PLANNING COMMISSION MEETING

LOCATION: TOWNSHIP ANNEX, 7527 HIGHLAND ROAD, WHITE LAKE, MICHIGAN, 48383
(FORMER WHITE LAKE LIBRARY)
THURSDAY, OCTOBER 20, 2022 – 7:00 PM

White Lake Township | 7525 Highland Rd | White Lake, MI 48383 | Phone: (248) 698-3300 | www.whitelaketwp.com

AGENDA

1. **CALL TO ORDER**
2. **ROLL CALL**
3. **PLEDGE OF ALLEGIANCE**
4. **APPROVAL OF AGENDA**
5. **APPROVAL OF MINUTES**
   - A. Minutes of October 6, 2022
6. **CALL TO THE PUBLIC (FOR ITEMS NOT ON THE AGENDA)**
7. **PUBLIC HEARING**
8. **CONTINUING BUSINESS**
9. **NEW BUSINESS**
   - **A. Master Plan Firm Interviews** (to begin at the approximate times below) :
     1. 7:15 p.m. - Houseal Lavigne (participating via Zoom)
     2. 8:05 p.m. - Beckett & Raeder (participating via Zoom)
10. **OTHER BUSINESS**
    - A. Section 61 Review
11. **LIAISON'S REPORT**
12. **PLANNING CONSULTANT'S REPORT**
13. **DIRECTOR'S REPORT**
14. **COMMUNICATIONS**
15. **NEXT MEETING DATE:** November 3, 2022 & November 17, 2022
16. **ADJOURNMENT**

Procedures for accommodations for persons with disabilities: The Township will follow its normal procedures for individuals with disabilities needing accommodations for effective participation in this meeting. **Please contact the Township Clerk's office at (248) 698-3300 X-164 at least two days in advance of the meeting.** An attempt will be made to make reasonable accommodations.

WHITE LAKE TOWNSHIP
PLANNING COMMISSION

Township Annex, 7527 Highland Road
White Lake, MI 48383
October 6, 2022 @ 7:00 PM

CALL TO ORDER

Commissioner Anderson called the meeting to order at 7:00 PM and led the Pledge of Allegiance. Roll was called.

ROLL CALL

Steve Anderson
Pete Meagher
Debby Dehart
Matt Slicker
T. Joseph Seward
Scott Ruggles
Robert Seeley
Merrie Carlock
Mark Fine

Absent: None

Also Present: Sean O'Neil, Community Development Director
Justin Quagliata, Staff Planner
Mike Leuffgen, DLZ
Lisa Kane, Recording Secretary

Visitors: Approximately 20 members of the public were present

APPROVAL OF AGENDA

Commissioner Seeley moved to approve the agenda of the October 6, 2022 Planning Commission Meeting.
Commissioner Dehart supported and the MOTION CARRIED with a voice vote: 9 yes votes.

APPROVAL OF MINUTES

a. Regular meeting minutes of September 1, 2022

Commissioner Meagher moved to approve the Minutes of September 1, 2022.
Commissioner Fine supported and the MOTION CARRIED with a voice vote: 9 yes votes.

CALL TO THE PUBLIC (FOR ITEMS NOT ON THE AGENDA)

None

PUBLIC HEARING

A. Cosmo's Car Wash

Location: Property described as parcel number 12-20-276-034, located at the northwest corner of Highland Road (M-59) and Bogie Lake Road, consisting of approximately 1.88 acres, currently zoned (PB) Planned Business.

Request: **To receive public comment on the proposed preliminary site plan for the above Planned Business zoned property, consisting of a 4,535 square foot automobile wash establishment.**

Applicant: EWM- Miller Wash, LLC
201 East Ogden Ave, Ste #18-1
Hinsdale, IL 60521

Applicant present: John Pellegrene of Development Management Associates and Cameron Ray, Head of Operations, EWM-Miller Wash, LLC

Director O'Neil clarified that the applicant is requesting preliminary site plan approval.

Mr. Quagliata presented the project as a car wash establishment that would have road access from the Meijer private drive. This parcel size was determined prior to the 10-acre ordinance requirement so it will not require a waiver for size. No wetland or floodplain is impacted at the site and it is a relatively flat lot. The applicant proposes 20 vacuum stations to the west of the building which will be covered by a canopy. The applicant has agreed to all engineering comments. There is a sidewalk along the Meijer private drive on the site plan that needs clarification. Public utilities are available to this site. There will be waivers requested; including the setback from Bogie Lake Road, the number of stacking spaces, window coverage for the front façade, loading space and dumpster enclosure location. The landscaping comments have been addressed. A community benefit of $15,000 has been proposed to either the parks fund or sidewalk fund. As the applicant has agreed to address all comments, staff recommends approval.

Mr. Leuffgen presented the engineering review. The drive lane requirement adjacent to the handicap parking space has been satisfied. The number of stacking spaces are deficient. Details are needed for the dumpster enclosure. Clarification needed for the proposed sidewalk. Details are needed for the fire truck turning radius near the vacuum stalls. There is an area near the existing sign that will need grading for drainage. A storm water maintenance agreement is needed, whether they will fall under Meijer's or have their own agreement. A sanitary sewer oil/grit separator clarification is needed. Many of these items can clarified on final site plan.

Commissioner Carlock inquired about the revised plans that were requested.

Mr. Quagliata stated that the revised plans have not been received yet but the applicant has committed to address all of the comments by staff.

Mr. Pellegrene stated that they agree to meet all of the recommendations from staff and engineering and that they are very interested in partnering with the Township.

Commissioner Fine inquired about water reclamation process for the car wash and how oil is contained.

Mr. Ray stated that there are a series of tanks in the ground that separate all the oil and grit. The first 3 tanks are pumped out every 6 months and there are oil sensors inside the tanks.

Commissioner Slicker inquired how this operation is different from other car wash operations in the area.

Mr. Ray stated that there are a greater number of attendants on site to assist customers. Attendants are highly trained and well paid, which motivates them to give high value of service to the community.

Commissioner Dehart inquired about the other out lot on the Meijer property and would like to see a shared driveway agreement.

Mr. Pellegrene stated that they have been in communications with the group considering developing that lot and they have shared the grading plan so that they can consider a plan for a shared driveway.

Commissioner Meagher is concerned with the community benefit.

Mr. Quagliata stated that the community benefit should be commensurate with the waivers requested.

Director O'Neil clarified that they typically consider not just the number of waivers requested, but the significance of the requested waiver.

Commissioner Anderson stated that a recommendation can be made at this step of the process and consideration can be modified before final site plan review.

Mr. Ray stated the community benefits that they intend to provide in addition to the $15,000 would include Back to School drives, Teacher Appreciation Week, School District staff lunches, Annual Thanksgiving food drives and Annual Toys for Tots drive.

Commissioner Anderson inquired about the cost of the services.

Commissioner Anderson opened public comment at 7:32 p.m.

Ed Liker of 847 W. Oxhill Dr. is concerned about water runoff being tracked onto the road being dangerous when it ices over.

Mr. Ray stated that they have blowers which push the water into the water separators to reduce water run-off and the 20 feet before and at the exit concrete slabs are heated.

Commissioner Anderson closed public comment at 7:35 p.m.

Commissioner Dehart inquired when the waivers are granted.

The board deliberated the waivers that have been requested.

Commissioner Meagher moves to forward a favorable recommendation, subject to the applicant addressing all of the staff and consultant comments and recommendations to the Township Board, the preliminary site plan for the property described as parcel number 12-20-276-034, located at the northwest corner of Highland Road (M-59) and Bogie Lake Road, consisting of approximately 1.88 acres, currently zoned (PB) Planned Business.

Commissioner Seeley supported, and the MOTION CARRIED with a roll call vote (9 yes votes): (Anderson/yes, Dehart/yes, Carlock/yes, Fine/yes, Meagher/yes, Seeley/yes, Seward/yes, Slicker/yes, Ruggles/yes)

B. Black Rock

Location: Property described as parcel number 12-23-129-018, located south of Highland Road and east of White Banks Blvd, consisting of approximately 1 acre. Currently zoned as (GB) General Business.

Request: **Preliminary Site Plan Approval**
Special Land Use Approval- The applicant is requesting to construct a restaurant with outdoor dining.

Applicant: Black Rock White Lake, LLC
30553 S Wixom Road #300
Wixom, MI 48393

Applicant present: Wayne Perry with Design Engineering and Lonny Morganroth, owner of Black Rock

Director O'Neil clarified that the lot size is 2.7 acres, not 1 acre as indicated on the agenda. The driveway location on M59 may require a variance due to proximity to White Banks Blvd. A right lane deceleration taper on eastbound M59 has been indicated by the applicant's traffic engineer. The building materials will be presented at the final site plan review. The window percentage on the west façade is deficient by a small amount. The landscaping will be addressed at final site plan review. The number of parking spaces has been reduced to 128 spaces, due to the reduced size of the building. A sign variance would be requested for the location of the digital area of the proposed sign. The proposed sign on the east wall would require a variance. The door handles will not require a variance as they fall under incidental signage. Outdoor seating requires a special land use approval by the Commission. The hours of operation will need to meet the ordinance, the applicant has not indicated what hours they would be requesting. The lighting plan was revised to reduce the impact on the neighbors. No additional parking is needed for the outdoor seating. Staff recommendation for approval is subject to meeting all comments in the staff review letter and obtaining any necessary variances.

Commissioner Seeley inquired if they could reduce the number of parking spaces and still be within tolerances for the ordinance.

Director O'Neil stated that they could, however the applicant indicated that they believe they will need all of the spaces on the plan during weekends, holidays and special events. The applicant moved secondary access further north to accommodate the neighbors' request. Employees would be parking in the lot furthest from the door which reduces the noise in that area.

Mr. Leuffgen presented the engineering review. This site plan demonstrates engineering feasibility for this level of plan submittal. The storm sewer will require a permit from M-DOT to outlet into the road right of way. The site utilizes underground detention storage for storm water. There are possible contamination tanks near the Speedway. Environmental reports have been presented indicating no contamination impacting this site. Engineering is committed to reviewing the site to make sure there are no adverse impact on adjacent properties.

Commissioner Carlock inquired how many parking spots over what is required by the ordinance.

Director O'Neil stated there were 31 parking spots over the requirement of the ordinance.

Mr. Perry responded on behalf of the owner of Black Rock White Lake. MDOT has responded that the entrance on M59 has to move about 50 feet to the west, which will align with the convenience store across the street. They anticipate approval for the storm water drainage to drain to M59. Due to the utility easement on the southern property line, they are not able to plant any landscaping in that area. At the

request of staff, they have lowered the lights and have them facing the restaurant so that they will not impact the residences.

Commissioner Seeley inquired if the lighting continues around the parking lot.

Mr. Perry stated that it does.

Commissioner Carlock inquired if some parking spaces could be removed to increase landscaping.

Mr. Perry stated that the Black Rock restaurant has a high volume of customers at the end of the week and the weekend and they will need to utilize all of the parking spaces indicated on the plan.

Director O'Neil inquired about the revision to the parking lot with the entrance moving west on M59.

Mr. Perry presented an updated site plan which indicates the change to the entrance and parking spaces. The handicap spaces move to the curb and closer to the front door, which is a better location for them.

Commissioner Ruggles inquired about the entrance shift on White Banks Blvd. to the north and noted that it appears they have made effort to accommodate the residents.

Commissioner Slicker inquired about a line on the west side of the rear parking indicated on the site plan.

Mr. Perry stated that it is an existing retaining wall that belongs to the neighbors, which is encroaching on their property.

Commissioner Anderson opened public comment at 8:19 p.m.

Dan Torossian of 844 E. Oxhill is concerned about the entrances on M59 and on White Banks Blvd.

Brenda of 232 Cranberry Beach is concerned about traffic to get into her home and would like a traffic light.

Heather Emerson of 846 W. Oxhill is concerned about traffic and believes a traffic light would alleviate much of the problem. Ms. Emerson would like to see less parking spaces and would like to see a "no outlet" sign on White Banks Blvd. She is also concerned about the possibility of outdoor speakers, what the hours would be and if they would play music or just be for announcements.

Bill of 232 Cranberry Beach is concerned about storm water run-off during winter with snow removal.

Christopher Emerson of 846 W. Oxhill is also concerned about traffic coming into his neighborhood and the peninsula of parking near the residences.

Ed Liker of 847 W. Oxhill Dr is concerned about traffic on M59 and the weeds being maintained between the retaining wall and privacy fence.

Lois Demers of 860 W. Oxhill Dr would like to see the parking spaces removed so they are not next to the residential lot.

Theresa Bismack of 548 E. Oxhill Dr. is concerned about traffic as well and would like to see a traffic light at this location.

John Hunt of 871 Oxhill Dr would like to speak with Mr. Perry. He is very concerned about the grading next to his house where the parking lot will be and does not want to have the parking lot next to his property.

David Youngquist of 669 Robar Circle doesn't believe this restaurant will be successful at this location.

Debbie Torossian of 844 E. Oxhill inquired if there is a screen wall at the end of the parking area, where the location of the dumpster will be and about the lighting plan. She also inquired if there has to be two entrances.

Director O'Neil addressed the lighting and stated that no outdoor speakers are allowed. The Township has no authority over traffic lights on M59, only MDOT can authorize a new traffic light and encouraged the residents to appeal to MDOT to consider a traffic light at that location.

Commissioner Anderson closed public comment at 8:48 p.m.

Mr. Perry addressed the storm water and snow melt retention on the site, acknowledged the drainage challenges and stated that they propose to raise the site and have it slope inwards towards the drain for the underground detention. Under the parking lot will be a large, underground detention infiltration system. The dumpster location is near the building, not in the south parking lot, and parking islands are a requirement of the ordinance.

Mr. Morganroth founder of Black Rock is a Lakeland High School graduate and is happy to bring this restaurant home. Mr. Morganroth purchased the property is 2002 and removed the dilapidated building years ago. He believes that the restaurant will be successful at this site and stated that he gives back to the community where they have restaurants. They will have 150 employees.

Commissioner Anderson thanked Mr. Morganroth for speaking.

Commissioner Carlock inquired about the second entrance on White Banks and if it was eliminated would it change the location of the parking spaces.

Director O'Neil stated that a traffic engineer would need to address the issue.

Commissioner Seeley stated that the second entrance could keep traffic from entering the neighborhood looking for the entrance to the restaurant.

The board deliberated the two proposed entrances to the restaurant.

Director O'Neil stated that the "no outlet" sign on White Banks Blvd. was an excellent idea and encourages the residents to request that of the Road Commission, and the Township will request it as well.

Commissioner Carlock inquired about "no parking" signs on White Banks Blvd.

Director O'Neil stated that the Road Commission would need to address that request and that it is a long process that involves the Michigan State Police.

Commissioner Seward moved to approve the Special Land Use subject to all staff and consultant review comments being addressed and obtaining approval of final site plan approval for the property described as parcel number 12-23-129-018, located south of Highland Road and east of White Banks Blvd, consisting of approximately 1 acre. Currently zoned as (GB) General Business.

Commissioner Fine supported, and the MOTION CARRIED with a roll call vote (9 yes votes): (Anderson/yes, Dehart/yes, Carlock/yes, Fine/yes, Meagher/yes, Seeley/yes, Seward/yes, Slicker/yes, Ruggles/yes)

Commissioner Meagher moves to forward a favorable recommendation, subject to the applicant addressing all of the staff and consultant comments and recommendations, upon Zoning Board of Appeals approvals and posting that the parking area known as "the leg" will be posted as Employees Only, to the Township Board, the preliminary site plan for the property described as parcel number 12-23-129-018, located south of Highland Road and east of White Banks Blvd, consisting of approximately 1 acre. Currently zoned as (GB) General Business.

Commissioner Fine supported, and the MOTION CARRIED with a roll call vote (7 yes votes): (Anderson/yes, Dehart/no, Carlock/no, Fine/yes, Meagher/yes, Seeley/yes, Seward/yes, Slicker/yes, Ruggles/yes)

CONTINUING BUSINESS

None

NEW BUSINESS

None

OTHER BUSINESS

A. New Hope Landscape Reduction Request

Applicant present: Rumi Shahzad of New Hope White Lake, LLC

Director O'Neil stated Site Plan for this approval was granted in July of 2020. This request for modification will need to be forwarded to the Township Board for approval as it will necessitate an amendment to the Planned Development Agreement.

Mr. Shahzad addressed the request to scale back the overall landscaping of the project, noting that there are large forested areas on the site which remain natural area. They accommodated a request of one neighbor who could see the building from their home and installed a fence. Mr. Shahzad proposes that the current, existing trees and the new landscaping be adequate as built.

Director O'Neil stated there are three options: approve this request as it is, deny the request and have him add the trees or suggest something else.

Commissioner Anderson inquired what landscaping is lacking.

Director O'Neil stated the deficiency is in the courtyard area and all screening landscaping has been provided.

The board deliberated the landscaping deficiencies and if variances were granted.

Rick Brown of 8159 High Point Trail shared that he is a nearby resident and his sister will be a resident of New Hope White Lake. Mr. Brown would like to see the facility open soon.

Commissioner Carlock moves to forward a favorable recommendation to the Township Board to allow a general 40% reduction in landscaping that the landscaper and land owner find most useful and subject to administrative review.

Commissioner Seeley supported, and the MOTION CARRIED with a roll call vote (9 yes votes): (Anderson/yes, Dehart/yes, Carlock/yes, Fine/yes, Meagher/yes, Seeley/yes, Seward/yes, Slicker/yes, Ruggles/yes)

B. Master Plan Update

Director O'Neil presented a brief update on the RFP for the Master Plan. Seven firms were sent Request for Proposals and 2 firms have responded. They will present to the Planning Commission at the next meeting.

LIAISON'S REPORT

Commissioner Ruggles stated that the Township Board approved the Capital Improvement Plan. The Road Commission of Oakland County has approved the potential road design entrance to the new Town Hall on Elizabeth Lake Road. The Board also approved DLZ to do the engineering for the project.

Commissioner Dehart reported that the Zoning Board of Appeals states that the sign ordinance needs to be discussed.

Commissioner Carlock reported that they are working on the 5-year Parks & Rec plan. They will be meeting with the National Park Service regarding threatened and endangered species. Trunk or Treat next Saturday.

DIRECTOR'S REPORT

None

COMMUNICATIONS

NEXT MEETING DATES: October 20, 2022
November 3, 2022

ADJOURNMENT

Commissioner Fine moved to adjourn the meeting at 9:53 PM
Commissioner Carlock supported and the MOTION CARRIED with a voice vote: 9 yes votes

WHITE LAKE TOWNSHIP
PLANNING COMMISSION

REPORT OF THE
COMMUNITY DEVELOPMENT DEPARTMENT

TO: **Planning Commission**

FROM: **Sean O'Neil, AICP, Community Development Director**

Justin Quagliata, Staff Planner

DATE: **October 14, 2022**

RE: **Section 61 Reviews**

The Township Board plans to authorize construction and financing of a Public Safety Building to house both the Police and Fire departments, as well as a Civic Center (Township Hall) for municipal offices on Parcel Number 12-22-351-006 ("Township Property"). Additionally, Stanley Park development is slated to commence Spring/Summer of 2023 at 10785 Elizabeth Lake Road (Parcel Number 12-27-100-014). The ability of the Township to maintain acceptable levels of service and quality of life for existing and new residents is the focus of these development efforts. While the Township Board is committed to pursuing the aforementioned projects on its Elizabeth Lake Road properties, a Section 61 review must be completed by the Planning Commission. At its October 18, 2022 meeting the Township Board will consider referring these projects to the Planning Commission to review the location, character, and extent of the properties.

Section 61 of the Michigan Planning Enabling Act (the "MPEA," Public Act 33 of 2008) requires Planning Commission review and approval of the location, character, and extent for the construction/purchase of new public streets, parks, open space, buildings, and other public facilities. This process is called a Section 61 Review. The MPEA does not require a public hearing for Section 61 reviews. If the Planning Commission denies a request and the Township Board disagrees with the decision, it can overrule the Planning Commission by a 2/3 majority vote. If the Planning Commission fails to act within 35 days after submission of the proposal to the Planning Commission, the project(s) are considered to be approved by the Planning Commission.

Master Plan

The Future Land Use Map from the Master Plan designates both properties in the Planned Community category, which is characterized by a mix of uses including higher residential densities and a variety of housing product types as well as a core area with retail, dining, entertainment, governmental, recreational, institutional, office, and personal service establishments. Residential elements of a Planned Community may take the form of a freestanding neighborhood, or may be permitted on the upper floors of nonresidential development in the community core area. Multi-use/story buildings are expected to have two or three stories, however open space must be provided. Connections to and segments of the Township community-wide pathway system are required as an integral part of all developments.

The Master Plan includes the following guidelines for physical form in the Lakes Town Center Focus Area:

- Higher density residential, often in the form of upper floors in mixed use retail or office development.

- Unifying visual development features, such as: special pedestrian pavements, light fixtures, landscaping, way-finding sign systems, highest quality architecture, timeless design that avoids “theme” concepts, and the like.

- Unique and attractive roadway features that also promote pedestrian safety, such as: landscaped boulevards, special crossing features, refuge areas in the center of wide crossings, mast-arm signals incorporating lighting and signage systems, and on-street parking.

- Terminated Vistas that provide attractive locations for civic anchors, such as major retailers or institutional, civic, museum, or religious uses.

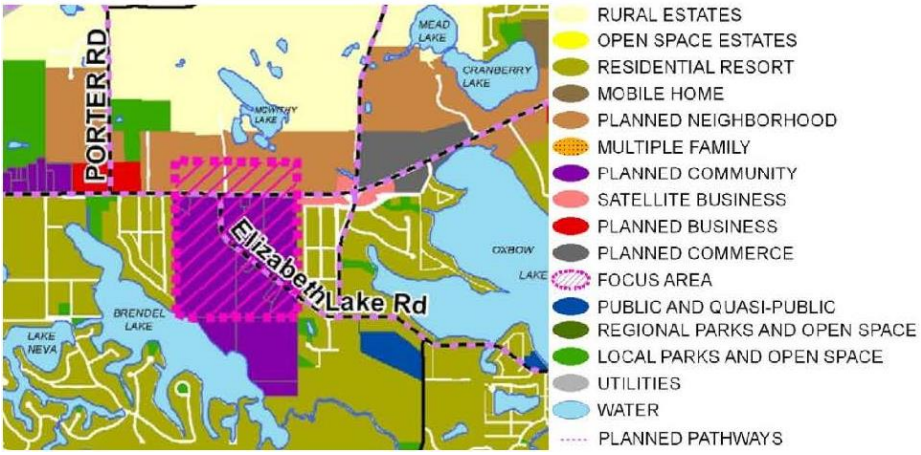
- Terminated Vistas also can be used to: screen less attractive elements, such as parking lots; and draw residents and visitors toward a destination, thereby encouraging pedestrians to walk and enjoy all that Lakes Town Center has to offer.

- Parking should be provided both on-street, to enhance the appearance of convenience and improve safety for pedestrians, and in convenient but thoughtfully-screened parking lots or parking structures that include landscaping for beauty and to provide shade, thereby reducing the “heat island” effect.

- Compact development allows buildings to be concentrated into a form that is more walkable.

- Sidewalk, alleys, and mid-block connections all contribute to a walkable area that is easy to navigate.

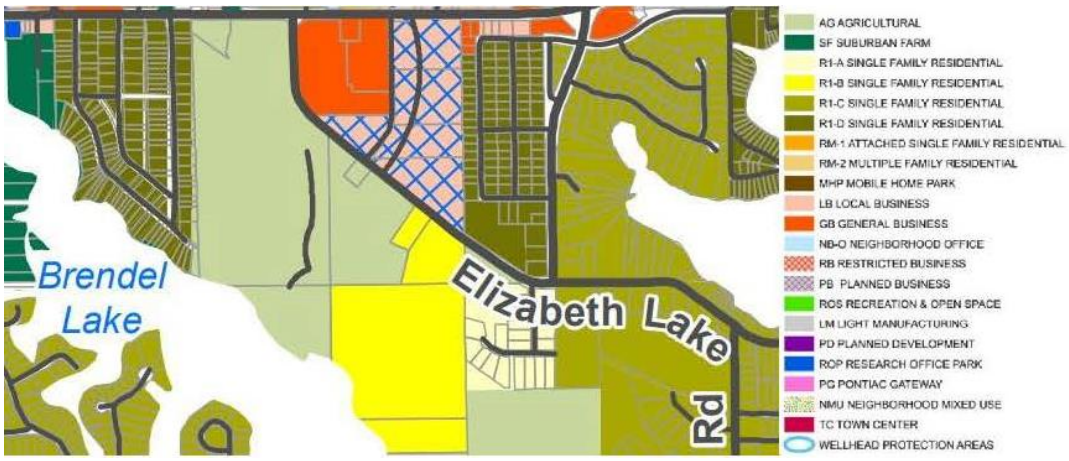
FUTURE LAND USE MAP



Zoning

The Stanley Park property is zoned R1-B (Single-Family Residential) and the Township Property has split zoning; a majority of the site is zoned AG (Agricultural) and approximately an acre at the southeast side of the site is zoned R1-B. Outdoor recreation uses, other public and private parks and similar outdoor recreation uses are permitted principal uses in the R1-B zoning district. Government (Township only) offices, buildings and uses without service or storage yards is a special land use in the AG and R1-B zoning districts. The Township Board intends to rezone both properties in the future. Stanley Park will be rezoned to ROS (Recreation and Open Space). The Township Property will likely be rezoned to TC (Town Center) and/or PD (Planned Development) or PB (Planned Business), or a combination of the districts. Note at its meeting on February 15, 2022 the Township Board approved the final adoption for the rezoning of the parcels west of the park property and Township Property from AG to RM-2 (Multiple-Family).

ZONING MAP



Physical Features

Both properties are currently undeveloped. Stanley Park is the site of the former Brendel Lake Campground. According to previous natural features inventory of the park, significant hardwood trees are located on the property. There are also a number of wetlands on the park property. The Township Property is also encumbered by a wetland complex on the west side of the site.

Staff Analysis

It is anticipated the Township Board will refer to the Planning Commission the construction of a Public Safety Building and Civic Center (Township Hall) on Parcel Number 12-22-351-006, as well as the development of Stanley Park at 10785 Elizabeth Lake Road (Parcel Number 12-27-100-014). Section 61 of the MPEA requires Planning Commission review and approval of the location, character, and extent for the construction/purchase of new public streets, parks, open space, buildings, and other public facilities. **Location** refers to a site's placement in the Township and its surroundings. **Character** includes a site's distinguishing features. **Extent** includes the dimensions of a site; Stanley Park is approximately 59 acres in size (32.42 acres of wetland) and the Township Property is approximately 26 acres in size (15.25 acres of developable area).

When reviewing a proposed project, the Planning Commission should at a minimum consider the following issues:

- Is the project consistent with adopted plans?
- Is the project consistent with the adopted Capital Improvement Plan (CIP)?
- Is the project consistent with other Township governmental management plans?

The Planning Commission should conduct a formal review of the proposed projects and act by adoption of a motion that include findings of fact, recitation of reasons, and the action.

Construction of a new Public Safety Building and Civic Center is consistent with the Public Services goal of the Master Plan, which states, "Provide efficient public services that adequately and safely support the existing and future population of White Lake Township." Strategy #2 listed in the Master Plan to achieve the aforementioned goal is, "Analyze the number and size of Township fire, police, and EMS facilities and allocate new facilities to provide appropriate geographic coverage and response times." Strategy #3 listed in the Master Plan to achieve the aforementioned goal is, "Expand or relocate the Township Hall to provide the space and facilities necessary to administer Township business and properly serve residents and businesses." It is not feasible to expand and renovate existing facilities to support operations of the Township. The CIP has included new facilities in some form since 2010.

The Parks and Recreation Master Plan identified the acquisition of the Brendel Lake Campground property as a high priority since 2009. Goal 2 of the current 5-Year Recreation Plan is, "Pursue the acquisition or expansion of local land for park and recreation facilities." The Brendel Lake Campground acquisition was in the CIP since 2010 and in 2018 the Township received a grant from the Michigan Natural Resources Trust Fund (MNRTF) to acquire the property (the property ownership transferred to the Township in 2019). Stanley Park construction has been in the CIP since 2021, and in 2021 the Township received a $500,000 Land and Water Conservation Fund (LWCF) grant for development of Phase 1.

Planning Commission Options

The Planning Commission may approve or deny the Section 61 Reviews. **Staff recommends approval of the Section 61 Reviews for both projects.**

Attachments

1. Stanley Park Conceptual Master Plan.
2. Stanley Park Conceptual Site Plan – Phase 1.
3. Stanley Park Survey.
4. Stanley Park Wetland Delineation Report.
5. Township Property Concept Plan.

White Lake Township

Stanley Park Conceptual Master Plan

Draft January 2021

Beckett&Raeder

ELIZABETH LAKE ROAD

POROUS PAVEMENT
PARK ENTRANCE SIGN
HALF-COURT BASKETBALL STRIPING
BERM W/ EVERGREEN BUFFER

FUTURE CIVIC CENTER DEVELOPMENT

UPPER PARKING LOT

PICNIC SHELTER W/ PICNIC TABLES

FUTURE AMPHITHEATER SEATING FOR +/- 240

STAGE
BAND SHELL

CONNECTION TO CIVIC CENTER

CONCRETE SIDEWALK, TYP.
UNOBSTRUCTED HILLSIDE FOR SLEDDING (CLOSE PARK ROAD FOR SAFETY)
PARK SECURITY GATE

BITUMINOUS PAVEMENT W/ CURB & GUTTER

RENOVATE EXISTING BUILDING FOR RESTROOMS AND STORAGE

BITUMINOUS TRAIL, TYP
WOODEN BOLLARDS
GRAVEL PAVEMENT

PICNIC SHELTER W/ PICNIC TABLES & 2 PICKLEBALL COURTS

FUTURE CONNECTION TO TRAILS

INTERPRETIVE SIGN

BOARDWALK TRAILS
AGGREGATE TRAILS
FUTURE NORTH TRAIL LOOPS

FITNESS STATION

EXISTING WETLANDS

BENCH

VEGETATIVE BIOSWALE

PICNIC POD W/ TABLE AND GRILL

PLAYGROUND W/ POURED-IN-PLACE SAFETY SURFACING AND FENCE

PICNIC SHELTER W/ PICNIC TABLES & SPLASH PAD

PICNIC SHELTER BUILDING

ACCESSIBLE CANOE/KAYAK LAUNCH

FUTURE RESTROOM BUILDING

INTERPRETIVE SIGN

OBSERVATION/ FISHING PIER

PICNIC SHELTER W/ PICNIC TABLES

DROP-OFF

TURN-AROUND

MOBI-MAT FOR UNIVERSAL BEACH ACCESS

SAND SWIMMING BEACH

PICNIC SHELTER W/ PICNIC TABLES

AGGREGATE TRAIL

BOARDWALK TRAIL THROUGH WETLANDS

FUTURE SOUTH TRAIL LOOP

BRENDEL LAKE

INTERPRETIVE SIGN

BRENDEL LAKE OVERLOOK W/ BENCHES

CONCRETE SURFACE
BITUMINOUS SURFACE
AGGREGATE WALK
GRAVEL PAVEMENT
BOARDWALK SURFACE
POURED-IN-PLACE PLAYGROUND SURFACE

0 60 120 240

White Lake Township

Stanley Park Improvements
Conceptual Site Plan

February 2021

Beckett&Raeder

PARK ENTRANCE SIGN

ELIZABETH LAKE ROAD

FUTURE CIVIC CENTER DEVELOPMENT

CONNECTION TO CIVIC CENTER

CONCRETE SIDEWALK, TYP.

UNOBSTRUCTED HILLSIDE FOR SLEDDING (CLOSE PARK ROAD FOR SAFETY)

PARK SECURITY GATE

EXISTING BUILDING REMNANT

BITUMINOUS PAVEMENT W/ CURB & GUTTER

BITUMINOUS TRAIL, TYP

WOODEN BOLLARDS

GRAVEL PAVEMENT

INTERPRETIVE SIGN

FITNESS STATION

EXISTING WETLANDS

EXISTING WETLANDS

VEGETATIVE BIOSWALE

INTERPRETIVE SIGN

OBSERVATION/ FISHING PIER

DROP-OFF

TURN-AROUND

BRENDEL LAKE

CONCRETE SURFACE
BITUMINOUS SURFACE
AGGREGATE WALK
GRAVEL PAVEMENT
BOARDWALK SURFACE

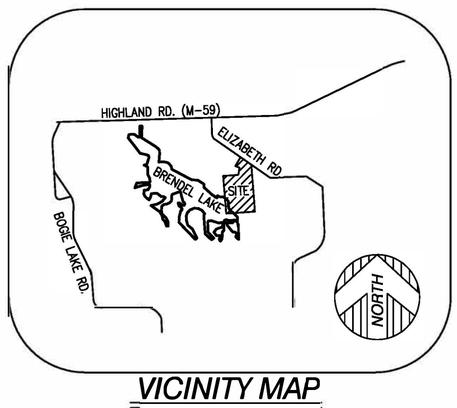
0 60 120 240

6 (f) (3) BOUNDARY MAP

WHITE LAKE TOWNSHIP
STANLEY PARK IMPROVEMENTS
GRANT NUMBER LW21-0037
OAKLAND COUNTY
PARCEL NUMBER 12-27-100-014
T[illegible]L ACRES: 59.31

3/12/21

SIGNATURE OF AUTHORIZED REPRESENTATIVE DATE



VICINITY MAP
(NOT TO SCALE)

NORTH

120 0 120 240 480

(IN FEET)
1 inch = 120 ft.

PARCEL AREA

PARCEL A – 524,410± SQUARE FEET = 12.04± ACRES
PARCEL B – 1,754,353± SQUARE FEET = 40.27± ACRES
PARCEL C – 304,943± SQUARE FEET = 7.00± ACRES
TOTAL – 2,583,706± SQUARE FEET = 59.31± ACRES

BASIS OF BEARING

NORTH 90°00'00" WEST, BEING THE SOUTH LINE OF THE SOUTHWEST 1/4 OF SECTION 22, TOWN 3 NORTH, RANGE 8 EAST, PER PROPERTY DESCRIPTION OF PARCEL C.

BENCHMARK

BM #109 NAIL WITH BENCH TIE IN THE SOUTHWEST FACE OF UTILITY POLE ON THE NORTHEAST SIDE OF ELIZABETH LAKE ROAD, SOUTH OF OXBOW LAKE CHURCH PARKING LOT AS SHOWN ON WHITE LAKE MEIJER OFF-SITE SANITARY SEWER ENGINEERING PLANS PROVIDED FROM SPALDING DeDECKER ASSOCIATES, INC. ELEV.=981.02'

SURVEYOR'S NOTES

1. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES OTHER THAN THE STRUCTURE INVENTORY SHOWN HEREON.

2. A CURRENT TITLE POLICY HAS NOT BEEN FURNISHED AT TIME OF SURVEY, THEREFORE EASEMENTS AND/OR ENCUMBRANCES AFFECTING SUBJECT PARCEL MAY NOT BE SHOWN.

PROPERTY DESCRIPTION (AS PROVIDED FROM CLIENT)

PARCEL A:

LAND SITUATED IN WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS:

THE NORTH 12 ACRES OF THE SOUTHWEST 1/4 OF THE NORTHWEST 1/4 OF SECTION 27, TOWN 3 NORTH, RANGE 8 EAST.

PARCEL B:

LAND SITUATED IN WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS:

THE NORTHWEST 1/4 OF THE NORTHWEST 1/4 OF SECTION 27, TOWN 3 NORTH, RANGE 8 EAST.

PARCEL C:

LAND SITUATED IN WHITE LAKE TOWNSHIP, OAKLAND COUNTY, MICHIGAN, DESCRIBED AS:

PART OF THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SECTION 22, TOWN 3 NORTH, RANGE 8 EAST, BEGINNING AT THE SOUTHEAST CORNER THEREOF; THENCE WEST ALONG SOUTH SECTION LINE 627.00 FEET; THENCE NORTH 13 DEGREES 19 MINUTES 50 SECONDS EAST 341.06 FEET; THENCE NORTH 34 DEGREES 09 MINUTES 00 SECONDS EAST 419.41 FEET; THENCE SOUTH 50 DEGREES 58 MINUTES 00 SECONDS EAST ALONG THE CENTER OF HIGHLAND ROAD (NOW ELIZABETH LAKE ROAD) 403.67 FEET; THENCE SOUTH 00 DEGREES 05 MINUTES 00 SECONDS WEST 424.75 FEET TO THE POINT OF BEGINNING.

LEGEND

●	SET 1/2" REBAR WITH CAP P.S. 47976
◉	FOUND MONUMENT (AS NOTED)
◕	FOUND SECTION CORNER (AS NOTED)
(R&M)	RECORD AND MEASURED DIMENSION
(R)	RECORD DIMENSION
(M)	MEASURED DIMENSION
×000.0	GROUND POINT
○	UTILITY POLE
———	PARCEL BOUNDARY LINE
———	ADJOINER PARCEL LINE
———	PLATTED LOT LINE
——— — — ———	SECTION LINE
——— ——— ———	RIGHT-OF-WAY
———	BUILDING
———	EDGE OF CONCRETE (CONC.)
———	EDGE OF ASPHALT (ASPH.)
— — — — — —	EDGE OF GRAVEL
——— · · · ———	OVERHEAD UTILITY LINE

SURVEYOR'S CERTIFICATION

I HEREBY CERTIFY THAT I HAVE SURVEYED THE PROPERTY HEREIN DESCRIBED. THE ELEVATIONS SHOWN HEREON ARE BASED ON A FIELD SURVEY AND THE DRAWING HEREON DELINEATED IS A CORRECT REPRESENTATION OF THE SAME.

ANTHONY T. SYCKO, JR., P.S.
PROFESSIONAL SURVEYOR
MICHIGAN LICENSE NO. 47976

REVISED 3/11/22 – PER REVIEW COMMENTS

KEM-TEC & ASSOCIATES
PROFESSIONAL SURVEYORS
22556 GRATIOT AVE * EASTPOINTE, MICHIGAN 48021.
(586)772-2222 * (800)295-7222 * FAX (586)772-4048

PREPARED FOR: WHITE LAKE TOWNSHIP	
DATE: FEBRUARY 22, 2006	JOB #: 19-00141
SCALE: 1" = 120'	SHEET: 1 OF 1
DRW. BY: JRA/MRJ	REV.: JANUARY 18, 2019

Wetland Delineation & Water Resource Identification

Brendel Lake Campground
10785 Elizabeth Lake Road
White Lake Township
Oakland County, Michigan

Project Number 221016

Prepared for:

Kem-Tec, Inc.
22556 Gratiot Avenue
Eastpointe, Michigan 48021

Prepared by:

111 W. Berry Street, Suite 211
Fort Wayne, Indiana, 46802

April 25, 2022

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LIST OF APPENDICES

EXECUTIVE SUMMARY

Brendel Lake Campground is commonly known to be located at 10785 Elizabeth Lake Road in White Lake Township, Oakland County, Michigan (Project Site); and, the coordinates of the approximate center are 42.640848, -83.498577.

Kem-Tec, Inc. (Client) hired nuInventa, LLC (nuI) to identify and delineate wetlands, streams, and other kinds of water resources that may exist with the limits of the Project Site. nuI's activities pertaining to this project focused on identifying potentially regulated wetlands, watercourses, and floodplains within the boundaries of the Project Site.

The wetland delineation and water resources identification involved a desktop review of publicly-available background information and data, which included U.S. Geological Survey USGS 7.5-Minute Topographic Quadrangle maps, U.S. Fish and Wildlife Service National Wetlands Inventory data, and Natural Resources Conservation Service soils data. Such information is routinely assessed to gain a perspective of where wetlands, streams, and other waters may be expected to occur on a site, which helps in planning fieldwork. A review of Federal Emergency Management Agency Flood Insurance Rate Maps was also conducted to determine the locations of floodplains.

Following completion of the desktop review, nuI conducted fieldwork at the Project Site April 6 and 7, 2022 to determine the presence and delineate the boundaries of wetlands using methodologies of the *Corps of Engineers Wetland Delineation Manual* (1987 Manual) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Midwest, Version 2.0*. For an area to support wetlands, three criteria must be present, which include a.) a dominance or prevalence of hydrophytic vegetation, b.) hydric soils, and c.) wetland hydrology. During the site visit, nuI also evaluated the Project Site for watercourses.

In general, wetlands in Michigan may fall under the jurisdiction of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) by Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451 (NREPA), as amended, and/or the U.S. Army Corps of Engineers (USACE). USACE authority is often associated with the Great Lakes and their connecting waterways and is authorized by Section 404 of the Federal Water Pollution Control Act of 1972 (Clean Water Act). A wetland is considered regulated by the EGLE if it is five acres in size or larger, and/or if it is connected to or located within 500 feet of a lake, pond, river, or stream. A Part 303 permit is required by the EGLE for any proposed work (e.g., filling, dredging, construction, draining, and/or other development) that takes place within the boundaries of a regulated wetland, watercourse, or floodplain. Most construction activities that take place outside of these boundaries do not require a permit from the EGLE.

Watercourses (e.g., streams, rivers, drains, ditches) that meet the requirements of Part 301, Inland Lakes and Streams, of the NREPA, and floodplains that meet the requirements of Part 31, Water Resources Protection, of the NREPA, fall under the jurisdiction of the EGLE.

Four wetlands and one intermittent stream that is hydrologically connected to the wetlands were identified within the limits of the Project Site. The wetlands, which were all likely historically a single wetland prior to the time site was developed as a campground, extend offsite to the east, south, and west. The wetland complex is, for all practical purposes, connected to Brendel Lake, which is located in the southwest corner of the Project Site.

It is nuI's opinion that all identified wetlands meet the requirements of Part 303, Wetlands Protection, of the NREPA, as amended, because:

- The wetlands are connected to an inland lake, Brendel Lake; and,
- with and/or without offsite acreages considered, the individual sizes of Wetlands B, C, and D exceed five acres; and,
- Wetlands B, C, and D are located within 500 feet of an inland lake, Brendel Lake.

Part 31, Water Resources Protection, of NREPA regulates activities within the 100-year floodplain and floodway of a river, stream, or drain, and within the floodplain of any watercourse with an upstream drainage area of two square miles or larger. Federal Emergency Management, Flood Insurance Rate Map data indicate Brendel Lake is located in Zone AE, a "zone with a one percent chance of annual flooding".

Please be advised that EGLE has the final authority on the extent, shape, size, location, and regulatory statuses of regulated wetlands, lakes, streams, and designated natural areas in the State of Michigan. White Lake Township and Oakland County should be contacted to determine if ordinances exist that affect activities conducted in wetlands and watercourses and their buffers.

1.0 INTRODUCTION

Brendel Lake Campground is commonly known to be located at 10785 Elizabeth Lake Road in White Lake Township, Oakland County, Michigan (Project Site); the location of the Project Site is shown in **Figure 1**, **Project Site Location Map** in Appendix A.

Under the Public Land Survey System, the Project Site is said to be located in the following parts of Township 3 North; Range 8 East:

- South ½; Southwest ¼; Section 22
- North ½; Northwest ¼; Section 27

The coordinates of the approximate center of the Project Site are 42.640848, -83.498577.

Kem-Tec, Inc. (Client) hired nuInventa, LLC (nuI) to identify and delineate wetlands and other water resources that may exist with the limits of the Project Site. nuI's activities pertaining to this project focused on identifying potentially regulated wetlands, watercourses, and floodplains within the boundaries of the Project Site.

In general, wetlands in Michigan may fall under the jurisdiction of the Michigan Department of Environment, Great Lakes, and Energy (EGLE) by Part 303, Wetlands Protection, of the *Natural Resources and Environmental Protection Act, 1994 PA 451* (NREPA), as amended, and/or the U.S. Army Corps of Engineers (USACE). USACE authority is often associated with the Great Lakes and their connecting waterways and is authorized by Section 404 of the *Federal Water Pollution Control Act of 1972 (Clean Water Act*). The federal definition of wetlands are *"…those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas."*

Watercourses (e.g., streams, rivers, drains, ditches) that meet the requirements of Part 301, Inland Lakes and Streams, of the NREPA, and floodplains that meet the requirements of Part 31, Water Resources Protection, of the NREPA, fall under the jurisdiction of the EGLE.

Activities that may impact regulated or protected wetlands, watercourses, and floodplains must be permitted or cleared by authorizing agencies prior to project activities taking place. This report summarizes the natural features found on the Project Site and permits or clearances that may be required prior to the commencement of project activities.

2.0 SITE DESCRIPTION

The north and south boundaries of the Project Site are defined by Elizabeth Lake Road and Brendel Lake, respectively. As is evident in **Figure 2**, **Land Use and Land Cover Map** in Appendix A, a driveway extends from Elizabeth Lake Road, meanders southward through the Project Site, and terminates at the shoreline of Brendel Lake. Based on nuI's review of available information, the Project Site has been used as a campground for several decades; and, this land use is consistent with features that are evident on aerial imagery. Beyond area near the driveway that has been developed as a campground, land cover is a mix of old field and forest. Saturated and inundated ground is evident in significant parts of this undeveloped area, which indicates wetlands are likely present.

3.0 METHODOLOGY

The wetland determination and delineation involved a desktop review of publicly-available background information and data, which included U.S. Geological Survey (USGS) 7.5-Minute Topographic Quadrangle maps, U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data, and Natural Resources Conservation Service (NRCS) soils data. Such information is routinely assessed to gain a perspective of where wetlands, streams, and other waters may be expected to occur on a site, which helps in planning fieldwork. A review of Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) was also conducted to determine the location of floodplains.

Following completion of the desktop review, nuI conducted fieldwork necessary to determine the presence and delineate the boundaries of wetlands on the Project Site using methodologies of the *Corps of Engineers Wetland Delineation Manual* (1987 Manual) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual, Midwest Region, Version 2.0*. For an area to support wetlands, three criteria must be present, which include a.) a dominance or prevalence of hydrophytic vegetation, b.) hydric soils, and c.) wetland hydrology. During the site visit, nuI also evaluated the Project Site for watercourses.

4.0 RESULTS

Below is a summary of findings with regard to the desktop review.

4.1 Desktop Review

4.1.1 USGS Topographic Quadrangle Map

USGS topographic maps with coverage for the Project Site were reviewed; see **Figure 3**, **USGS 7.5-Minute Topographic Maps, Highland (1968) and Clarkston (1968) Quadrangles** in Appendix A. An unimproved road is depicted and its location is generally

consistent with the location of the driveway that is evident on the aerial imagery. A majority of the Project Site is shown to be forested; and, symbology indicates that wetlands are present in large portions of the forested area. Brendel Lake is located in the southwest corner of the Project Site. The southeast end of the lake drains to the Huron River.

The elevation is highest at 970 feet along Elizabeth Lake Road and drops to 940 feet approximately 500 feet from the road – a slope of six percent. From this point, the ground is flat at 940 feet; and, this elevation is where wetlands are shown to occur.

4.1.2 USFWS NWI Data

With respect to site-specific wetland determinations, USFWS NWI data are useful primarily for project planning purposes. NWI maps were compiled more than two decades ago and are known to sometimes contain erroneous information. The data are useful, however, when combined with other secondary source information to gain an understanding of where wetlands are likely to occur, and provide insight as to where wetlands may have *historically* occurred. The USACE and the EGLE do not accept the use of NWI data as a substitute for an onsite wetland determination and delineation.

The NWI map indicates the presence of four wetland types occurring within the limits of the Project Site, which have the Cowardin classifications listed in Table 1, below; see **Figure 4**, **National Wetlands Inventory Map** in Appendix A.

Table 1. List of NWI Wetlands

Symbol	Cowardin Classification
L1UBH	Lacustrine, Limnetic, Unconsolidated Bottom, Permanently Flooded
PEM1C	Palustrine, Emergent, Persistent, Seasonally Flooded
PFO1C	Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded
PSS1C	Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded

Nearly the entire Project Site is shown to be wetlands albeit for a small area along Elizabeth Lake Road, where the elevation is above 940 feet.

4.1.3 NRCS Soils Data

Hydric soils form under conditions of saturation, flooding, or ponding that occur long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile. Presence of hydric soils is one of three criteria required for an area to be considered a wetland.

The Web Soil Survey published by the United States Department of Agriculture, Natural Resources Conservation Service was accessed to determine what soil series for Oakland County, Michigan occur on the Project Site. Eight soil series are shown to occur on the Project Site; refer to **Figure 5**, **NRCS Soils Map** in Appendix A. The soil series are listed in Table 2, below.

Table 2. List of Mapped Soil Series

Map Unit Symbol	Map Unit Name	Status
11B	Capac sandy loam, 0 to 4 percent slopes	Non-Hydric*
12	Brookston and Colwood loams	Hydric*
17A	Wasepi sandy loam, 0 to 3 percent slopes	Non-Hydric*
18B	Fox sandy loam, till plain, 2 to 6 percent slopes	Non-Hydric*
27	Houghton and Adrian mucks	Hydric*
44B	Riddles sandy loam, 1 to 6 percent slopes	Non-Hydric*
44C	Riddles sandy loam, 6 to 12 percent slopes	Non-Hydric*
54A	Matherton sandy loam, 0 to 3 percent slopes	Non-Hydric*

* Soil unit includes one or more minor hydric soil components.

4.1.4 Floodplains

A review of FEMA FIRMs was conducted to determine the existence, location, and zone of floodplains on and within the vicinity of the Project Site. The FIRMs show floodplain areas along lakes, rivers, and tributaries. These maps record the following data: 100-year (1% chance of annual flooding) and 500-year (0.2% annual chance of flooding) floodplains, the height of the base flood elevation, and the risk of premium zones developed from topographical information across the floodplain. The FEMA Map Service Center was accessed; and, data coverage for the Project Site was accessed by address query. See **Figure 6**, **FEMA FIRM Map** in Appendix A. Brendel Lake is located in Zone AE, a "zone with a one percent chance of annual flooding".

4.2 Field Observations

Fieldwork required to complete the wetland delineation was conducted April 6 and 7, 2022. The temperature ranged between 40 and 50 degrees Fahrenheit; rain showers were intermittent.

Identified wetlands are depicted in **Figure 7**, **Delineated Wetlands and Water Resource Map** in Appendix A. Photographs of the general physical landscape and wetlands, and/or other relevant features are provided in the **Photographic Log** in Appendix B.

4.2.1 Wetlands

Data forms for data collected at points representing wetlands and non-wetlands (uplands) are provided in Appendix C. Summary data of wetlands identified and delineated are provided in Table 3, below

Table 3. Summary of Delineated Wetlands

Wetland ID	Type	Size (acres)	Wetland Data Points
Wetland A	Palustrine, forested	0.328	1
Wetland B	Palustrine, mixed	7.26	3, 6, 16
Wetland C	Palustrine, mixed	20.39	5, 8, 10
Wetland D	Palustrine, forested/scrub-shrub	4.44	12, 15

Wetland A

Data Point (DP) 1 is situated in the northwest corner of Wetland A, a forested wetland located near the northeast corner of the Project Site. Silver maple (*Acer saccharinum*, FACW) was observed throughout the tree, sapling/shrub, and herbaceous strata. Swamp white oak (*Quercus bicolor*, FACW) was identified as a dominant hydrophytic species in the tree and shrub/sapling shrub strata, as well.

The soils exhibited a depleted matrix (F3 hydric soil indicator) and depletion was observed below a dark surface (A11). These hydric soil characteristics are not consistent with the mapped soil unit, Wasepi sandy loam, a non-hydric soil, and appear to be more closely aligned with that of Houghton muck, which is shown to be the predominant soil unit occurring in other wetlands throughout the Project Site.

Surface water was observed at a depth of three inches at the data point. Primary indicators of wetland hydrology observed include surface water, a high water table and saturated soils within 12 inches of the surface, water marks on trees, and water-stained leaves. Inundation is visible on aerial imagery reviewed throughout most of the wetland area albeit not in the vicinity of the data point. The soil does appear saturated on aerial imagery in the vicinity of the data point, which is a secondary wetland hydrology indicator; other such indicators that are applicable for Wetland A include the geomorphic position of the wetland in a depression and the FAC-Neutral Test.

Wetland B

DPs 3, 6, and 16 are located near the northeast and south edges of Wetland B. The wetland extends offsite to the south and west; and, the size of the onsite portion is 7.26 acres. The wetland is separated from Wetland C by a man-made berm that appears to have been constructed to create a stable base on which to install the campground driveway through the Project Site prior to 1968. Prior to the time the berm was constructed, Wetlands B and C very likely were a single contiguous wetland.

Vegetation cover throughout the wetland consists of interspersed herbaceous, scrub-shrub, and forest communities. Typical hydrophytic species observed include eastern cottonwood (*Populus deltoides*, FAC); yellow birch (*Betula alleghaniensis*, FAC); American hornbeam (*Carpinus caroliniana*, FAC); swamp white oak; and, silver maple in the tree stratum. Red osier dogwood (*Cornus sericea*, FACW); common hackberry (*Celtis occidentalis*, FAC); *Carpinus caroliniana*, FAC; and, swamp white oak were dominant throughout the sapling/shrub stratum. In the herbaceous stratum, narrow-leaf cattail (*Typha angustifolia*, OBL); shoreline sedge (*Carex hyalinolepis*, OBL); and, skunk cabbage (*Symplocarpus foetidus*, OBL) were observed as dominant species.

One or more hydric soil criteria were observed at the data points, including a hydrogen sulfide odor (A4) at DPs 3 and 16 and sandy mucky mineral (S1) at DPs 3, 6, and 16. Soil characteristics observed at the data points are consistent with the mapped soil unit shown to be present at all data points, which is Houghton and Adrian mucks, a hydric soil.

The soil was saturated at the surface at DP 3 and surface water was observed at depths of one and three inches at DPs 6 and 16, respectively. Other primary wetland hydrology indicators observed at one or more of these data points include water marks on trees, inundation visible on aerial imagery, water-stained leaves, and a hydrogen sulfide odor. Secondary wetland hydrology indicators applicable for all data points include the geomorphic position of the wetland in a depression or swale and the FAC-Neutral Test.

Wetland C

DPs 5, 8, and 10 are located near the north and west edges of Wetland C. The wetland extends offsite to the east and south. The west edge of the wetland abuts the shoreline of Brendel Lake. The size of the onsite portion is 20.39 acres. The wetland is separated from Wetland D by a man-made berm that appears to have been constructed to create a stable base on which to install the campground driveway through the Project Site prior to 1968. Prior to the time the berm was constructed, Wetlands C and D very likely were a single contiguous wetland.

The north half of the wetland is predominantly interspersed herbaceous and scrub-shrub communities (see DPs 5 and 8) while a more significant forest community is present in the south half of the wetland (see DP 10). Typical hydrophytic species observed include peach-leaf willow (*Salix amygdaloides*, FACW); swamp white oak, yellow birch, and common hackberry in the tree stratum. Red osier dogwood, American hornbeam, swamp white oak, and common hackberry were present throughout the sapling/shrub stratum. In the herbaceous stratum, celery-leaved buttercup (*Ranunculus sceleratus*, OBL), shoreline sedge, skunk cabbage, and narrow-leaf cattail were dominant species observed.

Hydric soil criteria were met at all wetland data points; applicable hydric soil indicators include sandy mucky mineral (S1) and a hydrogen sulfide odor (A4). Soil characteristics observed at DPs 8 and 10 are consistent with the mapped soil unit, which is Houghton and Adrian mucks, a hydric soil. Regarding DP 5, these hydric soil characteristics are not consistent with the mapped soil unit, Wasepi sandy loam, a non-hydric soil.

Approximately one inch of surface water was present at all data points. Additional primary wetland hydrology indicators observed at one or more of these data points include water marks on trees, inundation visible on aerial imagery, water-stained leaves, and a hydrogen sulfide odor. Secondary wetland hydrology indicators applicable for all data points include the geomorphic position of the wetland in a depression or swale and the FAC-Neutral Test. As described in Section 4.2.2, intermittent Stream A flows into the northeast side of Wetland C. Surface water and groundwater is generally expected to flow south and southwest to Brendel Lake.

Wetland D

DPs 12 and 15 are located at the east and west ends of Wetland D, respectively. This wetland extends offsite to the west, is boarded at the south by Brendel Lake, and is separated from Wetland C by an elevated gravel driveway that was constructed atop a man-made berm. A small two-track path located approximately 150 feet west southwest of DP 6 separates the wetland from Wetland B.

The wetland is primarily forested with an appreciable scrub-shrub community. Typical hydrophytic species observed include swamp white oak, silver maple, and eastern cottonwood in the tree stratum. Red osier dogwood, American hornbeam, and swamp white oak were observed throughout the sapling/shrub stratum. In the herbaceous stratum, Indian hemp (*Apocynum cannabidum*, FAC), shoreline sedge, and skunk cabbage were dominant.

Hydric soil indicators observed include a hydrogen sulfide odor (A4) at DP 15 and a sandy mucky mineral (S1) soil at DPs 10 and 15. Soil characteristics observed at the data points are consistent with the mapped soil unit shown to be present at all data points, which is Houghton and Adrian mucks, a hydric soil.

Approximately one inch of surface water was present at all data points. Additional primary wetland hydrology indicators observed at one or more of these data points include water marks on trees, inundation visible on aerial imagery, water-stained leaves, and a hydrogen sulfide odor. Secondary wetland hydrology indicators applicable for all data points include the geomorphic position of the wetland in a depression or swale and the FAC-Neutral Test. Surface and groundwater is expected to flow south to Brendel Lake.

4.2.2 Watercourses

Intermittent Stream A flows onto the Project Site from the east; and, the approximate length of the onsite portion is 100 feet. The stream conveys surface water to the northeast edge of Wetland C.

4.2.3 Other Water Resource Features

Brendel Lake is located in the southwest corner of the Project Site. A majority of the lake shoreline is contiguous to Wetlands C and D albeit for developed campground area between the two wetlands. Here, the lake shoreline is abrupt and defined by beach and mowed turf grass.

4.2.4 Uplands

Data collected at DPs 2, 4, 7, 9, 11, 13, 14, and 17 represent upland areas surrounding the wetlands observed. Although hydric soils, hydrology indicators, and hydrophytic vegetation were observed at several upland data points, a combination of all three wetland criteria could not be established. These data points generally represent areas of the Project Site where the ground elevations are slightly higher than that around the wetlands. Typical upland plant species observed include shagbark hickory (*Carya ovata*, FACU); white oak (*Quercus alba*, FACU); northern red oak (*Quercus rubra*, FACU); American beech (*Fagus grandifolia*, FACU); black cherry (*Prunus serotina*, FACU); and, Canada goldenrod (*Solidago canadensis*, FACU).

5.0 CONCLUSIONS

Four wetlands and one intermittent stream were identified within the limits of the Project Site. The wetlands, which were all likely historically a single wetland prior to the time site was developed as a campground, extend offsite to the east, south, and west. The wetland complex is, for all practical purposes, connected to Brendel Lake, which is located in the southwest corner of the Project Site.

EGLE has the final authority on the extent, shape, size, location, and regulatory statuses of regulated wetlands, lakes, streams, and designated natural areas in the State of Michigan. A request may be submitted to EGLE to conduct a "Level 3 Review" of the findings presented in this report, which nuI can facilitate the review upon request.

Part 303, Wetlands Protection, of the NREPA, as amended, provides several criteria for a wetland to be considered regulated by the EGLE. Most commonly, a wetland is regulated by EGLE if it is five acres in size or larger, and/or if it is connected to or located within 500 feet of an inland lake, pond, river, or stream. It is nuI's opinion that all identified wetlands are regulated by EGLE because:

- The wetlands are connected to an inland lake, Brendel Lake; and,
- with and/or without offsite acreages considered, the individual sizes of Wetlands B, C, and D exceed five acres; and,
- Wetlands B, C, and D are located within 500 feet of an inland lake, Brendel Lake.

Watercourses (e.g., streams, rivers, drains, ditches) that meet the requirements of Part 301, Inland Lakes and Streams, of the NREPA fall under the jurisdiction of the EGLE. Intermittent Stream A flows onto the Project Site from the east and conveys surface water directly to the north edge of Wetland C. The length of Stream A within the limits of the Project Site is approximately 100 feet.

Part 31, Water Resources Protection, of NREPA regulates activities within the 100-year floodplain and floodway of a river, stream, or drain, and within the floodplain of any watercourse with an upstream drainage area of two square miles or larger. Activities requiring a permit within regulated floodplains include the installation of permanent structures, permanent bridges, and/or culverts. Temporary crossings of regulated floodplains are generally exempt from permitting if the floodplain will be restored to existing elevations; however, temporary watercourse crossings would require a permit from the EGLE. FEMA data indicate that Brendel Lake is located in Zone AE, a "zone with a one percent chance of annual flooding".

Permits are required for any work (e.g., filling, dredging, construction, draining and/or other development) that is proposed to be conducted in water resources that are regulated under Part 303, Part 301, or Part 31, Water Resources Protection, of NREPA. Additionally, the White Lake Township and Oakland County should be contacted to determine if ordinances exist that affect activities conducted in wetlands and watercourses and their buffers.

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U.S. Geological Survey. U.S.G.S. Topographic Map, Highland 7.5-Minute Quadrangle. National Geospatial Program. https://ngmdb.usgs.gov/topoview/viewer/. (accessed 1 April 2022).

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GLOSSARY OF TERMS AND DEFINITIONS

Atypical wetland: This term refers to areas in which one or more parameters (vegetation, soil and/or hydrology) have been sufficiently altered by human activities or natural events to preclude the presence of wetland indicators of the parameter.

Emergent Wetland: Vegetative classification of a wetland system based on the dominant vegetation consisting of rooted herbaceous plant species that have parts extending above a water surface.

100-year Flood: A flood with a magnitude that has a 1% chance of occurring or being exceeded in any given year.

Floodplain: The area of land adjoining a river or stream that will be inundated by a 100-year flood.

Floodway: The channel of a river or stream and the portions of the floodplain adjoining the channel, which are reasonably required to carry and discharge a 100-year flood.

Hydric Soil: Soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (1991 National Technical Committee on Hydric Soils definition).

Hydrophytic Vegetation: Plant species that grow in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content; plants typically found in wet habitats.

Ordinary High Water Mark: *The point on a stream bank to which the presence and action of surface water is so continuous as to leave a district marked by erosion; destruction or prevention of woody terrestrial vegetation; predominance of aquatic vegetation; or other easily recognized characteristic.*

Scrub-Shrub Wetland: Vegetative classification of a wetland system based on the dominant vegetation consisting of woody plants less than three inches in diameter but greater than three feet in height.

Typical Situation: That, which normally, usually, or commonly occurs.

Wooded (Forested) Wetland: Vegetative classification of a wetland system based on the dominant vegetation consisting of woody plants three inches in diameter or greater regardless of height.

Wetland: "…land characterized by the presence of water at a frequency and duration sufficient to support and that under normal circumstances does support, wetland vegetation or aquatic life and is commonly referred to as a bog, swamp, or marsh…"

Wetland Hydrology: Hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season.

Wetland Indicator Status:

OBL: Obligate wetland plant that occurs almost always, 99% of the time, in wetlands under natural conditions, but which rarely occur in non-wetlands.

FACW: Facultative wetland plant that occurs usually, 67% to 99% of the time, in wetlands, but also occurs 1% to 33% of the time in non-wetlands.

FAC: Facultative plant that occurs in both wetlands and non-wetlands 33% to 67% of the time.

FACU: Plant that occurs sometimes, 1% to 33% of the time, in wetlands but occurs more often, 67% to 99% of the time, in non-wetlands.

APPENDIX A

Maps

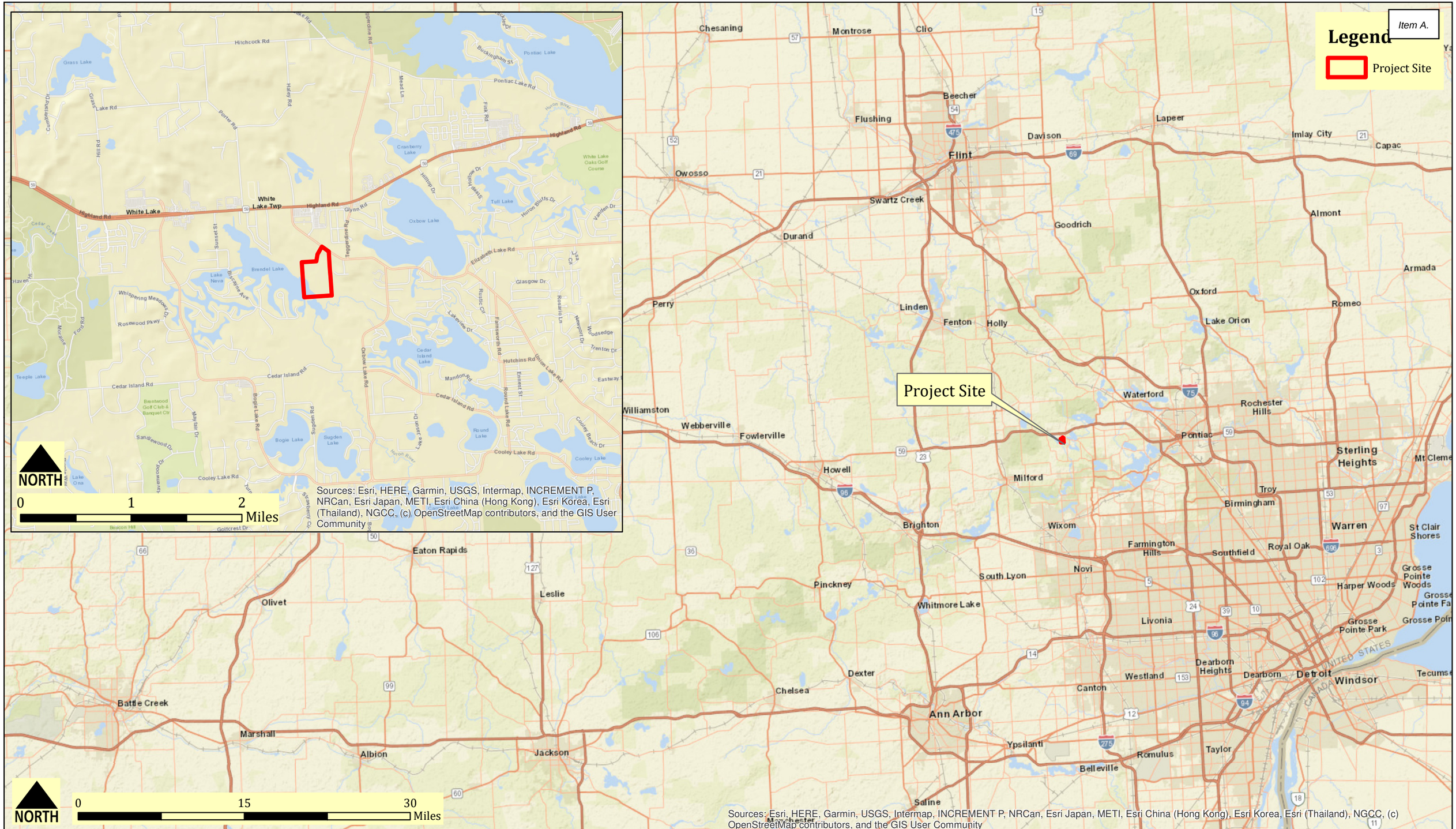

Figure 1	**Project Site Location Map** Brendel Lake Campground 10785 Elizabeth Lake Road, White Lake Township, Oakland County, Michigan	nu Inventa
Project No. 221016		Drawn By: R. Newkirk · Date: 4-1-202 Reviewed By: C. Appleman · Rev: 0

Figure 2

Project No. 221016

Land Use and Land Cover Map

Brendel Lake Campground

10785 Elizabeth Lake Road, White Lake, Oakland County, Michigan

nu Inventa

Drawn By: R. Newkirk	Date: 4-1-202
Reviewed By: C. Appleman	Rev: 0

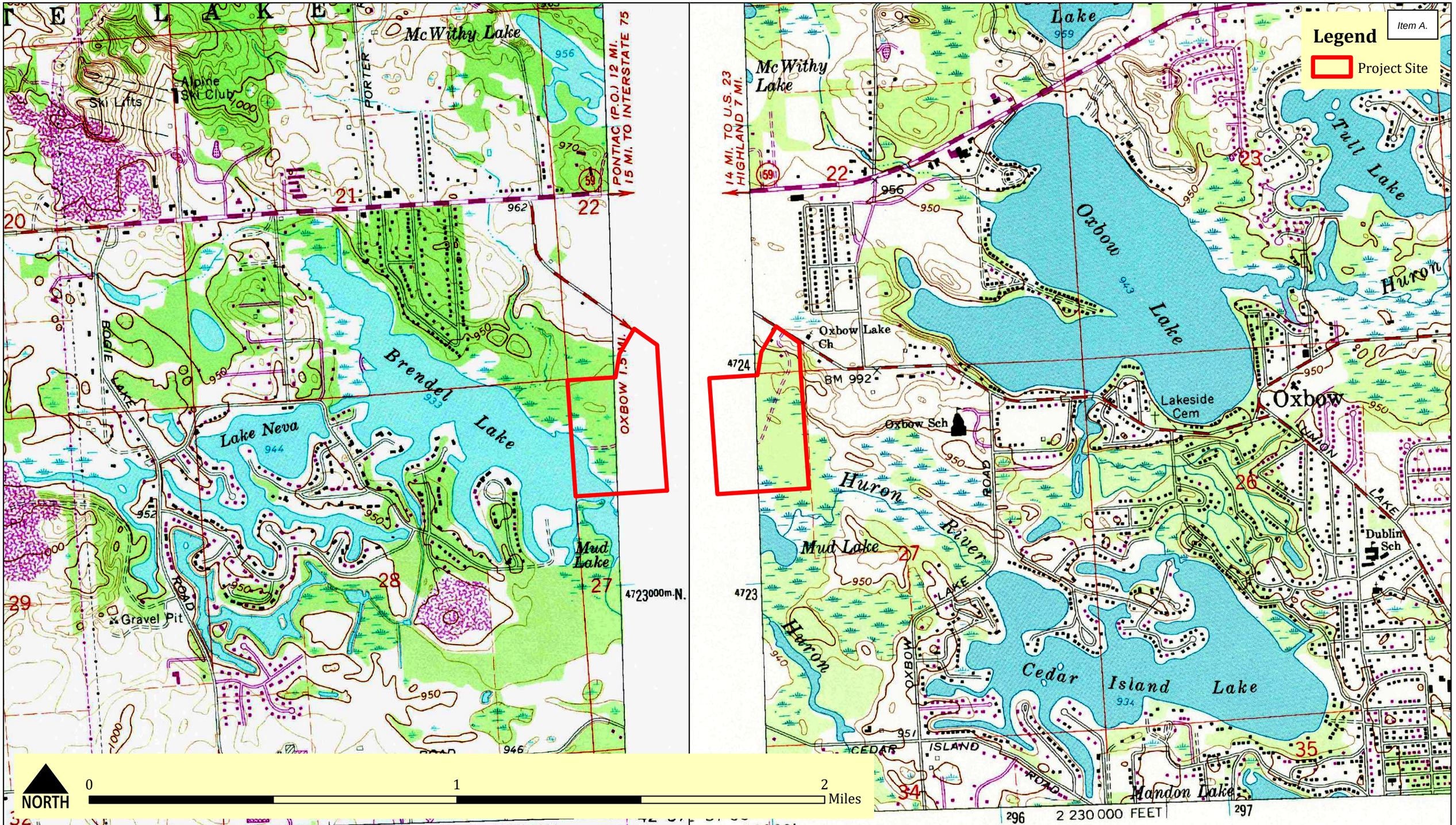

Figure 3

Project No. 221016

USGS 7.5-Minute Topographic Maps, Highland (1968) and Clarkston (1968) Quadrangles

Brendel Lake Campground

10785 Elizabeth Lake Road, White Lake Township, Oakland County, Michigan

nu Inventa

Drawn By: R. Newkirk	Date: 4-1-202
Reviewed By: C. Appleman	Rev: 0

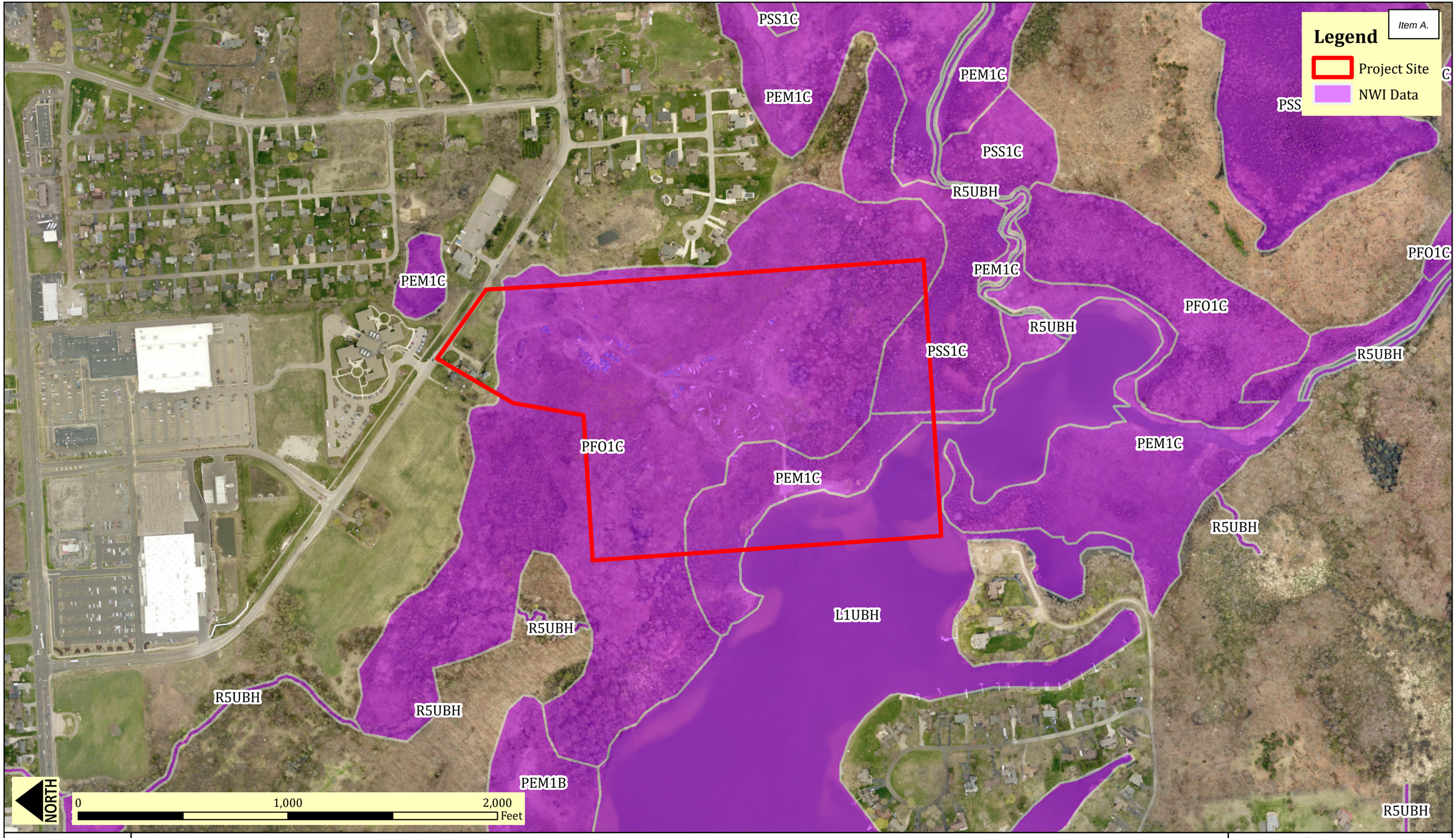

Figure 4	**National Wetlands Inventory Map** Brendel Lake Campground 10785 Elizabeth Lake Road, White Lake, Oakland County, Michigan	nu Inventa
Project No. 221016		Drawn By: R. Newkirk · Date: 4-1-202 Reviewed By: C. Appleman · Rev: 0

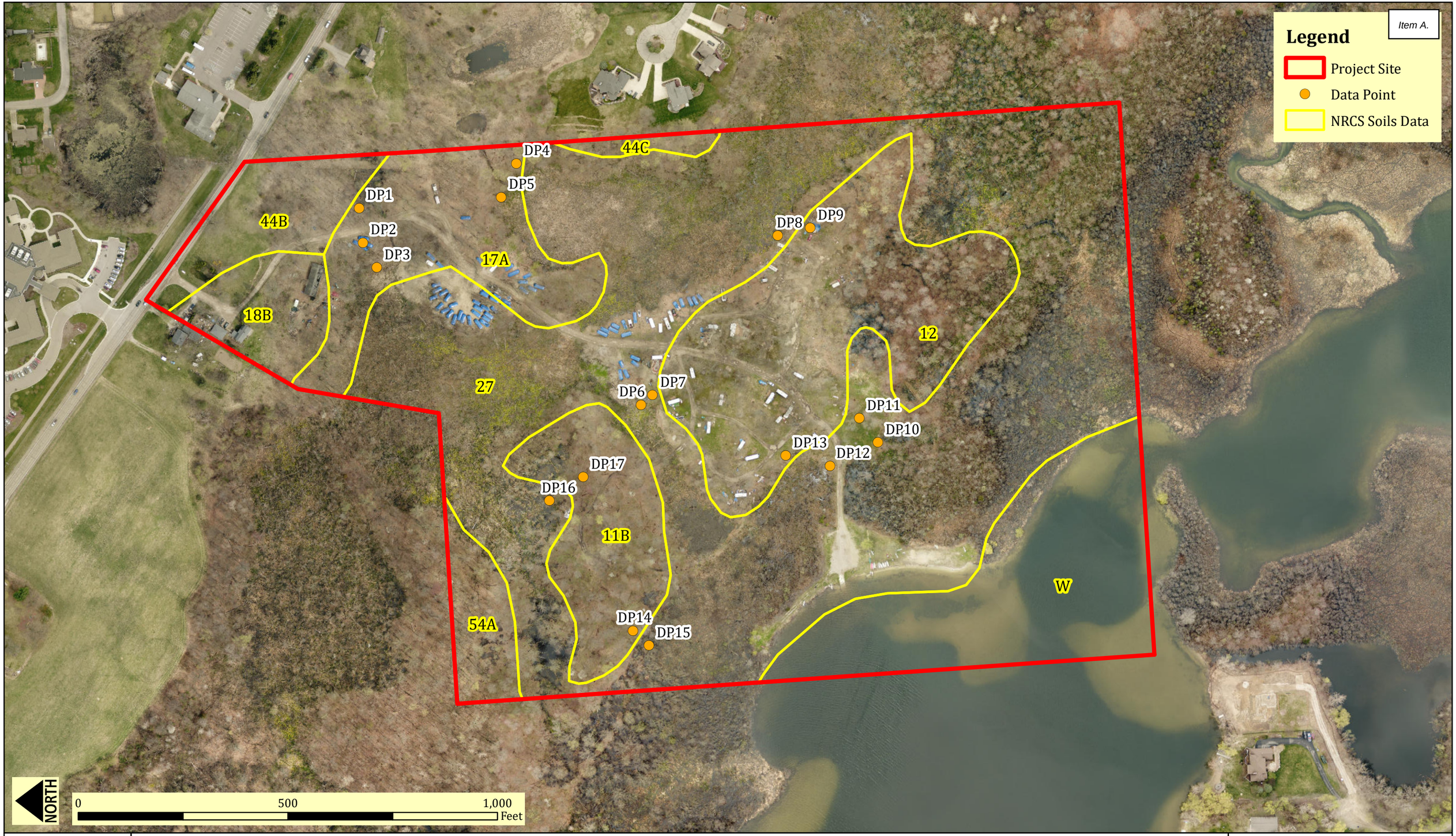

Figure 5

Project No. 221016

NRCS Soils Map

Brendel Lake Campground
10785 Elizabeth Lake Road, White Lake, Oakland County, Michigan

nu Inventa

Drawn By: R. Newkirk	Date: 4-1-202
Reviewed By: C. Appleman	Rev: 0

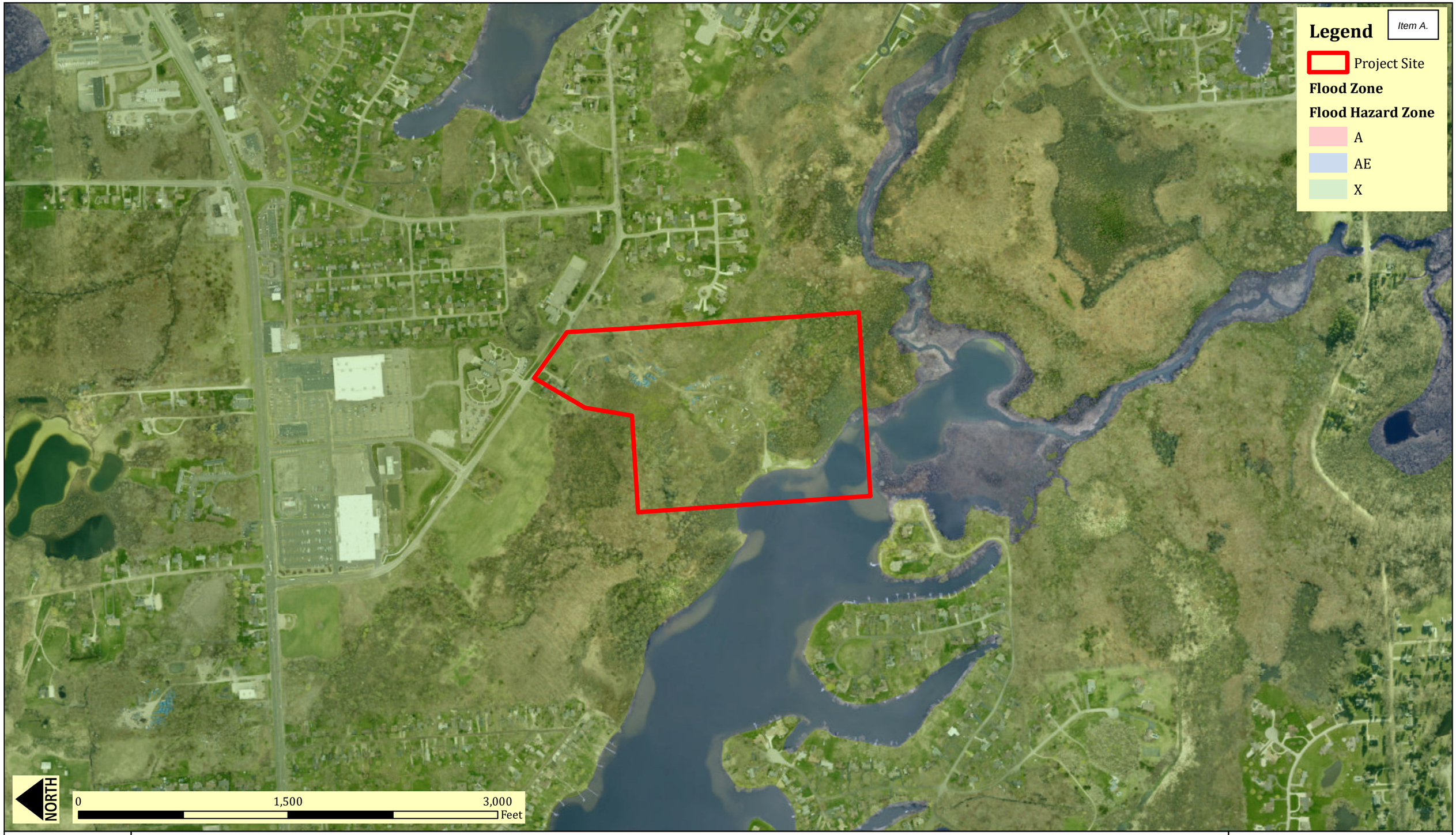

Figure 6

Project No. 221016

FEMA FIRM Map

Brendel Lake Campground
10785 Elizabeth Lake Road, White Lake, Oakland County, Michigan

nu Inventa

Drawn By: R. Newkirk	Date: 4-1-202
Reviewed By: C. Appleman	Rev: 0

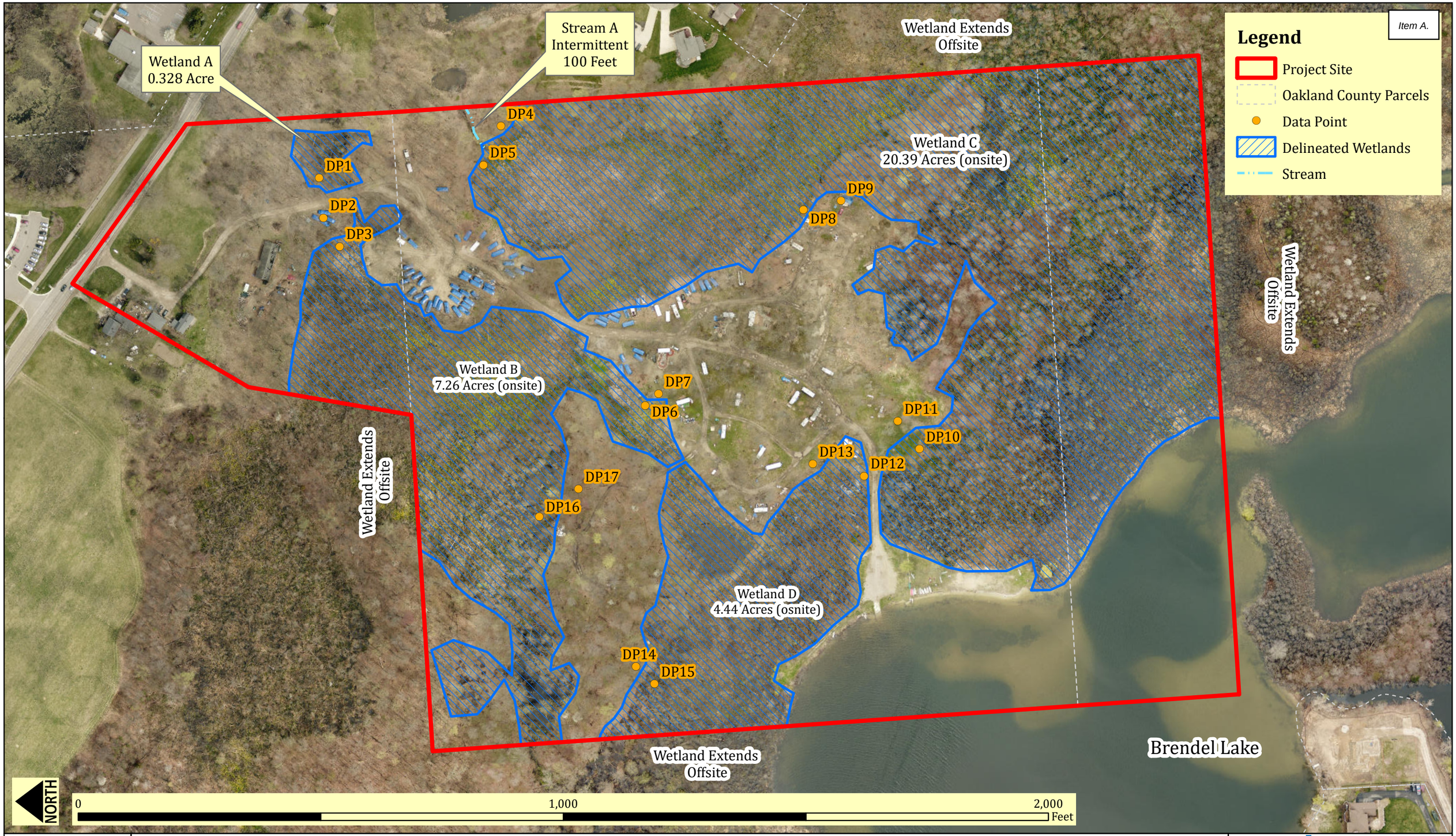

Figure 7

Project No. 221016

Wetland Delineation and Water Resource Map

Brendel Lake Campground
10785 Elizabeth Lake Road, White Lake Township, Oakland County, Michigan

nu Inventa

Drawn By: R. Newkirk	Date: 4-21-20
Reviewed By: C. Appleman	Rev: 0

APPENDIX B

Photographic Log

PHOTOGRAPHIC LOG

Photo: 1 **Date:** 4-7-2022 **Direction:** East **Description:** Data Point (DP) 1 is situated in the northwest corner of Wetland A, a palustrine, forested wetland located in the northeast corner of the Project Site.	

Photo: 2 **Date:** 4-7-2022 **Direction:** South **Description:** View of upland DP 2, which is located beside a gravel campground drive that separates Wetlands A and B.	

PHOTOGRAPHIC LOG

Photo: 3 **Date:** 4-7-2022 **Direction:** South **Description:** DP 3 is located in the northeastern most extent of Wetland B. The vegetation community around the data point is primarily herbaceous, which transitions to a forested community in the background.	

Photo: 4 **Date:** 4-7-2022 **Direction:** South **Description:** DP 4 is located on a hillside, in an upland forest near the northeast edge of Wetland C and along the east boundary of the Project Site.	

PHOTOGRAPHIC LOG

Photo: 5 **Date:** 4-7-2022 **Direction:** South **Description:** Wetland DP 5 is located near the north edge of Wetland C.	

Photo: 6 **Date:** 4-7-2022 **Direction:** West **Description:** DP 6 is situated in the southern extent of Wetland B where the vegetation consists of a nearly monotypic stand of narrowleaf cattail (*Typha angustifolia*, OBL). A contiguous forested wetland community is evident in the background.	

PHOTOGRAPHIC LOG

Photo: 7 **Date:** 4-7-2022 **Direction:** East **Description:** DP 7 is located near and south of Wetland B in an upland forested area with mowed turf grass.	

Photo: 8 **Date:** 4-7-2022 **Direction:** East **Description:** View of wetland DP 8, which is located along the west boundary of Wetland C.	

PHOTOGRAPHIC LOG

Photo: 9 **Date:** 4-7-2022 **Direction:** North **Description:** DP 9 is located in upland, south of DP 8 and west of Wetland C, which is evident in the background.	

Photo: 10 **Date:** 4-7-2022 **Direction:** West **Description:** DP 10 is located in the far west side of Wetland C.	

PHOTOGRAPHIC LOG

Photo: 11 **Date:** 4-7-2022 **Direction:** West **Description:** View of Wetland C (scrub-shrub, forested area in the background) from upland DP 11.	

Photo: 12 **Date:** 4-7-2022 **Direction:** West **Description:** Wetland DP 12 is located in the southeast corner of Wetland D. Here, the vegetation community is predominantly forested. A driveway that separates the wetland from Wetland C is evident to the left in the photograph.	

PHOTOGRAPHIC LOG

Photo: 13 **Date:** 4-7-2022 **Direction:** South **Description:** DP 13 is located in upland approximately 25 feet north of Wetland D.	

Photo: 14 **Date:** 4-7-2022 **Direction:** South **Description:** DP 14 is located in upland on the north side of Wetland D, which is evident in the background where standing water is present.	

PHOTOGRAPHIC LOG

Photo: 15 **Date:** 4-7-2022 **Direction:** East **Description:** View of Wetland D at DP 15, which is located near the west edge of the Project Site. Wetland D extends offsite further off in the background.	

Photo: 16 **Date:** 4-7-2022 **Direction:** North **Description:** DP 16 is located in a forested portion of Wetland B.	

PHOTOGRAPHIC LOG

Photo: 17 **Date:** 4-7-2022 **Direction:** North **Description:** DP 17 is located in forested upland approximately 75 feet south of Wetland B.	

Photo: 18 **Date:** 4-7-2022 **Direction:** Northeast **Description:** Upstream view of intermittent Stream A. The stream flows onto the Project Site from land to the east.	

PHOTOGRAPHIC LOG

Photo: 19 **Date:** 4-7-2022 **Direction:** Southwest **Description:** Downstream view of intermittent Stream A. The stream flows to the northeast edge of Wetland C.	

Photo: 20 **Date:** 4-7-2022 **Direction:** Ground View **Description:** View of the bottom of intermittent Stream A.	

PHOTOGRAPHIC LOG

Photo: 21 **Date:** 4-7-2022 **Direction:** North **Description:** View of a sand beach at the shoreline of Brendel Lake.	

Photo: 22 **Date:** 4-7-2022 **Direction:** South **Description:** View of lake edge along Brendel Lake. The scrubby area in the background and beyond the beach is Wetland C.	

APPENDIX C

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP1

Investigator(s): R. Newkirk Section, Township, Range: SW 1/4; SW 1/4; Section 22; T3N; R8E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 42.642731 Long: -83.498049 Datum: WGS84

Soil Map Unit Name: 17A - Wasepi sandy loam, 0 to 3 percent slopes NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Data point is located in the northwest corner of Wetland A, a forested wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	35	Yes	FACW
2. *Quercus bicolor*	30	Yes	FACW
3.			
4.			
5.			
	65	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Acer saccharinum*	18	Yes	FACW
2. *Quercus bicolor*	10	Yes	FACW
3.			
4.			
5.			
	28	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Acer saccharinum*	5	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *None*			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	98	x 2 =	196
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	98 (A)		196 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D[illegible]

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	100					Loamy/Clayey	
9-17	10YR 5/2	85	10YR 5/4	15	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

Soil characterisitcs are more consistent with that of the Houghton series.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches): 3		
Water Table Present?	Yes X	No ___	Depth (inches): 0		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP2

Investigator(s): R. Newkirk Section, Township, Range: SW 1/4; SW 1/4; Section 22; T3N; R8E

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex

Slope (%): 7 Lat: 42.642713 Long: -83.498356 Datum: WGS84

Soil Map Unit Name: 17A - Wasepi sandy loam, 0 to 3 percent slopes NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Data point is located beside a gravel campground road that separates Wetlands A and B.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus bicolor*	25	Yes	FACW
2. *Carya ovata*	20	Yes	FACU
3. *Acer saccharinum*	15	Yes	FACW
4. *Populus deltoides*	5	No	FAC
5.			
	65	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Populus deltoides*	8	Yes	FAC
2. *Quercus bicolor*	5	Yes	FACW
3.			
4.			
5.			
	13	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	10	Yes	FACU
2. *Taraxacum officinale*	4	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	14	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *Vitis riparia*	7	Yes	FACW
2.			
	7	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 62.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	52	x 2 =	104
FAC species	13	x 3 =	39
FACU species	34	x 4 =	136
UPL species	0	x 5 =	0
Column Totals:	99 (A)		279 (B)

Prevalence Index = B/A = 2.82

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D[illegible]

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/2	100					Loamy/Clayey	Gravelly mix
10-16	10YR 5/3	95	10YR 5/4	5	C	M	Loamy/Clayey	Faint redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP3

Investigator(s): R. Newkirk Section, Township, Range: SW 1/4; SW 1/4; Section 22; T3N; R8E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 42.642627 Long: -83.498579 Datum: WGS84

Soil Map Unit Name: 17A - Wasepi sandy loam, 0 to 3 percent slopes NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Data point is located in the northeastern most extent of Wetland B.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus bicolor*	25	Yes	FACW
2. *Populus deltoides*	15	Yes	FAC
3. *Acer saccharinum*	10	No	FACW
4. *Prunus serotina*	7	No	FACU
5.			
	57	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Cornus sericea*	8	Yes	FACW
2. *Quercus bicolor*	5	Yes	FACW
3.			
4.			
5.			
	13	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Typha angustifolia*	25	Yes	OBL
2. *Carex hyalinolepis*	15	Yes	OBL
3. *Onoclea sensibilis*	5	No	FACW
4. *Symplocarpus foetidus*	4	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
	49	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *Vitis riparia*	5	Yes	FACW
2.			
	5	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	44	x 1 =	44
FACW species	58	x 2 =	116
FAC species	15	x 3 =	45
FACU species	7	x 4 =	28
UPL species	0	x 5 =	0
Column Totals:	124 (A)		233 (B)
Prevalence Index = B/A =			1.88

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D[illegible]

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					Mucky Sand	
6-11	10YR 3/2	100					Sandy	
11-17	10YR 5/3	90	10YR 6/4	10	C	M	Loamy/Clayey	Faint redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ? Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP4

Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; R8E

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex

Slope (%): 8 Lat: 42.641693 Long: -83.497696 Datum: WGS84

Soil Map Unit Name: 17A - Wasepi sandy loam, 0 to 3 percent slopes NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Data point is located on a hillside, in an upland forest near the north edge of Wetland C and along the east boundary of the Project Site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus alba*	50	Yes	FACU
2. *Quercus rubra*	20	Yes	FACU
3. *Carya ovata*	5	No	FACU
4.			
5.			
	75	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Quercus alba*	20	Yes	FACU
2. *Fagus grandifolia*	15	Yes	FACU
3. *Quercus bicolor*	15	Yes	FACW
4.			
5.			
	50	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Carex sp.*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
		=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *None*			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	110	x 4 =	440
UPL species	0	x 5 =	0
Column Totals:	125 (A)		470 (B)

Prevalence Index = B/A = 3.76

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D[illegible]

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/2	100					Loamy/Clayey	
11-17	10YR 5/3	95	10YR 5/4	5	C	M	Loamy/Clayey	Faint redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ? Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP5

Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; R8E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 1 Lat: 42.641799 Long: -83.49799 Datum: WGS84

Soil Map Unit Name: 17A - Wasepi sandy loam, 0 to 3 percent slopes NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Data point is located in Wetland C near its north edge.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus bicolor*	35	Yes	FACW
2. *Betula lenta*	20	Yes	FACU
3. *Populus deltoides*	10	No	FAC
4. *Celtis occidentalis*	10	No	FAC
5.			
	75	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Quercus bicolor*	20	Yes	FACW
2. *Celtis occidentalis*	15	Yes	FAC
3. *Populus deltoides*	8	No	FAC
4.			
5.			
	43	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Carex hyalinolepis*	20	Yes	OBL
2. *Symplocarpus foetidus*	5	No	OBL
3. *Cornus sericea*	3	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	28	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *None*			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	58	x 2 =	116
FAC species	43	x 3 =	129
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	146 (A)		350 (B)

Prevalence Index = B/A = 2.40

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D[illegible]

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/1	100					Mucky Sand	
7-16	10YR 5/3	90	10YR 5/1	10	D	M	Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ? Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	X	No ___	Depth (inches):	1
Water Table Present?	Yes	X	No ___	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes	X	No ___	Depth (inches):	0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP6

Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; R8E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 2 Lat: 42.640925 Long: -83.499864 Datum: WGS84

Soil Map Unit Name: 27 - Houghton and Adrian mucks NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____

Hydric Soil Present? Yes X No ____

Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
Data point is situated in the southern extent of Wetland C.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus bicolor*	20	Yes	FACW
2. *Quercus rubra*	15	Yes	FACU
3.			
4.			
5.			
	35	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Quercus bicolor*	8	Yes	FACW
2. *Cornus sericea*	5	Yes	FACW
3.			
4.			
5.			
	13	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Typha angustifolia*	25	Yes	OBL
2. *Symplocarpus foetidus*	5	No	OBL
3. *Cornus sericea*	3	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	33	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *None*			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	36	x 2 =	72
FAC species	0	x 3 =	0
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	81 (A)		162 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)
Vegetation consists of a nearly monotypic stand of narrowleaf cattail (Typha angustifolia, OBL).

SOIL

Sampling Point: D[illegible]

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 2/1	100					Mucky Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ? Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches): 1		
Water Table Present?	Yes X	No ___	Depth (inches): 0		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP7

Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; R8E

Landform (hillside, terrace, etc.): upland Local relief (concave, convex, none): none

Slope (%): 0 Lat: 42.640848 Long: -83.499779 Datum: WGS84

Soil Map Unit Name: 27 - Houghton and Adrian mucks NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Data point is located near and south of Wetland B in an upland forested area with mowed turf grass.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus rubra*	35	Yes	FACU
2. *Populus deltoides*	15	Yes	FAC
3.			
4.			
5.			
	50	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Cornus sericea*	5	Yes	FACW
2. *Quercus bicoor*	5	Yes	
3.			
4.			
5.			
	10	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	8	Yes	FACU
2. *Carex sp.*			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	8	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *None*			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	15	x 3 =	45
FACU species	43	x 4 =	172
UPL species	0	x 5 =	0
Column Totals:	63 (A)		227 (B)
Prevalence Index = B/A =			3.60

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/1	100					Sandy	
10-17	10YR 4/2	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ? Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP8

Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; R8E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 1 Lat: 42.639996 Long: -83.498403 Datum: WGS84

Soil Map Unit Name: 27 - Houghton and Adrian mucks NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Data point is located within and along the west boundary of Wetland C.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix amygdaloides*	30	Yes	FACW
2. *Betula lenta*	15	Yes	FACU
3. *Quercus bicolor*	10	No	FACW
4.			
5.			
	55	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Carpinus caroliniana*	20	Yes	FAC
2. *Quercus bicolor*	10	Yes	FACW
3.			
4.			
5.			
	30	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Typha angustifolia*	18	Yes	OBL
2. *Symplocarpus foetidus*	6	Yes	OBL
3. *Onoclea sensibilis*	4	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	28	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *None*			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	24	x 1 =	24
FACW species	54	x 2 =	108
FAC species	20	x 3 =	60
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	113 (A)		252 (B)

Prevalence Index = B/A = 2.23

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D[illegible]

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-17	10YR 2/1	100					Mucky Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ? Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches): 1		
Water Table Present?	Yes X	No ___	Depth (inches): 0		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP9

Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; R8E

Landform (hillside, terrace, etc.): upland Local relief (concave, convex, none): none

Slope (%): 0 Lat: 42.639783 Long: -83.498345 Datum: WGS84

Soil Map Unit Name: 12 - Brookston and Colwood loams NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Data point is located in upland, south of DP 8 and west of Wetland C.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus rubra*	25	Yes	FACU
2. *Quercus bicolor*	20	Yes	FACW
3. *Populus deltoides*	10	No	FAC
4.			
5.			
	55	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Quercus rubra*	12	Yes	FACU
2. *Carpinus caroliniana*	10	Yes	FAC
3. *Fagus grandifolia*	5	No	FACU
4.			
5.			
	27	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Solidago canadensis*	10	Yes	FACU
2. *Carex sp.*	4	Yes	
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	14	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *None*			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	20	x 3 =	60
FACU species	52	x 4 =	208
UPL species	0	x 5 =	0
Column Totals:	92 (A)		308 (B)

Prevalence Index = B/A = 3.35

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D[illegible]

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/1	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 9
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 5

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP10

Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; R8E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 1 Lat: 42.639381 Long: -83.500259 Datum: WGS84

Soil Map Unit Name: 27 - Houghton and Adrian mucks NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Data point is located in a forested portion of Wetland C, near its northwest edge.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	30	Yes	FAC
2. *Quercus bicolor*	20	Yes	FACW
3. *Celtis occidentalis*	15	Yes	FAC
4. *Quercus rubra*	5	No	FACU
5.			
	70	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Cornus sericea*	20	Yes	FACW
2. *Carpinus caroliniana*	12	Yes	FAC
3. *Quercus bicolor*	7	No	FACW
4. *Celtis occidentalis*	5	No	FAC
5.			
	44	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Ranunculus sceleratus*	7	Yes	OBL
2. *Carex hyalinolepis*	5	Yes	OBL
3. *Symplocarpus foetidus*	4	Yes	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	16	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *Vitis riparia*	7	Yes	FACW
2.			
	7	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	16	x 1 =	16
FACW species	54	x 2 =	108
FAC species	62	x 3 =	186
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	137 (A)		330 (B)
Prevalence Index = B/A =			2.41

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-17	10YR 2/1	100					Mucky Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ? Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches): 1		
Water Table Present?	Yes X	No ___	Depth (inches): 0		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP11

Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; R8E

Landform (hillside, terrace, etc.): upland Local relief (concave, convex, none): none

Slope (%): 0 Lat: 42.639499 Long: -83.500041 Datum: WGS84

Soil Map Unit Name: 27 - Houghton and Adrian mucks NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Data point is located in upland approximately 50 feet north of Wetland C.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus alba*	35	Yes	FACU
2. *Quercus rubra*	20	Yes	FACU
3.			
4.			
5.			
	55	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *None*			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Carex sp.*	15	Yes	
2. *Symphyotrichum lanceolatum*	8	Yes	FAC
3. *Solidago canadensis*	5	No	FACU
4. *Daucus carota*	5	No	UPL
5. *Glechoma hederacea*	3	No	FACU
6.			
7.			
8.			
9.			
10.			
	36	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *None*			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	8	x 3 =	24
FACU species	63	x 4 =	252
UPL species	5	x 5 =	25
Column Totals:	76 (A)		301 (B)
Prevalence Index = B/A =			3.96

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

____ 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					Sandy	
8-17	10YR 4/2	95	10YR 5/4	5	C	M	Sandy	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP12

Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; R8E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 2 Lat: 42.6397 Long: -83.500453 Datum: WGS84

Soil Map Unit Name: 27 - Houghton and Adrian mucks NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Data point is located in the southeast corner of Wetland D.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus bicolor*	35	Yes	FACW
2. *Acer saccharinum*	15	Yes	FACW
3. *Quercus rubra*	10	No	FACU
4.			
5.			
	60	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Carpinus caroliniana*	20	Yes	FAC
2. *Quercus bicolor*	7	Yes	FACW
3.			
4.			
5.			
	27	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Carex hyalinolepis*	12	Yes	OBL
2. *Apocynum cannabinum*	5	Yes	FAC
3. *Symplocarpus foetidus*	4	No	OBL
4. *Onoclea sensibilis*	4	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	25	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *None*			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	16	x 1 =	16
FACW species	61	x 2 =	122
FAC species	25	x 3 =	75
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	112 (A)		253 (B)

Prevalence Index = B/A = 2.26

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100					Mucky Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ? Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 1
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP13

Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; R8E

Landform (hillside, terrace, etc.): upland Local relief (concave, convex, none): none

Slope (%): 1 Lat: 42.639987 Long: -83.50035 Datum: WGS84

Soil Map Unit Name: 12 - Brookston and Colwood loams NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Data point is located in upland approximately 25 feet north of Wetland D.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus rubra*	30	Yes	FACU
2. *Betula alleghaniensis*	15	Yes	FAC
3. *Ulmus americana*	10	No	FACW
4.			
5.			
	55	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Carpinus caroliniana*	10	Yes	FAC
2.			
3.			
4.			
5.			
	10	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Carex sp.*	5	Yes	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *None*			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	25	x 3 =	75
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	65 (A)		215 (B)

Prevalence Index = B/A = 3.31

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 4/3	100					Loamy/Clayey	
10-17	10YR 6/2	95	10YR 5/6	5	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes X No ___ Depth (inches): 10

(includes capillary fringe)

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP14

Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; R8E

Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): convex

Slope (%): 5 Lat: 42.641022 Long: -83.501859 Datum: WGS84

Soil Map Unit Name: 11B - Capac sandy loam, 0 to 4 percent slopes NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Data point is located in upland approximatley 25 feet north of Wetland D.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus rubra*	50	Yes	FACU
2. *Quercus bicolor*	25	Yes	FACW
3. *Carya ovata*	10	No	FACU
4. *Carpinus caroliniana*	5	No	FAC
5.			
	90	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Carpinus caroliniana*	10	Yes	FAC
2. *Fraxinus pennsylvanica*	5	Yes	FACW
3.			
4.			
5.			
	15	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Carex sp.*	5	Yes	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	5	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *None*			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	15	x 3 =	45
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	105 (A)		345 (B)

Prevalence Index = B/A = 3.29

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

____ 3 - Prevalence Index is ≤3.0[1]

____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	100					Sandy	
9-16	10YR 5/2	95	10YR 5/4	5	C	M	Sandy	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP15

Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; R8E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 42.64092 Long: -83.501994 Datum: WGS84

Soil Map Unit Name: 27 - Houghton and Adrian Mucks NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Data point is located in the western most extend of Wetland D, near the west boundary of the Project Site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	30	Yes	FAC
2. *Quercus bicolor*	20	Yes	FACW
3. *Salix amygdaloides*	15	No	FACW
4. *Acer saccharinum*	10	No	FACW
5. *Quercus rubra*	10	No	FACU
	85	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Cornus sericea*	15	Yes	FACW
2. *Quercus bicolor*	8	Yes	FACW
3. *Carpinus caroliniana*	5	No	FAC
4.			
5.			
	28	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Carex hyalinolepis*	7	Yes	OBL
2. *Symplocarpus foetidus*	5	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	12	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *None*			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	12	x 1 =	12
FACW species	68	x 2 =	136
FAC species	35	x 3 =	105
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	125 (A)		293 (B)

Prevalence Index = B/A = 2.34

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	100					Mucky Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ? Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches): 1		
Water Table Present?	Yes X	No ___	Depth (inches): 0		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP16

Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; R8E

Landform (hillside, terrace, etc.): depression Local relief (concave, convex, none): concave

Slope (%): 0 Lat: 42.641543 Long: -83.500687 Datum: WGS84

Soil Map Unit Name: 27 - Houghton and Adrian mucks NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Data point is located in a forested portion of Wetland B.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	25	Yes	FAC
2. *Quercus bicolor*	15	Yes	FACW
3. *Carpinus caroliniana*	10	Yes	FAC
4.			
5.			
	50	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Carpinus caroliniana*	20	Yes	FAC
2. *Celtis occidentalis*	8	Yes	FAC
3. *Quercus bicolor*	5	No	FACW
4.			
5.			
	33	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Carex sp.*	5	Yes	
2. *Symplocarpus foetidus*	3	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	8	=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *None*			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species	20	x 2 =	40
FAC species	63	x 3 =	189
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	86 (A)		232 (B)
Prevalence Index = B/A =			2.70

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100					Mucky Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ? Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches): 3
Water Table Present?	Yes X	No ___	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Brendel Lake Campground / Elizabeth Lake Road (221016) City/County: White Lake Twp/Oakland Sampling Date: 4-6-2022

Applicant/Owner: Kem-Tec, Inc. (client) State: MI Sampling Point: DP17

Investigator(s): R. Newkirk Section, Township, Range: NW 1/4; NW 1/4; Section 27; T3N; R8E

Landform (hillside, terrace, etc.): upland Local relief (concave, convex, none): none

Slope (%): 0 Lat: 42.641543 Long: -83.500486 Datum: WGS84

Soil Map Unit Name: 11B - Capac sandy loam, 0 to 4 percent slopes NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation No , Soil No , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation No , Soil No , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Data point is located in upland approximately 75 feet south of Wetland B.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus rubra*	40	Yes	FACU
2. *Prunus serotina*	20	Yes	FACU
3. *Carpinus caroliniana*	15	Yes	FAC
4.			
5.			
	75	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Carpinus caroliniana*	20	Yes	FAC
2. *Quercus rubra*	10	Yes	FACU
3.			
4.			
5.			
	30	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *None*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
		=Total Cover	
Woody Vine Stratum (Plot size: 15)			
1. *None*			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	35	x 3 =	105
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	105 (A)		385 (B)

Prevalence Index = B/A = 3.67

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100					Loamy/Clayey	
10-17	10YR 4/4	70	10YR 5/8	30	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Midwest Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils, Version 7.0, 2015 Errata (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ? Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
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- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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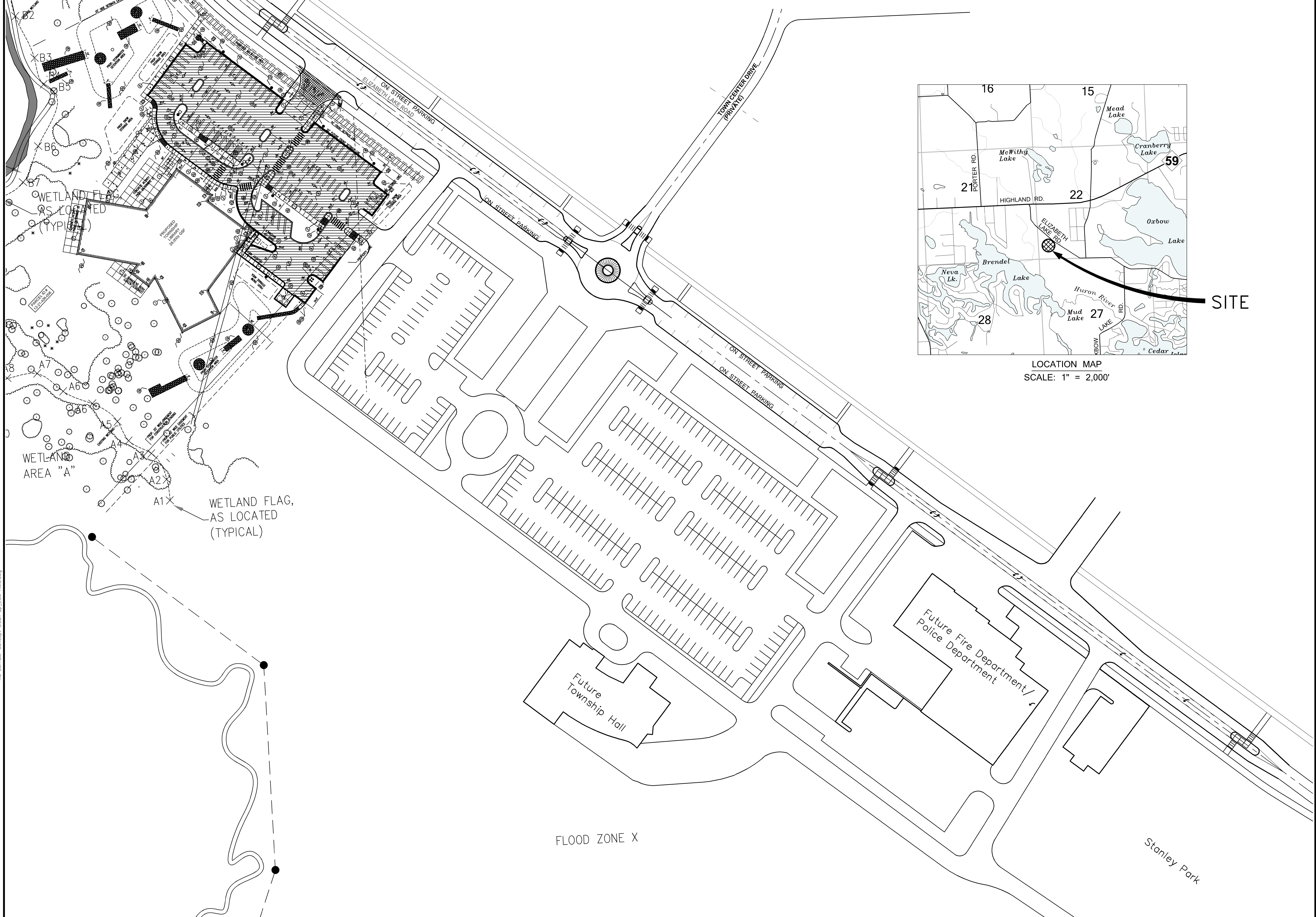
Elizabeth Lake Road Proposed Civic Center



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White Lake Township
7525 Highland Road (M-59)
White Lake, Michigan 48383
248-698-3300

Civic Center Campus Concept

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DRAWN BY: J&A
DESIGN BY: -
CHECKED BY: -

J&A JOB NUMBER: 18579

SHEET NO.
C-101

PLOT DATE: 8/4/2022 3:28:19 PM SAVE DATE: 8/4/2022 3:26:37 PM LEIGH MERRILL X:\Projects\2022\2245\748200 WLT Elizabeth Lk R\01_ConstDocs\CAD\Sheet Files\2245748200 WLT Elizabeth Lk Rd Corridor Concept clean up_LCM AMG.dwg Layout = 60' Scale