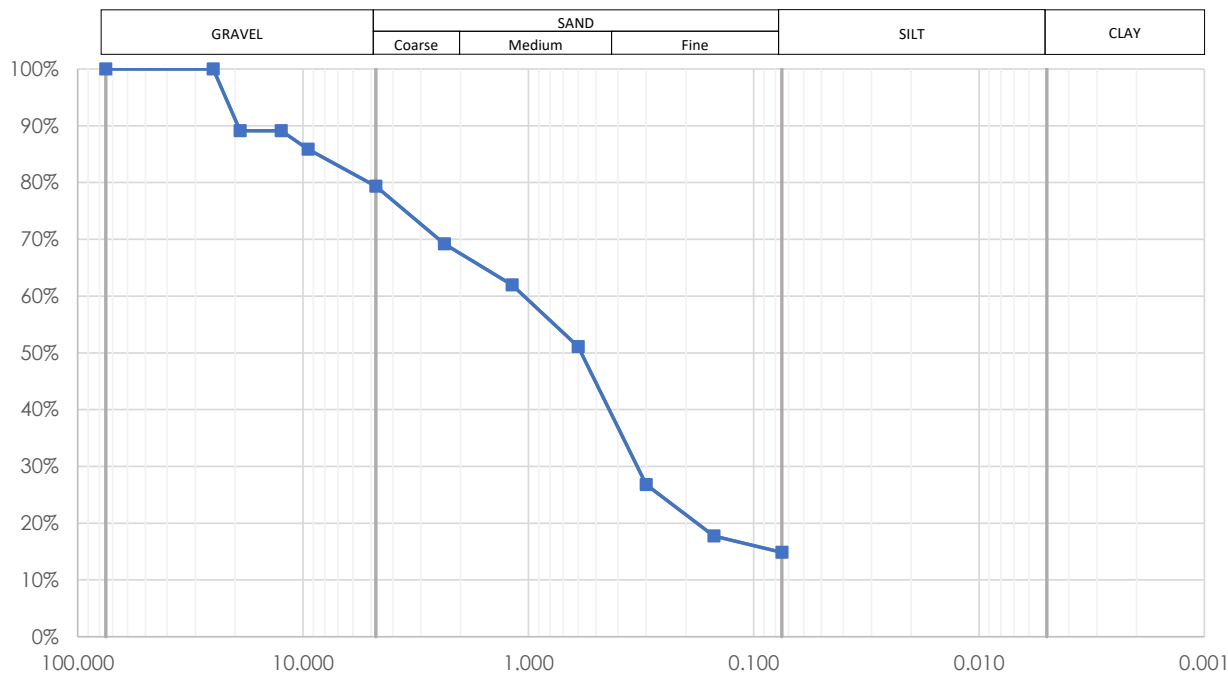
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## Particle Size Distribution Report

Project Name Stanwood Crossings  
Project Number 2024.1260  
Client Wightman  
Date 8/14/2024  
Sample Location TB-04 Sample ID B Depth (ft) 4.5



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0%	10.9%	9.8%	12.4%	30.1%	22.1%	0.0%	0.0%
D85	D60	D50	D30	D15	D10	Loss By Wash	
8.8667	1.0756	0.5866	0.3394	0.0787	0.0505	14.9%	

Particle Size		Hydrometer		Material Description
Sieve	% Passing	Particle Size (mm)	% Passing	Fine to Coarse Clayey and Gravelly (SC)
3 in.	100%			
1 in.	100%			
3/4 in.	89%			
1/2 in.	89%			
3/8 in.	86%			
No. 4	79%			
No. 8	69%			
No. 16	62%			
No. 30	51%			
No. 50	27%			Remarks
No. 100	18%			
No. 200	14.9%			

Technician  
bfritz

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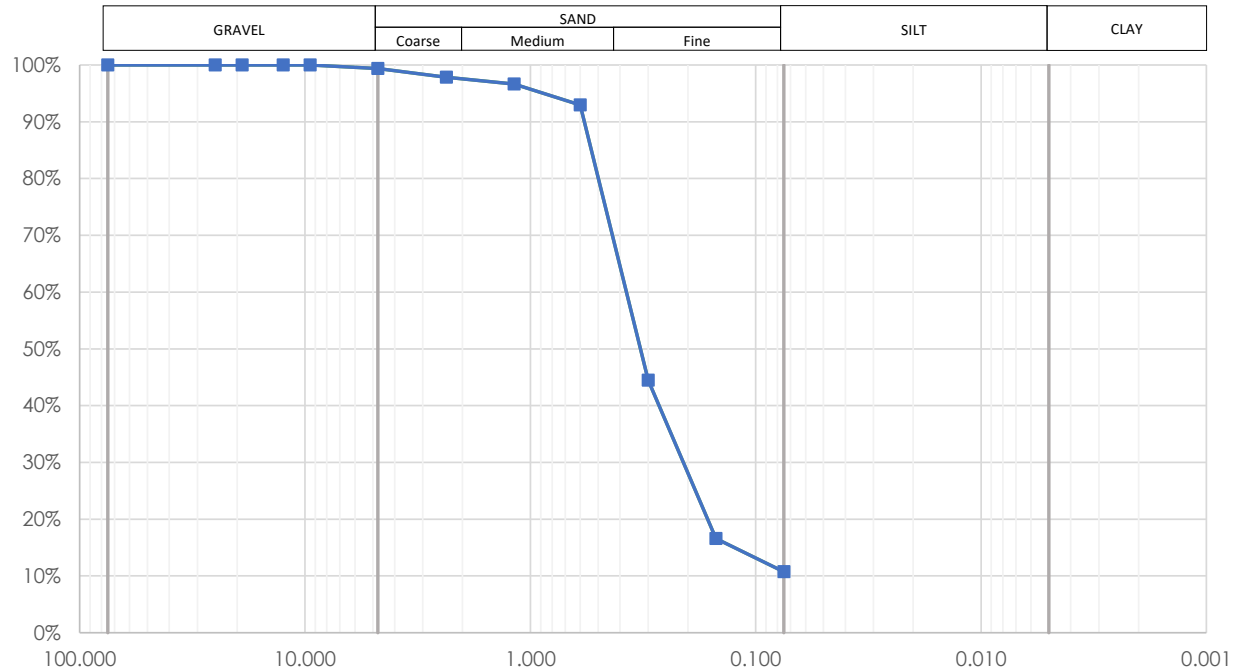
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# SOILS & STRUCTURES

## Particle Size Distribution Report

Project Name Stanwood Crossings  
Project Number 2024.1260  
Client Wightman  
Date 8/14/2024  
Sample Location TB-08 Sample ID C Depth (ft) 7.0



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0%	0.0%	0.6%	1.9%	32.8%	53.9%	0.0%	0.0%
D85	D60	D50	D30	D15	D10	Loss By Wash	
0.5508	0.3961	0.3342	0.2222	0.1299	0.0699	10.7%	

Particle Size		Hydrometer		Material Description
Sieve	% Passing	Particle Size (mm)	% Passing	
3 in.	100%			Fine to Medium SAND with Clay (SP-SC)
1 in.	100%			
3/4 in.	100%			
1/2 in.	100%			
3/8 in.	100%			
No. 4	99%			
No. 8	98%			
No. 16	97%			
No. 30	93%			Remarks
No. 50	44%			
No. 100	17%			
No. 200	10.7%			

Technician  
bfritz

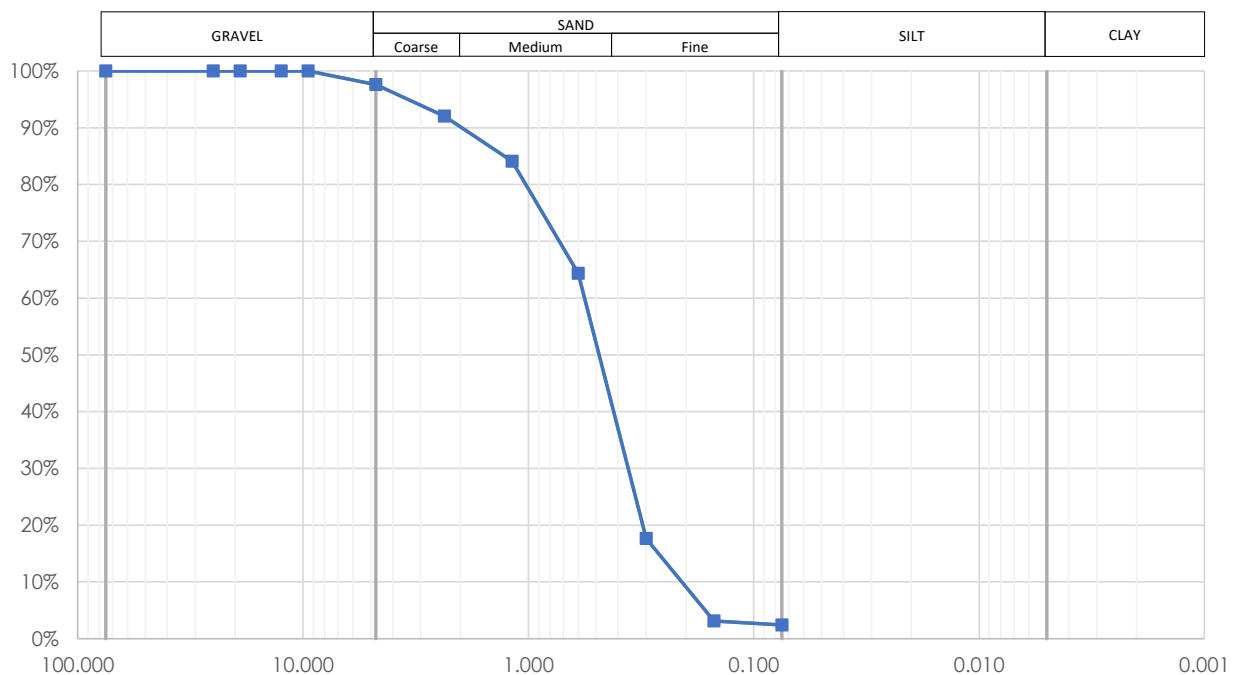
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Project Name	Stanwood Crossings	
Project Number	2024.1260	
Client	Wightman	
Date	8/14/2024	
Sample Location	TB-11	Sample

Depth (ft)      7.0



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0%	0.0%	2.4%	8.0%	52.5%	34.7%	0.0%	0.0%
<b>D85</b>	<b>D60</b>	<b>D50</b>	<b>D30</b>	<b>D15</b>	<b>D10</b>	<b>Loss By Wash</b>	
1.3160	0.5720	0.5078	0.3793	0.2727	0.2211	2.4%	

Particle Size		Hydrometer		Material Description	
Sieve	% Passing	Particle Size (mm)	% Passing	Fine to Medium SAND (SP)	
3 in.	100%				
1 in.	100%				
3/4 in.	100%				
1/2 in.	100%				
3/8 in.	100%			Remarks	
No. 4	98%				
No. 8	92%				
No. 16	84%				
No. 30	64%				
No. 50	18%				
No. 100	3%				
No. 200	2.4%				

Technician  
bfritz

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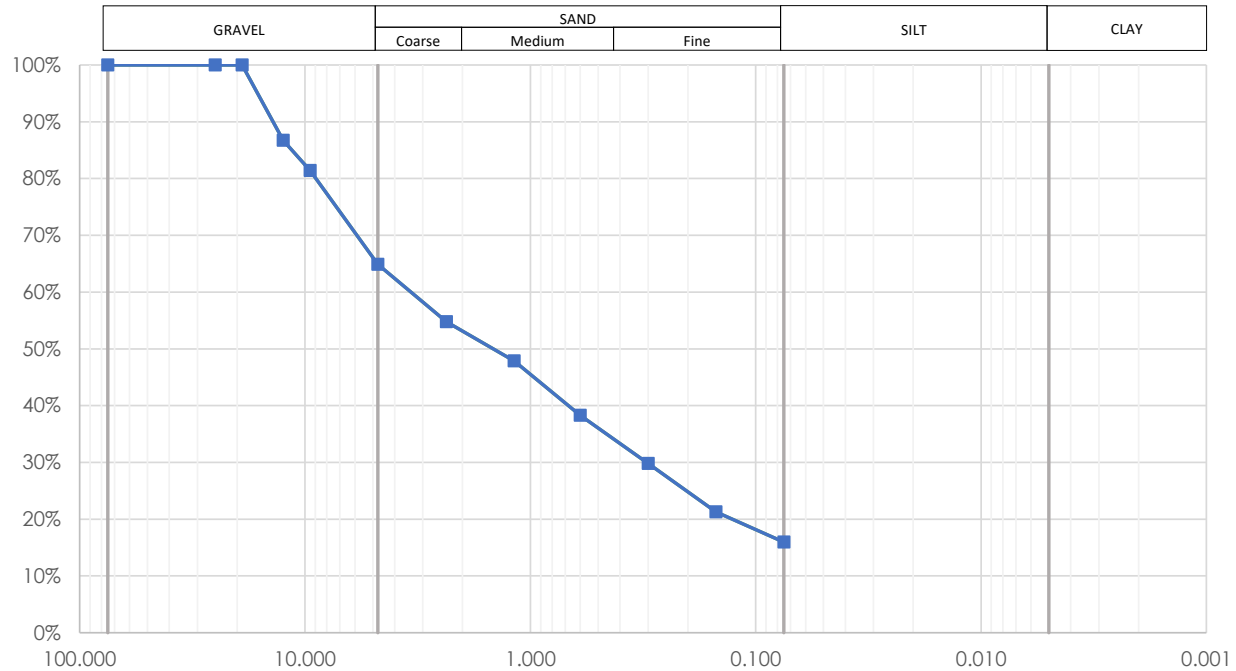
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mvanweelden



# SOILS & STRUCTURES

## Particle Size Distribution Report

Project Name Stanwood Crossings  
Project Number 2024.1260  
Client Wightman  
Date 8/14/2024  
Sample Location TB-12 Sample ID D Depth (ft) 9.5



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0%	0.0%	35.1%	12.2%	19.3%	17.4%	0.0%	0.0%
D85	D60	D50	D30	D15	D10	Loss By Wash	
11.5400	3.5927	1.5431	0.3075	0.0705	0.0470	16.0%	

Particle Size		Hydrometer		Material Description
Sieve	% Passing	Particle Size (mm)	% Passing	
3 in.	100%			Fine to Coarse Clayey and Gravelly SAND (SC)
1 in.	100%			
3/4 in.	100%			Remarks
1/2 in.	87%			
3/8 in.	81%			
No. 4	65%			
No. 8	55%			
No. 16	48%			
No. 30	38%			
No. 50	30%			
No. 100	21%			
No. 200	16.0%			

Technician  
bfritz

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Approved  
mvanweelden



## Determination of Water Content (Moisture) of Soil and Rock by Mass

(ASTM D2216)

Project Name Stanwood Crossings  
Project Number 2024.126  
Client Wightman  
Date 8/14/2024

Sample Location		TB-02	TB-06	TB-07	TB-08	TB-11
Sample ID		A	A	A	A	A
Depth	ft	2.0	2.0	2.0	2.0	2.0
Sample Type		SPT	SPT	SPT	SPT	SPT
Mass of Container	g	19.65	19.75	386.90	21.08	19.58
Mass of Wet Soil and Container	g	85.39	85.48	694.00	85.01	85.62
Accepted Dry mass + container	g	76.63	80.65	673.20	80.20	82.58
Water Content	%	15.4	7.9	7.3	8.1	4.8
Remarks						

Sample Location		TB-13	TB-14	TB-09	TB-05	TB-06
Sample ID		A	B	B	B	B
Depth	ft	2.0	4.5	4.5	4.5	4.5
Sample Type		SPT	SPT	SPT	SPT	SPT
Mass of Container	g	19.81	328.50	19.78	21.39	19.50
Mass of Wet Soil and Container	g	85.85	488.60	85.23	85.28	85.32
Accepted Dry mass + container	g	81.33	480.10	82.51	82.77	79.31
Water Content	%	7.3	5.6	4.3	4.1	10.0
Remarks						

Sample Location		TB-03	TB-04	TB-01	TB-02	TB-04
Sample ID		B	B	B	C	C
Depth	ft	4.5	4.5	4.5	7.0	7.0
Sample Type		SPT	SPT	SPT	SPT	SPT
Mass of Container	g	19.69	301.50	20.78	19.72	19.82
Mass of Wet Soil and Container	g	85.28	616.30	85.09	85.42	85.33
Accepted Dry mass + container	g	81.07	577.70	80.93	83.24	75.11
Water Content	%	6.9	14.0	6.9	3.4	18.5
Remarks						

Technician  
bfritz

Checked

Approved  
mvanweelden





## Determination of Water Content (Moisture) of Soil and Rock by Mass

(ASTM D2216)

Project Name Stanwood Crossings  
Project Number 2024.126  
Client Wightman  
Date 8/14/2024

Sample Location

Sample ID

Depth

Sample Type

Mass of Container

Mass of Wet Soil and Container

Accepted Dry mass + container

**Water Content**

Remarks

ft	TB-10				
	G				
	23.5				
	SPT				

g	19.68				
g	89.79				
g	78.78				

%	18.6				
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Sample ID

Depth

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Mass of Container

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Accepted Dry mass + container

**Water Content**

Remarks

ft					

g					
g					
g					

%					
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**Water Content**

Remarks

ft					

g					
g					
g					

%					
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Technician

bfritz

Checked

Approved

mvanweelden



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**Water Content**

Remarks

	TB-14	TB-12	TB-01	TB-02	TB-03
	E	E	E	E	E
ft	13.5	14.5	14.5	14.5	14.5
	SPT	SPT	SPT	SPT	SPT
g	19.70	19.52	20.87	21.00	19.61
g	85.02	85.45	85.53	85.62	85.70
g	76.81	76.60	76.12	77.10	72.06
%	14.4	15.5	17.0	15.2	26.0

Sample Location

Sample ID

Depth

Sample Type

Mass of Container

Mass of Wet Soil and Container

Accepted Dry mass + container

**Water Content**

Remarks

	TB-04	TB-07	TB-10	TB-11	TB-09
	E	E	E	F	F
ft	14.5	14.5	14.5	18.5	18.5
	SPT	SPT	SPT	SPT	SPT
g	10.57	10.63	10.55	10.51	10.67
g	85.21	85.90	85.56	85.74	85.21
g	77.01	71.96	74.12	72.00	73.42
%	12.3	22.7	18.0	22.3	18.8

Sample Location

Sample ID

Depth

Sample Type

Mass of Container

Mass of Wet Soil and Container

Accepted Dry mass + container

**Water Content**

Remarks

	TB-05	TB-06	TB-02	TB-01	TB-07
	F	F	G	G	G
ft	18.5	18.5	23.5	23.5	23.5
	SPT	SPT	SPT	SPT	SPT
g	19.65	20.88	21.00	19.52	19.68
g	89.94	89.20	89.13	89.50	89.45
g	77.24	79.04	80.48	78.64	80.64
%	22.1	17.5	14.5	18.4	14.5

Technician

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Checked

Approved

mvanweelden



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(ASTM D2216)

Project Name Stanwood Crossings  
Project Number 2024.126  
Client Wightman  
Date 8/14/2024

Sample Location		TB-05	TB-09	TB-11	TB-10	TB-13
Sample ID		C	C	C	C	C
Depth	ft	7.0	7.0	7.0	7.0	7.0
Sample Type		SPT	SPT	SPT	SPT	SPT
Mass of Container	g	19.67	19.68	304.70	19.67	21.31
Mass of Wet Soil and Container	g	85.57	85.35	602.70	85.13	85.88
Accepted Dry mass + container	g	74.83	73.65	593.90	82.48	73.84
<b>Water Content</b>	%	19.5	21.7	3.0	4.2	22.9
Remarks						

Sample Location		TB-12	TB-12	TB-13	TB-14	TB-10
Sample ID		C	D	D	D	D
Depth	ft	7.0	9.5	9.5	9.5	9.5
Sample Type		SPT	SPT	SPT	SPT	SPT
Mass of Container	g	21.22	385.50	19.64	19.57	19.75
Mass of Wet Soil and Container	g	85.64	614.80	85.79	85.10	85.57
Accepted Dry mass + container	g	80.23	573.70	75.98	76.50	83.27
<b>Water Content</b>	%	9.2	21.8	17.4	15.1	3.6
Remarks						

Sample Location		TB-08	TB-07	TB-03	TB-06	TB-01
Sample ID		D	D	D	D	D
Depth	ft	9.5	9.5	9.5	9.5	9.5
Sample Type		SPT	SPT	SPT	SPT	SPT
Mass of Container	g	19.72	21.09	19.59	21.14	21.12
Mass of Wet Soil and Container	g	85.39	85.68	85.57	85.05	85.74
Accepted Dry mass + container	g	74.83	77.09	74.50	77.08	84.03
<b>Water Content</b>	%	19.2	15.3	20.2	14.2	2.7
Remarks						

Technician  
bfritz

Checked

Approved  
mvanweelden

### **General Information for Method of Field Investigation**

The soil investigation was performed in accordance with the American Society of Testing and Materials method ASTM D 1586, which is the "Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils". Samples of compressible clays or organic soils are obtained in accordance with ASTM D 1587, which is the "Standard Practice for Thin-Walled Tube Sampling of Soils for Geotechnical Purposes." Rock may be cored in conjunction with the above methods as specified in ASTM D 2113 which is the "Standard Practice for Rock Core Drilling and Sampling of Rock for Site Investigation."

#### **Field Testing**

Standard Penetration Tests (SPT) in accordance with ASTM D 1586 were generally performed at depths of 2.0', 4.5', 7.0', 9.5' and 5.0' intervals thereafter.

#### **Laboratory Testing**

Samples obtained from the Standard Penetration Test, ASTM D 1586 or thin walled tube method, ASTM D 1587, were tested in the laboratory for the moisture content and density and/or particle size, where applicable. When soils sampled possessed sufficient cohesive properties, it was tested for its compressive strength in the unconfined state.

Natural Percent Moisture content (N.P.M.) of the soil is the percentage by weight of water contained in the soil sample compared to the dry weight of the solids of which the soil is composed. The NPM of select samples is determined in accordance with ASTM D 2216.

Natural Density (N.D.) of soil as reported on the appended boring logs is the natural wet density of the soils expressed in pounds per cubic foot.

The unconfined compressive strength of cohesive soils is determined in the laboratory on "undisturbed" select samples in accordance with ASTM D 2166. This test determines the maximum load required at a specified rate to deform the cohesive soil specimen length twenty (20%) percent. The primary purpose of the unconfined compression test is to obtain approximate quantitative values of the compressive strength of soils possessing sufficient coherence to permit testing in the unconfined state. The shear strength of the cohesive soil can be calculated from the results of the unconfined compressive strength test.

#### **Color**

When the color of the soils is uniform throughout, the color recorded will be such as brown, gray, and black and may be modified by adjectives such as light and dark. If the soils predominant color is shaded by secondary color, the secondary color precedes the primary color, such as gray-brown, or yellow-brown. If two major and distinct colors are swirled throughout the soil, the colors will be modified by the term mottled; such as mottled brown and gray.

#### **Water Observations**

Depth of water recorded in the test boring is measured from the ground surface to the water surface. Initial depth indicates water level during boring, completing depth indicates water level immediately after boring, and depth after "X" number of hours indicates water level after allowing the groundwater rise or fall over a period of time. Water observations in pervious soils are considered reliable groundwater levels for accurate groundwater measurements at the time the test borings were performed unless records are made over several days' time. Factors such as weather, soils porosity, etc., will cause the groundwater level to fluctuate for both pervious and impervious soils.

### Sample Type

If not otherwise indicated, the sample is a split-barrel liner sample ASTM D 1586.

"S.T." – Shelby tube sample, ASTM D 1587
"A" – disturbed augered sample
"C" – rock core sampled ASTM D 2113
N.P.M. – Natural Percent Moisture of in-situ soils sample
N.D. – Natural Density of in-situ soils sample in pcf.
S.S. – Shear Strength of cohesive soils samples as determined by the Unconfined Compression tests in ksf.

Classification Data – Laboratory data to assist in classification of soils and classification of soils characteristics; i.e., plastic limit or liquid limit

### Test Boring Logs

Particle Size	Visual
Boulders	Larger than 12" (300 mm)
Cobbles	12" to 3" (300 to 75 mm)
Gravel - Coarse	3" to ¾" (75 to 19 mm)
Gravel - Fine	19.0 to 4.75 mm
Sand- Coarse	4.75 to 2.0 mm
Sand - Medium	2.0 to 0.425 mm
Sand - Fine	0.425 to 0.075 mm
Silt	0.075 to 0.002 mm
Clay	0.002 mm and smaller

### Soils Components

Major Component	Minor Component
Gravel	Trace [1 - 10%]
Sand	Some [11 - 35%]
Silt/Clay	And [36 - 50%]

### Condition of Soil Relative to Compactness

Granular Material	"N" Value
Loose	0 - 4
Slightly Compact	5 - 7
Compact	8 - 20
Very Compact	21 - 50
Extremely Compact	51 and above

Cohesive Material	"N" Value
Soft	0 - 4
Firm	5 - 7
Stiff	8 - 20
Very Stiff	21 - 50
Extremely Stiff	51 and above

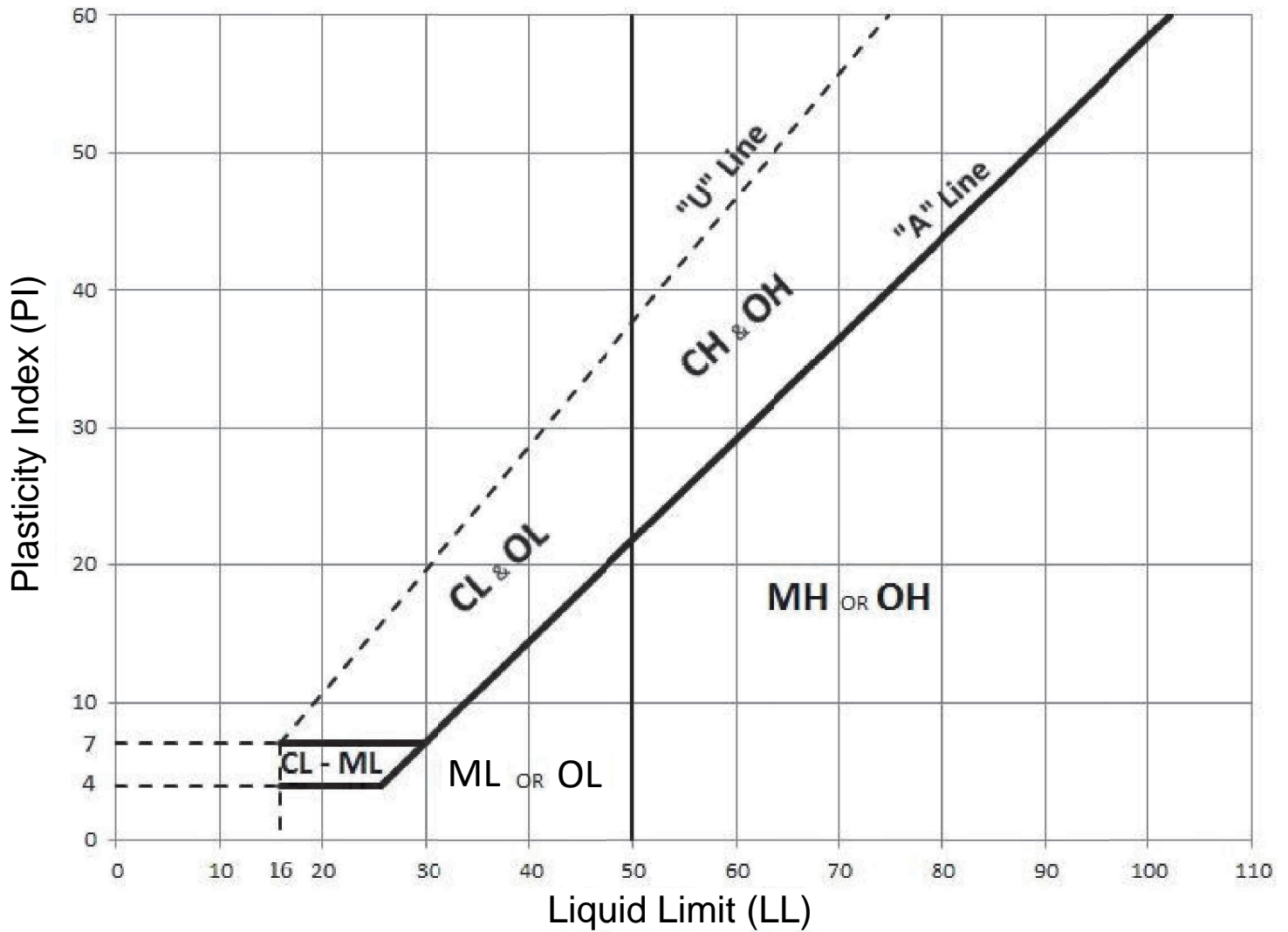
"N" values in clay soils are not to be used as a measure of shear strength. However, they may be used as a general indication of strength.



Unified Soil Classification System Chart

Major Divisions			Letter Symbol	Typical Descriptions
Coarse Grained Soils          More than 50% of material is larger than No. 200 sieve size	Gravel – Gravelly Soils   more than 50% of coarse fraction retained on No. 4 sieve	Clean gravels (little or no fines)	GW	Well-Graded gravels, gravel-sand mixtures, little or no fines
			GP	Poorly-Graded gravels, gravel-sand mixtures, little or no fines
		Gravel with Fines (appreciable amount of fines)	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sand and Sandy Soils  More than 50% of coarse fraction passing No. 4 sieve	Clean Sand (little or no fines)	SW	Well-Graded sands, gravelly sands, little or no fines
			SP	Poorly-Graded sands, gravelly sands, little or no fines
		Sand with Fines (appreciable amount of fines)	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
Fine Grained Soils       More than 50% of material is smaller than No. 200 sieve size	Silts and Clays   Liquid limit less than 50		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays or low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays or low plasticity
	Silts and Clays   Liquid limit greater than 50		MH	Inorganic silts, micaceous or diatomaceous fine sand or silty soils
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays or medium to high plasticity, organic silts
	Highly organic soils		PT	Peat, humus, swamp soils with high organic contents

## For Laboratory Classification of Fine Grained Soil Plasticity Chart



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## **APPENDIX E**

### **Mitigation Details**



## NOTICE TO BIDDERS

### INDIANA BAT AND NORTHERN LONG EARED BAT

**a. Description** – Contractors are advised that the project area falls within the range of suitable habitat for Indiana Bat (IB) and the Northern Long Eared Bat (NLEB). These species are listed as federally threatened under the U.S. Endangered Species Act of 1973 (Act). Taking (killing, harming, or disturbing in any manner) of IB or NLEB without a federal permit from the U.S. Fish and Wildlife Service (USFWS) is prohibited under federal law. The Act provides enforcement authority to the U.S. Fish and Wildlife Service and contains severe penalties for violations. The Contractor is liable to the Owner for any penalties imposed for violations to the Act due to the Contractor's failure to comply with this Notice to Bidders. Fines and penalties range up to \$50,000 and 1 year in prison. Violation of any requirement listed below can lead to an immediate work stoppage. The Owner, or their site representative is required under federal law to assure Contractor is compliant with these provisions or risk losing federal funding for the project. This Notice to Bidders addresses education, notification and intentional take requirements of the Contractor and their workers to protect the IB and NLEB as required under the Act.

**b. Materials** – None specified.

**c. Construction Methods** – Adhere to the following Best Management Practice (BMP) requirements:

1. Cutting/trimming of potential roost trees (trees  $\geq$  3 inches in diameter [at breast height] with cracks, crevices and/or exfoliant bark) must occur OUTSIDE of non-volant ("pup") season (June 1 through July 31).
2. Prescribed fire and/or pesticide application must also occur outside June – July where potential roost trees are present.
3. When installing new or replacing existing permanent lights, you will use downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting); or for those transportation agencies using BUG system developed by the Illuminating Engineering Society, the goal is to be as close to ) for all three ratings with a priority of "uplight" of 0 and "backlight" as low as practical.
4. Contractor shall direct temporary lighting away from suitable listed bat habitat during the active season.
5. Any potential sighting shall be reported to the Owner and USFWS within 24 hours.
6. Intentional 'take' is prohibited

**d. Measurement and Payment** – All costs associated with complying with this Notice to Bidders will not be paid for separately but will be considered to have been included in other items of work.

## NOTICE TO BIDDERS

### EASTERN MASSASAUGA RATTLESNAKE

1 of 1

**a. Description** – Contractors are advised that the project area has a known population of the Eastern Massasauga Rattlesnake (EMR) or is within its known range. This species is listed as federally threatened under the U.S. Endangered Species Act of 1973 (Act). Taking (killing, harming, or disturbing in any manner) of Eastern Massasauga Rattlesnake without a federal permit from the U.S. Fish and Wildlife Service (USFWS) is prohibited under federal law. The Act provides enforcement authority to the U.S. Fish and Wildlife Service and contains severe penalties for violations. The Contractor is liable to the Owner for any penalties imposed for violations to the Act due to the Contractor's failure to comply with this Notice to Bidders. Fines and penalties range up to \$50,000 and 1 year in prison. Violation of any requirement listed below can lead to an immediate work stoppage in Eastern Massasauga Rattlesnake habitat. The Owner, or their site representative is required under federal law to assure Contractor is compliant with these provisions or risk losing federal funding for the project. This Notice to Bidders addresses education, notification and intentional take requirements of the Contractor and their workers to protect the Eastern Massasauga Rattlesnake as required under the Act.

**b. Materials** – None specified.

**c. Construction Methods** – Adhere to the following Best Management Practice (BMP) requirements:

1. Prior to construction, all Contractor staff working onsite and implementing the project must read the EMR fact sheet (available at <https://www.fws.gov/media/eastern-massasauga-rattlesnake-fact-sheet>). The purpose of the fact sheet is to provide the Contractor and staff easy identification tips, notification that a venomous snake may be onsite, and raise awareness regarding its protected legal status.
2. All staff working onsite must watch the MDNR's video [https://www.youtube.com/watch?v=-PFnXe\\_e02w](https://www.youtube.com/watch?v=-PFnXe_e02w)
3. Any possible EMR sighting, or any other federally listed species, shall be reported to the Owner and USFWS within 24 hours.
4. Intentional 'take' is prohibited
5. Contractor shall use wildlife friendly materials for any soil erosion control and/or site restoration items. Materials shall not contain plastic mesh netting or other similar material that could entangle EMR.

**d. Measurement and Payment** – All costs associated with complying with this Notice to Bidders will not be paid for separately but will be considered to have been included in other items of work.





## Radon Consideration / Mitigation

Upon review of the MDEGLE mapping sites, Kalamazoo County is shown as a county of concern where radon mitigation is suggested. Also the Michigan Building Code also notes that homes located in Kalamazoo County should take radon into consideration. As such the following steps are to be taken as part of the project to take radon into consideration on this project.

1. All houses will be constructed in accordance with the Michigan Residential Building Code.
  - a. The building code requires that radon-resistant construction techniques be utilized for project in 9 Michigan counties, which includes Kalamazoo County as noted on the Department of Environment, Great Lakes, and Energy website on Radon Resistant New Construction  
<https://www.michigan.gov/egle/about/organization/materials-management/indoor-radon/new-construction>
2. In accordance with the building code a “passive” radon system will be installed as part of the home construction
3. Upon completion of the home, the unit will be tested for radon
4. If there is a positive reading, greater than 4 pCi/L, the passive system can be activated with the addition of a fan to the system.

This radon consideration and mitigation would be completed during the construction process of the home and any issues would need to be addressed after the home was completed and prior to the new occupant taking occupancy of the home.