Appendix H – Historic and Archaeological Resources

GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
MICHIGAN STRATEGIC FUND
STATE HISTORIC PRESERVATION OFFICE

QUENTIN L. MESSER, JR.
PRESIDENT

June 6, 2023

STAN REINKE
FEDERAL AVIATION ADMINISTRATION
2700 PORT LANSING ROAD
LANSING, MI

RE: ER23-567 West Michigan Regional Airport (BIV), North Hanger Development, 60 Geurink Boulevard, Holland, T4N, R15W, Sec. 8, Fillmore Township, Allegan County (FAA)

Dear Stan Reinke:

Under the authority of Section 106 of the National Historic Preservation Act of 1966, as amended, we have reviewed the above-cited undertaking at the location noted above. Thank you for submitting the additional information that we requested in our May 1, 2023 letter regarding clarification of the Area of Potential Effects. Based on the information provided for our review, the State Historic Preservation Officer (SHPO) concurs with the determination of FAA that **no historic properties are affected** within the area of potential effects of this undertaking.

This letter evidences FAA's compliance with 36 CFR § 800.4 "Identification of historic properties," and the fulfillment of FAA's responsibility to notify the SHPO, as a consulting party in the Section 106 process, under 36 CFR § 800.4(d)(1) "No historic properties affected." **If the scope of work changes in any way, or in the unlikely event that human remains or archaeological material are encountered during construction activities related to the above-cited undertaking, work must be halted, and the Michigan SHPO and other appropriate authorities must be contacted immediately.**

We remind you that federal agency officials or their delegated authorities are required to involve the public in a manner that reflects the nature and complexity of the undertaking and its effects on historic properties per 36 CFR § 800.2(d). The National Historic Preservation Act also requires that federal agencies consult with Native American Tribes and/or Tribal Historic Preservation Officers (THPO) who may attribute religious and cultural significance to historic properties that may be affected by the agency's undertakings per 36 CFR § 800.2(c)(2)(ii).

The State Historic Preservation Office is not the office of record for this undertaking. You are therefore asked to maintain a copy of this letter with your environmental review record for this undertaking.

If you have any questions, please contact Amy Krull, Federal Projects Archaeologist at 517-285-4211 or by email at krulla@michigan.gov. **Please reference our project number in all communication with this office regarding this undertaking.** Thank you for this opportunity to review and comment, and for your cooperation.

Sincerely,

Amy Krull
Federal Projects Archaeologist

AK

Copy: Steven Houtteman, MDOT, AERO
Brian Matuk, Mead & Hunt, Inc.
Andrew Sewell, Lawhon & Associates, Inc.

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.

Mail form, all attachments, and check list 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:** West Michigan Regional Airport (BIV) North Hangar Development
b. **Project Municipality**: City of Holland, Park Township, City of Zeeland (representatives of which make up the West Michigan Airport Authority, the owner and manager of the airport)
c. **Project Address** (*if applicable*): 60 Geurink Boulevard, Holland, MI 49423
d. **County:** Allegan County

II. FEDERAL AGENCY INVOLVEMENT AND RESPONSE CONTACT INFORMATION

a. **Federal Agency:** Federal Aviation Administration (FAA)
Contact Name: Stan Reinke
Contact Address: 2700 Port Lansing Road **City:** Lansing **State:** MI **Zip:** 48906-2160
Email: reinkes1@michigan.gov
Specify the federal agency involvement in the project: The Michigan Department of Transportation (MDOT) Office of Aeronautics (AERO) is acting on behalf of the Federal Aviation Administration (FAA) for this project as the West Michigan Regional Airport (BIV) is a "State Block Grant" airport. All State Block Grant airports fall under the jurisdiction of MDOT AERO. MDOT AERO is the final authority regarding approval of environmental documentation for this project.

b. **If HUD is the Federal Agency: 24 CFR Part 50 ☐ or Part 58 ☐**
Responsible Entity (RE): Name of the entity that is acting as the Responsible Entity
Contact Name: RE Contact name
Contact Address: RE mailing address **City:** RE city **State:** RE State **Zip:** RE zip code
RE Email: RE contact's email **Phone:** RE contact's phone #

c. **State Agency Contact (*if applicable*):** Name of state agency
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):** Name of Applicant's agency/firm
Contact Name: Applicant contact's name
Contact Address: Applicant contact's mailing address **City:** Applicant's city **State:** Applicant contact's state
Zip: Applicant contact's zip code
Email: Applicant contact's email **Phone:** Applicant contact's phone #

e. **Consulting Firm (if applicable):** Mead & Hunt, Inc.
Contact Name: Brian Matuk
Contact Address: 180 Promenade Cir, Suite 240 **City:** Sacramento **State:** California **Zip**: 95834
Email: brian.matuk@meadhunt.com Phone: 916-993-4603

III. PROJECT INFORMATION

a. **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): Hamilton West, MI Quad
☐Aerial map
☒Map of photographs
☐Other: Identify type(s) of map(s)

ii. **Site Photographs**

iii. **Describe the APE:**
The APE is approximately 16.3 acres and encompasses the project area and, in some places, includes a 200-foot buffer around seven of the ten proposed new buildings (reasoning explained below in III.a.iv.). The APE encompasses all project activities, including ground disturbance, grading, and new construction of aviation-related buildings and associated taxilane and apron improvements, as well as new utilities, lighting, and fencing. It is located at the northern end of the airport property, north of the existing terminal building, and extends into Regent Boulevard and slightly into the southeast corner of the adjacent industrial parcel to the north at Parcel 53-02-08-100-022 (1347 S. Washington Avenue). An APE map is provided in Appendix C.

iv. **Describe the steps taken to define the boundaries of the APE:**
The APE was defined to include properties that may be directly or indirectly impacted by project activities; it considers indirect effects in the area where the project may have physical, visual, and auditory impacts. A 200-foot buffer was drawn around seven of the ten proposed new hangars to account for potential visual impacts in the areas where the new hangars would not be hidden by vegetation. The remaining three proposed hangars are already visually separated from the remainder of the airport by a line of heavy vegetation, and do not include this buffer as part of the APE.

b. **Project Work Description**
Describe all work to be undertaken as part of the project:
Project work includes the development of additional hangar space at the airport within a vacant 15-acre area north of the existing terminal building, where there are currently no buildings or structures. Proposed development includes construction of ten new hangars—six 100-foot by 100-foot box hangars and four 60-foot by 60-foot box hangars—as well as construction of an approximately 1,400-foot-long by 50-foot-wide taxilane, expansion of approximately 2,400 square feet of an existing apron, reconstruction of an existing storm water detention basin, and relocation of approximately 1,300 feet of an existing storm water drainage ditch. Other proposed improvements include construction grading, new lighting, new fencing, new utilities, and site restoration. The project is funded in part by the FAA, with some project activities listed above subject to private funding.

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).

Mead & Hunt, Inc. (Mead & Hunt) architectural historians examined current and historic aerial photographs to identify aboveground resources located within the APE. Mead & Hunt architectural

historians then requested a records search from the Michigan State Historic Preservation Office (SHPO) to confirm whether any built resources within the project area had been previously surveyed. Additionally, Mead & Hunt reviewed the City of Holland's Historic Properties Inventory Report (2015) for potential built-environment resources not identified in the SHPO records search results. Previously recorded resources are shown on the map in Appendix F.

There are no aboveground resources present within the APE and no further work is recommended for architecture/history.

Lawhon & Associates, Inc. completed a Phase I Archeological Survey of the APE in September 2022 to identify potential belowground resources. No archeological resources were identified and no further work is recommended for archaeology (see the map in Appendix G). The complete archaeology report and Phase I Survey results are provided in Appendix H.

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

v. Have you reviewed information from non-SHPO sources: ☒Yes ☐ No

b. **Identification Results**

i. **Above-ground Properties**

A. 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.

B. **Provide the name and qualifications of the person who made recommendations of eligibility for the above-ground identification forms.**
Name Brian Matuk **Agency/Consulting Firm:** Mead & Hunt, Inc.
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** (complete this section if the project involves temporary or permanent ground disturbance) Submit the following information using attachments, as necessary.

A. **Attach Archaeological Sensitivity Map.**

B. **Summary of previously reported archaeological sites and surveys:**
The literature review revealed that the project area has not previously been surveyed for cultural resources and that no previously identified cultural resources are in or adjacent to the project.

C. **Town/Range/Section or Private Claim numbers:** T4N, R15W, Sec. 8

D. **Width(s), length(s), and depth(s) of proposed ground disturbance(s):** 1300-feet length x 50-feet width x 2-feet depth. The project dimensions are the area limits for proposed ground disturbance, but may be smaller.

E. **Will work potentially impact previously undisturbed soils?** ☐ Yes ☒ No
***If YES,* summarize new ground disturbance:**
Summary of new ground disturbance

F. **Summarize past and present land use:**
The land was in cultivated agricultural use until development of the airport in 1964.

G. **Potential to adversely affect significant archaeological resources**:
☒ Low ☐ Moderate ☐ High
For moderate and high potential, is fieldwork recommended? ☐ Yes ☐ No
Briefly justify the recommendation:
The likelihood to encounter previously unidentified cultural resources is very low due to a combination of factors. Primarily, most of the project area looks to have been severely disturbed in 2017 as part of construction for the FlightLevel Aviation building; only a small portion along the northeast edge appears to not have been disturbed at this time. Second, the analysis of soil types and the results of extensive surveys for the US 31 alternate corridors project indicates a low chance for the existence of significant precontact archaeological sites in this area. Finally, historical maps and aerial photographs do not indicate any sort of historical occupation within the project area.

H. **Has fieldwork already been conducted?** ☒ Yes ☐ No
If YES:
☐ Previously surveyed; refer to A. and B. above.
☒ Newly surveyed; attach report copies and provide full report reference here:
See Phase I Archaeology Survey Report by Lawhon & Associates (September 2022) in Appendix H.

I. **Provide the name and qualifications of the person who provided the information for the Archaeology section:**
Name: Andrew Sewell **Agency/Firm:** Lawhon & Associates, Inc.
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.

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:

The following are consulting parties for this project:

- Tony Duffiney, State Director, USDA – APHIS Wildlife Services (2803 Jolly Rd, Ste 100, Okemos, MI 48864)
- Jim Watling, Supervisor, EGLE, Water Resources Division, Transportation Review Unit (P.O. Box 30458, Lansing, MI 48909-7958)
- Charlie Simon, Chief, U.S. Army Corps of Engineers, Detroit District, Regulatory & Permits (477 Michigan Ave, Room 603, Detroit, MI 48226-2550)
- Thomas Sivak, Regional Administrator, Federal Emergency Management Agency, Region 5 (536 South Clark St, 6th Fl, Chicago, Illinois 60605)
- Jean Gagliardo, District Conservationist, USDA, Natural Resource Conservation Service, Portage Service Center (5950 Portage Rd, Portage, MI 49002)
- Scott Hicks, Field Office Supervisor, US Fish and Wildlife – Michigan Field Office (2651 Coolidge Rd, Ste 101, East Lansing, MI 48823)
- Kenneth Westlake, Chief, EPA Region 5, NEPA Implementation Section (77 W Jackson Blvd, Chicago, IL 60604)
- Shannon Lott, Natural Resources Deputy, Michigan Department of Natural Resources, Executive Division (P.O. Box 30028, Lansing, MI 48909)

- Keith Van Beek, City Manager, City of Holland (270 S River Ave, 2nd Fl, Holland, MI 49423)
- Brian White, City Engineer, City of Holland (333 Wyngarden Way, Holland, MI 49423)
- Denise Medemar, Drain Commissioner, Allegan County (113 Chestnut St, Allegan, MI 49010)
- Jim Gerard, Township Supervisor, Park Township (52 152nd Ave, Holland, MI 49423)
- Tim Klunder, City Manager, City of Zeeland (21 S Elm St, Zeeland, MI 49464)
- John Shay, County Administrator, Ottawa County (12220 Fillmore St, Rm 310, West Olive, MI 49460)
- Bay Mills Indian Community of Michigan (12140 W Lakeshore Dr, Brimley, MI 49175)
- Grand Traverse Band of Ottawa and Chippewa Indians of Michigan (2605 NW Bayshore Dr, Suttons Bay, MI 49682)
- Hannahville Indian Community of Michigan (N14911 Hannahville B1 Rd, Wilson, MI 49896-9728)
- Huron Potawatomi, Inc. (2221 1-1/2 Mile Rd, Fulton, MI 49052)
- Keweenaw Bay Indian Community of Michigan (Keweenaw Bay Tribal Center, 107 Beartown Rd, Baraga, MI 49908)
- Lac Vieux Desert Band of Lake Superior Chippewa of Michigan (P.O. Box 249, N4598 US Hwy 45, Watersmeet, MI 49969)
- Little River Band of Ottawa Indians (2608 Government Center Dr, Manistee, MI 49660)
- Little Traverse Bay Bands of Odawa Indians (7500 Odawa Cir, Harbor Springs, MI 49740-9692)
- Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians (P.O. Box 218, 1743 142nd Ave, Dorr, MI 48323)
- Pokagon Band of Potawatomi Indians of Michigan (P.O. Box 180, 901 Spruce St, Dowagiac, MI 49047)
- Saginaw Chippewa Indian Tribe of Michigan (7070 E Broadway, Mt. Pleasant, MI 48858)
- Sault-Ste. Marie Tribe of Chippewa Indians of Michigan (523 Ashmun St, Sault St. Marie, MI 49783)
- Burt Lake Band of Ottawa and Chippewa Indians (6461 Brutus Rd, Box 206, Brutus, MI 49716)
- Fred Jacko, Jr., Culture Department Manager, Nottawaseppi Huron Band of Potawatomi (1485 Mno-Bmadzewen Way, Fulton, MI 49052)
- Grand River Band of Ottawa Indians (P.O. Box 2937, 1316 Front Ave NW, Grand Rapids, MI 49504)

b. **Provide a summary of consultation with consultation parties:**
As part of early agency coordination, the project team solicited consulting parties to identify key issues that will need to be addressed during the National Environmental Policy Act (NEPA) process. See Appendix A for correspondence documents described below.

Unless otherwise noted, letters dated July 8, 2022, were sent to representatives of Native American Tribes and government agencies listed above in Section V.a asking for comments on specific areas of concern/regulatory jurisdictions, specific benefits of the project for that party or to the public, any available technical information/data for the project site, and potential mitigation/permitting requirements for project implementation.

c. **Provide summaries of public comment and the method by which that comment was sought:**
Public comment was not solicited, as the APE is almost completely within the existing airport property and does not include any built-environment resources. The Project Team consulted the owners of adjacent non-historic commercial office and industrial properties, and received no objections to the Project Activities.

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**:
There are no historic properties within the APE.

b. **Determination of effect**

☒ **No historic properties will be affected** or

☐ **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:_____

Type or Print Name: ___

Title: _____

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: number of maps

☒ Site Photographs

☒Map of photographs

☒ Plans and specifications

☐ Other information pertinent to the work description: Identify the type of materials attached

☒ Documentation of previously identified historic properties

☐ Architectural Properties Identification Forms

☒ Map showing the relationship between the previously identified properties, your project footprint, and project APE

☐ Above-ground qualified person's qualification form and resume

☒ Archaeological sensitivity map

☐ Survey report

☐ Archaeologist qualifications and resume

☐ Other: Identify other attached materials

Appendix A. Correspondence

List of Agencies that Received Early Coordination Letters Requesting Information and Comments

Federal & State Coordination						
Mr. Duffiney	Tony Duffiney	State Director	USDA - APHIS Wildlife Services	2803 Jolly Rd., Suite 100,	Okemos, MI 48864	517-336-1928
Mr. Watling	Jim Watling	Supervisor	EGLE, Water Resources Division, Transportation Review Unit	P.O. Box 30458	Lansing, MI 48909-7958	517-599-9002
Mr. Simon	Charlie Simon	Chief	U.S. Army Corps of Engineers, Detroit District, Regulatory & Permits	477 Michigan Avenue, Room 603	Detroit, MI 48226-2550	313-226-2218
Mr. Sivak	Thomas Sivak	Regional Administrator	Federal Emergency Management Agency, Region 5	536 South Clark Street, 6th Floor	Chicago, Illinois 60605	312-408-5500
Ms. Gagliardo	Jean Gagliardo	District Conservationist	USDA, Natural Resource Conservation Service, Portage Service Center	5950 PORTAGE RD	PORTAGE, MI 49002	269-382-5121 ext 3
Mr. Hicks	Scott Hicks	Field Office Supervisor	US Fish and Wildlife - Michigan Field Office	2651 Coolidge Road, Suite 101	East Lansing, Michigan 48823	517-351-6274
Mr. Westlake	Kenneth Westlake	Chief	EPA Region 5 , NEPA Implementation Section	77 West Jackson Boulevard	Chicago, Illinois 60604	312-886-2910
Ms. Lott	Shannon Lott	Natural Resources Deputy	Michigan Department of Natural Resources, Executive Division	P.O. Box 30028	Lansing, MI 48909	517-243-3166/517-284-5810
Local & Political Coordination						
Mr. Van Beek	Keith Van Beek	City Manager	City of Holland	270 S River Avenue, 2nd Floor	Holland, MI 49423	616-355-1310
Mr. White	Brian White	City Engineer	City of Holland	333 Wyngarden Way	Holland, MI 49423	616-928-2400
Ms. Medemar	Denise Medemar	Drain Commissioner	Allegan County	113 Chestnut Street	Allegan, MI 49010	269-673-0440
Dr. Gerard	Jim Gerard	Township Supervisor	Park Township	52-152nd Avenue	Holland, MI 49423	616-738-4232
Mr. Klunder	Tim Klunder	City Manager	City of Zeeland	21 S. Elm Street	Zeeland, MI 49464	616-772-6400
Mr. Shay	John Shay	County Administrator	Ottawa County	12220 Fillmore Street Room 310	West Olive, MI 49460	616-738-4898
Native American Coordination						
Chairperson			Bay Mills Indian Community of Michigan	12140 West Lakeshore Drive	Brimley, MI 49175	
Chairperson			Grand Traverse Band of Ottawa and Chippewa Indians of Michigan	2605 NW Bayshore Drive	Suttons Bay, MI 49682	
Chairperson			Hannahville Indian Community of Michigan	N14911 Hannahville B1 Road	Wilson, MI 49896-9728	
Chairperson			Huron Potawatomi, Inc.	2221 1-1/2 Mile Road	Fulton, MI 49052	
Chairperson			Keweenaw Bay Indian Community of Michigan	Keweenaw Bay Tribal Center, 107 Beartown Road	Baraga, MI 49908	
Chairperson			Lac Vieux Desert Band of Lake Superior Chippewa of Michigan	PO Box 249, N4698 US HWY 45	Watersmeet, MI 49969	
Chairperson			Little River Band of Ottawa Indians	2608 Government Center Drive	Manistee, MI 49660	
Chairperson			Little Traverse Bay Bands of Odawa Indians	7500 Odawa Circle	Harbor Springs, MI 49740-9692	
Chairperson			Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians	PO Box 218, 1743 142nd Avenue	Dorr, MI 48323	
Chairperson			Pokagon Band of Potawatomi Indians of Michigan	PO Box 180, 901 Spruce Street	Dowagiac, MI 49047	
Chairperson			Saginaw Chippewa Indian Tribe of Michigan	7070 East Broadway	Mt. Pleasant, MI 48858	
Chairperson			Sault-Ste. Marie Tribe of Chippewa Indians of Michigan	523 Ashmun Street	Sault Ste. Marie, MI 49783	
Chairperson			Burt Lake Band of Ottawa and Chippewa Indians	6461 Brutus Road, Box 206	Brutus, MI 49716	
Chairperson	Fred Jacko, Jr.	Culture Department Manager	Nottawaseppi Huron Band of Potawatomi	1485 Mno-Bmadzewen Way	Fulton, MI 49052	269.704.8307
Chairperson			Grand River Band of Ottawa Indians	PO Box 2937, 1316 Front Ave NW	Grand Rapids, MI 49504	

Example of Letter Sent to Federal, State, and Local Agencies

July 8, 2022

«Contact_Name»
«Title»
«Organization»
«Address»
«City_State_Zip»

Re: Early Coordination Review of Proposed Improvements
West Michigan Regional Airport, Holland, Michigan

Dear «Salutation_line»:

The West Michigan Regional Airport (Airport or BIV) has received requests to develop additional hangar space in a 15-acre area north of the existing terminal building. Currently, there is no aviation infrastructure serving this area. To meet the needs of existing and future users of the Airport, BIV is planning to construct the necessary infrastructure to provide access to this area. Proposed development includes a community hangar, taxilanes, apron expansion, construction grading, lighting, fencing, utilities, and site restoration.

The Airport is not proposing to construct a full build-out scenario of the 15-acre project area, rather BIV will sufficiently develop the project area as to allow private and corporate hangar development in the future with minimum additional site improvements. Future hangars, aprons, and apron approach work will be funded privately by individual developers as demand increases. However, the entire project area will be environmentally cleared to adequately address the potential impacts and required mitigation of a full build-out scenario (expected to include up private hangars, aprons, and apron approaches). This approach is being taken to reduce concerns with possible segmentation in the environmental review process if each site was assessed on an individual basis.

Federal funding will be used for the proposed project; therefore, environmental documentation and analysis sufficient to satisfy the National Environmental Policy Act (NEPA) is required. To meet this requirement, the Federal Aviation Administration (FAA) Environmental Evaluation Form C, Short Form Environmental Assessment (Short Form EA), developed by the FAA's Eastern Region will be used to define and analyze potential impacts of the proposed action and evaluate any reasonable alternatives.

This Short Form EA will also be developed to further determine whether any potential impacts are significant enough to necessitate an Environmental Impact Statement (EIS). During the Short Form EA project, investigations will be conducted to identify potential Social, Economic, and Environmental (SEE) impacts related to the improvements being proposed. These SEE impacts will be documented and considered as required by NEPA.

The Michigan Department of Transportation Office of Aeronautic (MDOT AERO) acting on behalf of the FAA is the lead agency and as such, the Short Form EA will be prepared in accordance with NEPA, FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures,* and FAA Order 5050.4B. *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.

It should be noted that MDOT AERO does not necessarily endorse the proposed project, nor have they agreed to a Preferred Alternative. MDOT AERO is requiring the Airport to fully evaluate the Purpose and Need, any reasonable alternatives including the No Action Alternative, and identify associated impacts leading to the selection of the Preferred Alternative.

Major future development items that will be covered in this Short Form EA includes:

- Construction of approximately 1,400 feet of a 50-foot wide taxilane
- Construction of six 100-foot by 100-foot box hangars and associated apron areas
- Construction of four 60-foot by 60-foot box hangars and associated apron areas
- Reconstruction of an existing storm water detention basin
- Relocation of approximately 1,300 feet of an existing storm water drainage ditch

As part of our early agency coordination, we are attempting to identify key issues that will need to be addressed during the NEPA process. To accomplish this, your organization's comments are being requested for the above referenced project as it relates to the following:

- Your specific areas of concern / regulatory jurisdiction
- Specific benefits of the project for your organization or to the public
- Any available technical information / data for the project site
- Potential mitigation / permitting requirements for project implementation

For your convenience, several maps and figures are enclosed that illustrate the Airport's location and approximate project area limits. To sufficiently address key project issues and maintain the project schedule, your comments are requested by **August 15, 2022.**

Please send your written or email comments to:

MEAD & HUNT, Inc.
William Ballard, AICP
2605 Port Lansing Road
Lansing, MI 48906
517-321-8334 | william.ballard@meadhunt.com

In addition to the early coordination request described above, the Airport will be holding a future on-site agency scoping meeting. The purpose of this meeting is to provide project background information, tour the project area, discuss agency concerns, and solicit comments to assist the Airport in developing a comprehensive Short Form EA. The exact date and time of the on-site meeting has not been determined but is tentatively scheduled for the month of September 2022. An official invite will be sent to your organization when a date has been selected.

Sincerely,

Steve Houtteman
Supervisor, Airport Planning & Environmental Unit
Michigan Department of Transportation

Enclosures

Cc: Aaron Thelenwood, Airport Authority Director
William Ballard, Mead & Hunt

Example of Letter Sent to Tribal Nations

July 8, 2022

«Contact_Name»
«Title»
«Organization»
«Address»
«City_State_Zip»

Re: Early Coordination Review of Proposed Improvements
West Michigan Regional Airport, Holland, Michigan

Dear Chairperson:

The West Michigan Regional Airport (Airport or BIV) has received requests to develop additional hangar space in the 15-acre area north of the existing terminal building. Currently, there is no aviation infrastructure serving this area. To meet the needs of existing and future users of the Airport, BIV is planning to construct the necessary infrastructure to provide access to this area. Proposed development includes a community hangar, taxilanes, apron expansion, construction grading, lighting, fencing, utilities, and site restoration.

The Airport is not proposing to construct a full build-out scenario of the 15-acre project area, rather BIV will sufficiently develop the project area as to allow private and corporate hangar development in the future with minimum additional site improvements. Future hangars, aprons, and apron approach work will be funded privately by individual developers as demand increases. However, the entire project area will be environmentally cleared to adequately address the potential impacts and required mitigation of a full build-out scenario (expected to include private hangars, aprons, and apron approaches). This approach is being taken to reduce concerns with possible segmentation in the environmental review process if each site was assessed on an individual basis.

Federal funding will be used for the proposed project; therefore, environmental documentation and analysis sufficient to satisfy the National Environmental Policy Act (NEPA) is required. To meet this requirement, the Federal Aviation Administration (FAA) Environmental Evaluation Form C, Short Form Environmental Assessment (Short Form EA), developed by the FAA's Eastern Region will be used to define and analyze potential impacts of the proposed action and evaluate any reasonable alternatives.

This Short Form EA will also be developed to further determine whether any potential impacts are significant enough to necessitate an Environmental Impact Statement (EIS). During the Short Form EA project, investigations will be conducted to identify potential Social, Economic, and Environmental (SEE) impacts related to the improvements being proposed. These SEE impacts will be documented and considered as required by NEPA.

The Michigan Department of Transportation Office of Aeronautic (MDOT AERO) acting on behalf of the FAA is the lead agency and as such, the Short Form EA will be prepared in accordance with NEPA, FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures,* and FAA Order 5050.4B. *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.

It should be noted that MDOT AERO does not necessarily endorse the proposed project, nor have they agreed to a Preferred Alternative. MDOT AERO is requiring the Airport to fully evaluate the Purpose and Need, any reasonable alternatives including the No-Build Alternative, and identify associated impacts leading to the selection of the Preferred Alternative.

Major future development items that will be covered in this Short Form EA includes:

- Construction of approximately 1,400 feet of a 50-foot wide taxilane
- Construction of six 100-foot by 100-foot box hangars and associated apron areas
- Construction of four 60-foot by 60-foot box hangars and associated apron areas
- Reconstruction of an existing storm water detention basin
- Relocation of approximately 1,300 feet of an existing storm water drainage ditch

As part of our early agency coordination, we are attempting to identify key issues that will need to be addressed during the NEPA process. MDOT AERO requests your comments regarding this project, any information you wish to share pertaining to archaeological or historical resources located in the project area, or notification that you would like to become an interested party under Section 106 of the National Historic Preservation Act.

For your convenience, several maps and figures are enclosed that illustrate the Airport's location and approximate project area limits. To sufficiently address key project issues and maintain the project schedule, your comments are requested by **August 15, 2022**.

Please send your written or email comments to:

Mr. Steve Houtteman
Supervisor, Airport Planning & Environmental Unit
Michigan Department of Transportation Office of Aeronautics
2700 Port Lansing Road
Lansing, Michigan 48906-2160
616-299-2654 | houttemans@michigan.gov

Sincerely,

Steve Houtteman
Supervisor, Airport Planning & Environmental Unit
Michigan Department of Transportation Office of Aeronautics

Enclosures

cc:

Aaron Thelenwood, Airport Authority Director
William Ballard, Mead & Hunt

From: William Ballard
Sent: Tuesday, August 30, 2022 4:35 PM
To: Dave Clawson
Subject: FW: USACE File No. LRE-2022-00577-203-A22
Attachments: USACE File No. LRE-2022-00577-203-A22.pdf; MDOTletter.pdf

FYI. BIV

BILL BALLARD, AICP
PROJECT MANAGER, AVIATION
Mead & Hunt
Direct: 517-908-3105 | Cell: 989-640-1060 | Transfer Files
meadhunt.com | LinkedIn | Twitter | Facebook | Instagram

From: Blockett, Dominique R CIV USARMY CELRE (USA) <Dominique.R.Blockett@usace.army.mil>
Sent: Tuesday, August 30, 2022 3:30 PM
To: William Ballard <william.ballard@meadhunt.com>
Cc: houttemans <HouttemanS@michigan.gov>; combsj8@michigan.gov
Subject: USACE File No. LRE-2022-00577-203-A22

August 30, 2022

Good Afternoon,

The attached letter is in response to your letter for early coordination for USACE File No. LRE-2022-00577-203-A22.
Please contact me if you have questions.

Respectfully,

Dominique R. Blockett
Regulatory Project Manager
Compliance & Enforcement Section, Regulatory Branch
US Army Corps of Engineers, Detroit District
313-226-1325 Office
Dominique.R.Blockett@usace.army.mil

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, DETROIT DISTRICT
477 MICHIGAN AVENUE
DETROIT, MI 48226-2550

August 30, 2022

Regulatory Branch
File No. LRE-2022-00577-203-A22

William Ballard, AICP
Mead & Hunt, Inc.
2605 Port Lansing Road
Lansing, Michigan 48906

Dear Mr. Ballard:

This is in response to your letter regarding the Corps of Engineers' (Corps) jurisdiction on property at West Michigan Regional Airport located at 60 Geurink Avenue in Holland, Michigan.

In 1984 a portion of the Corps' regulatory responsibilities was assumed by the Michigan Department of Environment, Great Lakes, and Energy (EGLE). This project site is within the assumed area. Unless otherwise notified, a separate authorization from the Corps is not required; however, you may need to obtain a permit from the EGLE. Therefore, we recommend that you contact the Michigan EGLE Kalamazoo District Office at 269-568-2693 for a determination of State permit requirements.

Should you have any questions, please contact me at the above address, by E-Mail at Dominique.R.Blockett@usace.army.mil, or by telephone at (313) 226-1325. In all communications, please refer to File Number LRE-2022-00577-203-A22.

We are interested in your thoughts and opinions concerning your experience with the Detroit District, Corps of Engineers Regulatory Program. If you are interested in letting us know how we are doing, you can complete an electronic Customer Service Survey from our web site at: https://regulatory.ops.usace.army.mil/customer-service-survey/. Alternatively, you may contact us and request a paper copy of the survey that you may complete and return to us by mail or fax. Thank you for taking the time to complete the survey, we appreciate your feedback.

Sincerely,

Dominique R. Blockett
Project Manager
Regulatory Office

Enclosure

Copy Furnished

Steve Houtteman, Michigan Department of Transportation
EGLE, Kalamazoo District Office
USACE, Grand Haven Field Office

From: William Ballard
Sent: Tuesday, August 30, 2022 4:44 PM
To: Dave Clawson
Subject: FW: West Michigan Regional Construction Review
Attachments: West Michigan Regional Project Review 2022.pdf

Agency letter

BILL BALLARD, AICP
PROJECT MANAGER, AVIATION
Mead & Hunt
Direct: 517-908-3105 | Cell: 989-640-1060 | Transfer Files
meadhunt.com | LinkedIn | Twitter | Facebook | Instagram

From: Madrigal, David F - APHIS <david.f.madrigal@usda.gov>
Sent: Tuesday, August 30, 2022 11:17 AM
To: William Ballard <william.ballard@meadhunt.com>
Subject: West Michigan Regional Construction Review

Mr. Ballard,
Please find the attached construction review for West Michigan Regional, Holland, Michigan. If any further assistance is needed, please feel free to reach out at any time.

David Madrigal
Wildlife Biologist
USDA Wildlife Services Michigan
(517) 331-0375
David.f.madrigal@usda.gov

United States Department of Agriculture

United States Department of Agriculture

Marketing and Regulatory Programs

2803 Jolly Road
Suite 100
Okemos, MI 48864

August 26, 2022

Mead & Hunt, Inc.
William Ballard, AICP
2605 Port Lansing Rd.
Lansing, MI 48906

Re: Early Coordination Review of Proposed Improvements
West Michigan Regional Airport, Holland, Michigan

Dear Mr. Ballard,

Thank you for the opportunity to review your proposed improvements at West Michigan Regional Airport, Holland, Michigan. This letter is in response to your request dates 07/29/22 for comments on the proposed construction. Our concern in reviewing such proposals is for the safety of aviation travel and how wildlife may potentially affect aviation safety. Our mission is to not only protect aviation safety, but also to protect the wildlife in the immediate vicinity of the airport.

In reviewing this proposal, our focus is on how the construction of new hangars, taxiway, and storm water retention basin will potentially attract wildlife. Having spent quite a bit of time on-site in the last 8 months, it appears that the area of construction will be in an area of low wildlife activity. In this specific area, the proposed construction would actually eliminate some of the existing agricultural fields surrounding the airport, I view this as a good thing. A potential concern would be with the new structures and the potential for nesting/perching to occur as well as the reconstruction of the existing water retention system.

Our recommendations with this proposal are as follows:

1. Conduct routine wildlife monitoring of the proposed area to evaluate wildlife usage before and after the project is completed. If an increase in wildlife usage is noted, recommended mitigation techniques would include but not limited to non-lethal harassment and/or lethal removal.
2. Implement netting/spray foam/spikes in areas that birds may nest or perch on the new buildings/structures.
3. When choosing a grass variety to plant upon project completion, choose a single variety, stay away from blends. It is recommended to use a high endophyte type of grass that will deter wildlife from usage.
4. Any new culverts or drains should have a grate installed to stop mammals from gaining access to the culvert.
5. Wildlife Services can perform a site visit to further discuss habitat management techniques to discourage wildlife usage of the proposed area as well as non-lethal and lethal control strategies to respond to wildlife using the area.

6. Wildlife Services would also be able to conduct a small wildlife hazard assessment over the course of several days to better evaluate wildlife hazards and their affect on aviation safety. Ideally, visits could be scheduled once the structures are put in place to better gauge potential usage and help steer mitigation strategies.

Wildlife Services would like to remain a partner in the development of this project and continue to offer technical expertise in evaluating and mitigating wildlife hazards to aviation.

Thank you again for the opportunity to assist with this project. Feel free to contact me if you have any questions.

Sincerely,

David Madrigal
Wildlife Biologist
USDA Wildlife Services
David.f.madrigal@usda.gov

Holland
MICHIGAN

Office of the City Manager
Keith Van Beek
City Manager

August 16, 2022

Mr. William Ballard, AICP
Mead & Hunt, Inc.
2605 Port Lansing Road
Lansing, MI 48906

Sent by email at William.ballard@meadhunt.com

Re: Early Coordination Review of Proposed Improvements for
West Michigan Regional Airport, Holland, Michigan

Dear Mr. Ballard,

That you for providing the City of Holland with the opportunity to comment on the proposed improvements to the West Michigan Regional Airport (WMRA). As you may know, the City of Holland owns most of the airport property and has a management agreement with the West Michigan Airport Authority (WMAA) to manage the airport. The WMRA is of tremendous value to the greater Holland area as it provides first-class convenient services for its many corporate users, which are the backbone of our local economy, as well as the many general aviation users. The value of this facility is also broadly acknowledged and financially supported by two other municipalities (Park Township and the City of Zeeland) in addition to the City of Holland.

The City of Holland is excited and supportive of the proposed taxi lane and the future development of the WMAA-owned property to the north of the terminal as denoted on the supplied Project Area Map. That having been said, we do have some comments for you to consider that align with the four items noted in the correspondence we received from Steve Houtteman dated July 26, 2022.

1. The proposed improvements fall within the jurisdiction of the Tulip Inter-County Drain Board (Board), so separate approval is required from that Board as well as the City of Holland for its stormwater ordinance requirements. The Board will not permit additional impervious surfaces as proposed without mitigation improvements.

2. The proposed improvements will require some large-diameter storm sewer work.

3. The improvements as proposed would eliminate the possibility of connecting the end of Geurink Boulevard with the end of Regent Boulevard to the north, which has been discussed as a possibility in the past and is included in the WMRA Airport Layout Plan (ALP). The City of Holland wants to retain the ability to connect these two streets in the future and may be willing to approve a different location for the connector.

4. Public water and sanitary sewer lines bisect the subject property and if easements do not already exist for those utilities, they will be required. Any future buildings/structures would not be permitted within the easement areas. It may be possible to move said utilities, but that would need to be approved by the Holland Board of Public Works.

Holland
MICHIGAN

5. Regarding zoning requirements for the proposed improvements, the WMAA property to the north of the terminal building is zoned Industrial, which allows for transportation and logistical uses along with warehousing/storage, manufacturing and office uses, among others. Said property is also covered by an Airport Overlay District that allows aviation uses, etc. That all being said, the WMAA should look to rezone this property to the Airport Zone District which allows all land uses permitted by the Michigan Aeronautics Code and the Federal Aviation Administration (FAA).

6. Lastly, when it comes to amending the ALP to allow for the proposed improvements, the City of Holland would like to see the smaller surgical-type amendments that make way for the proposed improvements made within the larger context of the long-planned North/South Runway. The City of Holland is becoming increasingly skeptical about the north/south runway due to its land use restrictions that are incorporated into the City's Unified Development Ordinance and the seemingly almost impossible odds of ever securing funding for such a project.

The City of Holland thanks you for the opportunity to provide you with comments.

Sincerely,

Keith Van Beek
City Manager
k.vanbeek@cityofholland.com

cc: Aaron Thelenwood, Director & Airport Manager, West Michigan Airport Authority
Mark Vanderploeg, Community & Neighborhood Services Director, City of Holland
Scott Corbin, Council Liaison to the West Michigan Airport Authority, City of Holland
David Hoekstra, Council Liaison to the West Michigan Airport Authority, City of Holland

Appendix B. Location Map

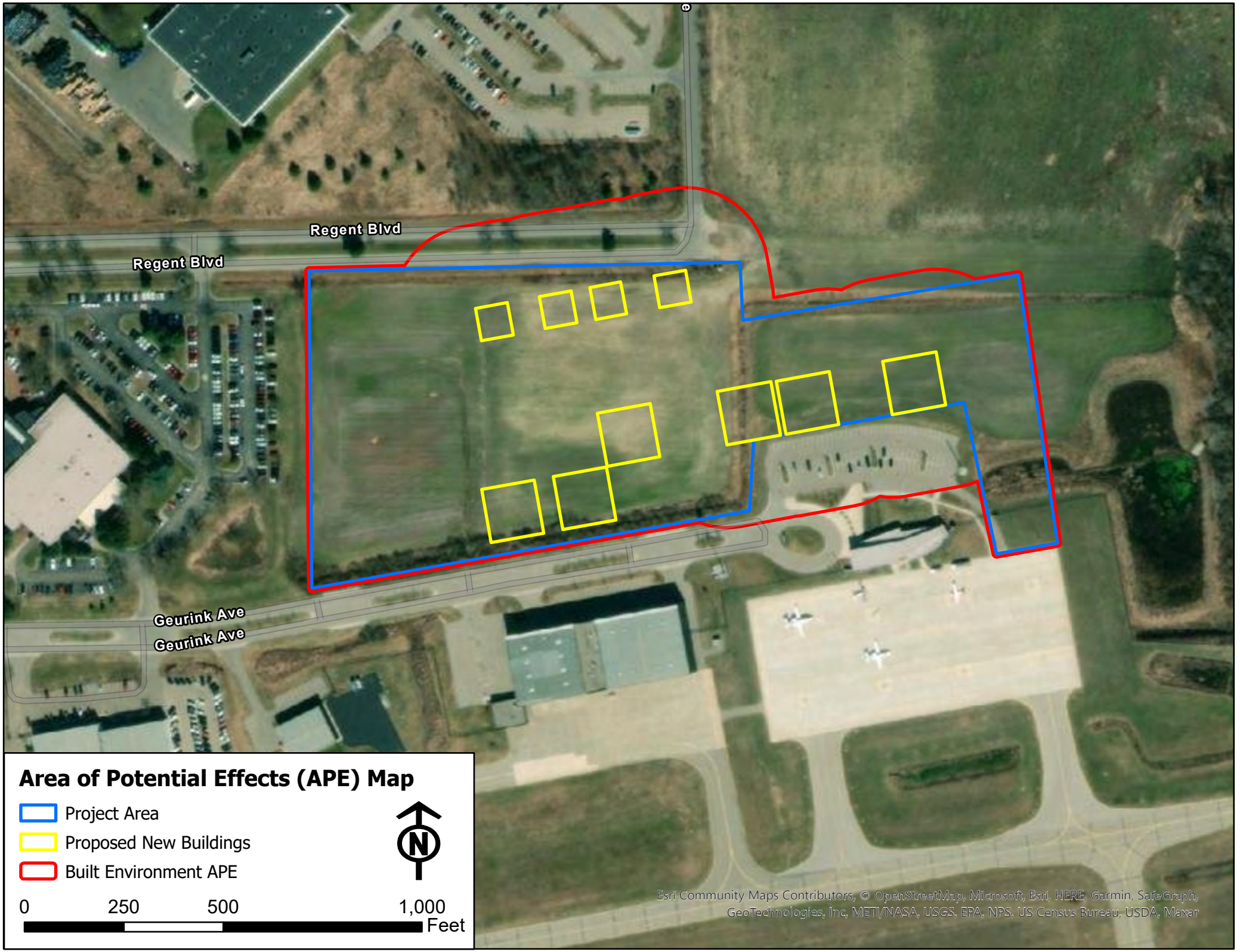
Project Location Map

Hamilton West, MI Quad (2019)

Built Environment APE

0 5,000 10,000 20,000 Feet

Appendix C. Area of Potential Effect Map


Regent Blvd
Regent Blvd
Geurink Ave
Geurink Ave
Area of Potential Effects (APE) Map
Project Area
Proposed New Buildings
Built Environment APE
N
0
250
500
1,000
Feet
Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, Maxar

Appendix D. Photographs and Photograph Key Map

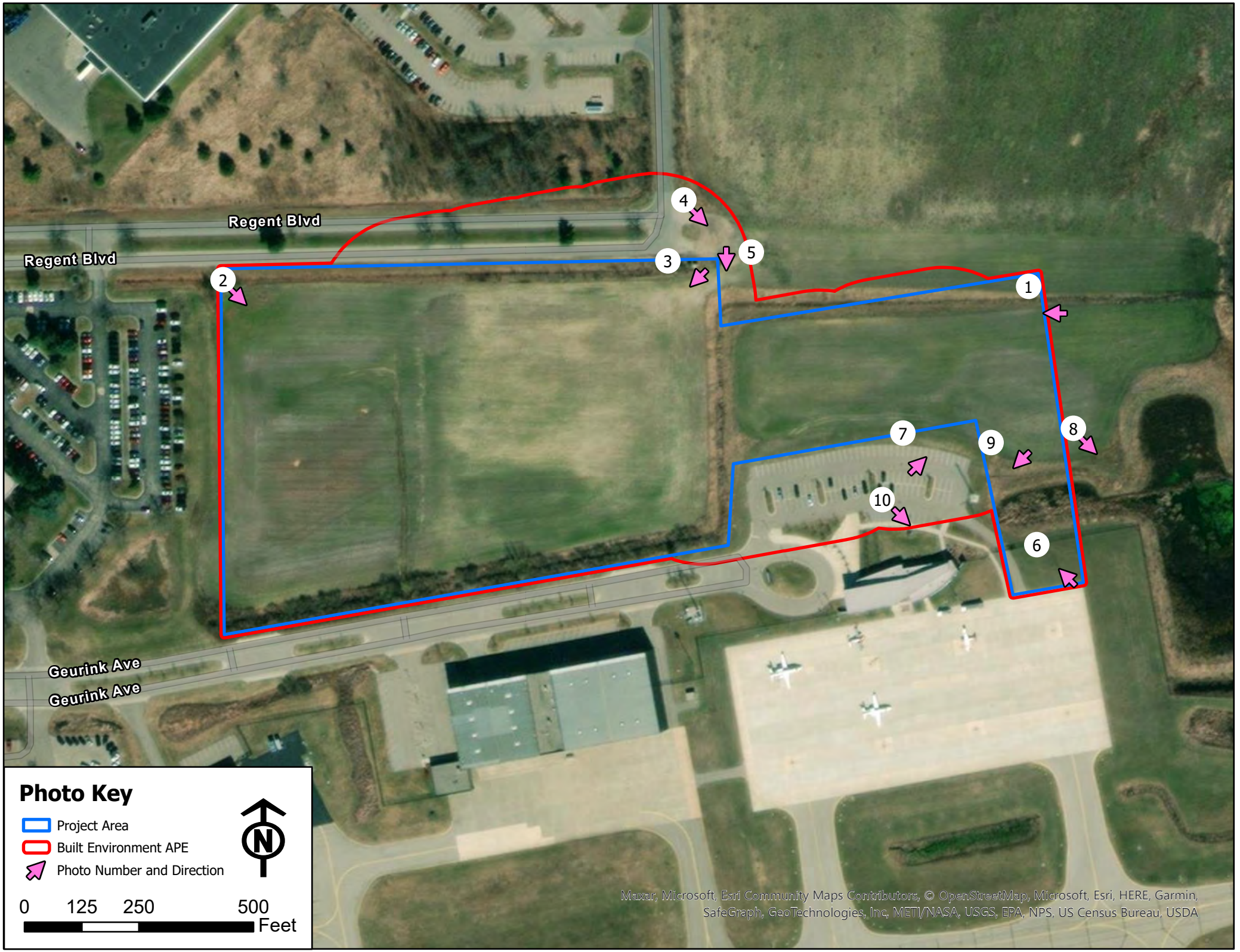

Regent Blvd
Regent Blvd
Geurink Ave
Geurink Ave
1
2
3
4
5
6
7
8
9
10
Photo Key
Project Area
Built Environment APE
Photo Number and Direction
N
0
125
250
500
Feet
Maxar, Microsoft, Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

Photo 1. Agricultural field in northeast project area, facing west

Photo 2: Agricultural field in northwest project area, facing southeast

Photo 3. Subsurface tested portion of western project area, facing southwest

Photo 4. View of disturbance around ditch in northern project area, facing southeast

Photo 5. Ditch and agricultural fields in project area, facing south

Photo 6. Southeastern project area, facing north-northwest

Photo 7. Central project area, facing northeast

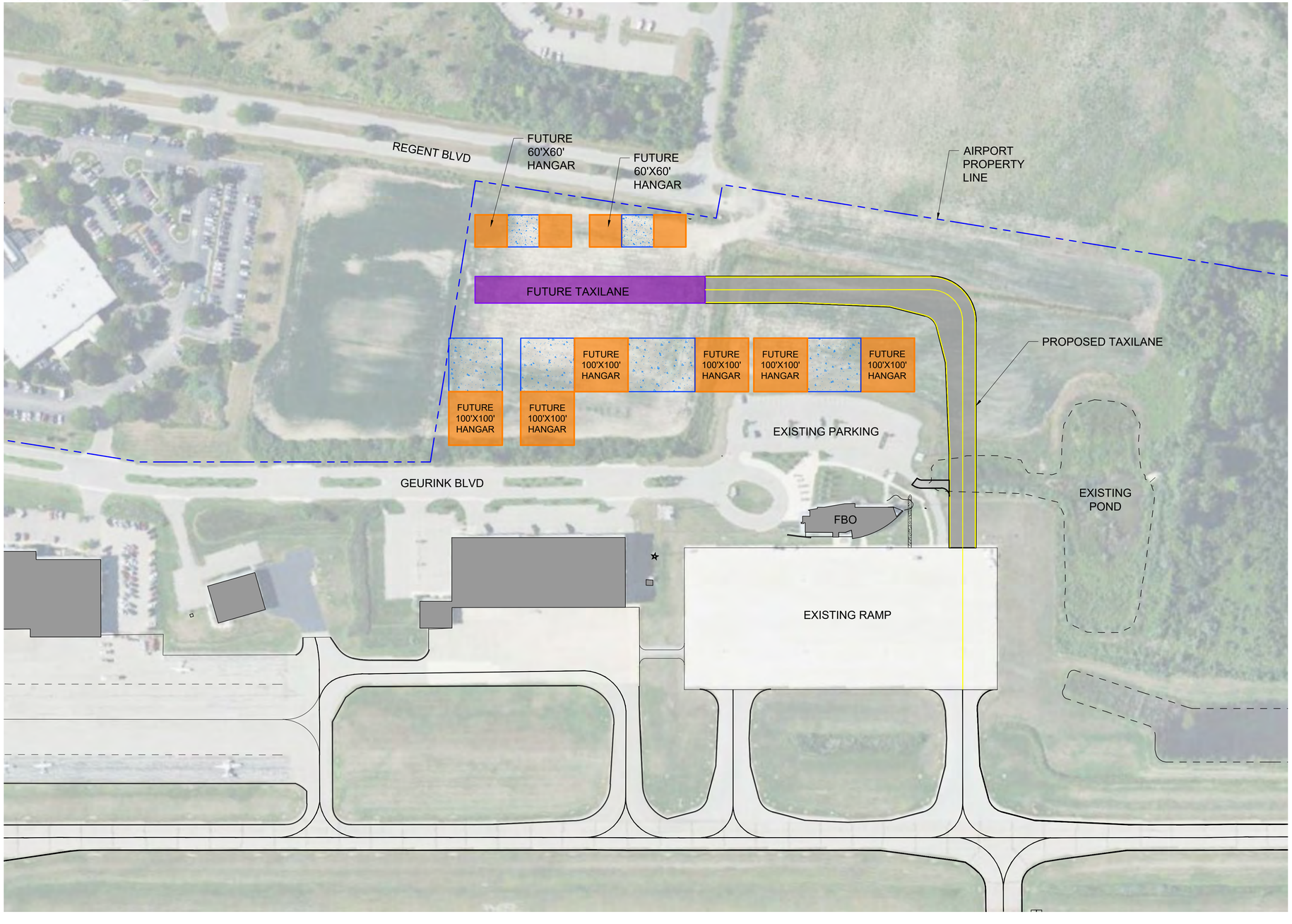
Photo 8. Weedy drainage basin, facing southeast

Photo 9. Recently constructed airport facility, facing southwest

Photo 10. Recently constructed airport facility, facing southeast

Appendix E. Project Plans

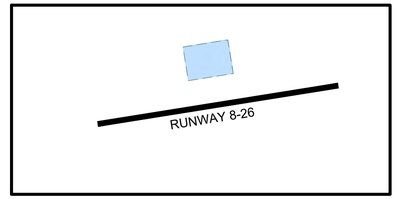
Mead&Hunt

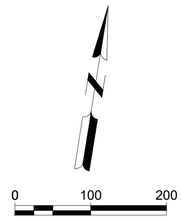


LEGEND:

- PROPOSED TAXIWAY
- FUTURE TAXIWAY
- FUTURE HANGAR
- FUTURE APRON

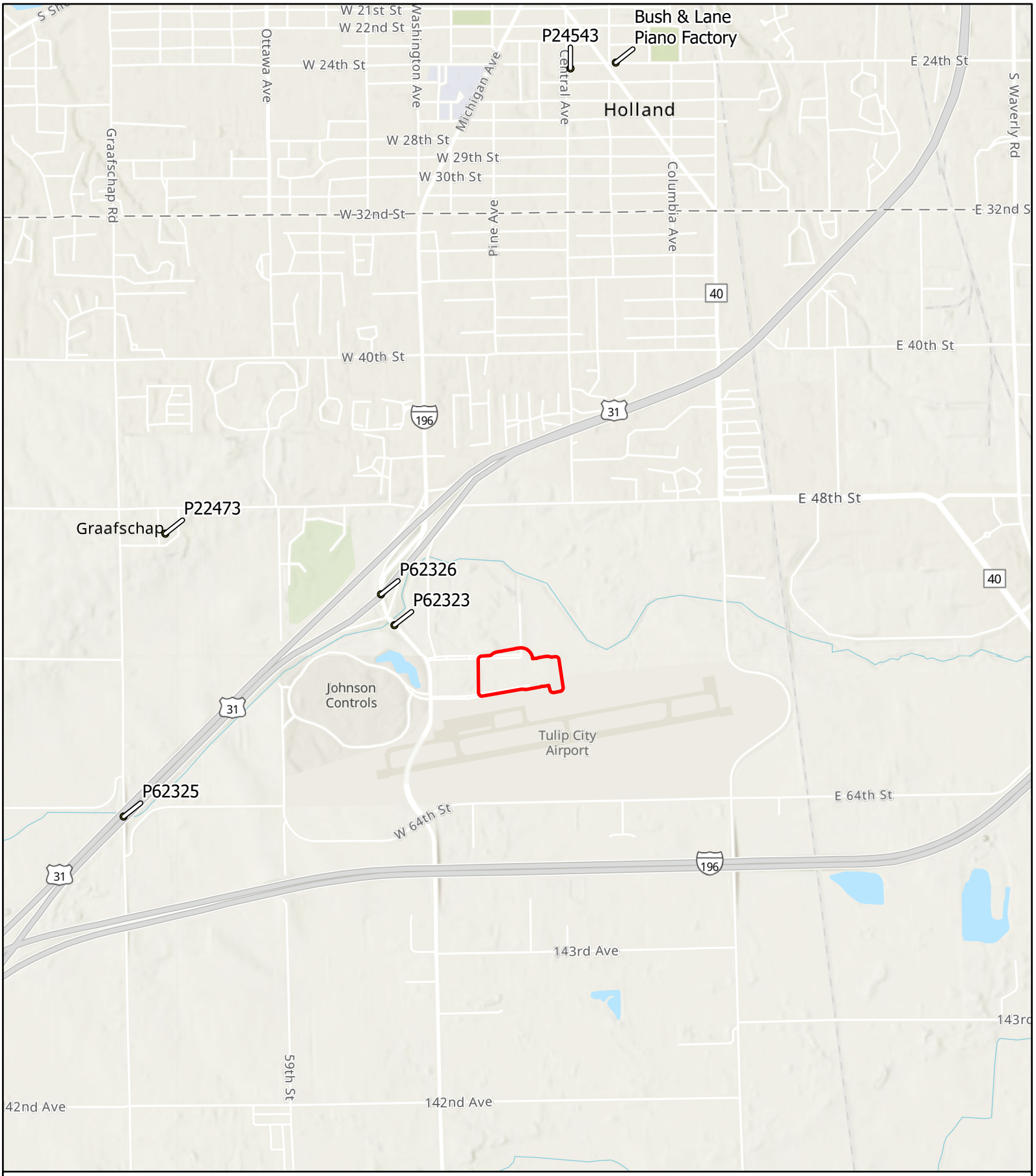
AIRFIELD REFERENCE





X:\0819900\211654.01\TECH\CAD\DRAWINGS\FIGURES\FIGURE 1 - PROJECT AREA\FIG 1 - PROJECT AREA.DWG
5/3/2022 3:36:25 PM

Appendix F. Previously Recorded Resources



Previously Recorded Resources

- Previously Recorded Resources
- Built Environment APE

0 0.38 0.75 1.5 Miles

P24543 - Prospect Park Christian Reformed Parsonage, 6 E 24th Street
Bush & Lane Piano Factory - 71 E 24th Street
P22473 - Graafschap Christian Reformed Church, 5973 Church Street
P62326 - US-31 BR (58th Street) Bridge over US-31 NB
P62323 - US-31 BR (58th Street) Bridge over North Branch Creek
P62325 - 60th Street Bridge over US-31

My Map

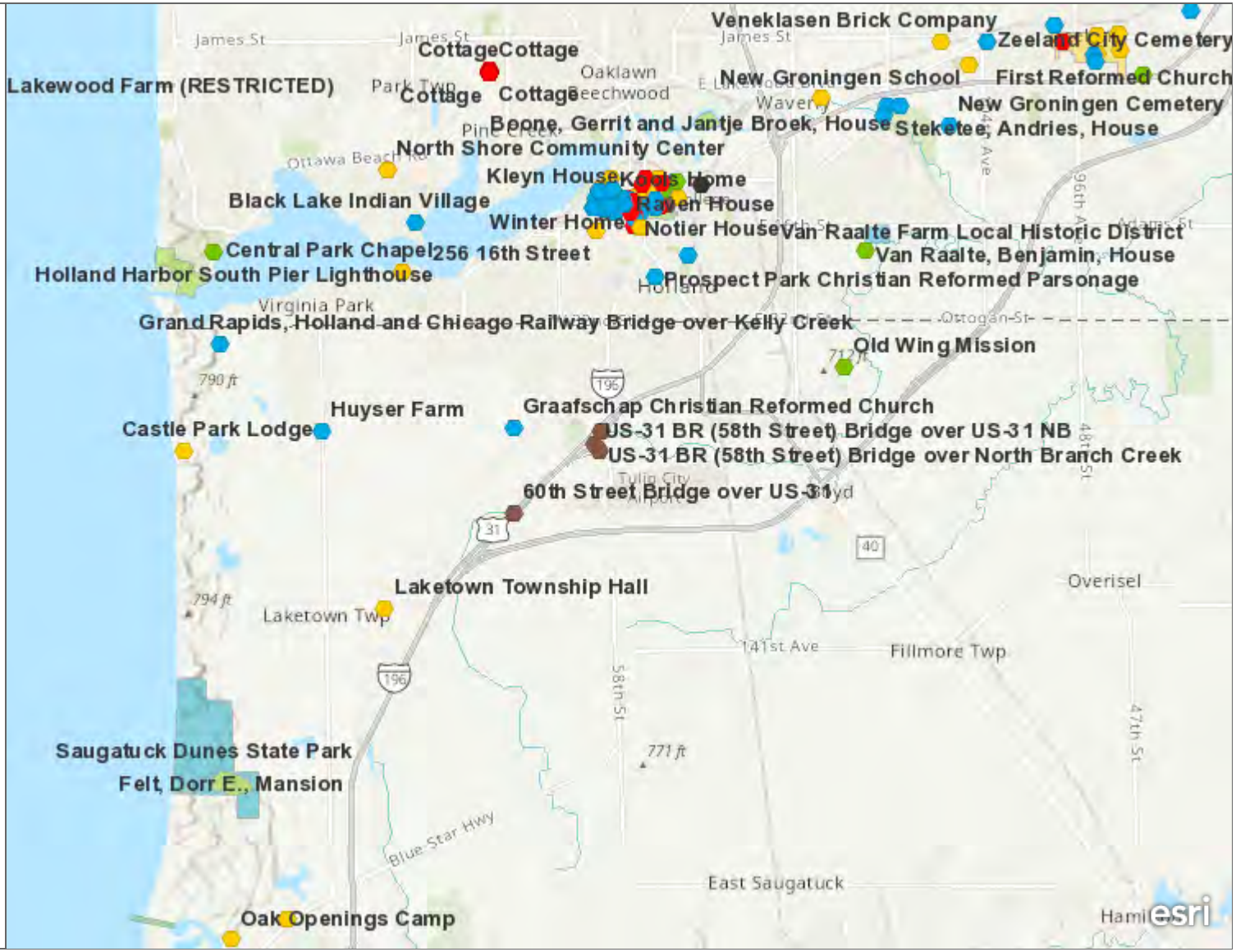
SHPO_MAP_SHPOStaff

Buildings, Objects, Structures

- Contributing
- Noncontributing
- Eligible for Listing in the National Register of Historic Places
- Not Eligible for Listing in the National Register of Historic Places
- Listed in the National Register of Historic Places
- More Information Needed/Unevaluated

Districts, Sites, Complexes

- Contributing
- Noncontributing
- Eligible for Listing in the National Register of Historic Places
- Not Eligible for Listing in the National Register of Historic Places
- Listed in the National Register of Historic Places
- More Information Needed/Unevaluated



Esri, NASA, NGA, USGS | Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA

BIV - Previously Recorded Resources from MI SHPO

Site ID	Name	Site Type	County (Main Ge	Township C	Range (Mai	Street 1 (Main Geolocation) (Geol	City (Main Geolocati	Township (Main Geoloca	Current NR Statu	Latitude (Main G	Longitude (Main
P47178	102 West 13th Street	Site	Ottawa			102 W Thirteenth St	Holland		Contributing	42.78540	-86.11176
P48126	115 West 12th Street	Site	Ottawa			115 W Twelfth St	Holland		More Informatio	42.78686	-86.11266
P16925	11736 Lakewood Boulevard (DEM	Site	Ottawa			11736 Lakewood Blvd	Holland		Eligible for Listing	42.80305	-86.07218
P7982	12 East Eighth Street	Site	Ottawa			12 E Eighth St	Holland		Contributing	42.79000	-86.10662
P47238	129 West 12th Street	Site	Ottawa			129 W Twelfth St	Holland		Contributing	42.78686	-86.11319
P49150	168 West 13th Street	Site	Ottawa			168 W Thirteenth St	Holland		More Informatio	42.78542	-86.11503
P50943	182 West Ninth Street	Site	Ottawa			182 W Ninth St	Holland		More Informatio	42.78902	-86.11569
P47527	200 West 10th Street	Site	Ottawa			200 W Tenth St	Holland		Contributing	42.78810	-86.11638
P50137	203 W. 12th Street	Site	Ottawa			203 W Twelfth St	Holland		More Informatio	42.78681	-86.11659
P10120	208 College Ave	Site	Ottawa			208 College Ave	Holland		Contributing	42.78995	-86.10445
P18349	211 Lincoln Avenue	Site	Ottawa			211 Lincoln Ave	Holland		Noncontributing	42.78969	-86.09700
P7086	212 South River Avenue	Site	Ottawa			212 S River Ave	Holland		Contributing	42.78955	-86.10941
P37836	215 West 12th Street	Site	Ottawa			215 W Twelfth St	Holland		Contributing	42.78682	-86.11700
P49436	220 West 11th Street	Site	Ottawa			220 W Eleventh St	Holland		More Informatio	42.78718	-86.11717
P47972	221 West 13th Street	Site	Ottawa			221 W Thirteenth St	Holland		More Informatio	42.78591	-86.11727
P47224	222 West 12th Street	Site	Ottawa			222 W Twelfth St	Holland		Contributing	42.78627	-86.11724
P49824	229 West 11th Street	Site	Ottawa			229 W Eleventh St	Holland		More Informatio	42.78762	-86.11769
P47900	232 Washington Boulevard	Site	Ottawa			232 Washington Blvd	Holland		More Informatio	42.78873	-86.11824
P48333	232 Washington Boulevard	Site	Ottawa			232 Washington Blvd	Holland		More Informatio	42.78873	-86.11824
P49145	244 West Ninth Street	Site	Ottawa			244 W Ninth St	Holland		More Informatio	42.78898	-86.11854
P10507	256 16th Street	Site	Ottawa			256 W Sixteenth St	Holland		Eligible for Listing	42.78266	-86.11896
P47898	257 West 11th Street	Site	Ottawa			257 W Eleventh St	Holland		More Informatio	42.78769	-86.11911
P47970	262 West 12th Street	Site	Ottawa			262 W Twelfth St	Holland		More Informatio	42.78625	-86.11924
P48284	272 West 12th Street	Site	Ottawa			272 W Twelfth St	Holland		More Informatio	42.78624	-86.11962
P12508	29 East Eighth Street	Site	Ottawa			29 E Eighth St	Holland		Eligible for Listing	42.79063	-86.10590
P6568	30 West Eighth Street	Site	Ottawa			30 W Eighth	Holland		Contributing	42.79017	-86.10865
P10378	35 West Eighth Street	Site	Ottawa			35 W Eighth St	Holland		Contributing	42.79056	-86.10879
P47327	36 East 12th Street	Site	Ottawa			36 E Twelfth St	Holland		Contributing	42.78639	-86.10565
P48424	84 West Fourteenth Street	Site	Ottawa			84 W Fourteenth St	Holland		More Informatio	42.78451	-86.11109
P37969	87 West Fourteenth Street	Site	Ottawa			87 W Fourteenth St	Holland		Contributing	42.78506	-86.11118
P47590	89 West 12th Street	Site	Ottawa			89 W Twelfth St	Holland		Contributing	42.78688	-86.11131
P38078	90 West Fourteenth Street	Site	Ottawa			90 W Fourteenth St	Holland		Contributing	42.78451	-86.11131
P47198	93 West Fourteenth Street	Site	Ottawa			93 W Fourteenth St	Holland		Contributing	42.78506	-86.11142
P47207	94 West 12th Street	Site	Ottawa			94 W Twelfth St	Holland		Contributing	42.78634	-86.11147
P26008	98 West 12th Street	Site	Ottawa			98 W Twelfth St	Holland		More Informatio	42.78633	-86.11171
P48152	Allan Ayers Home	Site	Ottawa			195 W Eleventh St	Holland		More Informatio	42.78774	-86.11629
P69925	Boone, Gerrit and Jantje Broek, Ho	Site	Ottawa			11045 Paw Paw Dr	Holland		More Informatio	42.80170	-86.05571
P24529	Cappon, Isaac, House	Site	Ottawa			228 W Ninth St	Holland		Listed in the Nati	42.78900	-86.11744
P22479	Castle Park Lodge	Site	Allegan			6700 Bryant Ave	Holland	Laketown	Eligible for Listing	42.74876	-86.20514
P47492	Centennial Park	Site	Ottawa			Central Ave	Holland		More Informatio	42.78760	-86.10804
P47444	Central Park Chapel	Site	Ottawa			550 Grove Ave	Holland		Eligible for Listing	42.77633	-86.15967
P24531	Coatsworth House	Site	Ottawa			236 W Ninth St	Holland		Eligible for Listing	42.78904	-86.11815
P48082	De Pree, Jacob, House	Site	Ottawa			48 W Thirteenth St	Holland		More Informatio	42.78544	-86.10966
P57127	De Zwaan Windmill	Site	Ottawa	05N	15W	1 Lincoln Avenue	Holland		Listed in the Nati	42.79821	-86.09582
P47225	Dehn, Gustav, Home	Site	Ottawa			221 W Twelfth St	Holland		Contributing	42.78682	-86.11725
P26012	Diekema, Gerrit, House	Site	Ottawa			134 W Twelfth St	Holland		More Informatio	42.78654	-86.11339
P50866	E. E. Fell Junior High gymnasium	Site	Ottawa			55 W Sixteenth St	Holland		Eligible for Listing	42.78316	-86.10981
P49588	E. E. Fell Junior High School	Site	Ottawa			372 River Ave	Holland		Eligible for Listing	43.36660	-86.01913
P22473	Graafschap Christian Reformed Ch	Site	Allegan			5973 Church St	Holland	Fillmore	More Informatio	42.75239	-86.13639
P48853	Hadden, Frank, House	Site	Ottawa			106 W Eleventh St	Holland		More Informatio	42.78730	-86.11228
P33927	Hermanus Smeyers Farm	Site	Ottawa			7418 120th Ave	Holland	Olive	Not Eligible for Li	42.90514	-86.07607
P21154	Holland City Hall and Fire	Site	Ottawa			108 E Eighth St	Holland		More Informatio	42.79029	-86.10253
P24536	Holland Downtown Historic Distric	Site	Ottawa			Roughly from just E of College Ave	Holland		Listed in the National Register of Historic Places		
P66655	Holland Furnace Company Genera	Site	Ottawa			491 Columbia Ave	Holland		More Informatio	42.77885	-86.09978

BIV - Previously Recorded Resources from MI SHPO

P49183	Holland High School	Site	Ottawa	96 W Fifteenth St	Holland		Contributing	42.78340	-86.11126
P3747	Holland Historic District	Site	Ottawa	W Eleventh St, Twelfth St, and Thir	Holland		Listed in the National Register of Historic Places		
P3748	Holland Historic District (Boundary	Site	Ottawa	Roughly bounded by River Ave, Pir	Holland		Listed in the National Register of Historic Places		
P34849	Holland National Guard Armory	Site	Ottawa	16 W Ninth St	Holland		More Informatio	42.78934	-86.10795
P24537	Holland Old City Hall and Fire Stati	Site	Ottawa	106 E Eighth St	Holland		Listed in the Nati	42.79007	-86.10239
P28549	Holland Peanut Store	Site	Ottawa	46 E Eighth St	Holland		Contributing	42.79004	-86.10522
P24538	Holland Reformed Protestant Dutc	Site	Ottawa	57 E Tenth St	Holland		Listed in the Nati	42.78895	-86.10484
P24539	Hope Church	Site	Ottawa	77 W Eleventh St	Holland		Eligible for Listing	42.78796	-86.11050
P39362	Hummer House	Site	Ottawa	191 W Twelfth St	Holland		Contributing	42.78683	-86.11602
P48429	Kamperman House	Site	Ottawa	135 W Eleventh St	Holland		More Informatio	42.78776	-86.11348
P50224	Kanters, Abraham, Home	Site	Ottawa	284 Maple Ave	Holland		Contributing	42.78684	-86.11510
P47229	Kleyn House	Site	Ottawa	125 W Eleventh St	Holland		Contributing	42.78777	-86.11298
P48615	Kollen Home	Site	Ottawa	86 W Eleventh St	Holland		More Informatio	42.78724	-86.11117
P37847	Kollen House	Site	Ottawa	80 W Thirteenth St	Holland		Contributing	42.78543	-86.11096
P48421	Kools Home	Site	Ottawa	194 W Eleventh St	Holland		More Informatio	42.78719	-86.11609
P50435	Koonihuizen House	Site	Ottawa	161 W Twelfth St	Holland		More Informatio	42.78685	-86.11452
P24541	Kremers House	Site	Ottawa	8 E Twelfth St	Holland		More Informatio	42.78621	-86.10687
P48161	Lokker, Jacob, House	Site	Ottawa	229 W Twelfth St	Holland		More Informatio	42.78682	-86.11757
P48799	McLean, Charles M., House	Site	Ottawa	274 Maple Ave	Holland		More Informatio	42.78709	-86.11515
P24545	Morrissey, Thomas and Anna, Hou	Site	Ottawa	190 W Ninth St	Holland		Listed in the Nati	42.78901	-86.11600
P39120	New Groningen Cemetery	Site	Ottawa	106th Ave	Holland	Holland	More Informatio	42.80350	-86.04570
P48464	Notier House	Site	Ottawa	82 W Twelfth St	Holland		More Informatio	42.78634	-86.11102
P22483	Overisel Reformed Church	Site	Allegan	A-4706 142nd Ave	Holland	Overisel	More Informatio	42.78673	-86.10425
P61634	Paw Paw Drive Bridge over Black/M	Site	Ottawa	Paw Paw Dr over Black River	Holland		More Informatio	42.80027	-86.05898
P48907	Pelgrim,Henry, House	Site	Ottawa	197 W Twelfth St	Holland		More Informatio	42.78683	-86.11630
P50153	Pillar Church	Site	Allegan	57 E Tenth St	Holland		More Informatio	42.78895	-86.10484
P24543	Prospect Park Christian Reformed	Site	Ottawa	6 E 24th St	Holland		More Informatio	42.77547	-86.10672
P47221	Raven House	Site	Ottawa	109 W Twelfth St	Holland		Contributing	42.78687	-86.11246
P69927	Steketee, Andries, House	Site	Ottawa	1811 112th Ave	Holland		More Informatio	42.80169	-86.05822
P49462	Ten Brink, John, House	Site	Ottawa	200 W Twelfth St	Holland		More Informatio	42.78628	-86.11629
P24544	Third Reformed Church of Holland	Site	Ottawa	110 W Twelfth St	Holland		Listed in the Nati	42.78656	-86.11241
P21973	United States Post Office	Site	Ottawa	31 W Tenth St	Holland		Eligible for Listing	42.78872	-86.10857
P62323	US-31 BR (58th Street) Bridge over	Site	Allegan	58th St/US-31 BR/Blue Star Hwy o	Holland		Not Eligible for Li	42.74874	-86.11854
P62326	US-31 BR (58th Street) Bridge over	Site	Allegan	US-31 BR over US-31 NB	Holland		Not Eligible for Li	42.74996	-86.11925
P62324	US-31 BR (Ramp) Bridge over Nort	Site	Allegan	Blue Star Hwy	Holland		Not Eligible for Li	42.75194	-86.11787
P47339	Van Putten House	Site	Ottawa	155 W Twelfth St	Holland		Contributing	42.78685	-86.11429
P48887	Van Raalte Farm Local Historic Dist	Site	Ottawa	1076 E Sixteenth St	Holland		More Information Needed/Unevaluated		
P24546	Van Raalte, Benjamin, House	Site	Ottawa	1076 E Sixteenth St	Holland		Listed in the Nati	42.77965	-86.06264
P24547	Van Vleck Hall	Site	Ottawa	116 E 10th St	Holland		Eligible for Listing	42.78776	-86.10201
P49238	Vander Meulen Home	Site	Ottawa	198 W Eleventh St	Holland		More Informatio	42.78719	-86.11632
P47237	Ver Schure, Cornelius, Home	Site	Ottawa	162 W Twelfth St	Holland		Contributing	42.78631	-86.11452
P49181	Ver Schure, Dingenis, Home	Site	Ottawa	151 W Twelfth St	Holland		More Informatio	42.78685	-86.11411
P49140	Washington Boulevard Historic Dis	Site	Ottawa	Washington Blvd from S of Sixteen	Holland		Eligible for Listing in the National Register of Historic Places		
P24548	West Michigan Furniture Company	Site	Ottawa	195 W Eighth St	Holland		Eligible for Listing	42.79068	-86.11598
P47605	Wichers House	Site	Ottawa	267 Central Ave	Holland		More Informatio	42.78739	-86.10683
P38380	Wing, William, House	Site	Ottawa	88 W Thirteenth St	Holland		Contributing	42.78543	-86.11126
P47610	Winter Home	Site	Ottawa	94 W Eleventh St	Holland		Contributing	42.78724	-86.11145
P24550	Woman's Literary Club	Site	Ottawa	235 Central Ave	Holland		Eligible for Listing	42.78863	-86.10694

Holland Historic Properties

City of Holland, Michigan
March 2015

Holland Historic Properties

Table of Contents

Holland Historic Properties

The City of Holland has supported preservation for many years. The first Holland Historic District was established in 1986. This was followed by an expansion of the district in 1992 and the establishment of the Washington Boulevard Historic District in 2001. Properties in the districts now total almost 400 within a locally designated historic district. Local designation of properties requires a review of exterior alterations and protects the properties from inappropriate exterior alteration that could compromise the historical or architectural integrity of the property.

A number of properties in the City have been listed on the National or State Register of Historic Places. This is a designation that identifies properties as significant to the City, State and Nation architecturally and/or historically. National or State Register designation does not protect the property or require any review of alterations on the property unless Federal funds would be utilized for the work on the property. A list of these properties is included in this document.

In 1995 a historical consultant was charged with conducting intensive level research on eleven structures in the City which were architecturally and historically significant. Descriptions of the eleven Landmark Properties are included in this document.

The third part of this document is the listing of properties that are historically or architecturally significant to the City but are not locally designated by the historic district ordinance. Each property is listed with information on the date of construction, the original use of the structure and the current use of the structure.

It is hoped that this compilation of properties will be used for reference in the study and documentation of historically and architecturally significant properties in the City of Holland.

Holland Historic Properties

City of Holland, Michigan
Sites Listed on the National Register of Historic Places

Isaac Cappon House	228 West 9th Street
Holland Downtown Historic District	
Holland Historic District	
Holland Reformed Protestant Dutch Church	57 East 10th Street
Thomas and Anna Morrissey House	190 West 9th Street
Old City Hall and Fire Station	106 East 8th Street
Third Reformed Church	110 West 12th Street
Benjamin Van Raalte House	1076 East 16th Street

Holland Historic Properties

City of Holland, Michigan
Sites Listed on the State Register of Historic Places

Isaac Cappon House	228 West 9th Street
Central Avenue Christian Reformed Church	1 Graves Place
Coatsworth House	236 West 9th Street
Dutch in Michigan - Informational Designation	Centennial Park
First Church of Holland Settlers - Informational Designation	Pilgrim Home Cemetery
First United Methodist Church - Informational Designation	57 West 10th Street
Holland Old City Hall and Fire Station	108 East 8th Street
Holland Reformed Protestant Dutch Church	57 East 10th Street
Hope Church	77 West 11th Street
Hope College-Informational Designation	141 East 12th Street
Kremers House	8 East 12th Street
Thomas and Anna Morrissey House	190 West 9th Street
Third Reformed Church	110 West 12th Street
United States Post Office	31 West 10th Street
Benjamin Van Raalte House	1076 East 16th Street
Van Vleck Hall, Hope College	116 East 10th Street
West Michigan Furniture Company Building	195 West 8th Street
Western Theological Seminary	86 East 12th Street
Woman’s Literary Club	235 Central Avenue

Holland Historic Properties

City of Holland Landmark Properties

Coatsworth House	236 West 9th Street
Holland City Greenhouse	481 State Street
Holland Furnace Company Headquarters	491 Columbia Avenue
Thomas and Anna Morrissey House	190 West 9th Street
Peoples State Bank Building	36 East 8th Street
Holland City State Bank	190 South River Avenue
Robert Wareham House	262 West 9th Street
Warm Friend Hotel	5 East 8th Street
West Michigan Furniture Company Building	195 West 8th Street
Winters Medical Office	8 East 10th Avenue
Woman's Literary Club	235 Central Avenue

Holland Historic Properties

Historically and Architecturally Significant Buildings in the City of Holland

Bush & Lane Piano Factory	71 East 24th Street
Bradford Paper Company	301 West 16th Street
DePree Chemical Company	130 Central Avenue
Holland Shoe Company Office Building	386 West 15th Street
Michigan Bell Telephone Company	13 West 10th Street
Park Theatre	248 South River Avenue

Hope College Properties

Dimnent Chapel	277 College Avenue
Graves Hall	263 College Avenue
Lubbers Hall	126 East 10th Street
President's House	92 East 10th Street
Voorhees Hall	72 East 10th Street

Holland Landmark Properties

Coatsworth House

Address: **236 West 9th Street**
Historic Use: **Residence**
Current Use: **Residence**
Date: **1870**

Architectural Description: This two story, Second Empire house is of red Zeeland brick on a Waverly stone foundation. On the front elevation, two hipped roof dormers with double-hung two over two round topped windows are set symmetrically in the steeply pitched mansard roof. Seven pairs of short Italianate brackets are spaced under the eaves. An open porch extends the width of the front of the building. On the east elevation, there is a garage door opening into the basement, with a steep concrete drive, likely dating from the 1910s or ‘20s. On the first floor interior, ceilings are ten feet high. The woodwork is four inches wide and heavily varnished. The interior stairway leading up from the entry hall is of black walnut. Several architectural elements, including a cupola and decorative metalwork, were removed over the years and were later recreated and reinstalled by later owners.

Statement of Significance: Built in 1870, the house survived the Fire of 1871. The home was purchased by Gerrit Kollen, President of Hope College, in 1880 and by Benjamin Essenburg in 1919. The house is a splendid representation of the Second Empire style constructed in local materials.

Holland City Greenhouse

Address: **481 State Street**
Historic Use: **Greenhouse**
Current Use: **Greenhouse**
Dates: **1911, 1919**

Architectural Description: The greenhouse is set on a triangular lot bounded by State Street, West 20th Street, and Central Avenue. Units One and Two, built in 1911, are identical gable roofed, wood frame and glass structures. The poured concrete foundation is finished with stucco. The units have 42 rows of flat 16" x 24" glass forming the side wall (one row) and the roof. On the south side, the top row of panes open as vents. The center unit (Unit Two) has the glass in the south facing roof replaced with a corrugated semi-transparent plastic. Between the passageways connecting Units One and Two to Unit Three is a fish tank that houses the lilypond goldfish over the winter. Unit Three, built in 1929, with the centered, double door entrance stands eighteen feet tall. Unit Three has a middle section flanked by two equal sections each containing 18 rows of glass panes, as well as an overhead door allowing for loading and unloading of plants and supplies. Unit Three also features double entry doors facing Central Avenue, topped by a gabled roof dormer and narrow sidelights. Unit Four, built in 1950, stands separate from the other three units. The walls and roof contain 30 rows of flat 16" x 35" vertical glass panes set in metal framework. To the south of Unit Four and paralleling it is a cold frame set in the ground.

Statement of Significance: No other town in Michigan maintains a greenhouse to supply city plantings. Some towns had greenhouses on civic property run by private growers, such as the Mountain View Cemetery Greenhouse in Kalamazoo, dismantled in 1960. The Holland City Greenhouse is a unique structure in the state of Michigan and possibly unique to the Midwest. This greenhouse highlights the self-sufficiency, thrift and responsibility typical of Holland.

Holland Landmark Properties

Holland Furnace Company / Black River Public School

Address:	**491 Columbia Avenue**
Historic Use:	**Company Headquarters**
Current Use:	**Education**
Date:	**1930-1931**

Architectural Description: This is a large, narrow, three story, simple Art Deco style building, 250’ long by 40’ wide. The foundation is concrete with walls of polychrome brick laid with five rows of common bond followed by a single row of Flemish bond. A single limestone sill runs under each pair of first floor windows. Flat brick pilasters sitting on concrete piers separate the bays with stone capitals at the first and third floors. The main entry is centered, up three steps and with two double doors. Above the doors a transom has three rows of nine lights each. A square arch of smooth stone defines the entry with four square brick inserts as trim on each side. Art Deco style hanging lights flank the main entry.

Statement of Significance: The Holland Furnace Company was founded in 1906 by A.H. Landwehr and John P. Kolla. By the late 1920s, new office space was needed. The Board of Directors approved the structure in August, 1930. Work commenced in September and the staff moved into the building in May of 1931. The company used the building until 1964. The building housed Holland Suco Color as well as BASF before becoming Black River Public School in 1998. The building itself is a fine example of the efficient, modern office building of the early thirties with understated Art Deco details.

Thomas and Anna Morrissey House/Settlers House

Address: **190 West 9th Street**
Historic Use: **Residence**
Current Use: **Museum**
Date: **1867**

Architectural Description: This is a three-bay, one and a half story, end gable I-house with a central chimney. The primary elevation faces north. It is sheathed with wood clapboards and has a low pitched gable roof. The original house was 15' x 22'. The front elevation is symmetrical with a central door flanked by two six over six double-hung windows. At the rear, the addition is sheathed in board and batten with a small porch and two exterior doors.

Statement of Significance: This was one of two identical structures constructed by Reverend Albertus Van Raalte. Built on the edge of town, it survived the Fire of 1871. One of the first owners of the house was Thomas Morrissey, a shipbuilder. It served as a rental property for many years, until it was purchased in 1952 by Stephen and Margaret Boneburg. They owned it until Margaret's death, when it was purchased by the City of Holland for use as a museum. The simple house provides a graphic counterpoint to the fine High Style homes on adjoining blocks providing an example of how residents of modest means lived in the later pioneer years. It marks the early village limits.

Peoples State Bank / 5/3 Bank

Address: **36 East 8th Street**
Historic Use: **Bank**
Current Use: **Bank**
Date: **1928**

Architectural Description: This is a three story commercial building entirely faced with glazed terra cotta tiles and decorated in the Art Deco style. The exterior has a strong vertical design divided into three bays, with a central entry door topped by a balconet. The balconet is supported by matching consoles sitting on rope columns with Doric capitals. The consoles are decorated with ivory acanthus leaves against a blue background. There are tall windows on the first and second floors, culminating in rounded windows on the third floor. A single rope column serves as a stile between the windows, topped with Corinthian capitals and the bust of a lion. The cornice line is an elegant blue and green glazed tile decorated with acanthus leaves. Inside, the colonnaded banking room is two stories high with a mezzanine extending around the lobby on three sides. The walls are clad in ivory, cream and gold terrracotta, the floor is covered with hand-colored faience tiles, and the ceiling is coffered.

Statement of Significance: This bank is a distinctive and well-preserved example of the Art Deco style, adding variety to the Eighth Street streetscape. The interior of the banking space has been carefully updated, preserving this unique architectural space.

Holland Landmark Properties

Holland City State Bank/Tower Clock Building

Address:	**190 South River Avenue**
Historic Use:	**Bank**
Current Use:	**Offices and Shops**
Date:	**1892**

Architectural Description: This three story, rectangular commercial building sits on the northwest corner of Eighth Street and River Avenue with a clock tower anchoring the corner. It has a two story addition with a terrace on the west side. The building is a light smooth-faced stone on the first floor and the upper two stories as well as the tower are locally quarried Waverly stone set in random courses of ashlar faced blocks. Classic pilasters separate the windows on the ground floor. The double-entry door is in a beveled corner inside arches. The arches have cast trim voussoirs with matching capitals on the supporting columns. The tower rises another story at the corner, continuing the random courses of ashlar-faced Waverly stone. Date panels engraved “1892” are topped by clocks on the east and south faces. A steeply pitched hipped roof finishes the tower.

Statement of Significance: Built as the Holland City State Bank in 1892, the structure has served a variety of roles over the years. In 1986 it was purchased by Edgar and Elsa Prince, and restoration began in 1987. Windows and architectural elements were replaced, as well as the clock faces. The Tower Clock serves as a prominent visual symbol of downtown Holland. It is significant for its style and the sense of identity it lends to the downtown, its use of local material, and the involvement of the City State Bank in the economic life of Holland in the first part of the 20th century.

Holland Landmark Properties

Wareham House

Address: **262 West 9th Street**
Historic Use: **Residence**
Current Use: **Residence**
Date: **1909**

Architectural Description: This large, two and one half story Queen Anne house with a three story onion-domed tower sits on a rectangular lot facing Lake Macatawa to the north. The entire building is made of locally quarried Waverly stone. The foundation has a stucco finish and the first and second floors are random-course ashlar-faced stone block. All window and door casings are smooth-finished stone. The side walls of the narrow dormer, the faces of the three wide dormers and the gable end above the single story rear wing are all finished in slate tiles. The third floor of the tower is finished with large metal fish-scale tiles. The dominant feature of the house is the circular, three story, onion-domed tower on the northwest corner. On each level, the masonry is pierced by three one over one double-hung windows, except on the third floor where one window has become a door leading to a metal fire escape. A continuous sill runs under all three tower windows on the first floor.

Statement of Significance: In 1909 Robert Wareham bought the lot at 262 West 9th Street and built this solid Queen Anne home for his family. The Wareham family's stay in the house was short and the house has had a variety of owners since. The house is currently divided into four units. The Wareham House with its onion dome tower is a rare example of Queen Anne architecture built entirely of stone and a city landmark.

Warm Friend Hotel and Tavern / Resthaven

Address: **5 East 8th Street**
Historic Use: **Hotel**
Current Use: **Senior Citizens' Home**
Date: **1925**

Architectural Description: This six story hotel is constructed of stone on the first floor and brick with stone quoins at the corners of the building and outlining the windows. It is divided into three sections vertically, each three windows wide. On the ground floor, wide, square rusticated columns flank the center entry. Narrower smooth squared columns divide the first floor windows. Limestone belt courses define the sills and heads of windows on each floor. On the fifth floor, the windows are round topped with alternating brick and stone voussoirs. The parapet is finished with stone. Over the center section, a stepped Flemish gable is further defined by three smooth battered columns with pyramid tops. A pair of carved beavers flank the apex to illustrate the work ethic of the Holland Furnace Company. The hotel is of fireproof construction throughout with reinforced concrete and brick walls and a concrete foundation.

Statement of Significance: The city of Holland needed a large hotel following the loss of the Ottawa Hotel to fire in 1923. A. H. Landwehr, owner of the Holland Furnace Company, spearheaded the effort. Realty bonds were sold to raise money for the venture. Construction was begun on April 10, 1924, and finished on April 25, 1925. Most of the hotel furnishings were purchased from Holland merchants and manufacturers, and the majority of contractors were also local. The Holland Furnace Company promoted and encouraged the construction of this hotel in a unique manner, involving all the concerned citizens of the city. It represents the self-sufficient, determined spirit of the city of Holland as well as the involvement of a vital local industry in civic improvement.

West Michigan Furniture Company Office/Padnos Iron & Metal

Address: **195 West 8th Street**
Historic Use: **Office**
Current Use: **Commercial**
Date: **1891**

Architectural Description: This is a rectangular, one story, hip-roof, south-facing building which measures 32'x42'. The Romanesque Revival style structure is a true masonry building of Veneklasen red brick trimmed in locally quarried Waverly stone. Decorative brick corbelling appears at the eaves. A sandstone water table extends around the entire building. Arches of rock-face stone springing from a belt course cap the round head windows in the front part of the building. A slant-sided three-window bay breaks the line of the west façade. Square-head window openings in the side walls are capped by rock-face stone lintels. A rear ell matching the style of the main building has been added.

Statement of Significance: West Michigan Furniture Company was founded in 1889. By 1890 the firm had a backlog of orders due to their success. They needed an office building and contracted with architect William G. Robinson of Grand Rapids who had also designed Holland's new city hall and fire station building (106 East 8th Street). His design reflects the firm's taste in furniture style, simple and unostentatious. The building was constructed by Holland contractor James Huntley. In 1990 the building was moved 25 feet north and an extensive restoration was undertaken. The WMFC represents the first large furniture company in Holland and its officers were among the leaders of the community. WMFC took the first risk in Holland, followed by other manufacturers over the next two decades. The building itself, besides being a meticulous restoration, stands as a fine example of Romanesque Revival architecture rendered in local brick and stone.

Winter Medical Office/Central Avenue Christian Reformed Church

Address: **8 East 10th Street**
Historic Use: **Medical Office**
Current Use: **Religious**
Date: **1942**

Architectural Description: This building is an elegant miniature example of Dutch-inspired architecture. The ridgeline of the roof is a "T" with an end-gable section parallel to the street, intersected by a large rear gable section and measuring 36' x 78'. The building's footprint is a rectangle with the narrow end facing the street. The gabled entry is placed off center on the front elevation. The foundation is concrete with a concrete water table. Red bricks are laid in a Flemish bond. On the entry wall, the rows are interrupted with regular limestone courses forming quoins and continuing to the arch of the round-topped front door. At the level of the eaves, a limestone molding replaces a course of bricks. The stepped gables have limestone defining each of the three steps, and each gable is topped with a volute buttress of a carved Flemish decoration. The entry gable matches the end gables with the addition of stone spheres set on small bases on the lowest step. The round-topped front door is made of vertical planks of wood with no ornamental hinges. Two black metal lanterns flank the entry.

Statement of Significance: In September 1941, Dr. John K. and William G. Winter submitted plans to the city clerk for their new office building. Their plan was approved and Van Dyke & Volkers began construction of the building designed by Grand Rapids architect Herbert Colton. The building served as medical offices until 1981. This structure is significant as the first building in Holland designed specifically to be doctors' offices. Its association with the long-lived medical practice of the Winter family makes it significant as well. It is also a fine example of the continuing city-wide use of traditional Dutch architecture.

Holland Landmark Properties

Woman's Literary Club / Eagle Building

Address: **235 Central Avenue**
Historic Use: **Clubhouse of Woman's Literary Club**
Current Use: **Offices**
Date: **1913-1914**

Architectural Description: This is a red brick, two story, square-plan building inspired by Classical Revival and Georgian Revival architecture. The symmetrical façade is divided into three bays by paired fluted pilasters with Ionic capitals that flank the entrance, located in a slightly projecting central pedimented pavilion. The paired paneled entry doors occur beneath an elliptical fanlight and are shielded by a door-head supported by consoles that enframe a masonry plaque stating "Woman's Literary Club." The entry is surmounted by a window with a masonry lintel and keystone sill. The bays on either side of the entry pavilion are distinguished by arched windows featuring brick lintels and masonry keystones. Brick corner quoins rise from a water table to a classic entablature with a projecting dentilled cornice. The side elevations are three symmetrical compositions repeating the style elements of the façade.

Statement of Significance: Founded in 1898, the Woman's Literary Club voted in 1913 to construct a club home designed to facilitate the promotion and advancement of literary, educational, philanthropic, social and civic pursuits. The building is an excellent example of high-style architecture executed by Lansing architect Thomas Ernest White. The Club has played a central role in Holland's community and social life. It sponsored the Junior Welfare League, Campfire Girls, and other organizations, many of which used the building for meetings. In 1927 during a presentation in the auditorium, club member Lida Rogers proposed making Holland a Tulip City. Thus, she is generally credited as the founder of Holland's nationally recognized Tulip Time festival.

Bush & Lane Piano Factory/Baker Lofts

Address: **71 East 24th Street**
Historic Use: **Manufacturing**
Current Use: **Mixed Commercial and Residential**
Dates: **1905**

Architectural Description: The original portion of this factory is two stories made of yellow brick. Sets of three double-hung eight over eight windows are located between brick piers. Brick corbelling highlights the flat roofline. A three story, red brick addition includes a flat roof and cast-stone hoods over industrial steel sash windows.

Statement of Significance: Originally a piano manufacturing company, the original two story brick building is distinguished from a later addition by the larger segmentally arched windows encased by the structural form. Bush and Lane Piano Company moved to Holland from Chicago in 1905. They manufactured pianos into the 1920s, when they switched their focus to radio cabinets, as entertainment needs of their clients shifted. The company went bankrupt in 1931 and the building was sold to the Baker Furniture Company. The Baker Furniture Company was founded as the Cook and Baker Company, making window sashes and doors. It began making furniture in 1893. The business was founded by Siebe Baker of Allegan after he immigrated from the Netherlands as a teenager.

Bradford Paper Company/Vanderbilt School

Address: **301 West 16th Street**
Historic Use: **Manufacturing**
Current Use: **Educational**

Architectural Description: A large, two story, yellow brick factory building. In one section sets of three double-hung windows are included in large openings with segmental arches. There is brick corbelling just below the roofline. The window openings are separated by raised brick piers. In another section are one over one double-hung windows,with decorative brick corbelling at the roofline. A modern, recent, two story entrance addition includes brick walls, a metal pyramidal roof and large expanses of aluminum windows.

Statement of Significance: This building has housed a variety of occupants including Holland Veneering, Veit Manufacturing, The Ottawa Furniture Company, American Cabinet, and the Bradford Paper Company. The Bradford Paper Company originated in Chicago, Illinois before expanding to Holland in 1951. The company still has a presence in Holland, although it has moved to a location in Holland Township. The building is a large, irregularly shaped, two story, brick manufacturing structure. This structure is one of the many similarly constructed industrial facilities found throughout the area that are a part of Holland's economic growth late in the 19th Century. The list of former tenants speaks to Holland's long history of woodworking and furniture manufacturing concerns. The current use, as a public charter school, adds to Holland's long history of promoting education for its children, whether in a public or parochial setting.

DePree Chemical / Lumir Building

Address: **130 Central Avenue**
Historic Use: **Manufacturing/Office**
Current Use: **Office**
Dates: **1907**

Architectural Description: This four story, flat-roofed, brick factory is made of yellow brick. Pairs of four over four windows are located between raised brick piers. There is decorative corbelling just under the flat roofline. The foundation consists of a limestone water table atop rusticated limestone blocks. Construction of the building was begun in 1907 and there were several additions done over the next few years which expanded the building to its current footprint, which spans the entire block from 5th to 6th Streets.

Statement of Significance: The building was originally occupied by the DePree Chemical Company, whose first product was a chemical fumigator. They then began manufacturing nutritional supplements and over-the-counter pharmaceuticals. J.B. Labs was created in 1978 by John Otting and William Baker, Jr. who were employees of DePree Chemical, when it was acquired by Chattem Drug Company in 1968. The two partners purchased the local Chattem operation in 1980. JB Labs continued operation in this building until they moved to a larger facility in the Holland Township in 1995. The building was then purchased by the Lumir Company and renovated.

Holland Shoe Company Office Building

Address: **386 West 15th Street**
Historic Use: **Manufacturing**
Current Use: **Unknown**

Architectural Description: This two story office building has a flat roof construction. The foundation is rusticated concrete block. Rectangular windows are placed in pairs with limestone sills and simple hoods. The original windows have been replaced. Corners are accentuated by raised brick piers. A wooden, gable-roofed porch with square wooden columns covers the main entrance. The porch has been enclosed with aluminum windows.

Statement of Significance: A two story office building, originally the offices of the adjacent Holland Shoe Factory that was demolished in the early 1980s. The Holland Shoe Company was founded in 1895, and in 1939 merged with a company from Racine, Wisconsin. The company was a major employer in the 1940s as they had a contract for the manufacture of Army boots. The company closed in 1967. A building reflecting the changes occurring at the turn of the century, where brick structures of this nature were simply detailed with recessed panels accentuated by brick piers. This building is currently owned by the Heinz Corporation, and its use is unknown.

Michigan Bell Telephone Building / AT&T

Address:	**13 West 10th Street**
Historic Use:	**Office**
Current Use:	**Office**
Dates:	**1929**

Architectural Description: This four story commercial building is of the Flemish Revival style with a side gabled tile roof with characteristic stepped parapets at the gable ends. The symmetrical main façade is decorated with patterned, Flemish-bond brickwork, voussoirs, quoins, stringcourses and colored tile panels. The main façade includes 16 over 16 double-hung windows at the second and third floors separated by the colored tiled panels. There are two entrances with fan light windows over double doors and surrounded by stone pilasters and pediments. A small round window is located in the center of each gable.

Statement of Significance: Operators first came to Holland in 1886. The first telephone came to Holland in 1883, just seven years after Alexander Graham Bell spoke his first words into a telephone in 1876. Operators continued to work in Holland until 1977 when they were replaced by a centralized Grand Rapids location. The first telephone company was housed in a room on the second floor of the Kanters Block, at 17 East 8th Street. The office was moved in 1900 to the second floor of the Van Dyke Block at 9th Street and River. The first long-distance line, brought into Holland,in 1884, linked Holland to Grand Rapids, Kalamazoo, Ionia and Grand Haven.

Park Theatre

Address: **248 South River Avenue**
Historic Use: **Vaudeville, live theater, film**
Current Use: **Entertainment**
Date: **1886**

Architectural Description: This downtown theater building is typical of the small theaters of the early 20th century. The two story, brown brick façade includes French doors and poster boxes at the first floor, and a marquee and metal awning above. A historic neon sign is hung on the second floor. Brick corbelling highlights the area below the roofline.

Statement of Significance: The building was originally constructed as a mill in 1886. Sometime between 1896 and 1902 the mill was converted into a feed store. In 1920, the building was named the Colonial Theater and was later renamed the Park Theatre following a devastating fire in 1935. The theater was home to a Wurlitzer organ purchased for the theater, adding a new dimension to the motion picture experience. Eventually the theater was sold to the Butterfield Theater group of Chicago, which closed the theater in 1984.

In 2000, the Holland Windmill Chorus purchased the building with the intent to raise the funds necessary to renovate the theater and make it their performance home. In December of 2001, the Park Theatre Foundation, a newly created nonprofit organization, secured the Park Theatre from the Holland Windmill Chorus. The Park has since been transformed into a flexible, multi-use venue providing unique opportunities for the downtown Holland area.

Hope College Dimnent Memorial Chapel

Address:	**277 College Avenue**
Historic Use:	**Religious**
Current Use:	**Religious**
Dates:	**1927-1929**

Architectural Description: A stone, Gothic Revival style church with a front-facing gable roof and castellated roofline. The main façade features a rose window flanked by a five story bell tower and a three story tower. Gothic arched windows separated by piers run the length of the nave walls. The entrance projects out from the main façade under the rose window.

Statement of Significance: The Memorial Chapel was built in 1927-1929 and renamed in 1959 for Dr. Edward Dimnent, the President of Hope, who inspired the chapel's planning and fundraising. Its architect was W.K. Johnston, who also designed Graves Hall. Dimnent's exterior was built in a severe, Protestant version of a popular revival style often referred to as Collegiate Gothic. It is an instructive style when contrasted with neighboring structures on College Avenue, Graves and Voorhees Halls. The rectangularity and horizontal flow of space on the interior modestly suggest English origins. The stained glass windows were executed by A.A. Zucci, a craftsman from Venice, Italy. In addition to serving many of the spiritual needs of the college community, the chapel offers a range of other activities that add a cultural role: musical events, special lectures, convocations, and community related events, thus fulfilling President Dimnent's aims.

Hope College Graves Hall / Winants Chapel

Address: **263 College Avenue**
Historic Use: **Chapel and Classrooms**
Current Use: **Classrooms**
Dates: **1892-1894**

Architectural Description: This three story, Richardsonian Romanesque building is constructed of rusticated Waverly stone. It features an asymmetrical façade with a front-facing gable and tower. A side gable wing to the north and a front facing gable chapel to the south flank the central portion. The main arched doorway shape is repeated in fan-light windows above the chapel doorway and on the second and third floor windows.

Statement of Significance: The building is important historically, as it was the first permanent building on the Hope College campus after Van Vleck Hall. Graves Hall and Winants Chapel were named in honor of Nathan Graves and Gerrit Winants respectively. Graves was built to house the college's chapel and library because Hope had outgrown the two locations previously serving that purpose, and served in those roles until it, too, was outgrown. Winants is now used as a classroom, lecture hall, and film theater. The varied uses of Graves Hall over time makes it vital to the educational history of Hope College. Graves Hall is significant because of its artistic or stylistic connection to the revivalist tendency known as Richardsonian Romanesque. The Chicago architect W. K. Johnston reflects in this work a style using mass, rustication, and strong geometric shapes deemed by H.H. Richardson to be reflective of American values because of their strength and vigor. Graves' revival style is significant when it is compared to other examples of the type in West Michigan. The building has a vernacular side to its style; it is an example of a building in locally quarried Waverly stone.

Hope College Lubbers Hall

Address: **126 East 10th Street**
Historic Use: **Classrooms**
Current Use: **Classroom/Research/Offices**
Dates: **1942**

Architectural Description: This three and a half story, Flemish Revival style building is constructed of brown brick and has limestone quoins, voussoirs, and stringcourse accents. The gable roof includes stepped parapets at the gable ends as is typical of the Flemish Revival style.

Statement of Significance: A brick, three and a half story, classroom structure of the Flemish Revival style named after the seventh college president. Built for $30,000, the building today known as Lubbers Hall was dedicated on September 16, 1942, to provide better laboratories for the science departments that had been located in Van Raalte Hall. Before the DeWitt Center Theatre was built, the Little Theatre was located on the fourth floor. The architectural style of the building is late 17th century Dutch and is modeled on the plans for a community museum and library complex which was never built. After the science department moved into Peale Science Center in 1973, the building was renovated and made into a center for the humanities and social science divisions. The building reopened in January 1975 and was named in honor of Dr. and Mrs. Irwin (Margaret) Lubbers. Dr. Lubbers served as the president of the college from 1945-1963.

Hope College President's House

Address: **92 East 10th Street**
Historic Use: **Residence**
Current Use: **Residence**
Dates: **1892**

Architectural Description: This two and a half story, brick Queen Anne house features a hipped roof with gabled wings. The large, brick front porch was added in the 1910s and has been enclosed with aluminum windows. The windows are one over one, double-hung with simple limestone hoods and sills. A mansard roof covers a small, second story, wooden porch.

Statement of Significance: The house was begun in 1884 but when there were no funds to complete the project, it was boarded up and finally completed in 1892. The appearance of the house was changed considerably in 1913 with the addition of the enclosed front porch. In the early 1950s the college undertook its first major modernizing and redecorating of the home, without altering the structural features of the exterior or interior in any significant way. In 1986 a more radical renovation occurred with major electrical, plumbing, plastering, roofing and extensive redecorating. A breakfast room for the president's family was added; new entrances and a garage were built. However, the basic Victorian architecture was preserved.

Hope College Voorhees Hall

Address: **72 East 10th Street**
Historic Use: **Dormitory**
Current Use: **Dormitory**
Dates: **1907**

Architectural Description: this two and one half story, raised foundation, Dutch Revival style building is constructed with orange-red brick and stone. The roof is a side gable with stepped gables at the roof ends and main façade. A small, stepped gable is centered over the main entrance flanked by two shed dormers. The brick is interrupted by a limestone stringcourse, quoins, and voussoir accents. The main entrance is centered and recessed under a true arch on the main façade.

Statement of Significance: Named for its donors, Ralph and Elizabeth Rodman-Voorhees, this hall was built in 1907. It was the first building on campus to house women and the first building to be lighted by electricity. The building is architecturally significant because it is in a Dutch Renaissance revival style of central importance to Hope College's tradition. It is quite responsive to light, comfortably located on a broad yard, and linked spatially and stylistically to Van Wylen Library, which is located across College Avenue. Voorhees' style - stepped gables, quoins, voussoirs - is set in vernacular materials locally produced such as Waverly sandstone and Veneklasen brick. It serves as an outstanding example of early 20th century architectural interpretation of traditional Dutch style.

Michigan SHPO Architectural Properties
Individual Property Report

Property Name	60th Street Bridge over US-31
Site ID	P62325
Other Name(s)	03103032000S010
Resource Type	Structure
Street Address	60th St over US-31
City/Township, State, Zip Code	Laketown Township, MI 49423
County	Allegan
Lat: 42.73929	**Long:** -86.13632

Architectural Information

Significant Dates	1964
Architectural Style	
Foundation Materials	
Exterior Wall Materials	
Roof Materials	
Architect	Michigan State Highway Department
Historic Use	
Current Use	

Eligibility

Current National Register Status	Not Eligible for Listing in the National Register of Historic Places
National Register Listed Date	
National Register Criteria	A. No B. No C. No D. No
Criteria Considerations:	a. No b. No c. No d. No e. No f. No g. No
Area(s) of Significance	
Period(s) of Significance	

Narrative Architectural Description

steel stringer

The skewed, 4 span, 300'-long steel stringer bridge has state-standard 1-rail-high concrete railings with tubular handrails, concrete deck, welded built-up beams, and is supported on reinforced concrete bents. It appears to be complete.

Statement of Significance

The simple-span built-up steel stringer bridge built in 1964 by the state highway department as part of the development of US-31 as a limited-access highway has no innovative or distinctive details. It is a later example of its type and one of the over 500 simple-span steel stringer bridges in the state built from 1956 through 1966. Steel stringer bridges were favored for their economies of initial cost, construction and maintenance, and they dominated pre-1967 bridge construction in the state and nation. Steel stringer bridges were very popular with both state and county engineers and are the most common pre-1967 bridge type/design in Michigan. The bridge is not historically or technologically significant.

Site Assessments

Site Assessment	Site Assessment Date	Assessment Made By	Argus Assessment Made By
determined NR ineligible by staff	1/1/2007		2007 MDOT bridge survey

References

McCahon, Mary; Joseph J. Pullaro; Hamid Homaee; Betty Zelinsky; J. Patrick Harshbarger; Susan Hufnagel; Laurie Pollock; Charles K. Hyde; Kristin L. Jackson; Albert Kaltenhaler; Peter Johnson; Nathan Holth., Final Report: Michigan Historic Bridge Inventory Update,Transystems, Lichtenstein, 2008

Michigan SHPO Architectural Properties
Individual Property Report

Property Name	Felt, Dorr E., Mansion
Site ID	P5653
Other Name(s)	Shore Acres Farm,Saint Augustine Seminary,Dorr E. Felt Mansion
Resource Type	Complex
Street Address	6957 138th Ave
City/Township, State, Zip Code	Laketown Township/Laketown, MI 49423
County	Ottawa
Lat:	**Long:**

Architectural Information

Significant Dates	1926-1927, 1930
Architectural Style	Classical Revival,Georgian
Foundation Materials	Concrete
Exterior Wall Materials	Brick,Stone: Limestone
Roof Materials	Stone: Slate
Architect	Frank P. Allen and Son
Historic Use	DOMESTIC/multiple dwelling,GOVERNMENT/correctional facility,DOMESTIC/single dwelling
Current Use	VACANT/NOT IN USE

Eligibility

Current National Register Status	Listed in the National Register of Historic Places
National Register Listed Date	12/12/1996
National Register Criteria	A. No B. Yes C. Yes D. No
Criteria Considerations:	a. No b. No c. No d. No e. No f. No g. No
Area(s) of Significance	Industry,Architecture
Period(s) of Significance	1926-1930

Narrative Architectural Description

The Dorr E. Felt Mansion is a large three-story, gable-roof, brick dwelling. The foundation is of concrete and the frame of steel and concrete. The building, designed on a rectangular Georgian floor plan, is composed of a six-bay main body flanked by four-bay wings. Three pedimented wooden dormers extend out from the central roof. The Classical Revival style is evident in the cornice with returns and dentils which runs around the top of the masonry beneath the eves. The door displays strong classical influence with its sidelights and limestone portico supported by Tuscan columns and topped by a limestone balustrade. Decorative limestone panels with a garland motif are found between the first and second stories of the main body of the house.

Statement of Significance

The Dorr E. Felt Mansion is not only an outstanding example of early Roman Republic-inspired, Classical Revival architecture, but also the summer home of Chicago businessman Dorr Eugene Felt, inventor, entrepreneur, and statesman. The design of the mansion by the Grand Rapids firm of Frank P. Allen and Son and its construction as a summer home for the Dorrs in 1927 reflected a trend among wealthy Chicagoans in the early twentieth century to establish summer estates along Lake Michigan's east shore. Felt developed a calculating machine, the "Comptometer," which was one of the first actually able to calculate numbers in a complex fashion. Felt also served

as a regional director for the War Industries Board during World War I and was later appointed Director of the United States Chamber of Commerce. After his death in 1930, the estate was sold in 1949 to the Augustinian Order of the Catholic Church, first for use as a convent for cloistered nuns and then as a seminary. In 1977, the seminary was purchased by the State of Michigan and used as a medium security prison until 1988. The property is currently owned by Laketown Township which hopes to develop it into a self-sustaining enterprise.

Site Assessments

Site Assessment	Site Assessment Date	Assessment Made By	Argus Assessment Made By
Listed in the National Register of Historic Places	12/12/1996		NPS

References

Arnold, Amy L., Felt, Dorr E., Mansion National Register of Historic Places Registration Form,, 1996
Hicks, Gary L., Felt, Dorr E., Mansion Quitclaim Deed,, 1996

Michigan SHPO Architectural Properties Individual Property Report

Property Name	Grand Rapids, Holland and Chicago Railway Bridge over Kelly Creek
Site ID	P66244
Other Name(s)	
Resource Type	Structure
Street Address	4750 66th St
City/Township, State, Zip Code	Laketown Township, MI 49423
County	Allegan
Lat: 42.76517	**Long:** -86.19756

Architectural Information

Significant Dates	1914, built
Architectural Style	
Foundation Materials	Concrete
Exterior Wall Materials	
Roof Materials	
Architect	
Historic Use	TRANSPORTATION/rail-related
Current Use	VACANT/NOT IN USE

Eligibility

Current National Register Status	More Information Needed/Unevaluated
National Register Listed Date	
National Register Criteria	A. No B. No C. No D. No
Criteria Considerations:	a. No b. No c. No d. No e. No f. No g. No
Area(s) of Significance	
Period(s) of Significance	

Narrative Architectural Description

This is a three-span reinforced concrete bridge spanning Kelly Creek on the roadbed of the former Grand Rapids, Holland and Chicago Interurban Railway. Each span appears in the shape of a skewed boxed culvert. The date "1914" is stamped into the concrete centered in the middle span. The bridge is a single-track in width and is accessed by elevated earthen roadbed in both directions. As of 2021 the bridge has deteriorated, due in part to an apparent flood ca. 2010.

Statement of Significance

In 1913, the Grand Rapids, Holland and Chicago interurban realigned the northern portion of their route between Saugatuck and Holland further west, toward the amusement park and resort community of Jenison Park, near the mouth of Lake Macatawa on the south shore. As part of this reroute, the tracks needed to cross Kelly Creek, to the immediate west of the corner of 66th Street and Partridge Lane. The railroad constructed this three-span concrete bridge in 1914. Interurban service ended 1926. The land surrounding the bridge was later acquired by Laketown Township for Sanctuary Woods Park. The bridge has suffered deterioration due to flooding and other damage. This is believed to be the only remaining structure in-situ from the Saugatuck-Holland branch, and one of the few that remains from the entire Grand Rapids, Holland and Chicago line.

Site Assessments

Site Assessment	Site Assessment Date	Assessment Made By	Argus Assessment Made By
More Information Needed / No Determination Made	2/16/2011		Bob Christensen

References

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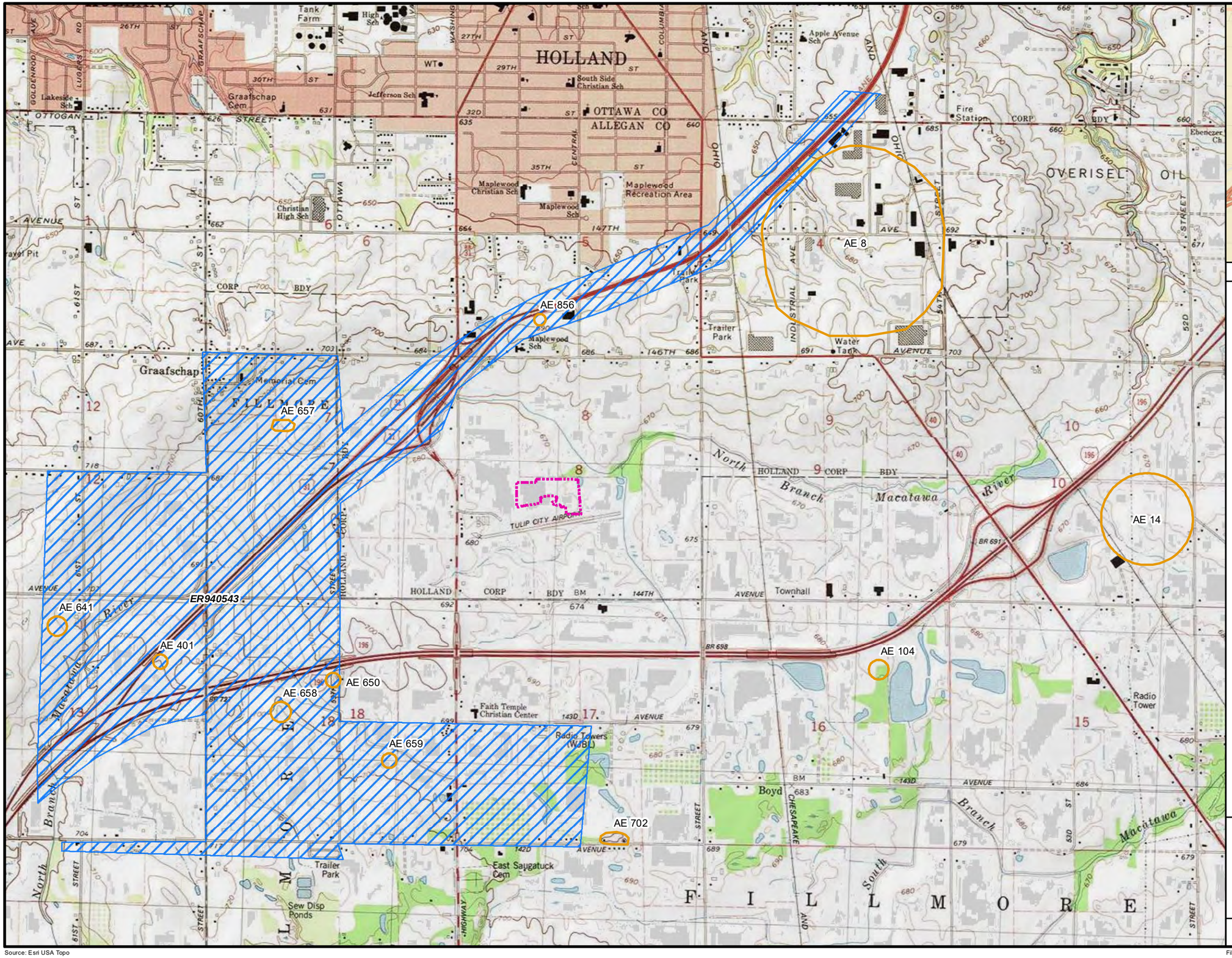
Appendix G. Archaeology Sensitivity Map



Site Location Map

Legend

- Study Area
- Previous Survey
- Site

N

0 1,000 2,000 4,000 Feet

West Michigan Regional Airport BIV

Archaeological Sensitivity Map (Not for Public Distribution)

Lawhon & Associates, Inc.

Date:	Approved by:	L&A No.	Figure
Jan 2023	AS	21-0533	0

Source: Esri USA Topo

File Name: Archaeo Sensitivity.mxd Edited: 1/24/2023 By: dwilliams

Appendix H. Archaeology Survey Report

PHASE I ARCHAEOLOGY SURVEY

Corporate Hanger Park Expansion
West Michigan Regional Airport
Allegan County, Michigan
L&A Project No: 21-0553

Prepared by:
Lawhon & Associates, Inc.
1441 King Avenue
Columbus, Ohio 43212
September 30, 2022

Prepared for:
Mead & Hunt, Inc.
2605 Port Lansing Road
Lansing, Michigan

Phase I Archaeology Survey for the Proposed Corporate Hanger Park Expansion at West Michigan Regional Airport in Allegan County, Michigan

by

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Practice Leader, Cultural Resources

September 30, 2022

0.1 ABSTRACT

In August of 2022, Lawhon & Associates, Inc., conducted a Phase I archaeology survey of an approximately 17-acre (7 ha) site proposed for a corporate hanger expansion at the West Michigan Regional Airport (BIV) in the City of Holland, Allegan County, Michigan. The Federal Aviation Administration is the lead agency for the undertaking. The literature review indicated that the project area had not previously been surveyed and there are no recorded cultural resources within the APE. The airport plans to expand through the addition of a corporate hanger park north of the recently built FlightLevel building. The expansion is phased, with the current survey focused on the phase that will have corporate hangers and associated aprons.

The survey involved subsurface testing and visual inspection. A total of 17 STUs and 50 shovel probes were excavated. No archaeological sites were identified. The archaeological survey confirmed the previously disturbed nature of the project area. There is no potential to encounter archaeological sites in this location and no further archaeological investigations are recommended.

0.2 TABLE OF CONTENTS

0.3 LIST OF FIGURES

0.4 LIST OF TABLES

0.5 LIST OF PHOTOS

APPENDICES

1.0 INTRODUCTION

Lawhon & Associates, Inc. (L&A), under contract with Mead & Hunt, Inc., conducted a Phase I archaeology survey of an approximately 17-acre (7 ha) site proposed for a corporate hanger expansion at the West Michigan Regional Airport (BIV) in the City of Holland, Allegan County, Michigan (Figures 1-3). The airport plans to expand through the addition of a corporate hanger park north of the recently built FlightLevel building. The expansion is phased, with the current survey focused on the phase that will have corporate hangers and associated aprons (Appendix A). The Federal Aviation Administration is the lead federal agency for this project.

The Area of Potential Effects (APE) is different for each project. According to 36 CFR 800, the area of potential effects is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking." The APE considers the effect that the proposed project will have on the project area itself and on the areas surrounding the project. Direct effects are typically equivalent with the construction footprint of the project but may also include the change of setting to the landscape that may affect resources outside the construction footprint. Indirect effects are impacts that may occur to resources outside of the construction footprint that could result in a lessening of integrity to significant resources. For example, rerouting of a stream could theoretically increase erosion elsewhere along its course, affecting a nearby archaeological site, or the improvement of a road intersection could make an area more attractive for development, irreversibly changing the character of a historical agricultural landscape. Cultural resources surveys are typically concerned with direct effects; however, any project action that may result in an indirect effect would need to be considered in evaluating the effects of a project on cultural resources.

The APE for this project consists of the construction limits for this project to account for direct physical effects to cultural resources (e.g., archaeological sites) that may be present within the project area. This area includes part of the developed airport facility, a retaining pond/ditch drainage system, an open grassy field north of the parking lot, and part of an agricultural field. Mead & Hunt has conducted a survey of the project for effects on historical resources; this report thus does not account for them except to note if any previously recorded historical resources are within the APE for direct effects. Therefore, the APE is confined to the project limits.

L&A conducted the archaeological investigations for this project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1992, U.S.C. 470f. The Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (1985) are the standards and guidelines used to develop survey methods. This document meets the standards established by the Advisory Council of Historic Preservation and the new Section 106 (36 CFR Part 800) regulations that went into effect on January 11, 2001. The goals of this

survey are to determine whether archaeological resources exist within the project area, and to determine whether any identified resources are eligible for inclusion in the National Register of Historic Places (NRHP).

L&A conducted the archaeological fieldwork on August 31 and September 1, 2022. The field crew included Justin Zink, Paolo Panunzio, and Ryan Killion. Justin Zink served as the Principal Investigator. Andrew Sewell served as the primary report author. The following report describes the research design, methods, and results of the literature review and field survey for this project. The results presented in this report are based on information collected from various literature review resources as well as photographs and field records resulting from this study.

2.0 RESEARCH DESIGN

This research design presents a framework within which the Phase I survey was conducted. The purpose of the Phase I survey is to identify any cultural resources that will be affected by the proposed project, typically consisting of archaeological deposits and architectural resources 50 years or older. Once cultural resources are identified, the principal investigator evaluates each archaeological site or historic resource for characteristics of integrity and significance, which are important factors in determining eligibility of each resource for the National Register of Historic Places (NRHP). To be listed in the NRHP, a property must be significant to one or more aspects of American history, architecture, archaeology, or culture. For a property to be considered eligible, it must meet at least one of the following criteria:

(A) be associated with events that have made significant contributions to the broad patterns of our history; or,

(B) be associated with the lives of persons significant in our past; or,

(C) embody the distinctive characteristics of type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or,

(D) have yielded, or be likely to yield, information important to prehistory or history.

In addition to meeting one or more of the above criteria, a property must also possess integrity, which is how a property conveys authenticity through the survival of physical characteristics associated with the period of significance for the property. Cultural resource management (CRM) professionals evaluate integrity according to the following aspects: location, design, setting, materials, workmanship, feeling, and association. A property considered eligible for the NRHP will always display several, if not all, of the aspects of integrity. Aspects of integrity are discussed below (Little et al. 2000).

1. Location – the place where the historic property was constructed or the place where the historic event took place.

2. Design – the combination of elements that create the form, plan, space, structure, and style of the property.
3. Setting – the physical environment of a historic property.
4. Materials – the physical elements of a property. The property must retain the key exterior materials dating from the period of significance.
5. Workmanship – the physical evidence of the crafts of a culture during any given period in history.
6. Feeling – a property's expression of the aesthetic or historic sense of a period.
7. Association – direct link between an important historic event of person and a historic property.

CRM professionals typically evaluate Architectural resources under NRHP Criteria A-C and archaeological sites under NRHP Criterion D. However, certain archaeological sites can also be eligible under Criteria A-C. For an archaeological site to be eligible for the NRHP, it must have the potential to yield data important in answering specific research questions important to the understanding of the past, and it must display enough physical integrity to allow proper evaluation of that data. If archaeologists cannot recover sufficient data during the Phase I survey to determine the eligibility of the resource, more intensive work may be required to determine the eligibility of the resource and consequently, the effect of the project on the resource. The principal investigator designed the Phase I survey to answer the following general set of questions:

1. Has the project been subjected to previous cultural resources investigations and are there any previously recorded sites or resources located within or immediately adjacent to the project?
2. What is the likelihood of identifying previously unrecorded cultural resources within the project? Where are these cultural resources most likely to occur?
3. Will the proposed project affect any cultural resources (archaeological or above ground structures)?
4. If cultural resources will be affected, are any of those affected resources listed, eligible, or require further study for inclusion on the National Register of Historic Places?

3.0 ENVIRONMENTAL SETTING

The environmental setting contextualizes the cultural investigations within the natural environment. Since environmental factors influenced much of pre-contact activity, either directly or indirectly, the environmental setting contributes to the understanding of behaviors exhibited by the former inhabitants of an archaeological site. Environmental and geographical conditions affected the function, social status, and productivity of historical sites as well, among other factors. Understanding the environmental setting is a key element of the interpretation of archaeological sites.

3.1 CLIMATE

Allegan County is in the moist continental mid-latitude climate zone, having cold winters and cool to warm summers. The annual rainfall in the county is approximately 37 inches, with most falling in May. Average snowfall is about 70 inches, with most falling in January (US Climate Data 2022).

3.2 PHYSIOGRAPHY AND GEOLOGY

The project area in Allegan County is in the Fruit Ridge Terrain division of the Southern Lower Peninsula Hills and Plains physiographic region (Department of Geology, MSU 2022). The topography within this part of the county consists of a rolling landscape with glacial features. The geology of the region consists primarily of the Mississippian-age Coldwater Shale (MDNR 2001). The glacial till that dominates the area generally consisted of material dating to the late (Wisconsin) glacial advance.

3.3 SOILS

The project area is located within the Capac-Rimer-Pipestone soil association (USDS SCS 1987). The association contains nearly level to undulating, somewhat poorly drained soils on moraines, outwash plains, till plains, and lake plains, and mainly consists of the Capac soil series, with lesser amounts of Rimer, Pipestone, Brookston, Oakville, and Marlette soils.

Three individual soil types are present within the APE (Figure 4). The following soil descriptions are from the USDA NRCS web soil survey (2022). Most of the project is within a large area of Capac-Wixom complex soils, 1–4 percent slopes (map unit 21B). Capac soils are a somewhat poorly drained loam, formed from loamy till on moraines, while Wixom soils are formed from sandy drift over loam till on lake plains; in this complex, these two soils co-occur in the same small areas to the point that mapping them separately is impractical (USDS SCS 1987). Smaller portions of the project area contain Brookston loam, 0–2 percent slopes (map unit 17), which is a poorly drained soil formed in loamy till in drainageways and depressions and on moraines and till plains; and Belleville-Brookston complex (map unit 64), a poorly drained soil complex formed from sandy glaciofluvial deposits over loamy till on till plains.

3.4 HYDROLOGY

The project area is in the Macatawa Drainage, associated with the Macatawa River located 3.5 miles north of the project area. The project area itself is drained by the North Branch Macatawa River, located 420 feet (128 m) northeast. Analysis of soil types within the project area suggests that the project area may have seasonally wet, prior to land clearing and drainage programs in the nineteenth and early twentieth centuries.

3.5 FLORA AND FAUNA

Prior to settlement in the region, natural phenomenon such as glaciations during the Pleistocene and the associated climate changes had a major effect on plant

and animal communities (Anderson and King 1976). As the glaciers retreated and the climate warmed, tundra ecosystems with their characteristic plant and animal life retreated north, and forests covered much of Michigan, bringing with them an entirely different community of life.

The modern animal and plant life in the county bears little resemblance to those present prior to wide-scale nineteenth century settlement in the region. These changes are attributable to habitat loss and change, purposeful extirpation of predators, unchecked hunting, and introduction of non-native species. Early settler accounts of the region provide useful information on the original ecosystem of this part of the state, supplemented by information from the archaeological record. The earliest recorded land surveys classified the natural vegetation in this region as beech-sugar maple-white pine forestation (Department of Geology, MSU 2022).

The modern pattern of land use has altered historical animal and plant community distributions and populations. The fauna historically inhabiting the general region of the survey area included several species of mammals, birds, reptiles, amphibians, and fish. Many species are no longer present due to the drastic habitat changes in the region, competition with invasive species, and historical periods of overhunting (Anderson and King 1976).

In summary, the environmental information indicates a rich pre-contact environment with a variety of resources. A variety of plants characterized a diverse floral environment exploitable by humans and animals. Animal life provided a source of protein and raw material for clothing and tools. All these factors indicate that this area possesses potential for the presence of archaeological sites, although the poorly drained nature of the soils suggests the project area would not have presented ideal characteristics for long-term precontact habitations.

4.0 LITERATURE REVIEW

The literature review study radius is 2 km (1.25 mi) from each exterior corner of the proposed project limits. This size is usually adequate to provide the necessary contextual information regarding previously identified cultural resources and historical information on the project area. The report author examined following sources from the State Historic Preservation Office and various online resources.

1. Hinsdale’s 1931 Archaeological Atlas of Michigan
2. Michigan Archaeological Site Files
3. Contract Cultural Resource Management reports
4. National Historic Landmark listings
5. NRHP listings and nomination form files
6. USGS 7.5’ and 15’ series topographic maps, historical aerial photographs, and Allegan County historic atlases

The *Archaeological Atlas of Michigan* (Hinsdale 1931) does not indicate any precontact resources within or adjacent to the project (Figure 5). The closest resource was a mound approximately 1.5 miles to the northwest.

The Michigan Archaeological Site Files indicate that there are no previously recorded archaeological sites within and/or adjacent to the project. There are an additional 4 previously recorded archaeological sites within the 2 km study radius for the project; these resources will not be impacted by the undertaking (Table 1). The recorded sites are of unknown precontact affiliations and represent an ephemeral occupation of the landscape, which is in keeping with the poorly drained soils in this region.

Table 1. Previously Recorded Archaeological Sites within the Study Radius

Site #	Site Type	Temporal Affiliation
20AE650	Isolated find	Unassigned Precontact
20AE657	Lithic scatter	Unassigned Precontact
20AE659	Lithic scatter	Unassigned Precontact
20AE856	Isolated find	Unassigned Precontact

A review of the contract CRM reports indicated that the project area has not previously been surveyed for cultural resources (Figure 6). The only previously documented survey indicated on SHPO maps are under project ID ER-940543, which covers surveys for a proposed realignment of US 31 between Holland and Grand Haven (Dunham et al. 1999).

There are no recorded Michigan SHPO Architectural Properties in the project area and there are no recorded properties in the 2 km study radius with visibility to the project area.

Examination of available historical maps dating to the mid-nineteenth century allows for a reconstruction of landscape history and can identify the potential for historical sites within a project area. The earliest available map is the 1873 plat for Fillmore Township (Lake 1873). This map (Figure 7) shows the project area on the farm of K. V. R. Breen, whose farmhouse was located west of the project area along the original alignment of Washington Avenue where the Crown Motors Honda building is today, and on the C. Lokker property where no structures are indicated. No development is indicated in the project area. The next available map is the Kace Publishing Company county atlas of 1895 (Figure 8). This map shows the project area divided between land owned by A. Van Zanten to the north and I. Koeman to the south. As before, there are no buildings indicated within the project area. The 1928 USGS map shows no development in the project area, which was likely used for agriculture (Figure 9). The most recent USGS map is from 1981 and shows the Tulip City Airport (the predecessor to the West Michigan Regional Airport), with only one building present on this map that correlates to anything at the modern airport (See Figure 2).

Aerial photographs depicting the project area (NETR 2022; Google Earth) shows the development of the area dating back to 1947. The aerial photography series from that year through 2012 show the project area as undeveloped, with most of the area in agricultural production and the southeast part as part of the airport

property by 1997. The first developed airfield, the Tulip City Airport, is present in the 1969 aerial photograph. The small airstrip was widened by the 1980 photograph, and then completely replaced by the modern configuration of runways by 1997. The 2016 aerial photograph from Google Earth shows the construction of the FlightLevel Aviation building just outside the project area; more importantly, this image shows extensive earthmoving disturbance throughout nearly the entire project area, including the excavation of the retention pond (Figure 10). Only a small area north of the pond appears untouched. In subsequent photographs, much of the disturbed area was returned to cultivation after the completion of construction activities.

5.0 CULTURAL SETTING

The historic context provides a framework for evaluating the integrity and significance of any identified cultural resources. The principal investigator uses the context to assess a sites' ability to contribute to the existing historic knowledge of a region. The report authors derived the following contexts from previously reported information from throughout the region and identified in the immediate area through previous archaeological and historical research. While not all these contexts may be identified within the project area during the survey, the established contexts are presented in chronological order to understand the relationships between different temporal periods and the continuum of cultural development that occurred in this area. It should be noted that these periods are defined through cultural expressions, and that the ranges of time associated with each period will likely overlap in different parts of the region, as some pre-contact groups may not have adapted a new cultural expression at the same time as other groups, or indeed even at all.

5.1.1 PALEOINDIAN PERIOD

Archaeologists estimate that occupation of the Lower Peninsula of Michigan would have been possible by approximately 11,500 B.C. to 11,000 B.C. By this time, the glacial front that had once covered the peninsula had retreated into the Upper Peninsula/Lake Superior region. The Paleoindians, the first known prehistoric population to occupy Michigan, were highly mobile, small-band hunters moving on a seasonal basis in order to more fully exploit available natural resources (Dragoo 1976), and carbon dated evidence for their presence in the Lower Great Lakes region suggests occupations as far back as far as 10,500 B.C. (Carr 2012). The Paleoindians were opportunists willing to use a broad spectrum of animal and plant resources, and with a fluctuating post-glacial environment, both in terms of climate and ecological communities, they had to adapt to exploit a variety of environments from tundra to wetlands. Analysis of pollen data and plant macrofossils suggest that tundra conditions in the late Pleistocene Midwest were constricted to the glacier margins, with differing ecological regimes advancing quickly northward as the glaciers retreated. Specifically, spruce-sedge parkland environments dominated the immediate post-glacial landscape for about 2000 years after the last glacial maximum, then rather quickly replaced by pine and then oak forests in the Lower Peninsula. Within this set of environmental conditions, a great diversity of

animal species flourished, including several species that would have represented important game animals for human predation, such as mastodon, mammoth, ground-sloths, musk-ox, elk, caribou, and smaller game species.

One popular hypothesis about Paleoindian subsistence strategies is that they were primarily herd-followers, tracking caribou across the post-glacial landscape. Carr (2012) points out that such hypotheses are largely based on ethnographic analogy and not on hard data reflecting actual Paleoindian subsistence strategies. He points out that there is a general lack of such data for the lower Great Lakes and posits that this reflects Paleoindian site selection strategies that correspond to locations with poor long-term preservation characteristics. Instead, Carr lays out a hypothesis that Paleoindian hunters employed a herd-intercept strategy oriented along lake shores, moving to key locations where caribou herds would be found at certain points of a season, rather than seasonal relocation of a group to be within the summer and winter ranges of a single herd. People practicing the herd-intercept strategy would rely on storage and secondary protein resources when caribou were scarce. Carr suggests Paleoindian bands were residentially mobile within large territories exceeding 20,000 km², and notes the absence in the archaeological record for definitive evidence of periodic large aggregations of individual bands, which has occurred elsewhere in the Eastern Woodlands (Bull Brook, Massachusetts, for example).

Specific Paleoindian complexes in the lower Great Lakes include Gainey (9500–9000 B.C.), Parkhill (9000–8400 B.C.), Crowfield, and Holcombe (both occurring after 8400 B.C.). Shott and Wright (1999) also note the ephemeral presence of a Mid-Atlantic Paleoindian phase contemporary with Clovis called the Enterline phase, which is known in Michigan only from one site in Saginaw County, and is quite possibly a local variant of Gainey instead of representing Enterline. The Gainey complex, taking its name from an important site in southeast Michigan, is represented by large fluted points with parallel sides, similar to western Folsom points, and accompanied by triangular end scrapers, side scrapers, and gravers (Carr 2012; Shott and Wright 1999). The Parkhill complex was identified from a series of sites in southern Ontario and are identified through the presence of Barnes fluted points. Groups associated with the Parkhill complex are thought to have had a residential preference for the shore margins of Glacial Lake Algonquian, and occupied much smaller territories than Gainey people; a large territory between Jackson and Alpena is posited to have been one such territory covering the eastern Lower Peninsula, albeit without much supporting evidence (Shott and Wright 1999). Parkhill toolkits show an increasing diversity of tool forms over preceding Gainey kits. The Crowfield and Holcombe complexes represent the end of the Paleoindian period, with many Holcombe points being either poorly fluted or in some cases, simply being basally thinned in place of fluting. Few examples of the Crowfield complex have been identified in Michigan, being more of an eastern Great Lakes phenomenon. Holcomb complex sites are mainly restricted to southeastern Michigan (Shott and Wright 1999).

Small lithic scatters and isolated finds of diagnostic fluted projectile points characterize the archaeological record of Michigan's Paleoindian period; such points including Clovis, Holcombe, Cumberland, Plainview, and Agate Basin types. Unfluted Hi-Lo points are also a diagnostic point for the period in Michigan (Justice 1987; Carr 2012); although some archaeologists prefer to assign these points to the initial Early Archaic (Shott 1999). Paleoindian groups in Michigan are noted for a heavy reliance on Onondaga, Bayport, and Fossil Hill cherts, with early Gainey phase people also using exotic Upper Mercer chert from east-central Ohio (Carr 2012; Shott and Wright 1999). Notably, Paleoindian groups appear to have focused on single sources of lithic raw material, so that lithic types may be an identifier for a band territory.

5.1.2 ARCHAIC

A period of significant environmental change ensued as the glaciers retreated northward at the end of the Pleistocene. The climate became temperate. Large-game species, such as mastodon, became extinct, and the deciduous forest common today developed, replacing the boreal-coniferous forests. The Archaic period encompasses the notable human adaptations and settlement practices developed in response to the changing environment (Ford 1974). Artifact assemblages from Archaic sites show a wider range of tool types in comparison to the preceding Paleoindian period, some of which have specialized functions for the processing of a wider variety of plant and animal resources (Griffin 1967). Although all Archaic-period human groups exhibited characteristics of classic hunter-gathering lifestyles, environmental differences led to regionally distinctive artifact assemblages by the end of the period, which might reflect the evolution of culturally distinct human social groups (Dragoo 1976).

Changes in human social organization occurred concurrently with expanding food procurement strategies. In eastern North America, organizational changes generally included restricted group mobility, larger aggregations of individuals, development of ritual behavior, development of inter-regional exchange systems, and the first attempts at plant domestication (Ford 1974). Other results included smaller group territories, sites occupied for longer periods, reuse of sites at more frequent and probably more regular intervals, and the use of a wider variety of plants and animals. Storage facilities and vessels also appeared more frequently in Archaic sites, as well as evidence for early cultivation of some plant species. Archaic developed burial ceremonialism and other ritual behavior and showed signs of becoming formalized in some regions. Ritual activity might be linked to the establishment of social group identities, the maintenance of territorial boundaries, and the regulation of intergroup alliances and trade. However, archaeologists are still trying to adequately test this proposition.

Research has shown the progression of these adaptations through the Archaic period (ca. 8000 B.C. to 1000 B.C.), resulting in the subdivision of time into three distinct temporal periods: Early, Middle, and Late Archaic. Some general traits, such as basal styles of projectile points, are common throughout all three Archaic

sub-periods, so some Archaic sites cannot be classified to one of these three periods.

Early and Middle Archaic sites are somewhat rare in Michigan, which was once attributed to an actual general absence of people during that time in the region. However, recent studies suggest that fluctuations in glacial meltwater lake levels in the early Holocene may have resulted in contemporary sites being either flooded or deeply buried under alluvium, as lake levels were considerably lower than at present.

5.1.2.1 EARLY ARCHAIC

During the Early Archaic period (8000 B.C. to 6000 B.C.), small mobile groups gradually became more geographically restricted as seasonally oriented hunting-and-gathering activities were focused on smaller, well-exploited territories. This reduction in territory size and mobility is a direct link to the expansion of the deciduous forests that produced a more favorable habitat for game species (Chapman 1975). Although hunting was the major subsistence activity, Early Archaic people also used a narrow spectrum of nutritious plant foods (Chapman 1975; Cleland 1966). This expansion of the subsistence base correlates with a change in material culture. Early Archaic hunters switched from lanceolate spear points, ideal for hunting larger animals, to a series of smaller, more diversified notched and stemmed projectile points, scrapers, knives, drills, and ovoid blades. Woodworking and food preparation tools first appear in the tool assemblage during the Early Archaic period. These tools included axes, adzes, mortars and pestles, awls, gouges, and grinding stones (Chapman 1975; Jennings 1968). Sites were small and scattered, largely discovered through surface collection, and usually located in uplands near secondary stream valleys (Benchley 1975).

Early on, Early Archaic bands in Michigan practiced a lifeway fairly like preceding Paleoindian groups, and sites from this part of the period are classified as the Plano tradition. Indeed, some archaeologists place Plano as a Paleoindian manifestation characterized by a loss of fluting in projectile point technology (Justice 1987). It seems likely that Plano and Dalton types of points are reflective of gradual change, rather than demarking any sharp divisions between the Paleoindian and Early Archaic periods, and thus may best be discussed as Paleoindian/Early Archaic. The Plano tradition dates to ca. 8000–7500 B.C. and is characterized by Hi-Lo projectile points (Shott 1999).

The succeeding Kirk tradition dates to ca. 7500–6000 B.C. and is notable for the first occurrence of notched and stemmed bifaces, variously attributable to Palmer, Kirk Corner-notched, Kirk-stemmed, St Albans, Kanawha, and LeCroy types (Shott 1999). This change represents an abrupt change in lithic technology from preceding lanceolate forms, with a concurrent increase in use of exotic Ohio lithic materials. This change may be correlated with movement of new groups into Michigan from Ohio, although such interpretations do not suggest what happened with the Plano people already present. Shott (1999) posits a viewpoint that suggests bands belonging to the Plano and Kirk traditions overlapped in territory and interacted with each other. Indeed, he notes that while there is a relative

explosion in biface form diversity, the overall toolkit for Early Archaic peoples shares many characteristics with late Paleoindian and subsequent Archaic groups.

5.1.2.2 MIDDLE ARCHAIC

During the Middle Archaic period (6000 B.C. to 3000 B.C.), floral communities diversified as the overall climate warmed and stabilized, allowing for a broader selection of food and material for use. However, Middle Archaic people still appear to have emphasized hunting within an increasingly sedentary lifestyle (Cleland 1966). In lower Michigan, there is a debate as to whether the local environment could support a large population of hunter-gatherers. Boreal forests may not have developed sufficient mast-bearing species to support a new regime of large mammals, and stream flows may have been too rapid to support large fish populations. Nonetheless, extensive, productive marshes along the relict margins of Lake Algonquin in southeastern Michigan may have been well-exploited by Middle Archaic bands, and many of Michigan's Middle Archaic sites are found in the that region (Lovis 1999). As well, pollen studies indicate that oak, maple, and elm had begun to establish themselves in southern Michigan by 5000 B.C. It may simply be that Michigan Middle Archaic populations were largely focused on shoreline habitats that are now underwater, thus introducing a significant bias in typical survey results. In addition, Middle Archaic groups are suggested to have practiced a long-distance logistic mobility strategy that would spread evidence of Middle Archaic people thinly over a landscape, moving between shoreline residential camps and upland logistical sites (Lovis et al. 2005); such a strategy, where people are normally occupying sites on a very short-term basis, would also help to explain the low density of Middle Archaic sites.

Middle Archaic material cultural reflects the change in economy as well, adapted to intensive exploitation of forest and riverine environments. Some researchers divide the Middle Archaic in the Great Lakes into two horizons based on projectile point morphology (Stothers et al. 2001). The first horizon is the Weak-Stemmed Point Horizon (6000–3800 B.C.), with points such as Morrow Mountain and Stanly Stemmed; the second horizon is the Side-notched Point Horizon (3800–2000 B.C.), associated with points like the Raddatz, Matanzas, Otter Creek, and Brewerton styles (Lovis 1999). Of note is the overlap of Brewerton points between the Middle and Late Archaic periods. Plant-processing tools included a variety of ground stone implements, grooved axes, metates, and nutting stones. Bone tools such as awls and fishhooks also appear in Middle Archaic assemblages. Atlatl weights and bone tools first appear in the archaeological record elsewhere in the Midwest and Northeast (Broyles 1971; Lewis and Lewis 1961). These types of groundstone tools are curiously absent from Michigan Middle Archaic sites, but this may be a bias resulting from the overall scarcity of Middle Archaic sites formally excavated in the state (Lovis 1999; Stothers et al. 2001).

Although Middle Archaic sites tend to be rare, one important site in Michigan is the Weber I Site (20SA581) in the Saginaw River Valley (Lovis 1999). This site exhibited stratified Middle Archaic and Late Archaic deposits and provided

evidence for Middle Archaic subsistence strategies, specifically focusing on hunting elk and deer while gathering nuts and berries (Smith and Egan 1990).

5.1.2.3 LATE ARCHAIC

In contrast to the preceding Middle Archaic period, the Late Archaic (3000 B.C. to 500 B.C.) is a highly visible manifestation in Michigan's archaeological record. Group ceremonialism increased in importance, as demonstrated by more elaborate, formalized burial practices and the presence of exotic materials obtained from emerging trade networks. Scheduled harvesting of seasonal, available plant and animal resources climaxed in the Late Archaic (Caldwell 1964). Coinciding with an increase in territorial permanence was the first appearance of regionally distinct human culture groups in Michigan (Cleland 1966). Late Archaic lifeways in the northern parts of the state (the Upper Peninsula and northern Lower Peninsula) persisted well into what would be considered the Early Woodland period in more southerly regions, with pottery only appearing around A.D. 0. Late Archaic people were organized into seasonally mobile bands, likely in the range of 25-30 people. There likely were population aggregations in the winter months with dispersal in the warmer seasons, perhaps down to single-family groups. There is limited evidence for Late Archaic houses available in the archaeological record of Michigan.

In Michigan, the levels of the Great Lakes were much higher than today, but also fluctuated considerably over the course of the period. In the Late Archaic period, the expansion of deciduous forests reached its northernmost limit (Cleland 1966). The vegetation communities present in the state had become modern (Roberston et al. 1999). Late Archaic people responding to the diverse and evolving ecosystems adapted varying ways of exploiting natural resources. Fishing was an important component of faunal exploitation. The Late Archaic period marks the first appearance of cultigens in the archaeological record. Archaeologists recovered chenopodium, sunflower, and gourd seeds dated to approximately 1500 B.C. from the Salts Cave site in Kentucky (Yarnell 1974), while other researchers have dated squash seed as early as 2300 B.C. in Missouri and Kentucky (Yarnell 1963). However, these Eastern Agricultural Complex (EAC) cultigens are not often found in Late Archaic contexts in Michigan (Robertson et al. 1999). Exploitation of local plant and animal resources, including aquatic species, became more efficient and broad-based in the Late Archaic period. The success of this subsistence strategy is shown by the recovery of charred botanical remains of a variety of nuts, including acorn, hazel, hickory, and black walnut. Fruit also was an important food resource, as demonstrated by the diversity of fruit seeds in archaeobotanical assemblages, such as wild grape, blueberry, raspberry, and strawberry (Dye 1977; Yarnell 1974). Late Archaic people exploited these resources as a seasonal round, with either longer, more extensive occupations or higher seasonal site fidelity only occurring in the Terminal Late Archaic. Specifically, spring occupations may have focused on fish runs, followed by summer camps for berry exploitation, fall camps for mast resources, and winter camps with a broad-based hunting focus. A general lack of sedentism may be attributable to the largely unreliable nature of the fluctuating

environmental conditions that typify most of this period (Robertson et al. 1999). It should be noted that caution must be taken with applying general statements about Late Archaic lifeways in Michigan, as the database of Late Archaic site information is heavily skewed towards the well-scrutinized Saginaw Valley region of southeastern Michigan.

Late Archaic people developed a wide array of specialized objects, including steatite and sandstone bowls, stone tubes and beads, polished plummets, net sinkers, whistles and rattles, birdstones, and boatstones, as well as awls, needles, and perforators made of bone (Chapman 1975). Brewerton series points are characteristic of this period (Ritchie 1961; Witthoft 1953; Robertson et al. 1999). In Michigan, broad-bladed stemmed points, such as Susquehanna, Adder Orchard, Perkiomen, and Genesee types, also are associated with the Late Archaic (Robertson et al. 1999). Interestingly, narrow projectile point styles that occur at Late Archaic sites in the eastern Great Lakes (Lamoka, Normanskill) are not associated with Michigan Late Archaic assemblages. By the end of the Late Archaic, projectile point style diversity increased, with the introduction of small, broad-bladed point types.These points are associated with types including Berrien Corner-notched, Oronoko Side-notched, Sodus Expanding Stemmed (Roberston et al. 1999). Turkey-tail points also occur in ceremonial contexts and in buried caches. By the very end of the period, Meadowood points begin to occur in Terminal Late Archaic contexts. Meadowood points do not occur with pottery on Michigan sites, although sites with Meadowood points are contemporary with Early Woodland sites in Ontario and elsewhere, suggesting that Meadowood points are associated with the end of the Late Archaic here. In southern Michigan, the transition to the Early Woodland is typified by Terminal Late Archaic point types showing up in association with Early Woodland deposits (Robertson et al. 1999).

Trade is demonstrated through the appearance of exotic materials in Late Archaic assemblages, and through the dating of certain prehistoric Lake Superior copper mining pits to this period. In addition, foreign cherts such as Wyandotte/Indiana Hornstone and Onondaga appear in Lower Peninsula assemblages, and ritual objects made from marine shell appear for the first time. However, the occurrence of such exotic materials is rare on Late Archaic sites, suggesting that trade was not intensive. Trade was likely a key component of maintaining social ties among related but widely dispersed groups. Trade may also have been one response to uncertain availability of resources related to subsistence, including food and animal hides for clothing. Notably, exotic trade items often are found in mortuary contexts. There are three distinct burial complexes associated with the Michigan Late Archaic: Old Copper, Glacial Kame, and Red Ochre (previously thought to represent entire cultures, but now more properly classified as distinct subcomponents of larger Late Archaic cultural practices). Old Copper Complex burials are largely found in the western Great Lakes, primarily Wisconsin, although there are documented occurrences in Ontario and Quebec to the east. The complex is eponymously named for the occurrence of copper artifacts with burials. Old Copper Complex burials are not documented from the Lower Peninsula. Glacial Kame burials are associated with exotic shell beads and gorgets, copper

beads, stone pipes, and birdstones, among other items. As the name indicates, Glacial Kame burials have commonly been found interred in kame landforms. Largely a southern Midwest expression, Glacial Kame burials are documented as far north as Cheboygan County. Evidence from Wisconsin documents interactions between people practicing Old Copper and Glacial Kame burial traditions. Finally, the Red Ochre burial complex is associated with the Terminal Archaic Meadowood cultural expression, which elsewhere is associated with the initial stages of the Early Woodland period (there are very few Early Woodland mounds in Michigan, obscuring the boundary even further between the Terminal Archaic and Early Woodland periods). Red Ochre burials take their name from the use of red ochre to cover the grave. Interments are flexed, accompanied by Turkey-tail blades, small ovate cache blades, copper artifacts, and tubular marine shell beads. As with Glacial Kame, Red Ochre burials have been documented in association with Old Copper culture burials at cemetery sites. It should be noted that not all Late Archaic burials conform to one of the three complexes, which are regional and may be sequentialized cultural expressions (Robertson et al. 1999). Of considerable interest is the observation that the increase in mortuary ceremonialism appears to halt with the commencement of the subsequent Early Woodland period.

5.1.3 WOODLAND PERIOD

W. C. McKern first described the Woodland period as an archaeological manifestation within the McKern Taxonomic System (McKern 1939), initially distinguishing it from the preceding Archaic period by pottery and ceremonial construction of earthworks and mounds. Griffin's work (1952) on the Woodland period defined three sub-periods: Early Woodland (1000 B.C–100 B.C.), Middle Woodland (100 B.C.–A.D. 500), and Late Woodland (A.D. 500–1200). Archaeologists still use the same basic system today, although current research suggests that adaptations and cultural traits assigned to each period are quite variable in both time and location. For example, in some regions of the Midwest, the cultural expressions associated with the Middle Woodland are not present, with Early Woodland practices persisting through time. Some Woodland period sites are identified solely through the presence of pottery or burial mounds; these sites are typically not assigned to one of the three sub-periods. Specific to Michigan, the Woodland period spans 800 B.C. to A.D. 1650 (Chivis 2003). Late Prehistoric cultural manifestations, such as Mississippian cultures, did not occur widely in Michigan; instead, Late Woodland cultural practices persisted to the Contact Period in large portions of the state, and Late Prehistoric groups appear confined to the southwestern Lower Peninsula, contemporary with Late Woodland people elsewhere in the state.

5.1.3.1 EARLY WOODLAND

The Early Woodland period in Michigan begins at different times in different regions in Michigan. In the southern Lower Peninsula, it extends from approximately 800 B.C. to A.D. 1, overlapping somewhat with the Middle Woodland period. Research in the Midwest demonstrates a general continuum from the end of the Archaic through the Middle Woodland for the intensification of

horticulture and the formalization and elaboration of mortuary practices (Dragoo 1976). However, Woodland people did not uniformly adapt these traits at the same general time, and some practices associated with Woodland people (such as mound building) are largely absent in Michigan. There are few Early Woodland mound sites in Michigan, Croton Carrigan Mounds in Newaygo County being one (Garland and Beld 1999). In general, Early Woodland peoples maintained a largely foraging-focused economy with gradual incorporation of plant cultivation, specifically sunflower and squash. Early Woodland sites are somewhat rare in Michigan, and often occur as part of multicomponent sites, with subsequent Woodland-period occupations.

To the south, archaeologists most closely associate the Early Woodland period with the Adena Culture. The Adena culture dominated much of the northern Eastern Woodlands from upstate New York into the Ohio and Mississippi Valleys, characterized by conical earthen mounds and elaborate burials with ornamental grave goods. The Adena culture may have developed as early as 500 B.C., based on the dating of burial mounds in the central Ohio River Valley region (Seeman 1992:25). Notably, the Adena culture did not expand into Michigan. However, there is one Early Woodland earthworks in central Michigan, 20IA37, which bear similarities to Adena earthworks to the south (Garland and Beld 1999). 20IA37 represents a unique occurrence of a ceremonial aggregation site associated with the Early Woodland period in the state. Mortuary processing at the site is suggested through the recovery of fragmentary human bones, but no actual burials are known to be present.

In southern Michigan, research indicates a strong continuity between Late Archaic and Early Woodland cultural practices. Horticulture likely became more important in the subsistence strategy of Early Woodland people, but how important this adaptation was to different groups varies across time and space within this period. Some areas do not show much evidence of domesticated plants until near the end of the Early Woodland period, coinciding with the beginning of the Middle Woodland period (Fritz 1990:403). Sunflower cultivation is demonstrated at the Eidson Site, being a continuous tradition with the preceding Late Archaic occupation (Garland and Beld 1999). Seasonal mast crops continued to be an important resource, and Early Woodland groups still depended on wild versions of plants that would become cultivars, such as squash, sumpweed, gourd and goosefoot.

Although there may have been some tendency for limiting residential mobility in the Early Woodland period, settlement patterns generally resemble those of the preceding Late Archaic period, with large summer base camps in the flood plains and upland resource extraction camps occupied in the fall and winter (Garland and Beld 1999; Yerkes 1988:319). Clay (1992:80) suggests that Early Woodland groups were likely practicing a semi-sedentary, hunter-gatherer lifestyle organized into egalitarian groups, rather than having a more hierarchical tribal system. This certainly seems to be the case in Michigan.

Projectile point/knife forms diagnostic of the Early Woodland period include Kramer, Cresap, Meadowood and Adena Stemmed types (Chivis 2003; Justice 1987). As noted previously, Meadowood points are also associated with the Terminal Archaic in Michigan. Early Woodland pottery first appears around 500 B.C. and tends to exhibit coil construction with cordmarked surfaces. Pottery types associated with the Early Woodland period includes Marion Thick (also known as Schultz Thick), Shiawassee Ware (found in the Saginaw Valley), and Mushroom Cordmarked, a late Early Woodland type (Garland and Beld 1999; Chivis 2003). Marion Thick is considered like types in other regions of the Midwest, such as Vinette in Ontario and Fayette and Leimbach Thick in Ohio. The production of Marion Thick appears to have persisted into the Middle Woodland period. Exotic materials are indicative of long-distance trade networks, including copper and high-quality cherts from Ohio and Illinois.

5.1.3.2 MIDDLE WOODLAND

The Middle Woodland period (ca. 100 B.C. – A.D.400) saw a gradual expansion in the general patterns of the Early Woodland. Elaborate burials and distinct ceremonialism increased and mound construction became increasingly complex, with huge, precisely arranged geometric earthworks being the hallmark of the Hopewell cultural manifestation that flourished to the south in Ohio, with its influence spreading throughout the Midwest. Like the Adena, the Hopewell manifestation likely does not represent a single monolithic culture, but rather a shared worldview among many different groups of people across the mid-continent. Elaborate mound construction and an increased reliance on fishing are hallmarks of the Middle Woodland in Michigan.

In southwest Michigan, the Norton Tradition is the main regional expression of the Hopewell cultural manifestation, although Havana Hopewell is present in sites along the Michigan-Indiana border. Chivis (2003) notes that current research suggests many of the Middle Woodland vessels recovered archaeologically from western Michigan show influence from Illinois populations, with several probably representing imported or trade items. Pottery types associated with Middle Woodland groups in southwest Michigan include Norton Ware, Havana Ware, Western Basin Ware, Crockery Ware, and Hacklander Ware (Chivis 2003). In southeast Michigan, near Saginaw Bay, the local Hopewell expression is the Saginaw Tradition. Hopewell cultural expressions were not adopted by Woodland groups occupying the area beginning roughly at the Muskegon River and northwards, and additionally do not seem to be present in the southeastern corner of the state south of Saginaw Bay (Kingsley et al. 1999). It appears that while migration of Hopewell people into southwestern Michigan may be the best explanation for the cultural development observed there, the Saginaw Bay tradition may have developed in situ. Middle Woodland period sites have been identified along the northwest coast of the Lower Peninsula, some with Hopewellian materials. However, it is not clear that these sites represent a Hopewell population; instead, they may be a contemporary Middle Woodland population that traded with Hopewell groups to the south but did not adopt their practices.

The Norton Tradition is thought to have evolved from the Havana Hopewell tradition to the southwest and is contemporaneous with the later expressions of Havana Hopewell. The Norton Tradition is divided into the Norton Phase, ca. 10 B.C.–A.D. 200, and the Converse Phase, ca. A.D. 200–400. However, due to a lack of datable material from sites and phase-sensitive artifacts, the Converse Phase is considered problematic at best, as the dual Norton/Converse phases were actually created to serve as an analogue to Illinois phases and may not be actually warranted as an accurate interpretation of the cultural manifestation of Hopewell in southwest Michigan (Kingsley et al. 1999). The earliest expressions of the Norton Phase appear to be highly correlated to Havana Hopewell groups to the southwest, albeit on a smaller scale. Norton people buried their dead in mounds, with practices like the Havana Hopewell, the parent group. Norton groups appear to have focused their territory on the Muskegon, Grand and St. Joseph River valleys, with several mound groups present. Domestic sites associated with the mounds are rare, however, and the settlement system for Norton Tradition Hopewell is poorly understood. The constriction of Hopewell to these three river valleys in southwest Michigan is somewhat of a puzzle, and may indicate that the Hopewell people, possibly being an immigrant group, settled in areas sparsely occupied by other Woodland people practicing a different cultural system. Supporting this view of long-term sedentism without expansion is the fact that each of the three river systems have major mound group sites composed of numerous mounds, suggesting a long period of settlement adding to the ceremonial mound centers over time.

An important component of understanding the Middle Woodland period in Michigan is the presence of cultural systems unrelated to the Hopewell phenomenon. Some of these societies may simply be groups continuing cultural practices first developed in the Late Archaic and Early Woodland periods. In southeast Michigan, the Western Basin Tradition is recognized as a non-Hopewell Middle Woodland-Late Woodland cultural expression. Several researchers interpret Western Basin material as representing an in situ cultural evolution of Woodland traits culminating in Late Woodland cultural expressions, such as the Younge Phase in northwest Ohio and the Wayne Tradition in southeast Michigan. Another resident, non-Hopewell Middle Woodland population is posited in southwest Michigan, in between the Havana Hopewell and the Norton Hopewell areas. These people are known from locally derived ceramic forms, some of which are similar to Point Peninsula cultures to the east. Some Hopewellian material also occurs at sites thought to be Non-Hopewell Middle Woodland, interpreted as the result of contact with Hopewell groups to the north and south (Kingsley et al. 1999). In northern Michigan and the Upper Peninsula, groups are classified as belonging to the Lake Forest Middle Woodland, a cultural expression that is contemporary and interacted with other Middle Woodland cultures, such as people associated with Laurel, Hopewell, Point Peninsula, and North Bay cultural traditions.

The current understanding of settlement and subsistence behaviors of the Hopewell and other Middle Woodland populations is unclear at best, with a variety of opinion to explain the data collected to date. Using information from non-mound

excavations (e.g., Prufer 1964), Ford (1979) suggested a basic hunting-and-gathering economy with limited horticulture. Subsistence data from Michigan sites is scarce, unfortunately, complicating the development of a robust theory on Middle Woodland subsistence and settlement, like that developed for Ohio, Indiana, and Illinois Hopewell societies. A settlement pattern has been developed for the Norton Tradition, based upon a system known as Intensive Harvest Collecting associated with Havana Hopewell groups. The Norton settlement pattern consists of villages located on terraces or levees along the main river associated with the group's territory, and always are near large floodplains with backwater and mudflat habitats. Villages were also located near reliable sources of mast. Interestingly, the environmental requirements of this system match well with known Norton site distribution. In particular, the Kalamazoo River Valley lacks such requirements, and correspondingly also lacks any major Hopewell settlements. In contrast, the Saginaw Tradition settlement pattern includes warm-weather base camps with a heavy reliance on fishing for subsistence, likely also serving as population aggregation centers. In the winter months, Saginaw Tradition people dispersed into smaller winter hunting camps. This system is more in line with northern Lake Forest Middle Woodland cultures, and indeed, even with historic-period Ojibwa practices (Kingsley et al. 1999).

Mortuary Traditions

Most information about Middle Woodland burial practices is from Norton Tradition internments. Norton Tradition people interred individuals in tombs covered by burial mounds, similar to Illinois Hopewell traditions. Norton Tradition mound sites include the Norton Mounds, Schumaker Mound, Converse Mounds, Mallon Mound, Hardy Dam Mound, Grattan Mounds, Parsons Mound, Marantette Mounds, McNeal Mound, Paggeot Mound, Spoonville Mound, Scott Mounds, Palmiteer Mounds, and Summerville Mounds. Norton burials tend to occur within the subfloor tomb of a mound, and consist of secondary bundle burials and more rarely, rearticulation of formerly bundled individuals. Burials are accompanied by exotic Hopewell Interaction Sphere artifacts; in fact, these artifacts rarely occur outside of mortuary contexts on Norton sites. Finely made pottery vessels specifically made for mortuary use, either imported Hopewell Ware from Illinois or the local Sumnerville Ware varient of that type, accompany most burials. These vessels are often accompanied by turtle shell dishes and mussel shell spoons. Individual burials are also found with clusters of artifacts that appear to represent toolkits for use in the afterlife. Exotic, non-local goods include conch shells from the Gulf of Mexico, copper tools from the Lake Superior copper region, native silver (also probably from the upper Great Lakes), and mica. Of special note are copper and silver panpipes, which mainly occur with Norton burials, although one specimen is associated with a Saginaw Tradition internment. Curiously, one type of Hopewellian artifact that is common in mortuary contexts elsewhere in the Midwest but largely absent in Michigan is the copper earspool. Only one burial with earspools is documented in the state. Another way that Michigan Hopewell burials differ from other regions is the inclusion of slate gorgets, an apparent continuation of a Late Archaic artifact type that does not occur elsewhere in the Hopewell

region. It is uncertain if the gorgets were manufactured by Norton Hopewell people or were a trade item originating with groups in the region that were still practicing Late Archaic cultural traditions (Kingsley et al. 1999).

Social Structure

The social structure of Hopewell groups is one that numerous archaeologists across the continent have studied and argued over for years, with little consensus. Information from mortuary contexts holds up tantalizing evidence for the existence of complex societal structures, yet this data can be interpreted in varying ways and widely different hypotheses can be generated from the same data set. One way of approaching the problem of teasing out social structures from limited mortuary data is to examine variation in burial types. If there seems to be differing treatment of individual burials, with some receiving more lavish ministration than others, then some form of equivalent social ranking was probably practiced by that society. Ranking can be teased out in the form of analysis of how different age groups and genders are treated in burials. If there is a difference in burial types, but the difference does not apply to age groups or gender, then a social hierarchy is present in the living population. Such conditions do not appear present in Norton Tradition burials. Rather, status seems to be associated with age, and to some degree gender. Older male Norton internments tend to have higher quantities of exotic grave goods, and often display a treatment where a section of the skull is removed. Most of these male burials are also rearticulated in the submound tomb. In contrast, few female or subadult burials show such lavish treatment, although they do exist. These burial characteristics suggest Norton Tradition groups were egalitarian in structure, with status assigned mainly through the male gender, age, and personal achievement, although some form of basic ranking system cannot be ruled out (Kingsley et al. 1999).

Late Woodland Transition

The transition from Middle Woodland to Late Woodland cultural practices in Michigan appears to reflect an in-situ development, rather than a population displacement. One possible population movement in Michigan involves the development of the Wayne Mortuary Complex of eastern Michigan, which does not have any clear precedents in the local archaeological record, but has some defining features (Jack's Reef points, use of exotic Upper Mercer chert) that have been documented in late Hopewell burials in the Grand River valley. A tentative hypothesis is that this Late Woodland mortuary complex evolved out of Hopewell antecedents in western Michigan and moved east with a band of people at the end of the Middle Woodland period (Kingsley et al. 1999).

5.1.3.3 LATE WOODLAND

The Late Woodland period (ca. A.D. 400–1650) can be defined as a period of complex social change, and there are competing theories about the various cultural sequences associated with the period in the southern Lower Peninsula. The early part of the Late Woodland period is characterized by a subsistence economy almost wholly devoted to wild food sources (ca. A.D. 600-1000), while

the latter part of the period sees the increasing importance of horticulture and domesticates (ca. A.D. 1000-1650). However, Muhammad (2010) characterizes certain Late Woodland groups as practicing a “middle ground” subsistence system, with mingled aspects of hunter-gatherer and agriculturalist strategies. She further posits a fluid network of resource exchange between groups practicing different subsistence strategies as a form of societal risk management for dealing with periodic episodes of regional resource scarcity. During this later part as well, southwestern Michigan saw the influx of Upper Mississippian peoples, an event that surely was important in the cultural development of resident Late Woodland groups. Defensive earthworks appear for the first time, a reflection of the rate of change and the reactions of Michigan Late Woodland people to this change (Holman and Brashler 1999:213). Late Woodland people appear to have rather abruptly stopped the practice of mound construction and elaborate mortuary traditions of the preceding Hopewell culture. In the early Late Woodland period, there is evidence of regional adaptations, development of formal kinship systems tied to exchange of different kinds of chert, food storage intensification, and seasonal migrations. Ceramic types were similar between disparate groups, suggesting close relationships between them. After about A.D. 1000, group territories were more strictly observed, and chert gift-giving ceased to occur. Rock art and earthwork construction began to appear. The Late Woodland sites in the Upper Peninsula show a general continuity with Middle Woodland cultural behaviors, with small bands of people relying on wild rice, mammal hunting, and fishing for their economic base. Lake Phase sites are found in the western Upper Peninsula, while Mackinac Phase, Bois Blanc Phase, and Juntunen Phase sites are associated with the eastern Upper Peninsula. One notable characteristic that differentiates Upper Peninsula Late Woodland from the preceding period is an increase in site fidelity (Martin 1999).

Late Woodland groups in western Michigan are divided into two traditions. The Allegan Tradition encompasses people living in the St. Joseph and Kalamazoo river valleys, and the Spring Creek Tradition is associated with groups in the Grand and Muskegon river valleys. Each river valley has its distinct phases within its affiliated tradition. The St. Joseph River phases include the Brems Phase (ca. A.D. 500-1000) and the Moccassin Bluff Phase (A.D. 1000-1200). In the Kalamazoo River Valley, the Allegan Tradition is divided into an Early Allegan Phase (ca. A.D. 600-900) and a Late Allegan Phase (ca. A.D. 900-1650). The Spring Creek Tradition of the Grand and Muskegon river valleys are divided into the Zemaitis Phase (ca. A.D. 600-1000) and the Spring Creek Phase (ca. A.D. 1000-1200). The Spring Creek Tradition disappears after this, perhaps an indication of cultural disruption from encroaching Upper Mississippian people (Holman and Brashler 1999). Late Woodland diagnostic artifacts for southwest Michigan include small triangular projectile points associated with the introduction of the bow and arrow, and ceramic types such as Skegemog Ware, Mackinac Ware, Bowerman Ware, Allegan Ware, and Spring Creek Ware (Chivis 2003).

Late Woodland Spring Creek Tradition people were seasonally mobile along the Grand River valley, moving from summer gathering regions to interior winter

hunting camps, although specific subsistence strategies are poorly understood for southwestern Michigan due to a lack of preserved biological remains at Late Woodland sites. Late Woodland people practiced economic systems that were flexible and adapted to regional environments. Evidence for agriculture is somewhat scarce and seems to have only been a major part of subsistence for the people in the Saginaw Valley. Fishing may have been a primary spring/summer activity, switching to large mammal hunting in the fall and winter. Food storage was an important component of Late Woodland subsistence strategies. Deep pits with organic residue are associated with sites interpreted as winter camps. Some areas, such as the Grand River, lack sites with storage pit features, although this may be more a result of survey bias than archaeological reality. Large ceramic vessels also likely served a storage function. Certain locations may have served as seasonal aggregation points, such as the Moccasin Bluff site (20BE8) in Berrien County for southwest Michigan groups (Holman and Brashler 1999).

The appearance of high-quality Bayport and Norwood cherts across the southern Lower Peninsula suggests the exchange of this material as part of social relationship maintenance in the early Late Woodland. Distribution of ceramic wares suggests that groups from different traditions could rely on the use of each other's territories in times of scarcity. A maintenance of the social network affiliated with the Middle Woodland is suggested through the appearance of exotic cherts from Illinois and Ohio (specifically Upper Mercer chert), and there is a continuity of projectile point styles from the Middle Woodland into the Late Woodland as well. There is evidence as well for a small population movement into Michigan from the east. A non-locally derived ceramic type called Hacklander Ware appears in southwest Michigan during the late Middle Woodland and early Late Woodland, bearing similarities to wares from New York and southern Ontario. Analysis of this pottery on Michigan sites suggest it does not represent a trade item (Holman and Brashler 1999).

After about A.D. 1000, southern Michigan saw a major change in Late Woodland behaviors. Ceramic types and lithic material choices indicate that inter-regional exchange and contact declined within the state. Exotic cherts become uncommon in assemblages. About this time is when Mississippian people appear to have begun interacting with Late Woodland groups in southwest Michigan, with evidence for interaction with Upper Mississippian people by 1100, and another such incursion in 1400 by makers of Huber Ware (Holman and Brashler 1999). It appears that certain indigenous Late Woodland groups began adopting Mississippian practices (including corn-bean-squash agriculture), while others continued Late Woodland lifestyles.

In the early part of the Late Woodland period, burial practices continued to be characterized by the inclusion of "rich grave goods" with high-status individuals (Halsey 1999:234). In the southern Lower Peninsula, the Wayne Mortuary Complex is predominant, and Halsey places it within a larger group of similar burial traditions extending from the Mid-Atlantic to North Dakota. Burial mound construction similar to the Middle Woodland period still occurred in the early Late

Woodland period, but this burial system was soon abandoned for individual graves in cemeteries, isolated graves, and intrusive burials into pre-existing mounds. Towards the middle of the period, clay elbow pipes began to be included in graves, although most other forms of grave goods were no longer used in mortuary contexts. However, a very late cemetery excavated by pot hunters dating to the 1500s or early 1600s was very well preserved, with numerous organic artifacts that suggests grave goods were still numerous within Late Woodland internments but likely were too perishable to survive in earlier excavated graves. Some Late Woodland burial practices switched to the use of ossuaries. St

Earthworks in Michigan are a Late Woodland phenomenon, and usually consist of circles or horseshoe-shaped constructions with adjacent ditches. Zurel estimated that over 100 such earthworks probably existed in Michigan; only a handful remain intact today. The earliest carbon-dated earthwork is from southwest Michigan, the Whorley Earthwork (20BR6), dated to ca. A.D.1080±100. Other carbon dated earthworks fall in the date range of about A.D. 1275-1550, with a late date of A.D. 1700±60 for the Graham-Vogt site (20MB78). Many enclosures seem to be associated with wooden palisades. However, the exact nature of these earthworks is unclear. In southeast Michigan, the locations of earthworks all seem to be about a day's walk apart, suggesting a possible affiliation of individual bands to individual earthworks. A defensive nature is suggested by the palisades and by evidence of occupation zones within the earthworks that have been archaeologically tested (Zurel 1999).

5.1.4 UPPER MISSISSIPPIAN

The Upper Mississippian period is one of the least well-known prehistoric expressions in Michigan, partly due to a scarcity of sites and limited geographical distribution of Upper Mississippian sites. Archaeological evidence places Upper Mississippian people in southwest Michigan beginning ca. A.D. 1050, persisting until ca. 1600. The Upper Mississippian development is thought to be an in-situ development of groups adopting practices developed by Middle Mississippian groups centered on the St. Louis region. Specifically in Michigan, Upper Mississippian traits are overlain on a Late Woodland cultural base (McAllister et al. 1999). Upper Mississippian people in southwest Michigan practiced corn-bean-squash agriculture, aggregating in a few summer villages, and then dispersing in smaller, family-based groups to winter hunting camps. However, some village sites may have been occupied year-round, such as Moccasin Bluff. Evidence for specialized camps in southwest Michigan includes site types focused on the spring sturgeon run and wetland resources.

The Moccasin Bluff Phase of southwest Michigan (ca. A.D. 1050-1300) corresponds to the Fisher and Huber phases located to the south and southwest in Indiana and Illinois. Ceramics diagnostic to this phase include Moccasin Bluff Impressed Exterior Lip (a grit-tempered, cordmarked ware) and shell-tempered wares that appear related to Fisher phase ceramics. Of interest is that Late Woodland vessel forms co-occur with Mississippian vessel forms in Moccasin Bluff Phase assemblages, specifically with grit-tempered ceramics. Following the

Moccasin Bluff Phase is the Berrien Phase (ca. A.D. 1400–1600), which was also first described at the Moccasin Bluff site. Ceramics remain a mixture of grit- and shell-tempered wares, including Berrien (shell), Moccasin Bluff Scalloped (grit), and Moccasin Bluff Notched Applique Strip (grit) types (McAllister et al. 1999). The Berrien Phase shows strong relationships to the Huber Phase in northern Indiana. Other characteristics of southwestern Mississippian assemblages include Madison projectile points, predominant use of local cherts (but supplemented with exotics) in lithic assemblages, and occasionally trade items such as catlinite pipes (McAllister et al. 1999).

Evidence for Upper Mississippian house types is lacking in Michigan. However, early historical descriptions of Miami and Potawatomi villages, considered to be good analogues for Mississippian lifeways (if not actually representing the direct descendants of these groups), consisted of clusters of small wigwam-like buildings, constructed from bent saplings and covered with bark. Such buildings may not leave much in the way of posthole patterns at sites.

Elsewhere in Michigan, evidence of Mississippian influence and occupation is much less prevalent. The Saginaw Valley region has sites with Mississippian-style pottery present in small amounts, and a few burials are highly like those documented in Mississippian societies elsewhere. However, the evidence is too scant to conclusively state that people practicing a primarily Mississippian lifestyle occupied this region in any significant numbers. In the Upper Peninsula, the rare sites showing Mississippian influence are mainly related to Oneota cultural expressions found primarily to the south in Wisconsin and are identified through the presence of shell-tempered pottery. Middle Mississippian wares, such as Ramsey, have also been found in the Upper Peninsula. The Menominee River Basin has perhaps the most evidence for occupation by Upper Mississippian people, while the presence of Mississippian artifacts elsewhere is as equally explainable as trade items versus the actual presence of people practicing Mississippian lifeways. No evidence for Mississippian agriculture has been found at any Upper Peninsula sites; indeed, the environmental conditions of the peninsula may have actively discouraged such practices. Instead, Mississippian people may have been temporary visitors or seasonal occupants exploiting resources at the very northern edge of their territories (McAllister et al. 1999).

5.2 HISTORICAL PERIOD CONTEXT

There is scant evidence for the direct presence of Europeans in Michigan prior to the mid-seventeenth century. However, some protohistoric Native American sites do show indirect contact through the presence of European trade items, such as the Cloudman Site on Drummond Island, dating to ca. 1615 and including glass beads, iron, and copper artifacts made using Native methods but mimicking French knife forms. This site is interpreted as likely being an Ottawa occupation, whose residents had trade relations with other Native people to the east that had been directly in contact with early French explorers (Cleland 1999).

5.2.1 EARLY HISTORIC PERIOD, CA. 1630–1800

Early European presence in the Great Lakes is linked to French exploration and missionary activity. The first documented European explorer in the Michigan region is Jean Nicolet in 1634. Seven years later, the Raymbault Mission was established at Sault Ste. Marie by Jesuit missionaries. This mission first served Ojibwa groups moving west to get away from raiding Iroquois bands, with Ottawa people subsequently settling around it. While the French also established the fur trade, it did not become the dominant focus of activity in the region due to the conservatism of the French court, which placed greater emphasis on conversion of Native groups and exploration (Heldman et al. 1999). However, competition with other European nation-states forced a change in emphasis for the French to commerce, beginning about 1700. The French Bourbon court largely viewed its North American activities in terms of wealth extraction rather than colonial expansion and settlement. The lack of any substantial French immigration to the New World (in contrast to British policies) meant that Native alliances were highly important to the success of French activities on the continent.

The French established settlements at the Straits of Mackinac beginning in 1671, first on the north shore near St. Ignace and then at Fort Michilimackinac in 1715 (the latter of which is arguably the most important early historical archaeological site in the Great Lakes). The French traded with local Huron, Petun, and Ottawa people here, and established a Jesuit mission headed by Father Jacques Marquette, who had moved the focus of missionary activity here from Sault Ste. Marie in recognition of the primacy of the Straits as a Native transportation route. The Native tribes had settled here just prior to the French, having been forced out of their former territories to the east and southeast during the Iroquois Wars, ca. 1640–1660 (Cleland 1999; Heldman et al. 1999). Other Native tribes that were present in the state in the seventeenth century include the Mascouten, Potawatomi, Miami, and Menominee. In particular, the Ottawa, Ojibwa, and Potawatomi formed a loose alliance called “The Three Fires” (Rubenstein and Ziewacz 2014). Native American sites of the Early Historic Period consist of villages and burials. Village sites can show reconstruction episodes for the longhouses, which can confuse interpretation. European trade goods are diagnostic, as are traditional Native technologies using European artifacts as raw material (e.g., glass projectile points, brass tinkler cones). An important corollary is that there do not appear to be any types of diagnostic Native artifacts that would allow identification of tribal identity; this situation is largely due to the disruptive effects of colonization and contact that led to rapid changes in material culture and mixing of previously separate tribal bands in single villages in some cases. One exception to this rule is the Marquette Mission Huron Village site (20MK82 and 20MK99), where artifacts do show an Iroquoian affiliation (Cleland 1999). Also of important note is that a drastic change in technology and raw material use does not indicate an equivalent change in cultural traditions. Ethnohistorical accounts support the continuation of cultural traditions with likely roots far back into the prehistoric period among Michigan tribal groups (Heldman et al. 1999).

In southwest Michigan, Rene-Robert Cavalier, Sieur de la Salle, established Fort Miami at modern St. Joseph in 1679, named after the Miami tribe that was the focus of missionary efforts in that location. In 1686, the French established Fort St. Joseph in the Port Huron area (the second fort by the name; the first was near Fort Miami). These forts protected French interests in the fur trade against the expanding British. In 1701, Antoine de la Mothe, Sieur de Cadillac, built Fort Pontchartrain between Lake Huron and Lake Erie, at a spot he called “le Detroit,” meaning “the strait.” Because of its strategic location, the fort and the surrounding community of Detroit became the most important French settlement in the first half of the eighteenth century (Rubenstein and Ziewacz 2014; Heldman et al. 1999). By the 1750s, numerous small French farms were present in the southeast Lower Peninsula.

The mid-1700s were a period of war between the two major colonizing powers in eastern North America, the French and British. King George’s War broke out in 1744, followed by the French and Indian War of 1754–1763. The British were slowly expanding and forming new alliances with tribes, forcing the French to react with increased fortifications. British blockades during the war years severely hindered the French’s ability to conduct trade. In 1760, all French forces surrendered, and in 1763, the French ceded claim to all their lands to the victorious British in the Treaty of Paris (Rubenstein and Ziewacz 2014). Soon after the surrender, British forces moved into the Great Lakes and took over important forts at the Straits of Mackinac and Detroit, although many French inhabitants of the associated settlements remained. Some stayed and lived alongside the British, while others relocated to new communities to preserve some sense of autonomy and cultural traditions, such as at River Raisin. British settlement outside of the forts is not well documented, but there are several archaeological sites known that represent British-era settlement.

The change from French to British occupation was drastic in terms of cultural approaches to interactions with Native groups. The British lost their chance to capitalize on goodwill with their Native allies by appointing Lord Jeffery Amherst as Governor General of North America. Amherst refused to listen to other British officials who understood Native customs and his actions, including ignoring pledges made during the war and a cessation of gift-giving, led to increasing hostilities, such as Pontiac’s War of 1763. French traders encouraged the division between Native Americans and their former allies. The efforts of the French were successful in helping make up the minds of Great Lakes tribes to revolt against the British (Rubenstein and Ziewacz 2014). This conflict was a major, if temporary, setback to the British, who lost control of all their western forts apart from those at Detroit, Niagara, and Pitt. However, the British soon regained control of the territory (Heldman et al. 1999). The Proclamation of 1763, drafted in response to Pontiac’s Rebellion, stated that all land west of the Allegheny Mountains as permanent Native territory, with land sales only by permission of the British government.

The next major event during the British period in Michigan was the American Revolution. Being on the periphery of British territory in North America, the British

military outposts in Michigan did not result in any direct response to the outbreak of hostilities until 1778 and 1779, when American actions in Illinois prompted the building of new forts and strengthening of some of the older forts. In 1780-1781, the British dismantled Fort Michilimackinac and relocated to a new fort on Mackinac Island to better defend the Straits. Britain directed Native raids against American settlements from Detroit, which served as a major source of war supplies for such raids (Rubenstein and Ziewacz 2014). An interesting bit of Revolutionary War history is the taking of Fort St. Joseph at Niles by a combined force of Spanish, French, and Native soldiers, who briefly raised a Spanish flag over the fort before looting and abandoning it. Niles thus has the distinction of the only city in Michigan that has had the flags of four nations flying over it (Rubenstein and Ziewacz 2014). The British period in Michigan ended with their signing of the Jay Treaty in 1794, and American forces took over the major British forts at Detroit and Mackinac in 1796. A British fort on Drummond Island was built in 1815 and remained until 1828, when the United States formally acquired the island.

5.2.2 AMERICAN ACQUISITION AND STATEHOOD, 1800–1837

Although American forces occupied forts in Michigan in 1796, American expansion and settlement in Michigan did not occur with any frequency until the nineteenth century, largely after the War of 1812. Landscapes within Michigan retained a frontier character until their resources became important to the economic development of the state and nation, such as the mineral ranges of the Upper Peninsula, which were not developed until later in the nineteenth century. The Michigan Territory was created by Congress in 1805 after the admittance of Ohio to the Union. However, prior to 1812, most of the white residents of the territory were French, with several British traders still operating out of the territory.

The War of 1812 broke out when the Michigan Territory was under control of territorial governor William Hull, who proved to be completely inept in military matters. Despite a brief foray into Canada, Hull's leadership was disorganized, and British forces soon took over the primary forts in the territory, and Hull himself surrendered Detroit. Initial British success was short-lived, and American victory in 1814 marked the last active hostilities in Michigan between white and Native forces, while cementing the Michigan Territory as a part of the United States (Rubenstein and Ziewacz 2014). Native rights to land in Michigan were slowly chipped away in a series of land cessations, beginning with the Treaty of Detroit in 1807 and culminating in the Treaty of La Pointe in 1842 (Rubenstein and Ziewacz 2014). By the 1870s, most of the state's Native population were living on reservations.

By 1833, Michigan's population was over 60,000 people, more than enough to be admitted into the Union as a state. However, Congress refused to consider the matter until a boundary dispute with Ohio was resolved. Both the State of Ohio and the Michigan Territory considered a strip of land at the northwest corner of Ohio as their rightful possession. This area, called the Toledo Strip, was controversial because Ohio had a provision in its constitution that its northern boundary, delineated in the Ordinance of 1787, could be adjusted if it did not include the

mouth of the Maumee River. However, when the Michigan Territory was set up in 1805, Congress either was unaware of or ignored this provision and gave this land to the new territory. While militias on both sides were formed and Michigan militiamen made incursions into Ohio, the so-called “Toledo War” mainly consisted of political bluster and was resolved without a shot being fired through a compromise bill in Congress that admitted Michigan as a state if it ceded the Toledo strip. As a consolation prize, the Upper Peninsula was included as part of the new state’s territory (a transaction that subsequent generations of Michiganders now recognize as getting the best part of the deal). Still, various attempts down through the years have been made on Michigan’s behalf to regain Toledo, all ending in failure. On January 26, 1837, Michigan was formally admitted to the Union (Rubenstein and Ziewacz 2014).

5.2.3 EXPANSION AND ECONOMIC GROWTH, 1837–1860

The initial settlement after statehood was achieved focused mainly on the southern tier of counties in the state, largely due to proximity to transportation routes, but also because of the presence of good farmland, especially in the southwestern prairie habitats. Settlers moved north at a slower rate, as transportation routes were nearly non-existent and there was a considerable effort required to clear land for agriculture. Too, the climate became harsher the farther north one went, with fewer growing days per year. The early settlers to the southeastern part of the state were largely from New England and New York, while people from Indiana and Ohio moved into the southwestern quarter, giving each area a distinct set of traits related to the settlers’ origins. Improving transportation was the priority for the new state legislature, and an elaborate proposal to build two canals running across the state and three railroads, all extending east-west across the southern half of the Lower Peninsula was funded by a public improvement act in 1837. Unfortunately, financial troubles ultimately meant that these projects could never actually be funded through the sale of bonds (Rubenstein and Ziewacz 2014).

A new source of profit for the state was needed. Eyes turned towards the Upper Peninsula, especially the copper country of the Keweenaw Peninsula. The copper wealth of this region was first recognized back in the era of French exploration, when massive chunks of float copper were described on the surface. The expedition of Douglass Houghton and Henry Rowe Schoolcraft in 1837 confirmed for the state the vast potential of this area. However, exploiting this resource was hampered by the fact that the state did not technically possess this part of the Upper Peninsula, which was still recognized by the United States as Ojibwa territory. The Federal Government quickly entered negotiations with Ojibwa representatives, extracting the rights to the tribe’s Lake Superior territory in exchange for $800,000 and the right to occupy portions of the area for a temporary period of time. With the signing of the Treaty of La Pointe in 1842, the Upper Peninsula mineral rush began. After problems with issuing mining permits was ironed out between the state and the Federal governments, people began flooding into the western Upper Peninsula. Numerous mining companies financed by Eastern businessmen, especially from Boston, set up mines and attendant

communities across the landscape. Soon after the establishment of copper mining, large iron ore deposits were discovered along the southern Lake Superior shore in the central Upper Peninsula near present-day Negaunee. As with the Keewenaw region, several iron mining companies quickly developed to exploit this valuable resource, with new communities springing up around the mine locations. For a brief period around 1880, Michigan led the nation in both copper and iron production. Many of the towns and villages of the western and central Upper Peninsula today are directly related to the mining boom of the last half of the nineteenth century (Rubenstein and Ziewacz 2014).

In 1847, Lansing became the state capital, which previously was held at Detroit. A new state constitution was approved in 1850, which raised the question of suffrage for non-white men. Ultimately, the constitution approved extending the vote to immigrants who pledged to attain full citizenship and Native Americans who renounced tribal membership. Suffrage for Black people was placed on a separate ballot and soundly defeated. This event was typical for early civil rights in the state, which had early on addressed the issue during the territorial government days by passing a law that, while protecting free blacks from Southern slave catchers, denied them any semblance of civil rights or equality. Still, the abolitionist movement grew in Michigan, bolstered by immigrants from states with large numbers of abolitionists. The Underground Railroad had several routes leading across the state and slowly, anti-slavery sentiment grew in strength, until antebellum newspapers were bold enough to print statistics on the number of escaped enslaved people that made it to freedom in Canada through Michigan. As part of this movement, the Republican party saw a surge in electoral success in the 1850s, turning the state into one of the first strongholds for the party in the nation (Rubenstein and Ziewacz 2014).

5.2.4 THE CIVIL WAR YEARS AND POSTBELLUM DEVELOPMENTS, 1860–1900

Michigan was a vocal supporter of the Union cause in the months leading up to the Civil War and put deeds to words by sending an infantry company for the Union Army to Washington, D.C., just over a month after Confederate forces fired on Fort Sumter. The Michigan legislature recognized the key issue of the conflict in an 1862 resolution calling for the complete abolishment of slavery. As the war ground on, however, northern Democrats saw a chance to push back and rallied against abolitionism. While seeing some short-term gains, a party platform explicitly supporting white supremacy was too much for many of the so-called “War Democrats” who switched affiliation to the Republicans, and the Michigan Democratic Party was essentially neutered. Republicans swept the 1864 election, buoyed by the success of Sherman’s Atlanta campaign. Outside of the state government’s actions, Michigan’s support for the Union cause is seen in the number of men it sent to the war. Nearly a quarter of the male population of the state served in the war, including half of all military-aged men. Over 90,000 men in total went to war, including 1,600 free Black men who served in units like the First Michigan Colored Infantry. One of the most famous Michigan citizens tied to

the Civil War is George Armstrong Custer, who rose to the rank of Major General and was known as one of the most talented cavalry officers on either side of the conflict. Michigan's economy boomed during the war years, as its copper and iron were vital to the war effort. Too, the state's farmers rapidly adopted mechanization into their labor practices, due to a labor shortage of farmhands who had gone off to war. This development was supported by increasing prosperity for farmers, who were making good money off providing food supplies for the war effort. This development was key in the change from primarily subsistence farming to large-scale commercial farming in the state. Although hampered during the war years because of labor shortages, the Michigan timber industry became one of the state's predominant industries, with a yearly average of 33,000 acres of timberland cleared during this period. This period was also the golden age of rail in the state, with nearly 7,000 miles of track crisscrossing the state by 1900 (Rubenstein and Ziewacz 2014).

The post-war years showed that Michigan, while strongly anti-slavery during the war, was hesitant to grant full civil rights to Black people afterwards. An act to grant suffrage to Black men barely passed in 1870, with fear among segments of the white populace that passage would result in a mass migration to the state of former slaves. The same year, Michigan's first women's suffrage societies formed, although their goals would not be reached until the twentieth century. Politically, the Republican party dominated control of both the governor's seat and the State House during this period, although the Democrats made steady advances in eroding their control.

Ironically, while white Michiganders feared an influx of Black immigrants from the South, it was experiencing massive population growth during this period of other immigrants, primarily from Europe. Over half of the 700,000 people who moved to the state between 1860 and 1900 were foreign nationals. Indeed, foreign immigration to the state was actively encouraged by the state legislature as early as 1845. Special focus of these efforts was on the Germanic region of Europe, whose residents were seen as ideal immigrants due to their perceived conservatism, education, work ethic, and religious values. Many towns in Michigan still boast a strong Germanic culture, such as Frankenmuth and Gaylord. Canadians, especially French *Canadiens*, were another significant source of newcomers. An influx of Dutch settlers to western Michigan influenced cultural development in that region, including the development of a town called Holland, an annual tulip festival, and even a few traditional Dutch windmills. In the Upper Peninsula, the mining companies actively recruited skilled Cornish miners from the United Kingdom. Large numbers of Irish also came to the mining districts, followed at the end of the nineteenth century by Italians, Swedes, Eastern Europeans, and Finns. While many of these immigrants moved further west to follow mining booms, the Finns stayed put and Finnish heritage is a key component of Upper Peninsula culture (Rubenstein and Ziewacz 2014).

5.2.5 INDUSTRIAL BOOM YEARS AND THE DEPRESSION, 1900–1940

Michigan's industrial base developed greatly in the first two decades of the twentieth century. The copper and iron mining regions were still experiencing success, even with the contraction of active copper mines to the Portage Lake region and major competition with western mines. It was the automobile industry, however, that would define Michigan industry in the twentieth century. By 1900, Ransom Olds had already established Michigan's first automobile manufacturing company, and thanks in part to a mass-market advertising campaign, became rather successful. Olds' success inspired many others to enter the automobile industry. The most famous name in the industry is that of Henry Ford, who founded the Ford Motor Company in 1903. Ford is credited with the introduction of many innovations to the industry, including the assembly line and providing a living wage for his workers, based on the idea that the people who made his products should also be able to afford them. Other Michigan-based automobile companies that sprang up at the turn of the century include General Motors, created in 1908 out of an amalgamation of 30 different car companies purchased by William Durant.

The Great Depression had a tremendous effect on Michigan. The automobile industry was hard-hit, as cars were still viewed as a luxury item. The mining districts were devastated, and the copper mines in particular never recovered. State efforts to provide relief were hampered by a Red Scare that occurred in the 1920s, lending a stigma to state welfare programs. Numerous strikes occurred during this period of labor disruption and unrest. Towards the end of the depression years, however, federal programs such as the Civilian Conservation Corps and Works Progress Administration had hired thousands of out-of-work Michigan residents, resulting in what has been described as 20 years' worth of infrastructure and societal improvements in the span of three years (Rubenstein and Ziewacz 2014).

5.2.6 WORLD WAR II AND THE POST WAR YEARS,1941–1967

Michigan was a major player in materiel supply during World War II. Its industries were well-positioned to convert to production of vehicles, ammunition, and other supplies for the war, while its mines provided valuable copper and iron. Indeed, World War II is likely responsible for the survival of the copper industry in Michigan past the mid-century mark. Ten percent of all federal war contracts went to Michigan companies, second only to New York. After the war, numerous developments, such as middle-class families with substantial savings to spend and the development of the interstate highway system, helped grow the automobile industry even more. The copper industry essentially collapsed completely after the war, with only two major mining companies barely managing to struggle along. Many of the rural counties in Michigan, especially in the Upper Peninsula, saw drastic population declines as families moved elsewhere to take advantage of better economic opportunities.

The development of a car-centric culture is a key factor in suburban growth, with a more negative contribution coming from systematic racism, as white families fled cities like Detroit with rising Black populations. Race relations were always a

simmering issue in Michigan, with a surge in the Ku Klux Klan in the 1920s and a major race riot in Detroit in 1943. Because of its large Black population, Detroit was a hotbed of civil rights activity in the postwar years. In 1963, the city was the location of a national civil rights conclave attended by key figures in the movement, including Reverend Martin Luther King, Jr. Despite efforts to improve social and economic conditions, unemployment reached 11 percent by 1967, and civil discontent reached the boiling point in July of that year, with the infamous 1967 Detroit Riot. Sparked by a police raid on a night club during a severe heat wave, riots spread uncontrollable throughout the city, with entire city blocks destroyed by fire, the deaths of 44 people, and over $50 million in property damage. The city is still trying to recover from the effects of this event to this day (Rubenstein and Ziewacz 2014).

5.2.7 THE MODERN ERA

Beginning in the 1970s, Michigan has experienced a series of declines in its industrial base. The automobile industry in the state has been affected through enticements by southern states to relocate factories with the promise of tax abatements and an anti-union governmental stance, while increased automation in the auto plants reduced the need for large workforces. The oil embargo of the early 1970s and governmental efforts to mandate fuel efficiency and emissions reductions also challenged the industry. By the 1980s, the state had one of the highest unemployment rates in the nation. The state economy has begun to diversify in recognition that depending largely on one dominant economic sector was not sustainable. New sources of business development appeared in the form of wineries and tourism. A series of political reforms of varying strategies helped pull the state out of severe economic woes by the 1990s, although it still lags much of the rest of the nation in key areas (Rubenstein and Ziewacz 2014).

5.2.8 ALLEGAN COUNTY HISTORY

In the late eighteenth century and at the beginning of the nineteenth century, small groups affiliated with the Potawatomi and Ottawa tribes lived in the area that would become Allegan County. The Kalamazoo River served as a tribal boundary, with the Ottawa to the north and the Potawatomi to the south (Tanner 1987). Around 1810, a community of both Ottawa and Potawatomi occupied a village at the mouth of the Kalamazoo River at Saugatuck. Around 1830, there were still a handful of Native villages in Allegan County despite land cessions in 1821, along with a few trading posts on the Kalamazoo and Rabbit rivers. The Ottawa-Potawatomi community at Saugatuck was still present, along with the Ottawa village of Macsawbee, another Ottawa village in the southeast part of the county, and an Ojibwa village in the northeast part, north of the Rabbit River. By the 1870s, there were no organized Native villages left in the county.

The territorial legislation established the boundaries of Allegan County in 1829, although the county government was not set up until 1833. At the time of organization, the county was under the jurisdiction of the St. Joseph County government for the east part and Cass County for the west part. In 1836, Allegan County officially began operating as a distinct entity with its own county

government. The county commissioners selected the village of Allegan for the county seat due to its central position and its location on the Kalamazoo River. The first early American settlers arrived ca. 1830, mainly from Detroit via the Detroit-Chicago Road to the south, originally a Native American trail. While this road did not enter Allegan County, its importance as an entry point to lands around its route greatly influenced county settlement. However, the first documented permanent white settlement was at Saugatuck at the mouth of the Kalamazoo River in 1830, when William Butler arrived and set up trade with the local Ottawa and Potawatomi population. While Saugatuck began as a Native village and trading post, its advantageous position at the river mouth soon attracted other white settlers. Meanwhile, the small region of oak openings/prairie in the southeast corner of the county brought settlers seeking to establish farms. The settlement of the rest of the county was initially slow, due to the poor soils and large expanses of forest that required clearing. Additionally, most of the early settlers focused on lands around the Kalamazoo River, with land further removed seeing occupation later (Johnson 1880; Thomas 1907). The northern part of the county is affiliated with a notable Dutch settlement, which centered around Holland just over the county line to the north. The Reverend A. C. Van Raalte led a colony of members of the Dutch Reformed Church to American and selected the area around Black Lake for their community in 1846, and they rapidly grew and expanded into Allegan County, notably in the township of Fillmore (Thomas 1907).

The early economy of the county focused not only on agriculture, as is typical for many counties, but also its great reserves of hardwood and pine. In fact, these forests provided the primary export of Allegan County, lumber, throughout the nineteenth century. The timber industry thrived through the 1870s, but most of the forested land was cleared by the end of that decade because of massive demand for lumber for the rebuilding of Chicago after its devastating fire (along with other major fires in Holland, Manistee, and Peshtigo); a season of extensive forest fires in 1871 also severely impacted the industry. Transportation early on relied heavily on the Kalamazoo River, which was navigable up to Allegan, and lake shipping at Saugatuck and elsewhere along the Lake Michigan shoreline. Away from the river, county roads struggled to be established through thick woods or swampy areas. A plank road was completed at Plainwell in 1856. Railroads entered the county in the 1860s, greatly expanding the inhabitants' access to markets. By the 1870s, several rail lines crisscrossed the county, with rail lines connecting at Allegan or running north-south along the western and eastern edges. The advent of the railroad spurred the first major population growth in the county, which at that point had acres of recently cleared land available for homesteading. New arrivals found that the land was highly suitable for fruit cultivation, which became a thriving component of the economy. Many farmers found that the land was excellent for raising cattle and dairy farming became important. Manufacturing as a major economic factor did not take hold until the establishment of communities and rail lines, but by the beginning of the twentieth century, there were 89 factories in the county employing over a thousand people, in industries such as plow making,

butter and cheese production, furniture, wagon making, cigar making, flouring, and paper products (Johnson 1880; Thomas 1907).

Allegan is the primary community in Allegan County. Samuel Hubbard and C. C. Trowbridge officially platted the village in 1837, which included a public square for county buildings as part of its function as the county seat. The first courthouse was set up in the existing public school building, which already had seen multiple uses as a public building apart from education. The county court moved between various other buildings until a grand courthouse was built in 1890 in the Romanesque Revival style. While this larger courthouse was demolished in 1961 and replaced by an International-style modern building, the original school and courthouse building is still standing. The economy of Allegan was greatly influenced by its advantageous location at the rapids in the Kalamazoo River, which was soon harnessed for waterpower. Numerous milling operations and manufactories were erected on the banks of the river. This point in the river was also where its navigation via steamboats travelling upriver halted, making it an important early interior shipping center prior to the establishment of the rail system in the late nineteenth century. The lumber industry was the prime economic driver in the development of the village, apart from its position as the county seat. However, the decline of the timber industry in the 1880s allowed for a diversification of the businesses and factories in Allegan, with numerous wagon makers, furniture manufactories, and flour mills (Johnson 1880, Thomas 1907).

Saugatuck, as noted above, is the earliest American settlement, developing around a Native American trading post. Its early economy focused on shipping and warehouse, then expanded into milling, tanning, shipbuilding, and lumber shipping. Saugatuck was incorporated in 1868. The village of Singapore developed just north of Saugatuck and at one point looked to outcompete it, but it was abandoned after the surrounding area was deforested by the timber industry in the 1870s, which resulted in its rapid covering by unimpeded sand dune movement. Saugatuck's position on the lake allowed it to swivel from lumber shipments to recreation as its economic base in the late nineteenth century. Otsego developed around the landholdings of H. H. Comstock, who arrived around 1832 and built a dam for waterpower on the Kalamazoo River in 1836. Along with an already established store, the dam and its mills attracted further development of this community, which was platted in 1836. It soon developed as a center of business and industry. Around the same time, other villages began springing up around the county, such as New Richmond, Plainwell, and East Saugatuck. Later settlements developed around rail lines, such as Fennville (incorporated 1882), Dorr, Hopkins, and Martin, while Plainwell, New Richmond, Wayland, and East Saugatuck prospered further from the rail line coming through those villages (Johnson 1880; Thomas 1907).

Allegan County has retained a largely rural agrarian character through to the modern day, with urban growth mainly limited to the cities of Allegan, Otsego, Plainwell, and Saugatuck, while Holland expanded into the northwest corner of the county. About 120,000 people live in the county, with most of the workforce in the

private sector. Manufacturing, health care/education, retail trade, and food services/accommodation/recreation are the main sources of employment (US Census Bureau 2022a).

5.2.9 FILLMORE TOWNSHIP HISTORY

Although the project area is now within the city limits of Holland, for most of its history it was within Fillmore Township. The county commissioners established Fillmore Township in 1849 from part of Manlius Township, then increased its area in 1850 by adding land from Overisel Township (Johnson 1880; Thomas 1907). The first white settlers included George N. Smith and Isaac Fairbanks, who in the early 1840s were working with local Native Americans to teach them Western methods of agriculture and serve as missionaries. It is assumed these Native Americans were Ottawa and/or Potawatomi, and Johnson notes they removed to the Straights of Mackinac in 1848, with Smith accompanying them.

Fillmore Township's economy was primarily agricultural well into the twentieth century, as the township lacks any streams that could supply water power. The settlement of Fillmore was greatly influenced by the development of Holland in Ottawa County as a Dutch community. BY 1850, there were a few hundred occupants of the township, almost all Dutch immigrants. A review of the 1873 township plat reveals numerous Dutch names, such as Vandenberg, Leenhouts, Kooyers, and Verhoeven, among many others (Lake 1873). German ancestry is still a large component of the overall population. The small community of Graafschap in the northwest corner of the township was settled in 1847, consisting of a log church that was the focus of the farms built around it, and it soon developed into a tidy little village with several residences, a blacksmith, a store, and a school. Ira Chidester formally platted the village in 1871. The community of Fillmore developed around a rail station in the late nineteenth century. East Saugatuck straddles the boundary between Fillmore and Manlius townships. The city limits of Holland expanded into Allegan County in the twentieth century, reducing the township area by around a quarter (Johnson 1880; Thomas 1907).

While Fillmore Township has remained largely a rural area, the expansion of Holland in the twentieth century has lent the northern part of the township more of a suburban character. Outside of the city limits of Holland, the township has a population of around 2,750 people. Most of the workforce in the township is employed in the private sector, with manufacturing, health care/education, and retail trade providing most of the jobs. Agriculture accounts for around 6 percent of employment (US Census Bureau 2022b).

5.2.10 HISTORY OF THE PROJECT AREA

For most of its history from the first clearing by Dutch settlers in the mid-nineteenth century to the late twentieth century, the project area consisted of agricultural fields. The major development for the project area is the establishment of the West Michigan Regional Airport, originally called the Tulip City Airport. The need for additional airfield capacity for Holland was recognized by 1961 (*Holland Evening Sentinel* 1961). The airport was first constructed in 1964 as a single runway private

airfield with a small number of hangers on the west end along Washington Avenue, called the “Tulip City Airport” (*Holland Evening Sentinel* 1964). It replaced a simple dirt runway present here since the mid-1940s. The airfield was expanded in the 1990s to its current configuration, with hanger expansion projects occurring in the last few years. The airfield came under the control of the West Michigan Airport Authority in 2008, who changed the name to the West Michigan Regional Airport in 2011 (Knape 2011).

5.3 RESEARCH QUESTIONS 1 AND 2 DISCUSSION

The first two research questions address the relationship of previous surveys and previously recorded sites/resources to the proposed project and the likelihood of encountering previously recorded cultural resources within the proposed project area. These questions can be answered using the information collected from the literature review and application of the environmental and cultural contexts to the specific ecological history of the project location.

1. *Has the project area been subjected to previous cultural resources investigations, and are there any previously recorded resources located within or immediately adjacent to the project area?*

   The literature review revealed that the project area has not previously been surveyed for cultural resources and that no previously identified cultural resources are in or adjacent to the project.

2. *What is the likelihood of identifying previously unrecorded cultural resources within the project area?*

   The likelihood to encounter previously unidentified cultural resources is very low due to a combination of factors. Primarily, most of the project area looks to have been severely disturbed in 2017 as part of construction for the FlightLevel Aviation building; only a small portion along the northeast edge appears to not have been disturbed at this time. Secondly, the analysis of soil types and the results of extensive surveys for the US 31 alternate corridors project indicates a low chance for the existence of significant precontact archaeological sites in this area. Finally, historical maps and aerial photographs do not indicate any sort of historical occupation within the project area.

6.0 METHODS

6.1 ARCHAEOLOGICAL FIELD METHODS

The field crew used two methods of investigation during the archaeological survey: visual inspection and subsurface excavation. The field director recorded additional information such as field conditions, methods of investigation, and site locations. The crew documented all identified cultural resource locations using a Trimble R1 GNSS receiver (sub-meter accuracy) with a GPS enabled iPad operating Esri ArcGIS for data collection. The crew took photographs of the project as deemed appropriate. The field director kept a photolog record of the photographs, keyed to project mapping.

6.1.1 VISUAL INSPECTION

The crew visually inspected the entire surveyed area to identify readily apparent cultural resources, such as mounds, earthworks, buildings, or structural remnants of such. The crew also documented areas of disturbance, steep slope, and any inundated areas (i.e., wetlands, streams, ponds, etc.), which would preclude physical testing.

6.1.2 SUBSURFACE EXCAVATION

Shovel probe excavation took place in areas with suspected disturbance. The shovel probes measured 30 cm on a side and were excavated to a depth that allowed for an accurate depiction of the disturbed nature of the area (usually 15-20 cmbs). The crew excavated probes at 15 m and 30 m intervals depending on the severity and readily identifiable nature of the disturbance. The crew visually inspected and troweled through soil in shovel probes but did not systematically screen for artifacts. If a crew member found the soils in a shovel probe to be relatively intact, the crew member excavated a full shovel test unit instead.

Systematic STU excavation took place in areas with less than 15 degrees of slope and poor ground surface visibility (less than 50 percent) that had not previously been subjected to standardized archaeological survey. The crew excavated STUs at 15 m (50 ft) intervals, and each unit measured 50 cm² (19.7 in²). Crew members troweled the walls and floor of each unit clean to determine the depth of the plow zone and if *in situ* cultural remains were present. The crew screened all soil from each STU through 0.64 cm (0.25 in) hardware cloth to aid in the recovery of any cultural material present. The field director took notes on the soil color, texture, depth, and the presence or absence of artifacts for each STU.

6.2 ARTIFACT ANALYSIS METHODS

The artifact analysis for the project is tailored to the specific classes of material recovered during the survey. As no artifacts were recovered or observed, this typical report section is omitted here.

7.0 RESULTS OF THE ARCHAEOLOGICAL SURVEY

The crew conducted fieldwork in late August and early September of 2022. The weather during the survey was sunny and warm (75–80°F). The weather did not hinder the completion of the fieldwork. The crew used subsurface testing and visual inspection to survey the project (Figure 11). Most of the project was located within agricultural fields but due to crop growth, lacked sufficient visibility for surface collection, so the crew excavated STUs and shovel probes in the fields. Subsurface testing was used in the maintained lawn areas of the project area as well. Areas of severe disturbance precluding testing were generally minimal and included the ditch, drainage basin, part of the recently constructed FlightLevel Aviation facility, and a roundabout. The archaeological investigations confirmed the disturbed nature of most of the project area and did not result in the identification of any cultural resources. Typical conditions at the time of the survey are shown in Photo 1–Photo 10.

7.1 VISUALLY INSPECTED AREAS

The entire project area was visually inspected, with no cultural resources identified. The visual inspection confirmed the obvious areas of surface disturbance related to drainage management at the site, along with the small area next to the FlightLevel building with definite subsurface disturbance (Photo 4, Photo 5, Photo 8–Photo 10)

7.2 SUBSURFACE EXCAVATIONS

The locations within the project area that did not possess sufficient surface visibility for surface collection and were not located in marked wetlands or disturbed areas were subjected to subsurface testing. A total of 17 STUs and 50 shovel probes were excavated. Intact soils showing a typical plowzone/subsoil sequence were only present along the northern edge of the project area. Disturbed soils were encountered everywhere else, confirming the information about prior disturbance from the examination of recent aerial photography of the project area. A typical STU and shovel probe are depicted in Figure 12. No archaeological deposits or artifacts were documented through subsurface testing.

7.3 RESEARCH QUESTIONS 3 AND 4 DISCUSSION

After completing analysis of the results of fieldwork, the second two research questions regarding whether the proposed project will affect any cultural resources and if so, are those affected resources listed, eligible, or potentially eligible for the NRHP can be addressed.

3. *Will the proposed project affect any cultural resources (archaeological or above ground structures)?*

   The proposed project does not appear to have the potential to affect any cultural resources, either directly or indirectly. No archaeological sites are within the project area and the examination of historical photographs suggests that there are no cultural resources of historical age with visibility to the project area

4. *If cultural resources will be affected, are any of those affected resources listed, eligible, or require further study for inclusion on the National Register of Historic Places?*

   No cultural resources will be affected.

8.0 SUMMARY AND CONCLUSIONS

Lawhon & Associates, Inc. (L&A) conducted a conducted a Phase I archaeology survey of an approximately 17-acre (7 ha) site proposed for a corporate hanger expansion at the West Michigan Regional Airport (BIV) in the City of Holland, Allegan County, Michigan. The survey involved subsurface testing and visual inspection. A total of 17 STUs and 50 shovel probes were excavated. No archaeological sites were identified.

The archaeological survey confirmed the previously disturbed nature of the project area. There is no potential to encounter archaeological sites in this location and no further archaeological investigations are recommended.

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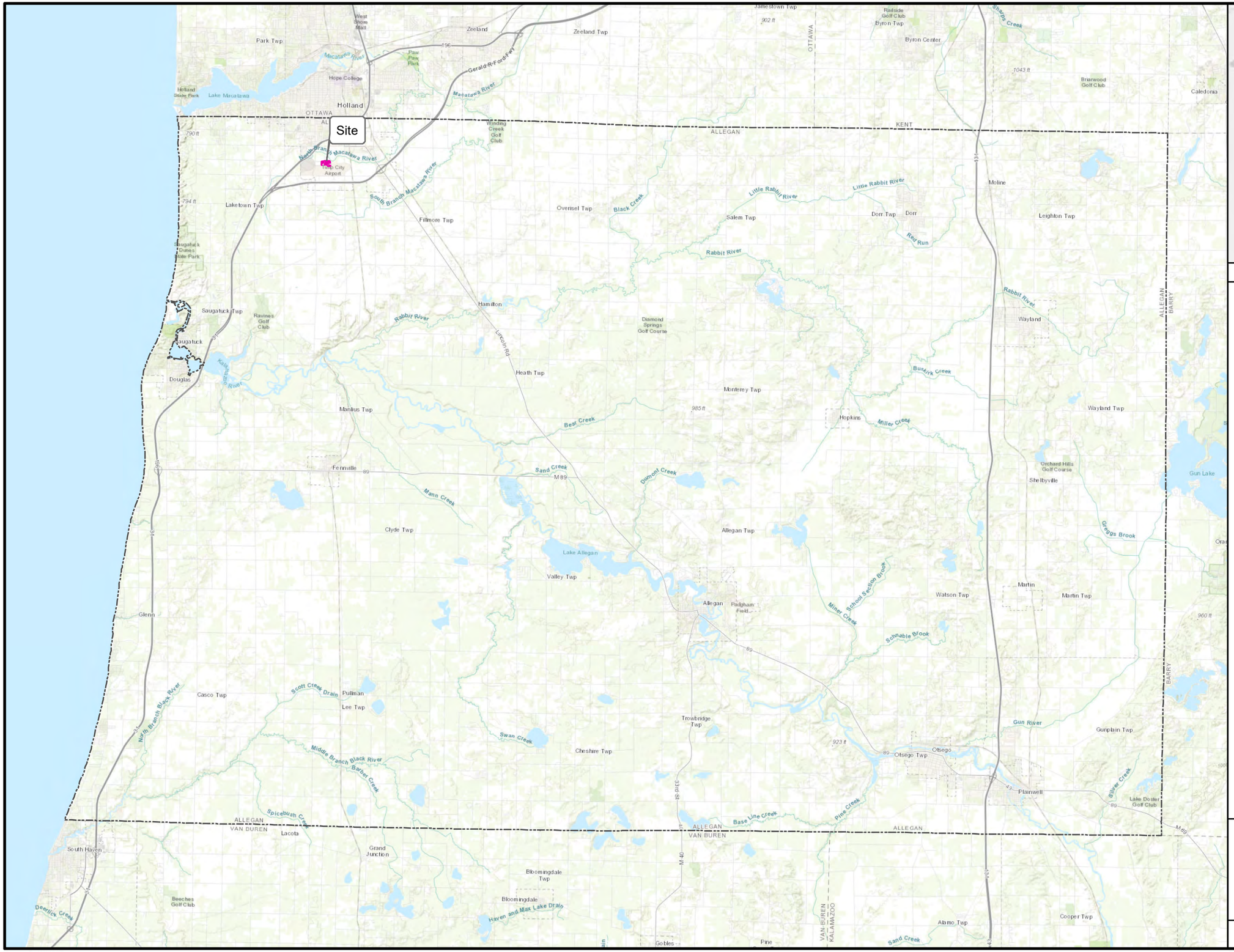
10.0 FIGURES



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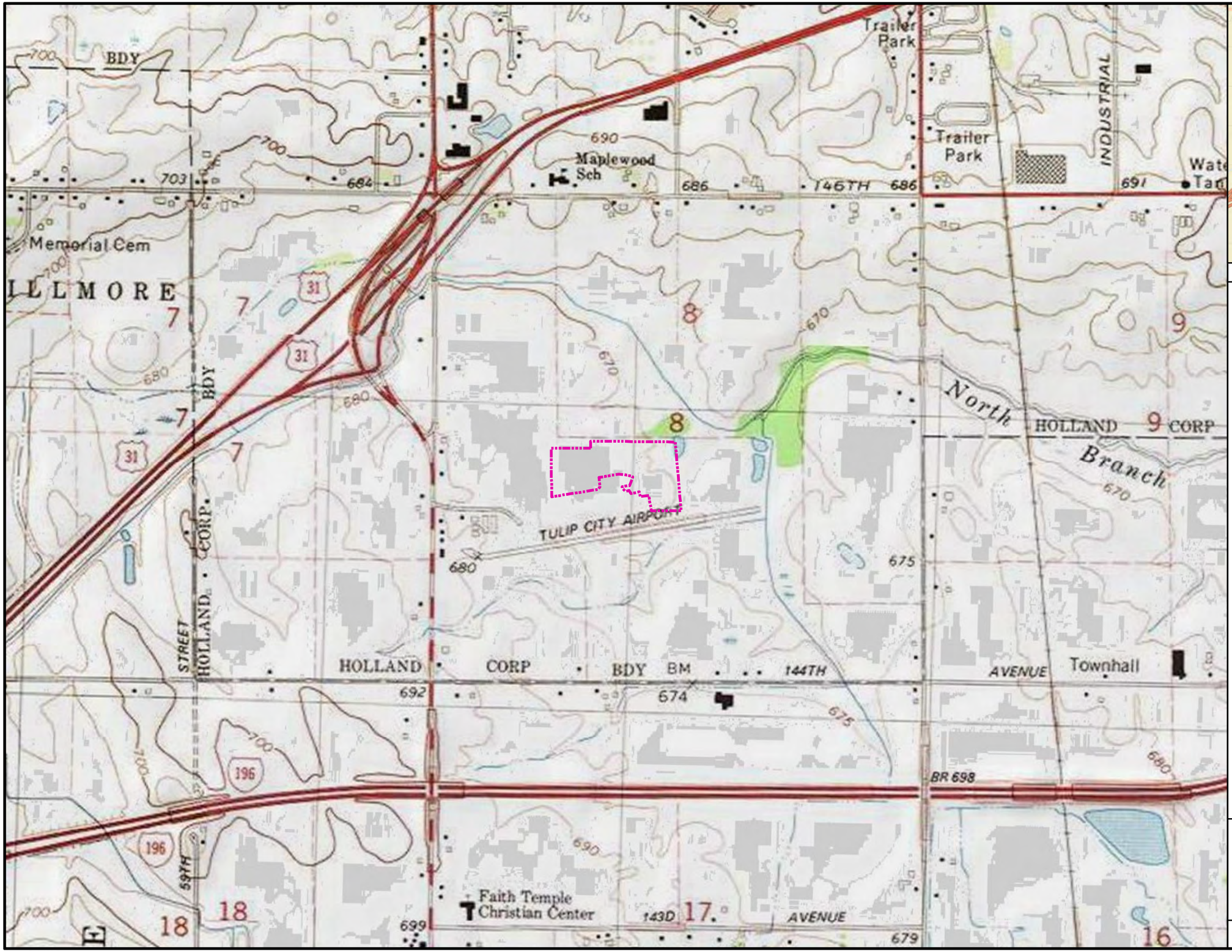
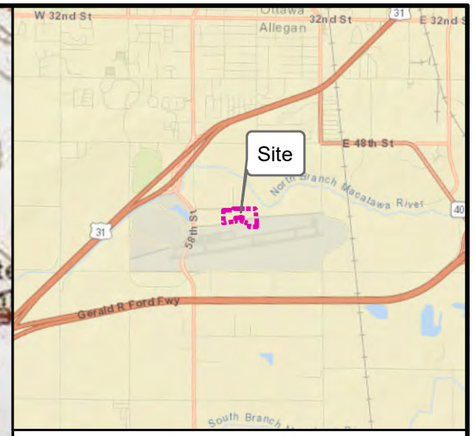
File Name: 01-County.mxd

Edited: 9/27/2022 By: dwilliams





Site Location Map

Legend

Study Area

N

0 500 1,000 2,000 Feet

West Michigan Regional Airport

USGS Topographic Map
Hamilton West Quad

Lawhon & Associates, Inc.

Date:	Approved by:	L&A No.	Figure
Sep 2022	AS	21-0533	2

Source: Esri USA Topo

File Name: 02-Topo.mxd Edited: 9/27/2022 By: dwilliams

Site Location Map

Legend

Study Area

N

0 50 100 200 300 Feet

West Michigan Regional Airport

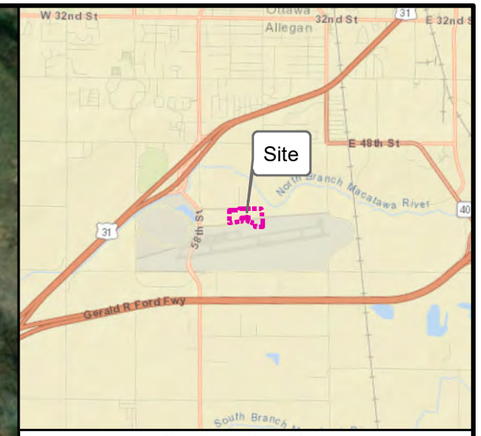
Modern Aerial Imagery Map

Lawhon & Associates, Inc.

Date:	Approved by:	L&A No.	Figure
Sep 2022	AS	21-0533	3

Source: Esri World Imagery

File Name: 03-Aerial.mxd Edited: 9/27/2022 By: dwilliams



Site Location Map

Legend

Study Area

Soil Type

- 17
- 21B
- 64

N

0 50 100 200 300 Feet

West Michigan Regional Airport

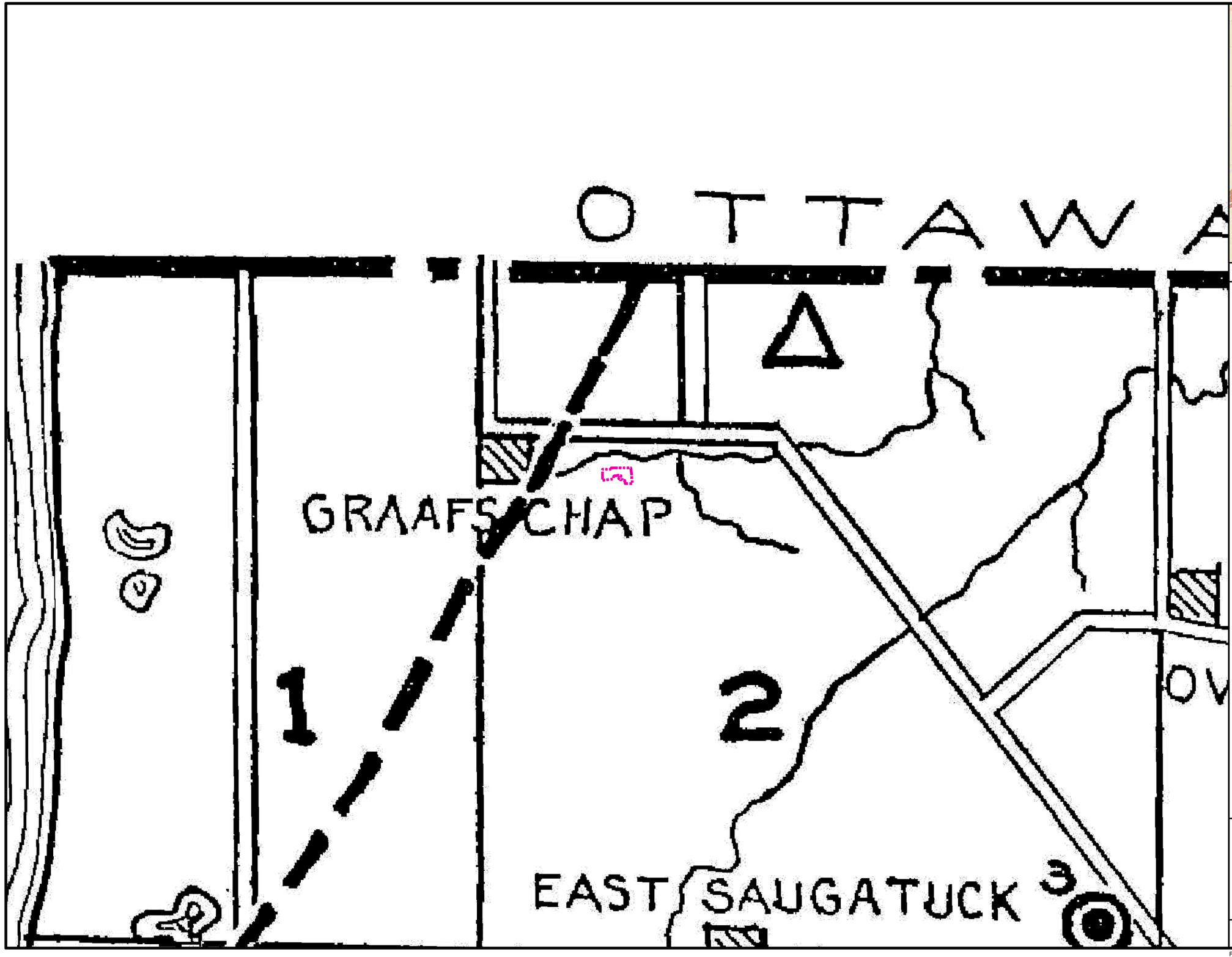
SSURGO Soils Map

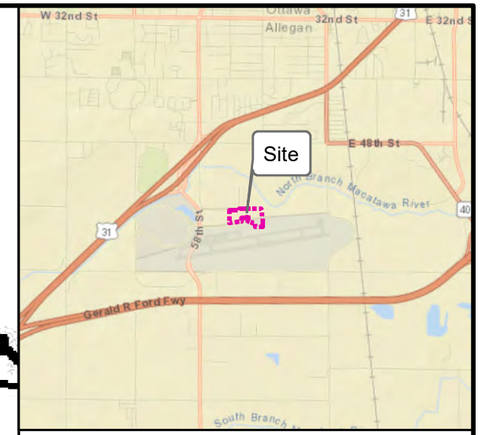
Lawhon & Associates, Inc.

Date:	Approved by:	L&A No.	Figure
Sep 2022	AS	21-0533	4

Source: Esri World Imagery

File Name: 04-Soils.mxd Edited: 9/27/2022 By: dwilliams





Site Location Map

Legend

Study Area

N

0 2,000 4,000 8,000 Feet

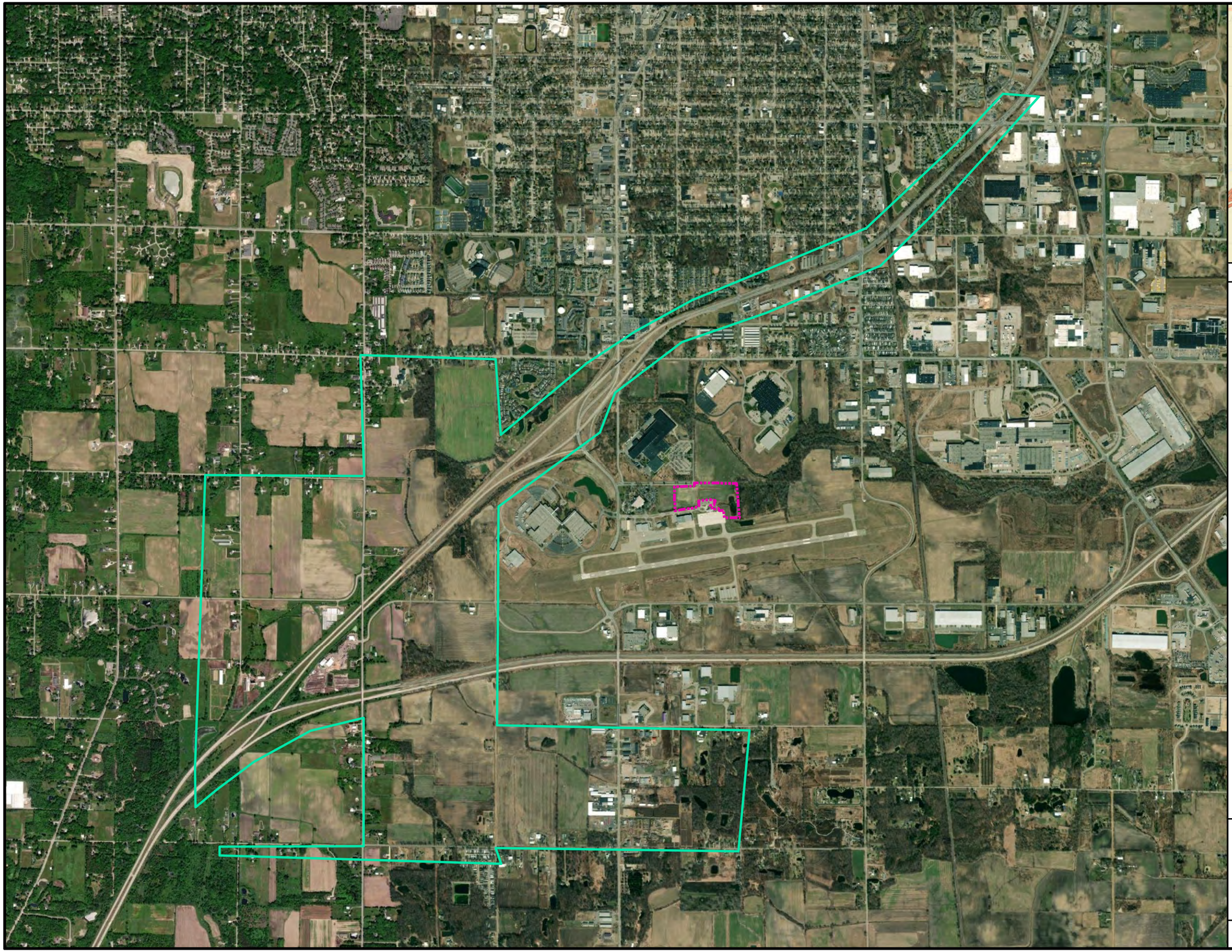
West Michigan Regional Airport

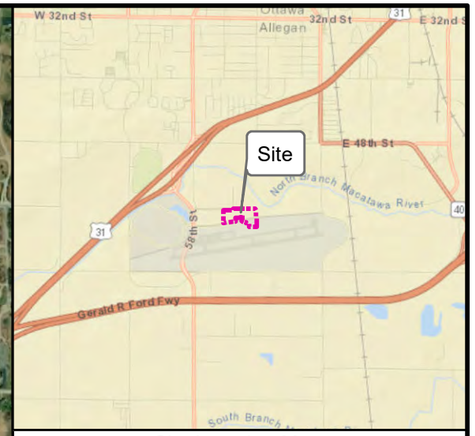
Detail of Hinsdale's 1931 Map of Southwest Lower Peninsula

Lawhon & Associates, Inc.

Date:	Approved by:	L&A No.	Figure
Sep 2022	AS	21-0533	5

File Name: 05-1931.mxd Edited: 9/28/2022 By: dwilliams





Site Location Map

Legend

Study Area

ER940543

N

0 1,000 2,000 4,000 Feet

West Michigan Regional Airport

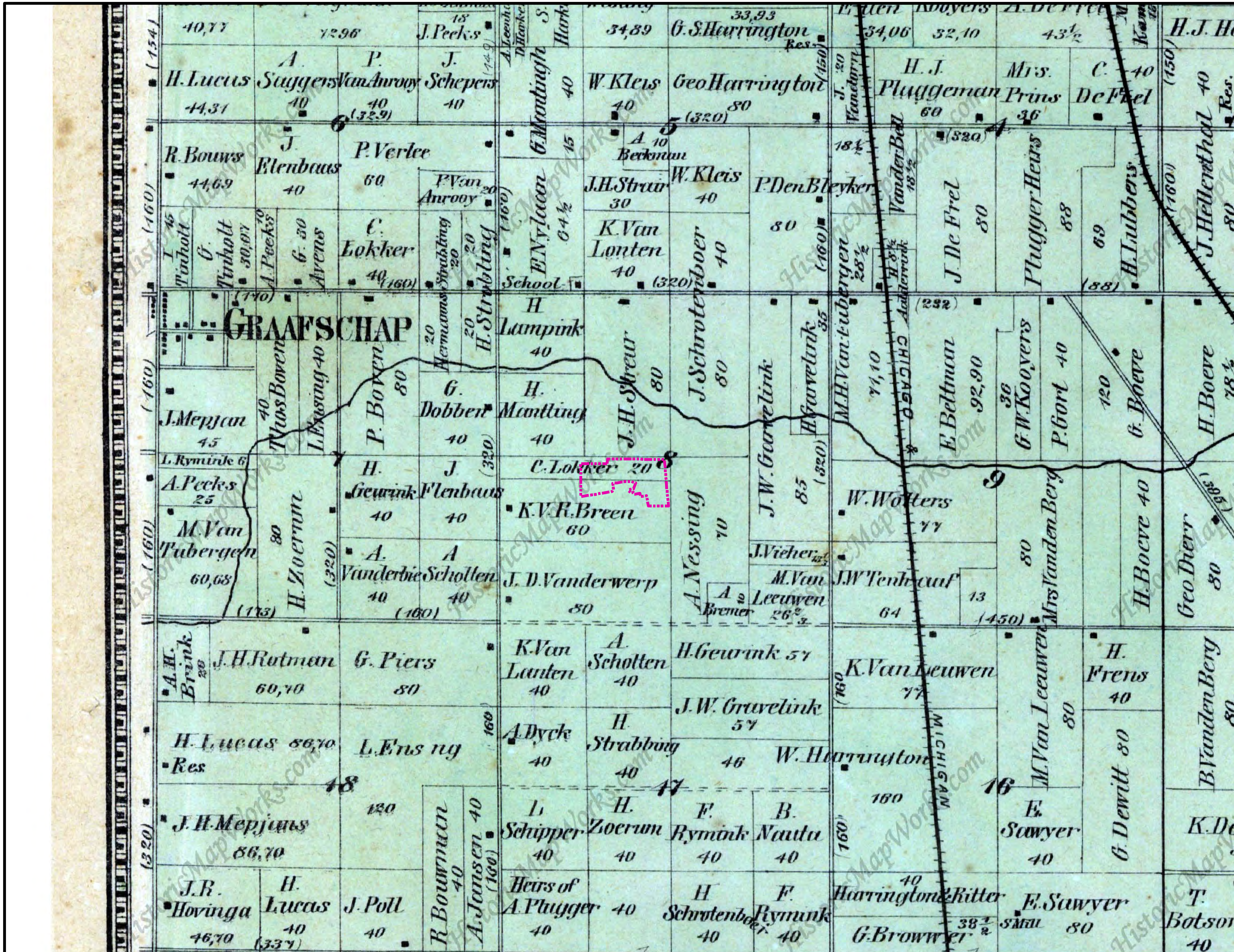
Previously Identified Cultural Resources Surveys

Lawhon & Associates, Inc.

Date:	Approved by:	L&A No.	Figure
Sep 2022	AS	21-0533	6

Source: Esri World Imagery

File Name: 06-Previous surveys.mxd Edited: 9/27/2022 By: dwilliams


GRAAFSCHAP
H. Lucas
A. Saggers
P. VanAnrooy
J. Schepers
G.S. Harrington
Geo Harrington
W. Kleis
H. J. Pluggeman
Mrs. Prins
C. DeFrel
R. Bouws
J. Elenbaas
P. Verlee
J.H. Strur
P. Den Bleyker
C. Lokker
K. Van Lonten
J. De Frel
Plugger Heirs
H. Lubbers
School
H Lampink
J. Schrotenboer
J.H. Streur
J. Mepjan
P. Boven
G. Dobben
H. Mantling
CHICAGO
E. Bellman
G.W. Kooyers
P. Gort
G. Boeve
H. Boeve
A. Pecks
H. Zoerum
M. Van Tubergen
H. Gewink
J. Flenbaas
C. Lokker 20
K.V.R. Breen
A. Nessing
J.W. Gavelink
W. Wolters
J. Vieher
J.W. Tenhauf
A. Vanderbie
A. Schollen
J. D. Vanderwerp
A. Bremer
M. Van Leeuwen
Mrs Vanden Berg
H. Boeve
Geo Dierr
J.H. Rotman
G. Piers
K. Van Lanten
A. Scholten
H. Gewink
K. Van Leeuwen
H. Frens
H. Lucas
L. Ensing
A. Dyck
H. Strabbing
J.W. Gravelink
W. Harrington
MICHIGAN
M. Van Leeuwen
G. Dewitt
B. Vanden Berg
J.H. Mepjans
L Schipper
H. Zoerum
F. Rymink
B. Nauta
E. Sawyer
J.R. Hovinga
H. Lucas
J. Poll
R. Bouwman
A. Jansen
Heirs of A. Plugger
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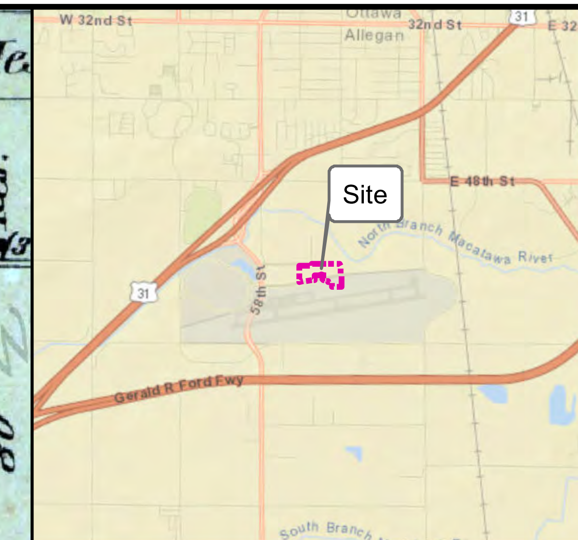
F. Rymink
Harrington & Ritter
E. Sawyer
G. Browwer
T. Botson
HistoricMapWorks.com



Site Location Map

Legend

Study Area

N

0 500 1,000 2,000 3,000 Feet

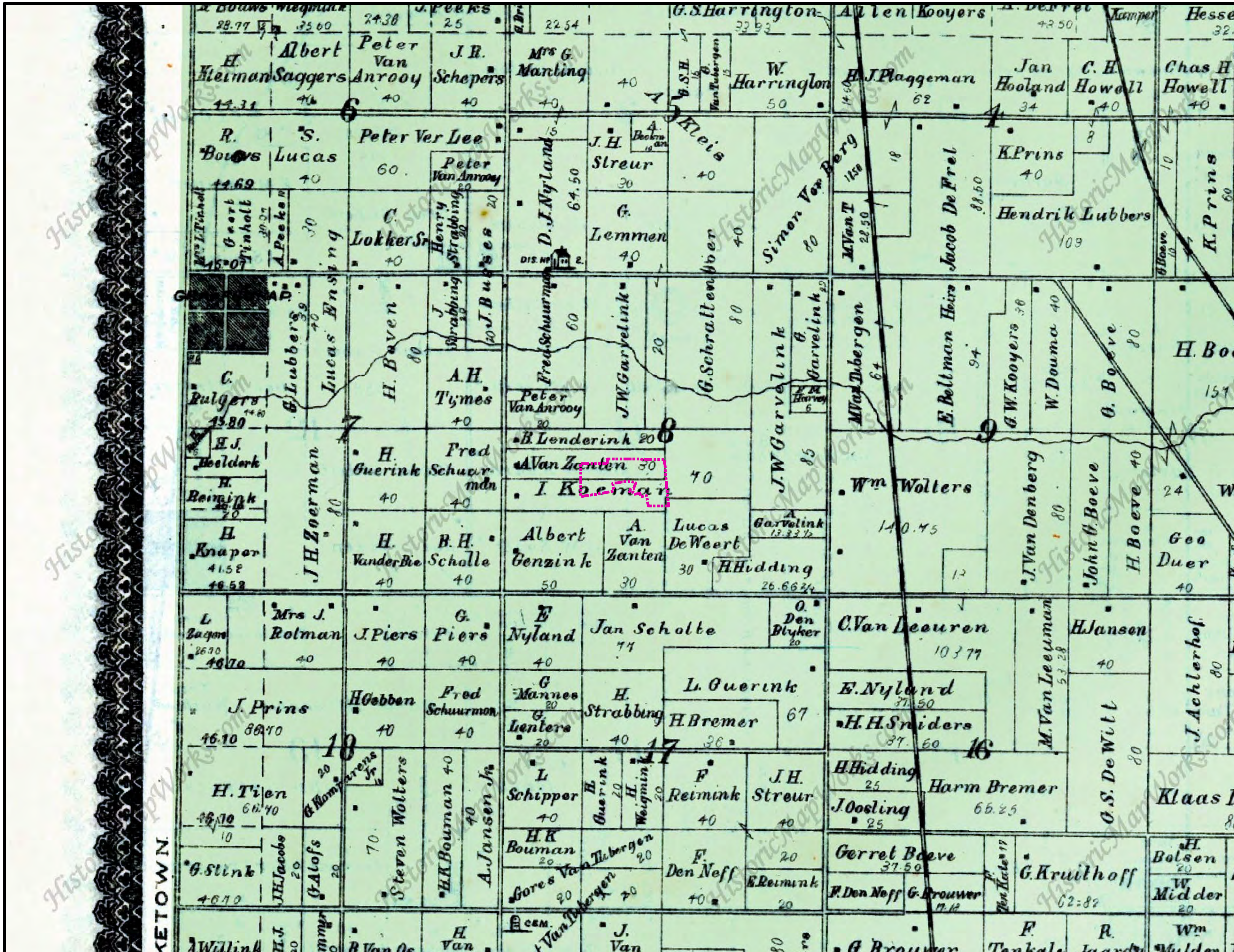
West Michigan Regional Airport

Detail of 1873 Plat of Fillmore Township

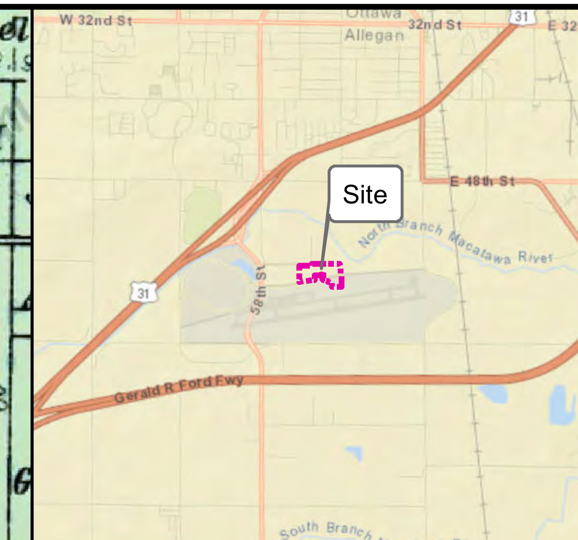
Lawhon & Associates, Inc.

Date:	Approved by:	L&A No.	Figure
Sep 2022	AS	21-0533	7

File Name: 07-1873.mxd Edited: 9/28/2022 By: dwilliams



Albert Saggers
Peter Van Anrooy
J. B. Schepers
Mrs G. Manting
G. S. Harrington
W. Harrington
Allen Kooyers
H. J. Plaggeman
Jan Hooland
C. H. Howell
Chas H Howell
Peter Ver Lee
S. Lucas
C. Lokker Sr
D. J. Nyland
J. H. Streur
G. Lemmen
Simon Ver Berg
Jacob De Frel
K. Prins
Hendrik Lubbers
H. Baven
A. H. Tymes
J. W. Garvelink
G. Schrotten
M. Van Dibergen
E. Beltman Heirs
G. W. Kooyers
W. Douma
G. Boeve
H. Boe
B. Lenderink
A. Van Zanten
I. Kooiman
Fred Schuurman
H. Guerink
J. H. Zoerman
Wm Wolters
J. Van Denberg
John G. Boeve
H. Boeve
Geo Duer
Albert Genzink
A. Van Zanten
Lucas De Weert
H. Hidding
H. Knaper
B. H. Scholte
Mrs J. Rotman
J. Piers
G. Piers
E. Nyland
Jan Scholte
C. Van Leeuren
H. Jansen
J. Prins
L. Guerink
H. Bremer
E. Nyland
H. H. Sniders
M. Van Leeuwen
J. Achterhof
G. S. De Witt
H. Tien
Steven Wolters
F. Reimink
J. H. Streur
Harm Bremer
Klaas D
Gerret Boeve
G. Kruithoff
F. Den Neff
G. Brouwer
F. Tenkate
R. Jaarda
Wm Mulder
A. Willink
B. Van Os



Site Location Map

Legend

Study Area

N

0 500 1,000 2,000 3,000 Feet

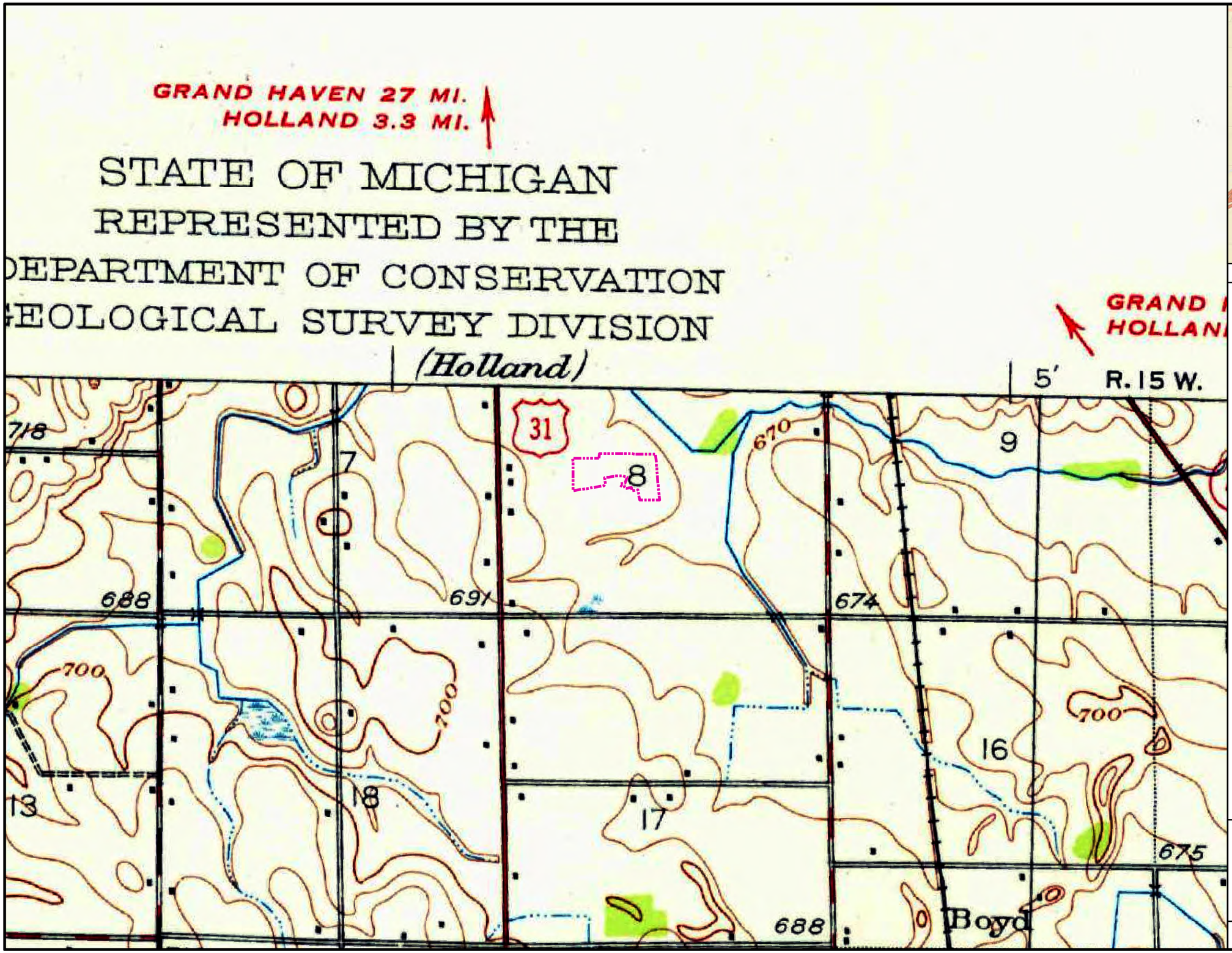
West Michigan Regional Airport

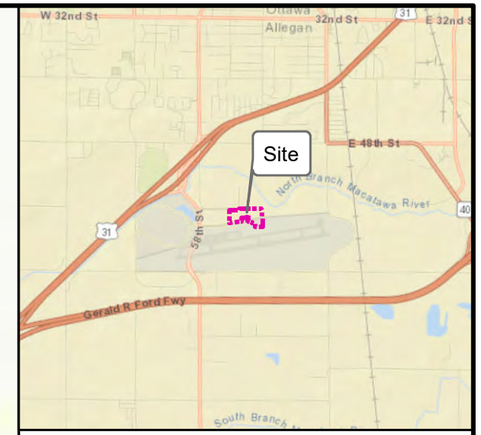
Detail of 1895 Plat of Fillmore Township

Lawhon & Associates, Inc.

Date:	Approved by:	L&A No.	Figure
Sep 2022	AS	21-0533	8

File Name: 08-1895.mxd Edited: 9/29/2022 By: dwilliams





Site Location Map

Legend

Study Area

N

0 500 1,000 2,000 3,000 Feet

West Michigan Regional Airport

1928 Fennville, Michigan

15' Series Topographic Map

Lawhon & Associates, Inc.

Date:	Approved by:	L&A No.	Figure
Sep 2022	AS	21-0533	9

File Name: 09-1928.mxd Edited: 9/29/2022 By: dwilliams

Site Location Map

West Michigan Regional Airport

2016 Google Earth Imagery Showing Project Area Disturbance

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Date:	Approved by:	L&A No.	Figure
Sep 2022	AS	21-0533	10

File Name: 10-2016 imagery.mxd Edited: 9/29/2022 By: dwilliams

Site Location Map

Legend

- Study Area
- Datum
- Negative Shovel Test Unit
- Disturbed Shovel Probe
- Visually Inspected Area
- Photo Location (#)

N

0 50 100 200 300 Feet

West Michigan Regional Airport

Fieldwork Schematic with Photo Orientations

Lawhon & Associates, Inc.

Date:	Approved by:	L&A No.	Figure
Sep 2022	AS	21-0533	11

Source: Esri World Imagery

File Name: 11-Fieldwork.mxd Edited: 9/30/2022 By: dwilliams

Typical STU showing intact plowzone soils

Soil Type: Capac-Wixom Complex
Stratum I: 0-25 cmbs, 10YR 3/2 sandy loam
Stratum II: 25-30 cmbs, 10YR 5/4 clay loam

Typical shovel probe showing mottled disturbed soils

Site Location Map

West Michigan Regional Airport

Typical Test Unit and Shovel Probe

Lawhon & Associates, Inc.

Date:	Approved by:	L&A No.	Figure
Sep 2022	AS	21-0533	12

File Name: 12-Ttu.mxd Edited: 9/29/2022 By: dwilliams

11.0 PHOTOS

Photo 1. Agricultural field in northeast project area, facing west

Photo 2: Agricultural field in northwest project area, facing southeast

Photo 3. Subsurface tested portion of western project area, facing southwest

Photo 4. View of disturbance around ditch in northern project area, facing southeast

Photo 5. Ditch and agricultural fields in project area, facing south

Photo 6. Southeastern project area, facing north-northwest

Photo 7. Central project area, facing northeast

Photo 8. Weedy drainage basin, facing southeast

Photo 9. Recently constructed airport facility, facing southwest

Photo 10. Recently constructed airport facility, facing southeast

APPENDIX A: PROJECT PLANS

Mead & Hunt

Mead and Hunt, Inc.
2440 Deming Way
Middleton, WI 53562
phone: 608-273-6380
meadhunt.com

WEST MICHIGAN REGIONAL AIRPORT
CORPORATE HANGAR PARK

HOLLAND,MI

ISSUED

NOT FOR CONSTRUCTION

M&H NO.: 0819900-170419.01
DATE: 7/31/2019
DESIGNED BY: JMM
DRAWN BY: JET
CHECKED BY: JET
DO NOT SCALE DRAWINGS

SHEET CONTENTS
HANGAR
AREA EXPANSION

SHEET NO.
C-102

X:\0819900\170419.01\TASK 2 - PRELIMINARY ENGINEERING FOR HANGAR LAYOUT\TECH\CADD\DRAWINGS\HANGAR ALT 5.2.DWG