williams&works
engineers | surveyors | planners

MEMORANDUM

To:	City of The Village of Douglas Planning Commission
Date:	May 3, 2023
From:	Tricia Anderson, AICP Andy Moore, AICP
RE:	**Centre Collective Preliminary Site Condominium Review (New Configuration)**

Mr. Jeff Kerr of Kerr Real Estate has submitted an application for review of the preliminary plan for a 19-unit single-family residential site condominium development on the northern 6.9 acres of 324 West Center Street. The site is generally located on the north side of West Center Street, between the intersections of North Ferry Street/West Center Street, and North Blue Star Highway/West Center Street. The current zoning of the subject site is R-4, Harbor Residential, which allows single-family homes by right.

BACKGROUND. This site was previously zoned R-2 and received rezoning approval for R-4 in May of 2021. At one time, the subject site was planned for a PUD that would include residential on the northern 2/3 of the site and commercial on southern 1/3 of the subject site that has frontage on West Center Street. On December 8, 2022, the Planning Commission conditionally offered a favorable recommendation to the City Council for the preliminary site condominium plan. In March of 2023, the applicant made some changes to the configuration and connectivity of streets, as well as the layout of the lots and location of the stormwater management facilities (see Figures 1 and 2). We met with the applicant and the Site Plan Review Committee on April

Fig. 1 New Configuration

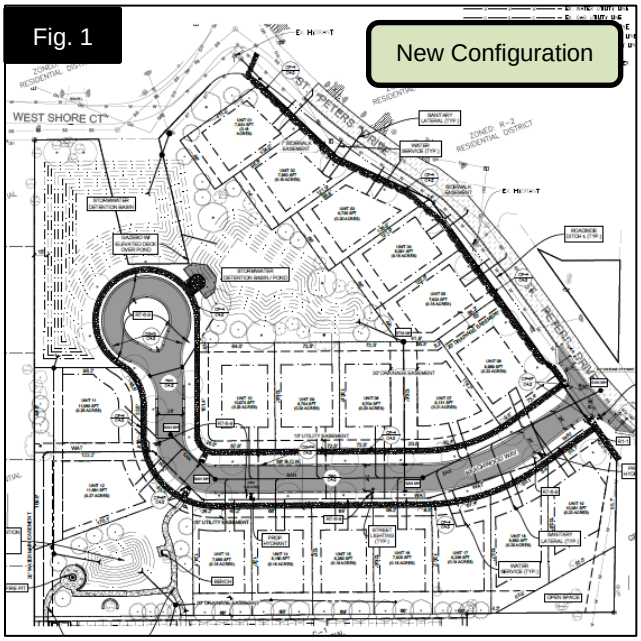
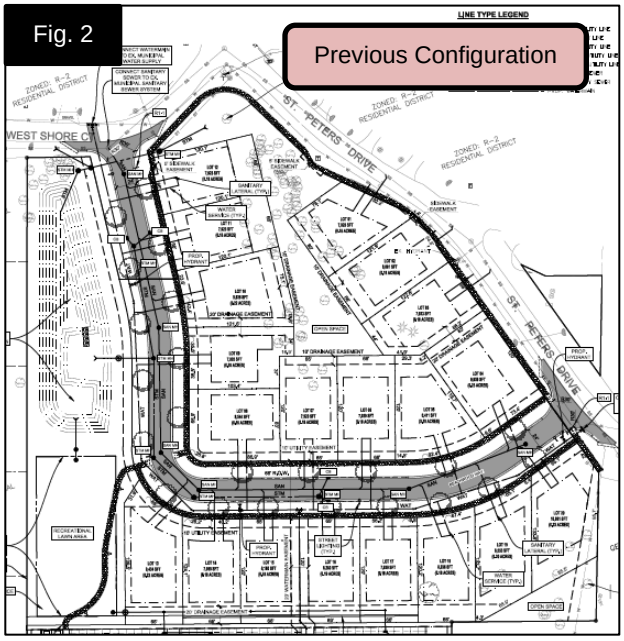


Fig. 2 Previous Configuration



12, 2023 to discuss and provide feedback on the initial submittal of the newly configured proposed site condominium development.

The updated plan still proposes the following improvements (added improvements shown in bold):

- **19** single-family units ranging from 7,920 square to 11,681 square feet in area giving a density of 2.71 units per acre (previously 20 units).
- Public street connecting St. Peters Drive **and ending in a cul-de-sac containing a landscaped island.**
- Sidewalks along the frontage of St. Peters, on both sides of internal streets.
- Street trees, **located just outside of the utility easements in the St. Peters right-of-way, on individual units to avoid potential root system conflict with utility infrastructure.**
- Stormwater management facilities and infrastructure **now proposed in the northwest corner of the site, partially within a platted road right of way.**
- Public water and sanitary sewer.
- **1.9 acres of** open space within a common element.
- **Gazebo and elevated deck to overlook ponds.**
- **Gathering space, bench and fire pit area in southwest corner of subject site.**
- **Stone dust path (confirmed to be ADA compliant per applicant) which connects the site condo to the gathering spaces in the southwest corner of the site and the mixed-use development to the south.**

Procedures. The Planning Commission is again tasked with making a recommendation to the City Council on the new configuration of the preliminary site condo development plan based on the plan. If a favorable recommendation is made, the City Council will review the *final site condominium plan* against the standards contained within Section 16.24(7), Standards of Approval.

Review. The revised plans dated 4/26/23 have been reviewed pursuant to the following articles of the City of the Village of Douglas Zoning Ordinance:

- Article 7, Harbor Residential District, Section 7.02.C. Site and Building Placement Standards
- Article 24, Site Plan Review, Section 24.02, Data Required
- Article 16, General Provisions, Section 16.24, Condominiums

- **Article 24, Site Plan Review.** Section 24.02 of the Zoning Ordinance outlines the information required for site plan review. Areas that are of special consideration, along with our remarks are below:

  - *24.02(3) Written statement regarding the proposed project's impact on existing infrastructure (including traffic capacity of streets, schools, and existing utilities) and on*

the natural environment of the site and adjoining lands. If deemed necessary by the Zoning Administrator or Planning Commission, a phase 1 environmental review may be requested. As appropriate, the Zoning Administrator or Planning Commission may also request a phase 2 environmental review. Also see Section 24(2)21 of this Section.

Remarks: As a refresher, in the original submittal, the applicant provided a Phase 1 Environmental Assessment and wetland delineation which would speak to the impact on the natural environment. The EA revealed no recognizable environmental conditions and the wetland delineation revealed two small pockets of wetlands, however, they are not regulated due to their small size.

The applicant also submitted a traffic study which was updated when the development was broken into two separate developments (site condo to the north and mixed-use to the south). The recommendations from the traffic study are shown below. The applicant acknowledges these required improvements and will need to coordinate any modifications to the signal and to the Center Street right of way with the City's DPW. This is a recommended condition of approval.

Fig. 3

10 RECOMMENDATIONS

The recommendations of this TIS are as follows:

- Update the existing signal timing at Blue Star Hwy, & W. Center St. to reflect current clearance intervals and optimize the signal timing with the addition of the proposed development traffic.
- Provide a right-turn taper on Center Street at the proposed SE. Site Drive.

▷ *24.02(8) Proposed streets, driveways, parking spaces and sidewalks, with indication of direction of travel, the inside radii of all curves including driveway curb returns, the width of streets, driveways and sidewalks, the total number of parking spaces, and dimensions of a typical individual parking space and associated aisles. This will also include a free and open general public pedestrian access in a form approved by the City Attorney to adjacent property or development unless waived by the Planning Commission as being unpractical or unreasonable due to topographical, natural barrier or similar type of reason.*

Remarks: Individual driveway locations that serve the single-family lots are subject to change as the project comes to fruition and building permits are issued. The applicant is planning to provide sidewalks along the frontage on St. Peters Drive. **Upon further review of the cost/benefits of providing sidewalk on the Westshore Drive frontage, the applicant has decided to remove them from the plan, due to unfavorable grades and low, wet areas. We would support this decision.** A pedestrian connection is also proposed to the proposed mixed-use development to the south.

▷ *24.02(12) A landscaping plan indicating the locations of planting and screening, fencing, and lighting in compliance with the requirements of Article 21. Also, proposed locations of common open spaces, if applicable.*

Remarks: Section 21.01(5)(c) below requires trees to be planted along public rights of

way. In light of the City Engineer's concern with trees being planted *in* the right-of-way, we have made the interpretation that the ordinance language does not require the trees to be *in* the right-of-way, but *along* the right-of-way. The concern with trees being planted in the right of way is valid, as tree roots have the potential to cause damage to utility infrastructure as the trees age and root systems expand. Our suggestion to the applicant was to place the trees along the ROW line, just inside the back of the sidewalk, as shown in Figure 4.

*Section 21.01(5)(c) Landscaping **along public rights of way** shall include a minimum of one (1) tree at least fifteen feet in height or a minimum caliper of three (3) inches (whichever is greater at the time of planting) for each thirty (30) lineal feet, or major portion thereof, of frontage abutting said right of way. Tree species shall be selected from the City of Douglas recommended species list. The remainder of the landscaping within the right of way shall comply with the recommendation of the Blue Star Corridor plan or other streetscape plans on file at the time of application and may include grass, ground cover, shrubs, and/or other natural, living, landscape material.*

Fig. 4

▷ *24.02(13) Location of exterior drains, dry wells, catch basins, retention and/or detention areas, sumps and other facilities designed to collect, store or transport storm water or wastewater. The point of discharge for all drains and pipes shall also be specified on the site plan.*

Remarks: The proposed development provides drainage easements in the rear yards of the site condominium lots where an 18" storm main is planned to be buried. Along the rear yards of lots 13-17 the required trees are proposed to serve as a buffer between the commercial and residential. The tree line must be maintained as part of the approval of

the mixed-use development to the south, thus, some language should be added to the site condo's Master Deed indicating that they are to be conserved unless dead or diseased.

- **Article 16, General Provisions, Condominium Review.** Section 16.24(4)(a) and (b) outlines the additional information that must be submitted for review as it pertains specifically to condominium developments:

  - *16.24(4)(b)(iv) The use and occupancy restrictions and maintenance provisions for all general and limited common elements that will be included in the master deed including a copy of the draft master deed and by-laws.*

    Remarks: The applicant provided a draft master deed with the original submittal, and it is our understanding that it is still developing. A condition to require the City Attorney's review prior to its recordation is appropriate and is recommended. This step should take place after the City Council's approval of the final site condominium plan.

  - *16.24(4)(b)(v) A storm drainage and a stormwater management plan, including all lines, swales, drains, basins, and other facilities and easements granted to the appropriate municipality for installation, repair, and maintenance of all drainage facilities.*

    Remarks: This information has been provided and has been reviewed by the City's Engineer, who has provided a detailed memorandum with his findings.

  - *16.24(4)(b)(vi) A utility plan showing all water and sewer lines and easements to be granted to the appropriate municipality or public utility for installation, repair and maintenance of all utilities.*

    Remarks: The preliminary layout of public utilities and storm infrastructure, as well as any proposed easements, has been provided. The appropriate agencies will review this information in detail during the Final Site Condominium stage of review by the City Council.

- **Article 7, R-4 Uses and Dimensional Minimums.** The proposed site condominium development must meet the minimum dimensional standards and permitted uses contained within Article 7, R-4, Harbor Residential.

  Remarks: The preliminary site condominium plan appears to comply with the permitted uses, minimum standards for lot area, frontage, and building envelopes outlined in this section.

Recommendation. At the May 11th meeting, the Planning Commission should take into consideration the proposed changes and the comments from ours and the City Engineer's memorandums, as well as any additional information to be provided by the applicant. At this time, it is our recommendation that the Planning Commission forward a favorable recommendation to the City Council for the review of the final site condominium plan, subject to the following conditions:

1. The applicant shall address all conditions required by the City Engineer in the memorandum dated 4/28/2023.
2. The applicant shall work with the Allegan County Drain Commission to satisfy stormwater management design standards and receive approval, prior to the City Council's review of the final condominium plan.
3. The applicant shall work with the City Engineer and DPW as it relates to the implementation of recommended improvements to the signal timing and taper lanes along St. Peters.
4. The applicant shall adhere to and address any and all recommendations made by the Saugatuck-Douglas Fire Department.
5. The applicant shall insert language into the Master Deed and bylaws regarding the trees proposed trees along the rear yards of lots 13-17 that prohibit their removal unless dead or diseased.
6. Upon approval of the final site condominium plan, the applicant shall submit a final draft of the Master Deed to be reviewed by the City Attorney prior to recordation. The Master Deed shall be recorded prior to the issuance of a zoning permit for any of the units.
7. The applicant shall provide a construction timeline satisfactory to the City Engineer's recommendations, pertaining to the sequence of grading, installation of storm and utility infrastructure, sidewalks and pedestrian pathways, and landscaping, prior to the City Council's review of the final condominium plan
8. The applicant shall construct individual homes in accordance with the MBO table shown on the approved grading and soil and sedimentation control plan dated 4/26/23.
9. The applicant shall provide the City with a recorded copy of the stormwater maintenance agreement, prior to the issuance of any zoning permits for the construction of individual units.
10. Upon approval of the final condominium plan by the City Council, the developer shall pay all fees and escrows associated with required permits related to utilities, construction plan review, and inspections.
11. Upon the City Council's approval of the final condominium plan, the developer shall work with the City Engineer to meet the minimum standards for road design, inspection,

approval, and maintenance for all proposed public streets. No construction of road infrastructure is permitted until construction plans are approved by City Engineer.

Please feel free to reach out with any questions or comments.

Prein&Newhof
Engineers ▪ Surveyors ▪ Environmental ▪ Laboratory

April 28, 2023
2200274

Ms. Tricia Anderson
Williams&Works
549 Ottawa Ave., NW Ste. 310
Grand Rapids, MI 49503

RE: Centre Collective
Revised Site Condominium and Commercial Plan Review

Dear Tricia:

This letter is responding to the April 26, 2023 submittal that includes drawings dated April 26, 2023 for both the site condominium project and the commercial development project. For simplicity, we are combining the review of the site condominium and commercial development into one. We will only address outstanding items and notes from the previous letters for the site condominium dated March 20, 2023, and the commercial development dated March 21, 2023.

In response to Mr. Bruce Callen's memorandum dated April 26, 2023, we submit the following comments:

a) Fire, bullet point 1. It is noted that the roadway was expanded to 28 feet for allowing parking on one side of the street. We note that on the site condominium drawings C 1.0 in the General Notes still notes 24 feet. The dimension on the same sheet in the street does show 28 feet and the cross section on C 4.0 shows 28 feet. The general note should be changed.

b) Engineering. Many of these items are addressing the drainage review comments prepared by our office dated April 13, 2023. Because that is reviewed through the Allegan County Drain Commissioner's office, we will address those comments when that revised submittal is submitted to their office.

In follow up to our review letter for the site condominium dated March 20, 2023, we note the following:

a) General, item 2. The 6" sidewalk issue in driveways was addressed on C 4.0 with a detail and notes.

b) General, item 4. We are not aware that the developer has indicated that the first item in the recommendations to "update the existing signal timing at Blue Star Highway & Center Street, to reflect current clearance interval standards and optimize the signal timing during both peak periods" will be addressed.

c) Sanitary Sewer, item 1. The material for laterals has been addressed on C 3.0.

d) Water Main, item 1. The material for water services has been addressed on C 3.0.

e) Drainage & Grading. As previously noted, a review was completed on April 13, 2023 through the ACDC's office. The developer will need to submit additional information through ACDC to complete that review.

In follow up to our review letter for the commercial development dated March 21, 2023, we note the following:

a) General, item 4. The information requested was included on C 0.1.

b) General, item 6. See our note for General, item 4 for the site condominium letter.

c) Sanitary Sewer, item 1. Potential grease traps were shown on C 3.0. The developer is aware that monitoring manholes could also be required pending the use.

d) Sanitary Sewer, item 2. This was addressed on C 0.1.

e) Water Main, item 1. The contractor has been made aware that environmental issues are identified east of this site, and they will need to address if any issues arise during dewatering or construction of this site.

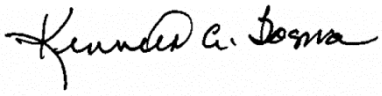
f) Drainage & Grading. As previously noted, a review was completed on April 13, 2023 through the ACDC's office. The applicant will need to submit additional information through ACDC to complete that review.

g) Additional comments, item 1. The water main was moved so that trees are outside of the easement area.

If you have any questions or comments regarding the above, please feel free to call me.

Sincerely,

Prein&Newhof



Kenneth A. Bosma, P.E.

KAB/kab

cc: Ms. Jenny Pearson, City of Douglas
Mr. Daryl VanDyk, KLSWA
Mr. Bruce Callen – Callen Engineering
Mr. Jeff Kerr, Developer

3342 Blue Star Highway
Saugatuck, MI 49453
269 857-3000 / Fax: 269 857-1228
E-mail: info@saugatuckfire.org

April 11th, 2023

Kerr Real Estate
c/o Jeff Kerr
P.O. Box 574
Douglas, MI 49406

Re: Centre Collective Residential Site Condo –-Site Plan Review #5 for Callen Civil Engineers Job No: 021 Kerr – Centre Collective for sheets CS, C0.1, C1.0, C2.0, C2.1, C3.0, C4.0, L1.0 for drawings dated 03-02-23.

Dear Mr. Kerr,

We are in receipt of the revised site plan for the Centre Collective Residential Site Condo received 3/29/2023. We reviewed the plans using the International Fire Code (IFC) 2015 edition. Please see the result of the fire department review listed ***below***.

1. Dead end driveways and access roads in excess of 150 feet in length shall be provided with an approved area for turning around with fire apparatus (IFC 503.2.5) ***Not approved, a turnaround was added since the last review and does not meet the minimum dimensions. The cul-de-sac design is intended to be a 96' open circle of pavement. Either the center island of the cul-de-sac needs to be removed, or please have the engineers show, utilizing approved Auto Turn CAD software drawings, that the 49' aerial apparatus can navigate the cul-de-sac in a safe and efficient manner, we are happy to reconsider. (Please see apparatus dimension included below as well as sample turnaround options).***

2. "No Parking Fire Lane" signage shall be installed at the dead end of the turnaround. (IFC 503.3) ***Please add No Parking Fire Lane signage at the cul-de-sac. Suggested locations in returned submittals on sheet C1.0***

3. No parking shall be allowed within the turnaround. The area must be clear and unobstructed for turnaround at all times. (IFC 503.4)

4. Fire apparatus access roads and driveways shall have an unobstructed width of not less than 20 feet, exclusive of shoulders. (IFC 503.2.1) ***Approved, width is shown as 24 feet wide, provided no on-street parking will be permitted on Beachwood Way. If parking is permitted, the width needs to be amended to 28 feet to allow for 20 feet minimum adjacent to the parked cars on one side of the street.***

5. Minimum clear height shall be 13'6" across the entire 20 feet width of driveway. (IFC 503.2.1) ***Approved, height clearance is noted as 13'6" on sheet C1.0 of revised submittals.***

6. Road shall not exceed the 10% maximum grade. (IFC 503.2.7) ***Approved, grade is shown as less than 10% in revised submittals on sheet C2.1.***

7. The driveway shall be installed with asphalt, concrete, or other approved driving surfaces capable of supporting the 80,000-pound imposed load of our heaviest apparatus and be installed to provide emergency access prior to commencement of building construction. (IFC 503.2.3) ***Weight capacity is not noted in plans provided. Please include in revised submittals.***

8. The required turning radius of a fire apparatus access road shall be 28.0' as determined by the fire code

official. (503.2.4) ***It appears the radius of the entrance drives is R30.0' at St. Peters Dr and should be amended to R28.0'.***

9. The roads shall be maintained free of snow and ice to provide all weather driving capabilities. (IFC 503.2.3)

10. Fire department access roads shall be constructed and maintained for all construction sites. (IFC 3310.1) ***Ensure the road and turnarounds are installed and navigable for emergency access prior to commencement of vertical building construction.***

11. The installation of security gates across a fire apparatus access road shall be approved by the fire chief. Where security gates are installed, they shall have an approved means of emergency operation. The security gates and the emergency operation shall be maintained operational at all times. Electric gate operators, where provided, shall be listed in accordance with UL 325. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200. (IFC 503.6) ***No gate appears to be shown in the plans provided, however if it is installed in the future, a Knox Key switch is required for emergency access and activation.***

12. New and existing buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. (IFC 505.1) ***Address signage must be posted prior to commencement of construction. Green reflective address signs are preferred.***

13. Streets and roads shall be identified with *approved* signs. Temporary signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles. Signs shall be of an *approved* size, weather resistant and be maintained until replaced by permanent signs. (IFC 505.2) ***Street signage must be posted prior to commencement of construction identifying "Beachwood Way"***

14. An approved water supply capable of supplying the required fire flow for fire protection shall be provided to premises upon which facilities, buildings, or portions of buildings are hereafter constructed or moved into or within the jurisdiction. (IFC 507.1) ***Please provide proposed hydrant fire flow calculations in revised submittals.***

15. The fire code official shall be notified prior to the water supply test. Water supply tests shall be witnessed by the fire code official, or approved documentation of the test shall be provided to the fire code official prior to final approval of the water supply system. (IFC 507.4) ***Upon completion of installation of the water main and fire hydrants, flow tests shall be conducted by the developers engineer, witnessed by the fire department, and documentation provided to the fire department.***

16. A hydrant is required within 400 ft. of any exterior portion of a non-sprinklered building or 600 ft. for an R-3 occupancy or sprinklered building. (IFC 507.5.1) ***Hydrant locations approved as proposed son sheet C1.0 dated March 02, 2023, as hydrant spacing meets minimum requirements. Hydrants shall have a 5" Storz connection and dual 2.5" NHT connections.***

17. An approved water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible material arrives on the site. (IFC 3312.1) ***Hydrants and access road shall be installed prior to combustible materials being delivered to the site.***

18. Upon completion of construction, physical testing with apparatus will be required. If the apparatus is unable to navigate the completed road and driveway in a safe and efficient manner, modifications may be required.

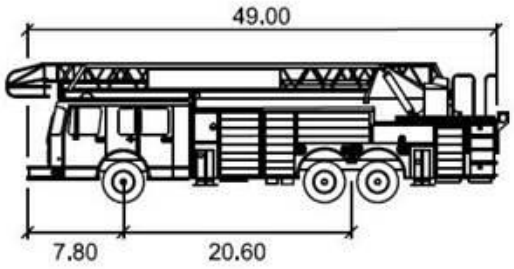
19. Anything omitted in this plan review is subject to field inspection. (IFC 105.4.4)

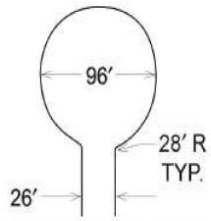
Please revise plans to include all the above information and documentation and submit for review. Once received, plans will be reviewed accordingly. Please let us know if you have any questions.

Respectfully Yours,

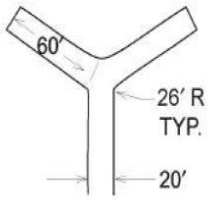
Chris Mantels
Deputy Chief / Fire Inspector

Cc: Greg Janik – Fire Chief (via email)
Tricia Anderson – Zoning Administrator (via email)
Dan Poll – Building Official (via email)
Bruce Callen – Owner Representative (via email)

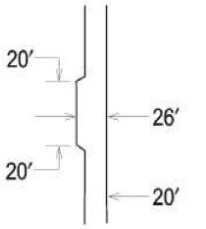




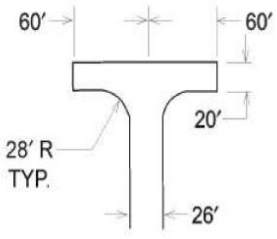
96-FOOT DIAMETER CUL-DE-SAC



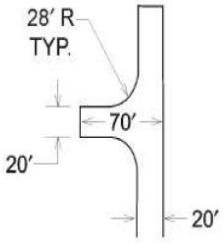
60-FOOT "Y"



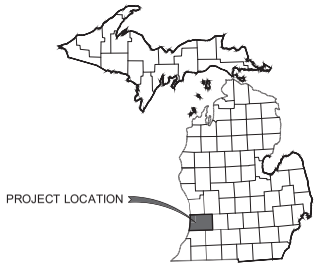
MINIMUM CLEARANCE AROUND A FIRE HYDRANT



120-FOOT HAMMERHEAD



ACCEPTABLE ALTERNATIVE TO 120-FOOT HAMMERHEAD



VICINITY MAP

CENTRE COLLECTIVE

SITE CONDOMINIUM

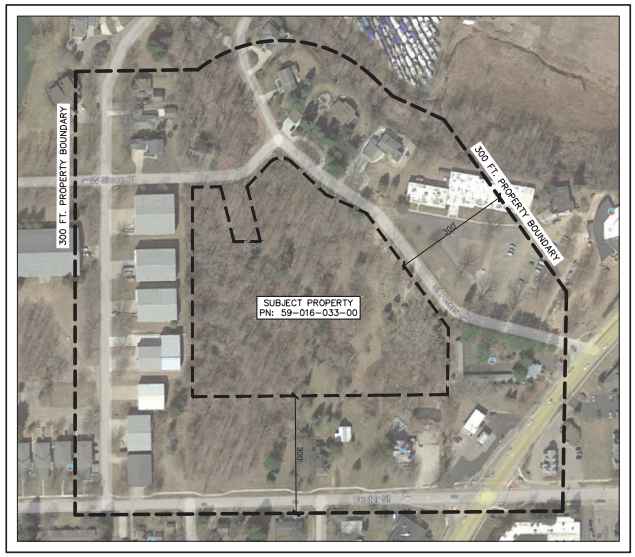
324 WEST CENTER STREET

THE CITY OF THE VILLAGE OF DOUGLAS

ALLEGAN COUNTY, MICHIGAN 49406

INDEX OF SHEETS

CONSTRUCTION SEQUENCE / PHASES OF EARTHWORK	Operation Time Schedule											
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
MOBILIZATION	X												
CLEAR SITE, STRIP TOPSOIL, AND BEGIN GRADING	X	X											
CONSTRUCT UNDERGROUND UTILITIES		X	X	X									
CONSTRUCT INDIVIDUAL HOMES		X	X	X	X	X	X	X	X	X	X	X	X
CONSTRUCT STREETS, FLATWORK (PER LOT DEV.)				X	X	X	X						
FINE GRADE LAWN AREAS, LANDSCAPE, MULCH							X	X					
STABILIZE SITE (TOPSOIL, SEED AND MULCH)								X					X
REMOVE TEMP SESC CONTROLS													X



VICINITY MAP

NORTH

0 150 300

SCALE IN FEET

PRELIMINARY - NOT FOR CONSTRUCTION

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

For protection of underground utilities, the CONTRACTOR shall dial 1-800-482-7171 OR 811 a minimum of three working days, excluding Saturdays, Sundays and holidays, prior to excavation in the vicinity of utility lines. All "MISS DIG" participating members will thus be routinely notified. This does not relieve the CONTRACTOR of the responsibility of notifying the utility owners who may not be part of the "MISS DIG" alert system.

PROJECT LOCATION

SECTION 16, T3N, R16W,
CITY OF DOUGLAS,
ALLEGAN COUNTY, MICHIGAN

OWNER

KRE WEST CENTRE LLC
PO BOX 574
DOUGLAS, MICHIGAN 49406
PHONE: 269-420-5156

Plan Prepared By:

Bruce A. Callen, PE
Callen Engineering, Inc.
108 E. Savidge St.
Spring Lake, Michigan 49456

Tel: 616-414-5260
email: bcallen@callenengineering.com

DATE OF PLAN: 04-26-23

ISSUANCES

PRELIMINARY SITE CONDOMINIUM PLANS RESPONSE	10-21-22
PRELIMINARY SITE CONDOMINIUM PLAN RESPONSE	11-11-22
FINAL SITE CONDOMINIUM PLAN SUBMITTAL	03-02-23
FINAL SITE CONDOMINIUM PLAN REVIEW RESPONSE	04-26-23

REVISIONS

DESIGNED BY:

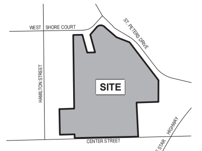
callen civil engineers

Callen Engineering, Inc.
108 East Savidge Street
Spring Lake, MI 49456
T.616.414.5260
www.callenengineering.com

Drawn by J.W.C.
Engineer B.A.C. Check B.A.C.

Callen Engineering Project No. 021 CENTRE COLLECTIVE

Sheet No. CS



LOCATION MAP
NOT TO SCALE

LEGEND

- Benchmark
- Catch Basin - Round
- Catch Basin - Square
- Culvert
- Deciduous Tree
- Evergreen Tree
- Gas Meter
- Guy Anchor
- Hydrant
- Iron - Set
- Iron - Found
- Miss Dig Flag - Gas
- Miss Dig Flag - Water
- Manhole
- Post
- Phone Riser
- Stop Box
- Sign
- Stop Sign
- Sanitary Sewer Manhole
- Utility Pole
- Underground Gas Marker
- Water Valve
- OH — Overhead Utility
- ST — Storm
- Guard Rail
- Tree
- Asphalt
- Concrete
- Existing Building
- D= Described
- P= Platted

TITLE INFORMATION

The Title Description and Schedule B items hereon are from Lighthouse Title Commitment No. CCU21-03284491, dated March 18, 2021.

TITLE DESCRIPTION

PARCEL A: Part of the Northwest 1/4 of Section 16, Town 3 North, Range 16 West, Saugatuck Township, Allegan County, Michigan, described as: Commencing at the West 1/4 corner of said Section; thence North 89 degrees 32 minutes 47 seconds East 662.20 feet along the East-West 1/4 line of said Section to the Point of Beginning; thence North 00 degrees 00 minutes 00 seconds East 33.26 feet; thence South 89 degrees 32 minutes 47 seconds West 103.94 feet; thence North 00 degrees 19 minutes 50 seconds East 200.11 feet; thence North 89 degrees 24 minutes 59 seconds East 102.79 feet; thence North 00 degrees 00 minutes 00 seconds East 426.01 feet along the East line of Terrace Parks Heights; thence North 00 degrees 11 minutes 41 seconds East 140.20 feet along the West line of St. Peter's Subdivision; thence North 89 degrees 11 minutes 47 seconds East 72.01 feet along the North line of Lot 10, St. Peter's Subdivision; thence South 13 degrees 25 minutes 13 seconds East 144.30 feet along the East line of said Lot 10; thence North 89 degrees 32 minutes 47 seconds East 67.62 feet along the South line of St. Peter's Subdivision; thence North 13 degrees 25 minutes 13 seconds West 144.65 feet along the West line of Lots 11 and 12 of St. Peter's Subdivision; thence North 43 degrees 39 minutes 47 seconds East 83.94 feet along the North line of Lot 12, St. Peter's Subdivision; thence Easterly 62.80 feet along a 40.00-foot radius curve to the right, said curve having a central angle of 89 degrees 57 minutes 16 seconds, and a chord bearing North 88 degrees 41 minutes 09 seconds East 56.55 feet along said North line; thence South 46 degrees 20 minutes 13 seconds East 119.91 feet along the North line of Lots 12 and 13 of St. Peter's Subdivision; thence South 65 degrees 14 minutes 13 seconds East 114.54 feet along the North line of Lots 13 and 14 of St. Peter's Subdivision; thence South 35 degrees 26 minutes 58 seconds East 360.78 feet along the Westerly right-of-way line of St. Peter's Drive; thence South 00 degrees 59 minutes 18 seconds West 169.89 feet along the East line of the Southeast 1/4 of the Southwest 1/4 of the Northwest 1/4 of said Section; thence South 89 degrees 32 minutes 47 seconds West 165.05 feet along the North line of the South 264 feet of the Southeast 1/4 of the Southwest 1/4 of the Northwest 1/4 of said Section; thence South 00 degrees 59 minutes 18 seconds West 264.08 feet along the West line of the East 10 rods of the Southwest 1/4 of the Northwest 1/4 of said Section; thence South 89 degrees 32 minutes 47 seconds West 481.98 feet along the East-West 1/4 line of said Section to the Point of Beginning. Subject to easements, restrictions and rights-of-way of record. Subject to highway right of-way for Center Street over the most Southerly 33.00 feet thereof.

SCHEDULE B - SECTION II NOTES

The provided title commitment does not contain any easements to depict on this survey.

SURVEYOR'S CERTIFICATION

To Jeff Kerr, St. Peter's Church, Chicago Title Insurance Company, and WFG National Title Insurance Company:
This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 4, 11, and 16 of Table A thereof. The fieldwork was completed on 2/8/21.

STATE OF MICHIGAN ★ Scott A Hendges License No. 4001047953 ★ LICENSED PROFESSIONAL SURVEYOR

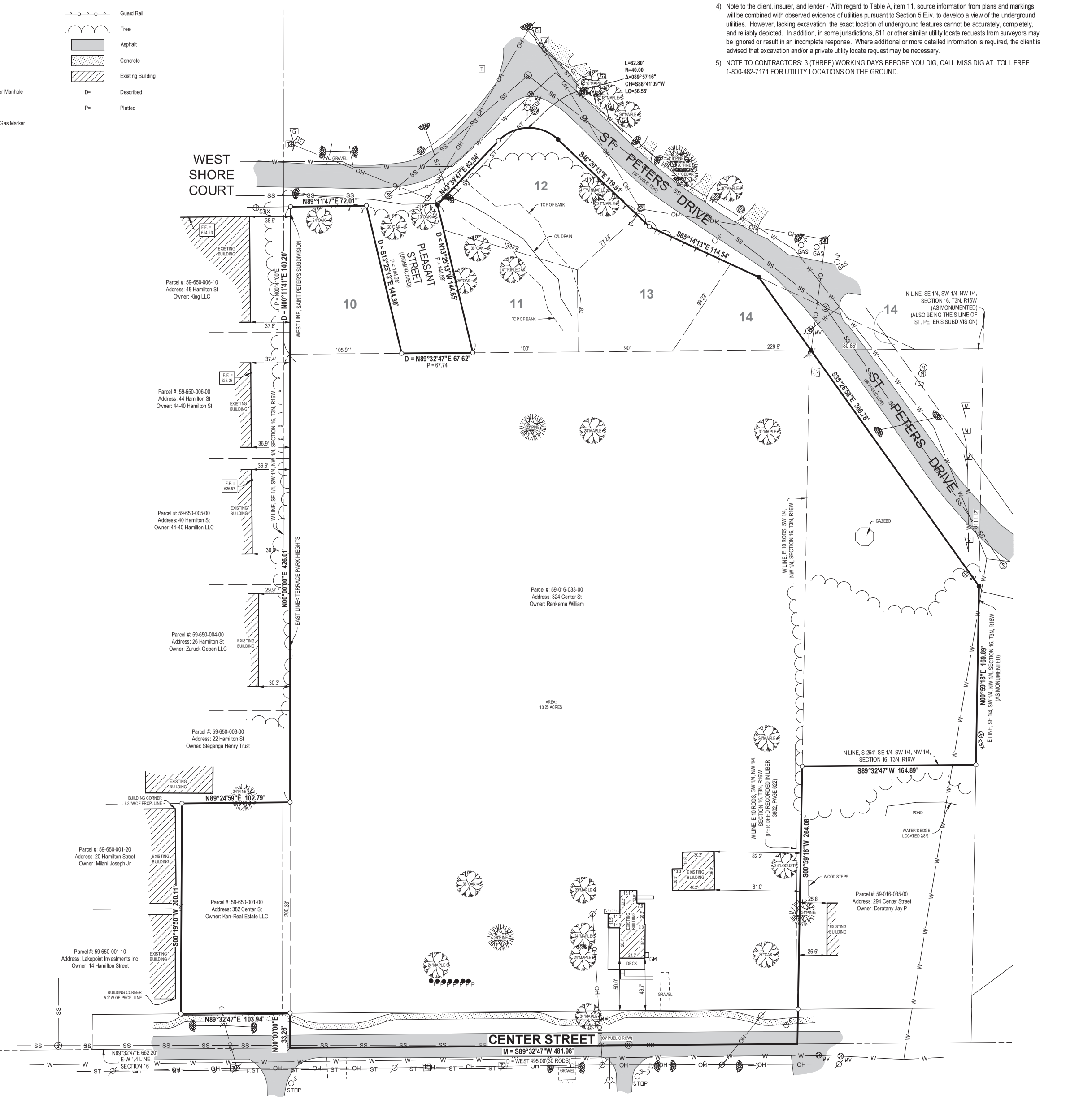
Scott A. Hendges
Professional Surveyor No. 47953
Nederveld, Inc.
shendges@nederveld.com

0' 250' 500' 1000'
SCALE: 1" = 500'

811 Know what's below. CALL before you dig.

UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.

NOTE:
EXISTING UTILITIES AND SERVICE LINES IDENTIFIED AS "PLANS" WERE OBTAINED FROM AVAILABLE CITY AS-BUILT RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH AND STATUS OF ALL UTILITIES AND SERVICE LINES PRIOR TO NEW CONNECTIONS.



NEDERVELD

www.nederveld.com
800.222.1868

HOLLAND
347 Hoover Blvd
Holland, MI 49423
Phone: 616.393.0449

ANN ARBOR
CHICAGO
COLUMBUS
GRAND RAPIDS
INDIANAPOLIS
ST. LOUIS

PREPARED FOR:
Kerr Real Estate LLC
Jeffery Kerr

PO Box 574
Douglas, MI 49406

CREATED:
Drawn: WBB Date: 2/8/21

REVISIONS:
Rev: Drawn: Date:

Centre Collective
ALTA/NSPS Land Title Survey

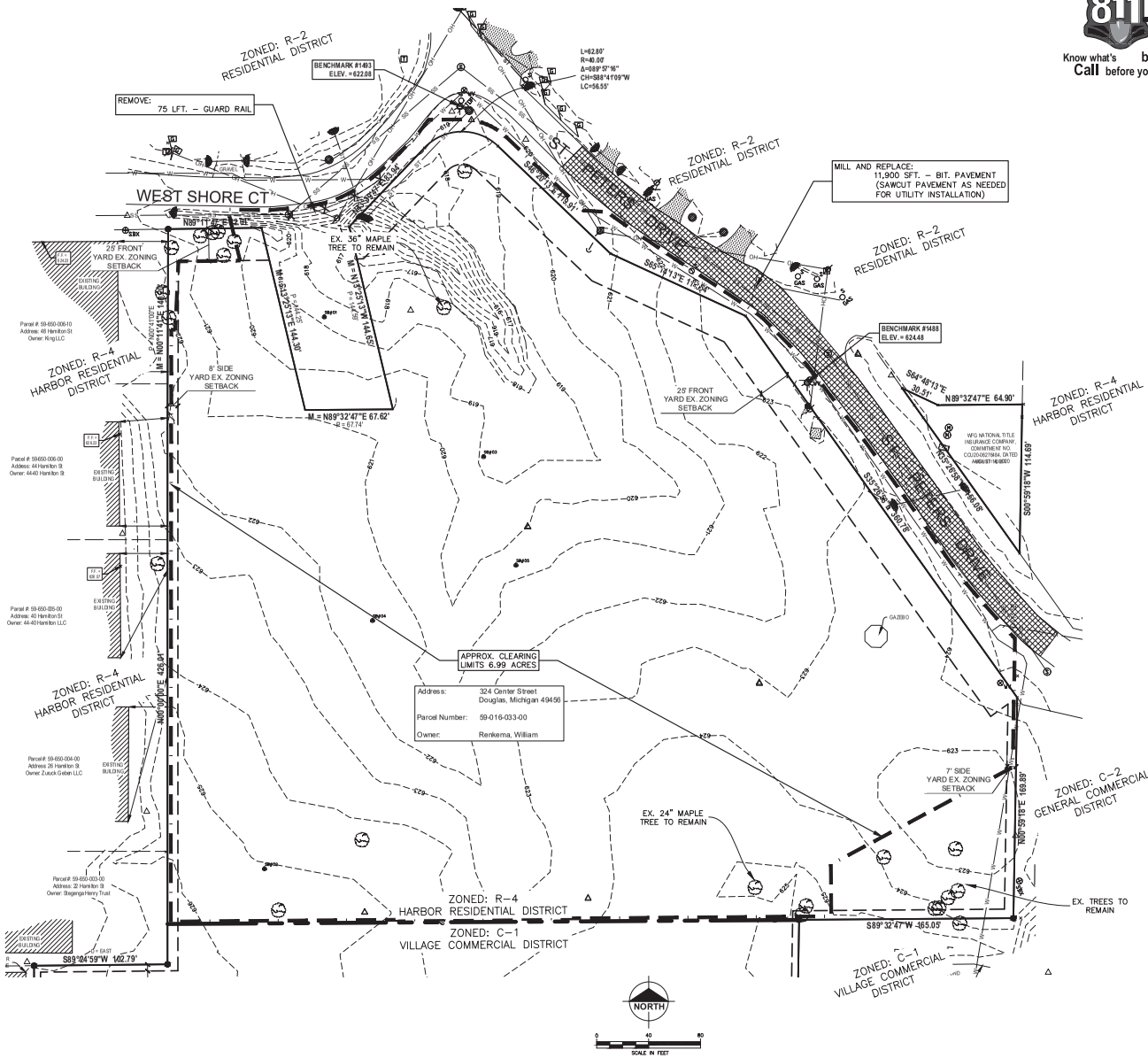
PART OF THE NORTHWEST 1/4 OF SECTION 16, T3N, R16W, CITY OF DOUGLAS, ALLEGAN COUNTY, MICHIGAN

STAMP:

PROJECT NO: 19201508

SHEET NO: AL

SHEET: 1 OF 1



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Plan Prepared By:
Bruce A. Callen, PE
Callen Engineering, Inc.
108 E. Savidge St.
Spring Lake, Michigan 49456

Tel: 616-414-5260
email: bcallen@callenengineering.com

Property Address:
324 Center Street.
Douglas, Michigan 49456

Parcel Number:
59-016-033-00

Property Description:

PARCEL A: Part of the Northwest 1/4 of Section 16, Town 3 North, Range 16 West, Saugatuck Township, Allegan County, Michigan, described as: Commencing at the West 1/4 corner of said Section; thence North 89 degrees 32 minutes 47 seconds East 662.20 feet along the East-West 1/4 line of said Section to the Point of Beginning; thence North 00 degrees 00 minutes 00 seconds East 33.26 feet; thence South 89 degrees 32 minutes 47 seconds West 103.94 feet; thence North 00 degrees 19 minutes 50 seconds East 200.11 feet; thence North 89 degrees 24 minutes 59 seconds East 102.79 feet; thence North 00 degrees 00 minutes 00 seconds East 426.01 feet along the East line of Terrace Parks Heights; thence North 00 degrees 11 minutes 41 seconds East 140.20 feet along the West line of St. Peter's Subdivision; thence North 89 degrees 11 minutes 47 seconds East 72.01 feet along the North line of Lot 10, St. Peter's Subdivision; thence South 13 degrees 25 minutes 13 seconds East 144.30 feet along the East line of said Lot 10; thence North 89 degrees 32 minutes 47 seconds East 67.62 feet along the South line of St. Peter's Subdivision; thence North 13 degrees 25 minutes 13 seconds West 144.65 feet along the West line of Lots 11 and 12 of St. Peter's Subdivision; thence North 43 degrees 39 minutes 47 seconds East 83.94 feet along the North line of Lot 12, St. Peter's Subdivision; thence Easterly 62.80 feet along a 40.00-foot radius curve to the right, said curve having a central angle of 89 degrees 57 minutes 16 seconds, and a chord bearing North 88 degrees 41 minutes 09 seconds East 56.55 feet along said North line; thence South 46 degrees 20 minutes 13 seconds East 119.91 feet along the North line of Lots 12 and 13 of St. Peter's Subdivision; thence South 65 degrees 14 minutes 13 seconds East 114.54 feet along the North line of Lots 13 and 14 of St. Peter's Subdivision; thence South 35 degrees 26 minutes 58 seconds East 360.78 feet along the Westerly right-of-way line of St. Peter's Drive; thence South 00 degrees 59 minutes 18 seconds West 169.89 feet along the East line of the Southeast 1/4 of the Southwest 1/4 of the Northwest 1/4 of said Section; thence South 89 degrees 32 minutes 47 seconds West 165.05 feet along the North line of the South 264 feet of the Southeast 1/4 of the Southwest 1/4 of the Northwest 1/4 of said Section; thence South 00 degrees 59 minutes 18 seconds West 264.08 feet along the West line of the East 10 rods of the Southwest 1/4 of the Northwest 1/4 of said Section; thence South 89 degrees 32 minutes 47 seconds West 481.98 feet along the East-West 1/4 line of said Section to the Point of Beginning. Subject to easements, restrictions and rights-of-way of record. Subject to highway right of-way for Center Street over the most Southerly 33.00 feet thereof.

Total Acreage:
7.17 Acres (312,325 sft.)

REGULATED WETLANDS AND THREATENED AND ENDANGERED SPECIES

NO REGULATED WETLANDS, THREATENED OR ENDANGERED SPECIES WERE IDENTIFIED ON THE SITE PER THE JUNE 2021 "WETLAND AND THREATENED AND ENDANGERED SPECIES REVIEW AND SITE ASSESSMENT, CENTRE COLLECTIVE VILLAGE OF DOUGLAS, ALLEGAN COUNTY, MICHIGAN PREPARED BY AAMAZON CONSULTING, LLC.

TREE REMOVALS

TREE REMOVALS WITHIN THE RIGHT-OF-WAY ARE INCLUDED ON THE LANDSCAPE PLAN. TREE REMOVALS WITHIN THE PROPERTY HAVE NOT BEEN DETERMINED. TREES WILL BE RETAINED TO THE GREATEST EXTENT POSSIBLE.

WETLAND AND THREATENED SPECIES REVIEW AND SITE ASSESSMENT PERFORMED BY AAMAZON NATURAL RESOURCES CONSULTING. DATED JUNE 2021.

REMOVALS LEGEND

PAVEMENT REMOVAL AREA

X REMOVAL ITEM

DATE OF PLAN: 04-26-23

Prepared for:
KRE West Centre LLC
PO BOX 574
Douglas, MI 49406
t.269.420.5156

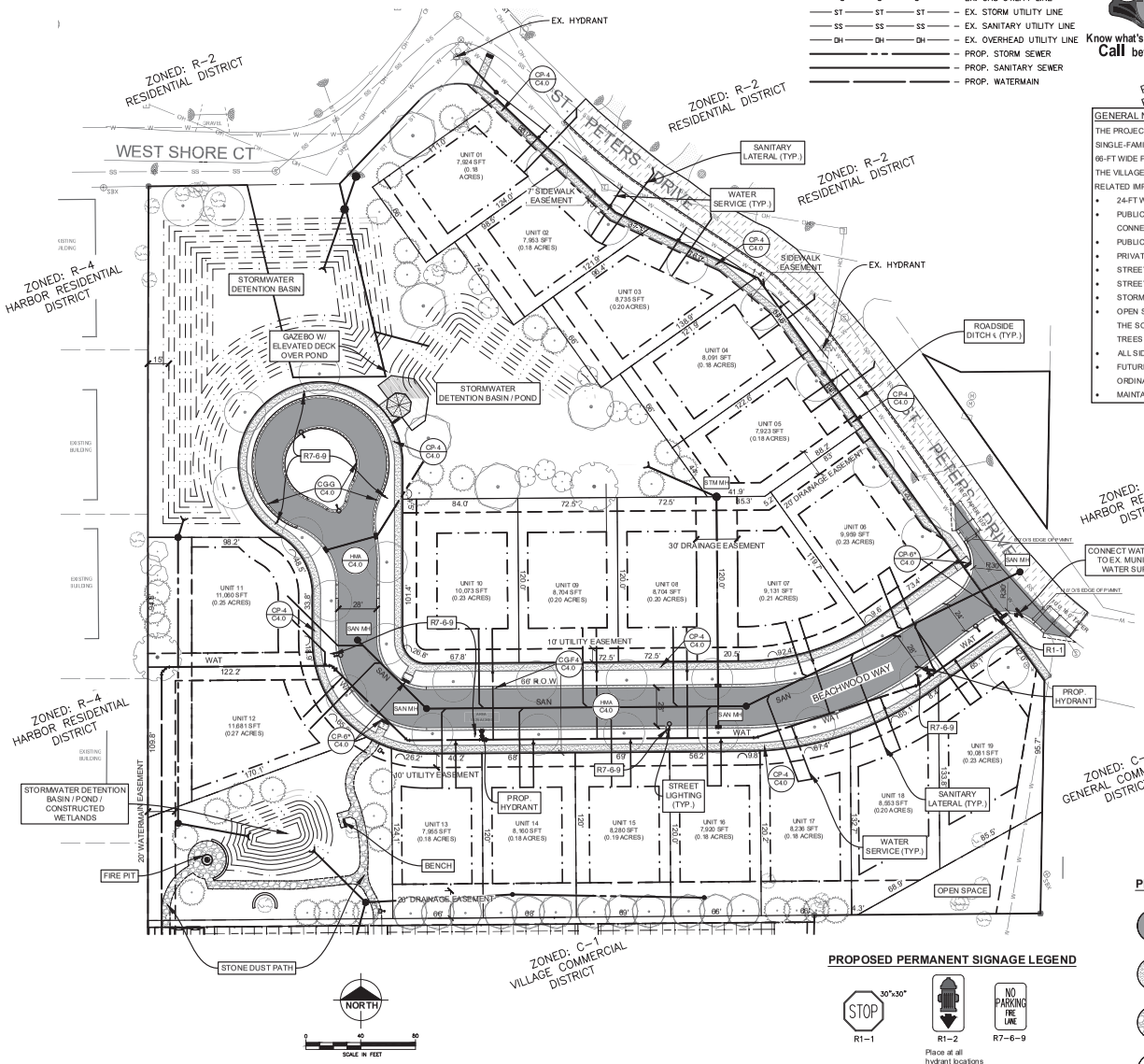
CENTRE
COLLECTIVE
324 West Center Street
Douglas, Michigan

Callen Engineering, Inc.
108 East Savidge Street
Spring Lake, MI 49456
t.616.414.5260
www.callenengineering.com

EXISTING CONDITIONS AND REMOVALS PLAN

Job No:	021 KERR - CENTRE COLLECTIVE
Issue:	FINAL SITE CONDO PLAN SUBMITTAL
Issue Date:	APRIL 26, 2023

C0.1



LINE TYPE LEGEND

- W W W — EX. WATER UTILITY LINE
- G G G — EX. GAS UTILITY LINE
- ST ST ST — EX. STORM UTILITY LINE
- SS SS SS — EX. SANITARY UTILITY LINE
- OH OH OH — EX. OVERHEAD UTILITY LINE
- PROP. STORM SEWER
- PROP. SANITARY SEWER
- PROP. WATERMAIN

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PRELIMINARY - NOT FOR CONSTRUCTION

Plan Prepared By:

Bruce A. Callen, PE
Callen Engineering, Inc.
108 E. Savidge St.
Spring Lake, Michigan 49456

Tel: 616-414-5260
email: bcallen@callenengineering.com

GENERAL NOTES

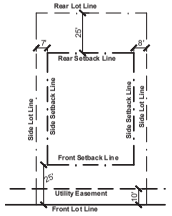
THE PROJECT INCLUDES CONSTRUCTION OF A NEW RESIDENTIAL NEIGHBORHOOD COMPRISED OF NINETEEN (19) SINGLE-FAMILY UNITS RANGING BETWEEN 0.18 AND 0.23 ACRES. FOURTEEN (14) OF THE NEW LOTS WILL FRONT A NEW 66-FT WIDE PUBLIC STREET RIGHT-OF-WAY MEETING THE REQUIREMENTS OF THE RELEVANT SECTIONS OF THE CITY OF THE VILLAGE OF DOUGLAS (CITY) ZONING ORDINANCE. THE REMAINING LOTS SHALL FRONT ST. PETERS DRIVE.

RELATED IMPROVEMENTS INCLUDE:

- 24-FT WIDE PUBLIC STREET W/ CURB AND GUTTER
- PUBLIC SIDEWALK FRONTING ALL RESIDENTIAL LOTS, AND EXTENDING ALONG ST. PETERS DRIVE, AND CONNECTING TO FUTURE COMMERCIAL DEVELOPMENT TO THE SOUTH VIA A NATURAL PATHWAY
- PUBLIC UTILITIES (SANITARY SEWER, WATERMAIN, STORM SEWER)
- PRIVATE UTILITIES (GAS, ELECTRIC, COMMUNICATIONS)
- STREETLIGHTS
- STREET TREES
- STORMWATER DETENTION, MEETING ACDC REQUIREMENTS
- OPEN SPACE AND SELECT NATURAL AREAS, LOCATED AT THE NORTH/CENTER INTERIOR OF THE PROPERTY AND THE SOUTHEAST CORNER OF THE SITE, WHICH ARE INTENDED TO REMAIN OPEN SPACE TO PRESERVE EXISTING TREES AND SERVE AS A NATURAL BUFFER FOR THE DEVELOPMENT
- ALL SIDEWALK CROSSING RESIDENTIAL DRIVEWAYS SHALL BE 6-INCH THICK.
- FUTURE DRIVEWAYS SHALL MAINTAIN MINIMUM SEPARATION DISTANCE IN ACCORDANCE WITH ZONING ORDINANCE SECTION 19.05
- MAINTAIN MINIMUM 136" VERTICAL CLEARANCE AT ALL DRIVEWAYS.

LAND USE TABLE

RESIDENTIAL LAND	3.83 ACRES
STM WATER DETENTION	0.79 ACRES
OPEN SPACE	1.09 ACRES
PUBLIC R.O.W	1.28 ACRES
BUILDABLE AREA	6.99 ACRES
UNIT DENSITY	2.71 UNITS / ACRE



TYPICAL UNIT LAYOUT

UNIT MINIMUM FLOOR/OPENING ELEVATIONS

UNIT #	MBO (FT)	MFE (FT)
1	622.50	622.50
2	622.50	616.00
3	622.50	616.00
4	622.50	614.50
5	622.50	614.50
6	622.50	614.50
7	622.50	614.50
8	622.50	614.50
9	622.50	614.50
10	622.50	614.50
11	625.75	618.00
12	625.75	618.00
13	626.75	620.00
14	626.75	620.00
15	626.75	620.00
16	626.75	620.00
17	626.75	620.00
18	626.50	620.00
19	626.50	620.00

MBO = MINIMUM BUILDING OPENING
MFE = MINIMUM FLOOR ELEVATION
ALL BUILDINGS TO INCLUDE SUMP AND DRAINAGE DISCHARGE TO REAR YARD

PROPOSED PERMANENT SIGNAGE LEGEND

R1-1: STOP 30"x30"
R1-2: Place at all hydrant locations
R7-6-9: NO PARKING FIRE LANE

PROPOSED FEATURES LEGEND

- NEW HMA PAVEMENT AREA
- NEW LIGHT DUTY CONCRETE SIDEWALK AREA
- STONE DUST (DECOMPOSED GRANITE) SURFACE AREA (5,547 SFT)
- HMA 1 ½" MILL/OVERLAY AREA

STREET TREES

SPECIES PER CITY OF DOUGLAS APPROVED TREE LIST

DATE OF PLAN: 04-26-23

Prepared for:
KRE West Centre LLC
PO BOX 574
Douglas, MI 49406
t.269.420.5156

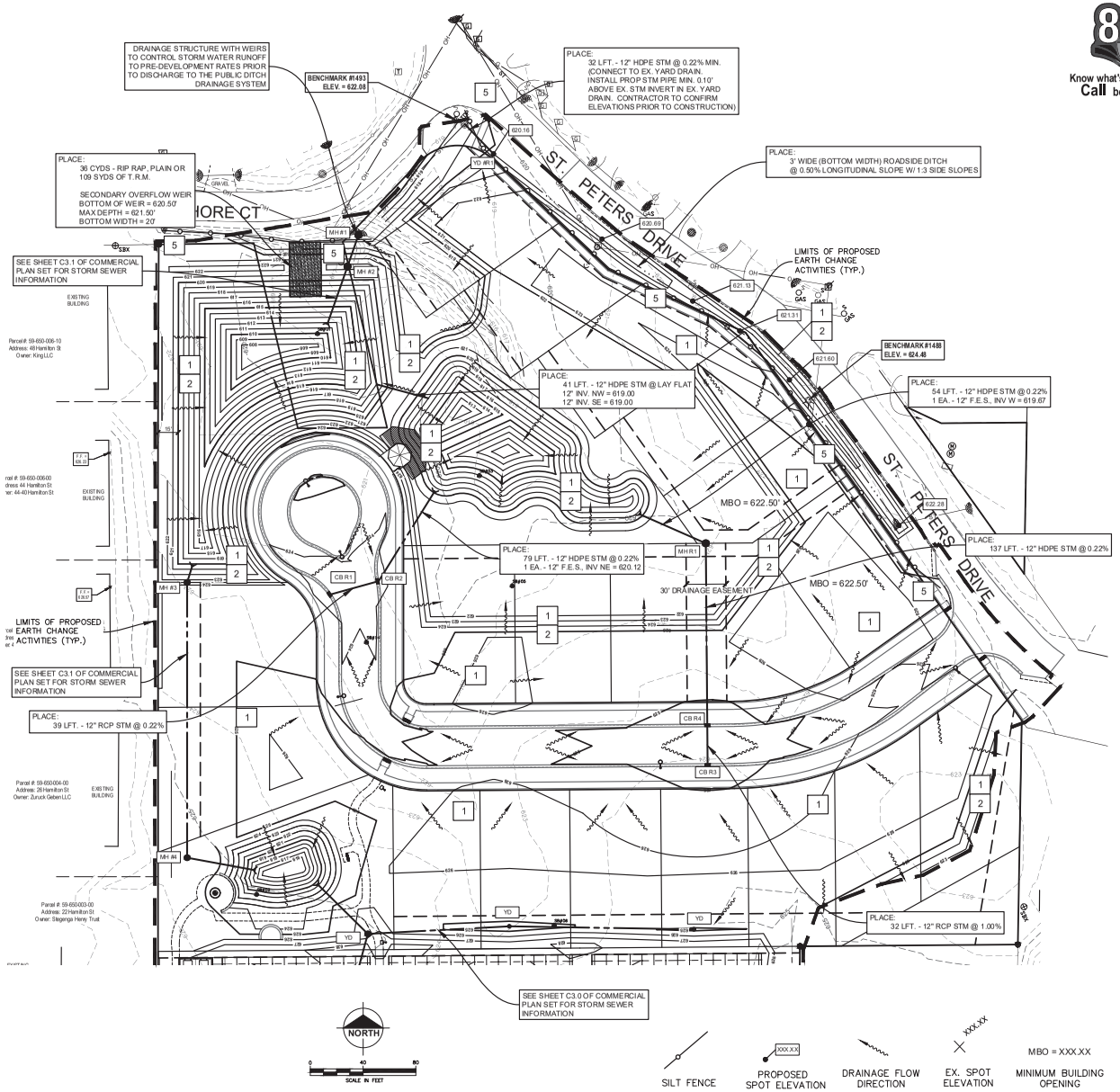
CENTRE COLLECTIVE
324 West Center Street
Douglas, Michigan

Callen Engineering, Inc.
108 East Savidge Street
Spring Lake, MI 49456
t.616.414.5260
www.callenengineering.com

SITE CONDOMINIUM PLAN

Job No:	021 KERR - CENTRE COLLECTIVE
Issue:	FINAL SITE CONDO PLAN SUBMITTAL
Issue Date:	APRIL 26, 2023

C1.0



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Plan Prepared By:
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Spring Lake, Michigan 49456
Tel: 616-414-5260
email: bcallen@callenengineering.com

EROSION CONTROL MEASURES

KEY	SESC MEASURE	SYMBOL	WHERE USED
1	Seeding		When bare soils exposed, temporarily or permanently, to erosive forces from wind and or water on flat areas, mild slopes, grassed waterways and spillways, diversion ditches and dikes, borrow and stockpile areas, and spoil piles.
2	Mulch		On flat areas, slopes, grassed waterways and spillways, diversion ditches and dikes, borrow and stockpile areas, and spoil piles when areas are subject to raindrop impact, and erosive forces from wind or water.
4	Trees, Shrubs, Vines and Ground Cover		When bare soil or recently vegetated slopes are exposed to erosive forces from wind and/or water.
5	Perimeter Sediment Control Measures (Silt Fence, Straw Wattles, etc.)		As a temporary measure used to capture sediment from sheet flow. May also divert small volumes of sheet flow to protected outlets.
7	Storm Drain Inlet Protection		Around the entrance to a catch basin or an inlet that will capture runoff from an earth change activity.
2B	Stone Construction Access		At locations where construction equipment will enter and exit the drain easement and tracking of soil is anticipated.

*SESC MEASURES SHALL COMPLY WITH MICHIGAN ASSOCIATION OF COUNTY DRAIN COMMISSIONERS SESC MANUAL SPECIFICATIONS

SESC NOTES

TOTAL DISTURBED AREA: 474,159 SFT (10.89 ACRES)

ADDITIONAL EROSION CONTROL MEASURES NOT SHOWN ON THE SITE PLAN MAY BE NECESSARY AS SITE WORK PROGRESSES. PERMITTEE IS RESPONSIBLE FOR ALL MEASURES NECESSARY TO PREVENT OFFSITE SEDIMENTATION.

GEOTEXTILE SILT FENCE AND ALL CATCH BASIN PROTECTION MEASURES SHALL BE PROPERLY PLACED AS SHOWN ON PLANS AND AS NEEDED TO RETAIN SOILS ONSITE. PERIODIC MAINTENANCE AND INSPECTION OF SESC MEASURES IS REQUIRED FOR PROPER EFFECTIVENESS.

STABILIZE SITE AS SOON AS POSSIBLE.

CONSTRUCTION IS ANTICIPATED TO BEGIN 2023 WITH SUBSTANTIAL SITEWORK COMPLETION NO LATER THAN 2024.

STORM STRUCTURE SCHEDULE (THIS SHEET)

MH #R1 (4' DIA) RIM = 622.50 FT
(COVER: EJIW 1045Z SERIES W/ TYPE 02 BEEHIVE OR A.E.)
12" INV (NW) = 619.79 FT (HDPE STM @ 0.22%)
12" INV (S) = 619.86 FT (HDPE STM @ 0.22%)

CB #R1 (2' DIA) RIM = 623.49 FT
(COVER: EJIW MDOT R-15 W/ TYPE K COVER OR A.E.)
12" INV (NE) = 620.49 FT (RCP STM @ 0.22%)

CB #R2 (4' DIA) RIM = 623.52 FT
(COVER: EJIW MDOT R-15 W/ TYPE K COVER OR A.E.)
12" INV (NE) = 620.30 FT (HDPE STM @ 0.22%)
12" INV (SW) = 620.40 FT (RCP STM @ 0.22%)

CB #R3 (2' DIA) RIM = 624.08 FT
(COVER: EJIW MDOT R-15 W/ TYPE K COVER OR A.E.)
12" INV (N) = 620.58 FT (RCP STM @ 1.00%)

CB #R4 (2' DIA) RIM = 624.08 FT
(COVER: EJIW MDOT R-15 W/ TYPE K COVER OR A.E.)
12" INV (N) = 620.16 FT (HDPE STM @ 0.22%)
12" INV (S) = 620.26 FT (RCP STM @ 0.22%)

YD #R1 (2' DIA) RIM = 620.16 FT
(COVER: EJIW 1045Z SERIES W TYPE 02 BEEHIVE OR A.E.)
12" INV (NW) = 617.66 FT MAX. (HDPE STM @ 0.22%)
(CONFIRM INVERT OF EX. PIPE IN EX. YARD DRAIN PRIOR TO CONSTRUCTION)

PRELIMINARY - NOT FOR CONSTRUCTION

UNIT #	MBO (FT)	MFE (FT)
1	622.50	622.50
2	622.50	616.00
3	622.50	616.00
4	622.50	614.50
5	622.50	614.50
6	622.50	614.50
7	622.50	614.50
8	622.50	614.50
9	622.50	614.50
10	622.50	614.50
11	625.75	618.00
12	625.75	618.00
13	626.75	620.00
14	626.75	620.00
15	626.75	620.00
16	626.75	620.00
17	626.75	620.00
18	626.50	620.00
19	626.50	620.00

UNIT MINIMUM FLOOR/OPENING ELEVATIONS

MBO = MINIMUM BUILDING OPENING
MFE = MINIMUM FLOOR ELEVATION
ALL BUILDINGS TO INCLUDE SUMP AND DRAINAGE DISCHARGE TO REAR YARD

STORM STRUCTURE NOTES

STORM SEWER LENGTHS PROVIDED ARE MEASURED FROM CENTER OF STRUCTURE. RIM ELEVATIONS ARE MEASURED AT EDGE OF METAL.

STORM SEWER SHALL BE WATER-TIGHT, SOLID-WALL HDPE OR APPROVED EQUAL, UNLESS INDICATED ON THE PLANS.

MANHOLES AND CATCH BASINS SHALL BE IN ACCORDANCE WITH MDOT STANDARD SPECIFICATIONS. CATCH BASINS SHALL INCLUDE 2-FT SUMP.

ALL EXISTING CATCH BASINS TO REMAIN SHALL BE CLEANED AND INSPECTED TO VERIFY OPERABILITY.

CONNECTIONS TO MANHOLES SHALL BE MADE WITH A RESILIENT CONNECTOR FOR PIPE DIAMETERS 24 INCHES OR LESS.

MANHOLE RIM ELEVATIONS SHALL BE SET 1/4" BELOW PLAN GRADE.
CATCH BASIN RIM ELEVATIONS SHALL BE SET 1 1/2" BELOW PLAN GRADE.

ALL CURB DIMENSIONS ARE MEASURED FROM EDGE OF METAL.

THE CONTRACTOR SHALL EXPOSE AND VERIFY LOCATION AND DEPTH OF EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. CONFLICTS IN GRADES SHALL BE REPORTED TO ENGINEER AND ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO OWNER.

DATE OF PLAN: 04-26-23

Prepared for:
KRE West Centre LLC
PO BOX 574
Douglas, MI 49406
t.269.420.5156

CENTRE COLLECTIVE
324 West Center Street
Douglas, Michigan

Callen Engineering, Inc.
108 East Savidge Street
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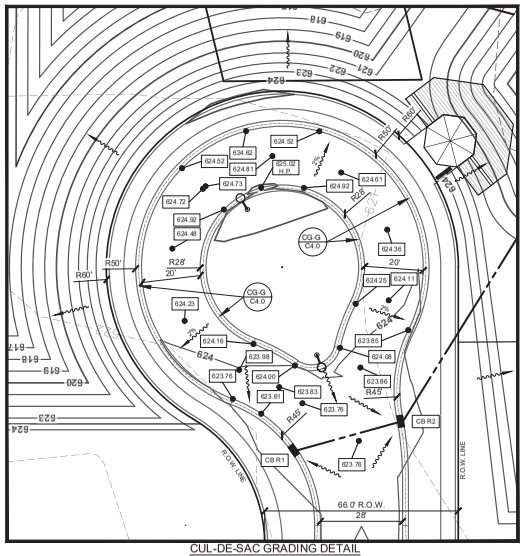
GRADING, DRAINAGE, AND SESC PLAN

Job No:	021 KERR - CENTRE COLLECTIVE
Issue:	FINAL SITE CONDO PLAN SUBMITTAL
Issue Date:	APRIL 26, 2023

C2.0



CUL-DE-SAC GRADING DETAIL

SCALE: 1" = 20'

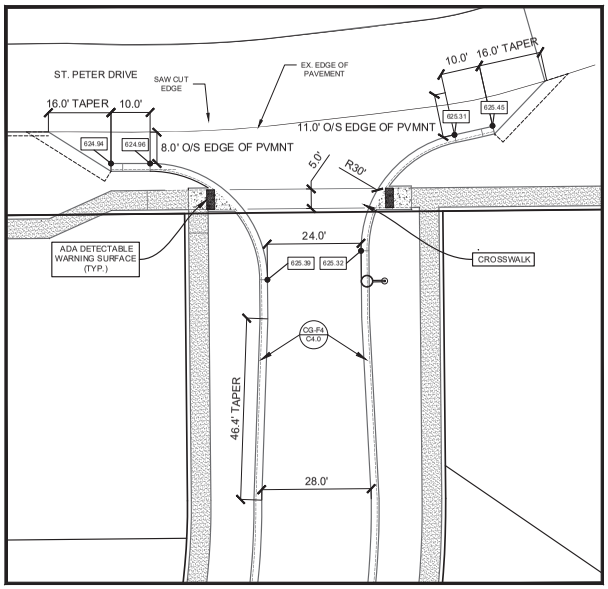
NORTH

SILT FENCE

XXX.XX PROPOSED SPOT ELEVATION

DRAINAGE FLOW DIRECTION

XXX.XX EX. SPOT ELEVATION



RESIDENTIAL INTERSECTION OPENING (TYP.)

SCALE: 1" = 10'

NORTH

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811

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Tel: 616-414-5260
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PRELIMINARY - NOT FOR CONSTRUCTION

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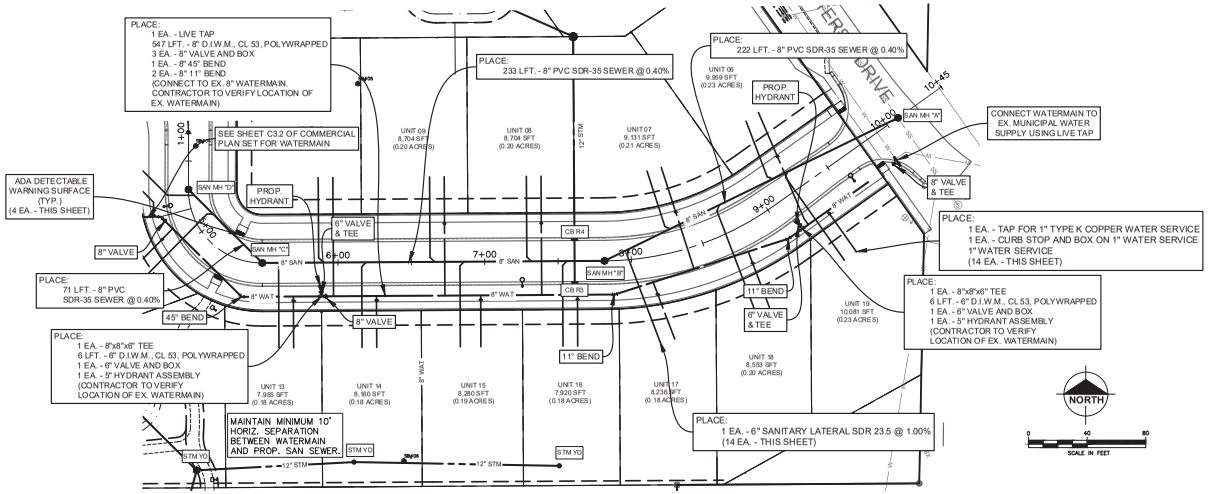
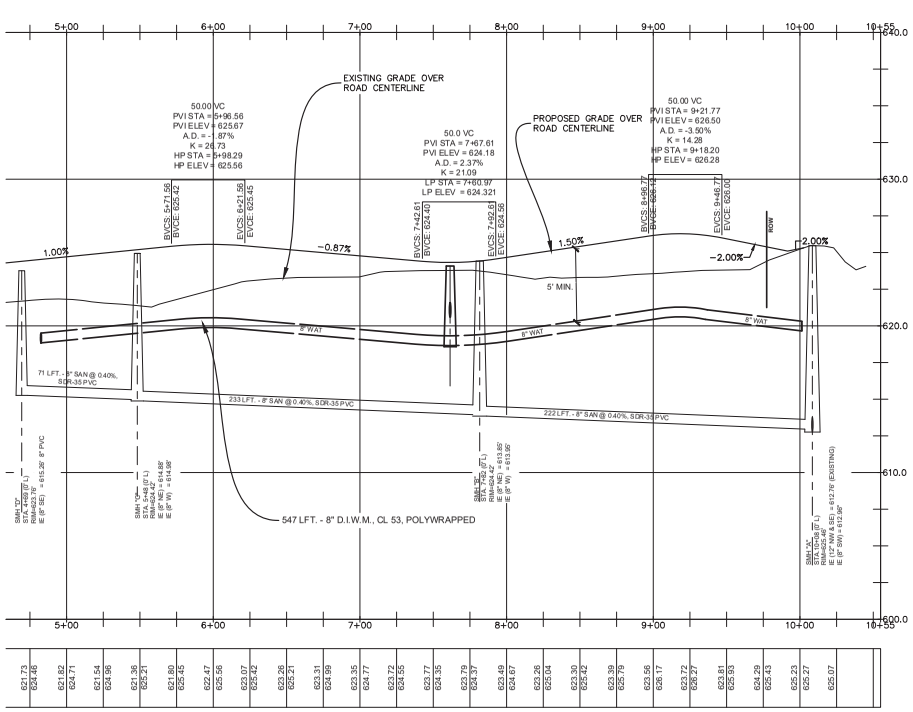
CUL-DE-SAC & INTERSECTION PLAN

Job No:	021 KERR - CENTRE COLLECTIVE
Issue:	FINAL SITE CONDO PLAN SUBMITTAL
Issue Date:	APRIL 26, 2023

DATE OF PLAN: 04-26-23

C2.1





SANITARY STRUCTURE SCHEDULE (THIS SHEET)

SMH "A" (4' DIA) STA. 10+08 (0' L)
RIM = 625.46 FT (COVER: KLSWA STANDARD)
8" INV (NW & SE) = 612.76 FT (EXISTING)
8" INV (SW) = 612.96 FT (8" PVC)

SMH "B" (4' DIA) STA. 7+82 (0' L)
RIM = 624.42 FT (COVER: KLSWA STANDARD)
8" INV (NE) = 613.85 FT (8" PVC)
8" INV (W) = 613.95 FT (8" PVC)

SMH "C" (4' DIA) STA. 5+48 (0' L)
RIM = 624.42 FT (COVER: KLSWA STANDARD)
8" INV (NE) = 614.88 FT (8" PVC)
8" INV (W) = 614.98 FT (8" PVC)

SMH "D" (4' DIA) STA. 4+69 (0' L)
RIM = 623.76 FT (COVER: KLSWA STANDARD)
8" INV (SE) = 615.26 FT (8" PVC)

HORIZONTAL SCALE: 1"=40'

VERTICAL SCALE: 1"=4'

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

For protection of underground utilities, the CONTRACTOR shall dial 1-800-482-7171 OR 811 a minimum of three working days, excluding Saturdays, Sundays and holidays, prior to excavation in the vicinity of utility lines. All "MISS DIG" participating members will thus be routinely notified. This does not relieve the CONTRACTOR of the responsibility of notifying the utility owners who may not be part of the "MISS DIG" alert system.

Plan Prepared By:
Bruce A. Callen, P.E.
Callen Engineering, Inc.
108 E. Savidge St.
Spring Lake, Michigan 49456

Tel: 616-414-5260
email: bcallen@callenengineering.com

PRELIMINARY - NOT FOR CONSTRUCTION

LINE TYPE LEGEND

- W W W – EX. WATER UTILITY LINE
- G G G – EX. GAS UTILITY LINE
- ST ST ST – EX. STORM UTILITY LINE
- SS SS SS – EX. SANITARY UTILITY LINE
- OH OH OH – EX. OVERHEAD UTILITY LINE
- – PROP. STORM SEWER
- – PROP. SANITARY SEWER
- – PROP. WATERMAIN

SANITARY SEWER NOTES

1. CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
2. MAINTAIN MINIMUM 18 INCHES OF VERTICAL SEPARATION AND 10' HORIZONTAL SEPARATION BETWEEN ALL WATERMAIN AND SEWER.
3. ALL INSTALLATION OF AND MATERIALS FOR SANITARY SEWER, LATERALS,AND CONNECTION THE EXISTING SANITARY SEWER SHALL BE IN ACCORDANCE WITH THE KALAMAZOO LAKE SEWER AND WATER AUTHORITY (KLSWA) SPECIFICATIONS.
4. A PRE-CONSTRUCTION MEETING WITH THE KLSWA IS REQUIRED BEFORE SANITARY SEWER CONSTRUCTION ACTIVITIES BEGIN.

WATERMAIN NOTES

1. TOP OF PIPE SHALL BE A MINIMUM OF 5'-0" BELOW THE FINISH GROUND SURFACE.
2. ALL PIPE TO HAVE NECESSARY JOINT RESTRAINTS PER PROJECT SPECIFICATIONS.
3. THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF EXISTING WATERMAIN PRIOR TO CONSTRUCTION.
4. MAINTAIN 18 INCHES OF VERTICAL CLEARANCE AND 10 FEET OF HORIZONTAL CLEARANCE BETWEEN WATERMAIN AND SEWERS.
5. HYDRANT TYPE SHALL BE CITY OF VILLAGE OF DOUGLAS STANDARD. HYDRANT SHALL HAVE 6'-0" BURY.
6. ALL INSTALLATION OF AND MATERIALS FOR WATERMAIN, WATER SERVICES, CONNECTION TO THE EXISTING WATERMAIN, AND WORK WITHIN CITY OF THE VILLAGE OF DOUGLAS RIGHT-OF-WAY, OR WITHIN DEDICATED EASEMENT SHALL BE IN ACCORDANCE WITH THE KLSWA SPECIFICATIONS.
7. A PRE-CONSTRUCTION MEETING WITH THE KLSWA IS REQUIRED BEFORE WATERMAIN CONSTRUCTION ACTIVITIES MAY BEGIN.
8. ALL WATER MAINS AND THEIR APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE KLSWA SPECIFICATIONS AND AWWA STANDARD C600.
9. WATER MAIN FLUSHING SHALL PROVIDE A MINIMUM WATER VELOCITY OF 3.0 FEET PER SECOND IN ACCORDANCE WITH AWWA STANDARD C651.

PRIVATE UTILITY NOTE:

PRIVATE UTILITIES LOCATIONS WILL BE BASED UPON LOCATIONS REQUESTED BY UTILITY COMPANIES (GAS, ELECTRIC, AND COMMUNICATIONS) WITH CONSIDERATION OF PUBLIC UTILITY LOCATIONS AND EASEMENTS.

NOTE:

EASEMENTS FOR PRIVATE UTILITIES WILL BE BASED UPON LOCATIONS REQUESTED BY UTILITY COMPANIES (GAS, ELECTRIC, AND COMMUNICATIONS) WITH CONSIDERATION OF PUBLIC UTILITY LOCATIONS AND EASEMENTS.

STORM STRUCTURE NOTES

STORM SEWER LENGTHS PROVIDED ARE MEASURED FROM CENTER OF STRUCTURE. RIM ELEVATIONS ARE MEASURED AT EDGE OF METAL.

STORM SEWER SHALL BE WATER-TIGHT, SOLID-WALL HDPE OR APPROVED EQUAL, UNLESS INDICATED ON THE PLANS.

MANHOLES AND CATCH BASINS SHALL BE IN ACCORDANCE WITH MDOT STANDARD SPECIFICATIONS. CATCH BASINS SHALL INCLUDE 2-FT SUMP.

ALL EXISTING CATCH BASINS TO REMAIN SHALL BE CLEANED AND INSPECTED TO VERIFY OPERABILITY.

CONNECTIONS TO MANHOLES SHALL BE MADE WITH A RESILIENT CONNECTOR FOR PIPE DIAMETERS 24 INCHES OR LESS.

MANHOLE RIM ELEVATIONS SHALL BE SET 1/4" BELOW PLAN GRADE.
CATCH BASIN RIM ELEVATIONS SHALL BE SET 1 1/2" BELOW PLAN GRADE.

ALL CURB DIMENSIONS ARE MEASURED FROM EDGE OF METAL.

THE CONTRACTOR SHALL EXPOSE AND VERIFY LOCATION AND DEPTH OF EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. CONFLICTS IN GRADES SHALL BE REPORTED TO ENGINEER AND ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO OWNER.

DATE OF PLAN: 04-26-23

Prepared for:
KRE West Centre LLC
PO BOX 574
Douglas, MI 49406
t.269.420.5156

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Douglas, Michigan

Callen Engineering, Inc.
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spring lake, mi 49456
t.616.414.5260
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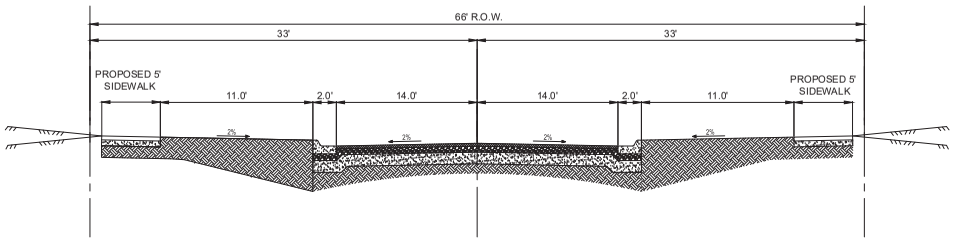
BEACHWOOD WAY PLAN AND PROFILE

Job No:	021 KERR - CENTRE COLLECTIVE
Issue:	FINAL SITE CONDO PLAN SUBMITTAL
Issue Date:	APRIL 26, 2023

C3.0



PROPOSED ROAD X-SECTION

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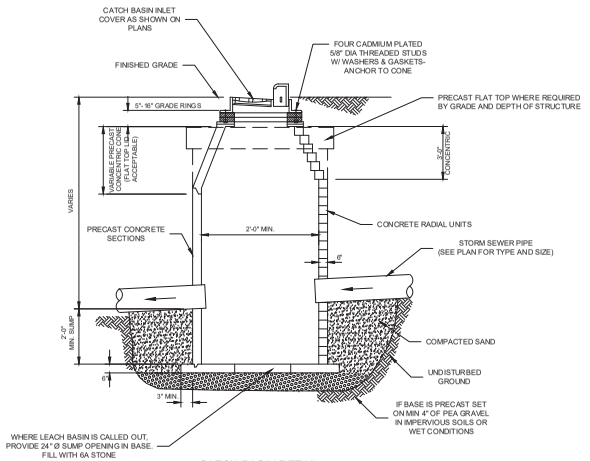
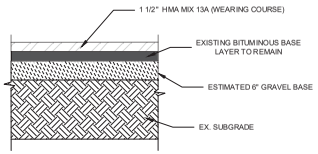
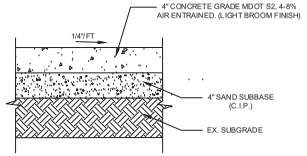


CATCH BASIN DETAIL
NO SCALE

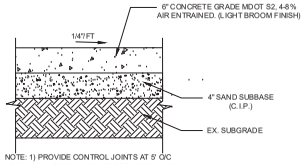


HMA MILL/OVERLAY PAVEMENT SECTION
NO SCALE



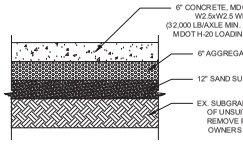
NOTE: 1) PROVIDE CONTROL JOINTS AT 5' O/C

4" CONCRETE SIDEWALK SECTION CP-4
NO SCALE



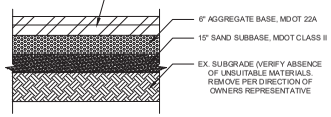
NOTE: 1) PROVIDE CONTROL JOINTS AT 5' O/C
NOTE: 2) ALL SIDEWALKS ACROSS DRIVEWAYS SHALL BE 6" THICKNESS

6" CONCRETE SIDEWALK SECTION CP-6"
NO SCALE



NOTE: CONTRACTOR(S) SHALL FAMILIARIZE THEMSELVES WITH THE INFORMATION AND FINDINGS PRESENTED IN THE GEOTECHNICAL EVALUATION REPORT PREPARED BY SOILS & STRUCTURES DATED FEB. 02, 2020. SOILS & STRUCTURES PROJECT NO. 2020.0129.

6" CONCRETE PAVEMENT SECTION CP-6
NO SCALE



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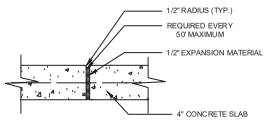
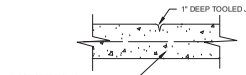
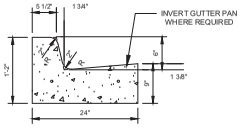
HMA PAVEMENT SECTION HMA
NO SCALE



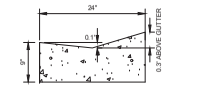
WALK EXPANSION JOINT SW-EJ
NO SCALE



WALK CONTROL JOINT SW-CJ
NO SCALE

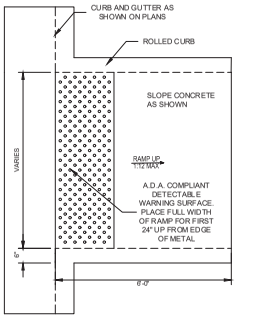


CONCRETE CURB & GUTTER CG-F4
DETAIL F4, MODIFIED
NO SCALE



NOTE: CONCRETE SHALL BE GRADE A. CONSTRUCTION JOINTS SHALL BE SPACED NOT LESS THAN 8 FT., OR MORE THAN 12 FT. APART. EXPANSION JOINTS SHALL BE ½" THICK

GUTTER DETAIL CG-G
NO SCALE



B.F. RAMP DETAIL HC-R2
TYPE R
NO SCALE

DATE OF PLAN: 04-26-23

Prepared for:
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PO BOX 574
douglas, mi 49406
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CENTRE
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X-SECTIONS, NOTES, AND DETAILS

Job No:	021 KERR - CENTRE COLLECTIVE
Issue:	FINAL SITE CONDO PLAN SUBMITTAL
Issue Date:	APRIL 26, 2023

C4.0

PRELIMINARY - NOT FOR CONSTRUCTION

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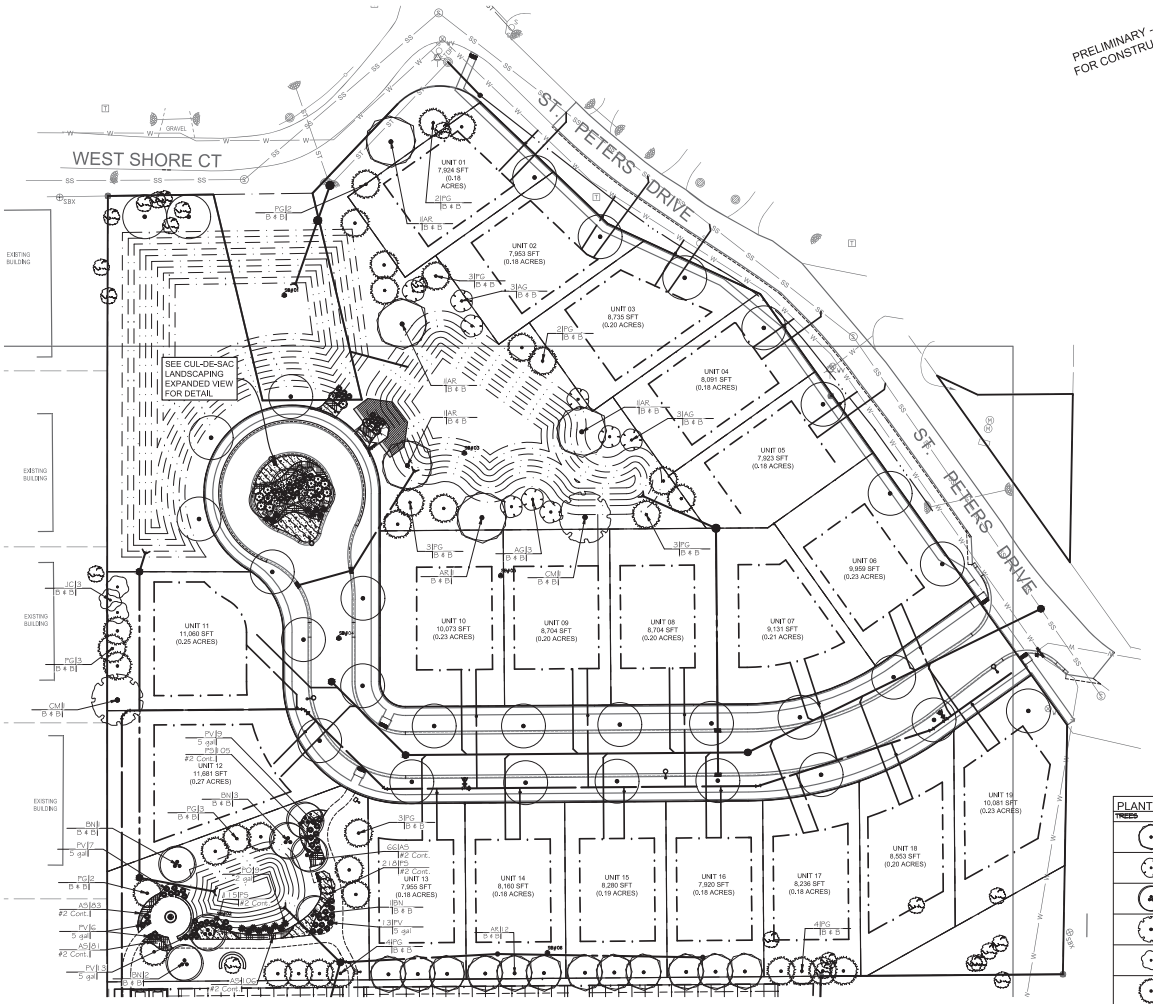

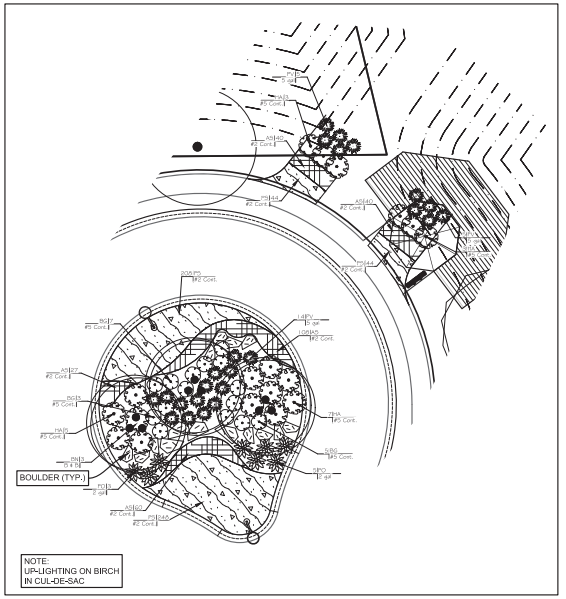

CUL-DE-SAC LANDSCAPING EXPANDED VIEW

STREET TREES

SPECIES PER CITY OF DOUGLAS APPROVED TREE LIST

LINE TYPE LEGEND

- W W W – EX. WATER UTILITY LINE
- G G G – EX. GAS UTILITY LINE
- ST ST ST – EX. STORM UTILITY LINE
- SS SS SS – EX. SANITARY UTILITY LINE
- OH OH OH – EX. OVERHEAD UTILITY LINE
- – PROP. STORM SEWER
- – PROP. SANITARY SEWER
- – PROP. WATERMAIN

PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME	CONT	CAL	SIZE		QTY
	AR	Acer rubrum 'Autumn Blaze' / Autumn Blaze Red Maple	B & B	2"Cal			17
	AS	Amelanchier x grandiflora 'Autumn Brilliance' / 'Autumn Brilliance' Serviceberry	B & B	8'Cal			4
	BN	Betula nigra 'Cully' / Heritage River Birch Multi-Trunk	B & B	2"Cal			10
	CM	Celtis x 'Magnifica' / Magnifica Common Hackberry	B & B	2"Cal			2
	JC	Juniperus chinensis 'Blue Point' / Blue Point Juniper	B & B	2"Cal			8
	PG	Picea glauca 'Densata' / Black Hills White Spruce	B & B		Min 6' Ht.		84
	ST	Street Trees	B & B	2"Cal			50
SHRUBS	CODE	BOTANICAL / COMMON NAME	CONT	SPACING			
	BG	Buxus x 'Green Gem' / Green Gem Boxwood	#5 Cont.				15
	HA	Hydrangea arborescens 'Abetwo' / Incrediball® Hydrangea	#5 Cont.				45
	PV	Panicum virgatum 'Northwind' / Northwind Switch Grass	3 gal				72
	PO	Pennisetum orientale 'Karley Rose' / Karley Rose Fountain Grass	2 gal				17
GROUND COVERS	CODE	BOTANICAL / COMMON NAME	CONT	SPACING		SPACING	
	AS	Allium senescens 'Blue Twister' / Blue Twister German Garlic	#2 Cont.			14" o.c.	611
	PS	Carex pensylvanica / Pennsylvania Sedge	#2 Cont.			16" o.c.	482

DATE OF PLAN: 04-26-23

Prepared for:
KRE West Centre LLC
PO BOX 574
Douglas, MI 49406
t.269.420.5156

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LANDSCAPE PLAN

Job No: 021 KERR - CENTRE COLLECTIVE
Issue: FINAL SITE CONDO PLAN SUBMITTAL
Issue Date: APRIL 26, 2023

L1.0

callen

MEMORANDUM

DATE: **April 26, 2023**

TO: **CITY OF THE VILLAGE OF DOUGLAS**
ATTN: TRICIA ANDERSON, AICP
P.O. BOX 757
86 W. CENTER STREET
DOUGLAS, MI 49406-0757
Anderson@williams-works.com

FROM: **BRUCE A. CALLEN, PE**

SUBJECT : **CENTRE COLLECTIVE – COMPILED R-4 AND COMMERCIAL SITE PLAN REVIEWS**
RESPONSE TO APRIL 12, 2023, SPRC

In response to the SPRC review comments presented at the April 12, 2023 meeting at City Hall, we offer the following response:

Police:

- No Comment.

Planning:

- The acreage for Unit 17 measures 0.189 acres. We elect to utilize 0.18 acres as the marketable unit size as to not present the unit as larger than it is.
- Per the discussion, the sidewalk shall not extend across the public Beachwood Way roadway.
- Per the discussion, compacted stone dust presents an ADA accessible surface, able to support a wheel chair. The trail is also designed to not exceed 2% cross slope, nor 5% longitudinal slope.
- Fencing is not proposed around the ponds, as we want the ponds to be approachable and amenities to the site.
- The ponds are all detention, not retention, as they are designed to provide flow through with controlled-rate discharge to the public ditch/culvert system in Westshore Court.

Fire:

- Per the discussion and exhibits submitted via email, the We revised Beachwood Way to 28 feet wide measured from edge to edge of pavement, with "No Parking Fire Lane" signs on the hydrant side of the

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108 East Savidge St.
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callenengineering.com

street. Three "No Parking Fire Lane" signs were added to the cul-de-sac.

- Language was added to the pavement details to note the weight capacity of the city's heaviest fire apparatus, which equates to H-20 loading (32,000#/axle load or 16,000#/wheel load).
- A 30-ft radius provides more turning radius than a 28-ft radius. We elect to retain the 30-ft curb radius to meet the requirements of other reviewing disciplines.
- We acknowledge the access drives will be installed and navigable prior to vertical construction.
- No gates are proposed. We acknowledge the need for a knox key switch should a temporary gate be installed.
- We acknowledge the requirement for address signs prior to construction activities.
- We acknowledge the requirement for street signage upon construction of the streets.
- Hydrant flow calculations were submitted via email to the SPRC review team.
- We acknowledge hydrants and access roads shall be installed prior to combustible materials onsite.
- We submitted revised plans that illustrate the cul-de-sac geometry meets or accommodates the turning movements of the Saugatuck 49" truck.

KLWSA:

- Fire flow calculations were submitted via email to the SPRC review team.

DPW:

- The castings for the yard drains are Type 02 (Beehive). The structure schedule was revised to better describe the casting.

Engineering:

- The sanitary laterals have been called out as SDR-23.5
- The water services have been called out as 1" copper, Type K
- The lots have been revised to units
- An MBO and MFE table was included in the plan set. Block grading plans are forthcoming.
- An additional detail to delineate a 6-inch sidewalk from a 6-inch pavement was added to the detail sheet, with specific language related to driveway crossings.
- Detectable warning surfaces and crosswalk were more clearly illustrated on the plan set.
- Trees have been removed from utility easements.
- Storm sewer in public streets have been revised to RC pipe.
- A detail of the outlet structure has been added to the plan set.
- The watermains within the commercial development were relocated to avoid required

landscape island trees.

- We acknowledge the requirements of the ACDC, and request conditional approval subject to ACDC review and approval.
- We acknowledge the requirement of creating a Section 433 Agreement for the stormwater system. We intend to create a regional stormwater management facility to serve both the commercial and residential developments.
- Soil boring elevations used in our engineering/design were obtained from point elevations in the topographical survey, and not gleaned from the boring logs. We did not rely on the soil boring logs for ground surface elevations. The soil boring locations are relatively consistent and representative of the overall site.
- Revised drainage calculations reflecting three (3) sub-districts is forthcoming. We acknowledge the reviewer's request, and request conditional ACDC review and approval.
- The plan references the requirement for sump discharge lines with rear yard discharge for each unit.
- The use of the existing right-of-way for use as drainage facilities is under review by the city's attorney.
- Roadside drainage has been provided along St. Peters Drive, resulting in relocated public sidewalk in public easement along the frontage of units 1-5. Culverts will be installed at driveway locations to accommodate roadside drainage to the west.
- We recognize the informational requirements of the Master Deed and Exhibit B drawings, which will be provided in the comprehensive ACDC submittal package.
- We recognize the need for executed easement documents, which will be provided in the comprehensive ACDC submittal package.

On behalf of KRE West Centre LLC, we respectfully request conditional approval subject to ACDC review and approval, as we believe the remaining items pertain exclusively to the stormwater facilities as they relate to ACDC requirements.

MASTER DEED
OF
CENTRE COLLECTIVE CONDOMINIUM

(Act 59, Public Acts of 1978, as amended)

Allegan County Subdivision Plan No. _____

(1) Master Deed establishing the Centre Collective Condominium, a residential site condominium project.

(2) Exhibit A to Master Deed: Condominium Bylaws

(3) Exhibit B to Master Deed: Condominium Subdivision Plan

This document is exempt from real estate transfer tax under MCL 207.505(a) and 207.526(a).

This document prepared by:

MASTER DEED

CENTRE COLLECTIVE CONDOMINIUM

This Master Deed is made and executed on this _____ day of _____, 2021, by KRE WEST CENTRE, LLC, a Michigan limited liability company (hereinafter referred to as "Developer"), whose registered address is P.O. Box 574, Douglas, Michigan 49406, in pursuance of the provisions of the Michigan Condominium Act (being Act 59 of the Public Acts of 1978, as amended), hereinafter referred to as the "Act".

BACKGROUND

A. Developer is the owner in fee simple of the lands located in the City of the Village of Douglas, Allegan County, Michigan, more particularly described on the attached Exhibit "A", which are intended to be developed in accordance with the Condominium Subdivision Plan attached hereto as Exhibit "B".

B. The Condominium is known as Centre Collective Condominium and consists of _____ _____ site condominium units. The Units are shown on the Condominium Subdivision Plan attached hereto as Exhibit "B".

NOW, THEREFORE, the Developer does, upon the recording hereof, establish CENTRE COLLECTIVE CONDOMINIUM as a Condominium Project under the Act and does declare that CENTRE COLLECTIVE CONDOMINIUM shall, after such establishment, be held, conveyed, hypothecated, encumbered, leased, rented, occupied, improved, or in any other manner utilized, subject to the provisions of the Act, and to the easements, covenants, conditions, restrictions, uses, limitations and affirmative obligations set forth in this Master Deed and Exhibits "A" and "B" hereto, all of which shall be deemed to run with the land and shall be a burden and a benefit to the Developer, its successors and assigns, and any persons acquiring or owning an interest in the Condominium Premises (defined below), and their successors and assigns. In furtherance of the establishment of the Condominium Project, it is provided as follows:

ARTICLE 1

TITLE AND NATURE OF PROJECT

1.1 The Condominium shall be known as CENTRE COLLECTIVE, Allegan County Condominium Subdivision Plan No. _____. The Condominium Project is a _____ Unit site condominium and is established in accordance with the Act. The engineering and architectural plans and specifications for the Project will be filed with the appropriate governmental agencies. The Units contained in the Condominium, including the number, boundaries, dimensions, and area of each, are set forth completely in the Condominium Subdivision Plan attached as Exhibit "B" hereto. As described in Article 9, each Co-owner of a Unit shall be a member of the Association and each Co-owner of a Unit will be subject to both the terms and provisions of this Master Deed.

ARTICLE 2

LEGAL DESCRIPTION

2.1 The land which is submitted to the Condominium Project established by this Master Deed is located in the City of the Village of Douglas, Allegan County, State of Michigan and is described as follows:

[INSERT LEGAL DESCRIPTION]

2.2. The Condominium, and the Units contained therein are subject to and may benefit from the following restrictions, limitations, encumbrances, easements and the easements set forth in Article 6 hereof:

(a) Local zoning, building, and use ordinances and restrictions.

(b) Easements, restrictions, and agreements of record.

(c) Rights or claims of parties in possession not shown by the public records.

(d) Any encroachment, violation, variation, or adverse circumstance affecting the title that would be disclosed by an accurate and complete survey of the Condominium Premises.

(e) Easements or claims of easements not shown by the public records and existing water, mineral, oil and exploration rights.

(f) Any lien, or right to a lien, for services, labor, or material heretofore or hereafter furnished, imposed by law and not shown by the public records.

(g) Any and all oil, gas, mineral, mining rights and/or reservations thereof.

(h) Taxes or special assessments which are not shown as existing liens by the public records.

(i) Taxes and/or assessments which become a lien or become due and payable subsequent to the date hereof.

(j) Rights of the public, and of any governmental unit, in any part of the Condominium Premises taken, used, or deeded for street or highway uses.

(k) Such other easements, restrictions, encumbrances and/or encroachments disclosed by the Condominium Subdivision Plan.

ARTICLE 3

DEFINITIONS

3.1 When used in any of the Condominium Documents (defined below), or in any contract, deed, mortgage, lien, easement or other instrument affecting the Condominium Project or the establishment or transfer of any interest in it, the following terms shall carry the definitions that follow them unless the context clearly indicates to the contrary:

(a) "Act" means the Michigan Condominium Act, being Act 59 of the Public Acts of 1978, as amended.

(b) "Association" means the nonprofit corporation known as Centre Collective Condominium Association which is organized under the laws of the State of Michigan, of which all Co-owners shall be members and which shall administer, operate, manage and

maintain the Condominium Project. Any action required of or permitted to the Association shall be exercisable by its Board of Directors unless expressly reserved to the members by the Condominium Documents or the laws of the State of Michigan, and any reference to the Association shall, where appropriate, also constitute a reference to its Board of Directors.

(c) "Board of Directors" or "Board" means the board of directors of the Association.

(d) "Bylaws" means Exhibit "A" to this Master Deed, which shall constitute (*i*) the Bylaws for the Condominium Project setting forth the substantive rights and obligations of the Co-owners and required by Section 3(8) of the Act to be recorded as part of the Master Deed; and (*ii*) the corporate bylaws of the Master Association as provided for under the Michigan Nonprofit Corporation Act.

(e) "City" means the City of the Village of Douglas, which is located in Allegan County, Michigan.

(f) "Common Elements" means those portions of the Condominium Project other than the Units, including the General and Limited Common Elements as described in Article 4 below and shown on the Condominium Subdivision Plan.

(g) "Condominium Documents" means and includes this Master Deed, including Exhibits "A" and "B", and any other instrument referred to in this Master Deed that affects the rights and obligations of a Co-owner in the Condominium Project, including the Articles of Incorporation and the rules and regulations of the Association.

(h) "Condominium Premises" means the land described in Article 2 below, and all easements, rights and appurtenances belonging to the Condominium Project.

(i) "Condominium Project" or "Condominium" means Centre Collective, which is a site condominium project established under the Act.

(j) "Condominium Subdivision Plan" means Exhibit "B" to this Master Deed, being the site, survey and other drawings depicting the real property and improvements that form a part of this Master Deed.

(k) "Co-owner" or "Owner" means any person, firm, corporation, partnership, limited liability company, trust or other legal entity, or any combination of them, that owns title to a Unit. As described in Article 9, the Developer shall be the initial Co-owner of the Units in the Condominium. At the time a Unit is conveyed, the transferee shall have the rights and obligations of a Co-owner in the Condominium subject to the limitations set forth herein.

(l) "Developer" means KRE WEST CENTRE, LLC, a Michigan limited liability company, which has made and executed this Master Deed, and its successors and assigns. Successors and assigns shall always be deemed to be included whenever, however and wherever the term "Developer" is used in the Condominium Documents. All Condominium rights reserved to the Developer in this Master Deed are assignable in writing; provided, however, that conveyances of Units by the Developer shall not operate to assign the Developer's Condominium rights unless the deed or other instrument of conveyance expressly provides.

(m) "Development and Sales Period," for the purposes of the Condominium Documents and the rights reserved to Developer thereunder, means the period commencing with

the recording of the Master Deed and continuing as long as the Developer owns any Unit in the Condominium which it offers for sale, and for so long as the Developer continues or proposes to construct or is entitled to construct land improvements to develop additional Units, or and for so long as the Developer continues to own land within the Condominium, whichever is longer.

(n) "Limited Common Element" means any improvement, facility or service identified as a Limited Common Element in Article 4 below or on the Condominium Subdivision Plan or in any future amendment to this Master Deed. Limited Common Elements include such other elements of the Condominium Project which are not designated as a Limited Common Element, are not enclosed within the boundaries of a Unit, but are either necessary for the existence, upkeep, appearance, utility or safety of a Unit, or are intended for common use of a limited number of the Units.

(o) "Master Deed" means this Master Deed, including Exhibits "A" and "B" each of which are incorporated by reference and made a part of this Master Deed.

(p) "Open Space Areas" means the Open Space Areas identified on attached Exhibit "B". The Open Space Areas may include paths, trails, parks, water features and/or open space areas within the Condominium. Developer shall have the right, in its sole discretion, to add additional Open Space Areas anywhere within the Condominium (excluding those portions of the Condominium that have been previously conveyed to third parties), and/or to expand, contract, remove, eliminate, convert, change or modify previously designated Open Space Areas throughout the Condominium. Developer may designate or create new Open Space Areas within portions of the Condominium that are added to the Condominium as provided herein.

(q) "Units" means the Units within the Condominium established by this Master Deed.

3.2 Terms not defined in this Master Deed but defined in the Act, shall carry the meanings given them in the Act unless the context clearly indicates to the contrary. Whenever any reference is made to one gender, the same shall include a reference to any and all genders where such a reference would be appropriate. Similarly, whenever a reference is made to the singular, a reference shall also be included to the plural where such a reference would be appropriate, and vice versa.

ARTICLE 4
COMMON ELEMENTS

4.1 The General Common Elements of the Condominium are for the use and enjoyment of all of the Unit of the Condominium. The General Common Elements are as follows:

(a) The land described in Article 2 above, except those portions of such land within the boundaries of any Unit and any portions designated on Exhibit "B" as a Limited Common Element, and the land identified as a General Common Element on Exhibit "B".

(b) The Open Space Areas

(c) The private roads, drives, parking areas and community entry areas shown on attached Exhibit "B".

(d) The electrical transmission system located throughout the Condominium Project, up to the point of connection to a Unit.

(e) The telephone transmission system located throughout the Condominium Project, up to the point of connection to a Unit.

(f) The gas distribution system throughout the Condominium Project, up to the point of connection to a Unit.

(g) The water distribution system and waste disposal network throughout the Condominium Project, up to the point of connection to a Unit.

(h) The sanitary sewer system throughout the Condominium Project, up to the point where sewer is stubbed for connection with a Unit.

(i) The telecommunications system throughout the Condominium Project, up to the point of connection to a Unit.

(j) The storm water drainage system, including retention areas, collection points and connections, as shown on attached Exhibit "B" (except to the extent all or portions of such systems are dedicated to the public or a governmental authority).

(k) The Condominium access and entry areas, including all signs and other improvements that may be located therein, as shown on Exhibit "B".

(l) Any beneficial easements granted to and serving any part of the Condominium unless otherwise set forth in such easements or elsewhere in this Master Deed.

(m) All facilities, elements and other matters identified as General Common Elements in the Condominium Subdivision Plan.

(n) All other elements of the Project not herein designated as General or Limited Common Elements which are not enclosed within the boundaries of a Unit, and which are intended for common use or are necessary to the existence, upkeep, appearance, utility or safety of the Project.

Notwithstanding the foregoing, some or all of the utility lines, systems (including mains and service leads), storm water drainage system and equipment and the telecommunications system described above may be owned by the local public authority or by the company that is providing the pertinent service. Accordingly, such utility lines, systems and equipment shall be General Common Elements only to the extent of the Co-owners' interest therein, if any, and Developer makes no warranty whatever with respect to the nature or extent of such interest, if any.

4.2 The Limited Common Elements shall be subject to the exclusive use and enjoyment of a a particular Unit, or Units, to which the Limited Common Elements are appurtenant. The Limited Common Elements are as follows:

(a) Convertible Area. The Developer has reserved the right in Article 8 of this Master Deed to designate Limited Common Elements within the Convertible Area which may, at the Developer's discretion, be assigned as appurtenant to an individual Unit.

(b) Subsurface. The area more than twenty feet below the surface of the land of a Unit is a Limited Common Element appurtenant to such Unit.

(c) Other. Any other improvement, facility or service identified as a Limited

Common Element on the Condominium Subdivision Plan or in any future amendment to the Master Deed as a Limited Common Element and such other elements of the Project which are not designated as a Limited Common Element, are not enclosed within the boundaries of a Unit, but are either necessary for the existence, upkeep, appearance, utility or safety of a Unit (or Units), or are intended for common use of a limited number of Units, are a Limited Common Element appurtenant to such Unit(s).

In the event that no specific assignment of one or more of the Limited Common Elements described in this Section has been made in the Condominium Subdivision Plan, the Developer (during the Development and Sales Period) and the Association (after the Development and Sales Period has expired) reserve the right to designate each such space or improvement as a Limited Common Element appurtenant to a particular Unit by subsequent amendment or amendments to this Master Deed.

4.3 The respective responsibilities for the maintenance, decoration, repair and replacement of the Common Elements and Units are as follows:

(a) The Association shall be responsible for the cost of maintenance, repair, replacement and insurance of all General Common Elements, except to the extent of any repair or replacement necessitated by the act or neglect of a Co-owner or their agent, employee, contractor, invitee, family member or pet, which shall be the responsibility of, and paid by, the Co-owner on demand.

(b) The owner of a Unit shall be responsible for the maintenance, repair and replacement of the Unit.

4.4 By acceptance of a deed, mortgage, land contract or other instrument of conveyance to a Unit, all Co-owners, mortgagees and other interested parties are deemed to have appointed the Association as their agent and attorney to act in connection with all matters concerning the Common Elements and their respective interests in the Common Elements. Without limiting the generality of this appointment, the Association will have full power and authority to grant easements over, to sever or lease mineral interests and/or to convey title to the land or improvements constituting the General Common Elements or any part of them, to amend the Condominium Documents for the purpose of assigning or reassigning the Limited Common Elements and in general to execute all documents and to do all things necessary or convenient to the exercise of such powers.

ARTICLE 5
DESCRIPTION AND PERCENTAGE OF VALUE

5.1 A complete description of each Unit in the Condominium Project, with elevations therein referenced to an official benchmark of the United States Geological Survey, is set forth in the Condominium Subdivision Plan, as surveyed by _____. Each Unit shall include the space located within Unit boundaries from a depth of twenty (20) feet below grade and upward fifty (50) feet above grade as delineated with heavy outlines on the Condominium Subdivision Plan. The development plan has been filed with the City.

5.2 The percentage of value assigned to each Unit is determinative of each Unit's respective share of the proceeds and expenses of administration and the value of such Unit's vote at meetings of the Association when a vote is based on percentage of value rather than number. After review of the comparative characteristics of the Units, it was determined that the percentage of value assigned to the each Unit shall be as follows:

Unit	Percentage of Value

5.3 The percentages of value were computed based on the relative size of the respective Units and the relative impact the respective Units are anticipated to have on the Common Elements.

5.4 If the Condominium Subdivision Plan is amended, and the revisions would alter the percentage of value per Unit when applied to the criteria used to derive the percentage of value, then the percentage of value shall be altered to reflect the revisions.

ARTICLE 6

EASEMENTS

6.1 If any portion of a Unit or Common Element encroaches on another Unit or Common Element due to the shifting, settling or moving of a building, or due to survey errors or construction deviations, reciprocal easements shall exist for the maintenance of such encroachment for so long as such encroachment exists, and for the maintenance thereof after rebuilding in the event of destruction. This shall not be construed to allow or permit any encroachment on, or an easement for an encroachment on a Unit without the consent of the Co-owner of the Unit to be burdened by the encroachment or easement. There shall also be permanent easements in favor of the Association, and the Developer during the Development and Sales Period, to, through and over those portions of the Condominium Premises (including the Units) as may be reasonable for (*a*) the maintenance and repair of Common Elements for which the Association (or Developer) may from time to time be responsible or that the Association (or Developer) may elect to assume; (*b*) the installation, maintenance and repair of all utility services furnished to the Condominium Project; and (*c*) access to Units for purposes of decoration, maintenance, repair or replacement. Public utilities shall have access to the Common Elements and to the Units at such times as may be reasonable for the installation, repair or maintenance of such services, and any costs to install, repair or maintain such services shall be an expense of administration assessed against all Co-owners in accordance with the Bylaws.

6.2 The easements shown on the Condominium Subdivision Plan are hereby established for the benefit of the Co-owners, subject to the purposes shown on the Condominium Subdivision Plan and to the terms and conditions of any recorded instrument documenting such easements. In addition, no improvements shall be made to any such easement without the written approval of the Developer during the Development and Sales Period, or the Association thereafter.

6.3 The Association, both before and after the transitional control date, shall be empowered and obligated to grant easements under and across the Condominium Premises for utilities, access and such other lawful purposes that it determines to be reasonable and necessary, subject to the written approval of the Developer during the Development and Sales Period.

6.4 Developer reserves for itself and its agents, employees, representatives, guests, invitees, independent contractors, successors and assigns, the right, at any time prior to the expiration of the Development and Sales Period to reserve, dedicate and/or grant public or private easements over, under and across the Condominium for the construction, installation, repair, maintenance and replacement of rights-of-way, walkways, pedestrian crossings and bicycle paths, nature trails, water mains, sanitary sewers, storm drains, retention basins, water wells, electric lines, telephone lines, gas mains, cable television and other telecommunication lines and other public and private utilities, including all equipment, facilities and appurtenances relating thereto as identified in the approved final Condominium Subdivision Plan, and all plans and specifications approved by the City, as well as any amendments thereto. Developer reserves the right to assign any such easements to governmental units or public utilities, and to enter into maintenance agreements with respect thereto and to assign obligations thereunder to the Association. Any of the foregoing easements or transfers of title may be conveyed by Developer without the consent of the Association, any Co-owner, mortgagee or other person who now or hereafter shall have any interest in the Condominium. All of the Co-owners and mortgagees of Units and other persons now or hereafter interested in the Condominium Project from time to time shall be deemed to have unanimously consented to such grants of easements or dedications and any amendments of this Master Deed to reflect the foregoing easements or transfers of title. All such interested persons irrevocably appoint Developer as agent and attorney to execute such amendments to the Master Deed and all other documents necessary to effectuate the foregoing.

6.5 The Association shall assume and perform all of Developer's obligations under any easement pertaining to the Condominium Project or General Common Elements.

6.6 Developer reserves, declares and establishes an easement on, over and across the Condominium for the following purposes:

(a) To use the Common Elements for sales purposes;

(b) To use any of the unsold Units for leasing and/or sales (including model units and sales offices), administrative or management purposes;

(c) To place signs on the Common Elements and unsold Units for sales and promotional purposes; and

(d) To park, locate or establish construction trailers, vehicles, equipment, structures, improvements, materials or facilities within Units or on the Common Elements.

6.7 The Condominium is subject to various recorded easements, agreements and restrictions. These recorded documents both benefit and burden the Condominium. Each Co-owner should fully review the recorded documents to fully understand the rights and obligations of the Condominium and the Co-owners. The following is a summary of several of the more pertinent recorded documents:

[DESCRIBE EASEMENTS]

ARTICLE 7
SUBDIVISION, CONSOLIDATION AND OTHER MODIFICATIONS OF UNITS

7.1 Notwithstanding any other provision of this Master Deed or the Bylaws to the contrary, Units in the Condominium may be subdivided, consolidated and modified, and the boundaries relocated, in accordance with Sections 48 and 49 of the Act and this Article 7, and subject to any and all

ordinances and approval rights of the City. Any such changes in an affected Unit shall be reflected in a duly recorded amendment to this Master Deed.

7.2 During the Development and Sales Period, Developer reserves the sole right, without the consent of any other Co-owner or mortgagee of any Unit, to undertake any of the following:

(a) To subdivide any Unit.

(b) To consolidate under single ownership two (2) or more adjoining Units separated only by Unit boundaries.

(c) To relocate any boundaries between two (2) or more adjoining Units, separated only by Unit boundaries.

Any exercise of the rights reserved to the Developer above shall be effected by an amendment to this Master Deed, prepared by and at the sole discretion of the Developer, and recorded in the manner provided by law. In any such amendment, each portion of the Units resulting from any subdivision, consolidation or relocation of boundaries shall be separately identified by the number and percentages of value for such Units. Any such amendment shall also contain such further definitions of Common Elements as may be necessary to adequately describe the buildings and Units in the Condominium Project as so modified. All of the Co-owners and mortgagees of Units, and any other persons interested or to become interested in the Condominium Project from time to time, shall be deemed to irrevocably and unanimously consent to any such amendment and to any adjustment of percentages of value of Units that the Developer determines necessary in conjunction with such amendment. All such interested persons irrevocably appoint Developer as agent and attorney for the purpose of execution of such amendment and all other documents necessary to effectuate the foregoing. Such amendments may be effected without re-recording this Master Deed or any Exhibit to this Master Deed.

ARTICLE 8
CONVERTIBLE AREAS

8.1 The General Common Elements, Limited Common Elements and the Units have been designated as Convertible Areas within which the Units and Common Elements may be modified as provided herein.

8.2 The Developer reserves the right, in its sole discretion and subject to prior approval of the appropriate governmental agencies, during a period ending no later than six (6) years from the date of recording this Master Deed, to enlarge, modify, merge or extend Units and/or General or Limited Common Elements and to create Limited Common Elements appurtenant or geographically proximate to such Units within the Convertible Areas above designated. Such amendment may be effected without the necessity of recording an entire Master Deed or the Exhibits hereto and may incorporate by reference all or any pertinent portions of this Master Deed and the Exhibits hereto.

8.3 All of the Co-owners and mortgagees of the Units and other persons interested in the Project from time to time shall be deemed to have irrevocably and unanimously consented to such amendments to this Master Deed as may be made pursuant to this Article 8. All such interested persons irrevocably appoint Developer as agent and attorney for the purpose of execution of such amendment to the Master Deed and all other documents necessary to effectuate the foregoing. Such amendment may be effected without the necessity of recording an entire Master Deed or the Exhibits hereto and may incorporate by reference all or any pertinent portions of this Master Deed and the Exhibits hereto.

8.4 All improvements constructed within the Convertible Areas described above shall be reasonably compatible with other improvements made by the Developer in the Condominium Project, as determined by Developer in its discretion.

ARTICLE 9
RESERVED

ARTICLE 10
AMENDMENT AND TERMINATION

10.1 The Master Deed, Bylaws, Condominium Subdivision Plan and any other document referred to in the Master Deed or Bylaws which affects the rights and obligations of a Co-owner in the Project may be amended without the consent of Co-owners or mortgagees, if the amendment does not materially alter or change the rights of a Co-owner or mortgagee. An amendment that does not materially change the rights of a Co-owner or mortgagee includes, but is not limited to, a modification of the types and sizes of unsold Units and their appurtenant limited common elements.

10.2 Except as provided in this Article 10, the Master Deed, Bylaws and Condominium Subdivision Plan may be amended, even if the amendment will materially alter or change the rights of the Co-owners or mortgagees, with the consent of not less than 2/3 of the votes of the Units and mortgagees of Units. Notwithstanding the foregoing, unless otherwise provided in the Act, no such amendment which materially alters, restricts, limits or changes the rights of a Unit shall be approved and take effect unless the affected Co-owner of the Unit votes in favor of the amendment.

10.3 In addition to the rights of amendment provided to Developer in the various Articles of this Master Deed, Developer may, prior to the expiration of the Development and Sales Period, and without the consent of any Co-owner, mortgagee or any other person, amend this Master Deed and the Condominium Subdivision plan attached as Exhibit B in order to correct survey or other errors made in such documents and to make such other amendments to such instruments and to the Bylaws attached hereto as Exhibit A that do not materially affect the rights of any Co-owners or mortgagees in the Project, including, but not limited to, amendments required by governmental authorities, or for the purpose of facilitating conventional mortgage loan financing for existing or prospective Co-owners and to enable the purchase or insurance of such mortgage loans by the Federal Home Loan Mortgage Corporation, the Federal National Mortgage Association, the Government National Mortgage Association, the Veterans Administration or the Department of Housing and Urban Veterans Administration or the Department of Housing and Urban Development, or by any other public or private mortgage insurer or any institutional participant in the secondary mortgage market.

10.4 The value of the vote of any Unit and the corresponding proportion of common expenses assessed against such Unit shall not be modified without the written consent of the Co-owner of such Unit, nor shall the percentage of value assigned to any Unit be modified without such consent, except for a modification made in connection with the consolidation or modification of Units as provided in this Master Deed.

10.5 A person causing or requesting an amendment to the Master Deed, Bylaws, Condominium Subdivision Plan and any other document referred to in the Master Deed or Bylaws shall be responsible for costs and expenses of the amendment.

10.6 Pursuant to Section 90(2) of the Act, Developer hereby reserves the right, on behalf of itself and on behalf of the Association of Co-Owners, to amend this Master Deed and the Condominium Documents without the approval of any mortgagee of a Unit, unless the amendment would materially alter or change the rights of a mortgagee of a Unit, in which event the approval of two-thirds

(2/3) of the votes of mortgagees of Units shall be required for such amendment. Each mortgagee shall have one (1) vote for each Unit subject to a mortgage. Notwithstanding any provision of this Master Deed or the Bylaws to the contrary, mortgagees are entitled to vote on amendments to the condominium documents only under the following circumstances:

(a) The termination of the Condominium Project.

(b) A change in the method of formula used to determine the percentage of value assigned to a Unit subject to the mortgagee's mortgage.

(c) A reallocation of responsibility for maintenance, repair, replacement, or decoration for a Unit, its appurtenant Limited Common Elements, or the General Common Elements from the Association to the Unit subject to the mortgagee's mortgage.

(d) The elimination of a requirement for the Association to maintain insurance on the Project as a whole or a Unit subject to the mortgagee's mortgage or reallocation of responsibility for obtaining or maintaining, or both, insurance from the Association to the Unit subject to the mortgagee's mortgage.

(e) The modification or elimination of an easement benefiting the Unit subject to the mortgagee's mortgage.

(f) The partial or complete modification, imposition, or removal of leasing restrictions for Units in the condominium project.

10.7 During the Development and Sales Period, this Master Deed and Exhibits "A" and "B" hereto shall not be amended nor shall the provisions thereof be modified in any way without the written consent of the Developer.

ARTICLE 12
ASSIGNMENT

Any or all of the rights and powers granted or reserved to the Developer in the Condominium Documents or by law, including the power to approve or disapprove any act, use or proposed action or any other matter or thing, may be assigned by it to any other person or entity or to the Association. Any such assignment or transfer shall be made by appropriate instrument in writing duly recorded in the office of the Allegan County Register of Deeds.

[SIGNATURES ON FOLLOWING PAGE]

IN WITNESS WHEREOF, this Master Deed is made and executed on the date set forth above.

KRE WEST CENTRE, LLC,
a Michigan limited liability company

By: _____
Jeffrey A. Kerr
Its: Manager

STATE OF MICHIGAN)
)
ALLEGAN COUNTY)

The foregoing instrument was acknowledged before me in Allegan County, Michigan, on _____, 2022, by Jeffrey A. Kerr, as Manager of KRE WEST CENTRE, LLC, a Michigan limited liability company, on behalf of the company.

_____

State of Michigan
County of _____
My Commission Expires _____

Master Deed drafted by and
when recorded return to:

FLEIS&VANDENBRINK
DESIGN. BUILD. OPERATE.

MEMO

VIA EMAIL jeff@kerr-realestate.com

To:	**Mr. Jeffrey Kerr** **Kerr Real Estate**
From:	**Jacob Swanson, PE** **Mary Ollis, EIT** **Fleis & VandenBrink**
Date:	**December 1, 2022**
Re:	**Centre Collective Development** **Douglas, Michigan** **Traffic Impact Study**

1 INTRODUCTION

This memorandum presents the results of the Traffic Impact Study (TIS) for the proposed development in the City of the Village of Douglas, Michigan. The project site is located in the northwest quadrant of the Blue Star Highway & Center Street intersection, as shown on the attached **Figure 1**.

F&V previously completed a TIS for this project site in 2021 that combined the two sites into a mixed-use Planned Unit Development (PUD). The site plans have since been updated to include proposed developments that are currently permitted on the property within the by-right zoning.

- The northern property includes single-family residential, with site access provided via one (1) full access driveway on St. Peters Drive and one (1) full access driveway on W. Shore Court.
- The southern property includes a mixed-use residential and commercial development, with site access provided via two (2) full access driveways on Center Street.

The proposed site plans are connected internally with pedestrian connections; however, there is no vehicular access between the two properties. The study roadways are under the jurisdiction of the City of the Village of Douglas, which has required a TIS for this project as part of the site plan approval process.

This study provides an update to the previous analysis, in order to reflect the revised site plan; therefore, no new data collection or revisions to the existing 2021 baseline traffic volume adjustments were included in the revised study. However, minor adjustments were made to the Synchro Model configuration in order to more accurately reflect the existing roadway geometry; therefore, this analysis will have minor revisions, as compared to the previous TIS, for the existing and background intersection delay and LOS. Additionally, the analysis included herein provides an update of the future conditions analysis associated with the updated site plans, as requested by the City's engineering consultant.

The scope of the study was developed based on Fleis & VandenBrink's (F&V) understanding of the development program, accepted traffic engineering practice, MDOT requirements as outlined in Geometric Design Guidance Section 1.2.4, and professional experience. The study analyses were completed using Synchro/SimTraffic (Version 11). Sources of data for this study include F&V subconsultant Gewalt Hamilton Associates, INC. (GHA), information published by the Institute of Transportation Engineers (ITE), the City of the Village of Douglas, and MDOT.

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2 BACKGROUND

2.1 EXISTING ROAD NETWORK

The lane uses and traffic control at the study intersections are shown on the attached **Figure 2** and the study roadways are further described below. For the purposes of this study, site driveways and residential streets were assumed to have an operating speed of 25 miles per hour (mph) unless otherwise noted.

Blue Star Highway runs generally northeast and southwest directions, adjacent to the east side of the project sites. The study section of roadway is under the jurisdiction of the City of the Village of Douglas, is classified as a *Minor Arterial*, and has an Average Annual Daily Traffic (AADT) volume of approximately 8,200 vehicles per day (MDOT 2016). Blue Star Highway, adjacent to the project site, has a posted speed limit of 30 mph and provides a typical two-lane cross section, with one (1) lane in each direction. Additionally, at the signalized intersection with Center Street, Blue Star Highway widens to provide exclusive left-turn lanes in both directions and an additional shared through/right lane in the southbound direction.

Center Street runs east and west directions, adjacent to the south side of the project sites. Center Street is under the jurisdiction of the City of the Village of Douglas, is classified as a *Local Road*, and has a posted speed limit of 25 mph. Center Street provides a typical two-lane cross section, with one (1) lane in each direction. Additionally, at the signalized intersection with Blue Star Highway, Center Street widens to provide three-lane approaches (exclusive left-turn lane, through lane, and right-turn lane) in both directions.

St. Peters Drive generally runs in the southeast and northwest directions, adjacent to the north side of the project sites. St. Peters Drive provides a typical two-lane cross-section, with one (1) lane in each direction. The roadway is classified as a *Local Road*, ending approximately 1,200 feet west of Blue Star Highway.

2.2 EXISTING TRAFFIC VOLUMES

F&V subconsultant Gewalt Hamilton Associates, INC. (GHA) collected existing Turning Movement Count (TMC) data on Tuesday April 27th, 2021, at the following study intersections:

- Blue Star Highway & Center Street
- Blue Star Highway & St. Peters Drive

During collection of the turning movement counts, Peak Hour Factors (PHFs) and commercial truck percentages were recorded and used in the traffic analysis. The peak hour traffic volumes for each intersection were utilized for this study and the volumes were balanced upward through the study network and balanced through the proposed site driveways. Therefore, the raw traffic volumes shown in the data collection may not match the traffic volumes used in the analysis and on the attached traffic volume figures.

The weekday AM and PM peak hours for the adjacent roadway network were observed to generally occur between 7:30 AM to 8:30 AM and 4:30 PM to 5:30 PM, respectively. F&V collected an inventory of existing lane use and traffic controls, as shown on the attached **Figure 2**.

The 2021 traffic volumes data collected were compared with historic 2015 traffic volumes to calculate a COVID adjustment factor at the study intersection. The results indicated that the collected 2021 traffic volumes, when compared to the expected 2021 traffic volumes, resulted in a **+6%** adjustment factor; this factor was applied to the 2021 traffic volumes collected for the analyses within this study. The signal timing at Blue Star Highway & Center Street was obtained through video gathered during turning movement count data collection. The existing adjusted 2021 peak hour traffic volumes used in the analysis are shown on the attached **Figure 3**. All applicable background data referenced in this memorandum is attached.

3 EXISTING CONDITIONS (2021)

Existing peak hour vehicle delays and Levels of Service (LOS) were calculated at the study intersections using Synchro/SimTraffic (Version 11) traffic analysis software. The study analyses were based on the existing lane use and traffic control shown on the attached **Figure 2**, the existing peak hour traffic volumes shown on the attached **Figure 3**, and the methodologies presented in the *Highway Capacity Manual, 6th Edition* (HCM6).

Descriptions of LOS "A" through "F" as defined in the HCM6, are attached. Typically, LOS D is considered acceptable, with LOS A representing minimal delay, and LOS F indicating failing conditions. Additionally, SimTraffic network simulations were reviewed to evaluate network operations and vehicle queues. The existing conditions results are attached and summarized in **Table 1**.

Table 1: Existing Intersection Operations

Intersection		Control	Approach	Existing Conditions			
				AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Blue Star Highway & Center Street	Signalized	EBL	19.4	B	23.6	C
			EBT	16.8	B	17.0	B
			EBR	17.1	B	18.5	B
			WBL	17.3	B	18.7	B
			WBT	17.2	B	17.7	B
			WBR	17.9	B	18.3	B
			NBL	16.2	B	15.5	B
			NBTR	15.6	B	17.8	B
			SBL	19.3	B	23.4	C
			SBTR	12.8	B	11.8	B
			Overall	**14.6**	**B**	**16.2**	**B**
2	Blue Star Highway & St. Peters Drive	Stop (Minor)	EB	55.3	F	50.7	F
			NBL	10.2	B	9.2	A
			SB	Free			

The result of the existing conditions analysis indicates that all approaches and movements at the study intersections are currently operating acceptably, at LOS D or better, during both the AM and PM peak periods with the exception of the following:

Blue Star Highway & St. Peters Drive

- During both the AM and PM peak hours: The eastbound approach currently operates at LOS F.

Although the intersection LOS analysis indicates poor operations associated with the eastbound left-turn movement, a review of SimTraffic microsimulations indicates acceptable operations during both peak periods. SimTraffic network simulations indicate that vehicles on the eastbound left-turn movement were observed to find adequate gaps within the through traffic along Blue Star Highway, without experiencing significant delays or excessive vehicle queueing. The 95th percentile vehicle queue length reported for the eastbound left-turn movement was approximately 60 feet (2-3 vehicles) or less during both peak periods, which is not significant

A review of SimTraffic network simulations for the remaining study network indicates acceptable operations during both peak periods; the majority of vehicle queues at the signalized intersection were observed to be serviced within each cycle length.

4 BACKGROUND (2026) CONDITIONS

The proposed development is planned to be constructed over the next five (5) years. Therefore, a conservative background growth rate of **1.0%** per year was applied to the existing baseline 2021 traffic volumes to forecast the background 2026 traffic volume conditions, ***without the proposed development.*** Additionally, it is important to account for developments within the study network, which will be constructed prior to the site buildout year; however, no planned background developments were identified within the study network.

Future peak hour vehicle delays and LOS ***without the proposed development*** were calculated based on the existing lane use and traffic control shown on the attached **Figure 2**, the background traffic volumes shown on the attached **Figure 4**, and the methodologies presented in the HCM6. The results of the analysis of background conditions are attached and summarized in **Table 2**.

The results of the background conditions analysis indicate that all approaches at the study intersection will continue to operate in a manner similar to existing conditions, with minor increases in delays. Additionally, review of SimTraffic microsimulations indicates acceptable operations during both peak periods, within minimal vehicle queueing observed throughout the study roadway network.

Table 2: Background Intersection Operations

Intersection		Control	Approach	Existing Conditions				Background Conditions				Difference			
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Blue Star Hwy & Center Street	Signal	EBL	19.4	B	23.6	C	19.6	B	24.3	C	0.2	-	0.7	-
			EBT	16.8	B	17.0	B	16.8	B	17.0	B	0.0	-	0.0	-
			EBR	17.1	B	18.5	B	17.1	B	18.6	B	0.0	-	0.1	-
			WBL	17.3	B	18.7	B	17.3	B	18.8	B	0.0	-	0.1	-
			WBT	17.2	B	17.7	B	17.2	B	17.7	B	0.0	-	0.0	-
			WBR	17.9	B	18.3	B	18.0	B	18.3	B	0.1	-	0.0	-
			NBL	16.2	B	15.5	B	17.0	B	16.2	B	0.8	-	0.7	-
			NBTR	15.6	B	17.8	B	16.5	B	19.1	B	0.9	-	1.3	-
			SBL	19.3	B	23.4	C	20.4	C	25.2	C	1.1	B→C	1.8	-
			SBTR	12.8	B	11.8	B	13.1	B	12.1	B	0.3	-	0.3	-
			Overall	**14.6**	**B**	**16.2**	**B**	**15.1**	**B**	**16.9**	**B**	**0.5**	**-**	**0.7**	**-**
2	Blue Star Hwy & St. Peters Drive	Stop (Minor)	EB	55.3	F	50.7	F	67.2	F	62.2	F	11.9	-	11.5	-
			NBL	10.2	B	9.2	A	10.5	B	9.3	A	0.3	-	0.1	-
			SB	Free				Free				N/A			

5 SITE TRIP GENERATION

The number of weekday peak hour (AM and PM) and daily vehicle trips that would be generated by the previously proposed PUD and the currently proposed development were forecast based on data published by ITE in the *Trip Generation Manual, 11th Edition*. The trip generation projections are summarized in **Table 3**.

Table 3: Trip Generation Summary

	Land Use	ITE Code	Amount	Units	Average Daily Traffic (vpd)	AM Peak Hour (vph)			PM Peak Hour (vph)		
						In	Out	Total	In	Out	Total
Previously Proposed PUD	Single-Family Detached	210	24	DU	280	6	16	22	16	10	26
	Multi-Family Housing (Low-Rise)	220	17	DU	88	2	7	9	8	4	12
	Multi-Family (Mid-Rise)	221	42	DU	227	4	11	15	12	7	19
	Shopping Center-Small	820	13,300	SF	1,525	8	5	13	59	63	122
	Quality Restaurant	931	10,800	SF	905	4	4	8	56	28	84
	Health / Fitness Club	492	5,020	SF	153	4	3	7	10	7	17
	Variety Store	814	4,500	SF	286	8	6	14	16	15	31
	Total Trips				**3,464**	**36**	**52**	**88**	**177**	**134**	**311**
	Pass-By Trips AM: 34% PM: 34%					*5*	*4*	*9*	*27*	*25*	*52*
	Restaurant Pass-By Trips PM: 44%					*0*	*0*	*0*	*19*	*18*	*37*
	Total New Trips				**2,396**	**31**	**48**	**79**	**131**	**91**	**222**
Proposed Development	Single-Family Detached	210	20	DU	230	4	13	17	14	8	22
	Multi-Family Housing (Low-Rise)	220	59	DU	454	10	31	41	29	17	46
	Strip Retail (<40k)	822	16,770	SF	937	24	16	40	56	55	111
	Total Trips				**1,621**	**38**	**60**	**98**	**99**	**80**	**179**
	Retail Pass-By PM 40%					*0*	*0*	*0*	*22*	*22*	*44*
	Total New Trips					**38**	**60**	**98**	**77**	**58**	**135**
Difference in Total Trips					**-1,843**	**2**	**8**	**10**	**-78**	**-54**	**-132**

The trips generation comparison, between the previously proposed PUD site plan and the currently proposed developments site plans, indicate that the trips generated by the proposed development are overall almost 50% less than the daily trip generated by the previously proposed PUD.

As is typical of commercial developments, a portion of the trips generated by the proposed development are from vehicles that are already on the adjacent roadway network and will pass the site on their way from an origin to their ultimate destination. This percentage of the trips generated by the development are considered "pass-by" and "diverted link" trips, which are already present on the adjacent roadway network. Diverted link trips are pass-by trips for vehicles not passing by the development frontage directly on Center Street; therefore, these vehicles will have to make an additional turning movement, in order to enter and exit the site. For the purpose of this analysis, the diverted link trips associated with the proposed development are vehicles along Blue Star Highway, which will have to make a new turning movement onto Center Street to access the proposed development. These trips are therefore reduced from the total external trips generated by a study site. The percentage of pass-by trips used in this analysis was determined based on the rates published by ITE in the *Trip Generation Manual, 11th Edition.*

6 SITE TRIP DISTRIBUTION

The vehicular trips that would be generated by the proposed development were assigned to the study roadway network based on the proposed site access plan and driveway configurations, the existing peak hour traffic patterns in the adjacent roadway network shown on the attached **Figure 3**, and the methodologies published by ITE. The ITE trip distribution methodology assumes that new residential trips will leave the proposed development and exit the roadway network in the morning, then re-enter the roadway network in the evening and return to the proposed development. New commercial trips were assume to enter the network and access the development, then leave the development and return to their direction of origin. Pass-by trips will enter and exit the development in their original direction of travel. The site trip distributions utilized in this analysis are summarized in **Table 4**.

Table 4: Site Trip Distribution

New Residential Trips		New Commercial Trips					Pass-By Trips
AM	PM	AM	PM	To/From	Via	Direction	PM
44%	37%	49%	37%	North	Blue Star Highway	Northbound	38%
43%	40%	39%	40%	South	Blue Star Highway	Southbound	32%
3%	9%	5%	9%	East	Center Street	Eastbound	16%
10%	14%	7%	14%	West	Center Street	Westbound	14%
100%	**100%**	**100%**	**100%**	**Total**			**100%**

The vehicular traffic volumes shown in **Table 3** were distributed to the roadway network according to the distribution shown in **Table 4**. The site-generated trips shown on the attached **Figure 5**, were added to the background peak hour traffic volumes shown on the attached **Figure 4**, in order to calculate the future peak hour traffic volumes, as shown on the attached **Figure 6**.

7 FUTURE CONDITIONS

The future peak hour vehicle delays and LOS, ***with the addition of the site-generated trips from the proposed development***, were calculated at the study intersections using Synchro/SimTraffic (Version 11) traffic analysis software. This analysis was based on the proposed lane use and traffic control shown on the attached **Figure 2**, the proposed site access plan, the future peak hour traffic volumes shown on the attached **Figure 6**, and the methodologies presented in the HCM6. The results of the future conditions analysis are attached and summarized in **Table 5.**

The results of the future conditions analysis indicates that all study intersection approaches and movements will continue to operate in a manner similar to the background conditions analysis during both peak periods, with minor increases in delays. Additionally, all of the proposed site driveways are expected to operate acceptably, at LOS D or better during both peak periods. Review of SimTraffic network simulations also indicates acceptable operations throughout the study roadway network, with minimal vehicle queuing observed; additionally, the majority of vehicle queues at the signalized intersection of Blue Star Highway & Center Street were observed to be serviced within each cycle length.

Table 5: Future Intersection Operations

	Intersection	Control	Approach	Background Conditions				Future Conditions				Difference			
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Blue Star Hwy & Center Street	Signal	EBL	19.6	B	24.3	C	20.5	C	26.4	C	0.9	B→C	2.1	-
			EBT	16.8	B	17.0	B	16.8	B	17.1	B	0.0	-	0.1	-
			EBR	17.1	B	18.6	B	17.5	B	19.4	B	0.4	-	0.8	-
			WBL	17.3	B	18.8	B	17.4	B	19.0	B	0.1	-	0.2	-
			WBT	17.2	B	17.7	B	17.3	B	17.9	B	0.1	-	0.2	-
			WBR	18.0	B	18.3	B	18.0	B	18.4	B	0.0	-	0.1	-
			NBL	17.0	B	16.2	B	18.4	B	18.7	B	1.4	-	2.5	-
			NBTR	16.5	B	19.1	B	16.5	B	19.0	B	0.0	-	-0.1	-
			SBL	20.4	C	25.2	C	20.5	C	25.1	C	0.1	-	-0.1	-
			SBTR	13.1	B	12.1	B	13.4	B	12.4	B	0.3	-	0.3	-
			Overall	**15.1**	**B**	**16.9**	**B**	**15.4**	**B**	**17.4**	**B**	**0.3**	**-**	**0.5**	**-**
2	Blue Star Hwy & St. Peters Dr.	Stop (Minor)	EB	67.2	F	62.2	F	86.1	F	78.0	F	18.9	-	15.8	-
			NBL	10.5	B	9.3	A	10.6	B	9.5	A	0.1	-	0.2	-
			SB	Free				Free				N/A			
3	Center Street & SW Site Dr.	Stop (Minor)	EBL	N/A				7.6	A	7.9	A	N/A			
			WB					Free							
			SB					10.1	B	12.9	B				
4	Center Street & SE Site Dr.	Stop (Minor)	EBL	N/A				7.6	A	8.0	A	N/A			
			WB					Free							
			SB					10.6	B	14.1	B				
5	St Peters Dr. & W. Shore Court	Stop (Minor)	EB	N/A				Free				N/A			
			WBL					0.0*	A	0.0*	A				
			NB					0.0*	A	0.0*	A				
6	St. Peters Dr. & NE Site Dr.	Stop (Minor)	EB	N/A				Free				N/A			
			WBL					7.3	A	7.3	A				
			NB					8.6	A	8.6	A				

** Indicates no vehicle volume present*

7.1 Future Conditions with Improvements

Blue Star Highway & Center Street

- Review of the existing signal timing at the intersection of Blue Star Highway & Center Street indicated that it does not meet current minimum standards. Therefore, the signal timing was updated to reflect the correct clearance times (recommended yellow, all-red, and pedestrian times). Additionally, the existing signal timing was optimized, during both peak periods, in order to better accommodate the existing and projected future traffic volumes at this intersection, with the implementation of the revised clearance intervals. The impact to the intersection operations and LOS are summarized in **Table 7**.

The results of the future conditions with improvements analysis indicates that all approaches and movements will operate acceptably, at LOS D or better during both peak periods; additionally, several movements and the overall intersection will experience reduced delays associated with the optimizations. Review of SimTraffic network simulations also indicates acceptable operations during both peak periods, with the majority of vehicle queues observed to be processed through the intersection within each cycle length.

Table 6: Future Intersection Operations with Improvements

Intersection		Control	Approach	Future Conditions				Future IMP Conditions				Difference			
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Blue Star Highway & Center Street	Signal	EBL	20.5	C	26.4	C	27.2	C	31.9	C	6.7	-	5.5	-
			EBT	16.8	B	17.1	B	20.2	C	18.1	B	3.4	B→C	1.0	-
			EBR	17.5	B	19.4	B	22.5	C	21.8	C	5.0	B→C	2.4	B→C
			WBL	17.4	B	19.0	B	21.1	C	20.3	C	3.7	B→C	1.3	B→C
			WBT	17.3	B	17.9	B	21.6	C	19.2	B	4.3	B→C	1.3	-
			WBR	18.0	B	18.4	B	24.1	C	20.1	C	6.1	B→C	1.7	B→C
			NBL	18.4	B	18.7	B	9.3	A	14.3	B	-9.1	B→A	-4.4	-
			NBTR	16.5	B	19.0	B	8.7	A	15.3	B	-7.8	B→A	-3.7	-
			SBL	20.5	C	25.1	C	10.3	B	19.1	B	-10.2	C→B	-6.0	C→B
			SBTR	13.4	B	12.4	B	7.1	A	9.7	A	-6.3	B→A	-2.7	B→A
			Overall	**15.4**	**B**	**17.4**	**B**	**10.4**	**B**	**15.8**	**B**	**-5.0**	-	**-1.6**	-

8 AUXILIARY LANES

The MDOT auxiliary turn lane treatment warrants were evaluated at the proposed site driveways on Center Street and St. Peters Drive. This analysis was based on the future peak hour traffic volumes shown on the attached **Figure 6**. The results of the analysis are shown on the attached MDOT warranting charts and are summarized in **Table 7**.

Table 7: Auxiliary Turn Lane Summary

Site Driveway Intersection	Right-Turn Treatment	Left-Turn Treatment
Center Street & SW Site Drive	**Not Recommended**	**Not Recommended**
Center Street & SE Site Drive	**Right-Turn Taper**	**Not Recommended**
St. Peters Drive & NE Site Drive	**Not Recommended**	**Not Recommended**
St. Peters Drive & NW Site Drive	**Not Recommended**	**Not Recommended**

The results of the MDOT auxiliary turn lane evaluation indicates that a right-turn deceleration taper is warranted on westbound Center Street at the proposed SE Site Drive. No other auxiliary turn lane treatments are warranted or recommended.

9 CONCLUSIONS

The conclusions of this TIS are as follows:

1. Existing Conditions

- All approaches and movements at the study intersections are currently operating acceptably, at LOS D or better during both the AM and PM peak hours, with the following exception:
    - Blue Star Highway & Center Street: The EB approach is currently operating at LOS F during both peak periods. Although the Synchro LOS analysis indicates poor operations, review of SimTraffic microsimulations indicates a 95th percentile vehicle queue length of approximately 60 feet (2-3 vehicles) or less during both peak periods, which is not significant

2. Background Conditions

- All approaches and movements at the study intersections are expected to continue operating in a manner similar to existing conditions analysis, with minor increases in delay.

3. **Site Generated Traffic**

   - The trips generation comparison, between the previously proposed PUD and the currently proposed development plans, indicate that the trips generated by the proposed development are overall almost 50% less than the daily trip generated by the previously proposed PUD.

4. **Future Conditions**

   - With the addition of the site-generated traffic, all approaches and movements at the study intersections are expected to continue operating similar to background conditions analysis, with minor increases in delays. Additionally, the proposed site driveways are expected to operate acceptably, at LOS D or better during both peak periods. Review of SimTraffic network simulations for the remaining study roadway network also indicates acceptable operations during both peak periods.

5. **Future Conditions with Improvements**

   - Blue Star Highway & Center Street: Review of the existing signal timing indicated that it does not meet current minimum standards. Therefore, the signal timing was updated to reflect the correct clearance times (recommended yellow, all-red, and pedestrian times). Additionally, the existing signal timing was optimized, during both peak periods, in order to better accommodate the existing and projected future traffic volumes at this intersection, with the implementation of the revised clearance intervals.

6. **Auxiliary Lanes**

   - The MDOT auxiliary turn lane warranting thresholds were evaluated at the proposed site driveways, based on the future traffic volumes. The results indicate that a right-turn deceleration taper is warranted on westbound Center Street at the proposed SE Site Drive.

10 RECOMMENDATIONS

The recommendations of this TIS are as follows:

- Update the existing signal timing at Blue Star Highway & Center Street, to reflect current clearance interval standards and optimize the signal timing during both peak periods.
- Provide a right-turn deceleration taper on westbound Center Street at the proposed SE Site Drive.

Any questions related to this memorandum, study, analysis, and results should be addressed to Fleis & VandenBrink.

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Michigan.

Jacob Swanson

Digitally signed by Jacob Swanson
Date: 2022.12.01 18:02:03 -05'00'

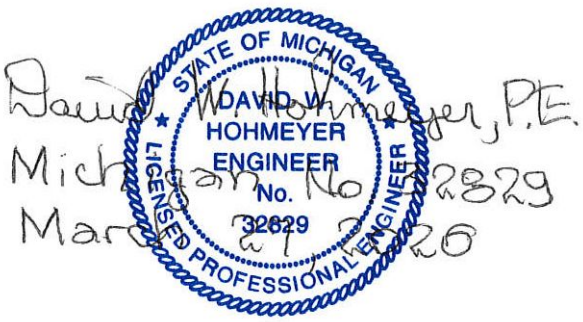
Attached:
Figures 1-6
Proposed Site/Concept Plan
Traffic Volume Data
Signal Timing Permit
Synchro / SimTraffic Results
MDOT Auxiliary Lane Charts

SOILS & STRUCTURES

REPORT OF GEOTECHNICAL INVESTIGATION FOR 324 WEST CENTER

DOUGLAS
ALLEGAN COUNTY
MICHIGAN

MARCH 27, 2020



Kerr Real Estate
PO Box 574
Douglas, Michigan 49406

Project No. 2020.0129

SOILS & STRUCTURES

March 27, 2020

Kerr Real Estate
PO Box 574
Douglas, Michigan 49406

Attention: Mr. Jeff Kerr

Regarding: 324 West Center
Douglas, Allegan County, Michigan
Project No. 2020.0129

Dear Mr. Kerr:

Soils & Structures is pleased to present this geotechnical investigation report for the 324 West Center project in Douglas, Allegan County, Michigan.

The investigation included ten (10) test borings to depths of 20.0 feet. The test borings were conducted in accordance with ASTM D 1586 procedures.

The report, test boring location plan, and test boring logs are enclosed. The report provides recommendations for site preparation, foundations, fill, floors and pavement.

We appreciate the opportunity to provide you engineering services. If you have any questions regarding this report, please contact our office.

Sincerely,
Soils & Structures, Inc.

Malcolm P. Thompson, E.I.T.
MPT/mt

Reviewed by:

David W. Hohmeyer, P.E.

SOILS & STRUCTURES

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SOILS & STRUCTURES

Location of Soil Investigation

The soil investigation was located at 324 West Center Street in Douglas, Allegan County, Michigan. The parcel number is 59-016-033-00.

Purpose of Investigation

The purpose of this investigation is to provide geotechnical engineering recommendations for the proposed residential and commercial buildings.

Design Information

The proposed development includes single family residences, townhomes and mixed use buildings. The project includes pavement.

The single family residences and townhomes will be one to two story wood framed structures with slab on grade floors. The floor elevation of the single family residences and townhomes will vary across the site depending on the existing grade and underlying soil conditions. The design load on foundations is anticipated to be approximately 2500 pounds per linear foot. Column loads are anticipated to be 10,000 pounds or less. The design live load for the floor is anticipated to be 40 pounds per square foot.

The mixed use buildings will be two to three story wood or steel framed structures with slab on grade floors. The floor elevation of the mixed use buildings will be approximately 625.0 feet. The design load on foundations is anticipated to be approximately 4000 pounds per linear foot. Column loads are anticipated to be 200,000 pounds or less.

Allowable post construction settlements of 0.6 inches for total settlement and 0.4 inches for differential settlement are assumed. If the actual loads are significantly greater than the anticipated loads listed in this report, then Soils & Structures should be contacted so that the recommendations included in this report may be reviewed and revised if necessary.

The maximum thickness of fill will be approximately 7.0 feet. Fill will be required to reach grade and to replace soft soil below foundations, floors and pavement. Fill for this project will also include backfill over foundations and utilities. Most of the soil required for fill is expected to be obtained offsite.

The maximum excavation depth will be approximately 7.0 feet. Over excavation will be required to remove soft or loose soils below foundations, floors and pavement. Excavations will also be required for the construction of foundations and utilities.

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Pavement is assumed to be subjected to both automobile and truck traffic. A service life of twenty years was assumed for the pavement subgrade recommendations. The subgrade is assumed to be prepared as recommended in this report.

Tests Performed

The investigation included ten test borings drilled to depths of 20.0 feet. The test borings are designated as Test Boring One through Test Boring Ten. The test borings were conducted in accordance with ASTM D 1586 procedures. The locations were determined by Nederveld, Inc. The locations were adjusted for accessibility by Soils and Structures, Inc. An automatic hammer was used to obtain the soil samples. The ASTM D 1586 standard describes the procedure for sampling and testing soil using the Standard Penetration Test.

The surface elevations at the test boring locations and additional points of reference were obtained with a Global Navigation Satellite System (GNSS) Receiver. The receiver was connected to the local MDOT CORS base station. Through this system, vertical measurements are obtained and referenced to the North American Vertical Datum (NAVD88). Horizontal measurements are also obtained at the test boring locations which are referenced to the Michigan State Plane Coordinate System. Both the vertical and horizontal measurements typically have an accuracy of approximately 0.5 inches. The measured test boring locations and surface elevations are represented in Table 1.

Table 1: Measured Test Boring and Points of Reference Locations and Surface Elevations

Test Boring / Location	Elevation (feet)	Northing (feet)	Easting (feet)	Surface Cover
Test Boring One*	624.1	422897.0	12627697.8	Topsoil
Test Boring Two*	626.7	422465.8	12627611.1	Topsoil
Test Boring Three*	608.1	422729.1	12627812.3	Topsoil
Test Boring Four*	628.1	422560.2	12627694.9	Topsoil
Test Boring Five*	635.7	422615.3	12627817.5	Topsoil
Test Boring Six	623.2	422431.9	12627847.5	Topsoil

*Potential Error: Signal interference due to tree cover

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Table 1 Continued: Measured Test Boring and Points of Reference Locations and Surface Elevations

Test Boring / Location	Elevation (feet)	Northing (feet)	Easting (feet)	Surface Cover
Test Boring Seven*	634.7	422257.7	12627597.6	Topsoil
Test Boring Eight*	631.8	422258.2	12627681.3	Topsoil
Test Boring Nine	624.8	422250.2	12627789.1	Topsoil
Test Boring Ten	625.4	422257.0	12627972.6	Topsoil
Base Setup VRS1	617.3	422230.7	12627654.2	-

*Potential Error: Signal interference due to tree cover

Soil samples were classified according to the Unified Soil Classification System. This method is a standardized system for classifying soil according to its engineering properties. Please refer to the appendix of this report for the Unified Classification System Chart. The classification is shown in the "Material Description" column of the test boring logs.

The soil strength and the allowable soil bearing value were evaluated using the "N" value. The "N" value is the number of blows required to drive a soil sampler one foot with a standard 140 pound drop hammer. The sampler is driven a distance of 18.0 inches. The number of blows for each 6.0 inch increment is recorded. The sum of the second and third intervals is the "N" value. The number of blows for each 6.0 inch interval is shown on the test boring logs under the column labeled "Penetration." The "N" value for each sample is shown in the adjacent column.

Laboratory testing consisted of natural moisture content, particle size analysis, Atterberg limits and unconfined compressive strength testing. The tests were performed on representative soil samples. The tests were performed in accordance with applicable ASTM standards. The water content documents the presence of groundwater in the soil. The sieve test determines the particle distribution which is used to classify the soil and estimate its properties. The Atterberg limit tests aid in determining the properties of cohesive soils. Unconfined compression testing determines the strength properties of cohesive soil.

The U.S. Geological Survey Topographic map and the Quaternary Geology map of Southern Michigan were reviewed. These maps provide general geological information about the region.

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SOILS & STRUCTURES

Description of Soil

The soil profile consists of clay with frequent pockets of sand and silt. Topsoil is present at the surface.

The clay layer is part of a glacial moraine that is present in Saugatuck Township. Less prominent features of glacial moraines include sand and gravel outwash that are typically present as pockets and veins within the clay and small alluvial fans at the surface which have low volumes of sand.

The topsoil consists of a dark brown clayey sand. The thickness ranges from 3.0 to 6.0 inches.

The natural clay layer consists of brown and gray low plasticity clay with various amounts of sand and silt. The sand and silt particles are present dispersed throughout the clay, and also appear concentrated in horizontal lenses. The clay layer is more prominent in the upper 20.0 feet of the soil profile on the south portion of the site. In the area of Test Boring Two and Test Borings Four through Ten the clay layer is present at depths between 0.25 and 7.0 feet. In the area of Test Boring One and Test Boring Three, the north portion of the site, the clay layer is present at depths of 7.0 and 19.0 feet.

The “N” values of the clay layer range from 4 to 17, indicating the clay is soft to stiff. The majority of the clay layer is stiff. The stiff clay is indicated by “N” values greater than 7. The shear strength of the stiff clay is in the range of 1800 to 3500 pounds per square foot which also indicates the clay is stiff.

The upper 8.0 feet of the clay layer in the area of Test Borings Five, Six and Ten consists of gray silty low plasticity clay. The “N” values of the clay range from 4 to 7, indicating the clay is soft to firm. The shear strength of the clay is in the range of 800 to 1800 pounds per square foot which also indicates the clay is soft to firm. The clay layer will support foundations, floors and pavement following the removal of any soft clay.

Pockets of sand are present in the upper 7.0 feet of the clay layer in the area of Test Borings Two, Three, Five, Seven, Eight and Nine. The pockets consist of brown fine silty and clayey sand. The “N” values of the pockets range from 3 to 15, indicating the sand is in a loose to compact state. The loose sand is indicated by “N” values equal to or less than 7. The pockets of sand will support foundations, floors and pavement following the compaction or removal of any loose sand.

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Pockets of silt are present in the upper 9.5 feet of the clay layer in the area of Test Borings One, Two, Four, Eight and Nine. The thickness of the silt pockets range from 1.5 to 7.5 feet. The "N" values of the silt range from 6 to 13, indicating the silt is firm to stiff. The silt pockets will support foundations, floors and pavement following site preparations.

Pockets of sand and silt are present in the lower portion of the clay layer throughout the site. The pockets of silt are stiff and the pockets of sand are in a compact state. The pockets of sand and silt in the lower portion of the clay layer should not adversely effect foundations, floors or pavement under the anticipated loading conditions.

Description of Groundwater Conditions

Perched groundwater is present at depths ranging from 2.0 to 8.0 feet. The elevation of Kalamazoo Lake is 581.0 feet. Kalamazoo Lake is near the north portion of the site. Ditches, sumps and pumps are anticipated to be sufficient to control perched water and precipitation during construction.

Description of Site

The site is located at 324 West Center Street in Douglas, Allegan County, Michigan. The site is a wooded lot. A private residence is present on the southeast portion of the site. The north side of the site is bordered by West Shore Court and St. Peters Drive. The east and west sides of the site are bordered by commercial buildings. The south side of the site is bordered by West Center Street. Photographs #1 and #2 show the site at the time of the investigation.

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Photograph #1: View of the south portion of the site. The view is to the northwest. (Project No. 2020.0129, 324 West Center, Douglas, Allegan County, Michigan, February, 2020)

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Photograph #2: View of the center of the site. (Project No. 2020.0129, 324 West Center, Douglas, Allegan County, Michigan, February, 2020)

Settlement

The maximum settlement of the building is anticipated to be less than 0.5 inches provided the recommendations in this report are observed including subgrade preparation. Differential settlement will be approximately one half to three quarters of the maximum value. These levels of settlement are within the recommended acceptable limits of 0.6 inches of total settlement and 0.4 inches of differential settlement.

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Recommendations

Construction Considerations

Construction considerations will include the use of the on-site soil for fill, temporary roads for construction traffic and temporary storage areas. Other potential considerations include the control of groundwater and surface water.

The soil available on site may be used for fill in areas where drainage is not a consideration. Most of the soil will be clay with a water content of 19.2 to 26.9 percent. The optimum water content is 13.0 to 18.0 percent so most of the soil used for fill will need to be dried. The most effective equipment for compaction will be sheepsfoot rollers and fully loaded scrapers.

The future roads will be used initially as construction roads. Due to the possibility of the road spanning across both sand and clay soils, the recommended option for maintaining the integrity of the road subgrade is an aggregate drive.

The recommended cross section for an aggregate access road is a 10.0 to 12.0 inch thick aggregate layer over a geogrid reinforcing. The recommended aggregate is crushed material with a nominal diameter of 1.0 inches or greater. The aggregate may be comprised of natural aggregate, concrete, asphalt or slag. The recommended geogrid is TerraGrid SX3030. The aggregate and geogrid may be incorporated into the final pavement.

During construction elevating the road surface a minimum of 6.0 inches above the surrounding area is recommended.

Control of surface water will be necessary due to the duration of construction and impermeable soil. Temporary ditches are recommended to remove surface water from the construction area. Lime treatment is recommended in areas where surface water softens the clay to re-establish a useable surface. Cement stabilization is recommended in areas where clay is not the primary soil.

Site & Subgrade Preparation

Existing foundations, trees and vegetation in the area of the buildings and pavement should be cleared and removed as part of subgrade preparation. The topsoil should be removed to the extent that all soil with an organic content of 3.0 percent or greater is removed. Soil containing roots should be removed to the extent that the root content by volume is 5.0 percent or less. All roots over 0.5 inches in diameter should be removed. The anticipated thickness of topsoil to be removed is 1.0 feet or less.

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Proof compaction of the site is not recommended. Excessive loading of the clay with heavy construction equipment will soften the clay resulting in unnecessary removal and replacement of the existing soil.

The area of the townhomes and single family residences should be excavated initially to the subgrade level. The subgrade should be inspected and tested to determine if soft soil is present below foundations and floors. Any soft soil should be removed. The over excavation should extend a minimum of 3.0 feet beyond the sides of the foundation. If foundations are to be constructed on a pocket of sand, the sand should be compacted to 95.0 percent of the sand's maximum density to a depth of 3.0 feet below the foundations. The fill used to replace the soft clay or loose sand should be sand meeting MDOT Class II specifications. The sand should be compacted to 95.0 percent of the sand's maximum density.

The area of the mixed use buildings should be excavated initially to the required grade. The subgrade should be inspected and tested to determine if soft soil is present below foundations or floors. Any soft soil should be removed. Based on Test Borings Eight and Ten, soft soil is expected below the floor and foundation elevation. The depth of soft soil is anticipated to be less than 7.0 feet. The over excavation should extend a minimum of 3.0 feet beyond the sides of the foundation. The fill used to replace the soft soil should be sand meeting MDOT Class II specifications. The sand should be compacted to 95.0 percent of the sand's maximum density.

When the site is graded, the existing clay may be used for fill. The water content of most of the clay will be 5.0 percent or higher than the clay's optimum water content. The optimum method of placement will be to maintain lifts of 6.0 inches or less in thickness and compact each lift with three to five passes with a sheepsfoot roller and loader. Drying the clay will be necessary to achieve compaction.

Soil that is brought to the site for fill should be clean sand meeting MDOT Class II specifications or an approved alternative. The soil should be compacted to 95.0 percent of its maximum density, as determined by the modified proctor method per the ASTM D 1557 standard. Compaction tests are recommended to verify the compaction of the fill. Full time testing is recommended while the earthwork phase of the project because of the significant thickness of the fill.

Fill should be placed in accordance with the "Fill" section of this report. The fill should be compacted to 95.0 percent of its maximum density. If the total height of fill will be greater than 4.0 feet, the lower 4.0 feet should be compacted to 97.0 percent of its maximum density. The soil which will be used for fill should be kept free of topsoil and other organic materials. Compaction tests are recommended to check the compaction of the new fill.

Foundations

Spread foundations are recommended to support the proposed buildings provided the subgrade is prepared as discussed in this section as well as the "Site & Subgrade Preparation" and "Fill" sections of this report. The foundations are anticipated to be supported on fill or the in-situ soil following site preparation.

Fill below foundations should be compacted to a density of 95.0 percent of the soil's maximum density to its full depth. In-situ sand below foundations should be compacted to a density of 95.0 percent of the sand's maximum density to a minimum depth of 3.0 feet. Compaction tests should be performed in the foundation subgrade to verify these levels of compaction. Soils not meeting or exceeding the minimum density should be recompacted.

If foundations are constructed on clay, the clay should be dry and level to ensure proper contact between the subgrade and concrete. Prior to pouring the foundations, the clay should be tested with a pocket penetrometer or torvane to ensure adequate strength to support the foundations. If the clay exhibits unconfined compressive strength of less than 1,500 pounds per square foot, it should be excavated and replaced with MDOT Class II fill.

Silt below foundations should not be compacted due to liquefaction. The silt should be dry and level to ensure proper contact between the subgrade and concrete. If the silt is not dry, the silt should be over excavated 8.0 to 12.0 inches below the foundation level and replaced with MDOT Class II fill or pea stone to establish a usable surface.

The recommended minimum cover over exterior foundations is 42 inches for protection against frost heave.

Foundations should not be constructed on frozen soil. During cold weather construction, the foundation subgrade and foundations should be protected from freezing with insulated blankets until backfill is placed over both sides of the foundation. Foundations that are damaged by frost heave should be replaced.

The site classification for seismic design is "D" based on the Michigan Building Code provided the recommendations in this report are observed. The site has a peak ground acceleration of 0.096g with a 2.0 percent probability of exceedance in 50 years. The mapped spectral accelerations are 0.091 for the short-term response (S_s) and 0.050 for the one second response (S_1). The corresponding numeric seismic design values for the spectral response acceleration parameters above are 0.097g (S_{DS}) and 0.081g (S_{D1}) respectively.

Foundations may be designed using an allowable soil bearing value of 3000 pounds per square foot for isolated column foundations and 2500 pounds per square foot for wall foundations provided the recommendations in this report are observed. A minimum width of 16.0 inches is recommended for new foundations. The allowable bearing values may be increased 25.0 percent when considering transient loads such as earthquakes and wind.

Floors

A slab on grade is recommended for the floors.

A base of 8.0 inches of clean sand is recommended under the floors. The sand should meet MDOT Class II specifications. Fill under floors should be compacted as specified in the "Fill" section of this report. The in-situ soil does not meet these specifications.

A vapor barrier is recommended at the bottom of the concrete slab.

A modulus of subgrade reaction of 100 pounds per cubic inch is recommended for the design of slabs on grade.

Lateral Earth Pressure

Foundation walls with different soil levels on either side should be designed as retaining walls. Sand should be used as backfill behind retaining and foundation walls. The sand should meet MDOT Class II specifications. The cantilevered walls should be designed using a soil density of 120 pounds per cubic foot and a coefficient of active earth pressure of 0.30 for level sand backfill. Braced excavations and foundation walls that will be braced against lateral movement at the top of the wall should be designed using a soil density of 120 pounds per cubic foot and a coefficient of at rest earth pressure of 0.45 for level sand backfill. The effects of any surcharge or sloping backfill should also be included in the design. The passive resistance of the existing sand should be calculated using an earth pressure coefficient of 4.0.

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Excavations

The existing clay is OSHA type "B" soils. Excavations should be based on OSHA requirements for a type "B" soil. Based on OSHA requirements a maximum allowable side slope of 45 degrees (1H:1V) is recommended for excavations 4.0 to 20.0 feet deep. For excavations adjacent to property lines, structures such as buildings and roads or excavations over 20.0 feet deep retaining systems are recommended. Excavations less than 4.0 feet deep may have vertical side slopes.

The in situ sand and fill are an OSHA type "C" soil. Excavations that will be entered by personnel should be based on OSHA requirements for a type "C" soil. Based on OSHA requirements, a maximum allowable side slope of 34 degrees (1.5H:1V) is recommended for excavations 4.0 to 20.0 feet deep. Excavations less than 4.0 feet deep may have vertical side slopes.

Fill

The subgrade should be prepared as discussed in this section as well as the "Site & Subgrade Preparation" section of this report. Topsoil should be removed. The subgrade should be inspected and tested for loose and soft soil before the placement of fill. Any soft soil should be removed. Any loose or slightly compact sand should be compacted or removed. Due to the high amounts of fill expected for this project, large settlements will occur if fill is placed on compressible soil.

Fill, including the aggregate layers under pavement, should be compacted to a density of 95.0 percent of its maximum density. The maximum density should be determined in accordance with the ASTM D 1557 standard. A maximum thickness per layer of 6.0 inches is recommended. The lift thickness may be increased to 12.0 inches if a vibratory roller or loader is used for compaction.

If fill will be placed to a depth greater than 4.0 feet, the lower 4.0 feet should be compacted to 97.0 percent of its maximum density. This should reduce the total settlement of overlying structures.

Compaction tests are recommended to confirm that the fill is compacted to the required density and may be used as fill.

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Soil brought to the site for structural fill should be sand meeting MDOT Class II requirements or ASTM requirements for a SP or SW which are the designations for clean sand. The in-situ soil does not meet these requirements.

Fill should not be placed over frozen ground, snow or ice. Soil which contains frozen material should not be used as fill. During winter construction, removal of frozen ground may be necessary prior to placing fill.

Groundwater Management

Groundwater is present in isolated pockets at depths of 2.0 to 8.0 feet. The quantity of groundwater flowing into excavations from the pockets is anticipated to be moderate. If excavations encounter groundwater, the excavation bottom may be stabilized by placing a 6.0 to 8.0 inch layer of porous stone over the bottom of the excavation. The stone will stabilize the bottom of the excavation.

A vapor barrier is recommended under the floor in areas that will be enclosed and heated. The vapor barrier should consist of a 10 mil polyethylene sheet and should be located immediately below the floor slab. The vapor barrier may be omitted in portions of the building that will not be heated.

Infiltration rates for the in-situ soils will be low and unsuitable for internal drainage of the site. MDOT Class II sand is recommended in any areas where drainage is required.

Drains around the foundations and under the pavement are recommended. The drains should consist of a 4.0 inch diameter slotted plastic pipe wrapped in filter fabric. Pea gravel should be used for backfill within a 6.0 inch circumference of the drain. Under pavement, the recommended spacing is 50.0 feet. The drain invert should be at a minimum depth of 30.0 inches below the pavement surface. The drains should be connected to a storm sewer or have an outlet a minimum of 3.0 feet below the lowest floor.

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Hot Mix Asphalt (HMA) Pavement

The recommended preliminary HMA pavement sections listed in Table 2 were developed based on the discussions and assumptions included in this report and the design procedures outlined in the "AASHTO Guide for Design of Pavement Structures." The subgrade should be prepared as described in the "Site & Subgrade Preparation" and "Fill" sections of this report. The final pavement section should be designed based on actual traffic volumes and the owner specific performance requirements. The recommended pavement section materials listed in Table 2 refer to and should comply with the standard material designations included in applicable MDOT specifications and guidelines including the 2012 MDOT "Standard Specifications for Construction."'

Table 2: Recommended Pavement Section

Pavement Cross Section Materials	Standard Duty		Heavy Duty	
	Material	Thickness (in)	Material	Thickness (in)
HMA Wearing Coarse	36A, 5E1	1.5	36A, 5E1	2.0
HMA Base Coarse	13A, 4E1	2.0	13A, 4E1	2.0
Aggregate Base	22A, 21AA	8.0	22A, 21AA	10.0
Sand Subbase	Class II	12.0	Class II	12.0

The recommended asphaltic binder is PG 58-28. The paving contractor should submit the proposed mix design to the owner for review and approval prior to placement. The HMA pavement should be placed in at least two lifts. The pavement section should be constructed in accordance with MDOT guidelines and specifications as well as applicable state and local requirements.

The subgrade, sand subbase and aggregate base should be constructed and prepared in accordance with the "Site & Subgrade Preparation" and "Fill" sections of this report and applicable MDOT guidelines and specifications.

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Driveways

The subgrade should be prepared in accordance with the "Site Preparation" and "Fill" sections of this report.

A base of 12.0 inches of clean sand is recommended under the driveway. The sand should meet MDOT Class II specifications.

A minimum slab thickness 5.5 inches is recommended. Fibermesh is recommended for the reinforcing.

In the areas of loading docks, dumpster pads and truck parking the minimum thickness should be increased to 12.0 inches and the pavement should be reinforced. The reinforcing should be designed by a structural engineer. The paving contractor should submit the proposed mix design to the owner for review and approval prior to concrete placement.

Quality Control Testing

Compaction tests (ASTM D 6938) are recommended to confirm that fill in the building area is compacted to the specified density. While fill is being placed, compaction tests should be performed at the rate of one test per 400 cubic yards of fill and throughout the depth of the fill with a minimum of five tests at each 1.0 foot elevation interval. Compaction tests should be performed under foundations at the rate of one test per 50 linear feet for wall foundations and one test per column foundation. The recommended testing frequency in the floor and pavement subgrade is one test per 5000 square feet. Tests should also be performed in the backfill over foundations and utilities. The maximum density should be determined in accordance with ASTM D 1557 or ASTM D 4253 procedures.

The shear strength of clay should be checked with a hand penetrometer or torvane. The tests should be performed at the same frequency as compaction tests.

A smooth 0.5 to 0.75 inch diameter rod should be used in conjunction with compaction tests to probe for loose areas under foundations, in fill and under floors.

A dynamic cone should not be substituted for compaction tests for evaluating fill.

Testing should be performed by technicians supervised by a registered geotechnical engineer.

General Conditions & Reliance

The report was prepared in accordance with generally accepted practices of the geotechnical engineering profession. The scope of work consisted of performing ten test borings and providing soil related recommendations for the design and construction of the proposed building and pavement. The scope of work did not include an environmental study or wetland determination.

The report and the associated test borings were prepared specifically for the previously described project and site. Soils & Structures should be consulted if a significant change in the scope of the project is made.

The test borings represent point information and may not have encountered all of the soil types and materials present on this site. This report does not constitute a guarantee of the soil or groundwater conditions or that the test boring is an exact representation of the soil or groundwater conditions at all points on this site.

The descriptions and recommendations contained in this report are based on an interpretation of the test borings and laboratory tests. The test borings should not be used independently of the report. If soil conditions are encountered which are significantly different from the test borings, Soils & Structures should be consulted for additional recommendations.

The report and test borings may be relied upon by Kerr Real Estate for the design, construction, permitting and financing associated with the construction of the 324 West Center project in Douglas, Allegan County, Michigan. The use of the report and test borings by third parties not associated with this project or for other sites has not been agreed upon by Soils & Structures. Soils & Structures does not recommend or consent to third party use or reliance of the report or test borings unless allowed to review the proposed use of these materials. Unless obtained in writing, consent to third party use should not be assumed. Third parties using the report or test boring logs do so at their own risk and are offered no guarantee or promise of indemnity.

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SIERRA ENVIRONMENTAL CONSULTANTS, LLC
PO #136, KENT CITY, MICHIGAN 49330

PHASE I ENVIRONMENTAL SITE ASSESSMENT:

324 Center Street
Douglas, Michigan

PREPARED FOR:
Mr. Bill Underdown

September 25, 2017

EXECUTIVE SUMMARY

Sierra Environmental Consultants, LLC has completed this *Phase I Environmental Site Assessment* (*ESA*) for 324 Center Street, Douglas, Allegan County, Michigan (the *property*). This *ESA* has been completed in conformance with the scope and limitations of ASTM International E 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (the *standard practice*). Any exceptions to or deletions from the *standard practice* are described in Section 1.4 of this report.

This ESA has not revealed evidence of recognized environmental conditions (RECs) associated with the property.

1.0 INTRODUCTION

Sierra Environmental Consultants, LLC has completed this *Phase I Environmental Site Assessment* (*ESA*) for a parcel of *commercial real estate* known as 324 Center Street, Douglas, Allegan County, Michigan (the *property*). This *ESA* has been completed in conformance with the scope and limitations of ASTM International E 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (the *standard practice*). Any exceptions to or deletions from the *standard practice* are described in Section 1.4 of this report. All italicized items refer to definitions set forth in the *standard practice*.

1.1 Recognized Environmental Conditions

The term *recognized environmental condition*" (REC) means the presence or likely presence of any hazardous substances or petroleum products in, on or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of future release to the environment." The term includes *hazardous substances* or *petroleum products* even under conditions in compliance with laws. Any identified REC's are indicated in Section 8.0 - "Findings and Opinions".

1.2 Historical Recognized Environmental Conditions

The term “Historical Recognized Environmental Condition” (HREC) applies to the Property for contamination that has been verified to be remediated to an unrestricted cleanup standard. Any identified HREC's are indicated in Section 8.0 - "Findings and Opinions".

1.3 Controlled Recognized Environmental Conditions

The term “Controlled Recognized Environmental Condition” (CREC) applies to the Property if a cleanup utilized engineering or institutional controls such as deed use restrictions or prohibiting use of groundwater. Any identified CREC's are indicated in Section 8.0 - "Findings and Opinions".

1.4 “De Minimis” Conditions

The term *de minimis conditions* applies to minor or insignificant releases that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not *recognized environmental conditions,* and may or may not be considered significant enough to specify, based solely upon the discretion of the environmental professional.

1.6 Scope of Services

This *ESA* has been performed in accordance with good commercial and customary practice in the fields of environmental engineering and science. *Sierra Environmental Consultants, LLC*' scope of services and report format are intended to meet and exceed the requirements of the *standard practice*. The specific scope of services is as follows:

1. *Standard environmental record sources* were utilized to identify listings of known or suspected environmental conditions indicative of releases or threatened releases of hazardous substances in the vicinity of the *property*. *Sierra Environmental Consultants, LLC* contracts with a third party to search the various agency listings for different approximate minimum search distances from the *property*, based upon the relative potential threat represented by each listing as established in the *standard practice*. The following databases (and their respective search distances) were searched for this ESA, and each one meets or exceeds it's respective ASTM minimum search distance (Shown in miles)

〉 Federal NPL site list - 1.0 mile radius
〉 Federal CERCLIS list - 0.5 mile radius
〉 Federal CERCLIS NFRAP site list - property and adjoining properties -
〉 Federal RCRA CORRACTS facilities list - 1.0 mile radius
〉 Federal RCRA non-CORRACTS TSD facilities list - 0.5 mile radius
〉 Federal RCRA generators list - property and adjoining properties
〉 Federal ERNS list - property only
〉 State-equivalent NPL list - 1.0 mile radius
〉 State-equivalent CERCLIS list - 0.5 mile radius
〉 State landfill and/or solid waste disposal site lists - 0.5 mile radius
〉 State leaking UST list - 0.5 mile radius
〉 State registered UST list - property and adjoining properties

2. The following *additional environmental record sources* may have been reviewed, at the discretion of the environmental professional, to enhance and supplement the *standard environmental record sources*:

- Michigan Department of Environmental Quality;
- County Health Department;
- Local Fire Department; and
- Local Building Department.

Written information requests may have been made instead of oral interviews with local governmental officials. These agencies typically require a written request prior to processing requests for information.

3. A USGS 7.5 Minute Topographic Map was used to identify the physical setting of the *property* and immediate surrounding areas.
4. A USGS soils map and database was used to asses soils and aquifer vulnerability. Other information sources may also be utilized to determine the soil and/or groundwater conditions in the vicinity of the *property.* at the discretion of the environmental professional.
5. Readily available geotechnical reports, environmental reports, or other relevant documents pertaining to environmental conditions at the *property* and adjoining properties may also have been viewed at the discretion of the environmental professional.

6. Reasonably available and practically reviewable standard historical sources are utilized to determine the historical use of the *property*. This task requires reviewing only as many of the standard historical sources as are necessary and both reasonably ascertainable and likely to be useful, at the discretion of the environmental professional. The *standard practice* includes, but is not limited to the following sources as standard historical sources:

    - Aerial photographs;
    - Fire insurance maps;
    - Property tax files;
    - Recorded land title documents;
    - USGS topographic maps;
    - Local street directories;
    - Building department records;
    - Zoning/land use records; and
    - Other historical sources.

7. A *site reconnaissance* of the *property* and *adjoining properties* (as feasible) was conducted. The *site reconnaissance* consisted of:

    - The periphery of the *property* was observed;

- The periphery of any structures on the *property* was observed;
- The *property* was observed from all adjacent public thoroughfares;
- Any roads or paths with no apparent outlet were observed;
- Accessible common areas, maintenance and repair areas, and a representative sample of occupant spaces of any structures at the *property* were observed; and
- *Adjoining properties* were observed as feasible.

8. One or more, as appropriate, of the following individuals was interviewed with regard to past and present uses of the *property* and its vicinity:
   - The current owner;
   - The key site manager of the *property*;
   - Past owners of the site as feasible;
   - Current and past occupants as feasible; and
   - Others with knowledge of the *property*, such as public agencies, nearby property occupants as appropriate (i.e. for abandoned properties) and feasible, local publications or "commonly known" sources as readily available.

9. A limited screening for suspected asbestos-containing materials (SACM) was conducted using visual observations of readily assessable areas of the *property*. No sampling was performed.

10. The results of the foregoing are described in Section 8.0 of this report entitled "Findings and Opinions", including:
    - Any known or suspected *recognized environmental conditions*, *historical environmental conditions*, *controlled recognized environmental conditions*, and *de minimis conditions*.
    - Opinions on the impact of these conditions and recommendations regarding additional appropriate investigation are provided. The significance of any identified *data gaps* is provided.

Section 4.5.2 of the *standard practice* states that *all appropriate inquiry* does not mean an exhaustive assessment of a clean *property*. There is a point at which the cost of information obtained or the time required to gather it outweighs the usefulness of the information and, in fact, may be a material detriment to the orderly completion of transactions. One of the purposes of this practice is to identify a balance between the competing goals of limiting the costs and time demands inherent in performing an

environmental site assessment and the reduction of uncertainty about unknown conditions resulting from additional information.

Section 4.5.3 of the *standard practice* states that not every *property* will warrant the same level of assessment. Consistent with good commercial or customary practice, the appropriate level of environmental site assessment will be guided by the type of *property* subject to assessment, the expertise and risk tolerance of the user, and the information developed in the course of the inquiry.

1.7 Significant Assumptions

Sierra Environmental Consultants, LLC assumes that the information provided by the user, regulatory databases, regulatory agencies, and interviews is accurate and that no pertinent information was withheld.

A generalized estimation of groundwater flow direction has been determined based on topography in the vicinity of the *property*, i.e. the assumption that shallow groundwater flow will follow topography, or on other available resources. No site-specific field measurements of groundwater flow direction, e.g. installation of groundwater monitoring wells, have been performed for this *ESA*. The interpretation of groundwater flow direction as well as proximity and other contaminant fate and transport characteristics are the basis for determining the potential risk for known contamination to impact the *property*. Since all of these factors cannot be definitively known within the scope of work defined by the Standard Practice, professional judgment is intrinsic to the process. Additionally, *Sierra Environmental Consultants, LLC* may also rely upon certain verbal information, representations and upon provided documents, both public and private in nature.

We may not attempt to independently verify the accuracy of this information, unless we detect any inconsistency or omission of a nature that might call into question the validity of any of this information. To the extent that the conclusions in the report are based in whole or in part on such information, they are contingent on its validity.

1.8 Limitations and Exceptions

Environmental site assessments are inherently limited in the sense that conclusions are drawn and recommendations developed from information obtained from limited research and evaluation. During the course of a site evaluation, information prepared by others is often necessary. *Sierra Environmental Consultants, LLC* is not responsible for the accuracy of such information.

Sierra Environmental Consultants, LLC cannot warrant the accuracy, completeness, currency, merchantability, or fitness of any information related to records review provided in this *ESA*. Such information is not the product of an independent review conducted by *Sierra Environmental Consultants, LLC*, but is only publicly available information maintained by government agencies, and aggregated by an independent third party supplier. Neither can *Sierra Environmental Consultants, LLC* warrant against the consequences of any *data gap* resulting from a lack of, or an inability to obtain, information required by current standards and practices, despite good faith efforts by the environmental professional or the prospective landowner or grant recipient to gather such information.

The environmental characteristics of the *property* and surrounding properties might change over time. This report does not warrant against future operations or conditions, nor does it warrant operations or conditions present of a type or at a location not investigated, or from information that may have changed but was not updated or was misrepresented in the obtained files.

Sierra Environmental Consultants, LLC will analyze the information obtained in this limited investigation in keeping with existing standards and practices. Other than indicated, this scope of work is not intended to address compliance with any federal, state or local statutes, regulations ordinances or codes.

This report is not legal advice and should not be construed or relied upon by anyone as such. *Sierra Environmental Consultants, LLC* recommends that you consult with an attorney specializing in environmental or real estate issues for guidance on all legalities related to the project and interpretation of environmental law.

In addition to the foregoing, the following limitations and exceptions to the *standard practice* apply to this report:

- The tribal reservation search only identifies Indian-administered lands that are equal to or greater than 640 acres.

- *Data gaps* identified during this *ESA* are discussed in the appropriate section of this report for the type of *data gap* identified. For instance, a *data gap* in the historical use of the *property* would be discussed in Section 5.1 (Summary of Historical Use of the Property) of this report while a *data gap* related to access the structures at the *property* would be discussed in Section 6.0 (Site Reconnaissance) of this report. Significant data gaps are summarized in Section 8.0 (Findings and Opinions) of this report.

Deviations and additions to the *standard practice* are discussed in Section 10.0 (Deviations) of this report.

1.9 Special Terms and Conditions

There were no special terms or conditions for this report.

1.91 User Reliance

Sierra Environmental Consultants, LLC conducted this ESA for the use of Mr. Bill Underdown (the user). This report is the property of Sierra Environmental Consultants, LLC. It is intended for the sole use of the user, and may not be used or relied upon by any third party without the written consent of Sierra Environmental Consultants, LLC. Any re-use of, or reliance on this report, in full or in part, is strictly prohibited unless authorized by the express written permission of Sierra Environmental Consultants, LLC or it's assignees.

2.0 SITE DESCRIPTION

The location and legal description of the *property*, general characteristics of the site and vicinity, the current use of the *property*, a description of structures, roads, and other improvements on the *property*, and the current uses of the adjoining properties are presented below.

2.1 Location and Legal Description

Address	324 Center Street, Douglas, MI
County	Allegan
General Description	Residential
Legal Description	Appendicized
Vicinity Map	Appendicized

2.2 Site and Vicinity General Characteristics

Area	About 7.5 acres m/l
Surface Cover	Residential structures and mixed vegetation
Land Use in Vicinity	mixed
Site plan	Appendicized

2.3 Current Use of the Property

Current Use	Residential

Current Owner	William Renkema

2.4 Description of Structures, Roads, Other Improvements on Site

Structures	Residential home and outbuilding
Access	Access is provided via Center Street
Parking	Parking is available
Water Supply	Municipal
Sewage Disposal	Municipal
Utilities	Natural gas, electricity, and telephone available

2.5 Current Uses of the Adjoining Properties

North	Residential
South	Residential
East	Residential
West	Residential

3.0 USER PROVIDED INFORMATION

This section describes information provided by the user to help identify possible *recognized environmental conditions* in connection with the *property.*

3.1 Title Records

A title commitment was provided by the user (appendicized) which did not indicate increased environmental risk to the property.

3.2 Environmental Liens, Activity Use Limitations (AUL), Institutional Controls

The Standard Practice does not require that the Environmental Professional perform searches for Environmental Liens, Activity Use Limitations (AUL), or Institutional Controls, since the user(s) are responsible for providing this information to the environmental consultant. The Standard Practice requires that these searches must be performed not only in land title records but also in judicial records for those jurisdictions where that information is maintained. It is the user' responsibility to ensure that judicial records are searched in those jurisdictions when ordering title searches.

- A title commitment was provided by the user (appendicized) which did not indicate Environmental Liens, Activity Use Limitations (AUL), or Institutional Controls at the property.

3.3 Specialized Knowledge

No specialized knowledge was reported.

3.4 Commonly Known or Reasonably Ascertainable Information

No commonly known or reasonably ascertainable information was reported.

3.5 Valuation Reduction for Environmental Issues

No value reductions were reported.

3.6 Owner, Property Manager, and Occupant Information

William Renkema was identified as the owner of the *property*.

3.7 Reason for Performing Phase I

The purpose for performing this *ESA* is for due diligence purposes in anticipation of a commercial real estate transaction.

3.8 Other

NA

4.0 RECORDS REVIEW

As required by the *standard practice*, sites with known releases of hazardous substances, physical settings, and historical information sources are analyzed. In accordance with Section 3.2.65 and 3.2.73 of the *standard practice*, *Sierra Environmental Consultants, LLC* only reviewed records that were both reasonably ascertainable and practically reviewable.

4.1 Standard Environmental Record Sources

A search of state environmental agency and federal listings was performed (the database search report is included in Appendix V). The purpose of this search is to identify potential, suspected, or known sources of contamination on, or in the area of, the *property*. The database searched the various agency listings for different approximate minimum search distances from the *property*, based upon the relative potential threat represented by each listing as established in the *standard practice*.

Sierra Environmental Consultants, LLC evaluated sites identified within the search radii to determine if they are likely to have adversely affected the *property*. The criteria used to evaluate the potential for adverse effect include:

- Proximity to the *property*;
- Expected depth and direction of ground water and surface water flow;
- Hydrogeologic characteristic of the soil in the vicinity of the *property*;
- Expected storm water flow direction; and
- The presence/absence of documented contaminant releases at nearby sites and at the Subject Property.

4.11 State and Federal Record Searches

The following databases (and their respective search distances) were searched for this ESA, and each one meets or exceeds it's respective ASTM minimum search distance (Shown in miles)

〉 Federal NPL site list - 1.0 mile radius

〉 Federal CERCLIS list - 0.5 - mile radius

〉 Federal CERCLIS NFRAP site list - property and adjoining properties -

〉 Federal RCRA CORRACTS facilities list - 1.0 mile radius

〉 Federal RCRA non-CORRACTS TSD facilities list - 0.5 mile radius

〉 Federal RCRA generators list - property and adjoining properties

〉 Federal ERNS list - property only

〉 State-equivalent NPL list - 1.0 mile radius

〉 State-equivalent CERCLIS list - 0.5 mile radius

〉 State landfill and/or solid waste disposal site lists - 0.5 mile radius

〉 State leaking UST list - 0.5 mile radius

〉 State registered UST list - property and adjoining properties

4.12 Tribal Record Sources

Based on the site reconnaissance and records review, no Indian Reservations were identified within the vicinity of the *property*.

4.13 Discussion of Records Review

The E1527-13 Standard Practice requires review of agency files when the property or adjacent properties are identified on one of the standard databases that are required to be searched to determine if a REC, CREC, HREC or de minimis condition exists at the property. A file review is not required if supported by a sound rationale as to why the review is unnecessary. Alternatively, the consultant can rely on records provided from other sources (e.g., user-provided records or interviews with regulatory officials) to determine if there is sufficient information for identifying RECs.

- The Subject Property is not a listed site of known or suspected contamination.
- The remaining listed sites exhibit a low potential for material threat the Subject Property for one or more of the following reasons:
  - Contaminant transport characteristics for contaminants known to exist at nearby listed sites exhibit a low potential for material threat to the Subject Property when considered along with the combination of:
    - inferred groundwater migration direction
    - topography
    - relative proximity to the Subject Property
  - Any nearby registered UST sites, RCRA Generator sites (CESQG, SQG, LQG), and TSD Facilities may or may not be confirmed "release" locations and thus may exhibit a low potential for material threat to the Subject Property unless they are also on one of the other lists.
  - Brownfields (ACRES sites) can include presence or potential presence of a hazardous substance, pollutant, or contaminant, or they may simply be "blighted", a term which is not reliant on any of those conditions. By evaluating the readily ascertainable and practically reviewable information about these, a determination can be made as to the potential for material threat to the Subject Property.
  - The regulatory status of a particular listed site on any list (e.g. closed) indicate a low potential for material threat to the Subject Property.
  - By evaluating the readily ascertainable and practically reviewable information about notes, maps, or other information which may be online or otherwise obtained, a determination can be made as to the potential for material threat to the Subject Property.
  - *Sierra Environmental Consultants, LLC* may have file information on hand from other projects from which a determination can be made as to the potential for material threat to the Subject Property.
  - *Sierra Environmental Consultants, LLC* may have interviewed state, federal, or local regulatory personnel who may have knowledge from which a determination can be made as to the potential for material threat to the Subject Property.
  - A site on any list may be in error, based on other information known about that site.
- Any off-site source which impacts the Subject Property, is subject to Michigan's Part 201 of PA 451, Part 20126 (4)(c), which states: "*The owner or operator of property onto which contamination has migrated unless that person is responsible for an activity causing the release that is the source of the contamination.* "

4.2 Soil Gas/Vapor Migration Pathway

The E1527-13 Standard Practice only requires an opinion on a soil gas/vapor risk if there is a soil gas condition that qualifies as REC and it has been determined that the pathway poses an actual risk to human health. In many cases, the mere presence of contaminated vapors in soil gas may simply be a de minimis condition. Sub-slab or indoor air sampling to confirm if the vapor pathway is completed (exposures are occurring) or to determine the indoor air contaminant concentrations is outside the scope of E1527-13.

If the source of the contaminated vapors is an on-site source, that condition will be flagged as a REC. Thus, from a practical standpoint, identifying the vapor pathway as a REC will only be an issue when contaminated vapors are migrating onto the property from an off-site source. The factors used in evaluating this potential are outlined in Section 4.13.

- This assessment did not identify any likely nearby off-site sources with a strong potential to create a soil gas/vapor pathway migrating to the Property.
- Based on the foregoing, the potential for vapor intrusion risk is minimal.

4.3 Additional Environmental Record Sources

Additional environmental record sources are sometimes reviewed to supplement the standard environmental record sources. Only reasonably ascertainable and sufficiently useful, accurate, and complete records are used when and as necessary. Standard historical sources reviewed as part of a prior environmental site assessment do not need to be searched or reviewed again except to identify uses of the *property* since the prior environmental site assessment.

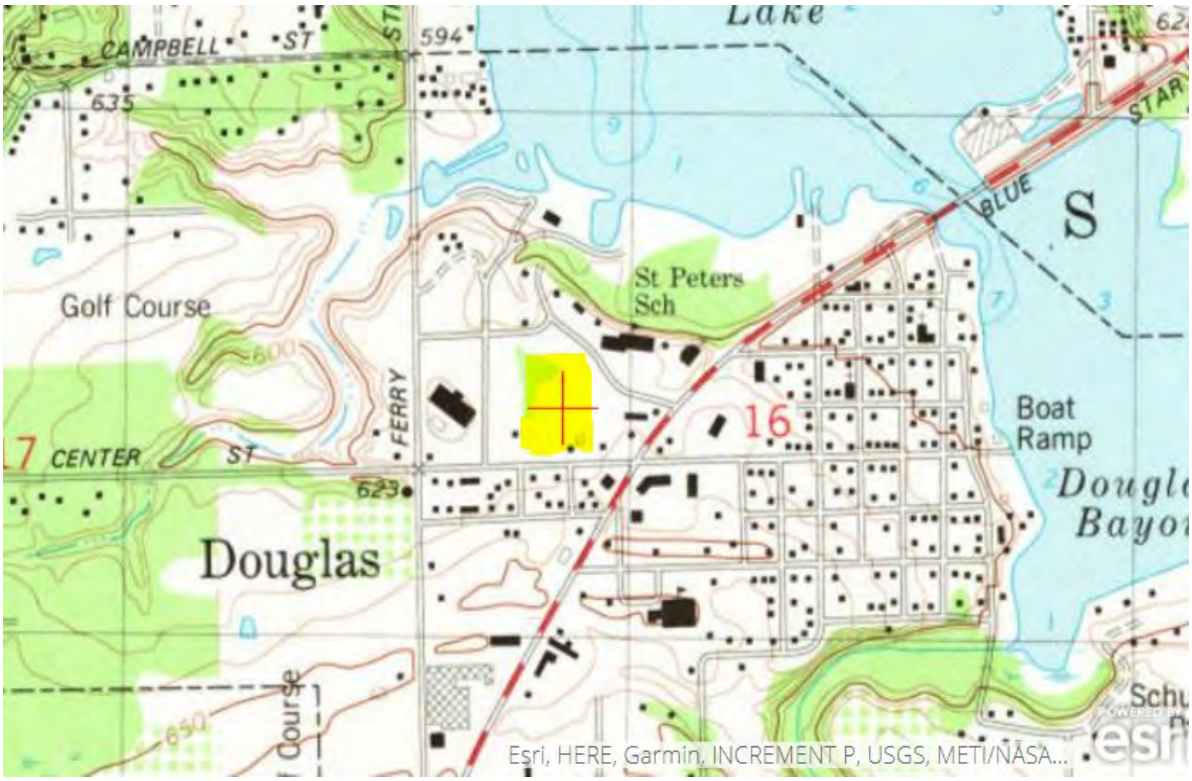
- NA

4.4 Physical Settings Sources

The objectives of reviewing physical setting sources are to locate the *property* relative to known sites of environmental contamination, to infer groundwater depth and migration direction, and to help identify potential contaminant migratory pathways. Monitor wells were not installed on-site as part of this *ESA*; therefore, the depth to and direction of groundwater at the *property* is uncertain. Frequently, near-surface unconfined groundwater gradients mimic topographic gradients. Many factors can affect the groundwater flow direction and velocity; including, but not limited to: spatial variations in the geologic materials present in the subsurface; man-made influences and structures; subsurface man-made conduits relative to the utilities servicing the area; and regional groundwater flow gradient may be altered proximal to the intermittent creeks and the groundwater flow direction may change seasonally in these areas.

4.41 USGS 7.5 topographical quadrangle

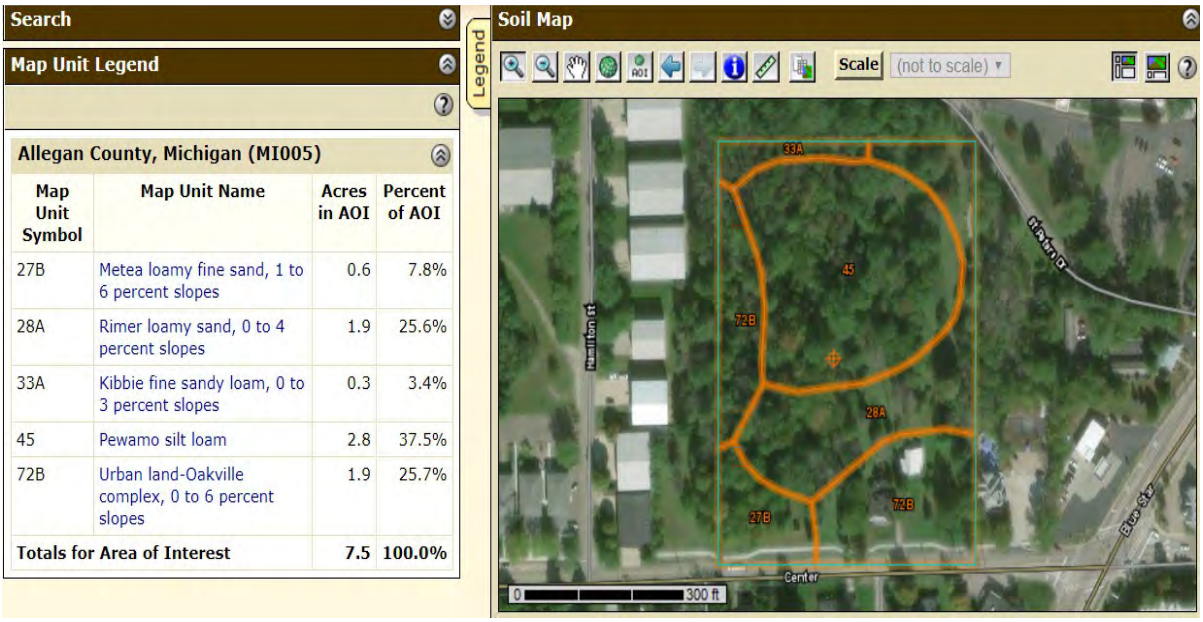
The objectives of reviewing this map are to locate the Subject Property relative to known sites of environmental contamination, to infer groundwater depth and migration direction, and to help identify potential contaminant migratory pathways. *Sierra Environmental Consultants, LLC* viewed a USGS 7.5 topographical quadrangle covering the *property*.



Elevation	Approximately 625 - 640 feet above sea level
Topographic Gradient (*property*)	Northeast
Topographic Gradient (vicinity)	Northeast
Nearest Surface Water	Kalamazoo Lake is located less than 1 mile northeast of the *property*.
Groundwater Flow Direction	Based on the topography of the vicinity of the *property* and the nearby surface water, groundwater flow at the Property is likely to primarily move north-northeast towards Kalamazoo Lake.
Depth to Groundwater	The depth to groundwater at the *property* is likely less than 20 feet.

Note: Monitor wells were not installed on-site as part of this Phase I EA; therefore, the depth to and direction of groundwater at the Subject Property is uncertain. It is important to note that many factors exist which can affect the groundwater flow direction and velocity, and which can only be determined with certainty by performance of a site-specific hydrogeological evaluation.

4.42 USDA Soils Map



Allegan County, Michigan (MI005)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
27B	Metea loamy fine sand, 1 to 6 percent slopes	0.6	7.8%
28A	Rimer loamy sand, 0 to 4 percent slopes	1.9	25.6%
33A	Kibbie fine sandy loam, 0 to 3 percent slopes	0.3	3.4%
45	Pewamo silt loam	2.8	37.5%
72B	Urban land-Oakville complex, 0 to 6 percent slopes	1.9	25.7%
Totals for Area of Interest		7.5	100.0%

The objectives of reviewing the soil and geology in the vicinity of the *property* are to utilize known soil characteristics to infer soil contaminant adsorption potential and potential contaminant mobility. If a release of a regulated contaminant were to occur at the *property* ground surface or subsurface, the potential for near-surface groundwater impact would be moderate. No such release at the property was identified.

5.0 HISTORICAL USE INFORMATION

According to the *standard practice*, all obvious uses of the *property* shall be identified from the present, back to the *property*'s first developed use (including agricultural uses and placement of fill dirt), or back to 1940, whichever is earlier.

5.1 Historical Use Summary of the Property

A summary of the historical usage of the *property* based on the information collected from the sources outlined above is presented below. Data gaps of more than 5 years are identified and *Sierra Environmental Consultants, LLC* opinion on the significance of the data gap is provided.

- The Property was first developed in the about 1901 as a residential parcel. A barn was added later. The house and barn remain presently. Aside from the footprint of the house and barn, it appears that most of the property is wooded and undeveloped, and has been so for many years.

5.2 Historical Use Information Sources

This task requires reviewing only as many of the standard historical sources (list in Section 1.2 as are necessary and both reasonably ascertainable and likely to be useful. Review of standard historical sources at less than five-year intervals is not required by the *standard practice*.

Standard historical sources reviewed as part of a prior environmental site assessment do not need to be searched or reviewed again except to identify uses of the *property* since the prior environmental site assessment.

Aerial Photographs

Historical aerial photography is often useful in identifying past usages of a *property* or surrounding area, building locations, and discernible notable features, which may indicate potential environmental concerns with regard to the *property* and/or surrounding area. The quality and scale of the aerial photographs often limit *Sierra Environmental Consultants, LLC* ability to make detailed observations and conclusions regarding the historical uses of the p*roperty* and adjoining properties.

- *Sierra Environmental Consultants, LLC* reviewed the full series of aerial photos available at Historical Aerials dot com. The photographs do not provide additional information regarding the site history relative to that obtained through other sources.

Fire Insurance Maps

Sanborn Fire Insurance Maps are historical map records of fire prevention hazards for specific urban areas. These maps often provide data that sometimes can be used to determine the presence of underground and aboveground storage tanks (USTs/ASTs), type of building materials, location of flammable material storage, and types of businesses that occupied a particular site. Sanborn Fire Insurance Maps typically are dated from the late 1800's to the 1950's, and include updates for selected areas as recently as 1990.

- Sanborn Map Coverage not available for this area.

Property Tax Files

Property tax files are maintained for *property* tax purposes by the local jurisdiction and may include records of past ownership, appraisals, maps, sketches, photographs, or other information pertaining to a *property*.

Online property tax records were reviewed from Allegan County's website (appendicized). No recent splits were registered, and no delinquent taxes were shown.

Recorded Land Title Records

Land title records include records of fee ownership, leases, land contracts, easements, liens, and other encumbrances on or of the site, recorded in the place where land title records are, by law or custom, and recorded for the local jurisdiction in which a *property* is located. Typically, the municipal or county recorder or clerk maintains these records.

- A title commitment was provided by the user (appendicized) which did not indicate increased environmental risk to the property.

USGS Topographic Maps

Historical topographic maps may indicate the presence of structures, roads, standing water, orchards, and other significant features. Elevation data is also presence, which may be used with more current data to determine if filling, or cutting of soil has occurred at the *property*. Sierra Environmental Consultants, LLC performed a review of readily available of historical topographic maps for the *property*.

Year	Summary
1918, 1951, 1969, 1973, 1985,1989	No environmental issues identified

Local Street Directories

Local street directories are published by public and private sources and show occupancy and/or use of properties by reference to street address.

- NA

Building Department Records

The local government maintains Building Department records. These records indicate permission of the local government to construct, alter, or demolish improvements on a specified *property*. Frequently, information regarding the dates of installation and/or removal of USTs, municipal sewer, and water connections, and natural gas or electrical service installation is contained in these records.

- The property is connected to municipal water and sewer per code since 1977.

Zoning/Land Use Records

Zoning ordinances, enacted by the local government, indicate the uses permitted by the local government in particular zones within the limits of its jurisdiction. Various local government offices such as the Planning Department or Commission maintain zoning/land use records.

- NA

Other Historical Sources: Previous Environmental Evaluations

The term "other historical sources" refers to any source or sources other than standard historical sources that are credible to a reasonable person, and that identify past uses of the *property*. This category includes miscellaneous maps, newspaper archives, and records or personal knowledge of the *property* owner or occupants. Historical use information from the *property* owner(s) and/or occupants is presented in Section 7.0 (Interviews) of this report. Standard historical sources reviewed as part of a prior environmental site assessment do not need to be searched or reviewed again except to identify uses of the *property* since the prior environmental site assessment.

- NA

5.3 Historical Use Information on the Adjoining Properties

The historical sources used in Section 5.2 to determine the historical use of the *property* were also used to determine the general historical use of the adjoining properties.

North adjoining	Residential/wooded
South adjoining	Residential/wooded
East adjoining	Residential/wooded
West adjoining	Residential/wooded

No *recognized environmental conditions* were identified at the *property* as a result of historical uses of the adjoining properties.

6.0 SITE RECONNAISSANCE

The purpose of the *property* reconnaissance is to obtain visual information to help identify potential *recognized environmental conditions* in connection with the *property.*

6.1 Methodology and Limiting Conditions

The *standard practice* requires that the periphery of the *property* shall be visually and/or physically observed as well as the periphery of all structures on the *property*, and the *property* shall be viewed from all adjacent public thoroughfares. On the interior of structures on the *property*, accessible common areas

expected to be used by occupants or the public (such as lobbies, hallways, utility rooms, recreation areas, etc.) maintenance and repair areas, including boiler rooms, and a representative sample of occupant spaces, should be visually and/or physically observed. Looking under floors, above ceilings, or behind walls is not necessary. Also in accordance with the *standard practice*, *Sierra Environmental Consultants, LLC* did not attempt to gain access into exterior areas not readily accessible to an occupant or visitor to the *property* such as beneath ground cover or water filled areas.

Date of Site Reconnaissance	09/19/17
Site Reconnaissance Conducted By	David G. VerSluis, REPA
Methodology	See the Section 1.2 of this report.
Limiting Conditions	None
Photographs	Appendicized

6.2 General Site Settings

The general site settings of the *property* are discussed below. Identified conditions may be discussed following the table.

Current Uses of the *property*	Residential/wooded
Past Uses of the *property*	Residential/wooded
Current Uses of the Adjoining Properties	See Section 2.5 of this report.
Past Uses of the Adjoining Properties	See Section 5.3 of this report.
Current or Past Uses in the Surrounding Area	See Section 2.5 and Section 5.3 of this report
Geologic, Hydrogeologic, Hydrologic, and Topographic	See Section 4.3 of this report.
General Description of Structures	See Section 2.4 of this report.
Roads	See Section 2.4 of this report.
Potable Water Supply	municipal
Sewage Disposal System	municipal

6.3 Exterior Observations

Exterior observations of the *property* are discussed below. Identified conditions may be discussed following the table.

Current Use(s) of the *property*	Residential/wooded
Past Use(s) of the *property*	Residential/wooded
Hazardous Substance Use (Identified *property* uses)	None observed
Evidence of Storage Tanks	None observed.
Strong, pungent, or noxious odors	None observed
Pools of Liquids	None observed
Drums	None observed
Hazardous Substance Containers (non-identified *property* uses)	None observed
Unidentified Substance Containers	None observed
Equipment likely to contain PCBs	None observed
Pits, Ponds, or Lagoons	None observed
Stained Soil or Pavement	None observed.
Stressed Vegetation	None observed
Solid Waste Disposal	None observed.
Waste Water Discharges	None observed
Wells (monitor, water, dry, etc.)	None observed
Septic System or Cesspools	None observed
Wetlands	None observed

6.4 Interior Observations

Interior observations of the *property* are discussed below. Identified conditions may be discussed following the table.

Current Use(s) of the *property*	Residential
Past Use(s) of the *property*	Residential
Hazardous Substance Use (Identified *property* uses)	None observed
Evidence of Storage Tanks	None observed
Strong, pungent, or noxious odors	None observed
Pools of Liquids	None observed
Drums	None observed
Hazardous Substance Containers Non-identified *property* uses	None observed

Unidentified Substance Containers	None observed
Equipment likely to contain PCBs	None observed.
Heating and Cooling Sources	None observed.
Stains or Corrosion	None observed
Drains and Sumps	None observed.

7.0 INTERVIEWS

These sections detail *Sierra Environmental Consultants, LLC* attempts to interview relevant personal related to the *property.*

7.1 Interview with Owners Representative

Owner/landlord William Renkema could not be reached for comment as of report publication.

This represents a data gap that would not rise to the level of significance necessary to affect the outcome of the report, given the weight of the other evidence evaluated.

7.2 Interview with Site Manager

Residential tenant not home at time of site visit.

This represents a data gap that would not rise to the level of significance necessary to affect the outcome of the report, given the weight of the other evidence evaluated.

7.3 Interview with Occupants

See 7.1 above

7.4 Interview with Local Government Officials

NA

7.5 Interview with Others

NA

8.0 FINDINGS AND OPINIONS

As required by the *standard practice*, this section identifies known or suspect *recognized environmental conditions*, *historical recognized environmental conditions*, and *de minimis conditions* in connection to the *property.* Significant *data gaps* are also discussed in this section.

1. Significant data gaps
    - No significant gaps identified.
2. Property listed as a site of known or suspected contamination.
    - None identified
3. Underground storage tanks on site
    - None identified
4. Environmental Questionnaire response from User
    - No issues identified
5. *Recognized Environmental Conditions* at the Property
    - None identified
6. *Historical Environmental Conditions* at the Property:
    - None identified
7. *Controlled Recognized Environmental Conditions* at the Property:
    - None identified
8. *De minimis Conditions* at the Property:
    - None identified
9. Other issues identified at the Property:
    - None identified

9.0 CONCLUSIONS

The *standard practice* requires that all *recognized environmental conditions* in connection with the *property* be summarized in the conclusion section of the report.

Sierra Environmental Consultants, LLC has completed this *Phase I Environmental Site Assessment* (*ESA*) for 324 Center Street, Douglas, Allegan County, Michigan (the *property*). This *ESA* has been completed in conformance with the scope and limitations of ASTM International E 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (the *standard practice*). Any exceptions to or deletions from the *standard practice* are described in Section 1.4 of this report.

This ESA has not revealed evidence of recognized environmental conditions (RECs) associated with the property.

10.0 DEVIATIONS

Refer to Section 1.4 (Limitations and Exceptions) of this report for any limitations and exceptions to the *standard practice*. Deletions, deviations, and additions to the *standard practice* are described below.

Deletions
No deletions to the *standard practice* were made for this ESA.

Deviations
This *ESA* included the following deviations to the *standard practice*:

1. This report generally follows the recommended report format in the *standard practice*. Additional subsections have been added throughout the report to assist with the readability of the report. Specific changes include:

    - A new section (Historical Use Information) was created to include the Historical Use Information on the Property and Historical Use Information on the Adjoining Properties subsections. These subsections were removed from the Records Review section of this report.

    - Subsections 5. (Summary of the Historical Use of the Property), 5. (Historical Use Information Sources), and Historical Use Information on the Adjoining Properties were added to the Historical Use Information section of this report. Subsection 6.3 (Interior and Exterior Observations) was added to the Site Reconnaissance section of this report.

    - The Findings section and Opinions section were combined to form the Findings and Opinions section of this report.

2. Written information requests may have been made instead of oral interviews with local governmental officials. Local agencies typically require a written request prior to processing requests for information. Responses from these agencies may not be received within the time allotted for this *ESA*.

Additions

This *ESA* included the following additions to the *standard practice*:

1. Significant *data gaps* that may affect the conclusions of this report are discussed in the Findings and Opinions section of this report.

2. The Remediation and Redevelopment Division of the MDEQ maintains two lists of leaking underground storage tank (LUST) sites. The "closed" list contains sites that have been remediated to the satisfaction of the MDEQ. These sites are not likely to present a material threat to human health or the environment. Therefore, "closed" LUST sites are only discussed if they are located on or adjoining the *property*.

11.0 ADDITIONAL SERVICES

Sierra Environmental Consultants, LLC did not perform any services outside the *standard practice* for this *ESA*.

12.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

As required by 40 CFR 312.21(d) and the *standard practice*:

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental professional as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

David G. VerSluis, REPA

Managing Member

13.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL

Sierra Environmental Consultants, LLC' Mission Statement, as an organization of environmental professionals, is to provide knowledgeable decisions relating to the planning and management of environmental activities in which industry, government, and the general public may place their complete confidence. This includes responding to changing legislation and client needs with practical, innovative, and cost-effective environmental solutions. In addition, *Sierra Environmental Consultants, LLC* adheres to the Code of Professional Practice prepared by the National Registry of Environmental Professionals (NREP). *Sierra Environmental Consultants, LLC* personnel directly involved in the technical performance of this Phase I *ESA* included:

David G. VerSluis, Jr., R.E.P.A., holds a B.S. in Industrial and Environmental Health Management from Ferris State University in Big Rapids, Michigan. After graduation, Mr. VerSluis gained experience with a series of environmental engineering and consulting firms, and he developed expertise in the assessment, investigation, and remediation of contaminated soil and groundwater from a multitude of sources. In 1993, Mr. VerSluis founded *Sierra Environmental Consultants, LLC*, and the company has become a recognized leader in the field of environmental consulting. As a result of Mr. VerSluis' consulting experience, the company has diversified to included other services and products dedicated to pollution prevention.

Mr. VerSluis has served as a member of the Michigan Economic Developers Association (MEDA), the SBA's Economic Development Foundation, Certified (EDFC), the Michigan Rural Water Association (MWRA), the Michigan Water Environment Association (MWEA), past member of the "Ethics and Standards" committee of the Michigan Environmental Consultants and Contractors Association (MECCA), and has been a Selected, Honored member of the National Directory of "Who's Who" for Executive Professionals since 1995. Mr. VerSluis has taught the environmental seminar for the Small Business Administration's annual "Lender's Conference" in Lansing, Michigan since it's inception in 2001.

Mr. VerSluis has been a Registered Environmental Property Assessor (REPA) certified by the National Registry of Environmental Professionals (NREPA) since 1992, and is the Managing Member of *Sierra Environmental Consultants, LLC*. Mr. VerSluis has provided environmental expertise to several thousand successful Real Estate Transactions.

14.0 REFERENCES

The *standard practice* requires that supporting documentation shall be included in the report or adequately referenced to facilitate reconstruction of the *ESA* by an environmental professional other than the environmental professional who conducted it. The following sources are commonly used by *Sierra Environmental Consultants, LLC* during a Phase I *ESA*:

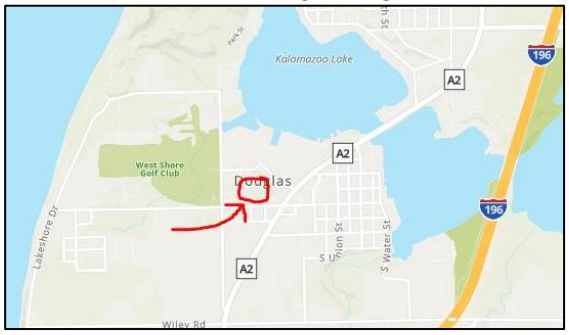
Information	Source
Standard practice	ASTM International. 2005. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, E 1527-05. West Conshohocken, PA.
Prior Assessments	See page 19 of this report.
User Provided Information	
Title Records	*User* provided title records.
User	The *user* is identified in Section 1.6 (User Reliance) of this report.
Records Review	
Federal, State, and Tribal	Environmental Discovery Inc. *RadiusSearch Report*®. Batavia, IL, or Nationwide Environmental Title Research, LLC
Regulatory Agency	Local district office of the Michigan Department of Environmental Quality
Health Department	Local Health Department
Fie Department	Local Fire Department
Building Department	Local Building Department
Physical Settings Sources	
Topographic Map	U.S. Department of Interior, Geological Survey. Reston, VA.
Historical Sources	
Aerial Photographs (one or more)	County Equalization, Geographic Information Systems (GIS), or Property Description and Mapping departments, msrmaps, Google Earth, USDA, USGS, Terrafly, Landvoyage, Nationwide Environmental Title Research, LLC
Soils maps	USDA Natural Resources Conservation Service (NRCS)
Fire Insurance Map, Atlases (one or more)	Public Library, Library of Congress, ProQuest
Property Tax Files	Local Assessor and/or County Equalization Department, County GIS system, or user
Recorded Land Title Records	Title records if provided by the *user*
Topo Maps (one or more)	Public Library, topoquest.com, Topozone, digital-**topo-maps**.com, trails.com
City Directories	Public Library
Building Department	Local Building Department
Zoning/Land Use	County or local zoning Dept
Interviews	Interviews
Owner	
Key Site Manager	See page 24 of this report.
Occupants	See page 24 of this report.
Local Government Officials	See page 16 of this report.
Others	See page 24 of this report.

Appendix I – Site Plan

WETLAND AND THREATENED SPECIES REVIEW AND SITE ASSESSMENT
Centre Collective, Village of Douglas, Allegan County, Michigan

BACKGROUND

Plans are underway for the development of a new residential community in the Village of Douglas, on the western edge of Allegan County, in southwest Michigan. Client requested that Aamazon Natural Resources Consulting, LLC (ANRC) conduct a review regarding the potential for the occurrence of wetlands on the proposed tower site property, and the potential for occurrences of State-protected or federally protected plant or animal species on or near the project area.



The site is located on the north side of Center Street, just west of Highway A2, in the Village of Douglas, Saugatuck Township (Section 16, T3N, R16W). See location map, right.

SUMMARY OF FINDINGS

Wetlands: This site has a small area of wetland but it doesn't meet the criteria to be regulated. No Michigan Department of Environment, Great Lakes, and Energy (EGLE – formerly Dept. of Environmental Quality) wetland or stream permit should be required for the project as proposed.

Protected species: No impacts to any protected plant or animal species are anticipated for the project as proposed. No effects are anticipated for any federally listed species.

This regulatory opinion is subject to review and concurrence by EGLE, the Michigan Dept. of Natural Resources, and the U.S. Fish & Wildlife Service, who are the regulatory authorities in such matters.

Right: Aerial view of project area and approximate project limits

WETLANDS

Existing Wetland Maps

The National Wetlands Inventory (NWI) map for this area (right), from the U.S. Fish & Wildlife website, shows an area of forested wetland (PFO1C) mapped within the proposed project area.

The Wetlands Map for this area (below right) from the MDEGLE website shows an area of wetland and an area of potentially hydric soil mapped within the proposed project area. Shaded areas indicate potential for hydric soils (yellow) and wetland (green).

MDEGLE offers this disclaimer: "This map is not intended to be used to determine the specific locations and jurisdictional boundaries of wetland areas subject to regulation under Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended."

Note: NWI and Wetland Inventory maps are not definitive, are generally inaccurate at a site-specific scale, are not field-verified, and are intended only as a general indicator of the possible presence of wetland and/or hydric soils.

Map Unit Symbol	Map Unit Name
27B	Metea loamy fine sand, 1 to 6 percent slopes
28A	Rimer loamy sand, 0 to 4 percent slopes
31B	Tekenink loamy fine sand, 2 to 6 percent slopes
33A	Kibbie fine sandy loam, 0 to 3 percent slopes
45	Pewamo silt loam
72B	Urban land-Oakville complex, 0 to 6 percent slopes

Soils

There is an indication of hydric soils in the project area (code 45, Pewamo silt loam). However, most soils within the proposed project area on this site are mapped by the USDA Soil Survey (left) as primarily sand, loamy sand, and sandy loam, all non-hydric. See soils descriptions following.

27B, Metea loamy fine sand, 1 to 6 percent slopes: is classified as well drained, has a water table estimated at greater than 80 inches, and typically has no flooding or ponding. Hydrologic group is B, and this soil type is <u>not</u> rated as hydric.

28A, Rimer loamy sand, 0 to 4 percent slopes: classified as somewhat poorly drained, has a water table estimated at about 12 to 30 inches, and typically has no flooding or ponding. Hydrologic group is C/D, and this soil type is <u>not</u> rated as hydric.

33A, Kibbie fine sandy loam, 0 to 3 percent slopes: classified as somewhat poorly drained, has a water table estimated at about 12 to 24 inches, and typically has no flooding or ponding. Hydrologic group is B/D, and this soil type is not rated as hydric.

45, Pewamo silt loam: classified as poorly drained, has a water table estimated at or near the surface, typically has no flooding, but may pond frequently. Hydrologic group is C/D, and this soil type is rated as hydric.

72B, Urban land – Oakville complex, 0 to 6 percent slopes: classified as well drained, has a water table estimated at more than 80 inches, and typically has no flooding or ponding. Hydrologic group is A, and this soil type is not rated as hydric.

Hydrologic Soil Groups
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas, and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes. In Group D, soils have a very slow infiltration rate (high runoff potential) when thoroughly wet. These include: clays with a high shrink-swell potential, soils with a high water table, soils with a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Please note: USDA soil data is generated primarily by remote interpretation, and the information in soils survey data is not confirmed by field-truthing. It is generally inaccurate at a site-specific scale.

Floodplain

The site is not in a FEMA-designated floodplain. See FEMA map panel excerpt, right.

Site Description

This property is a mostly level wooded site, with a mature forest in the center and mowed lawn areas along Center Street. Soils are primarily sandy loam or loamy sand. In some parts of the site, the sandy loam sits over a thin clay lens at a depth of about 18 to 22 inches.

A USGS historic aerial photo from 1997 (left) shows much of the site cleared, with a patch of woods in the northwest part.

An aerial photo from early spring 2011 (left) shows a slightly darker patch of soils in the west center of the site. There is a shallow topographic depression in this area, and it is likely that there was annual ponding in that location.

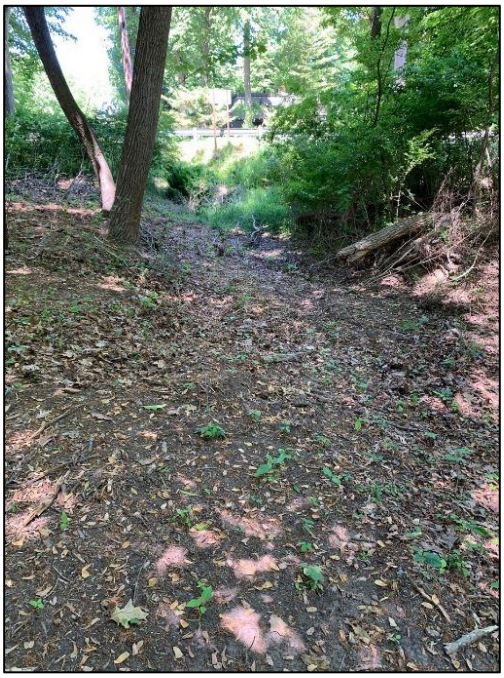
A large percentage of the remaining vegetation on the site consists of non-native species, though there are also many mature and robust oak, maples, and pines.

There is a man-made dry swale in the north end

that conveys surface runoff to the northwest into a culvert going under West Shore Street. This swale does not meet the statutory definition of a stream. To be a stream it requires a) definite banks, b) a bed, and c) visible evidence of continued flow. This has gently sloped banks, but not naturally occurring banks. The lower part of the swale is not scoured and shows no apparent channel, and no evidence of continuing or intermittent flow. (See photo, right.) Vegetation in the swale is very sparse due to it being heavily shaded and full of leaves, and it does not contain wetland species, with the exception of a few feet in a depression at the very west end around the culvert under West Shore Street.

At the time of the second site visit, much of the understory on the site had been cleared, and the ground layer was very heavily disturbed. (See photo below.)

Dry swale east end (above), west end (below)



On-site Survey Summary

We visited the site on May 20 and June 14, 2021. Temperatures were typical for those dates, and no recent extraordinary rain events had occurred. On-site investigation included a survey of dominant plant species in order to characterize habitat types and to document a dominance of upland or wetland indicator plant species, to identify areas meeting the criteria for the State of Michigan definition of wetlands. This survey is not to be construed as a complete inventory of all species which may be present throughout the growing season, but is intended to present representative dominant species for purposes of generally documenting and assessing habitat type. Please see Appendix 2 for a complete plant list.

Area	Predominant Vegetation	Soils	Hydrology
Mowed upland	Canada bluegrass, Kentucky bluegrass, common dandelion, plantain spp.	Disturbed and amended with variable depth topsoil over loamy sand, 10YR 4/3 to 4/4	No hydrologic indicators
Unmowed upland meadow and scrub	Autumn olive, hybrid honeysuckle, Japanese honeysuckle, multiflora rose, alternate-leaved dogwood, privet spp., Japanese barberry, Asian yew, red-cedar, sassafras, oak spp. seedlings, common mullein, Orchard grass, sweet vernal grass, Hungarian brome grass, miscanthus grass, timothy grass, Canada bluegrass, Kentucky bluegrass, white clover, hairy vetch, European ivy, white-top aster, ox-eye daisy, common dandelion, ground ivy, self-heal, motherwort, graceful sedge, stellate sedge, Swan's sedge, common milkweed, periwinkle, garlic mustard, hoary alyssum, dame's rocket, path rush, common chickweed, field garlic, plantain spp., cleavers	Disturbed – may have been farmed at one time Generally: Loamy sand, 10YR 3/2 to 5/4 No saturation or groundwater encountered to a depth of at least 22"	No hydrologic indicators
Upland woods and scrub	White pine, black cherry, red-cedar, Scots pine, white ash, catalpa, white mulberry, sugar maple, red maple, red oak, white oak, black oak, basswood, Asian yew, sassafras, honeysuckle spp., alternate-leaf dogwood, poison ivy, Oriental bittersweet, barberry, autumn olive, Jack-in-the-pulpit, lady fern, sand sedge, garlic mustard, dame's rocket, self-heal, ground ivy	0-13" loamy sand, 10YR 4/3-4/4 13-16" clay, 10YR 6/2 w/~10% mottles 7.5YR 5/6 16-20" sand, 10YR 6/2 20-26" sand, 10YR 5/3 26"+ sand, 10YR 4/4 Sand at about 24" damp but not saturated	No hydrologic indicators
Wet woods	Silver maple, red maple, box-elder, sour-gum, aspen, cottonwood, spicebush, stinging nettle, poison ivy, Virginia creeper, spinulose woodfern, ostrich fern, sensitive fern, yellow-fruited sedge, deer-tongue grass, fowl manna grass, reed canary grass, common reed, jewelweed, white avens	0-15" clay loam, 10YR 3/2 15-18" loamy clay, 10YR 4/3 18-23" clay, 10YR 5/4 w/~10% mottles 7.5YR 4/4 23-27" sandy clay, 10YR 5/3 w/~20% mottles 7.5 YR 4/3 27"+ clayey sand, 10YR 5/4 w/no saturation or groundwater to at least 30"	Topographic depression, buttressed tree roots, stained leaves

In Michigan, a wetland is defined as a community that supports a predominance of plants that are found 50% or more of the time in wetland habitats (each plant species is assigned an indicator status that gives a probability of its occurrence in wetland). Plants with an indicator status of UPL are upland plants. Plants with an indicator status of FAC to FACW to OBL are indicators of wetland conditions.

In making this delineation, we used techniques outlined in the U.S. Army Corps of Engineers Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0). Methodology included investigation and analysis of vegetation, soils, and hydrology, to the extent possible, given the highly disturbed nature of the site.

Above: Approximate extent of site wetlands (less than an acre)

State Regulation

The wetland on this site is less than five acres, is not contiguous to a water body, has no surface flow connection to a water body, and contains no plant or animal species of concern. It would not be regulated under Michigan law.

Michigan is one of two states that have assumed Section 404 (Clean Water Act) administration from the federal government. Michigan wetlands are regulated under Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended. In Michigan, a wetland is defined as a community that supports a predominance of plants that are found 50% or more of the time in wetland habitats (each plant species is assigned an indicator status that gives a probability of its occurrence in wetland).

Looking north toward Center St. - Trees marked to save

Not all wetlands are regulated. In accordance with Part 303, wetlands are regulated if they are any of the following:

- Connected to one of the Great Lakes or Lake St. Clair.
- Located within 1,000 feet of one of the Great Lakes or Lake St. Clair.
- Connected to an inland lake, river, or stream.
- Located within 500 feet of an inland lake, pond, river or stream.
- Not connected to one of the Great Lakes or Lake St. Clair, or an inland lake, pond, stream, or river, but are more than 5 acres in size.
- Not connected to one of the Great Lakes or Lake St. Clair, or an inland lake, pond, stream, or river, and less than 5 acres in size, but the DEQ has determined that these wetlands are essential to the preservation of the state's natural resources and has notified the property owner.

Under Part 303, a person may not do any of the following to a regulated wetland without a permit:
- Deposit or permit the placing of fill material.
- Dredge, remove, or permit the removal of soil or minerals.
- Construct, operate, or maintain any use or development.
- Drain surface water.

To obtain a permit to impact regulated wetlands, the applicant must demonstrate that there are no feasible or prudent alternatives to accomplish the basic project purpose, and that the impacts have been minimized to the greatest extent practicable.

Looking toward northeast part of property

Federal Regulation - Waters of the United States (WOTUS)

In December 2018, the Michigan Legislature amended numerous sections of Public Act 451 of 1994 (Natural Resources and Environmental Protection) including sections pertinent to wetland and water resources protection.

The State definition of “inland lake or stream” was previously as follows:
A natural or artificial lake, pond, or impoundment; a river, stream, or creek which may or may not be serving as a drain as defined by the drain code of 1956, 1956 PA 40, MCL 280.1 to 280.630; or any other body of water that has definite banks, a bed, and visible evidence of a continued flow or continued occurrence of water, including the St. Marys, St. Clair, and Detroit Rivers. Inland lake or stream does not include the Great Lakes, Lake St. Clair, or a lake or pond that has a surface area of less than 5 acres.

The definition was expanded to include any “water of the United States” as defined by The Federal Water Pollution Control Act (commonly known as the “Clean Water Act”). The existing regulatory definition of “waters of the United States” is:
1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
a. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
c. Which are used or could be used for industrial purposes by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under this definition;
5. Tributaries of waters identified in paragraphs (1) through (4) of this section;
6. The territorial sea;
7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

So technically, they could arbitrarily regulate any waters of any size under 3(a), use "*by interstate or foreign travelers for recreational or other purposes."*

The State definition of "wetland" was also significantly amended:

A land or water feature, commonly referred to as a bog, swamp, or marsh, inundated or saturated by water at a frequency and duration sufficient to support, and that under normal circumstances does support, hydric soils and a predominance of wetland vegetation or aquatic life. A land or water feature is not a wetland unless it meets any of the following:

- Is a water of the United States as that term is used in Section 502(7) of the Clean Water Act;

- Is contiguous to the Great Lakes, Lake St. Clair, an inland lake or pond, or a stream. "Pond" does not include a farm or stock pond constructed consistent with the exemption under Sec. 30305(2)(G).

- Is more than 5 acres in size.

- Has the documented presence of an Endangered or Threatened species.

- Is a rare and imperiled [type of] wetland. Starting in 2019, the DNR may recommend changes to this list every five years.

Soil pit – looking toward east side of property

Conclusions

Based on the site visits, and a review of known data, including NWI maps, aerial photos, soils data, and FEMA maps, there are no indications that the site contains regulated wetland. There is a small non-contiguous area of wetland in the center of the property, containing wetland vegetation, wetland soils, and wetland hydrology.

The project as proposed should not require any EGLE permit for wetlands or streams under Part 301 (Inland Lakes & Streams) or Part 303 (Wetland Protection) of PA 451 of 1994, the Natural Resources and Environmental Protection Act.

This report summarizes findings in a format intended to provide easily understood information. We can provide a more detailed technical basis for our conclusions if needed. Soils and water table information in this report relate to State and federal wetland determination methodology. Due to the dynamic nature of wetlands, this wetland review is valid for three years. In the event that conditions on this site or adjacent sites should change, the site should be reviewed again prior to construction. This regulatory opinion is subject to review and concurrence by the Mich. Dept. of Environment, Great Lakes, and Energy, who is the regulatory authority in such matters.

THREATENED AND ENDANGERED SPECIES

A review of Michigan Natural Features Inventory (MNFI) records for State-listed and federally listed species of concern within Allegan County identified historic occurrence records for 157 protected species and species of concern. See complete listing in Appendix 1.

Habitat for each identified protected species was reviewed. The species on this list are not likely to occur within the proposed project area due to the absence of appropriate habitat.

There are MNFI occurrence records for several federally listed species for Allegan County:

- Rusty-patched bumble bee (LE): Three records for this county, most recent 1964. Foraging habitat includes dunes, marshes, forests, farmland, and urban areas. A habitat generalist, it is unlikely to be impacted by this project.
- Pitcher's thistle (LT): Three records for this county, most recent 2013. Found in near-shore open sand dunes with sparse vegetation. Habitat not present here.
- Karner blue butterfly (LE): 27 records for this county, most recent 2017. Uses open sandy areas with lupine, not present on this site.
- Northern long-eared bat (LT): One record for this county from 2000. Lives in deciduous or mixed hardwood-coniferous forests with loose-barked trees, tree hollows, or caves and crevices. There are no known hibernacula or roost trees in Allegan County. USFWS has declined to define Critical Habitat for this species, and states: "*Northern long-eared bats use a wide variety of forested areas in summer to find food and raise their young and are highly flexible in how they meet these needs. As such, there are no specific physical habitat features essential to its conservation. In addition, the bat's summer habitat is not limited or in short supply, habitat loss is not a predominant threat, and there are no areas that meet the definition of critical habitat."*
- Eastern massasauga rattlesnake (LT): 20 records for this county, most recent 2020. This species was upgraded to Threatened status as of Oct. 31, 2016 for its federal listing status and will be upgraded for State-Threatened next time the State list is updated. Impacts to this species can be avoided or minimized by conducting activities during the snakes' inactive season (November through early March). However, habitat for that species is not present within the project area. From the MNFI website:

"Eastern Massasaugas have been found in a variety of wetland habitats. Populations in southern Michigan are typically associated with open wetlands, particularly prairie fens, while those in northern Michigan are known from open wetlands and lowland coniferous forests, such as cedar swamps... Massasauga habitats generally appear to be characterized by the following: (1) open, sunny areas intermixed with shaded areas, presumably for thermoregulation; (2) presence of the water table near the surface for hibernation; and (3) variable elevations between adjoining lowland and upland habitats."

The site assessment is not to be construed as a complete inventory of all species which may be present throughout the growing season, but is intended to present representative dominant species for purposes of generally documenting and assessing habitat type.

Right: northwest edge of property

S7 Consultation:
"No Effect" Determination

From the site visits, and a review of known site data, historic species records, habitat requirements for identified species, and aerial photos, there is no indication that the potential exists for any of the identified species of concern to occur within the project area.

Based on these factors, we recommend a "No Effect" determination because the project will not remove suitable habitat for any listed species, and/or no habitat disturbance is anticipated. No listed species or designated critical habitat is anticipated to be directly or indirectly affected by this proposed project.

Bobbi Jones Sabine

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APPENDIX 1 – MNFI HISTORIC OCCURRENCE RECORDS FOR THREATENED AND ENDANGERED SPECIES IN ALLEGAN COUNTY

Species identified as "E" and "T" (Endangered and Threatened) are protected under State law. Species identified as "SC" are classified as "Special Concern," which indicates that there is concern for the species, but does not afford legal protection (except Special Concern reptiles and amphibians, which are protected under a separate DNR Director's Order, No. FO-224.13). Species identified as "X" (Extirpated) are believed to no longer occur in this state.

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank	Occurrences in County	Last Observed in County
Acipenser fulvescens	Lake sturgeon		T	G3G4	S2	2	2016
Acris blanchardi	Blanchard's cricket frog		T	G5	S2S3	4	2002
Adlumia fungosa	Climbing fumitory		SC	G4	S3	1	1889
Alasmidonta marginata	Elktoe		SC	G4	S3?	4	2016
Alasmidonta viridis	Slippershell		T	G4G5	S2S3	2	2013
Ambystoma opacum	Marbled salamander		E	G5	S1	2	1989
Ammodramus henslowii	Henslow's sparrow		E	G4	S3	1	1994
Ammodramus savannarum	Grasshopper sparrow		SC	G5	S4	2	2007
Aristida longespica	Three-awned grass		T	G5	S2	1	2010
Asclepias purpurascens	Purple milkweed		T	G5?	S2	1	2018
Baptisia lactea	White or prairie false indigo		SC	G4Q	S3	1	1981
Bartonia paniculata	Panicled screwstem		T	G5	S2	3	1999
Berula erecta	Cut-leaved water parsnip		T	G4G5	S2	6	2020
Boechera missouriensis	Missouri rock-cress		SC	G5	S2	4	2018
Bombus affinis	Rusty-patched bumble bee	LE	SC	G2	SH	3	1964
Bombus auricomus	Black and gold bumble bee		SC	G5	S2	1	1964
Bombus borealis	Northern amber bumble bee		SC	G4G5	S3	1	1936
Bombus pensylvanicus	American bumble bee		SC	G3G4	S1	3	1963
Brickellia eupatorioides	False boneset		SC	G5	S2	1	2009
Buteo lineatus	Red-shouldered hawk		T	G5	S4	9	2013
Callophrys irus	Frosted elfin		T	G2G3	S2S3	15	2020
Carex albolutescens	Sedge		T	G5	S2	1	1989
Carex festucacea	Fescue sedge		SC	G5	S1	1	1989
Carex seorsa	Sedge		T	G5	S2	3	2020
Chlidonias niger	Black tern		SC	G4G5	S2	1	1997
Cincinnatia cincinnatiensis	Campeloma spire snail		SC	G5	S3	1	
Cirsium pitcheri	Pitcher's thistle	LT	T	G3	S3	3	2013
Cistothorus palustris	Marsh wren		SC	G5	S3	1	2005
Clemmys guttata	Spotted turtle		T	G5	S2	12	2020
Clonophis kirtlandii	Kirtland's snake		E	G2	S1	1	1985
Collinsia verna	Blue-eyed Mary		SC	G5	SNR	1	1940
Conioselinum chinense	Hemlock-parsley		SC	G5	SNR	2	2020
Coregonus artedi	Lake herring or Cisco		T	GNR	S3	4	2017
Coregonus kiyi	Kiyi		SC	G3G4	S2S3	1	1983
Coregonus zenithicus	Shortjaw cisco		T	G3	S2	2	2001
Cottus ricei	Spoonhead sculpin		SC	G5	S1S2	1	1990
Cryptotis parva	Least shrew		T	G5	S1S2	1	1938
Cyclonaias tuberculata	Purple wartyback		T	G5	S2	3	2000
Cypripedium candidum	White lady slipper		T	G4	S2	1	2005
Diarrhena obovata	Beak grass		T	G4G5	S2	1	2018
Dryobius sexnotatus	Six-banded longhorn beetle		T	GNR	S1	1	2011
Echinodorus tenellus	Dwarf burhead		E	G5?	S1	2	2013
Eleocharis atropurpurea	Purple spike rush		E	G4G5	S1	1	2010
Eleocharis engelmannii	Engelmann's spike rush		SC	G4G5	S2S3	1	1989
Eleocharis melanocarpa	Black-fruited spike-rush		SC	G4	S3	5	2016
Eleocharis microcarpa	Small-fruited spike-rush		E	G5	S1	1	1988
Eleocharis tricostata	Three-ribbed spike rush		T	G4	S2	4	2016
Emydoidea blandingii	Blanding's turtle		SC	G4	S2S3	7	2020
Erimyzon claviformis	Creek chubsucker		E	G5	S1	1	1982
Erynnis persius persius	Persius dusky wing		T	G5T1T3	S3	3	1980
Euonymus atropurpureus	Wahoo		SC	G5	S3	1	2007

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank	Occurrences in County	Last Observed in County
Euphorbia commutata	Tinted spurge		T	G5	S1	1	1931
Eutrochium fistulosum	Hollow-stemmed Joe-pye weed		T	G5?	S1	2	2009
Fontigens nickliniana	Watercress snail		SC	G5	S2S3	1	1990
Fraxinus profunda	Pumpkin ash		T	G4	S2	1	2014
Fuirena pumila	Umbrella-grass		T	G4	S2	1	1975
Galearis spectabilis	Showy orchis		T	G5	S2	2	2014
Gallinula galeata	Common gallinule		T	G5	S3	2	2019
Gavia immer	Common loon		T	G5	S3	1	1988
Gentiana puberulenta	Downy gentian		E	G4G5	S1	1	1990
Geum triflorum	Prairie smoke		T	G5	S2S3	1	1932
Glyptemys insculpta	Wood turtle		SC	G3	S2	1	1975
Haliaeetus leucocephalus	Bald eagle		SC	G5	S4	7	2017
Helianthus hirsutus	Whiskered sunflower		SC	G5	S3	2	2014
Hesperia metea	Cobweb skipper		SC	G4	S4	1	2002
Hesperia ottoe	Ottoe skipper		T	G3	S1	8	2011
Hieracium paniculatum	Panicled hawkweed		T	G5	S2	2	2015
Hiodon tergisus	Mooneye		T	G5	S1	1	1941
Hydrastis canadensis	Goldenseal		T	G3G4	S2	1	1976
Hypericum gentianoides	Gentian-leaved St. John's-wort		SC	G5	S3	1	2018
Isoetes engelmannii	Engelmann's quilwort		E	G4	S1	1	1989
Juncus anthelatus	Large path rush		SC	GNR	SNR	2	2020
Juncus brachycarpus	Short-fruited rush		T	G4G5	S1S2	1	1989
Juncus dichotomus	Forked rush		SC	G5	SNR	1	2017
Juncus scirpoides	Scirpus-like rush		T	G5	S2	3	2014
Juncus vaseyi	Vasey's rush		T	G5	S1S2	1	1989
Lanius ludovicianus migrans	Migrant loggerhead shrike		E	G4T3Q	S1	2	1991
Lasmigona compressa	Creek heelsplitter		SC	G5	S3	5	2018
Lasmigona costata	Flutedshell		SC	G5	SNR	5	2018
Lechea minor	Least pinweed		X	G5	S1	1	2000
Lechea pulchella	Leggett's pinweed		T	G5	S1S2	2	2018
Lepisosteus oculatus	Spotted gar		SC	G5	S2S3	10	2015
Ligumia recta	Black sandshell		E	G4G5	S1?	1	
Linum sulcatum	Furrowed flax		SC	G5	S2S3	2	2005
Linum virginianum	Virginia flax		T	G4G5	S2	2	2015
Lipocarpha micrantha	Dwarf-bulrush		SC	G5	S3	2	2016
Lithobates palustris	Pickerel frog		SC	G5	S3S4	4	2003
Ludwigia sphaerocarpa	Globe-fruited seedbox		T	G5	S1	2	2018
Lycaeides melissa samuelis	Karner blue	LE	T	G1G2	S2	27	2017
Lycopodiella subappressa	Northern appressed clubmoss		SC	G2	S2	2	1970
Melanerpes erythrocephalus	Red-headed woodpecker		SC	G5	S3	1	
Mesomphix cupreus	Copper button		SC	G5	S1	2	
Microtus pinetorum	Woodland vole		SC	G5	S3S4	2	1939
Myotis septentrionalis	Northern long-eared bat	LT	SC	G1G2	S1	1	2000
Necturus maculosus	Mudpuppy		SC	G5	S3S4	1	1958
Notropis dorsalis	Bigmouth shiner		SC	G5	S2	14	1960
Notropis texanus	Weed shiner		X	G5	S1	4	1947
Nycticorax nycticorax	Black-crowned night-heron		SC	G5	S3	2	1997
Obliquaria reflexa	Threehorn wartyback		E	G5	S1	1	1936
Oecanthus laricis	Tamarack tree cricket		SC	G3?	S3	1	2000
Panax quinquefolius	Ginseng		T	G3G4	S2S3	10	2017
Pandion haliaetus	Osprey		SC	G5	S4	1	2017
Panicum longifolium	Panic grass		T	G4	S2	4	2015
Panicum verrucosum	Warty panic grass		T	G4	S1	1	1999
Pantherophis spiloides	Gray ratsnake		SC	G4G5	S2S3	4	2017
Papaipema beeriana	Blazing star borer		SC	G2G3	S2	1	1997
Papaipema maritima	Maritime sunflower borer		SC	G3	S2	1	1997
Papaipema sciata	Culvers root borer		SC	G3	S3	2	1996
Papaipema speciosissima	Regal fern borer		SC	G4	S2S3	1	1995
Parkesia motacilla	Louisiana waterthrush		T	G5	S2	2	1999
Persicaria careyi	Carey's smartweed		T	G4	S1S2	1	1999
Platanthera ciliaris	Orange- or yellow-fringed orchid		E	G5	S1S2	2	2015

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank	Occurrences in County	Last Observed in County
Pleurobema sintoxia	Round pigtoe		SC	G4G5	S3	1	2000
Poa paludigena	Bog bluegrass		T	G3G4	S2	1	2016
Polygala cruciata	Cross-leaved milkwort		SC	G5	S3	3	2013
Potamilus alatus	Pink heelsplitter		SC	G5	SNR	1	
Potamogeton bicupulatus	Waterthread pondweed		T	G4	S2	4	2017
Protonotaria citrea	Prothonotary warbler		SC	G5	S3	3	2006
Pycnanthemum verticillatum	Whorled mountain mint		SC	G5	S2	4	2014
Pygarctia spraguei	Sprague's pygarctia		SC	G5	S2S3	2	1993
Rallus elegans	King rail		E	G4	S2	2	1949
Rhexia mariana	Maryland meadow beauty		T	G5T5	S1S2	2	2015
Rhexia virginica	Meadow beauty		SC	G5	S3	6	2016
Rhynchospora macrostachya	Tall beakrush		SC	G4	S3S4	7	2016
Rhynchospora nitens	Short-beak beak-rush		E	G4?	S1	1	2016
Rhynchospora recognita	Globe beak-rush		E	G5?	S1	1	1995
Rhynchospora scirpoides	Bald-rush		T	G4	S2	4	2016
Schoenoplectiella hallii	Hall's bulrush		T	G3	S2	2	2011
Schoenoplectus torreyi	Torrey's bulrush		SC	G5?	S2S3	1	1983
Scleria pauciflora	Few-flowered nut rush		E	G5	S1	1	1995
Scleria reticularis	Netted nut rush		T	G4	S2	3	2016
Scleria triglomerata	Tall nut rush		SC	G5	S3	2	2015
Setophaga cerulea	Cerulean warbler		T	G4	S3	3	2015
Setophaga citrina	Hooded warbler		SC	G5	S3	4	2010
Setophaga discolor	Prairie warbler		E	G5	S3	5	2003
Setophaga dominica	Yellow-throated warbler		T	G5	S3	1	1999
Sistrurus catenatus	Eastern massasauga	LT	SC	G3	S3	20	2020
Sisyrinchium atlanticum	Atlantic blue-eyed-grass		T	G5	S2	3	2017
Spiranthes ovalis	Lesser ladies'-tresses		T	G5?	S1	1	2009
Spiza americana	Dickcissel		SC	G5	S3	2	2007
Sporobolus clandestinus	Dropseed		E	G5	S1	2	2017
Sporobolus heterolepis	Prairie dropseed		SC	G5	S3	2	2013
Strophostyles helvula	Trailing wild bean		SC	G5	S3	1	2002
Symphyotrichum sericeum	Western silvery aster		T	G5	S2	1	2014
Terrapene carolina carolina	Eastern box turtle		SC	G5T5	S2S3	27	2020
Tradescantia bracteata	Long-bracted spiderwort		X	G5	SX	1	1938
Trichostema dichotomum	Bastard pennyroyal		T	G5	S2	1	1986
Triphora trianthophora	Nodding pogonia or three birds orchid		T	G4?	S1	1	1880
Truncilla donaciformis	Fawnsfoot		T	G5	S1	2	2000
Truncilla truncata	Deertoe		SC	G5	S2S3	2	2000
Utricularia subulata	Bladderwort		T	G5	S1	1	2010
Utterbackia imbecillis	Paper pondshell		SC	G5	S2S3	2	2018
Valerianella chenopodiifolia	Goosefoot corn salad		T	G4	S1	2	2020
Venustaconcha ellipsiformis	Ellipse		SC	G4	S3	1	2016
Villosa iris	Rainbow		SC	G5	S3	1	
Wolffia brasiliensis	Watermeal		T	G5	S1	4	2018
Zizania aquatica	Wild rice		T	G5	S2S3	1	1910

APPENDIX 2 – PLANT INVENTORY

Centre Collective, Douglas, MI Compiler: William Martinus Site Visit: 6/14/21

Notes
Nomenclature follows Voss & Reznicek, *Field Manual of Michigan Flora*, *2012* & *Michigan Flora Online*
* Asterisk indicates non-native species
Coefficient of Conservatism number (0 – 10, 10 being most highly specialized habitat)
Wetland Indicator Status (UPL, FACU, FAC, FACW, OBL)

Vascular Plants

Pteridophytes
Lycophytes
Ferns
Athyriaceae, Lady Fern Family
Athyrium filix-femina, Lady Fern 4; FAC
Dryopteridaceae, Wood Fern Family
Dryopteris carthusiana, Spinulose Woodfern 5; FACW
Onocleaceae, Sensitive Fern Family
Matteuccia struthiopteris, Ostrich Fern 3; FAC
Onoclea sensibilis, Sensitive Fern 2; FACW

Gymnosperms
Cupressaceae, Cypress Family
Juniperus virginiana, Red-cedar 3; FACU
Pinaceae, Pine Family
Pinus strobus, White Pine 3; FACU
Pinus sylvestris, Scots Pine* 0; UPL
Taxaceae, Yew Family
Taxus cuspidata, Asian Yew* 0; UPL

Angiosperms
Monocots
Alliaceae, Onion Family
Allium vineale, Field Garlic* 0; FACU
Araceae, Arum Family
Arisaema triphyllum, Jack-in-the-pulpit 5; FAC
Cyperaceae, Sedge Family
Carex annectens var. *xanthocarpa*, Yellow-fruited Sedge 1; FACW
Carex gracillima, Graceful Sedge 4; FACU
Carex leptonervia, Two-edged Sedge 3; FAC
Carex muehlenbergii, Sand Sedge 7; UPL
Carex rosea, Stellate Sedge 2; UPL
Carex swanii, Swan's Sedge 4; FACU
Juncaceae, Rush Family
Juncus tenuis, Path Rush 1; FAC
Poaceae, Grass Family
Anthoxanthum odoratum, Sweet Vernal Grass* 0; FACU
Bromus inermis, Hungarian Brome* 0; UPL
Dactylis glomerata, Orchard Grass* 0; FACU
Dichanthelium clandestinum, Deer-tongue Grass 3; FACW
Glyceria striata, Fowl Manna Grass 4; OBL
Holcus lanatus, Velvet Grass* 0; FACU

Miscanthus sinensis, Eulalia* 0; UPL
Phalaris arundinacea, Reed Canary Grass* 0; FACW+
Phleum pratense, Timothy* 0; FACU
Phragmites australis spp. *australis*, Common Reed* 0; FACW+
Poa compressa, Canada Bluegrass* 0; FACU
Poa nemoralis, Wood Bluegrass* 0; FACU
Poa pratensis, Kentucky Bluegrass* 0; FAC-

Dicots
Anacardiaceae, Cashew Family
Toxicodendron radicans, Poison Ivy 2; FAC+
Apocynaceae, Dogbane Family
Asclepias syriaca, Common Milkweed 1; UPL
Vinca minor, Periwinkle* 0; UPL
Araliaceae, Ginseng Family
Hedera helix, European Ivy* 0; FACU
Asteraceae, Aster Family
Erigeron annuus, White-top 0; FACU
Eurybia macrophylla, Large-leaved Aster 4; UPL
Hypochoeris radicata, Cat's-ear* 0; UPL
Leucanthemum vulgare, Ox-eye Daisy* 0; UPL
Taraxacum officinale, Common Dandelion* 0; FACU
Balsaminaceae, Touch-me-not Family
Impatiens capensis, Spotted Touch-me-not 2; FACW
Berberidaceae, Barberry Family
Berberis thunbergii, Japanese Barberry* 0; FACU-
Bignoniaceae, Trumpet Creeper Family
Catalpa speciosa, Northern Catalpa* 0; FACU
Brassicaceae, Mustard Family
Alliaria petiolata, Garlic Mustard* 0; FAC
Berteroa incana, Hoary Alyssum* 0; UPL
Hesperis matronalis, Dame's Rocket* 0; FACU
Caprifoliaceae, Honeysuckle Family
Lonicera ×bella, Hybrid Honeysuckle* 0; FACU
Lonicera japonica, Japanese Honeysuckle* 0; FACU
Caryophyllaceae, Pink Family
Stellaria media, Common Chickweed* 0; FACU
Celastraceae, Bittersweet Family
Celastrus orbiculatus, Oriental Bittersweet* 0; UPL
Cornaceae, Dogwood Family
Cornus alternifolia, Alternate-leaved Dogwood 5; FACU
Elaeagnaceae, Oleaster Family
Elaeagnus umbellata, Autumn Olive* 0; FACU
Fabaceae, Pea Family
Medicago lupulina, Black Medick* 0; FAC-
Trifolium repens, White Clover* 0; FACU+
Vicia villosa, Hairy Vetch* 0; UPL
Fagaceae, Beech Family
Quercus alba, White Oak 5; FACU
Quercus rubra, Red Oak 5; FACU
Quercus velutina, Black Oak 6; UPL
Lamiaceae, Mint Family
Glechoma hederacea, Ground Ivy* 0; FACU
Leonurus cardiaca, Motherwort* 0; UPL

Prunella vulgaris, Self-heal 0; FAC
Lauraceae, Laurel Family
Lindera benzoin, Spicebush 7; FACW-
Sassafras albidum, Sassafras 5; FACU
Magnoliaeae, Magnolia Family
Liriodendron tulipifera, Tulip Tree 9; FACU
Malvaceae, Mallow Family
Tilia americana, Basswood 5; FACU
Moraceae, Mulberry Family
Morus alba, White Mulberry* 0; FAC
Nyssaceae, Tupelo Family
Nyssa sylvatica, Sour-gum 9; FACW+
Oleaceae, Olive Family
Fraxinus americana, White Ash 5; FACU
Ligustrum obtusifolium, Border Privet* 0; FACU
Ligustrum vulgare, Common Privet* 0; FACU
Onagraceae, Evening-primrose Family
Circaea canadensis subsp. *canadensis*, Enchanter's-nightshade 2; FACU
Oxalidaceae, Wood-sorrel Family
Oxalis dillenii, Common Yellow Wood-sorrel 0; FACU
Phytolaccaceae, Pokeweed Family
Phytolacca americana, Pokeweed 2; FAC-
Plantaginaceae, Plantain Family
Plantago major, Common Plantain* 0; FAC+
Plantago rugelii, Red-stalked Plantain 0; FAC
Polygonaceae, Smartweed Family
Persicaria virginiana, Jumpseed 4; FAC
Rumex obtusifolius, Bitter Dock* 0; FACW
Rosaceae, Rose Family
Geum canadense, White Avens 1; FAC
Prunus serotina, Wild Black Cherry 2; FACU
Rosa multiflora, Multiflora Rose* 0; FACU
Rubus flagellaris, Northern Dewberry 1; FACU
Rubiaceae, Madder Family
Galium aparine, Cleavers 0; FACU
Salicaceae, Willow Family
Populus deltoides, Eastern Cottonwood 1; FAC+
Populus tremuloides, Quaking Aspen 1; FAC
Sapindaceae, Soapberry Family
Acer negundo, Box-elder 0; FACW-
Acer rubrum, Red Maple 1; FAC
Acer saccharinum, Silver Maple 2; FACW
Acer saccharum, Sugar Maple 5; FACU
Scrophulariaceae, Figwort Family
Verbascum thapsus, Common Mullein* 0; UPL
Urticaceae, Nettle Family
Urtica dioica, Stinging Nettle 1; FAC+
Vitaceae, Grape Family
Parthenocissus quinquefolia, Virginia Creeper 5; FAC-
Vitis riparia, River-bank Grape 3; FACW-

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