



AGENDA
CHARTER TOWNSHIP OF MERIDIAN
ZONING BOARD OF APPEALS MEETING
December 18, 2024 6:30 pm

1. CALL MEETING TO ORDER
2. APPROVAL OF THE AGENDA
3. CORRECTIONS, APPROVAL AND RATIFICATION OF MINUTES
 - A. September 18, 2024
4. COMMUNICATIONS
5. UNFINISHED BUSINESS
6. NEW BUSINESS
 - A. **ZBA CASE NO.: 24-11 (Grand Reserve), Mayberry Homes, 1650 Kendale Blvd. #200, East Lansing, MI 48823**
LOCATION: 4700 Everwood Lane & 1542, 1536, 1518, 1516 Woodland Way
PARCEL ID: 22-276-010
ZONING DISTRICT: RD (Multiple Family, 8 d/u per acre)
The variances requested are to allow decks to encroach into the wetland setback.
 - B. **ZBA CASE NO.: 24-12 (6499 Heathfield), Maya Murshak & Steven Parks, 2474 Barnsbury Rd., East Lansing, MI 48823**
LOCATION: 6499 Heathfield Drive
PARCEL ID: 04-100-020
ZONING DISTRICT: RAA (Single Family, Low Density)
The variance requested is to construct a single-family home within the front yard setback and grading within the wetland setback along with a deck that will encroach into the wetland setback.
7. OTHER BUSINESS
 - A. 2025 Meeting Calendar
8. PUBLIC REMARKS
9. BOARD MEMBER COMMENTS
10. ADJOURNMENT

Variance requests may be subject to change or alteration upon review of request during preparation of the staff memorandum. Therefore, Sections of the Code of Ordinances are subject to change. Changes will be noted during public hearing meeting.

Individuals with disabilities requiring auxiliary aids or services should contact the Meridian Township Board by contacting:
Assistant Planner Keith Chapman, 5151 Marsh Road, Okemos, MI 48864 or 517.853.4580 - Ten Day Notice is Required.
Meeting Location: 5151 Marsh Road, Okemos, MI 48864 Township Hall

CHARTER TOWNSHIP OF MERIDIAN
REGULAR MEETING ZONING BOARD OF APPEALS 2023
5151 Marsh Road, Okemos MI 48864-1198
517.853.4000, Township Hall Room
Wednesday, September 18, 2024, 6:30 pm

PRESENT: Chair Mansour, Vice-Chair Koenig, Member Brooks, Member Trezise

ABSENT: Member Bennett

STAFF: Principal Planner Shorkey

1. CALL MEETING TO ORDER

Chair Mansour called the September 18th, 2024, regular meeting for the Meridian Township Zoning Board of Appeals to order at 6:31 pm. Chair Mansour called the roll of the Board. Member Brooks absent.

2. APPROVAL OF THE AGENDA

Member Brooks moved to approve the agenda for the September 18th, 2024, regular meeting for the Meridian Township Zoning Board of Appeals. Seconded by Member Trezise.

ROLL CALL VOTE YEAS: Chair Mansour, Vice-Chair Koenig, Members Brooks, Trezise
NAYS: None
Motion carried: 4-0

3. CORRECTIONS, APPROVAL AND RATIFICATION OF MINUTES

Vice-Chair Koenig asked that the Call to Order reflect that he called the Roll, and that Chair Mansour was absent.

Member Trezise moved to approve the minutes from the May 15th, 2024, regular meeting for the Meridian Township Zoning Board of Appeals with correction. Seconded by Vice-chair Koenig.

ROLL CALL VOTE YEAS: Chair Mansour, Vice-Chair Koenig, Members Brooks, Trezise
NAYS: None
Motion carried: 4-0

4. COMMUNICATIONS
NONE

5. UNFINISHED BUSINESS
NONE

6. NEW BUSINESS

A. **ZBA CASE NO. 24-09 (Playmakers Inc.) Playmakers Inc. 2299 West Grand River Avenue, Okemos, MI 49964**

LOCATION: 2299 Grand River Avenue

PARCEL ID: 21-131-002

ZONING DISTRICT: C-2 (Commercial)

The variances requested are to allow existing window signage to remain in place.

Principal Planner Shorkey outlined the case for discussion.

Andrew Marsh, representative for the applicant, provided an explanation for the request.

Vice-chair Koenig asked for more information about the complaint. Principal Planner Shorkey did not have that information, nor did Mr. Marsh.

Chair Mansour commented that if approved, the variance would carry to all future occupants of the building, so that eventuality must be considered and asked for more details about the amount of signage permitted by ordinance versus the amount that is being asked for in the variance. Principal Planner Shorkey detailed that there are two variances being requested and that the windows that are affected are noted in the variance request.

Chair Mansour asked if the Township would have pursued this had the complaint not occurred. Principal Planner Shorkey stated that the Township would not have pursued. Chair Mansour then noted that she appreciates the applicant's willingness to comply with Township ordinances.

Member Trezise asked how far up the windows the signs need to be. Mr. Marsh gave an approximate height that the signs need to reach to cover fixtures and provide security – about halfway up the second tier of windows. He asked the board for more details about what they can regulate. Chair Mansour and Principal Planner Shorkey explained that the ZBA cannot govern content.

Chair Mansour asked if the sign material could be regulated, commenting that she knows of sites where a variance has been granted to an occupant only to have it taken advantage of by subsequent occupants. Principal Planner Shorkey stated that the material can be regulated. She stated that she wants to accommodate a business that has come forward and is making every effort to comply without opening the property to a future eyesore. Chair Mansour said if the board looks at it from the standpoint that only 50% of each window is being covered, the variance is for only 10% and she would be comfortable with the variance if it specifies the 50% perforated graphic vinyl material that the occupant is currently using. Member Trezise concurred.

Chair Mansour asked if the spirit of the ordinance is for safety reasons or for aesthetic reasons. Member Trezise stated that the safety issue would be to allow the police to see what is going on in the building and the aesthetic issue would be to avoid billboards or large posters that could be unattractive.

Chair Mansour stated that unique circumstances exist because the facade of the building and the structure are unique.

Chair Mansour stated that she has difficulty understanding how the variance meets this criterion. Member Trezise noted that checkout counters need to be near the exit to help control loss and that this need meets this criterion. Chair Mansour concurred and stated that this criterion is met.

Chair Mansour stated that the material used in the existing signs makes the building safer plus the fact that the applicant has come forward to work with the township, meets this criterion. Vice-Chair Koenig added that the applicant is not asking for an additional variance, they are asking for a variance to meet exactly what they have been doing.

Chair Mansour stated that this criterion is met because the variance won't affect other properties in the vicinity.

Chair Mansour stated that this criterion is met because the applicant has been a positive asset to the community.

The board determined that the variance meets all five of the application criteria.

Member Trezise recommended a condition on the motion that the variance require 50% light permeable product, that the variance being granted is for 10% additional coverage of each window, and granting the variance of up to 16.5% coverage of the building face.

Member Trezise moved to approve the ZBA Case No. 24-09 (2299 Grand River) with the stipulation that 50% perforated graphic material as the only material to be used for this particular variance. Seconded by Member Koenig.

ROLL CALL VOTE YEAS: Chair Mansour, Vice-Chair Koenig, Members Brooks, Trezise

NAYS: None

Motion carried: 4-0

B. ZBA CASE NO.: 24-10 (2020 M-78), B. K. Singh, 2020 M-78, East Lansing, MI 48823

LOCATION: 2020 M-78
PARCEL ID: 04-226-016
ZONING DISTRICT: RR (Rural Residential)

The variance requested is to allow the construction and subsequent rental for an oversize Accessory Dwelling Unit.

Principal Planner Shorkey outlined the case for discussion, noting that this is coming from a new ordinance related to accessory dwellings.

Applicant B.K. Singh provided an explanation for the request.

Chair Mansour asked if the proposed ADU would be built into the existing structure or if the existing structure would be demolished and rebuilt. Principal Planer Shorkey clarified that the proposal is to remodel the existing structure into an ADU, that ADUs can be attached but must be autonomous.

Vice-Chair Koenig noted that accessory uses need to be subordinate to the primary use and asked for the square footage of the remaining portion, when the ADU portion has been subtracted. Mr. Singh stated that it is about 1900 square feet.

Member Trezise stated that the purpose of the ADU ordinance is to allow relatively small additions to have two dwelling units on a single plat which isn't regularly allowed in a residential area and said that this appears to be subdividing and calling it an ADU under an act that doesn't envision this purpose. He asked if this zoning allows for a duplex. Principal Planner Shorkey stated that duplexes are not allowed in RR (Rural Residential) zoning.

Chair Mansour noted that the question she has, with respect to the fact that the structure is existing, is the size requested in the variance appropriate with respect to the ADU ordinance. Vice-chair Koenig concurred.

Member Trezise asked about the presence of the secondary access to the barn structure at the rear of the property, how it would affect the requirement that the vehicular access to the ADU be the same as the primary residence. Principal Planner Shorkey stated that the intent of the ordinance is that a new driveway cannot be built for access to an ADU. Additionally, for this property the applicant still needs to provide the documentation from MDOT that shows that the secondary access meets their requirements as a driveway – without that documentation, the ADU resident will need to use the main driveway.

Member Trezise stated that his problem with the variance is that it asks to create a duplex in an area that does not permit duplexes by calling it an ADU that exceeds the limits provided by the ordinance. Vice-chair Koenig concurred. Chair Mansour asked for more information regarding the distinction between duplex and ADU. Principal Planner Shorkey clarified that an ADU is 600 square feet, uses the same parking as the primary unit, that the utilities must connect to the primary unit.

Vice-chair Koenig suggested going through the criteria to break down the board's questions. He stated that he agrees to using an existing space because it doesn't make sense to ask a property owner to tear down and rebuild to meet a square footage requirement, but he questions that the amount of square footage being requested meets the intent of the ADU ordinance and has concerns about the secondary access being used as a driveway for the ADU.

Chair Mansour stated that she is uncertain that the circumstances are not unique to this property, acknowledging that this variance does not create precedent for other properties. Trustee Trezise stated that he does not recognize the desire of the owner to subdivide a home in an RR district to be a unique circumstance. Chair Mansour asked for more details about the addition built in 2008. Mr. Singh stated that the currently the space is vacant and has most of the requirements to make it a separate living space, that it was used when his children lived in the property, that he moved into the addition that was approved in 2008, and the proposed ADU is the original structure. Chair Mansour stated that this seems like a self-created circumstance, acknowledging that the space made more sense when there were more people living in the home, and that she does not think it meets criteria one.

Chair Mansour stated that it does not meet criteria two because there is no practical difficulty to the home being used as the zoning permits. Vice-Chair Koenig noted that the portion being proposed for an ADU could potentially be made smaller or that it be a separate structure and it could and meet the intent of the ordinance, which would help it meet this criterion as well as potentially meet the other criteria. Principal Planner Shorkey noted that the property could be rezoned from RR to RDD, where duplexes are permitted because it neighbors existing RDD. Chair Mansour asked the applicant if he had considered applying for rezoning versus

requesting a variance. Mr. Singh indicated that rezoning would be a longer process than the variance process, Principal Planner Shorkey concurred. Chair Mansour thanked the applicant and Principal Planner Shorkey for the additional information, agreed that it makes sense to try to get an ADU approved before asking for rezoning, but stated that she still couldn't agree that it meets the criteria.

Chair Mansour stated that, with respect to the discussion, criteria three cannot be met.

Chair Mansour stated that she is not concerned about this variance affecting adjacent land and it meets criteria four.

Chair Mansour stated that she does not think this variance is in the spirit of the ADU ordinance because it is very new and there are few existing properties that have met the ordinance without a variance to be able to determine if this variance is consistent with the intent of the ordinance.

The board determined that the variance does not meet all five of the application criteria.

Vice-chair Koenig reminded the applicant that there are other avenues for having a second residence on his property even though the board has denied the request and welcomed the applicant to try a different route.

Member Trezise moved to deny the ZBA Case No. 24-10 (2020 M-78) for the inability to meet criteria 1, 2, 3, & 5. Seconded by Member Brooks.

ROLL CALL VOTE YEAS: Chair Mansour, Vice-Chair Koenig, Members Brooks, Trezise

NAYS: None

Motion carried: 4-0

7. OTHER BUSINESS
NONE

8. PUBLIC REMARKS
NONE

9. BOARD MEMBER COMMENTS
NONE

10. ADJOURNMENT

Chair Mansour adjourned the September 18th, 2024 regular meeting for the Meridian Township Zoning Board of Appeals. Approved unanimously.

Meeting adjourned at 8:31 pm.



To: Zoning Board of Appeals
From: Keith Chapman, Assistant Planner
Date: December 10, 2024
Re: ZBA Case No. #24-11 (Grand Reserve)

ZBA CASE NO.: 24-11 (Grand Reserve), Mayberry Homes, 1650 Kendale Blvd. #200, East Lansing, MI 48823
LOCATION: 4700 Everwood Lane & 1542, 1536, 1518, 1516 Woodland Way
PARCEL ID: 22-276-010
ZONING DISTRICT: RD (Multiple Family, 8 d/u per acre)

The applicant is requesting variances from the following sections of the Code of Ordinances:

- Section 86-471(b)(1), all structures and grading activities shall be setback from the edge of a water feature as follows: Wetlands regulated by the Township, the state, or by federal law equal to or greater than two acres in area; 40 feet.

Mayberry Homes, the applicant, has requested a variance to construct decks that encroach into the wetland setback at 4700 Everwood Lane & 1542, 1536, 1518, 1516 Woodland Way. When complete the site will be a 115-unit residential development, consisting of 60 duplex units and 55 single-family homes. In December of 2022 a variance was approved to allow the construction of a road through the 40-foot wetland setback. The approximate 32.2-acre site is zoned RD (Multiple Family, 8 d/u per acre).

Wetlands on the site were delineated by Voice Environmental Group LLC in 2018. The wetland delineation was updated by Voice Environmental Group LLC in August 2022. A total of nine wetlands are located on the subject property, three of which are regulated by Meridian Township. A fourth wetland, Wetland F, is shown as potentially subject to regulation by the Township. Because the wetland is greater than five acres in size it is regulated by both the State of Michigan and the Township.

The Zoning Ordinance specifies activities that are prohibited within the 20-foot and 40-foot wetland setbacks. The 40-foot wetland setback prohibits any structures or grading. As part of the development the applicant is proposing to add decks that will encroach into the wetland setback on 6 units.

ZBA Case No. 24-11 (Grand Reserve)
Zoning Board of Appeals (December 18, 2024)
Page 2

The following chart summarizes the requests:

Unit	Distance from wetland	Variance request
23	37.42'	2.58'
50	34.38'	5.62'
51	33.85'	6.15'
53	32.53'	7.47'
59	35.19'	4.81'
60	36.52'	3.48'

Attachments

1. Variance application
2. Site location map

**CHARTER TOWNSHIP OF MERIDIAN
PLANNING DIVISION
5151 MARSH ROAD, OKEMOS, MI 48864
(517) 853-4560**

VARIANCE APPLICATION

A. Applicant Mayberry Homes
Address of Applicant 1650 Kendale Blvd. #200, East Lansing MI 48823
1650 Kendale Blvd. #200, East Lansing MI 48823
Telephone (Work) 517-999-0164 direct Telephone (Home) Joe Cell (517) 896-5858
Fax 517-999-2609 Email address: kristi@mayberryhomes.com
Interest in property (circle one): Owner Tenant Option Other

B. Site address/location 4700 Everwood Lane and 1542, 1536, 1518, 1516 Woodland Way
Zoning district RD Parcel number All Part Of 33-02-02-22-276-010

C. Nature of request (Please check all that apply):
 Request for variance(s)
 Request for interpretation of provision(s) of the "Zoning Ordinance" of the Code of Ordinances
 Review an order, requirements, decision, or a determination of a Township official charged with interpreting or enforcing the provisions of the "Zoning Ordinance" of the Code of Ordinances

Zoning Ordinance section(s) _____

D. <u>Required Supporting Material</u>	<u>Supporting Material if Applicable</u>
-Property survey	-Architectural sketches
-Legal description	-Other
-Proof of property ownership or approval letter from owner	
-Site plan to scale	
-Written statement, which demonstrates how all the review criteria will be met (See next page)	

Kristi Smariege Kristi Smariege 11/15/24
Signature of Applicant Print Name Date

Fee: \$350 Received by/Date: [Signature] 11/15/24

I (we) hereby grant permission for members of the Charter Township of Meridian Zoning Board of Appeals, Township staff members and the Township's representatives or experts the right to enter onto the above described property (or as described in the attached information) in my (our) absence for the purposes of gathering information including but not limited to the taking and the use of photographs. (Note to Applicant(s): This is optional and will not affect any decision on your application.)

Signature of Applicant(s) Date

Signature of Applicant(s) Date

VARIANCE APPLICATION SUPPLEMENT

In Grand Reserve there are 5 duplex units and 1 single family unit where the rear deck post(s) extend into the 40' Wetland Buffer Zone. Due to the fact the decks are raised, and are not set directly on the ground they have no impact on the Wetland Buffer Zone, only some of the deck posts will be installed in this Wetland Buffer Zone as follows and per plot plan(s):

Duplex Unit 23 – 1 post 2.69' into Buffer Zone

Duplex Unit 50 – 2 posts – 1.10' and 1.69' into the Buffer Zone respectively

Duplex Unit 51 – 2 posts – 4.81' and 1.92' into the Buffer Zone respectively

Duplex Unit 59 – 2 posts – 6.25' and 6.10' into the Buffer Zone respectively

Duplex Unit 60 - 2 posts – 5.04' and 4.96' into the Buffer Zone respectively

Single Family Unit 53 - 2 posts – 4.58' and 2.23' into the Buffer Zone respectively

Granting this variance will keep the current plan and construction processes streamlined in order to maintain accuracy, uniformity, and efficiency.

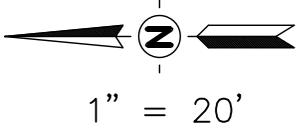
Granting this variance will not adversely affect adjacent land or the essential character in the vicinity of the property as it will keep the entire project uniform. Since the deck posts are only infringing the Buffer Zone, and not the Wetland itself, there would be no adverse environmental impact.

PLOT PLAN

For:
 Mayberry Homes
 1650 Kendale Blvd., Suite 200
 East Lansing, MI 48823

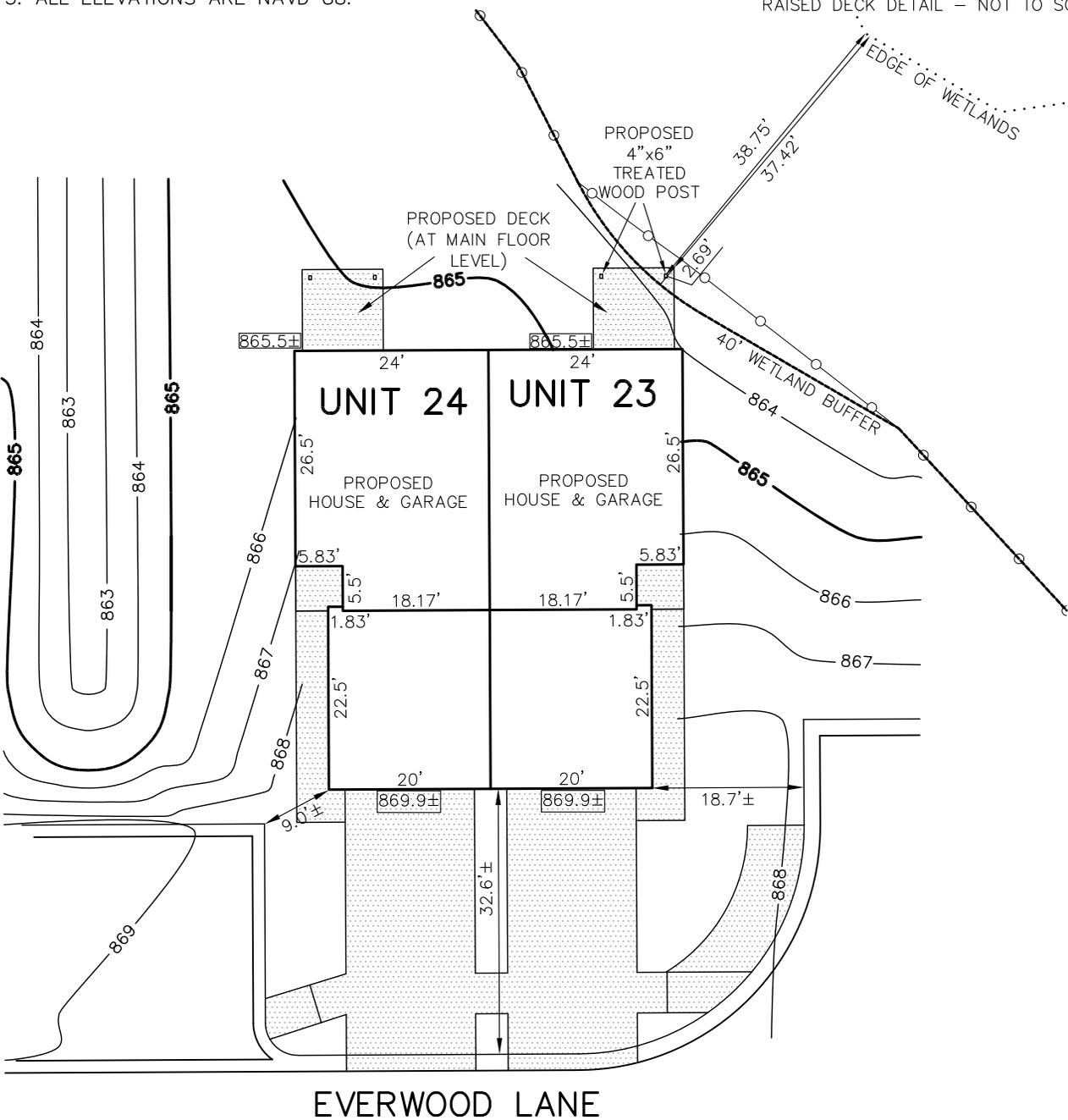
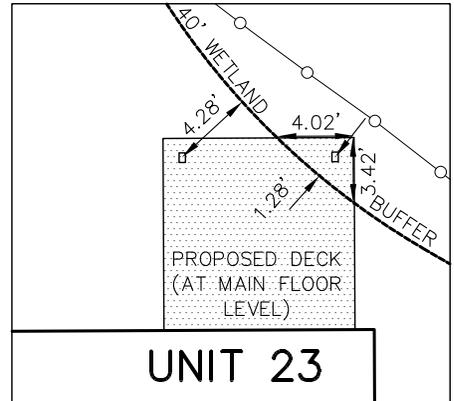
Survey Address:
 4700 & 4702 Everwood Lane
 Okemos, MI 48864

Legal Description (as provided): Units 23-24, Grand Reserve Residential Development, Meridian Township, Ingham County, Michigan.



NOTES:

1. A UNIT SURVEY IS REQUIRED FOR THE EXACT LOCATION OF FENCE AND PROPERTY LINES.
2. ALL EASEMENTS MAY NOT BE SHOWN.
3. ALL ELEVATIONS ARE NAVD 88.



PROPOSED TOP OF BASEMENT WALL = 870.6±
 PROPOSED LOWEST OPENING = 865.9± (LOOK-OUT)

PROPOSED TOP OF BASEMENT FLOOR = 862.6±
 PROPOSED FINISH GARAGE FLOOR = 869.9±

This plan was made at the direction of the parties hereon and intended solely for their immediate use and no survey has been made and no property lines were monumented, all easements recorded or unrecorded may not be shown, unless specifically noted, and no dimensions are intended for use in establishing property lines.

- R = Recorded Dimension
- x = Existing Elevation
- = Silt Fence
- D = Surface Drainage
- = Deed Line
- 800.00 = Proposed Finish Grade
- = Distance Not to Scale
- ▨ = Deck, Porch, Sidewalk, & Patio Areas

KEBS, INC. KYES ENGINEERING
 BRYAN LAND SURVEYS

2116 HASLETT ROAD, HASLETT, MI 48840
 PH. 517-339-1014 FAX. 517-339-8047

13432 PRESTON DRIVE, MARSHALL, MI 49068
 PH. 269-781-9800 FAX. 269-781-9805

PRELIMINARY

ERICK R. FRIESTROM DATE
 PROFESSIONAL SURVEYOR NO. 53497

DRAWN BY SLH	SECTION 22, T4N, R1W
FIELD WORK BY —	JOB NUMBER:
SHEET 1 OF 1	103174.HSE-VARIANCE

PLOT PLAN

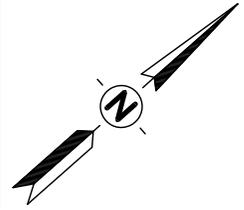
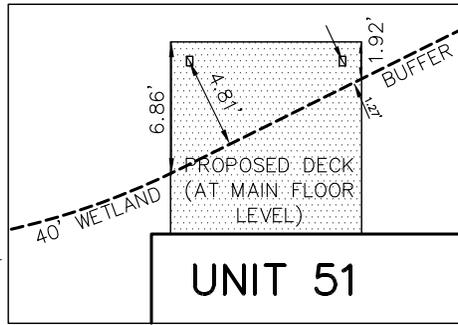
For:
 Mayberry Homes
 1650 Kendale Blvd., Suite 200
 East Lansing, MI 48823

Survey Address:
 1536 & 1534 Woodland Way
 Okemos, MI 48864

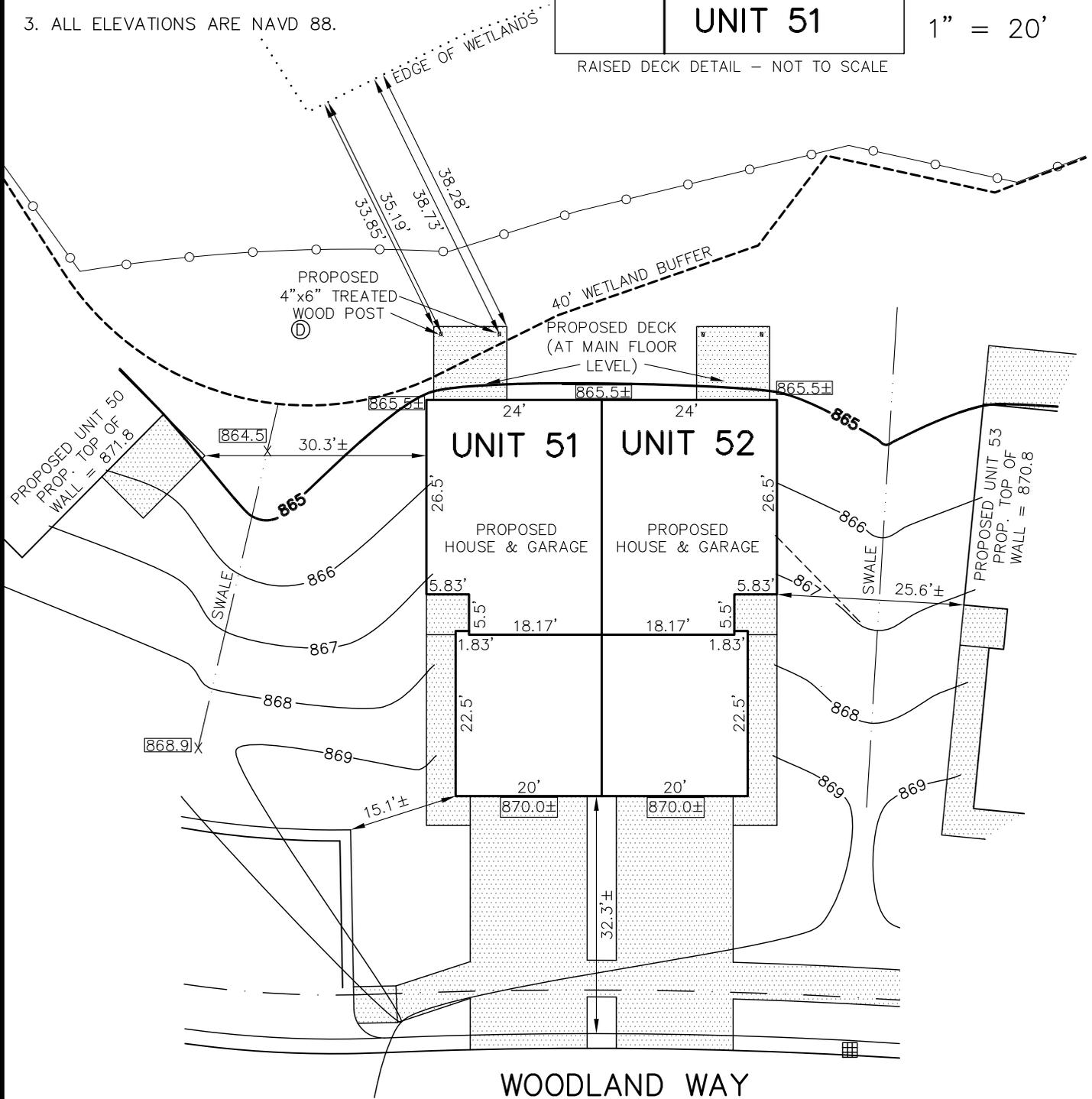
Legal Description (as provided): Units 51-52, Grand Reserve Residential Development, Meridian Township, Ingham County, Michigan.

NOTES:

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2. ALL EASEMENTS MAY NOT BE SHOWN.
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1" = 20'



WOODLAND WAY

PROPOSED TOP OF BASEMENT WALL = 870.7±
 PROPOSED LOWEST OPENING = 866.0± (LOOK-OUT)

PROPOSED TOP OF BASEMENT FLOOR = 862.7±
 PROPOSED FINISH GARAGE FLOOR = 870.0±

This plan was made at the direction of the parties hereon and intended solely for their immediate use and no survey has been made and no property lines were monumented, all easements recorded or unrecorded may not be shown, unless specifically noted, and no dimensions are intended for use in establishing property lines.

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- = Deed Line [800.00] = Proposed Finish Grade
- = Distance Not to Scale
- [] = Deck, Porch, Sidewalk, & Patio Areas



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13432 PRESTON DRIVE, MARSHALL, MI 49068
 PH. 269-781-9800 FAX. 269-781-9805

PRELIMINARY

ERICK R. FRIESTROM DATE
 PROFESSIONAL SURVEYOR NO. 53497

DRAWN BY	SLH	SECTION	22, T4N, R1W
FIELD WORK BY	—	JOB NUMBER:	103188.HSE-VARIANCE
SHEET	1 OF 1		

PLOT PLAN

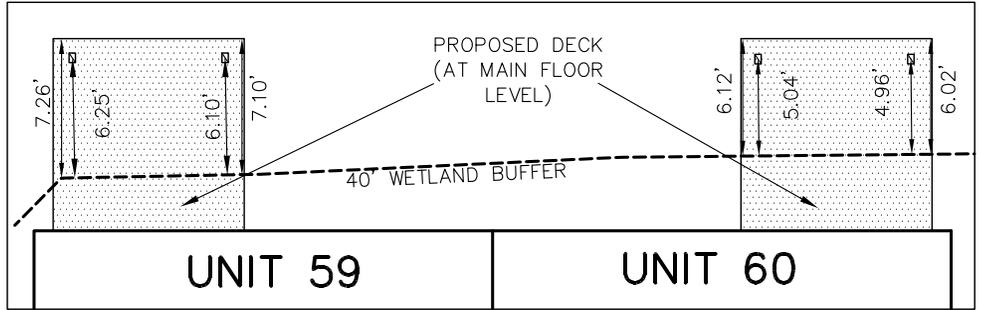
For:
 Mayberry Homes
 1650 Kendale Blvd., Suite 200
 East Lansing, MI 48823

Survey Address:
 1518 & 1516 Woodland Way
 Okemos, MI 48864

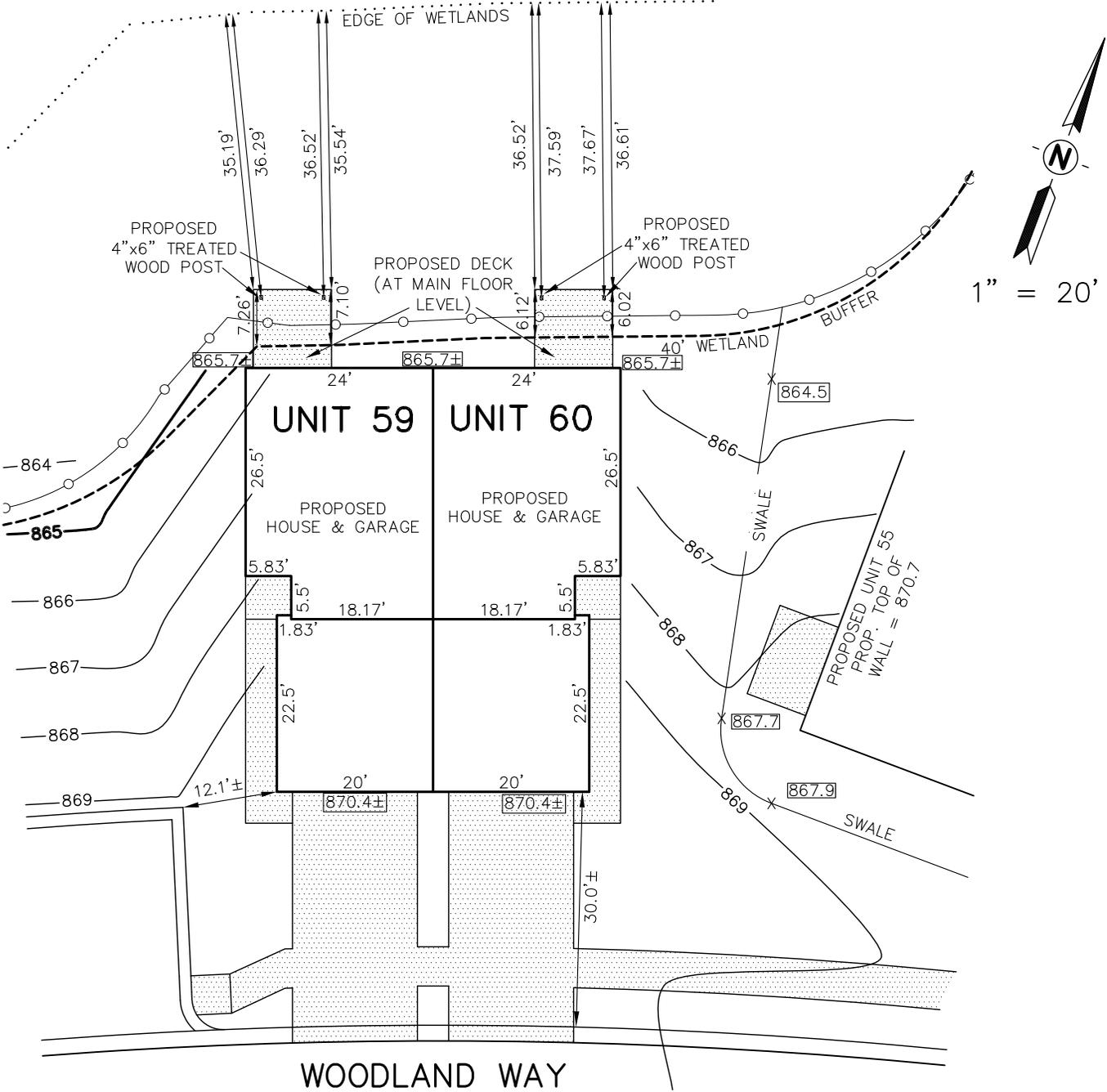
Legal Description (as provided): Units 59-60, Grand Reserve Residential Development, Meridian Township, Ingham County, Michigan.

NOTES:

1. A UNIT SURVEY IS REQUIRED FOR THE EXACT LOCATION OF FENCE AND PROPERTY LINES.
2. ALL EASEMENTS MAY NOT BE SHOWN.
3. ALL ELEVATIONS ARE NAVD 88.



RAISED DECK DETAIL - NOT TO SCALE



PROPOSED TOP OF BASEMENT WALL = 871.1±
 PROPOSED LOWEST OPENING = 866.4± (LOOK-OUT)

PROPOSED TOP OF BASEMENT FLOOR = 863.1±
 PROPOSED FINISH GARAGE FLOOR = 870.4±

This plan was made at the direction of the parties hereon and intended solely for their immediate use and no survey has been made and no property lines were monumented, all easements recorded or unrecorded may not be shown, unless specifically noted, and no dimensions are intended for use in establishing property lines.

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PRELIMINARY

ERICK R. FRIESTROM DATE
 PROFESSIONAL SURVEYOR NO. 53497

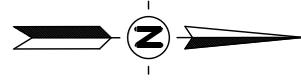
DRAWN BY	SLH	SECTION	22, T4N, R1W
FIELD WORK BY	—	JOB NUMBER:	103221.HSE-VARIANCE
SHEET	1 OF 1		

PLOT PLAN

For:
 Mayberry Homes
 1650 Kendale Blvd., Suite 200
 East Lansing, MI 48823

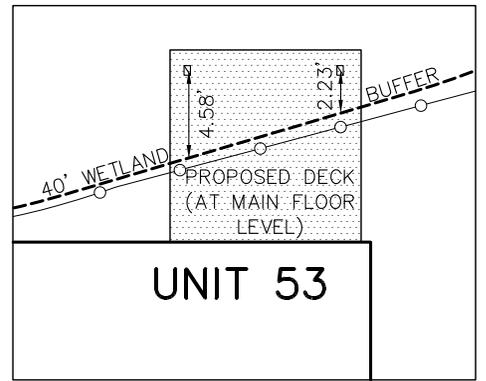
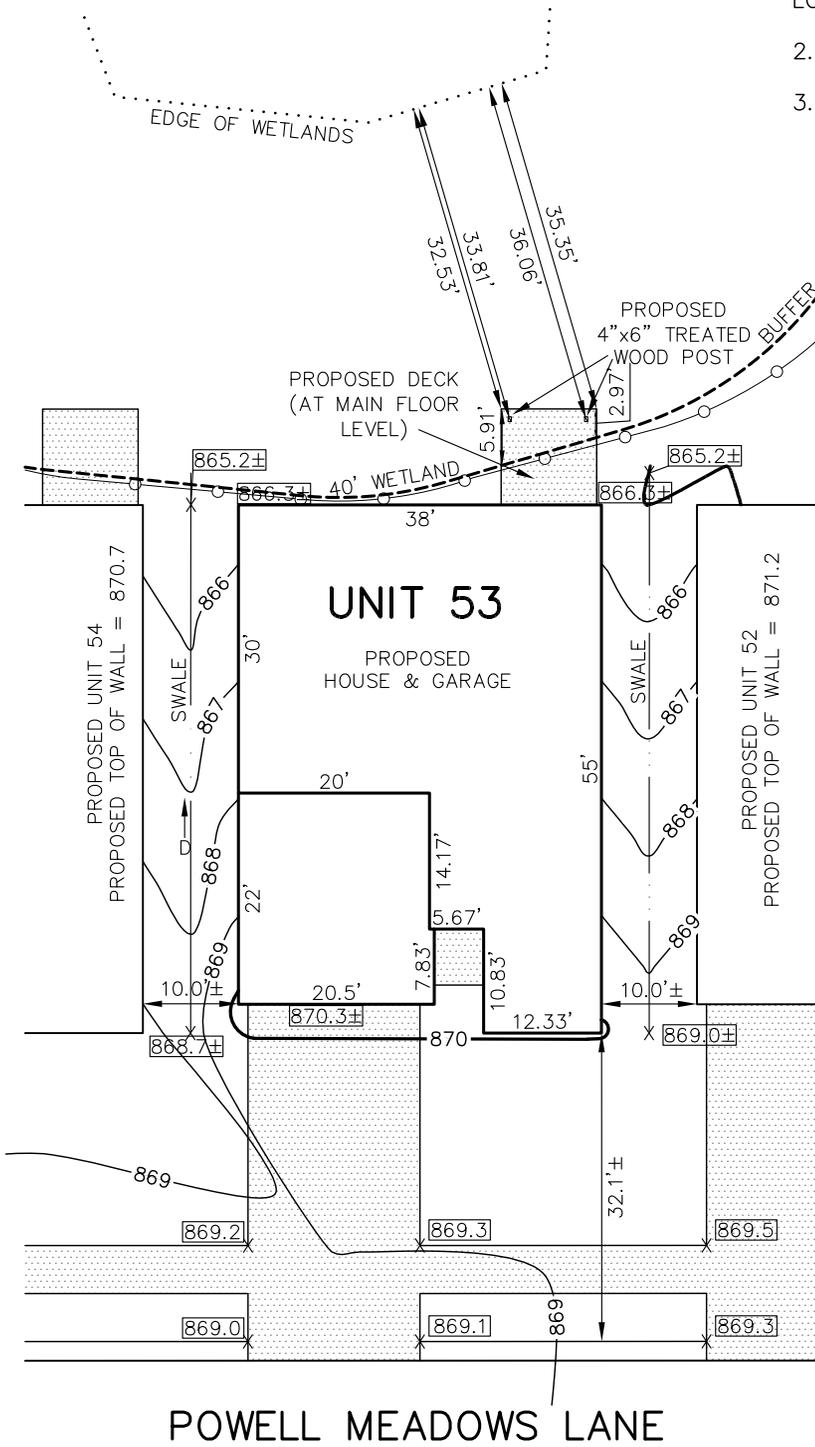
Survey Address:
 4805 N. Powell Meadows Lane
 Okemos, MI 48864

Legal Description (as provided): Unit 53, Grand Reserve Residential Development, Meridian Township, Ingham County, Michigan.



1" = 20'

- NOTES:
1. A UNIT SURVEY IS REQUIRED FOR THE EXACT LOCATION OF FENCE AND PROPERTY LINES.
 2. ALL EASEMENTS MAY NOT BE SHOWN.
 3. ALL ELEVATIONS ARE NAVD 88.



RAISED DECK DETAIL - NOT TO SCALE

PROPOSED TOP OF BASEMENT WALL = 871.0±
 PROPOSED LOWEST OPENING = 866.3± (LOOK-OUT)

PROPOSED TOP OF BASEMENT FLOOR = 863.0±
 PROPOSED FINISH GARAGE FLOOR = 870.3±

This plan was made at the direction of the parties hereon and intended solely for their immediate use and no survey has been made and no property lines were monumented, all easements recorded or unrecorded may not be shown, unless specifically noted, and no dimensions are intended for use in establishing property lines.

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- x = Existing Elevation
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- = Distance Not to Scale
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KEBS, INC. KYES ENGINEERING
 BRYAN LAND SURVEYS

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 PH. 517-339-1014 FAX. 517-339-8047

13432 PRESTON DRIVE, MARSHALL, MI 49068
 PH. 269-781-9800 FAX. 269-781-9805

PRELIMINARY

ERICK R. FRIESTROM DATE
 PROFESSIONAL SURVEYOR NO. 53497

DRAWN BY	SLH	SECTION	22, T4N, R1W
FIELD WORK BY	—	JOB NUMBER:	103274.HSE-VARIANCE
SHEET	1 OF 1		



To: Zoning Board of Appeals
From: Keith Chapman, Assistant Planner
Date: December 11, 2024
Re: ZBA Case No. #24-12 (6499 Heathfield)

ZBA CASE NO.: 24-12 (6499 Heathfield), Maya Murshak & Steven Parks, 2474 Barnsbury Rd., East Lansing, MI 48823
LOCATION: 6499 Heathfield Drive
PARCEL ID: 04-100-020
ZONING DISTRICT: RAA (Single Family, Low Density)

The applicant is requesting variances from the following sections of the Code of Ordinances:

- Section 86-471(b)(1), all structures and grading activities shall be setback from the edge of a water feature as follows: Wetlands regulated by the Township, the state, or by federal law equal to or greater than two acres in area; 40 feet.
- Section 86-372(d)(5)(a), Front Yard Setback. 25 feet

Maya Murshak & Steven Parks, the applicant, has requested a variance to construct a single-family home within the front yard setback and grading within the wetland setback along with a deck that will encroach into the wetland setback at 6499 Heathfield Drive. In October of 2024 a wetland delineation was conducted by Fishbeck. The approximately 5.25-acre site is zoned RAA (Single Family, Low Density).

A 3,000 square foot home is proposed to be constructed on the property. At the closest point the house will be located 12.2' from the front property line. Because the property is located on the border of the Township access to the property is to the north in Bath Township. A variance of 12.8 feet is requested.

The Zoning Ordinance specifies activities that are prohibited within the 20-foot and 40-foot wetland setbacks. The 40-foot wetland setback prohibits any structures or grading. The deck on the south corner of the house is proposed to encroach 2.5 feet into the 40-foot wetland setback. Also, because grading will need to be done in order to construct the home, a nine-foot variance is requested to allow grading to take place within the 40-foot wetland setback.

If the Zoning Board of Appeals decides to approve the request, staff recommends the following conditions:

- The applicant shall obtain a soil erosion and sedimentation control (SESC) permit from the Meridian Township Department of Public Works and Engineering, as applicable.

ZBA Case No. 24-12 (6499 Heathfield)
Zoning Board of Appeals (December 18, 2024)
Page 2

- The applicant shall stake the edge (limit) of grading on the parcel before any excavation or construction begins.
- The applicant shall install erosion control silt fencing along the boundary of the wetland before construction of the house and driveway to prevent erosion into the regulated wetland. The silt fencing shall remain for the duration of the house and driveway construction.

Attachments

1. Variance application
2. Site location map

CHARTER TOWNSHIP OF MERIDIAN
PLANNING DIVISION
5151 MARSH ROAD, OKEMOS, MI 48864
(517) 853-4560

VARIANCE APPLICATION

A. Applicant Maya Murshak/Steven Parks
Address of Applicant 2474 Barnsbury Rd, East Lansing, MI
2474 Barnsbury Rd, East Lansing, MI
Telephone (Work) 517-202-1340 Telephone (Home) _____
Fax _____ Email address: mayamurshak@meritlabs.com
Interest in property (circle one): Owner Tenant Option Other

B. Site address/location 6499 Heathfield Drive
Zoning district RAA Parcel number 33-02-02-04-020

C. Nature of request (Please check all that apply):
 Request for variance(s)
 Request for interpretation of provision(s) of the "Zoning Ordinance" of the Code of Ordinances
 Review an order, requirements, decision, or a determination of a Township official charged with interpreting or enforcing the provisions of the "Zoning Ordinance" of the Code of Ordinances

Zoning Ordinance section(s) 86-372/86-367 front yard setback and 86-471(b)(1) setback from water features see narrative

D. Required Supporting Material Supporting Material if Applicable
-Property survey -Architectural sketches
-Legal description -Other
-Proof of property ownership or approval letter from owner
-Site plan to scale
-Written statement, which demonstrates how all the review criteria will be met (See next page)

Steven M. Parks
Signature of Applicant

Steven M. Parks
Print Name

11/17/2024
Date

Fee: _____ Received by/Date: _____

I (we) hereby grant permission for members of the Charter Township of Meridian Zoning Board of Appeals, Township staff members and the Township's representatives or experts the right to enter onto the above described property (or as described in the attached information) in my (our) absence for the purposes of gathering information including but not limited to the taking and the use of photographs. (Note to Applicant(s): This is optional and will not affect any decision on your application.)

Signature of Applicant(s)

Date

Signature of Applicant(s)

Date

tim mrozowski, a.i.a.

mro + zow + ski

A r c h i t e c t u r e + D e s i g n + P l a n n i n g

November 18, 2024

6499 Heathfield Drive Zoning Variance Application Written Statement

We are requesting 3 zoning variances for the property at 6499 Heathfield Drive as identified below:

1. We are seeking a variance to the zoning ordinance sections 86-372/86-367 (front yard) setback to allow the planned house to be located no closer than 12.2 feet from the northern property line.
2. We are seeking a variance to zoning ordinance section 86-471 (b)(1) (setback from water features) to allow if needed, a maximum of 2.5 feet cantilevered deck and roof overhangs to project over the 40' required wetland buffer line. To clarify, the building wall lines and deck posts will be located outside of the buffer zone and only the elevated deck and roof overhang elements may project over the buffer line.
3. We are requesting a variance to zoning ordinance 86-471 (b)(1) (setback from water features) to allow for limited earthwork in the buffer zoning if needed for the excavation and installation of building foundations and deck posts and to repair eroded areas of imported nonstructural fill that has been placed on the site over time.

Project background

The project site was purchased by the current owners in July of 2024, and they wish to build a new residence for their family. The site was selected for its natural features and bikeable proximity to their offices. One of the project objectives is to have a barrier free main floor using universal design principles, which does not require a ramp to access the main floor. The design of the house has a main floor which is fully accessible and a lower floor with bedrooms, family room and baths.

The project site is the last site on Heathfield Drive in the area known as Whitehills North. Heathfield drive runs north and south and terminates in a cul-de-sac which borders our project site (survey attached).

The north/south oriented site is 5.25 Acres (228,777 ft²) and is 400' in the east/west direction and has an average depth of 525' in the north/south direction. The site is substantially covered by a 2.53 acre wetland which spans this site and adjacent properties. Township data shows a 1.54 acre surface pond located on this site.

Since the total wetland area exceeds 2 acres, the Meridian Township 40' buffer requirement in zoning ordinance section 86-471 (b)(1) (setback from water features) applies. The state of

Michigan requires permits for construction in state regulated wetlands but no wetland construction is proposed for this project.

While the site is large, the size and location of the wetland and associated 40' buffer strip leaves a relatively narrow strip of land for placement of a building. Distances from the buffer line to the northern property line are approximately 65' along the west property line and 44' feet toward the eastern half of the site.

The project site has an approximate 23' elevation change from the high point of the site near Heathfield Drive to the wetland edge.

In recent years (likely since 2019), nonstructural fill was placed on the site. We had a consulting engineering, surveying and testing company conduct geotechnical testing on the site which concluded the fill material cannot support foundations or slabs and should be removed or strengthened. The attached photo shows the locations of the soil borings and the extent of the fill that was placed on the site.

A site plan from 2019, provided to the current owners developed at that time for the two southern most parcels on Heathfield Drive showed the extent of fill to be placed on the site as well as, soil erosion control silt fencing and a buffer line and wetland line. The 2019, 40' buffer line is staked on the site and the silt fencing is still in place but not maintained. The attached photo shows the buffer stakes (orange) and existing silt fencing.

Since the potential buildable zone is almost entirely fill material there is no significant vegetation in the building zone, and vegetation that exists consists mostly of volunteer grasses and brush.

Along the western property there is a drainage swale with rock cobbles which drains some of the water from the cul-de-sac. There is a non-recoded 30' wide easement centered on the western property line.

Lastly, since the wetlands must be delineated within 3 years, we filed for the township to conduct a wetlands delineation, and the township's consultant FTCH conducted the wetlands survey. The wetland report file is included in ur submission.

Discussion of Variances:

Variance 1 from 86-372/86-367 (front yard) setback

The existing site conditions: including the long length at 400' feet of the northern property line, extent and location of the wetland and buffer zone, significant site slope and site elevation change, and the existing fill materials are unique to this property, and represent significant challenges for design separately and are compounded when taken collectively for developing a main floor accessible house.

We developed a number of site plans, varied the house footprint, considered different house main floor and lower floor elevations, and rotated the house in 1 degree increments to study how each of the site conditions influenced construction.

Our proposed design calls for a main floor over a lower floor located with a small office over the garage, no closer than 12.2' from the northern property line. We are seeking this northern setback variance from the property line to keep our foundations, and deck posts outside of the buffer zone at the south.

The house has been designed such that we only have small glass block windows along the north wall which overlaps the existing adjacent house to the north, which is also located 12.2' from the property line. This will eliminate any privacy issues for both the house to the north, as well as, our project.

Variance 2 from 286-471 (b)(1) (setback from water features)

This request is to allow a limited portion of the decks located along the south of the house and potentially roof overhangs to project a maximum of 2.5' beyond the buffer line if needed. No deck posts or building wall lines will be located in the buffer zone. Decks or roof overhangs will cantilever.

The township zoning ordinance section 86-564 (d) provides for up to 2.5' overhangs and similar features, and section 86-564 (e) provides for up to 5' for balconies. But the ordinance does not specifically indicate whether this applies to the wetland buffer area.

- (d) Special structural elements. Special structural elements, such as cornices, sills, beltcourses, chimneys, gutters, eaves, pilasters, and similar structural features may project into any yard area up to a maximum of 2 1/2 feet.
- (e) Fire escapes, outside stairways, and balconies. Fire escapes, outside stairways, and balconies, if of open construction, may project into the yard up to a maximum of five feet.

If implemented this variance would be over the existing fill material and any water that would fall on the buffer zone without the encroachment will still be deposited on the buffer zone.

Variance 3 from 86-471 (b)(1) (setback from water features)

This variance request is to allow for a limited amount of excavation at the north edge of the buffer zone only if needed for excavation and to repair some of the existing fill material that has eroded. Excavation in the upper buffer zone would only be conducted if needed for building foundations and deck post installation. No building walls or deck posts will be located in the buffer zone but when excavating the excavator needs to excavate areas larger than the foundations in order for footing and foundation walls to be formed and for worker safety. At this point we don't anticipate needing to excavate into the top of the buffer zone, but will not know for sure until actual construction. We would work directly with township staff and the township wetland delineator if needed at the time of construction to minimize the work.

The second part of this variance request is to allow us to repair some eroded areas in the fill material. In several areas the fill has sloughed off and should be repaired both for appearance and for drainage.

Both these aspects of variance request #3 are minimally invasive since they will be conducted in nonnative fill material which was previously deposited on the site. We will also re-stake and maintain the existing soil erosion control fencing and add new silt fencing as needed by the new buffer line.

We ask the Zoning Board of Appeals grant the three variances as requested since we believe they meet the Review Criteria of the ZBA for granting a variance.

tim mrozowski, a.i.a.

mro + zow + ski

A r c h i t e c t u r e + D e s i g n + P l a n n i n g

December 9, 2024

6499 Heathfield Drive Zoning Variance Application Supplemental Written Statement

This statement and attached drawing provides additional explanation about our variance request item #3 from our original request.

3. We are requesting a variance to zoning ordinance 86-471 (b)(1) (setback from water features) to allow for limited earthwork in the buffer zoning if needed for the excavation and installation of building foundations and deck posts and to repair eroded areas of imported nonstructural fill that has been placed on the site over time.

Explanation:

We are requesting this variance to allow for encroachment of a maximum of 9 feet into the fill materials within the required 40' wetland buffer zone to allow for potential maneuvering of construction equipment during excavation for building foundations and deck post placement, as well as, scaffolding and storage of materials during construction.

In general, we are proposing to restore the silt fencing which is still on the site from 2019 but has not been maintained. The 2024 40' required wetland buffer zone has moved northward from the 2019 40' buffer zone and the silt fencing which are currently staked on the site.

The fill materials on the site are nonorganic, not native to the site and are excavated materials from other construction sites, consequently working within the existing fill zone is not anticipated to have a deleterious impact on wetland soils or plants.

Summary Background Information

Property Owner: Maya Murshak and Steve Parks, 2474 Barnsbury Road, East Lansing, Michigan

Property Purchase: sale date 7/29/2024

Address: 6499 Heathfield Drive

Parcel #: 33-02-02-04-100-020

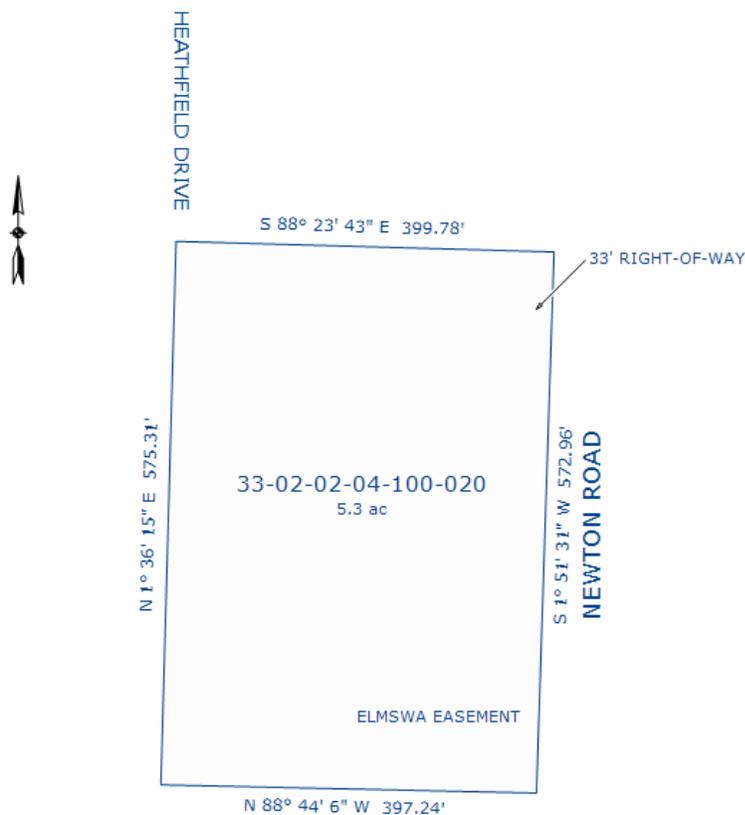
Zoning District: RAA

Side yard setback requirement: 10' (Section 86-372)
Front yard setback requirement: 25' (Section 86-367)
Wetland buffer setback: 40' (section 86-471 (b)(1))

Property Dimensions from Township Tax Information:

400' x 525' average depth

Property Area 5.25 Acres (228,777 ft²) also on KEBS Survey dated 9/13/2024



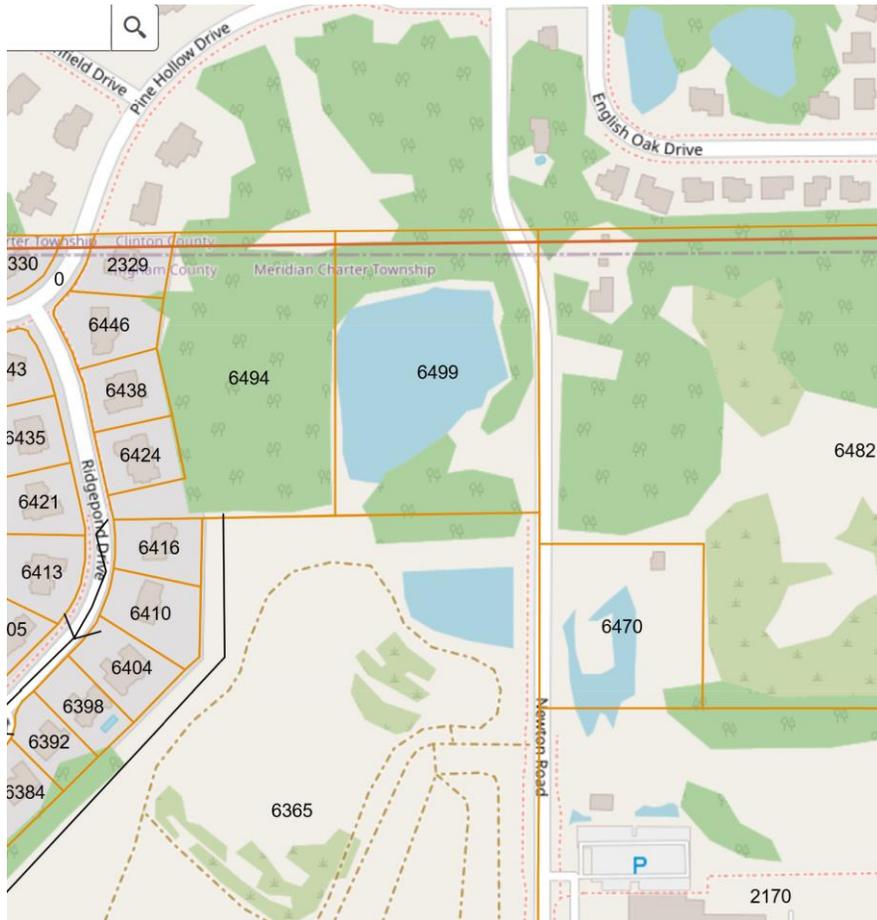
From Meridian Township Tax Records

Wetland information from FTCH wetlands report dated November 8, 2024, received November 12, 2024

Wetland Area 2.53 Acres (110,207 ft²)

Wetlands spans several sites

Approximately 1.54 acres of pond on 6499 Heathfield site.



Pond area from Meridan Township GIS System



FTCH Wetland and Buffer Delineation November, 2024

Approximate length of wetland buffer 1740' (linear feet) from Marx Wetland Report dated June 7, 2024 and KEBS survey dated 9/13/2024

Approximate area of wetland buffer 69,600 ft²

Proposed building main floor area:

3000sf + garage 1600sf

Site elevation changes:

From north property line to wetland edge 23'

Vegetation:

No trees or significant vegetation is located in the building zone.

Mostly volunteer grasses and brush which have spread to the fill material placed on the site.

Soils:

Driesenga & Associates, Inc conducted geotechnical testing on the site with three soil borings in the potential building zone.

In all three boring locations uncontrolled fill materials were found to a depth of 5'-8.5' below the surface elevation

Underlying natural soils were generally nonorganic silts, clays, sands and gravels.

Water table was found to be 12'-19' below the surface and within the underlying natural soils, and is not anticipated to be a problem.



Photo showing fill area and soli boring locations. Google earth images shows fill area on our project site at the time the house to the north was built.



Photo showing silt fencing and buffer stake



Photo taken November 16, 2024 showing eroded areas in fill.



□ § 86-471 **Setbacks from water features.**

[Code 1974, § 83-1.11; Ord. No. 2007-12, 10-28-2007]

(a) Generally. Recognizing the special conditions and relationships in transition areas between water features and developed areas, minimum setbacks are hereby established to prevent degradation of the water features of the Township, provide protection during high-water episodes in floodprone areas, and preserve the aesthetic values of water features. This regulation is based on the police power, for the protection of the public health, safety and welfare, including the authority granted in the Michigan Zoning Enabling Act PA 110 of 2006 (MCL § 125.3101 et seq.).

(b) Structure and grading setbacks. All structures and grading activities shall be setback from the edge of a water feature as follows:

(1) Wetlands regulated by the Township, the state, or by federal law equal to or greater than two acres in area; 40 feet. The Township may require the permit applicant to have the precise boundary of the wetland in question delineated in accordance with Chapter 22, Article IV of this Code.

(2) Wetlands regulated by the Township, the state, or by federal law equal to or greater than one-quarter acre in area but less than two acres in area; 20 feet. The Township may require the applicant to have the precise boundary of the wetland in question delineated in accordance with Chapter 22, Article IV of this Code.



May 25, 2024

via electronic mail

Ms. Maya Murshak
East Lansing, Michigan
mvmurshak@gmail.com

**Re: Geotechnical Report
New Residence
6499 Heathfield Drive, Lansing, Michigan
Driesenga & Associates, Inc. Project No 2440364.3A**

Dear Ms. Murshak :

Driesenga & Associates, Inc. is pleased to submit the attached report of subsurface exploration performed for the above-referenced project. The report presents the exploration procedures, subsurface conditions encountered, and our recommendations for development of the site with respect to proposed earthwork, foundation construction, and pavement design. As the project nears construction you can contact Beni Traore at 517-505-0220 in our local office to provide a quote for construction materials testing and survey needs.

Proper execution of our recommendations will affect the design, construction and performance of the structure and related facilities, and the potential associated risks involved. Therefore, the issues and recommendations presented in this report should be discussed with the project team, including Driesenga & Associates, Inc. This will increase the likelihood that the issues are understood and our recommendations are applied in a manner consistent with the project budget, tolerance of risk, and expectations for performance and maintenance.

We appreciate the opportunity to be of service to you. If you have any questions concerning this report, or if we can be of further service as design and construction progresses, please contact our office.

Sincerely,
DRIESENGA & ASSOCIATES, INC.

Michael Stork
Senior Project Geologist

Musana Nabil
Senior Project Engineer

Randy Pail, P.E.
Director of Geotechnical Engineering

Cc: Mr. Jonathan Lum of EXIT REALTY HOME PARTNERS

GEOTECHNICAL REPORT

SITE:

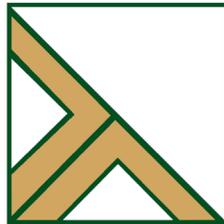
**NEW RESIDENCE
6499 HEATHFIELD DRIVE
LANSING, MICHIGAN**

**MAY 25, 2024
PROJECT NO. 2440364.3A**

PREPARED FOR:

**MS. MAYA MURSHAK
EAST LANSING, MICHIGAN**

Prepared by:



**DRIESENKA &
ASSOCIATES, INC.**

Engineering · Surveying · Testing



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APPENDICES

APPENDIX A	Figure 1 – Site Location Figure 2 – Boring Locations
APPENDIX B	Soil Boring Logs
APPENDIX C	Field and Laboratory Procedures



1.0 INTRODUCTION

1.1 LOCATION

This report presents the results of the geotechnical investigation completed for the proposed New Residence located at 6499 Heathfield Drive, Lansing, Michigan as shown on Figure 1 – Site Location (Appendix A).

1.2 PURPOSE

The purpose of this investigation was to determine the subsurface profile, the engineering characteristics of the subsurface soils, and to provide recommendations in regard to the proposed design and construction based on our interpretation of the test results. This report was prepared in general accordance with our proposal dated April 1, 2024, as authorized by Ms. Maya Murshak on April 22, 2024.

1.3 SCOPE

The field exploration to estimate engineering characteristics of the site soils included performing a site reconnaissance, advancing the soil borings, performing standard penetration tests, and recovering split-spoon samples. Soil boring locations were determined in the field by measuring from existing site features. Existing ground surface elevations were not provided and obtaining them was beyond the scope of this investigation.

Three (3) soil borings, designated SB-1 to SB-3, were advanced in the vicinity of the proposed residence on May 14, 2024, at the approximate locations shown on Figure 2 - Boring Locations (Appendix A). The soil borings were advanced with hollow-stem augers to a depth of twenty-five (25) feet below the ground surface. During drilling, soil samples were collected from split-spoon sampling via standard penetration testing (ASTM method D 1586) at intervals of 2.5 feet to a depth



of 10 feet, and intervals of 5 feet from a depth of 10 feet to the end of each boring. The soil boring logs are contained in Appendix B. The field and laboratory procedures are described in Appendix C.

1.4 DESIGN INFORMATION

Construction will consist of complete site grading, utilities and the construction of an approximately 2,200 square foot, ranch style home with a walkout basement level. The home will have approximate dimensions of 56 feet by 40 feet with an attached garage at the west side.

Structural load information was not available as of the time of this report, but should be provided to Driesenga & Associates, Inc. for review in light of the recommendations contained herein as soon as available. For calculation purposes, maximum loads of 2,500 pounds per lineal foot of wall and 30 kips per column were assumed. Foundations at the walkout side of the lower level (south area of site) are anticipated to be at least frost depth of 3.5 feet below grades while the remaining portions of the lower level foundations are anticipated to be up to 8 to 10 feet below grades.

We have assumed maximum tolerable settlements of 1 inch total and ½ inch differential. Excluding the walkout level excavations, we anticipate cuts and fills on the order of 3 feet will be required to establish site grades. Any significant deviation from these assumptions should be brought to the attention of Driesenga & Associates, Inc. as soon as possible.



2.0 SITE CONDITIONS

2.1 GENERAL

The stratification of the soils, as shown on the soil boring logs in Appendix B, represents the soil conditions at the actual soil boring locations. Variations may occur away from or between the soil borings. Stratigraphic lines shown on the soil boring logs represent the approximate boundary between the soil types, but the transition may be gradual. They are not intended to show exact depths of change from one soil type to another. In addition, changes in soil type may occur between the sample intervals that are consequently not observed by the driller.

The soil boring logs in Appendix B include the drilling method, materials encountered, penetration resistances, and pertinent field observations made during the drilling operations along with the results of the laboratory testing.

2.2 SURFACE CONDITIONS

The subject property is currently covered with sand and some areas of topsoil and slopes down to the south, there being approximately 8 to 10 feet of fall across the site. The site is surrounded by homes, maintained lawn, asphalt drives, and driveway areas associated with residential uses to the north and west and is surrounded by wooded areas and a low lying swampy area is located to the south and east of the site.

2.3 DESCRIPTION OF SUBSURFACE SOILS

Surface materials encountered at the site generally consist of 8 inches of topsoil and / or 6 to 8 feet of sand fill with varying amounts of roots, wood and clay. The native soils consist of very loose to dense, brown and gray, silts and sands and stiff to hard, brown and gray clays were encountered beneath the fill and extended to the explored depth of the soil borings.



Hand Penetrometer tests were performed on representative portions of cohesive soil samples to obtain an indication of the unconfined compressive of the material. As indicated on the soil boring logs, the estimated unconfined compressive strength ranged from 1.5 to over 4.5 tons per square foot (tsf).

The estimated group symbol, according to the USCS, is shown in the USCS column just before the textural description of the various strata on the soil boring logs in Appendix B.

2.4 GROUNDWATER OBSERVATIONS

Groundwater was initially encountered at depths ranging from 12 feet to 19 feet below the existing ground surface. Hydrostatic groundwater levels and the elevations and volumes of groundwater should be expected to fluctuate throughout the year, based on variations in precipitation, evaporation, run-off, and other factors. The groundwater levels (or lack thereof) indicated by the soil borings and presented in this section represent conditions at the time the readings were taken. The actual groundwater levels at the time of construction may vary.

Groundwater measurements were collected during drilling and attempted shortly after completion of the drilling operations. After drilling and collection of groundwater readings, the boreholes were backfilled with auger cuttings and the surface was repaired approximating previous conditions. Since the boreholes were backfilled shortly after drilling, long-term groundwater level information is not available from the soil borings. To obtain long-term groundwater levels, groundwater observation wells would be required.

2.5 SEISMIC SITE CLASS

The proposed building's seismic class was determined for use in the structural design of the proposed project. Soils information was obtained from the soil borings completed on-site, as well as information obtained from the "Soil Survey of Ingham County" by the United States Department



of Agriculture, the “Quaternary Geology of Michigan” completed by W.R. Farrand, the USGS Topographic Quadrangle and the Hydrogeologic Atlas of Michigan. It is assumed that the proposed structure falls under Building Class II according to the 2015 Michigan Building Code (MBC) Table 1604.5. Based on this information it is our determination that seismic site class D be used according to the ASCE 7 – Table 20.3-1 for structural calculations.

2.6 LIMITATIONS

Soil and groundwater conditions have been observed and interpreted at the soil boring locations only. This information has been used as the basis for our analyses and the recommendations that follow. Although we have allowed for minor variations in subsurface conditions in the development of our recommendations, conditions can vary away from and between soil boring locations. Should this become evident during construction, we should be contacted to review our recommendations. This geotechnical evaluation and report were prepared for geotechnical purposes only. We did not perform environmental related borings or analytical tests.



3.0 RECOMMENDATIONS

3.1 SITE PREPARATION

To increase the likelihood that the recommended allowable soil bearing capacities are achieved and tolerable settlements are not exceeded, the recommendations contained herein should be followed. Within the building footprint and any areas to receive fill, all existing building material, topsoil, old fill, organic-containing material, frozen soil and other unsuitable material should be removed. The clearing should extend a minimum of 5 feet beyond the limits of proposed building and pavement areas and areas to receive structural fill.

It is strongly recommended that the building pad and pavement subgrade areas be evaluated by Driesenga & Associates, Inc. after the area has been cleared and stripped to planned subgrade elevations. This evaluation may be performed by proofrolling with a loaded tandem axle dump truck or another method selected by the geotechnical engineer to identify any areas of soft subgrade soil. Where soft subgrade soils are encountered, remedial actions as recommended by the geotechnical engineer will be required.

Existing fill was encountered in the soil borings and extended about 6 to 8.5 feet below the existing ground surface. Without documentation of the placement of the fill, we consider it to be “uncontrolled fill.” If documentation of the existing fill is available, we would be pleased to review it to determine its suitability of slab, pavement, and/or structural fill support.

Deeper and/or looser uncontrolled fill may be encountered at the site, particularly adjacent to existing or former structures, or in the vicinity of existing utilities. The existing fill *may* be suitable for support of slabs, pavements, and/or structural fill after additional evaluation and special preparation and only where it is not underlain by buried topsoil or other organic, deleterious or otherwise unsuitable soils and the owner accepts the risks in doing so. Some of the soil samples in the existing fill contained roots and wood. Existing fill with excessive organics (over 4%), voids or



debris should be removed and replaced with structural fill. Test pits should be performed to identify unsuitable fill. The test pits could be performed prior to construction. However, suitability of the existing fill will need to be determined on a case-by-case basis during construction. The remaining fill, after removing unsuitable fill, is anticipated to be suitable to support floor slabs, pavements and structural fill, provided an increased risk of unsatisfactory performance is acceptable. We believe the risk of unsatisfactory performance such as cracking and settlement associated with the construction of slabs-on-grade and pavements on or above the existing fill is relatively low after preparation.

Ultimately, if the risk of poor slab and/or pavement performance is not acceptable, complete removal of the existing fill and replacement with structural fill should be performed. Based on the soil borings, the existing fill could extend 8.5 feet or more below the existing ground surface. If performed, the removal of the existing fill should extend a minimum of 10 feet beyond the edges of the proposed building, or laterally on a two vertical to one horizontal slope from the bottom outside edge of the foundation, whichever is greater. This action should reduce the amount and depth of undercutting during foundation construction since the unsuitable fill and any unsuitable soils directly beneath fill would be removed. For this case, the test pit evaluation would not be necessary. However, a test pit evaluation could be performed to provide a better estimate of the nature, depth and extent of the existing fill.

Some trees were located within or nearby the project area when this investigation was conducted. Large trees may have relatively widespread root structures and related organic veins. The earthwork activities within the building and pavement areas should include complete removal of the tree roots and organic veins.

In all general fill areas, the exposed granular soil surface (where old fill soils are left in place) should be scarified to a depth of 12 inches and recompact to a minimum of 95% of Modified Proctor maximum dry density (MDD) per ASTM D 1557 method, or 98% of MDD as determined by the Michigan Cone Method. Sand fill soils were encountered at or near the final subgrade level



in some of the soil borings in the proposed building area. Within the proposed building area the fill sand should be proof-compacted by at least six (6) passes of a 10-ton vibratory roller, where it is elected to leave it in place.

The contractor should remove standing water from the subgrade and prevent surface water from reaching the footing excavations and the prepared subgrade. In addition, construction traffic should use haul roads and should not haphazardly traffic the site. Subgrade soils that become disturbed should be removed and replaced with structural fill or crushed aggregate. Under wet weather conditions, the subgrade may be protected by placing crushed aggregate on the exposed subgrade.

Significant disturbance of the subgrade may result from repeated construction traffic on the clay. The exposed subgrade may need to be stabilized after removal of surface materials to support construction traffic or to reduce subgrade disturbance. Also, the clays may become disturbed due to ponded water and/or repeated construction traffic. Therefore, the contractor should remove standing water from the subgrade and prevent surface water from reaching the footing excavations and the subgrade. In addition, construction traffic should use haul roads and should not haphazardly traffic the site. The client should understand that construction costs may be higher during wet, snowy and/or colder months and that site preparation may be more extensive due to the effects of moisture on the soils. The contractor should limit the number and size of construction equipment on the site, should grade the site during stripping operations to allow surface water to drain from areas of proposed development, and should remove water from areas where it collects. In addition, site utilities should be installed early in the project to channel groundwater into the sand-filled trenches. Even with the above precautions, a significant amount of subgrade disturbance may result. Subgrade soils that become disturbed should be removed and replaced with structural fill or crushed aggregate. We recommend including a contingency in the construction budget to provide for subgrade improvements.



Aeration by methods such as disking may be required to reduce subgrade moisture content to the optimum moisture content range for compaction where clayey soils are exposed. In cold and/or wet weather conditions such as during the winter and spring months, it may not be possible to reduce the subgrade moisture content and granular fill or crushed aggregate may need to be imported to the site.

It is recommended that any fill materials be placed in or near horizontal maximum 8-inch-thick loose lifts and compacted to a minimum of 95% of Modified Proctor MDD, or 98% of Michigan Cone MDD. If a vibratory roller is used for compaction, the loose lift thickness may be increased to 12 inches. Soils used for structural fill should consist of clean sand meeting SW or SP classification in accordance with USCS criteria. Where granular soils are placed within clay soil profile, a drainage outlet should be provided to prevent the collection of water due to creating a “bathtub” effect.

3.2 FOUNDATIONS

Considering the subsurface conditions on this site, the assumed proposed construction and the recommended site preparation activities, it is acceptable for the proposed facility to be supported on conventional spread footings. Footings bearing on newly placed structural fill placed over suitable native soils or directly on the native clay may be designed for a maximum net allowable soil bearing pressure of 2,500 psf. The allowable bearing pressure may be increased by one-third for seismic or wind loads. **The footings should not be placed on the existing fill material.**

To attain the recommended bearing pressure where foundations bear on clay soils, improvement of the foundation subgrade may be required in some areas. The soil conditions may vary from those disclosed by the soil borings and undercuts may be required. The amount of improvement will depend on the finished floor elevation, the amount of disturbance during earthwork operations, and the soil and groundwater conditions at the foundation bearing level(s). We do not anticipate compaction of the clay soils will be effective and improvements may include mixing a layer of



coarse crushed aggregate into the subgrade. If the subgrade conditions cannot be improved either by compaction or mixing in crushed aggregate, the unsuitable soil should be removed and replaced with structural fill. In areas where undercutting is required, the undercut should extend laterally on a two vertical to one horizontal slope from the edge of the footing.

All perimeter footings and footings in unheated areas should bear at least 42 inches below finished grade for protection from frost action. To reduce the likelihood of frost heave, trench footings should be formed vertically and should not be allowed to widen near the top. If interior footings are to bear on compacted fill, the fill should be placed in accordance with the recommendations of Section 3.1. Interior foundations can be constructed on suitable natural soils or on structural fill overlying suitable natural subgrade just below the floor slab. However, the footings and proposed bearing soils should be protected from freezing during construction if work is conducted in the cold winter months. The placement of footing concrete should be done as soon as footing excavations have been completed and approved to reduce the potential for disturbance or freezing of the footing subgrade.

Prior to concrete placement, the bearing surface should be free of loose soil and standing water. The contractor should avoid stockpiling excavated materials immediately adjacent to the excavation walls. It is recommended that stockpiled materials be kept back from the excavation a minimum distance equal to half the excavation depth to prevent surcharging the excavation walls.

Total and differential settlement of foundations properly designed and constructed based on our recommendations are not expected to exceed 1 inch and ½ inch, respectively.

3.3 FLOORS

The soil below the floor slab should be prepared in accordance with the recommendations in Section 3.1. A noncohesive soils mat such as MDOT Class II sand should be provided directly



below the floor slabs. The mat should be a minimum of 8 inches in thickness and compacted to a minimum of 95% of Modified Proctor MDD.

We recommend providing vapor barriers below floor slabs that will receive an impermeable floor finish/seal. Even if these floor coverings are not planned, the vapor barrier can reduce the transmission of moisture vapor from the ground into the building. However, the placement of a vapor barrier affects construction of the floor slab, concrete curing, and the rate of moisture loss as the concrete dries. These factors could affect the performance of the slab. The manufacturer of the vapor barrier should be consulted in regard to the depth of the barrier below the slab.

The floor slab should be suitably reinforced and proper joints should be provided at the junctions of the slab and foundation system so that a small amount of independent movement can occur without causing damage. A minimum of 6 inches of structural fill should be provided between the bottom of the slab and the top of the shallow spread footing below. Otherwise, other arrangements should be made to allow for potential relative settlements, such as grade beams, thickened slabs with appropriate reinforcing steel or other appropriate details. A modulus of subgrade reaction of 150 pci should be used in the design of slabs-on-grade.

3.4 GROUNDWATER CONTROL

Groundwater was encountered at 12 feet to 19 feet below existing ground surface elevation. As such, groundwater problems are not expected to be a significant issue with respect to building construction. Any water which enters the footing excavation can likely be controlled by a gravity drain system, sump pump, or other minor dewatering procedure. Concrete should not be poured in footing excavations containing water. Upon removal of any trapped water, the soils should be reviewed by a geotechnical engineer and any soft areas replaced with structural fill per Section 3.1, as necessary.



Perimeter foundation drains should be installed along foundations where interior finished floor elevations are lower than perimeter grades, or where exterior grades slope toward the building. In addition, all roof drains should be diverted to downspouts which carry water away from foundations and supporting walls. Where granular engineered fill is placed within the native clay soils, adequate drainage of the granular material should be provided so as to avoid creating an area for water to collect.

3.5 BASEMENT WALLS

Pressures on basement walls will depend on the properties of the backfill and yielding of the wall. Assuming imported fill sand meeting the recommendations of Section 3.1 is used as backfill. An “at rest” coefficient of lateral pressure (K_o) of 0.5 should be used if the wall will be fixed or not allowed to move, as in the case of a basement wall. An equivalent fluid pressure of 35 pcf would be appropriate for non-submerged conditions in the active condition and 58 pcf in the “at rest” condition. For the undrained condition, an equivalent fluid earth and groundwater pressure of 95 pcf should be used for the active condition and 120 pcf for the at-rest condition. In no case should cohesive soils be used as backfill against walls, as excessive creep could increase lateral pressures significantly above assumed design values over time.

The coefficient of passive pressure (K_p) to resist sliding will depend on the type of soil on the “low side” (i.e., side of the wall opposite the “high side” or backfill). For the sandy fill soils and assuming level backfill behind the wall, a K_p of 3.2 should be used. For the native clayey soils at this site, a K_p of 2.2 should be used.

Assuming a concrete wall foundation (rough concrete surface), an ultimate friction factor of 0.50 between the concrete and soil should be used to calculate sliding resistance for the sand fill soils or imported sand fill as described in section 3.1. An ultimate friction factor of 0.35 should be used if the wall foundation will bear on native clays. Design calculations should use a minimum factor of



safety of 1.5 to resist sliding (including friction and passive earth pressure forces), and a minimum factor of safety of 1.5 should also be used to resist overturning of the wall.

The recommended earth pressures stated above do not account for surcharge loading on the wall system caused by, for example, stockpiled materials, sloping backfills, or excessive temporary loads. These conditions would increase design pressures and should be properly distributed in the earth pressure analyses. Earth pressures on non-yielding walls can be much higher if backfill is placed with heavy equipment operating immediately behind the wall. To reduce this potential, we recommend that only hand compaction equipment and methods be used for backfilling within 5 feet of the wall.

It is recommended that a perimeter drain be located around the exterior foundation to reduce the buildup of hydrostatic pressure against the walls. The drains must outlet to a positive drain by gravity or to a sump equipped with an automatic properly sized pump. Slotted PVC pipe wrapped in filter fabric and covered with MDOT 6AA or pea stone should be used. Final exterior grades should slope away from below-grade walls to divert surface water.

The groundwater levels encountered at the soil boring locations may be within just a few feet of the proposed lower floor level. Therefore, we recommend a below slab drainage system be installed since groundwater levels can vary by several feet and the groundwater levels below the slab during the life of the structure could be higher than the levels encountered in the soil borings.

Waterproofing below-grade walls should also be considered, especially if items housed in the lower level of the building will be sensitive to moisture intrusion (e.g., files, books, and record storage). Waterproofing should consist of water stops at the concrete construction joints. In addition, a waterproofing membrane may be applied to the exterior surface of the below-grade walls to mitigate the potential for water infiltration through the walls.



3.6 TEMPORARY EXCAVATION STABILITY

If excavations are anticipated for the proposed structure and/or utilities, shoring and bracing or flattening (laying back) of the slopes may be required to obtain a safe working environment. Excavations should be sloped or shored in accordance with local, state and federal regulations, including OSHA (CFR Part 1926) excavation trench safety standards. We recommend that all excavated soils be placed away from the edges of the excavation at a distance equaling or exceeding the depth of the excavation. In addition, surface runoff water should be diverted away from the crest of the excavated slopes to prevent erosion and sloughing.

Localized areas of soft or unsuitable soils not detected by our borings or in unexplored areas may be encountered once construction begins. Vertical cuts in these soils may be unstable and may present a significant hazard because they can fail without warning. Therefore, temporary construction slopes greater than 5 feet high should not be steeper than one horizontal to one vertical (1H: 1V) and excavated material should not be placed within 10 feet of the crest of any excavated slope.

Unbraced excavations may experience some minor localized instability (i.e., sloughing). To reduce potential sloughing, excavated slopes should be covered with plastic for protection from rainfall and moisture changes. It should be emphasized that continuous observations by personnel from our office are important during trenching or excavation operations at the site.



4.0 GENERAL COMMENTS

If significant changes are made in the plans and specifications, the location of the proposed residence, or the loading conditions outlined in Section 1.4 are exceeded, a consultation should be arranged to review such changes with respect to the prevailing soil conditions. It may then be necessary to submit supplementary recommendations. If deviations from the noted subsurface conditions are encountered during construction, they should also be brought to the attention of Driesenga & Associates, Inc.

Driesenga & Associates, Inc. should be afforded the opportunity to review the project design drawings and specifications to verify the factors affecting subgrade and foundation performance comply with our recommendations.

It is recommended that the services of Driesenga & Associates, Inc. be engaged to observe excavation for the footings and to test and evaluate the soils in the footing excavations prior to placement of foundations in order to determine that the soils have the required bearing capacities. Monitoring and testing should also be performed to verify that suitable materials are used for controlled fills and that they are properly placed and compacted.

This report and any future reports or addenda performed for this site should be supplied to potential bidders prior to them submitting their proposals. We also recommend the construction contract include provisions for dealing with differing conditions. Contingency funds should be reserved for potential problems during earthwork and foundation construction.

This report was for geotechnical purposes only. We did not sample for environmental purposes or perform any analytical testing. However, the contractor should be prepared to handle environmental conditions encountered at this site that may affect the excavation, removal, or disposal of soil; dewatering of excavations; and health and safety of workers. Any Environmental



Assessment reports prepared for this property should be made available for review by bidders and the successful contractor.

This report has been prepared solely for the use of the client for the project specifically described in this report. This report cannot be relied upon by other parties not involved in this project, unless written permission is granted by Driesenga & Associates, Inc. If this report or any of its contents are utilized by parties other than our original client and the project team members, Driesenga & Associates, Inc. can not be held responsible for the suitability of the field exploration, scope of services, or recommendations made for the new project. Driesenga & Associates, Inc. also is not responsible for the interpretation of our soil boring logs and the recommendations provided herein by other parties.

Driesenga & Associates, Inc. will evaluate this report for other parties and developments at this site, provided our original Client agrees to release this information in writing. However, before this report can be relied upon by other parties, Driesenga & Associates, Inc. must review the proposed development since the new project will likely require additional field exploration, laboratory tests, analysis, and modifications to our recommendations to adequately address the needs of the new project.



APPENDIX A

·FIGURE NUMBER 1 – SITE LOCATION·

·FIGURE NUMBER 2 – BORING LOCATIONS·



Figure Number: 1

Site Location

Project Name

New Residence

Project Number

2440364.3A

Project Location

6489 Heathfield Drive,
East Lansing, Michigan





Figure Number: 2

Boring Locations

Project Name

New Residence

Project Number

2440364.3A

Project Location

6489 Heathfield Drive,
East Lansing, Michigan





APPENDIX B
·SOIL BORING LOGS·



DRIESENKA & ASSOCIATES, INC.

Engineering · Surveying · Testing

SB - 1

Project: New Residence
6489 Heathfield Drive
East Lansing, Michigan

Project No. 2440364.3A

Client: Maya Murshak

Date Started : May 14, 2024

Date Completed : May 14, 2024

Hole Diameter : 6-inches

Drilling Method : Hollow-Stem Auger

Sampling Method : Split-Spoon Sampler

Drilling Company : Rosendall

Field Sampling : Micah

Reviewed By : M. Nabil

GW Encountered : 12.0

GW Completed : N/A

Depth in Feet	Elev.	USCS	GRAPHIC	Water Levels		Auto-Hammer Used for SPT	Samples	Blow Count	N Value	Pocket Pen (tsf)	Water Level	Moisture Content %	
				▼ During Drilling	▽ After Completion								
DESCRIPTION													
0		SC/Fill		Fill - Clayey SAND, loose, brown, with gravel and pebbles, moist			1	2 2 2	4	2.5			
5				CL		Sandy CLAY, very stiff, brown and grey, trace roots, moist			3				
		CL		Silty CLAY, stiff, brown, with roots, moist to wet			4	1 2 3	5	2.0			
10		SM		Silty SAND, very loose, brown, trace gravel, wet			5	1 0 1	1				
15		ML		SILT, medium dense, brown, wet			6	4 10 9	19				
20		CL		Silty CLAY, very stiff, grey, wet			7	5 5 8	13	4.0			
25		E.O.B. @ 25'											
30													



DRIESENKA & ASSOCIATES, INC.

Engineering · Surveying · Testing

SB - 3

Project: New Residence
6489 Heathfield Drive
East Lansing, Michigan

Project No. 2440364.3A

Client: Maya Murshak

Date Started : May 14, 2024

Date Completed : May 14, 2024

Hole Diameter : 6-inches

Drilling Method : Hollow-Stem Auger

Sampling Method : Split-Spoon Sampler

Drilling Company : Rosendall

Field Sampling : Micah

Reviewed By : M. Nabil

GW Encountered : 19.0

GW Completed : N/A

Depth in Feet	Elev.	USCS	GRAPHIC	Water Levels	Auto-Hammer Used for SPT	Samples	Blow Count	N Value	Pocket Pen (tsf)	Water Level	Moisture Content %
				▼ During Drilling ▽ After Completion							
DESCRIPTION											
0		SW/Fill				1	4 4 4	8			
		SW/Fill				2	4 3 4	7			
		SW/Fill				3	3 4 5	9			
		CL				4	3 5 6	11	4.0		
		CL				5	3 5 7	12	2.0		
		ML				6	8 16 20	36		▼	
		CL				7	2 4 8	12	1.5		
		E.O.B. @ 25'									
30											



APPENDIX C
·FIELD AND LABORATORY PROCEDURES·

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

**Per ASTM D 2487—00
(Based on Unified Soil Classification System)**

Soil Description: Secondary Soil Type BASIC SOIL TYPE, Consistency/Relative Density, Color, Supplemental Soil Type, Moisture, Miscellaneous comments.

Ex. Silty SAND, loose, brown, fine to medium, trace gravel, moist.

Secondary Soil Type – adjective for the BASIC SOIL TYPE describing material making up greater than 12% but less than 50% of the primary soil type by weight. For sands this also includes a description of grain size (fine, medium or coarse).

BASIC SOIL TYPE – primary constituent of sample; material making up greater than 50% of the sample by weight. Material is classified by grain size and material properties.

Consistency/Relative Density – a measurement of in-situ consistency or density of cohesive or cohesionless soils, respectively, based upon Standard Penetration Testing blow counts (N) per ASTM D 1586.

Color – visual inspection of soil appearance.

Supplementary Soil Type – a description of any other material that may be mixed with the BASIC SOIL TYPE. Qualifying terms are based on the percentage of the supplementary soil type in the sample by weight.

Moisture – description of the in-situ moisture content of the sample (dry, moist or wet).

Miscellaneous Comments – anything observed in the sample or in the field that does not fit into the above categories but should be noted (odor, etc.).

CALIBRATED AUTO HAMMER CONSISTENCY/RELATIVE DENSITY				
COHESIONLESS SOILS		COHESIVE SOILS		
SPT N-VALUES	IN-SITU RELATIVE DENSITY	SPT N-VALUES	SHEAR STRENGTH (PSF)	IN-SITU CONSISTENCY
0-3	VERY LOOSE	0-1	BELOW 250	VERY SOFT
4-8	LOOSE	2-3	250 - 500	SOFT
9-23	MEDIUM DENSE	4-6	500 - 1,000	MEDIUM STIFF
24-38	DENSE	7-12	1,000 - 2,000	STIFF
>38	VERY DENSE	13-25	2,000 - 4,000	VERY STIFF
		>26	OVER 4,000	HARD

STANDARD HAMMER CONSISTENCY/RELATIVE DENSITY				
COHESIONLESS SOILS		COHESIVE SOILS		
SPT N-VALUES	IN-SITU RELATIVE DENSITY	SPT N-VALUES	SHEAR STRENGTH (PSF)	IN-SITU CONSISTENCY
0-4	VERY LOOSE	0-2	BELOW 250	VERY SOFT
5-10	LOOSE	3-4	250 - 500	SOFT
11-30	MEDIUM DENSE	5-8	500 - 1,000	MEDIUM STIFF
31-50	DENSE	9-16	1,000 - 2,000	STIFF
>50	VERY DENSE	17-32	2,000 - 4,000	VERY STIFF
		>32	OVER 4,000	HARD

SUPPLEMENTAL TEXTURE QUALIFYING TERMS	
DESCRIPTOR	PERCENTAGE BY WEIGHT
TRACE	1-10%
LITTLE	10-20%
SOME	20-35%
AND	35-50%

SOIL CLASSIFICATION CHART (Per ASTM D2487)

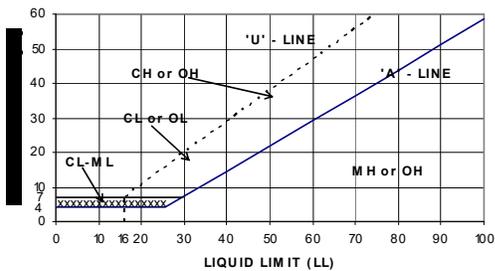
Criteria for Assigning Symbols and Group Names Using Laboratory Tests ^A			Soil Classification		
			Group Symbol	Group Name	
COHESIONLESS SOILS More than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 Sieve	Clean Gravels Less than 5% fines ^C	$Cu \geq 4$ and $1 \leq Cc \leq 3^E$	GW	Well-graded gravel ^F
			$Cu < 4$ and/or $1 > Cc > 3^E$	GP	Poorly graded gravel ^F
		Gravels with Fines More than 12% fines ^C	Fines classify as ML or MH	GM	Silty gravel ^{F,G,H}
			Fines classify as CL or CH	GC	Clayey gravel ^{F,G,H}
	Sands More than 50% of coarse fraction retained on No. 4 Sieve	Clean Sands Less than 5% fines ^D	$Cu \geq 6$ and $1 \leq Cc \leq 3^E$	SW	Well-graded sand ^F
			$Cu < 6$ and/or $1 > Cc > 3^E$	SP	Poorly graded sand ^F
		Sands with Fines	Fines classify as ML or MH	SM	Silty sand ^{G,H,I}
			Fines classify as CL or CH	SC	Clayey sand ^{G,H,I}
COHESIVE SOILS 50% or more passes the No. 200 Sieve	Silt and Clays Liquid limit less than 50	Inorganic	$PI \geq 7$ and plots on or above 'A' line ^J	CL	Lean clay ^{K,L,M}
			$PI < 4$ or plots below 'A' line ^J	ML	Silt ^{K,L,M}
		Organic	Liquid limit - oven dried < 0.75	OL	Organic clay ^{K,L,M,N}
			Liquid limit - not dried < 0.75		Organic silt ^{K,L,M,O}
	Silt and Clays Liquid limit 50 or more	Inorganic	PI plots on or above 'A' line	CH	Fat clay ^{K,L,M}
			PI plots below 'A' line	MH	Elastic Silt ^{K,L,M}
		Organic	Liquid limit - oven dried < 0.75	OH	Organic Clay ^{K,L,M,P}
			Liquid limit - not dried < 0.75		Organic silt ^{K,L,M,O}
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor		PT	Peat	

- A** Based on the material passing the 3-in. sieve
- B** If field sample contained cobbles or boulders, or both, add "with cobbles or boulders or both" to group name
- C** Gravels with 5 to 12% fines require dual symbols:
 GW-GM well-graded gravel with silt
 GW-GC well-graded gravel with clay
 GP-GM poorly graded gravel with silt
 GP-GC poorly graded gravel with clay
- D** Sands with 5 to 12% fines require dual symbols:
 SW-SM well-graded sand with silt
 SW-SC well-graded sand with clay
 SP-SM poorly graded sand with silt
 SP-SC poorly graded sand with clay

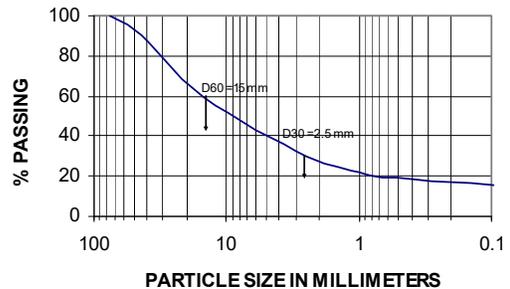
- E** $Cu = D_{60}/D_{10}$ $Cc = (D_{30})^2/(D_{10} \cdot D_{60})$
- F** If soil contains $\geq 15\%$ sand, add "with sand" to group name.
- G** If fines classify as CL-ML, use dual symbol GC-GM or SC-SM
- H** If fines are organic, add "with organic fines" to group name.
- I** If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.
- J** If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.
- K** If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel" whichever is predominant
- L** If soil contains $\geq 30\%$ plus No. 200, predominantly sand, add "sandy" to group name.

- M** If soil contains $\geq 30\%$ plus No. 200, predominantly gravel, add "gravelly" to group name
- N** $PI \geq 4$ and plots on or above 'A' line.
- O** $PI < 4$ or plots below 'A' line.
- P** PI plots on or above 'A' line.
- Q** PI plots below 'A' line.

For classification of fine-grained soils and fine-grained fraction of coarse-grained soils



SIEVE ANALYSIS





FIELD PROCEDURES

The soil borings were performed using an All-Terrain Vehicle (ATV)-mounted drill rig equipped with an auto-hammer. Split-barrel samples were obtained in the soil below the bottom of the augers in general accordance with the Standard Method for Penetration and Split-Barrel Sampling of Soils. Samples were collected at 2.5 foot intervals to 10 feet below grade, and every 5 feet thereafter. After recovery, the samples were removed from the split-spoon sampler, visually reviewed and classified, placed in glass jars and transported to our laboratory for additional review.

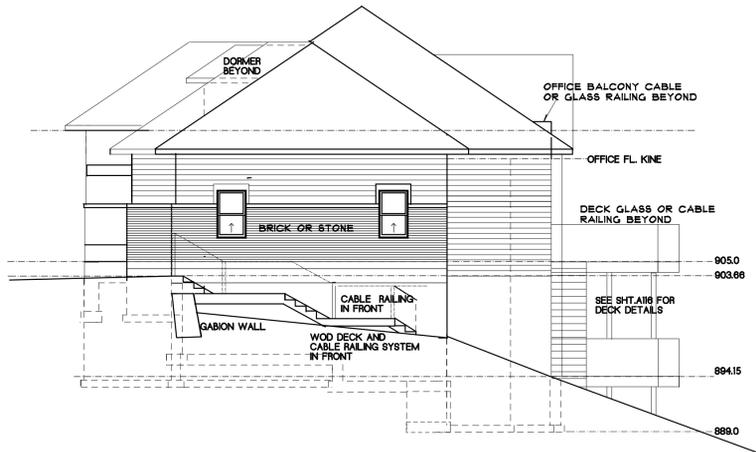
Soil samples stored for extended periods are susceptible to moisture loss and are no longer indicative of the conditions originally encountered in the soil borings. Therefore, soil samples are usually stored in our laboratory for a period of 60 days, unless instructed otherwise.

Soil boring logs were prepared based on field notes and visual classification of the samples in the laboratory. Indicated on each soil boring log is the description of each stratum observed, the approximate depth and/or elevation of each stratum change observed, Standard Penetration Test resistance values, and the observed groundwater levels. The soil boring logs are presented in Appendix B.

LABORATORY PROCEDURES

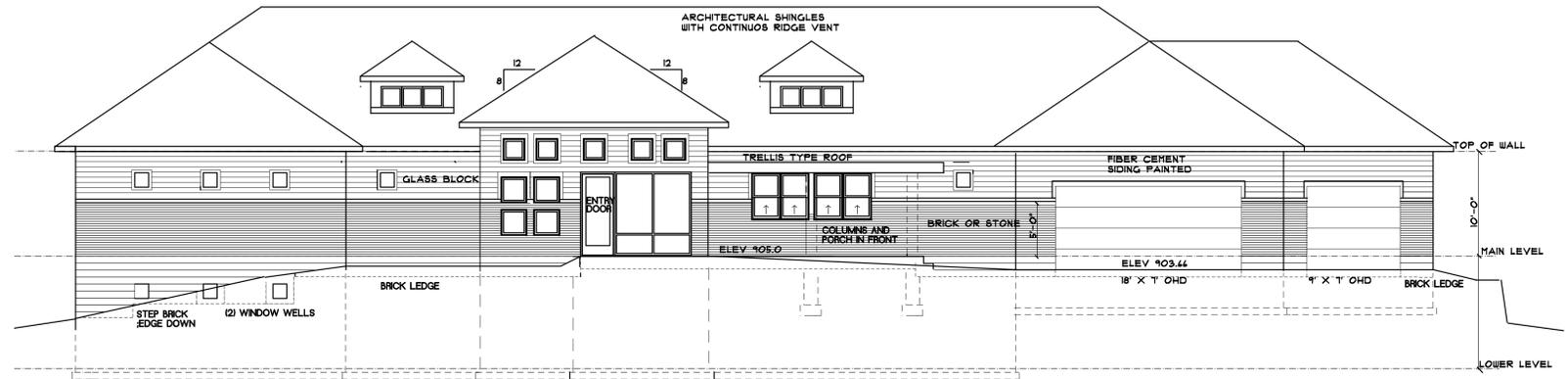
The laboratory testing program included supplementary visual classification of the samples in general accordance with the Unified Soil Classification System. The following two pages describe the soils classification procedure.

**MURSHAK PARKS RESIDENCE
6499 HEATHFIELD
MERIDIAN TOWNSHIP, MICHIGAN**



WEST ELEVATION

1/8" = 1'-0"



NORTH ELEVATION

1/8" = 1'-0"



EAST ELEVATION

1/8" = 1'-0"



SOUTH ELEVATION

1/8" = 1'-0"

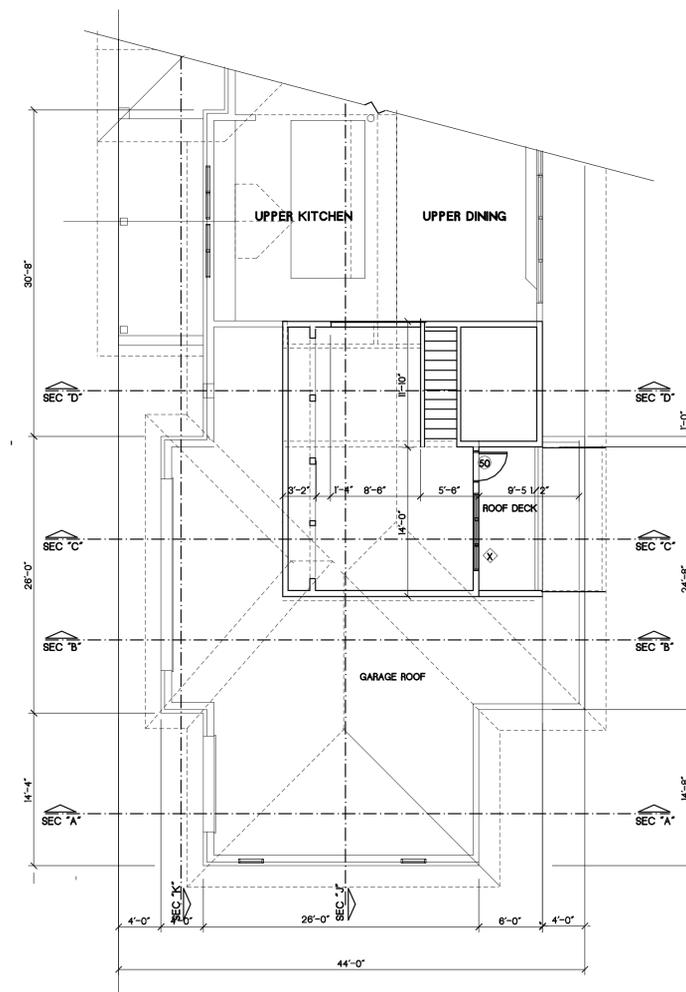
**MURSHAK PARKS RESIDENCE
6499 HEATHFIELD
MERIDIAN TOWNSHIP, MICHIGAN**



613 grove street, east lansing, mi 48823
517-648-1470 tim.mrozowski@gmail.com

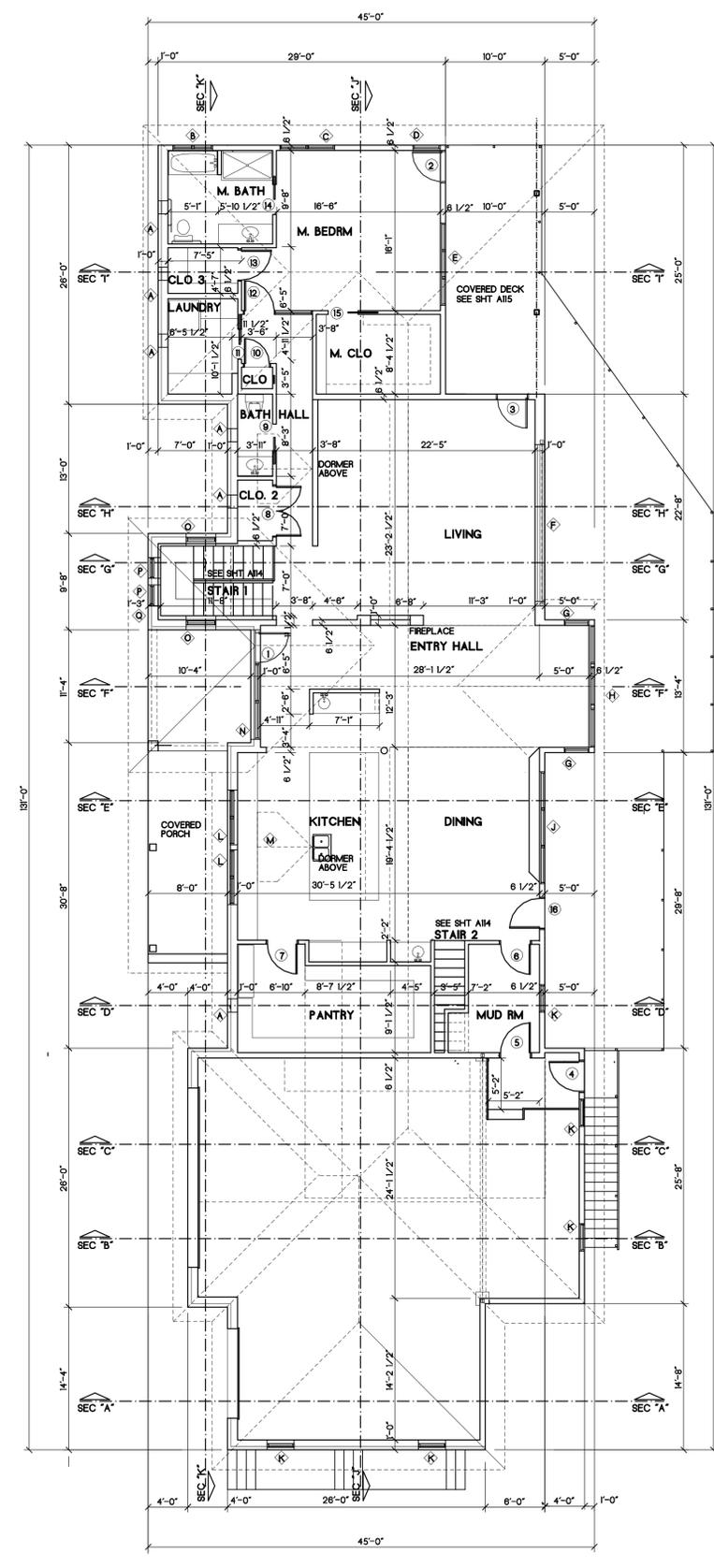


NORTH



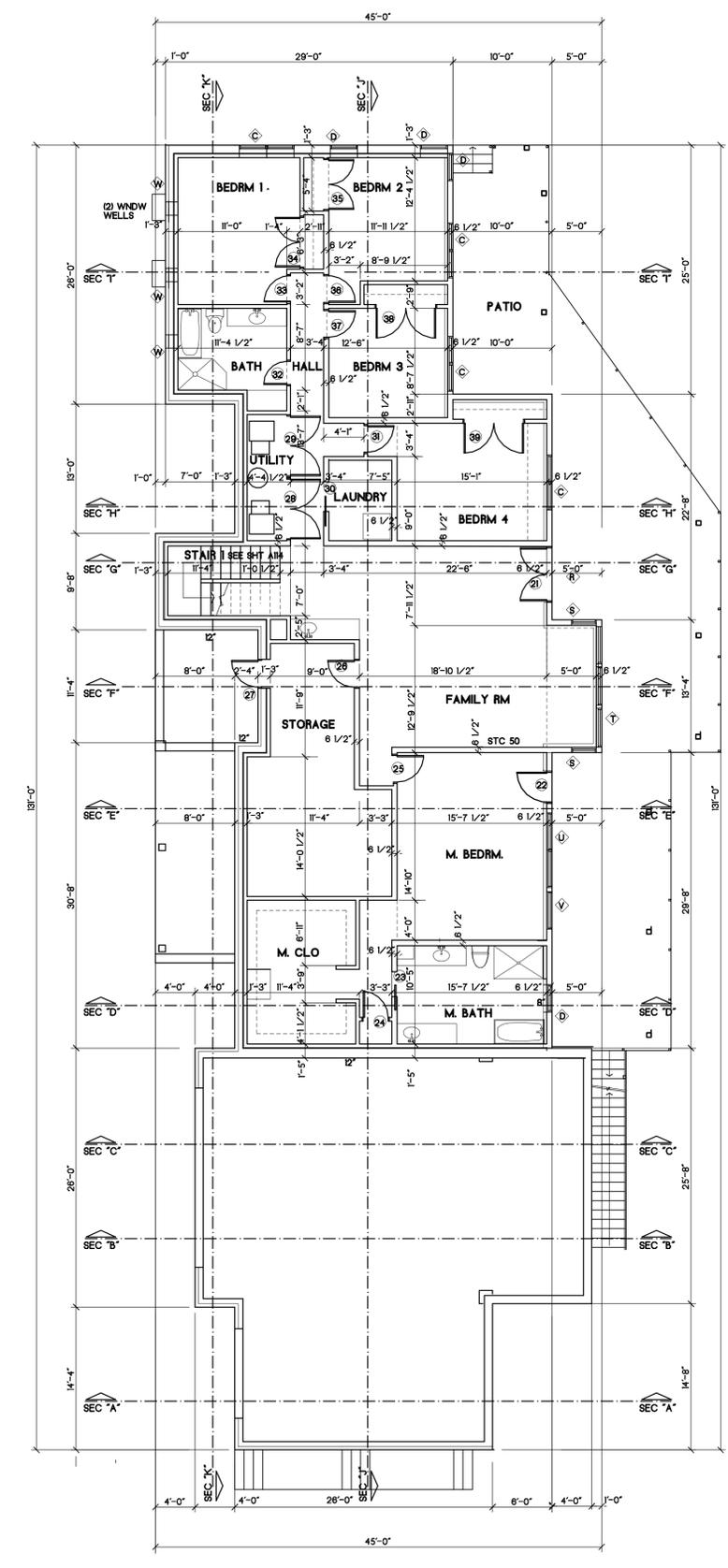
UPPER LEVEL

1/8" = 1'-0"



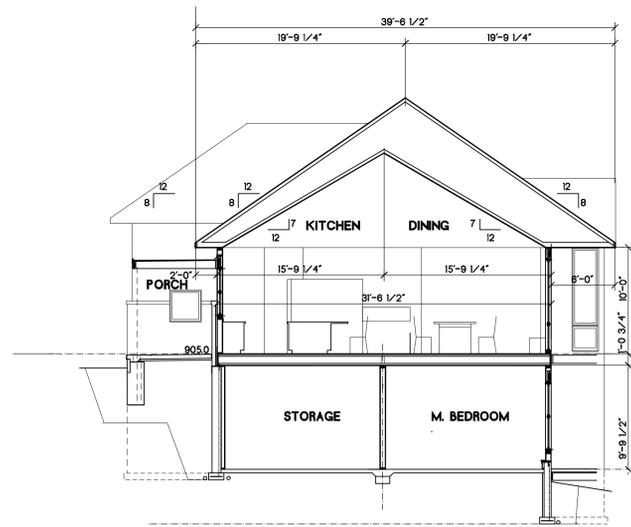
MAIN LEVEL

1/8" = 1'-0"



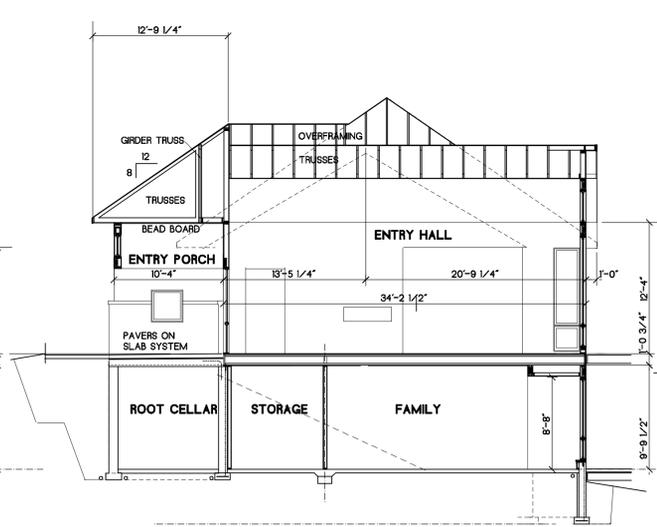
LOWER LEVEL

1/8" = 1'-0"



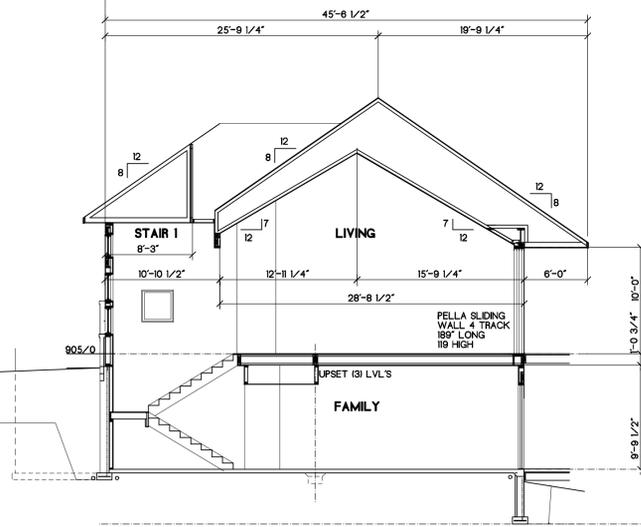
SECTION E-E

1/8" = 1'-0"



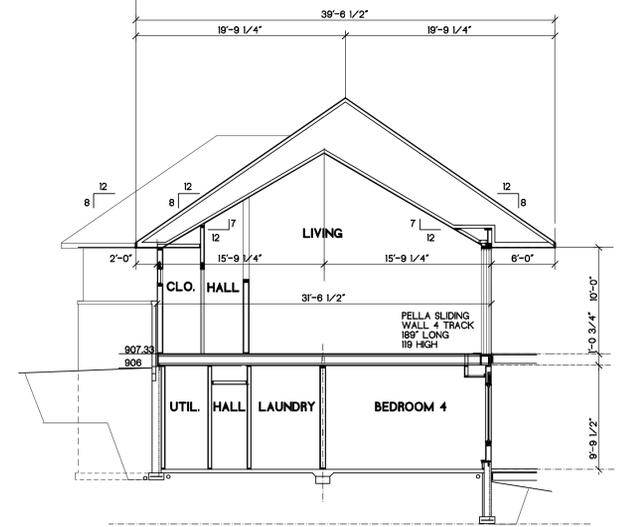
SECTION F-F

1/8" = 1'-0"



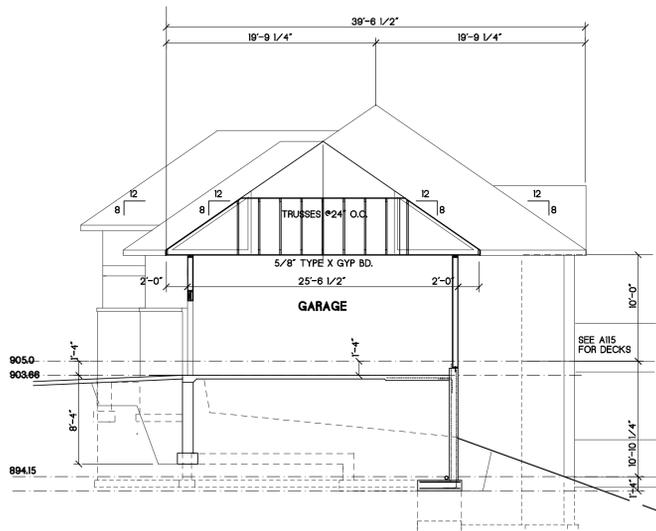
SECTION G-G

1/8" = 1'-0"



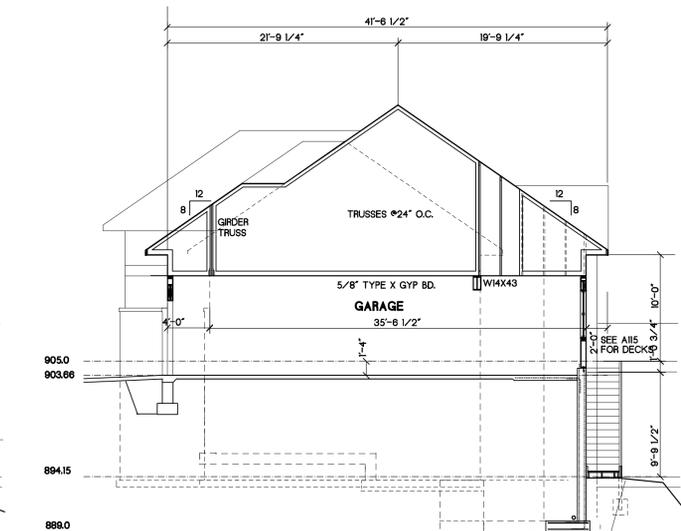
SECTION H-H

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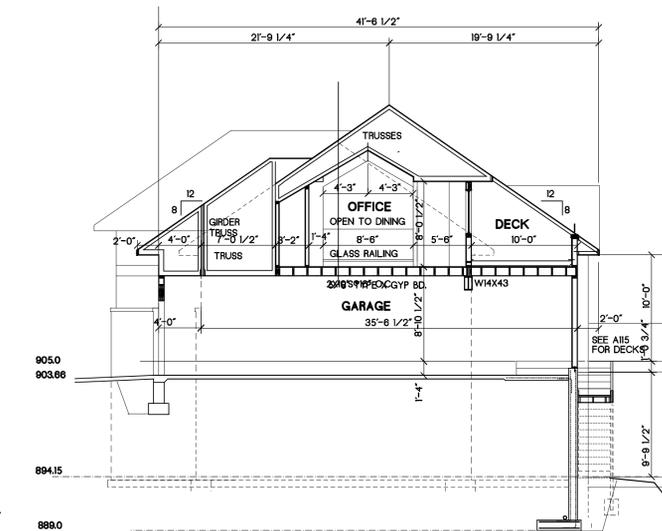
SECTION A-A

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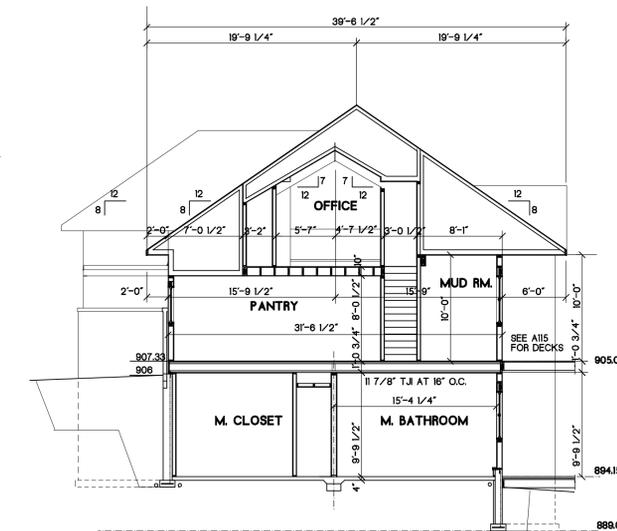
SECTION B-B

1/8" = 1'-0"



SECTION C-C

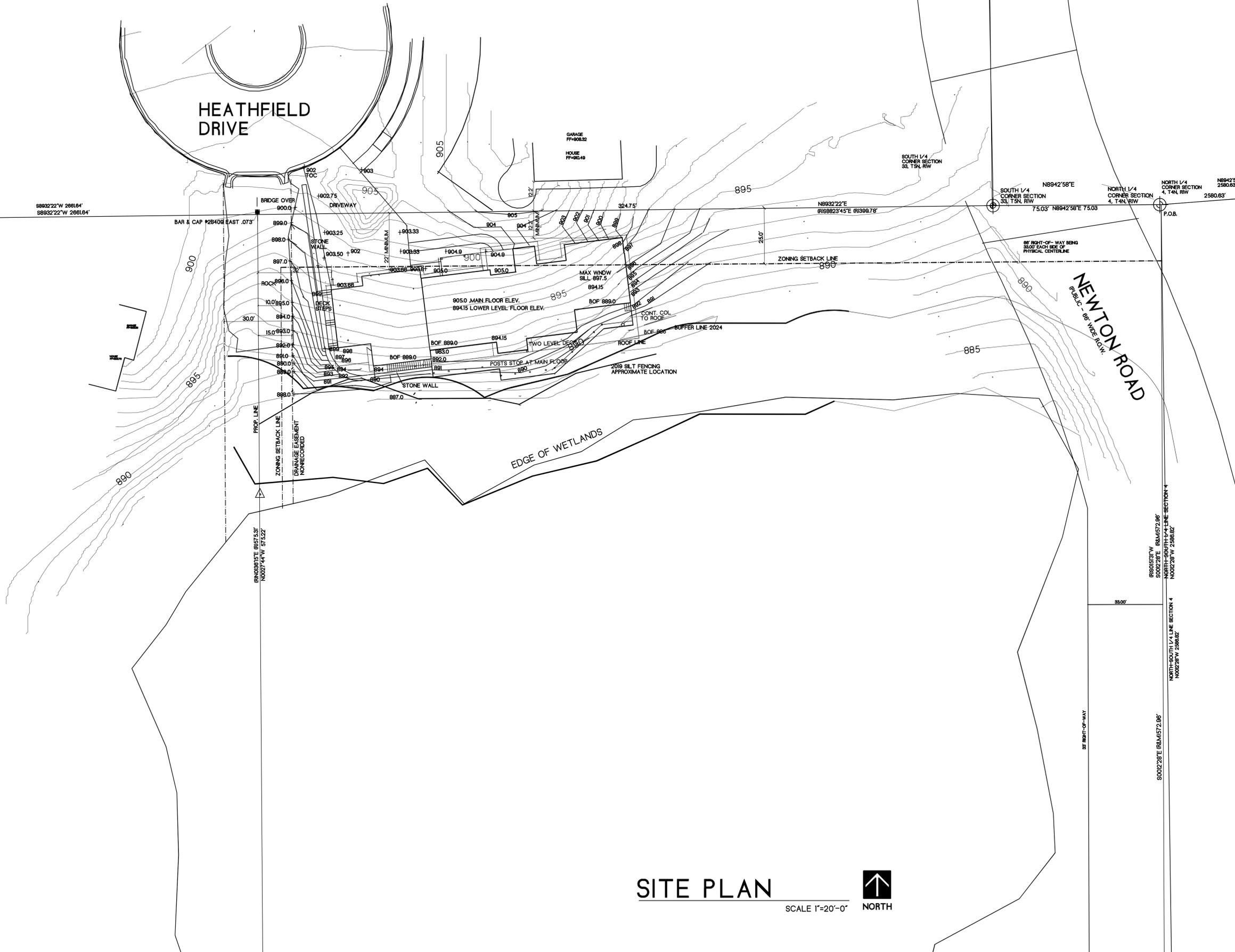
1/8" = 1'-0"



SECTION D-D

1/8" = 1'-0"

MURSHAK PARKS RESIDENCE
6499 HEATHFIELD
MERIDIAN TOWNSHIP, MICHIGAN



SITE PLAN

SCALE 1"=20'-0"



MURSHAK PARKS RESIDENCE

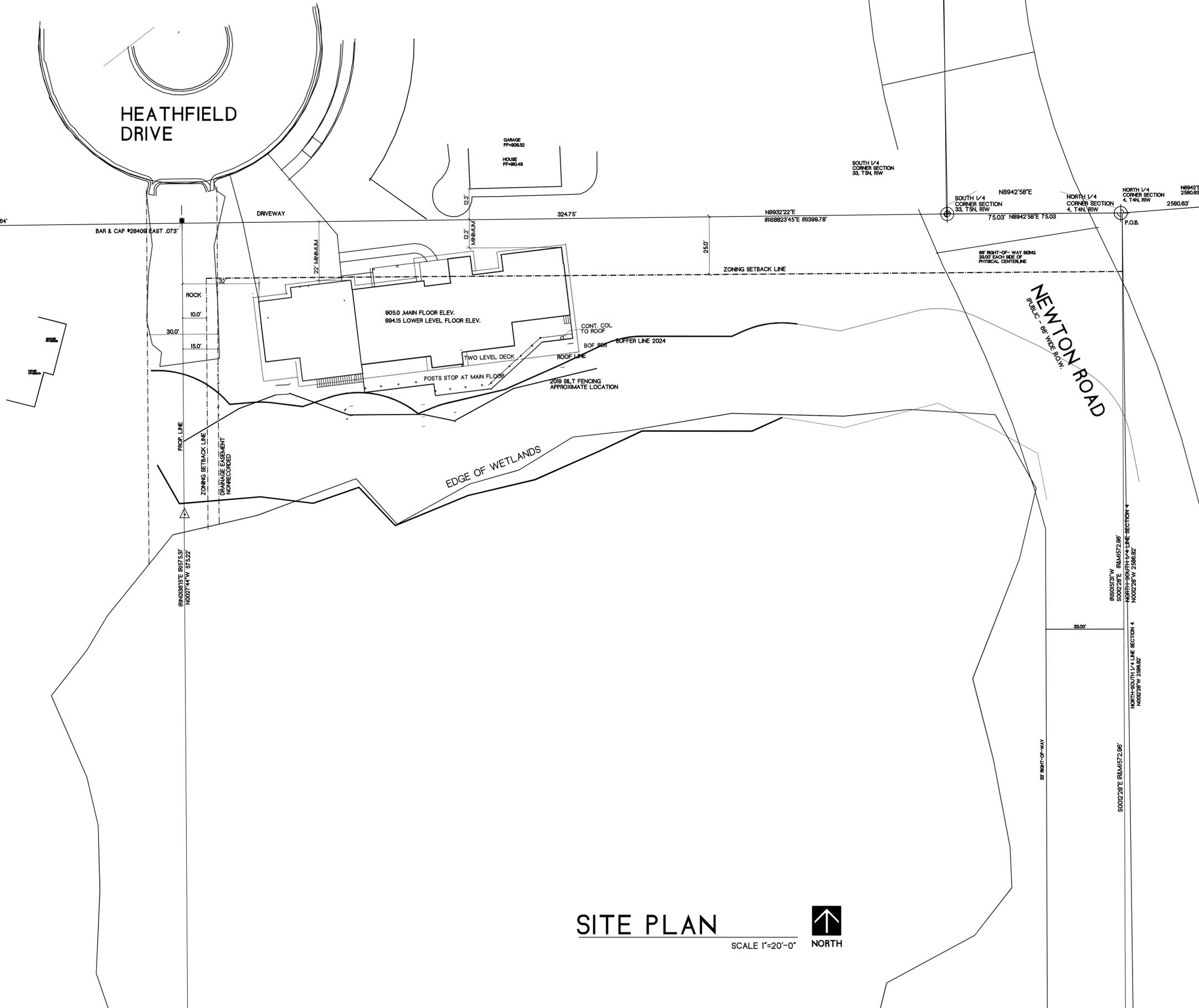
6499 HEATHFIELD

MERIDIAN TOWNSHIP, MICHIGAN

tim mrozowski, aia
 613 grove street, east lansing, mi 48823
 517-648-1470 tim.mrozowski@gmail.com

MURSHAK PARKS RESIDENCE 6499 HEATHFIELD MERIDIAN TOWNSHIP, MICHIGAN

 **tim mrozowski, aia**
 613 grove street, east lansing, mi 48823
 517-648-1470 tim.mrozowski@gmail.com

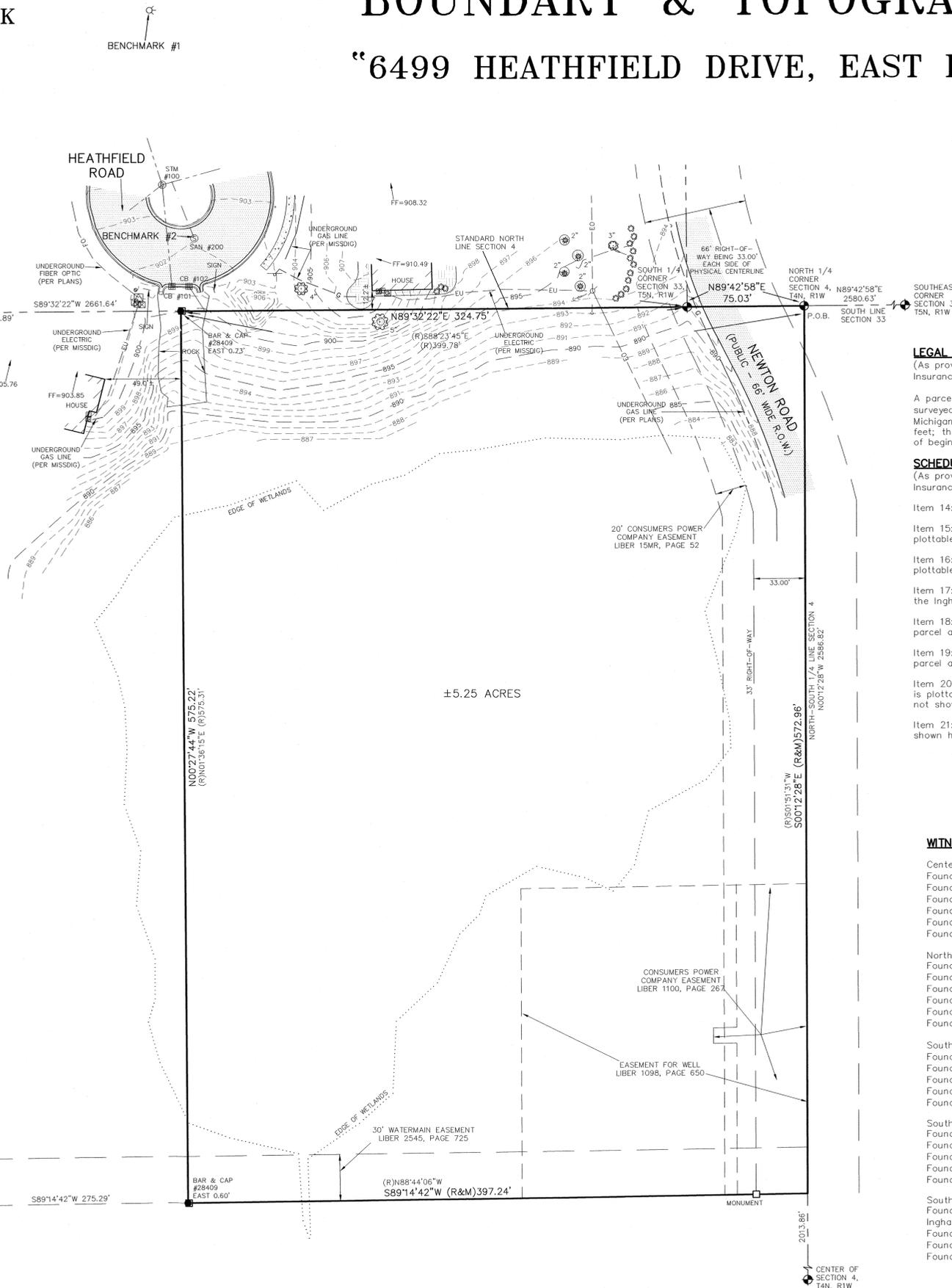
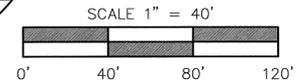
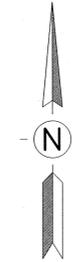
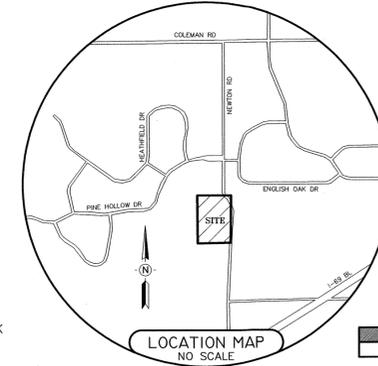


SITE PLAN
 SCALE 1"=20'-0"
 NORTH

FOR: MAYA MURSHAK

BOUNDARY & TOPOGRAPHIC SURVEY

"6499 HEATHFIELD DRIVE, EAST LANSING, MI 48823"



SEWER INVENTORIES

STORM MANHOLE #100
RIM - 903.83
12" RCP N - 898.43
24" RCP E - 897.39
12" RCP S - 897.42
6" PVC SW - 897.62

CATCH BASIN #101
RIM - 901.40
12" RCP N - 897.64
12" RCP E - 897.67

CATCH BASIN #102
RIM - 901.63
8" PVC SE - 898.02
12" RCP W - 897.95

SANITARY MANHOLE #200
RIM - 902.05
10" PVC N - 891.81

±5.25 ACRES

BENCHMARKS

BENCHMARK #1 ELEV. = 909.36 (NAVD88)
SOUTHEAST BOLT OF HYDRANT, ±6.5' EAST OF BACK OF CURB OF HEATHFIELD ROAD, ±59.5' SOUTH OF DRIVEWAY #6475 HEATHFIELD ROAD

BENCHMARK #2 ELEV. = 902.06 (NAVD88)
"X" ON NORTH EDGE OF SANITARY MANHOLE, ±30' NORTH OF BACK OF CURB OF HEATHFIELD ROAD, ±31' NORTHEAST OF NORTHWEST CORNER OF CATCH BASIN

LEGAL DESCRIPTION:

(As provided by Transation Title Agency of Michigan Central Division LLC underwritten by Fidelity National Title Insurance Company, Commitment No. 439314LAN, dated June 17, 2024)

A parcel of land in the Northwest 1/4 of Section 4, T4N, R1W, Meridian Township, Ingham County, Michigan; the surveyed boundary of said parcel being described as BEGINNING at the North 1/4 corner of Section 4, T4N, R1W, Michigan Meridian; thence S01°51'31"W, along the North-South 1/4 line, 572.96 feet; thence N88°44'06"W, 397.24 feet; thence N01°36'15"E, 575.31 feet; thence S88°23'45"E, along the North Section line, 399.78 feet to the point of beginning.

SCHEDULE B, SECTION II, EXCEPTIONS:

(As provided by Transation Title Agency of Michigan Central Division LLC underwritten by Fidelity National Title Insurance Company, Commitment No. 439314LAN, dated June 17, 2024)

Item 14: Easement for well as recorded in Liber 1098, Page 650; crosses parcel, is plottable and shown hereon.

Item 15: Easement granted to Consumers Power Company as recorded in Liber 1100, Page 267; crosses parcel, is plottable and shown hereon.

Item 16: Easement granted to Consumers Power Company as recorded in Liber 15 MR, Page 52; crosses parcel, is plottable and shown hereon.

Item 17: Drain Easement as recorded in Liber 63 MR, Page 202; document not provided, however by looking at the Ingham County Drain maps online, it appears there are no recorded drains shown crossing the site.

Item 18: Easement granted to Consumers Power Company as recorded in Liber 272, Page 408; does not cross parcel and is not shown hereon.

Item 19: Easement granted to Consumers Power Company as recorded in Liber 272, Page 409; does not cross parcel and is not shown hereon.

Item 20: Easements as recorded in Liber 2545, Page 724; Watermain Easement per said document crosses parcel, is plottable and shown hereon. Sanitary Easement as described in said document does not cross parcel, therefore not shown hereon.

Item 21: Dedication Deed and Agreement as recorded in Liber 2835, Page 479; does not cross parcel and is not shown hereon.

WITNESSES TO SECTION CORNERS:

Center of Section 4, T4N, R1W, Liber 11, Page 287
Found Remon. bar & cap #47942 4.8± West of centerline of Newton Road
Found 1/2" bar & cap #12034, East, 32.95'
Found "KEBS" nail & tag in the Southwest side of a 6" Ash, S29°E, 70.87'
Found "KEBS" nail & tag in the North side of a 6" Locust, S42°W, 64.41'
Found 1/2" steel bar, West, 33.42'
Found "KEBS" nail & tag in the North side of a 4" quad Box Elder, N59°W, 41.12'

North 1/4 corner Section 4, T4N, R1W, Liber 11, Page 285
Found Remon. bar & cap #47942 on fence line to East & West
Found nail & tag #47942 in West side of 24" Oak, N3°E, 48.94'
Found nail & tag #13039 in North side of anchor post, West, 10.18'
Found Remon. bar & cap #13039 (F-13, T5N, R1W), West, 75.11'
Found nail & tag #18989 in Southwest side of 30" Oak, N54°W, 18.67'
Found nail & tag in North side 12" Oak, S60°W, 6.96'

South 1/4 corner Section 33, T5N, R1W, Liber 4, Page 329
Found Remon. bar & cap #13039 10.7± West of West edge of asphalt of Nichols Rd.
Found concrete monument, West, 33.06'
Found nail & tag #16053 in South side of 21" Oak, N84°E, 49.18'
Found mag nail in East side of 10" Ash, S20°W, 19.14'
Found mag nail in East side of 30" Maple, N30°W, 68.45'

Southeast corner Section 33, T5N, R1W, Liber 4, Page 66
Found concrete monument at intersection of fences, North, East & West.
Found nail & tag #18998 in West side of fence post, North 8.18'
Found nail & tag #53497 in East side of 21" Box Elder, S40°E, 8.82'
Found nail & tag #53497 in Northwest side of 5" Ash, N40°E, 10.46'
Found PK nail in Southwest side of twin 18" Elm, N70°W, 2.75'

Southwest corner Section 33, T5N, R1W, Liber 4, Page 327
Found Remon bar & cap, with Caronite marker
Ingham County section corner, E-01, T4N, R1W, East, 24.47'
Found nail & tag #13039, Southwest side 18" cherry, N70°E, 2.65'
Found nail & tag #13039, South side 5" cherry, N40°E, 11.66'
Found nail & tag #13039, Northeast side 6" cherry, S33°E, 9.77'

LEGEND

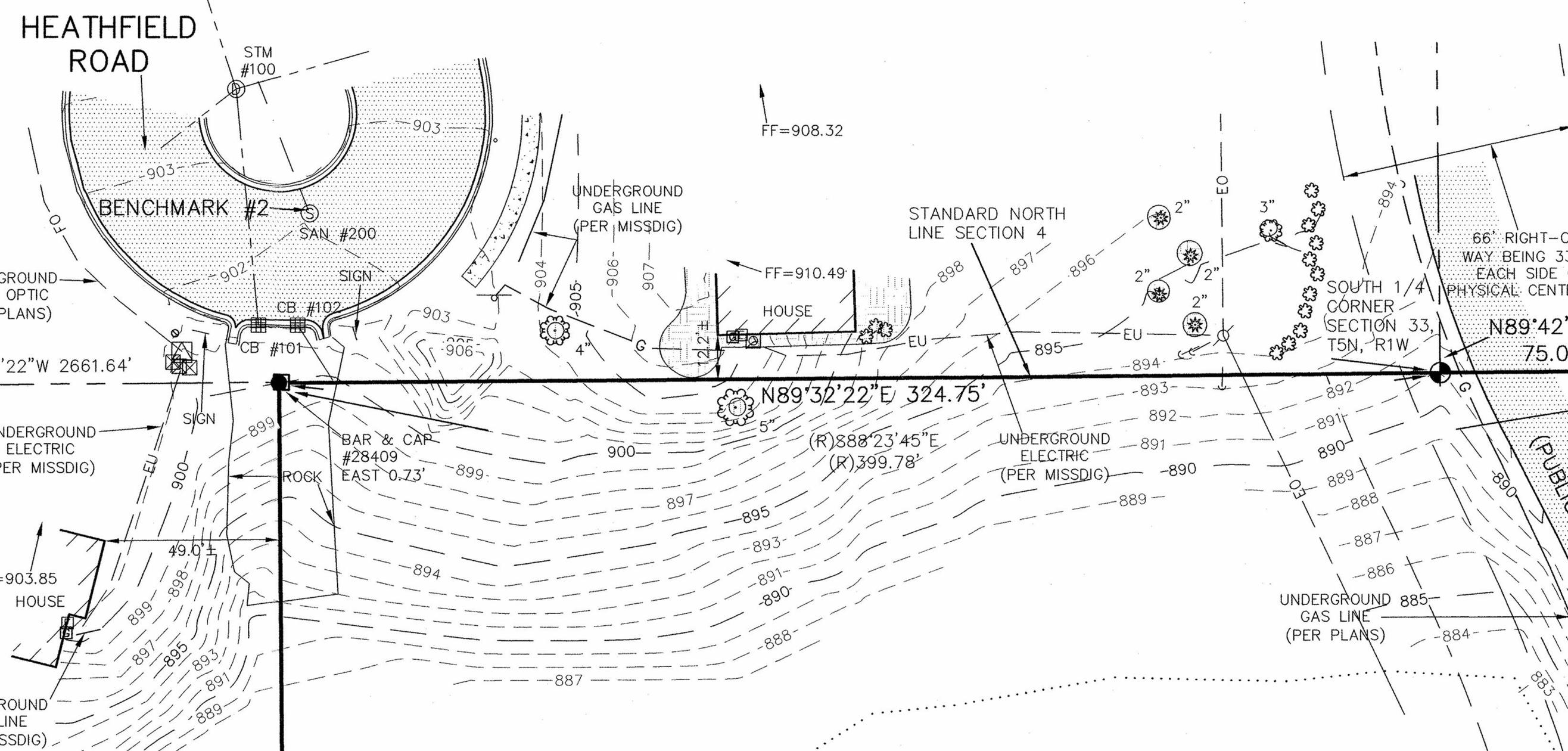
(M)	= MEASURED DIMENSION	⊙	= SANITARY MANHOLE
(R)	= RECORDED DIMENSION	⊕	= DRAINAGE MANHOLE
●	= SET 1/2" BAR WITH CAP UNLESS NOTED	⊠	= GAS METER
□	= FOUND IRON AS NOTED	⊞	= CATCH BASIN
—	= DEED LINE	⊕	= FIRE HYDRANT
—	= DISTANCE NOT TO SCALE	⊖	= VALVE
▨	= ASPHALT	—	= SIGN
▩	= CONCRETE	·	= POST
▨	= LANDSCAPING	⊞	= AIR CONDITIONING UNIT
—	= EXISTING CONTOUR ELEVATION	⊕	= UTILITY POLE
—	= SANITARY SEWER	—	= GUY WIRE
—	= STORM SEWER	—	= UTILITY PEDESTAL
—	= GAS LINE	⊞	= TRANSFORMER
—	= UNDERGROUND ELECTRIC	⊞	= ELECTRIC METER
—	= OVERHEAD WIRES		
—	= UNDERGROUND FIBER OPTIC		
⊕	= DECIDUOUS TREE		
⊕	= CONIFEROUS TREE		
⊕	= BUSH		



ERICK R. FRIESTROM
PROFESSIONAL SURVEYOR
DATE NO. 53497

REVISIONS	COMMENTS	KEBS, INC. ENGINEERING AND LAND SURVEYING	
09/13/2024	ORIGINAL	2116 HASLETT ROAD, HASLETT, MI 48840 PH. 517-339-1014 FAX 517-339-8047 WWW.KEBS.COM	
		Marshall Office - Ph. 269-781-9800	
		DRAWN BY AN	SECTION 4, T4N, R1W
		FIELD WORK BY AE	JOB NUMBER:
		SHEET 1 OF 1	103059.BND

HEATHFIELD ROAD



November 8, 2024
Project No. 241693

Tim Schmitt
Charter Township of Meridian
5151 Marsh Road
Okemos, MI 48864-1198

Wetland Delineation – WDV #24-02
6499 Heathfield Drive
Meridian Township, Ingham County, Michigan

On October 30, 2024, Fishbeck staff conducted a field investigation and delineated wetlands at the northern 1.8 acres of Parcel No. 33-02-02-04-100-020, located at 6499 Heathfield Drive, Charter Township of Meridian (Township), Michigan (the Site). The Site is located in the northwest quarter of Section 4 of Town 4 North, Range 1 West, and is owned by Steven Parks and Maya Murshak. The Site is bound by residential property and Heathfield Drive to the north, Newton Road to the east, a pond to the south and residential property and forest to the west. The results of the investigation are included in this report.

The wetland delineation was conducted in a manner consistent with the 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2)*. The wetlands identification and delineation procedures outlined in these manuals require evaluation of site vegetation, soils, and hydrologic characteristics. Dominant wetland vegetation, hydric soil, and wetland hydrology must all be present for an area to be classified as a wetland. Hydrophytic vegetation decisions are based on the wetland indicator status of species that are dominant in the plant community. Species with indicator statuses of obligate wetland (OBL), facultative wetland (FACW), and facultative (FAC) are considered wetland species, while species with indicator statuses of facultative upland (FACU) and upland (UPL) are considered upland species. FAC species are also commonly present in upland plant communities.

Literature Review

The Township wetland map for Section 4 indicates one wetland on the Site:

- Wetland 4-7, a 2.53-acre Open Water/Emergent wetland.

According to the U.S. Department of Agriculture Natural Resources Conservation Service *Web Soil Survey*, the area mapped as Wetland 4-7 contains Houghton muck (100% hydric rating). The remainder of the Site contains Filer fine sandy loam, Saginaw Lobe, 6 to 12% slopes (0% hydric rating) (Appendix 1).

The National Wetlands Inventory map indicates a 1.54-acre, excavated pond at the south end of the Site in the same area mapped with hydric soil (Appendix 2). Review of Google Earth imagery confirmed the pond is approximately 2.3 acres in size.

Site Investigation

The area of investigation and wetland sampling locations are noted in Figure 1. The Site sloped down to the south, to the pond and associated wetland area. A U.S. Army Corps of Engineers Wetland Determination Data Form was completed to describe site vegetation, soil, and hydrology at wetland sampling point WSP-A and upland sampling point USP-A (Appendix 3). Photographs of wetland determination sampling points and associated plant communities are included in Appendix 4.

The Site is a strip of land between existing suburban development to the north and a pond to the south. The elevation drops from its high point to the north to the lowest point at the edge of the pond to the south. The pond edge is a low-quality wetland mainly composed of invasive plant species including *Rhamnus cathartica* (European buckthorn, FAC), *Phalaris arundinacea* (reed canary grass, FACW), *Lonicera tatarica* (Tartarian honeysuckle, FACU), and *Celastrus orientalis* (invasive bittersweet, FACU). The northern edge of the site has previously been filled for construction activities. The plants that have colonized the fill are a mix of native and invasive species including *Solidago altissima* (Canada goldenrod, FACU), *Phleum pratense* (timothy grass, FACU), and *Centaurea stoebe* (spotted knapweed, UPL). Between the fill and the wetland edge, the grade is the steepest and there are large areas of bare soil/fill.

Wetland hydrology, dominant hydrophytic vegetation, and hydric soils were confirmed at sampling point WSP-A (see Figure 2). The top 12 inches of the soil profile consisted of dark gray (10YR 4/1) clay loam with distinct redox concentrations. The soil profile from 12 to 18 inches consisted of gray (10YR 6/1) sandy clay with prominent redox concentrations. This soil profile meets hydric soil indicator F3 (Depleted Matrix). Primary wetland hydrology indicators Saturation (A3) and Oxidized Rhizospheres on Living Roots (C3), and secondary indicators FAC-Neutral Test (D5) and Geomorphic position (D2) were observed. Dominant plant species included reed canary grass, *Ulmus americana* (American elm FACW), and European buckthorn.

Upland conditions were confirmed near Wetland A at USP-A. The top 3 inches of the soil profile consisted of dark yellowish brown (10YR 4/4) coarse sand. This is not a native soil layer; it is erosion runoff from construction fill upslope. The soil horizon from 3 to 17 inches contained dark brown (10YR 3/3) clay loam with distinct redox concentrations. The soil horizon from 17 to 20 inches contained brown (10YR 4/3) sandy clay loam with distinct redox concentrations. No hydric soil indicators or primary or secondary wetland hydrology indicators were observed. Dominant plant species included *Prunus serotina* (black cherry FACU), honeysuckle, and *Rubus occidentalis* (black raspberry FACU).

Fishbeck flagged the wetland boundary on and adjacent to the Site with pink ribbon labelled A1 through A17. The points were surveyed with a handheld GPS unit with submeter accuracy. The wetland boundary and associated wetland acreage within the delineated area are noted on Figure 2. Wetland A extends around the pond onto adjacent property and is larger than is indicated.

Conclusions

According to Michigan's Natural Resources and Environmental Protection Act, Act 451, Section 30301(d), wetlands "contiguous to the Great Lakes or Lake St. Clair, an inland lake or pond, or a river or stream" or "more than five acres in size" are regulated by the State of Michigan. "Contiguous" is defined as being within 500 feet of an inland lake, pond, river, or stream. A stream is defined as having a defined bed, banks, and evidence of flow. A pond is defined as an area of "natural or permanent artificial" open water with "more than one acre, but less than five acres" in size. In addition, the Township regulates wetlands greater than two acres in size which are not contiguous to a water body and wetlands between 0.25 acre and two acres in size that are determined to be essential to the preservation of the natural resources of the Township.

Wetland A is contiguous to an approximately 2.3-acre pond and is therefore regulated by both the State of Michigan and the Township. A wetland use permit would be required from the Michigan Department of Environment, Great Lakes and Energy for the following activities within regulated wetlands:

- Placing fill or permitting the placement of fill in the wetland.
- Dredging, removing, or permitting the removal of soil or minerals from the wetland.
- Constructing, operating, or maintaining any use or development in the wetland.
- Draining surface water from the wetland.

A wetland use permit would be required from the Township for the following activities within wetlands regulated by the Township:

- Placing fill or permitting the placement of fill in the wetland.
- Dredging, removing, or permitting the removal of soil or minerals from the wetland.
- Constructing, operating, or maintaining any use or development in the wetland.
- Draining surface water from the wetland.
- Discharging water into the wetland.

In addition, the Township requires that all structures and grading activities during site development shall be set back 40 feet from the delineated wetland boundary and a natural vegetation strip shall be maintained within 20 feet of the wetland boundary. The 40-foot wetland boundary is noted on Figure 2.

If you have any questions regarding this letter, the wetland permitting process, or any other wetland-related issues, please contact me at 616.464.3738 or ehtripp@fishbeck.com.

Sincerely,



Elise Hansen Tripp, PWS
Senior Wetland Scientist

Attachments

By email

Copy: Keith Chapman – Meridian Township

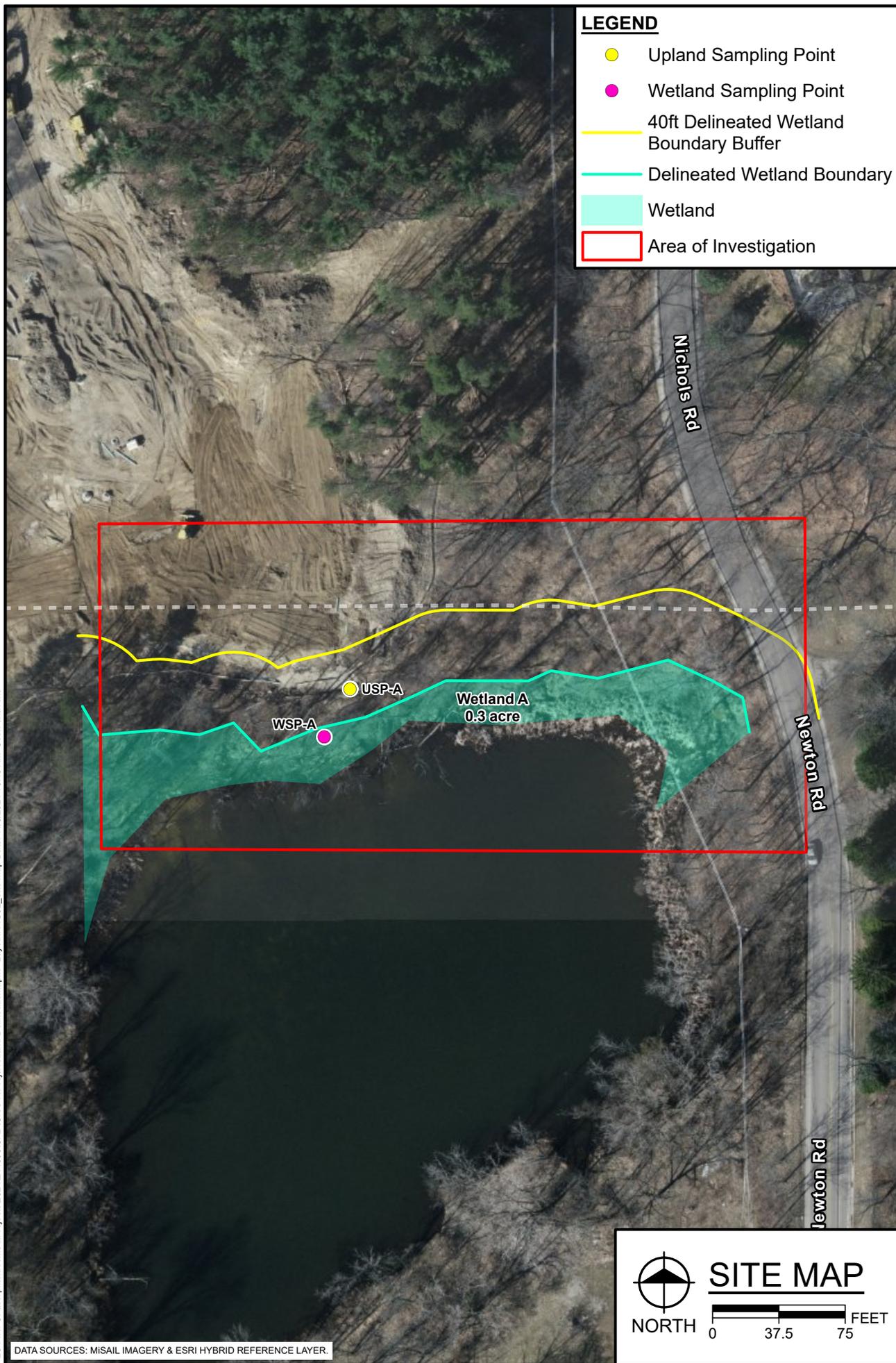
Figures

LEGEND

- Upland Sampling Point
- Wetland Sampling Point
- 40ft Delineated Wetland Boundary Buffer
- Delineated Wetland Boundary
- Wetland
- Area of Investigation



Hard copy is intended to be 8.5"x11" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.



6499 Heathfield Drive
 East Lansing, Michigan
Wetland Delineation

SITE MAP

NORTH

PROJECT NO.
241693

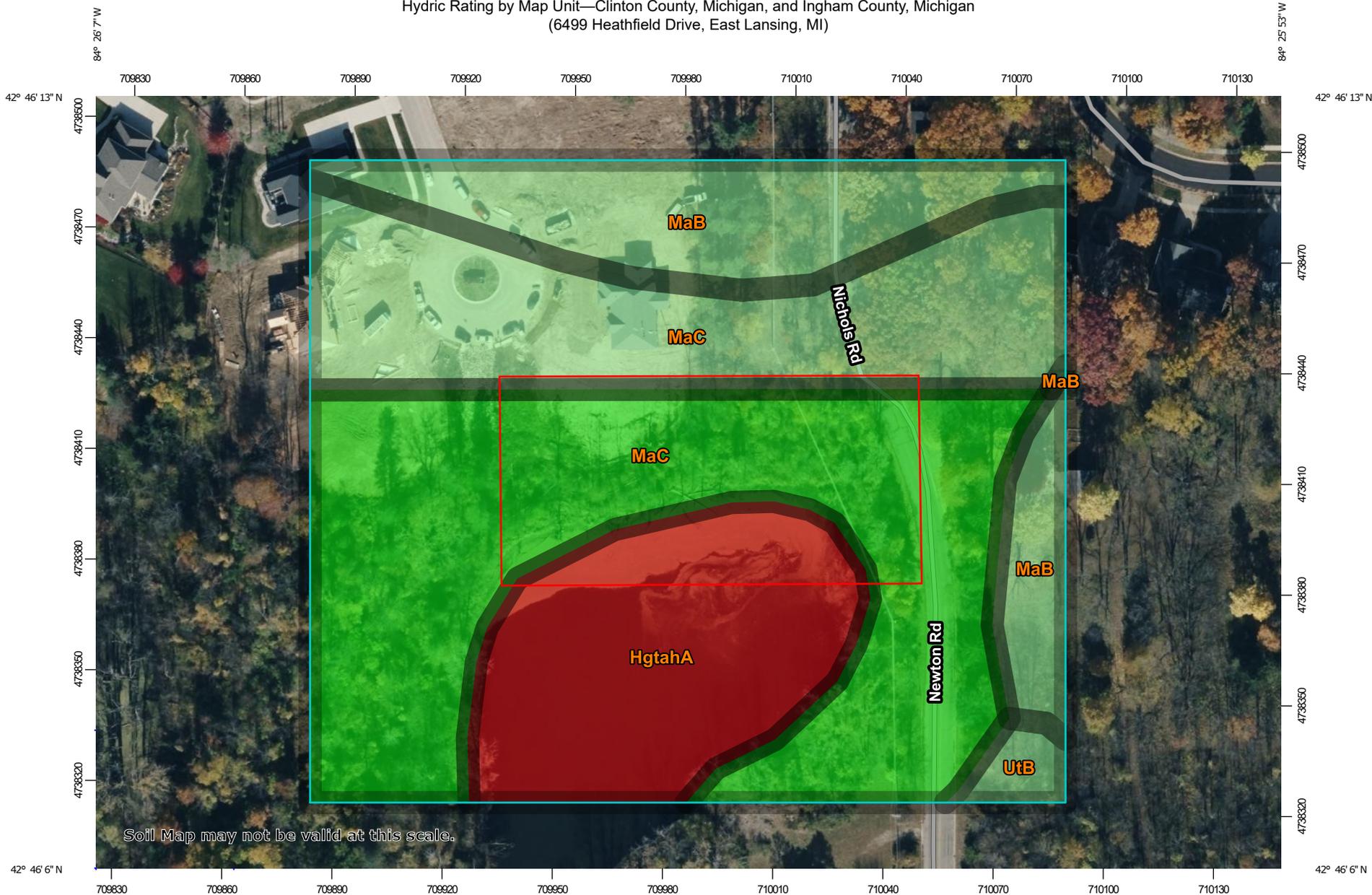
FIGURE NO.
2

PLOT INFO: \\corp.fishbeck.com\AllProjects\2024\241693\CAD\GIS\Proj\Wetland Delineation.aprx Layout: FIG02_Site Map Date: 1/18/2024 10:45 AM User: ahavens

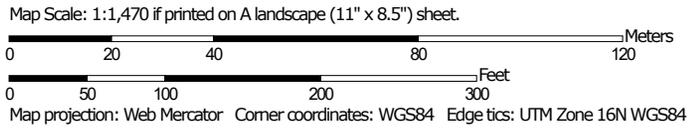
DATA SOURCES: MISAIL IMAGERY & ESRI HYBRID REFERENCE LAYER.

Appendix 1

Hydric Rating by Map Unit—Clinton County, Michigan, and Ingham County, Michigan
(6499 Heathfield Drive, East Lansing, MI)



Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available

Soil Rating Lines

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available

Soil Rating Points

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clinton County, Michigan
Survey Area Data: Version 21, Aug 26, 2024

Soil Survey Area: Ingham County, Michigan
Survey Area Data: Version 22, Aug 27, 2024

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 9, 2022—Oct 28, 2022

MAP LEGEND

MAP INFORMATION

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
MaB	Marlette loam, 2 to 6 percent slopes	2	1.2	13.2%
MaC	Filer loam, 6 to 12 percent slopes	2	2.0	22.5%
Subtotals for Soil Survey Area			3.2	35.7%
Totals for Area of Interest			8.9	100.0%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
HgtahA	Houghton muck, 0 to 1 percent slopes	100	1.7	18.8%
MaB	Marlette fine sandy loam, 2 to 6 percent slopes	2	0.4	4.1%
MaC	Filer fine sandy loam, Saginaw Lobe, 6 to 12 percent slopes	0	3.6	40.0%
UtB	Urban land-Marlette complex, 2 to 12 percent slopes	5	0.1	1.4%
Subtotals for Soil Survey Area			5.7	64.3%
Totals for Area of Interest			8.9	100.0%

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Appendix 2



October 25, 2024

Wetlands

- Estuarine and Marine Deepwater
- Freshwater Forested/Shrub Wetland
- Lake
- Estuarine and Marine Wetland
- Freshwater Pond
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Appendix 3

VEGETATION - Use scientific names of plants.

Sampling Point: USP-A

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30-ft</u>)				
1. <i>Prunus serotina</i> / Black cherry	10	Yes	FACU	
2.				
3.				
4.				
5.				
6.				
7.				
	10	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15-ft</u>)				
1. <i>Lonicera tatarica</i> / Tatarian honeysuckle	30	Yes	FACU	
2. <i>Rubus occidentalis</i> / Black raspberry	30	Yes	FACU	
3.				
4.				
5.				
6.				
7.				
	60	= Total Cover		
Herb Stratum (Plot size: <u>5-ft</u>)				
1. <i>Carex bromoides</i> / Brome-like sedge	5	Yes	FACW	
2. <i>Agrimonia gryposepala</i> / Common agrimony	5	Yes	FACU	
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	10	= Total Cover		
Woody Vine Stratum (Plot size: <u>30-ft</u>)				
1.				
2.				
3.				
4.				
	0	= Total Cover		

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	5	x 2 =	10	
FAC species	0	x 3 =	0	
FACU species	75	x 4 =	300	
UPL species	0	x 5 =	0	
Column Totals:	80	(A)	310	(B)

Prevalence Index = B/A = 3.88

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Vegetation Strata

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Explain alternative procedures here or in a separate report.)

Project/Site: Wetland Delineation – WDV #24-02 6499 Heathfield Drive City/County: Meridian Township, Ingham County Sampling Date: 10/30/2024
 Applicant/Owner: Steven Parks and Maya Murshak State: Michigan Sampling Point: WSP-A
 Investigator(s): Kenneth McMahon; Fishbeck Section, Township, Range: Section 4, Township 4 North, Range 1 West
 Landform (hillslope, terrace, etc): Flat, next to pond Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR or MLRA): LRR L Lat: 42.76939 Long: -84.433646 Datum: WGS 1984
 Soil Map Unit Name: Finer fine sandy loam, Saginaw Lobe NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u> If yes, optional Wetland Site ID: <u>Wetland A</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>12</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
--	---

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

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: WSP-A

Tree Stratum (Plot size: <u>30-ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Ulmus americana</i> / American elm	25	Yes	FACW
2. <i>Nyssa sylvatica</i> / Blackgum	15	Yes	FAC
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	40	= Total Cover	

Sapling/Shrub Stratum (Plot size: <u>15-ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Rhamnus cathartica</i> / European buckthorn	30	Yes	FAC
2. <i>Lonicera tatarica</i> / Tatarian honeysuckle	10	Yes	FACU
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	40	= Total Cover	

Herb Stratum (Plot size: <u>5-ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Phalaris arundinacea</i> / Reed canary grass	20	Yes	FACW
2. <i>Carex bromoides</i> / Brome-like sedge	10	Yes	FACW
3. <i>Symphytotrichum lateriflorum</i> / Farewell-summer	10	Yes	FAC
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	40	= Total Cover	

Woody Vine Stratum (Plot size: <u>30-ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Celastrus orbiculatus</i> / Asian bittersweet	20	Yes	FACU
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	20	= Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>55</u>	x 2 = <u>110</u>
FAC species <u>55</u>	x 3 = <u>165</u>
FACU species <u>30</u>	x 4 = <u>120</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>140</u> (A)	<u>395</u> (B)

Prevalence Index = B/A = 2.82

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting Problematic Hydrophytic Vegetation¹ (Explain))

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

Definitions of Vegetation Strata

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Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Explain alternative procedures here or in a separate report.)

Appendix 4



USP-A View of the Ground



USP-A View East



USP-A View West



WSP-A View of the Ground



WSP-A View East



WSP-A View West



To: Zoning Board of Appeals
From: Keith Chapman, Assistant Planner
Date: December 9, 2024
Re: 2025 Meeting Schedule

Following is the list of proposed Zoning Board of Appeals meeting dates for 2025. No special or work session meetings are planned but may be added by the Zoning Board of Appeals during the year if warranted.

The Zoning Board of Appeals will meet on the third Wednesday of each month.

2025 MEETING CALENDAR

January	15 - regular meeting
February	19 - regular meeting
March	19 - regular meeting
April	16 - regular meeting
May	21 - regular meeting
June	18- regular meeting
July	16- regular meeting
August	20 - regular meeting
September	17 - regular meeting
October	15 - regular meeting
November	19 - regular meeting
December	17 - regular meeting

A resolution is provided to adopt the above meeting schedule.

2025 Meeting Schedule
Zoning Board of Appeals (December 18, 2024)
Page 2

- **Motion to adopt the resolution approving the 2025 Zoning Board of Appeals Meeting Schedule.**

Attachment

1. Resolution to approve 2025 Zoning Board of Appeals Meeting Schedule



**Zoning Board of Appeals Meeting Dates
2025 Meeting Schedule**

RESOLUTION

At a regular meeting of the Zoning Board of Appeals of the Charter Township of Meridian, Ingham County, Michigan, held at the Meridian Municipal Building, in said Township on the 18th day of December, 2024 at 6:30 p.m., Local Time.

PRESENT: _____

ABSENT: _____

The following resolution was offered by _____ and supported by _____.

WHEREAS, Public Act 267 of the Public Acts of 1976 requires the publication of the meeting schedule of every municipal board at least once a year; and

WHEREAS, Zoning Board of Appeals desires to announce the time, date, and place of all regular meetings of the Zoning Board of Appeals, pursuant to the provisions of Act 267 of the Public Act of 1976;

WHEREAS, it is the desire of the Zoning Board of Appeals to maintain a meeting schedule, which is the third Wednesday of each month.

NOW, THEREFORE, BE IT RESOLVED BY THE ZONING BOARD OF APPEALS OF THE CHARTER TOWNSHIP OF MERIDIAN, INGHAM COUNTY, MICHIGAN as follows:

1. The Zoning Board of Appeals will meet in regular session in the Town Hall Room, Meridian Municipal Building, 5151 Marsh Road, Okemos, MI, 48864, unless noticed or posted otherwise, at 6:30 p.m. on the third Wednesday of each month.
2. The specific dates for meetings are as follows:

January	15 - regular meeting
February	19 - regular meeting
March	19- regular meeting
April	16 - regular meeting
May	21 - regular meeting
June	18- regular meeting
July	16- regular meeting
August	20 - regular meeting
September	17 - regular meeting

