AGENDA

CHARTER TOWNSHIP OF MERIDIAN
PLANNING COMMISSION – REGULAR MEETING
December 16, 2019 7PM

1. CALL MEETING TO ORDER
2. PUBLIC REMARKS
3. APPROVAL OF AGENDA
4. APPROVAL OF MINUTES
   A. December 9, 2019 Regular Meeting

5. COMMUNICATIONS
   A. David & Jane Ledebuhr RE: Rezoning #19100

6. PUBLIC HEARINGS
   A. Mixed Use Planned Unit Development #19034 (Hudson Senior Living), construct a 146,743 square foot independent senior apartment building with 133 dwelling units at 1673 Haslett Road.
   B. Special Use Permit #19181 (Hudson Senior Living), construct an independent senior apartment building over 25,000 square feet in size at 1673 Haslett Road.
   C. Rezoning #19100 (Durow), rezone approximately 1.487 acres located at 1259 Grand River Avenue from RR (Rural Residential) and RRA (Single Family-Suburban Estates) to C-2 (Commercial).

7. UNFINISHED BUSINESS - NONE
8. OTHER BUSINESS - NONE
9. REPORTS AND ANNOUNCEMENTS
   A. Township Board update.

10. PROJECT UPDATES
    A. New Applications - None
    B. Site Plans Received - None
    C. Site Plans Approved - None

11. PUBLIC REMARKS
12. ADJOURNMENT

TENTATIVE PLANNING COMMISSION AGENDA
January 13, 2019

1. PUBLIC HEARINGS - NONE

2. UNFINISHED BUSINESS
   A. Mixed Use Planned Unit Development #19034 (Hudson Senior Living), construct a 146,743 square foot independent senior apartment building with 133 dwelling units at 1673 Haslett Road.
   B. Special Use Permit #19181 (Hudson Senior Living), construct an independent senior apartment building over 25,000 square feet in size at 1673 Haslett Road.
   C. Rezoning #19100 (Durow), rezone approximately 1.487 acres located at 1259 Grand River Avenue from RR (Rural Residential) and RRA (Single Family-Suburban Estates) to C-2 (Commercial).

3. OTHER BUSINESS
   A. Form based code initiative.

CHARTER TOWNSHIP OF MERIDIAN **DRAFT**
PLANNING COMMISSION
REGULAR MEETING MINUTES

December 9, 2019
5151 Marsh Road, Okemos, MI 48864-1198
517-853-4560, Town Hall Room, 7:00 P.M.

PRESENT: **Commissioners Lane, Hendrickson, Trezise, Richards, Premoe, Shrewsbury Clark and Cordill**
ABSENT: **None**
STAFF: **Director of Community Planning & Development Mark Kieselbach and Principal Planner Peter Menser**

Note: There was no audio available for the meeting.

1. Call meeting to order

Chair Lane called the regular meeting to order at 7:00 P.M.

2. Public Remarks - None

3. Approval of Agenda

Commissioner Cordill moved to approve the agenda as written.
Seconded by Commissioner Shrewsbury.
VOICE VOTE: Motion approved unanimously.

4. Approval of Minutes

A. November 25 2019 Regular Meeting

Commissioner Trezise moved to approve the minutes as written.
Seconded by Commissioner Hendrickson.
VOICE VOTE: Motion approved unanimously.

5. Communications

Chair Lane noted the communications listed in the meeting packet for consideration.

6. Public Hearings – None

7. Unfinished Business

A. Rezoning #19090 (Planning Commission), rezone approximately 2.2 acres located on the east side of Hagadorn Road, east of Hagadorn Road, north of Bennett Road from RP (Research Park) to RAA (Single Family-Low Density).

Motion by Commissioner Hendrickson to adopt the resolution recommending approval of Rezoning #19090.
Supported by Commissioner Shrewsbury.

ROLL CALL VOTE:
YEAS: Commissioner Hendrickson, Shrewsbury, Premoe, Trezise, Cordill, Lane, Clark, and Richards
NAY: None
MOTION CARRIED: 8-0

8. Other Business

A. Form Based Code initiative.

Chair Lane noted this item was discussed at length during a work session preceding the regular meeting.

9. Reports and Announcements

A. Township Board updates.

Principal Planner Menser provided a summary of the December 3, 2019 Township Board meeting and provided a preview of what is on the agenda for the December 10, 2019 Township Board meeting.

Commissioner Premoe provided an update from the December 4, 2019 Environmental Commission meeting.

10. Project Updates

Chair Lane noted there have been no applications received or site plans approved since the last meeting.

11. Public Remarks - None

12. Adjournment

Commissioner Richards moved to adjourn the meeting.
Supported by Commissioner Shrewsbury.
VOICE VOTE: Motion carried unanimously.

Chair Lane adjourned the regular meeting at 7:12 P.M.

Respectfully Submitted,
Debbie Budzynski, Recording Secretary

December 9, 2019

Meridian Charter Township

Planning Commission

5151 Marsh Road

Okemos Michigan 48864

RECEIVED
DEC 12 2019

Re; Rezoning #19100 (Durow)

Dear Planning Commission Members,

I am in receipt of the rezoning request for the SW corner of Cornell Road and Grand River Avenue. We reside and own a large 80 acre parcel on the north side of Grand River. It too is zoned Rural Residential just like the parcel you are considering for re-zoning.

As you know, the subject parcel owned by Mr. Durow, has historically been used as a commercial use grandfathered over the years. The community knew the Wooden Skate as a nice retail store for antique's and estate jewelry. A business has been allowed to operate there for many years that was a very "light" commercial use, and not impactful to the surrounding neighborhoods.

In General, I have no opposition to the zoning change to allow commercial uses in the future, however, the approval if given will set the stage for future zoning changes along Grand River Avenue in the general Cornell Road area. Directly across the street to the north, is another Commercial Use (Doggie Day Care), that because of a quirk in the old zoning code, was allowed to locate a business in the Rural Residential Zone. We have gotten used to the dog barking and traffic concerns that business has generated, but with the advancing commercial uses expanding in this area, will expect that the frontage we own along the north side of Grand River, plus the Golf Driving Range, will sometime too in the near future, be the subject of possible zoning changes to meet the development demands of this area. The current master plan at this time for this busy corridor, still sees this area as Rural Residential, which in my opinion is not the highest and best use of these properties and not practical as whom would choose to build a house on this busy, high traffic, street. (no one!). Thus, the current zoning along this corridor is preventing future use and development that could be well designed and add to the economic base to the area.

Therefore, I and my wife Jane support the zoning change, but you must recognize that in doing so you are setting the stage for future rezoning's having set precedence which we welcome.

Thankyou for your attention.,,,

David and Jane Ledebuhr

4767 Cornell Road, Okemos Michigan 48864

To: **Planning Commission**

From: **Peter Menser, Principal Planner**

Date: **December 11, 2019**

Re: **<u>Mixed Use Planned Unit Development #19034 (Hudson Senior Living)</u>, construct Pine Village senior apartment building at 1673 Haslett Road.**

Hudson Senior Living has submitted a mixed use planned unit development (MUPUD) proposal to redevelop the westernmost building in the Haslett Village Square shopping center and construct a 146,734 square foot, 133-unit senior apartment building. The project, identified as Pine Village, is located at 1673 Haslett Road. The property is zoned C-2 (Commercial). As proposed, the overall project area is 9.6 acres, which includes the entire 5.293 acre parcel at 1673 Haslett Road and an additional 4.3 acres from the 12.63 acre parcel to the south. The subject property currently has approximately 316 feet of frontage on Haslett Road. If approved the parcel frontage would increase to 411 feet as the applicant would be purchasing additional land for the project.

The proposal includes the demolition of the existing 23,415 square foot multi-tenant shopping center building, which is currently occupied by Mr. R's Driving School, Hungry Howie's Pizza, Edward Jones, Tari's Dance Studio, and Patriot Ambulance, and the construction of a 146,734 square foot, three story, senior apartment building with 133 dwelling units. The existing building was constructed in 1985 and approved under Site Plan Review #85-04. The rest of the Haslett Village Square development was constructed in 1980 and approved under Special Use Permit #78051 and Site Plan Review #80-05. Other Township approvals granted for the property include special use permits for the establishment of Mr. R's Driving School in 2003 (SUP #03061) and Patriot Ambulance in 2017 (SUP #17021).

The 133 dwelling units consist of 109 one bedroom units and 24 two bedroom units. The apartments would be age-restricted, meaning only those aged 55 or older would qualify for residency. The apartments are considered independent living as no health care services will be provided by the operator. The site plan indicates approximately 9,558 square feet of non-residential uses in the building, which includes site amenities such as an arts and crafts room, salon, wellness office, pub, cafeteria, fitness room, library, parlor, game room, and chapel.

With 133 dwelling units on 9.6 total acres, overall residential density of the proposed project is 13.85 dwelling units per acre (du/a). Redevelopment projects are typically allowed a maximum of 14 du/a in a MUPUD (18 du/a with provision of four or more amenities), however the project is proposed in the three block (53 acre) area in downtown Haslett where the ordinance was amended to grant the Township Board authority to establish appropriate limits for density and building height based on consistency with a list of 11 performance criteria. The amendment, Zoning Amendment #18020, removed the limitations on residential density and raised the maximum building height from 45 feet to 60 feet for areas in both downtown Okemos and downtown Haslett. The proposed building is 39 feet tall and has a density of 13.85 du/a, therefore the applicant is not requesting additional density or building height greater than typically allowed under a MUPUD.

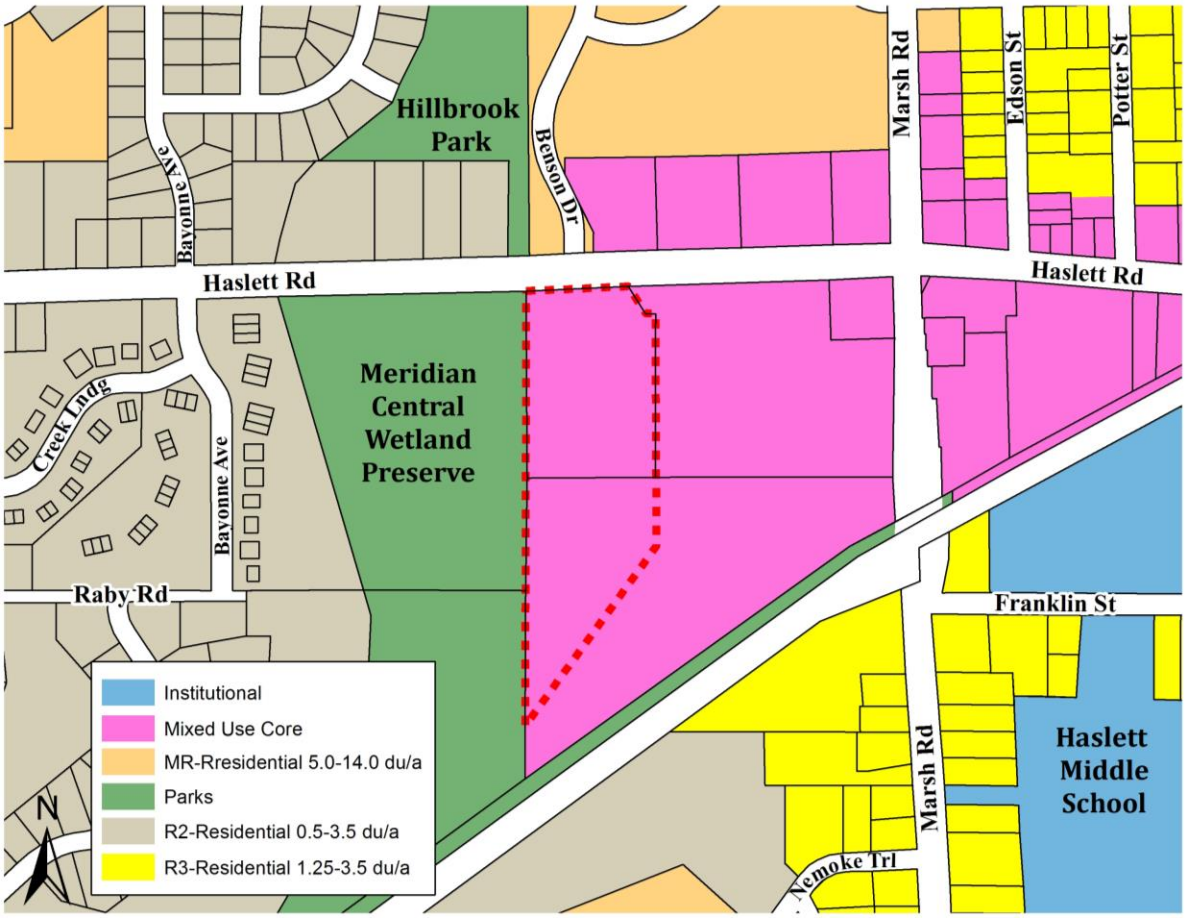
In addition to the MUPUD, a special use permit (SUP) is required for constructing a building totaling more than 25,000 square feet in gross floor area. The special use permit (SUP #19181) is being processed concurrently with the MUPUD request.

LOCATION MAP

Master Plan

The Future Land Use Map from the 2017 Master Plan designates the subject property in the Mixed Use Core category.

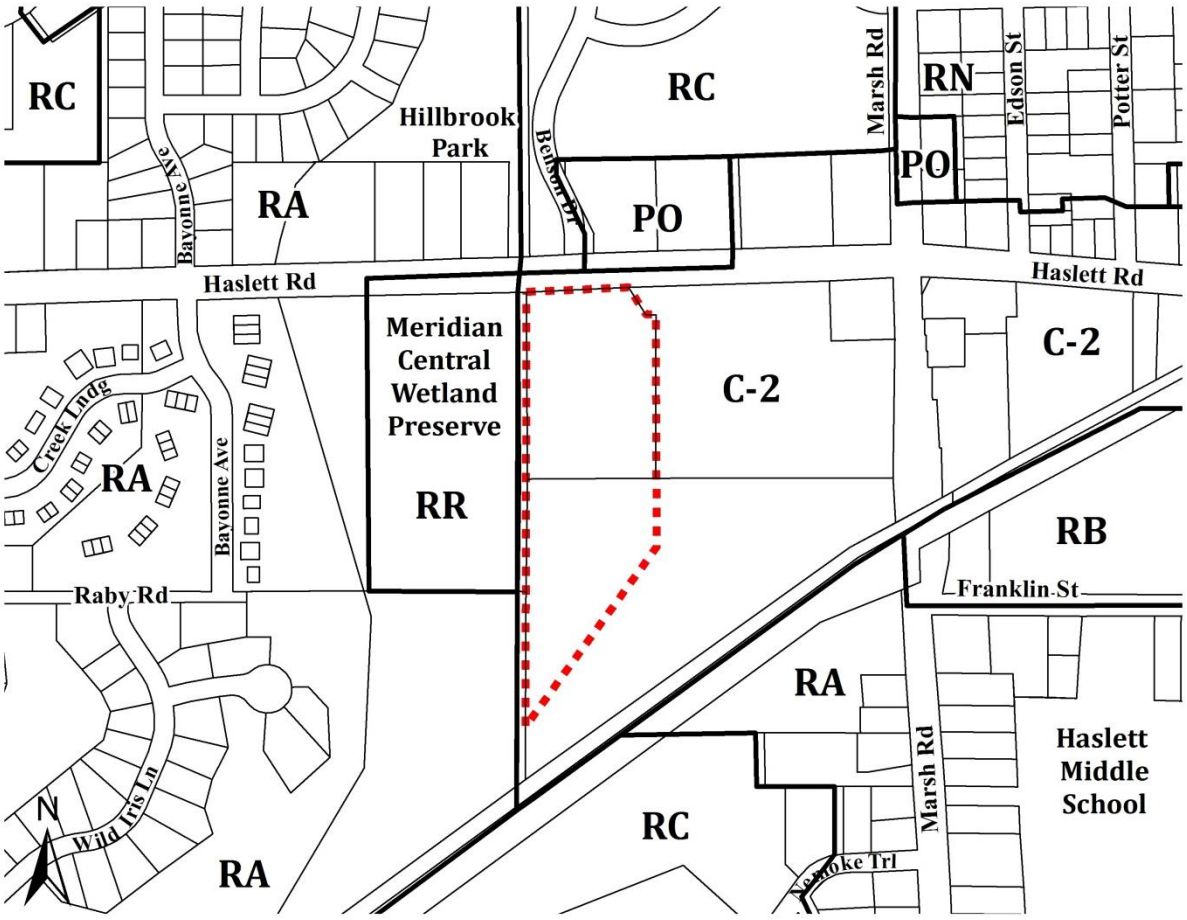
FUTURE LAND USE MAP



Zoning

The proposed project is located in the C-2 (Commercial) zoning district. A MUPUD is permitted in the C-2, C-3 (Commercial), CR (Commercial Recreation), and CS (Community Service) zoning districts and is also permitted in C-1 (Commercial) and PO (Professional and Office) where public water and sewer is available. All uses permitted by right and by special use permit in the underlying C-2 zoning district are permitted in a MUPUD.

ZONING MAP



Physical Features

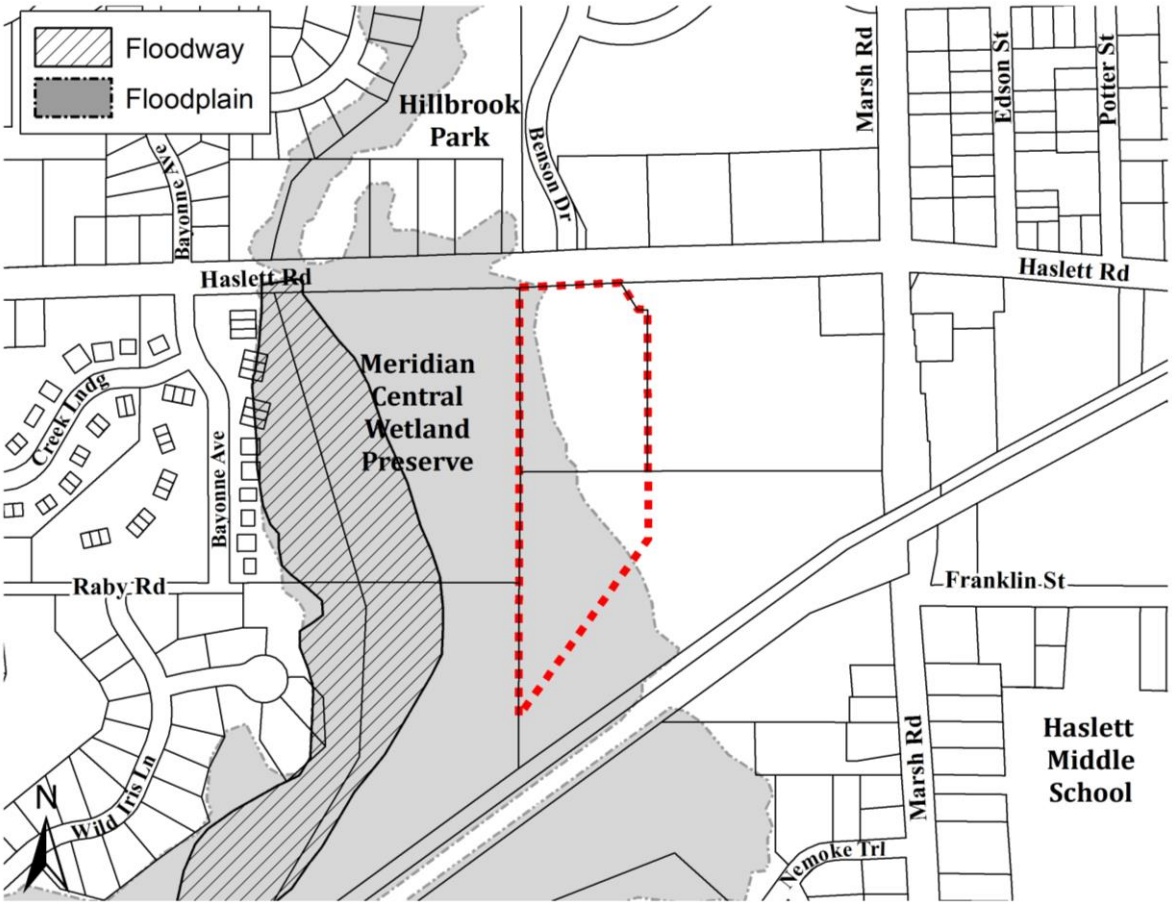
The subject property is currently occupied by the Haslett Village Square shopping center, which includes four commercial buildings totaling 105,698 square feet and related surface parking and landscaping. The shopping center consists of a 71,018 square foot multi-tenant commercial building currently occupied by Little Caesars, Village Laundry, and Fringe Hair Design, a 9,646 square foot multi-tenant building occupied by BestWay Pak-N-Send along the Haslett Road property frontage, and the 23,415 square foot multi-tenant commercial building proposed for demolition on the west side of the property. The 1,619 square foot former PNC Bank building is located at the northeast corner of the site.

The property drops off approximately 15 feet in elevation to the west of the proposed MUPUD toward the 24 acre Township Land Preservation parcel and Pine Lake Drain. Located directly to the south of the shopping center are the Interurban Pathway, a vacated portion of Raby Road, and the Canadian National (CN) Railroad tracks.

Floodplain

The Flood Insurance Rate Map (FIRM) for Meridian Township indicates a portion of the property is located in the floodplain of the Pine Lake Drain. The submitted site plan shows the exact location of the floodplain on the site. No work is proposed in the floodplain at this time.

FLOODPLAIN MAP



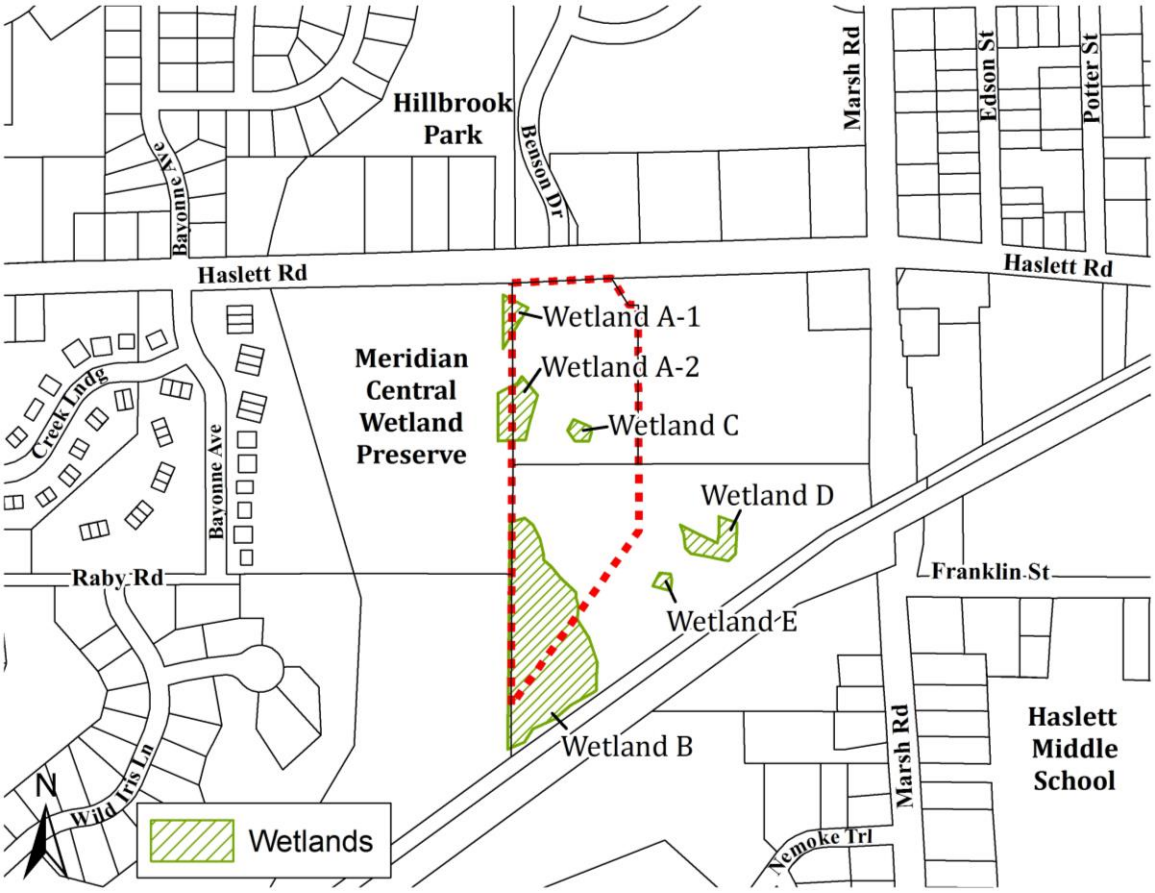
Wetlands

The applicant submitted a wetland delineation, which has been verified by the Township's wetland consultant, identifying six wetlands on or adjacent to the subject property. Meridian Township regulates wetlands 0.25 acre or greater in size, or those contiguous to or within 500 feet of a regulated inland lake, stream, river, or pond. For wetlands equal to or greater than two acres in area the Township requires a 40 foot setback from the delineated wetland boundary. For wetlands equal to or greater than 0.25 acre but less than two acres in area a 20 foot setback is required from the delineated boundary.

The applicant is proposing to fill Wetland C, currently used as a detention basin, to facilitate development of the property. A permit is not required to fill Wetland C as it is not regulated by the State or Township due to it being under 0.25 acre in size. There are no proposed impacts to any regulated wetland for the development of Pine Village. The following table shows the size, regulatory status, and required setback, if any, of each wetland on the property.

	Delineated Size	Regulatory Authority	Required Setback
Wetland A-1	0.02 acre (on site)	Township and State	40 feet
Wetland A-2	0.24 acre (on-site)	Township and State	40 feet
Wetland B	2.64 acres	Township and State	40 feet
Wetland C	0.11 acre	Not regulated	No setback required
Wetland D	0.18 acre	Not regulated	No setback required
Wetland E	0.02 acre	Not regulated	No setback required

WETLAND MAP

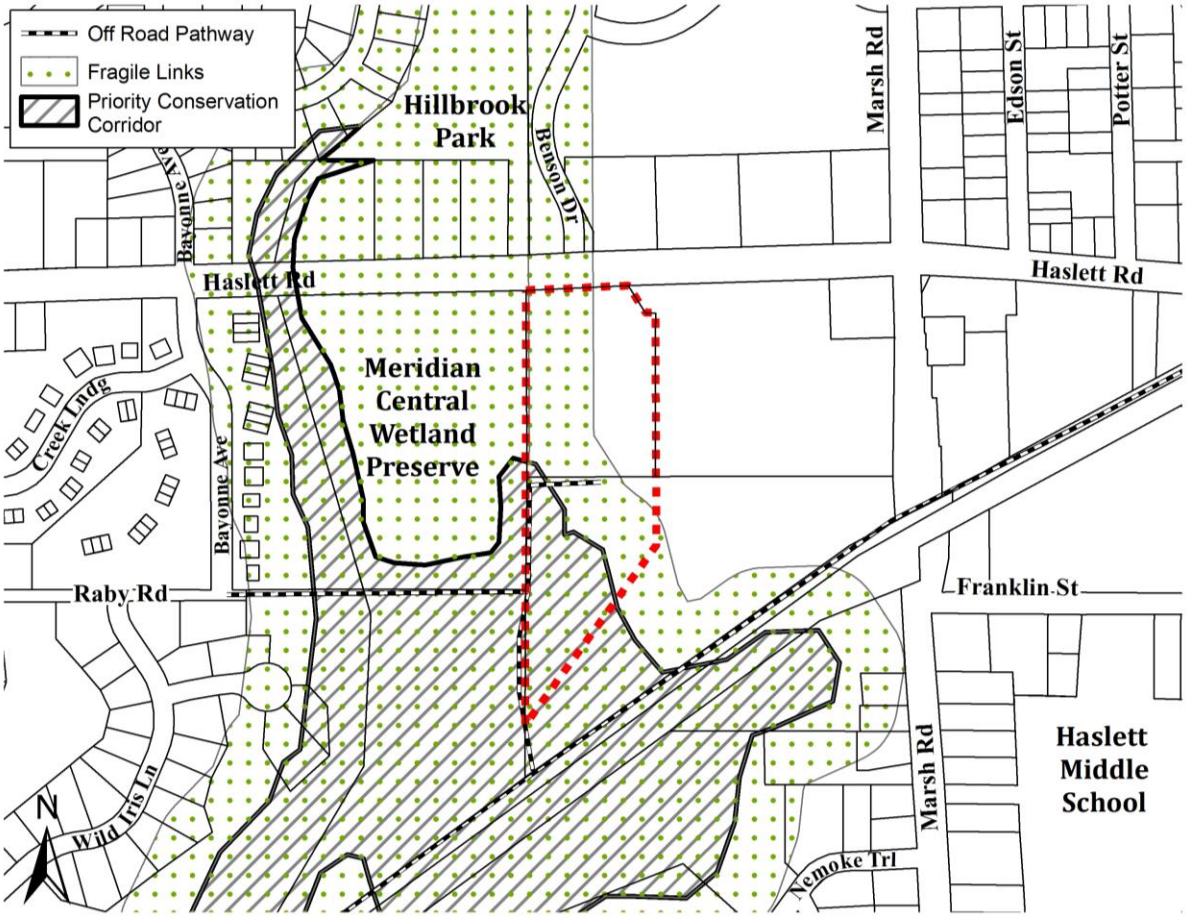


**Wetlands depicted by staff, see attached delineation for details.*

Greenspace Plan

The Township Greenspace Plan shows a Priority Conservation Corridor (PCC) and Fragile Link to the southwest of the project area. An Off-Road Pathway is shown along the vacated portion of Raby Road and the Interurban Pathway. A PCC is a network of ecologically significant open spaces and a Fragile Link is an area where a PCC is exceptionally narrow or fragmented.

GREENSPACE MAP



Streets and Traffic

The project site is located on the south side of Haslett Road, west of Marsh Road. At the project site Haslett Road is four lanes wide with a center turn lane and curb and gutter. It is classified as a Minor Arterial on the Street Setbacks and Service Drives Map in the zoning ordinance. A seven foot wide pathway is present along the south side of Haslett Road.

The applicant has submitted a trip generation letter prepared by Traffic Engineering Associates, Inc. (TEA, Inc.) providing information on the number of vehicle trips expected to be generated by the redevelopment of the existing multi-tenant commercial building into a senior independent living apartment building with 133 units. The letter uses the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th edition) to classify and compare traffic generation from both the existing and proposed land uses. Land Use Code 820 (Shopping Center) was used to represent the existing 23,415 square foot shopping center and Land Use Code 252 (Senior Adult Housing) was used to represent the proposed 133 unit apartment building.

The submitted letter finds that the proposed land use will generate less traffic than the existing land use. A total of 26 trips are anticipated in the AM peak hour and 34 trips during the PM peak hour, with 509 total weekday trips. For a MUPUD, a traffic impact study is required when the proposed project would generate over 100 directional trips during a peak hour of traffic on adjacent roadways. Based on the information in the letter from TEA, Inc. a traffic study is not required for the proposed project.

Parking

The Township Code of Ordinances requires two parking spaces for each dwelling unit in the apartment building for a multiple family land use. Additional parking is required for the salon, the standard for which is two spaces for each chair in the salon. The applicant's site plan references a different parking calculation, the "housing for the elderly" parking category from the zoning ordinance, however the parking requirement for general apartments better represents the project given the proposed use is independent living apartments with no medical care or other assistance provided to residents. Using the multiple family parking standard, 266 parking spaces are required for the apartments and four spaces for the two chairs in the approximate 400 square foot salon, for a total of 270 parking spaces required for the project.

In addition to the required motor vehicle parking, one bicycle parking space for every 10 required motor vehicle parking spaces must also be provided. With 270 motor vehicle parking spaces required, 27 bicycle parking spaces are necessary for the project. 12 bicycle parking spaces (six bicycle racks) are provided in different areas on the property. An unidentified amount of additional bicycle spaces are planned to be provided in a bicycle shelter or locker.

The ordinance allows the number of required motor vehicle parking spaces on the site to be reduced by one motor vehicle parking space for every two bicycle parking spaces installed on a site, up to a maximum of 10 percent of the total number of required motor vehicle parking spaces. Using this formula the required number of motor vehicle parking spaces can be reduced by six spaces. With the allowed reduction granted for bicycle parking, the total required motor vehicle parking is reduced to 264 spaces. With 264 required parking spaces and 101 proposed spaces the applicant is seeking a 163 space waiver from the Township Board as part of the MUPUD approval.

Utilities

Municipal water and sanitary sewer is available to serve the project site. If the MUPUD and SUP are approved, the location and capacity of utilities for the proposed development will be reviewed in detail by Public Works and Engineering staff during the site plan review process.

Staff Analysis

The applicant has requested to construct a mixed use planned unit development (MUPUD) identified as Pine Village. In a MUPUD request the Planning Commission makes a recommendation on the project and the Township Board makes the final decision. When reviewing the proposal the Planning Commission needs to consider the appropriateness of the requested waivers, the proposed amenities and related review criteria, and the MUPUD design standards as outlined in Section 86-440(f) of the Code of Ordinances.

The MUPUD ordinance generally waives the standard requirements for lot size, yards, frontage requirements, setbacks, maximum impervious surface, and type and size of dwelling unit, provided the purpose and intent of the ordinance are incorporated into the overall development plan. The MUPUD ordinance is intended to provide flexibility for the Planning Commission and Township Board to set appropriate standards during the review process.

The following is a summary of the project's consistency with the MUPUD ordinance standards. As part of this project analysis, standards for the underlying C-2 zoning district will be compared to what is proposed on the submitted site plan.

Land Use: All uses permitted by right and by special use permit in the underlying zoning district are allowed in a MUPUD. The applicant is proposing a mix of residential and non-residential space.

Density: The submitted plan proposes 133 dwelling units on 9.6 total acres, for a density of 13.85 dwelling units per acre (du/a). Redevelopment projects are allowed a maximum of 14 du/a, which may be increased to no more than 18 du/a when an applicant offers four or more unique and extraordinary amenities acceptable to the Township.

Phasing: It is expected the development will be completed in one phase.

Building height: The applicant is proposing a three-story building that is 39 feet, 2 inches in height measured at the midpoint of the peak and eaves. Building elevations are provided in the MUPUD application materials, which indicate the building complies with the maximum height limitation of 45 feet.

Railings, benches, trash receptacles, or bicycle racks: Accessory items such as railings, benches, trash receptacles, or bicycle racks are required to be of commercial quality and complement the building design and style. Details on the proposed benches are shown in the application materials. The Township requires the use of an inverted "U" shaped bicycle rack, which are the type proposed in the project.

Trash and recycling: One dumpster with screening is shown on the submitted site plan at the southeast corner of the site. The Township requires any proposed trash or recycling structure to be screened by an enclosure.

Amenities: One or more amenities are required for every MUPUD project and should represent multiple amenity categories in the MUPUD ordinance, which are Conservation; Environment; Parks, Recreation, and Culture; Social Interaction; and Site and Building Design. Criteria to determine whether a proposed amenity is acceptable for consideration can be found in Section 86-440(e)(2) of the MUPUD ordinance. Amenities proposed by the applicant are detailed below:

Proposed Amenity	Amenity Category	Ordinance Reference/Staff comment
Electric car charging station	Conservation	One electric car charging station is proposed on the east side of the building.
Foot and bicycle pathways and sidewalks that connect to the Township's pathway system	Accessibility	A pedestrian connection from the building to the Haslett Road pathway is provided. Staff has requested the applicant provide a connection along the west side of the property between the Interurban Pathway and Hillbrook Park on the north side of Haslett Road, which is under consideration.
Covered bicycle storage	Accessibility	The applicant is considering either a bicycle locker or bicycle shelter.
Outdoor gathering and eating spaces	Social Interaction	Outdoor gathering areas are being proposed in both the north and south courtyards.
Outdoor seating	Social Interaction	The MUPUD ordinance requires public outdoor seating plazas to be adjacent to or visible and accessible from the street.
Private courtyards	Social Interaction	Courtyards are proposed on the north and south side of the building. The MUPUD ordinance requires courtyards to include seating for the public.
Porches	Site and Building Design	Porches are depicted on the submitted building elevations.
Sidewalk planters	Site and Building Design	Planters are proposed on sidewalks surrounding the building.
Public art	Parks, Recreation, and Culture	Public art is proposed on the south side of the building adjacent to one of the Interurban Pathway connections.
Building recycling program	Not listed	Valuable addition to the project.
Energy star appliances	Not listed	Valuable addition to the project.
New bus stop	Accessibility	The applicant is working with the Capital Area Transportation Authority (CATA) to install a bus stop pad along the Haslett Road frontage.

Building materials: Generally, building materials in a MUPUD should include, but are not limited to, wood, brick, clapboards, beadboard, glass, and stone. Other materials such as vinyl, aluminum, and metal sidings should be avoided. All buildings should be completed on all sides with acceptable materials. The design of the buildings should relate to and blend with the facades of adjacent buildings and complement streetscape improvements in the area. The proposed building materials for the project are a mix of fiber cement lap siding and simulated stone veneer with asphalt shingle roofing. Elevations of the buildings were submitted that show the different building materials for the project.

Architectural design: The MUPUD ordinance states that buildings wider than 50 feet shall be divided into increments of not more than 50 feet through articulation of the façade and nonresidential street level facades must be covered by at least 50 percent windows. Scaled building elevations have been provided which indicate the building has the required facade articulation.

Parking: The setbacks for a parking area and the number of parking spaces required can be waived in a MUPUD. Parking lots are encouraged to be on the side or in the rear of a building. 264 parking spaces are required for the project and the applicant is proposing 101 spaces located around the building.

Landscaping: Proposed landscaping must generally comply with the provisions of the Code of Ordinances. Landscaping should be designed to preserve existing significant natural features and to buffer service areas, parking lots, or dumpsters. A mix of evergreen and deciduous plants and trees are preferred, along with seasonal accent plantings. A landscape plan is not required as part of the MUPUD application, but was provided for consideration and will be reviewed in detail during site plan review if the MUPUD is approved.

Lighting: The MUPUD ordinance requires proposed site lighting to comply with the Outdoor Lighting Ordinance and limits street lighting intended to provide illumination for pedestrians on the sidewalk to no taller than 15 feet in height. Information on site lighting was provided and will be reviewed in detail during site plan review.

Signs: A sign program is required as part of the MUPUD application showing the style, size, number, and location of any proposed signs and is approved by the Township Board as part of the MUPUD. Freestanding signs are generally not permitted in a MUPUD. Exceptions for freestanding signs of the monument type may be permitted when a building is set back a minimum of 15 feet from the right-of-way (ROW) line with the resulting yard set aside for permanent public open space. Freestanding signs are required to be at least 10 feet back from the adjacent road right-of-way (ROW). The applicant is proposing a 65 square foot, five-foot tall monument sign located south of the Haslett Road pathway and 10 feet from the adjacent ROW. The building elevations show two wall signs on the east façade of the building, one for the art studio and one for the salon.

Sidewalks: Generally, sidewalks in a MUPUD must be a minimum of five feet in width. Seven foot wide sidewalks are required when a sidewalk is located immediately adjacent to an off-street parking area. The submitted site plan shows a seven foot wide sidewalk around the perimeter of the building.

Waiver requests

The MUPUD ordinance generally waives the standard requirements for lot size, setbacks, type and size of dwelling unit, lot frontage, number of required parking spaces, and impervious surface coverage, provided the purpose and intent of the ordinance are incorporated into the overall development plan. Based on the submitted site plan the applicant is requesting the following waivers for the Pine Village project.

Parking

264 parking spaces are required for the project based on the number of residential units and salon in the building and the allowed reduction granted for bicycle parking. 101 parking spaces are proposed by the applicant. A waiver of 163 parking spaces is required.

Bicycle Parking

27 bicycle parking spaces are required for the project. A total of 12 bicycle parking spaces (six bicycle racks) are provided in different areas on the property, therefore a waiver of 15 bicycle parking spaces (eight bicycle racks) is requested. An unidentified amount of additional bicycle spaces are planned to be provided in a bicycle shelter or locker, which may either reduce or eliminate the bicycle parking waiver.

Freestanding Sign

The applicant is proposing a 65 square foot, five-foot tall monument sign for the project. For structures over 25,000 square feet but less than 150,000 square feet in size, freestanding signs five feet or less in height can be up to 38 square feet in size. The applicant is requesting a waiver of 27 square feet for the sign.

Planning Commission Options

The Planning Commission may recommend approval, approval with conditions, or denial of the proposed MUPUD. The Planning Commission is required to make a recommendation on the MUPUD within 60 days of the date of the public hearing. A resolution will be provided at a future meeting.

Attachments

1. Application and attachments.
2. Site plan prepared by Kebs, Inc. dated October 7, 2019 (revision date December 11, 2019) and received by the Township on December 11, 2019.
3. Floor plans and building elevations prepared by Shelter Design Studio LLC dated December 12, 2019 and received by the Township on December 12, 2019.
4. Trip generation letter prepared by TEA, Inc. dated November 7, 2019.
5. Natural Features Assessment prepared by Marx Wetlands, LLC dated November 1, 2019.
6. Wetland Delineation prepared by Marx Wetlands, LLC dated October 30, 2019.

RECEIVED
NOV 19 2019

CHARTER TOWNSHIP OF MERIDIAN
DEPARTMENT OF COMMUNITY PLANNING AND DEVELOPMENT
5151 MARSH ROAD, OKEMOS, MI 48864
PHONE: (517) 853-4560, FAX: (517) 853-4095

MIXED USE PLANNED UNIT DEVELOPMENT APPLICATION

Before submitting this application for review, an applicant shall participate in the pre-application conference with the Director of Community Planning and Development to discuss the requirements for a Mixed Use Planned Unit Development.

Part I

A. Applicant Jeff Buck, Hudson Senior Living
Address of Applicant 280 W. Maple Rd, Suite 230, Birmingham, MI 48009
Telephone - Work 248-540-9300 ext. 12 E-Mail jbuck@cypresspartners.biz Fax 248-988-8867
Interest in property (circle one): Owner Tenant (Option) Other _____
(Please attach a list of all persons with an ownership interest in the property.)

B. Site address / location / parcel number 1673 Haslett Rd, Meridian Township, MI 48840 33-02-02-10-401-003
Legal description (please attach if necessary) See Attached 33-02-02-10-402-001
Current zoning _____
Project name Pine Village of Meridian

C. Developer (if different than applicant) _____
Address _____
Telephone: Work _____ E-Mail _____ Fax _____

D. Architect, Engineer Planner or Surveyor responsible for design of project if different from applicant:
Name Greg Petru, Kebs, Inc.
Address 2116 Haslett Rd, Haslett, MI 48840
Telephone(s) 517-339-1014 _____ E-Mail gpetru@kebs.com Fax _____

E. Acreage of all parcels in the project: Gross 9.6 Acres Net 9.6 Acres

F Proposed Uses and Site Amenities:

1. Non-residential uses:
   a. Type Dining/Restaurant, Salon, Healthcare Clinic Office, etc.
   b. Percent of project area 6.5 %
   c. Total square feet for non-residential uses 9,558 sq. ft.
   d. Usable floor area 9,558 sq. ft.
   e. Number of employees Approx. 20
   f. Hours of operation Varies

2. Residential Uses:
   a. Percent of project area
   b. Total dwelling units 133 Units
   c. Dwelling unit mix:
      i. Number of single family detached: for Rent 0 Condo 0
      ii. Number of duplexes: for Rent 0 Condo 0
      iii. Number of townhouses: for Rent 0 Condo 0
      iv. Number of garden style apartments: for Rent 133 Condo 0
      v. Number of other dwellings: for Rent 0 Condo 0

3. Parking:
   a. Non-residential uses 100 spaces total for both non- and residential uses
   b. Residential uses See above

4. Proposed Amenities: (General)
   Type Electric Car Charging Station
   Type Foot & Bicycle Pathways that connect into path system
   Type Covered Bicycle Storage on site
   Type Outdoor Gathering Spaces & Outdoor Eating Spaces

   Proposed Amenities: (Density Bonus)
   Type Benches or outdoor seating
   Type Private courtyards
   Type Porches on any structure
   Type Sidewalk Planter-pots

G. The following support materials must be submitted with the application:

1. Nonrefundable fee.
2. Legal Description of the property. (A sealed survey may be required)
3. Evidence of fee or other ownership of the property or a letter from the owner authorizing the request including the owner's proof of ownership.
4. A written description of the project including, but not limited to: a site analysis; the principal factors which influenced the site plan and architectural elements; and, the proposed phasing program for non-residential and residential uses, installation and/or construction of amenities.
5. Fourteen copies (Thirteen (13) 24"x36" and one 8½" x11") of a Site Plan drawn to a readable scale containing the following (may be a set of plans for readability):
   - Total property, its location in the Township, its relationship to adjacent properties
   - Boundaries of subject property
   - Location and dimensions of all existing and proposed structures
   - Approximate location and distance of all structures within 100 feet of the subject property
   - Proposed means of vehicular and pedestrian ingress and egress to the subject property
   - Public and private roads and streets, rights-of-way and easements indicating names and widths of streets which abut or cross the site
   - Existing and proposed parking spaces and vehicular and pedestrian circulation patterns
   - Dimensions of setbacks from streets, property lines and between buildings on the site
   - Location of proposed amenities
   - Location and size of existing utilities including power lines and towers, both above and below ground
   - Amount and location and calculation of all impervious surfaces
   - Verified boundaries of all natural water features and required setback lines
6. A reproducible two foot contour topographic map based on United States Geological Survey (USGS) drawn at the same scale as the site plan and showing existing relief features on the site.
7. A schematic layout of the proposed storm sewer system.
8. Architectural sketches of all elevations of proposed buildings or structures, including the project entrances, as they will appear upon completion. The sketches should be accompanied by material samples or a display board of the proposed exterior materials and colors.
9. Floor plans of proposed residential units.

10. A Traffic Study (if the project will exceed 100 vehicle trips during the peak hours of the roadway(s), prepared by a qualified traffic engineer, based on the most current edition of *Evaluating Traffic Impact Studies: A Recommended Practice for Michigan Communities*, published by the State Department of Transportation.

11. Natural Features Study for previously undeveloped properties which includes a written description of natural features proposed to be retained, removed, or modified. Natural features shall include, but are not limited to, wetlands, floodways, floodway fringe, waterbodies, significant stands of trees or individual trees greater than 12 inches dbh, identified groundwater vulnerable areas, slopes greater than 20 percent.

12. Preliminary engineering reports in accordance with the adopted Township water and sewer standards, together with a letter of review from the Township Engineer.

13. A sign program illustrating size and location of each proposed sign type.

14. A lighting plan (see Chapter 38, Article VII).

15. Copies of comments from reviewing agencies such as, but not limited to, the following:
    - Ingham County Road Commission
    - Ingham County Drain Commission
    - Michigan Department of Transportation (if applicable)
    - Michigan Department of Environmental Quality (if applicable)
    - The appropriate school board (as applicable)

H. Any other information specified by the Director of Community Planning and Development which is deemed necessary to evaluate the application.

Part II

I (we) hereby grant permission for members of the Charter Township of Meridian's Boards and/or Commissions, Township staff member(s) 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 purpose of gathering information including but not limited to the taking and the use of photographs.

☒ Yes ☐ No (Please check one)

By the signature(s) attached hereto, I (we) certify that the information provided within this application and accompanying documentation is, to the best of my (our) knowledge, true and accurate

Signature of Applicant

November 19, 2019
Date

Jeffrey Buck
Type/Print Name

Fee: $ 1,165

Received by:

Date: 11.19.19

Pre-Application Meeting Held: _____
Date

Application Complete: _____
Date

By: _____
Staff

RECEIVED
DEC 09 2019

Pine Village of Meridian Township

1673 Haslett Road
Haslett, MI 48840

Pine Village of Meridian Township is a proposed independent senior living apartment community in the Ingham County township of Meridian. The site is located on just over Nine (9.6) acres of property on the south side of Haslett Road just west of Marsh Road

The three (3) story building will consist of a unit mix of one-bedroom and two-bedroom units. With a total of 133 units overall there will be 109 one-bedroom units, 12 two-bedroom/one-bathroom units and 12 two-bedroom/two-bathroom units. Units will be equipped with a full kitchen; refrigerator, dishwasher, microwave, stove/oven & garbage disposal. Select units will also include in-unit washer and dryer. Select units depending on floor will include patios and balconies.

One-bedroom units will be 633 sq. ft., two-bedroom/one-bathroom units will be 842 sq. ft. and the two-bedroom/two-bathroom units will be 913 sq. ft.

Pine Village will have a porte-cochere at the front entrance with a front covered porch. This entrance will lead into the main core of the building that will house the majority of our common space which includes our main parlor, community offices, art studio, salon, home healthcare office, pub & cafe. Also included on the first floor is a full commercial kitchen with formal dining room and an outside dining patio. Two elevators service both wings of the building.

The building will have a third-party food operator that will run the dining room, café & pub. These areas will be serviced by a full commercial kitchen and serve meals throughout the day to residents, visitors, staff & others. The dining room will offer restaurant style dining and the café & pub will accommodate a more casual dining experience.

The salon located on the first floor & equipped with a separate entrance will be leased by a local group who will operate the space for hair styling, cuts and other beauty services. This space will be open to all residents as well as other clients of the operating group.

A home health care office will be located on the first floor. This space will be leased by a home healthcare agency. They will use this space as an office for clients in the area as well as clients in the building.

The art studio, located on the first floor, will be a space for residents to participate in a variety of artistic activities from painting to pottery. Also, in partnership with local artisans this space will serve as a gathering space to hold classes and sell art pieces to the greater community. Like the salon, this space is accessible from inside the building, as well as from an outside entrance.

Our second floor is home to a fitness room, library and games room. It will also have the office of our building's activities director. A communal laundry room is located in both wings of the building with a gathering space for residents.

Located on our third floor is a multi-purpose room for movies & other activities, a chapel and a guest suite that will be available to family and friends visiting loved ones. As with the other floors, a communal laundry room is located in both wings of the building with a gathering space for residents.

Parking and entrances to the building are located all around the property and building. Those residents that do not drive or have a car will be able to utilize the community van that will make several trips throughout the week to grocery stores, restaurants, social outings, medical appointments, etc.

Other non-residential spaces within the building that will host people from the building and community are theatre and chapel spaces.

19

Pocket Shelter

Small and versatile, the Pocket Shelter stores bikes in areas that would not normally accommodate bike parking. This shelter is a modular system that provides covered and secure bike storage but is extremely space efficient and cost-effective.

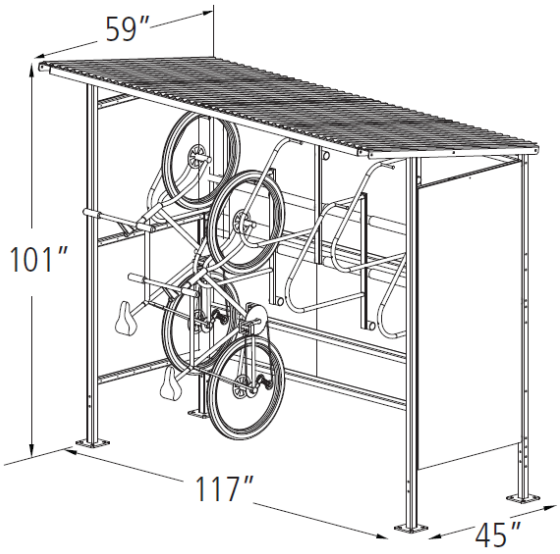
The vertical Ultra Space Saver system allows both the frame and wheel of each bike to be secured with a u-lock for the greatest bike security.

Optional side and back panels add increased protection against the elements. Optional interior or exterior benches are also available.

Covered bike parking earns your site LEED credits.

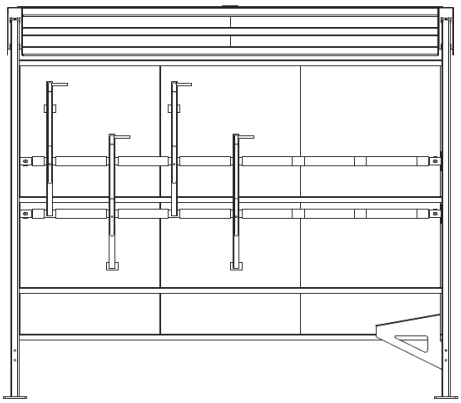
American Bicycle Security Company
P.O. Box 7359
Ventura, CA 93006
Ph: (800) 245-3723 or (805) 933-3688
Fax: (805) 933-1865
www.ameribike.com
Email: turtle@ameribike.com

Pocket Shelter



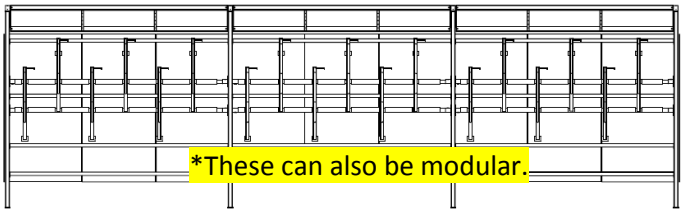
Product	Pocket Shelter
Capacity	With Ultra Space Savers: 6 Bikes With Bike Files: 10 Bikes
Materials	Uprights: 2″ x 3/16″ square tube Feet: 3/8″ plate Horizontal members: 3/16″ formed sheet Roof panels: 26g type S deck or ¼″ polycarbonate Roof members: 3/16″ formed sheet Side panels: ¼″ polycarbonate
Finishes	Standard options: Galvanized Powder Coated

RAL 9005	Flat Black	RAL 9003	RAL 2004	RAL 1023	Bright Yellow
RAL 6016	RAL 6018	RAL 6005	RAL 5005	RAL 5015	Purple
RAL 7011	RAL 7042	RAL 9007	RAL 1001	RAL 8014	Bronze
RAL 3003	RAL 3005				



A bench may be mounted to the inside of the Pocket Shelter and still allow room for four bikes.

Installation Methods	**Surface Mount** has four 6″ square feet which must be anchored to the ground with supplied anchors. See footing details on page 4.
Space Use & Setbacks	Consult local building codes for acceptable setbacks and placement.
Load Data	Dead load = self weight of structure Live load = snow load = 45 psf Wind load = 90 mph exposure B Seismic load = moderate Footing: see page 4 Anchor bolt = Simpson strong-bolt 2, ½″ x 5 ½″, 3 7/8″ minimum embed



*These can also be modular.

American Bicycle Security Company
P.O. Box 7359
Ventura, CA 93006
Ph: (800) 245-3723 or (805) 933-3688
Fax: (805) 933-1865
www.ameribike.com
Email: turtle@ameribike.com

D

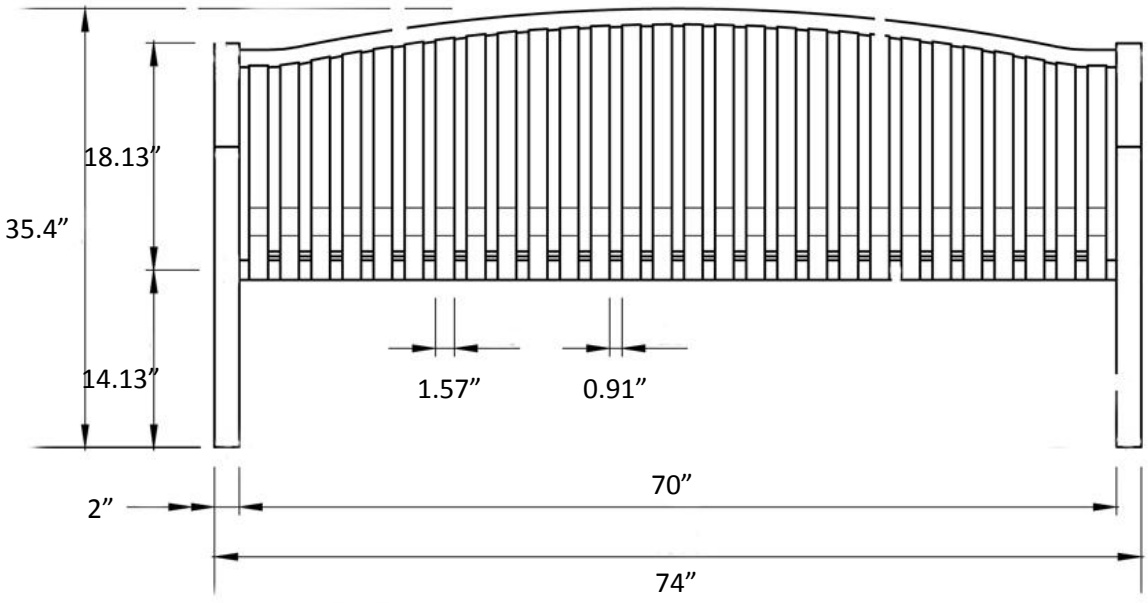
Outdoor Gathering Spaces & Outdoor Eating Spaces (See Plans)

E

Benches or Outdoor Seating

Specifications

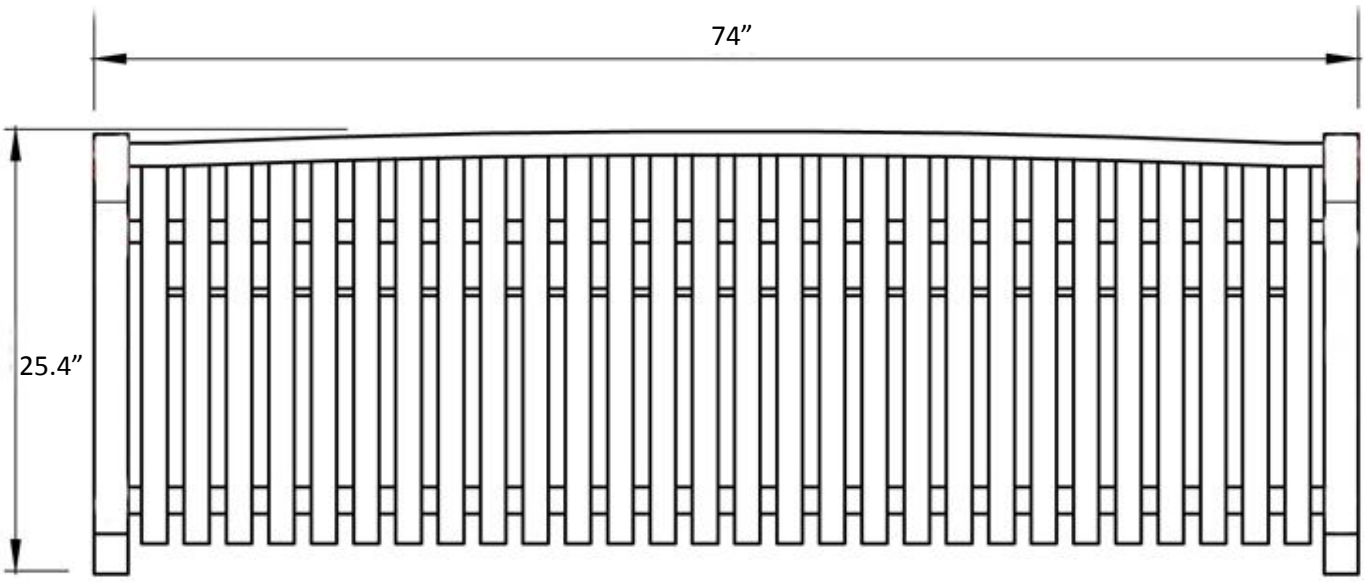
Steel Slat Arched Back Park Bench



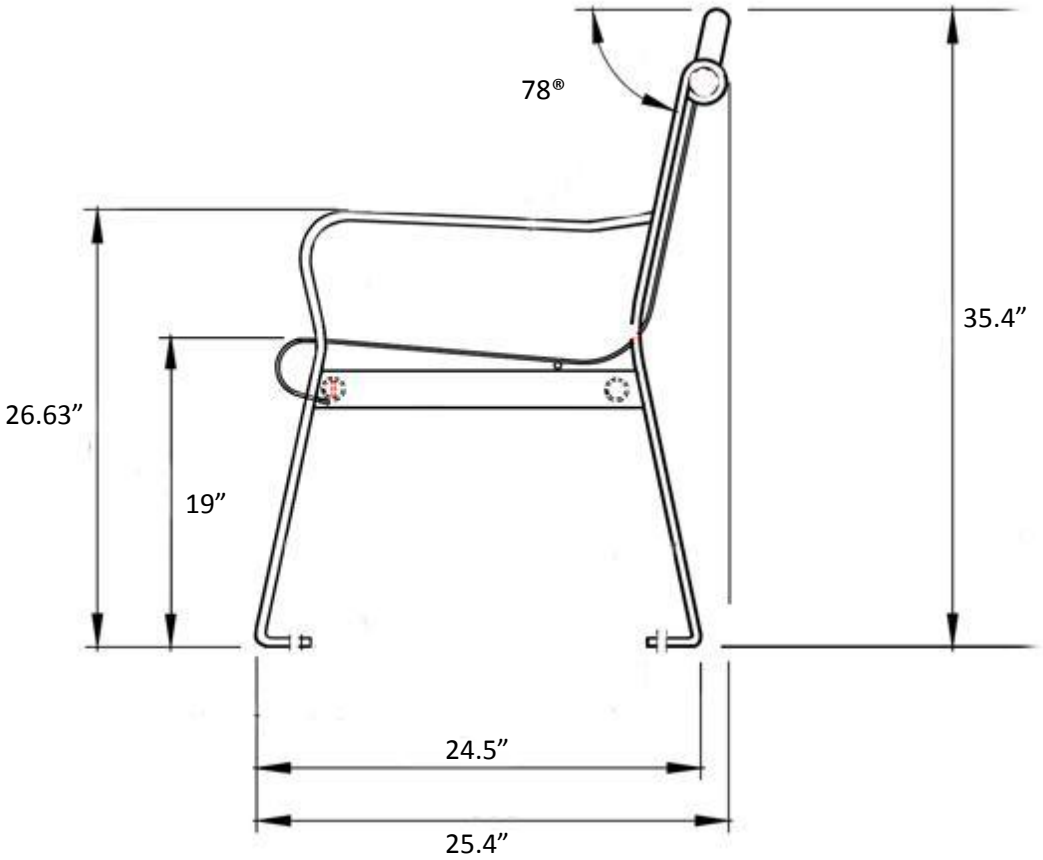
Front View

Length	Width	Height	Seat height	Steel slats
74”	25.4”	35”	19”	Width: 1.57” Thickness: 0.177” Space in between: 0.91”

Material:	Cold rolled carbon steel
Finish:	Powder coating
Fasteners:	Stainless steel
Seat Steel Slats:	7 Gauge
Bench End Steel:	0.4” thickness



Top View



End View

F

Private Courtyards
(See Plans)

G

Porches on Any Structure (See Plans)

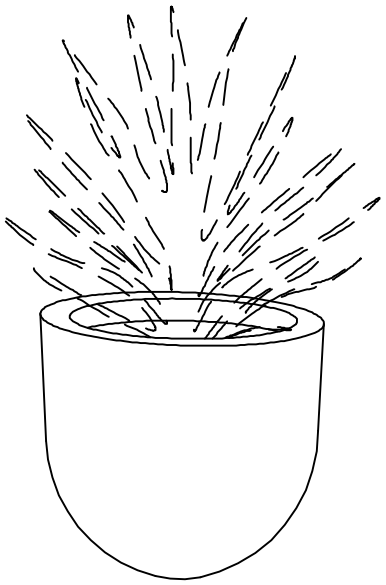
H

Sidewalk Planters-Pots

IAP INTERNATIONAL ART PROPERTIES
2868 CHAPMAN STREET
OAKLAND, CA 94601
TOLL FREE: 1-800-426-6471
PHONE: (510) 536-4886
www.iapsf.com

☑ SELECT DESIRED FINISH:

- ☐ SR - SILVER
- ☐ W - WHITE
- ☐ B - BRONZE
- ☐ TC - TERRACOTTA
- ☐ I - CAST IRON
- ☐ BK - BLACK
- ☐ CF - COFFEE
- ☐ MB - MATTE BLACK
- ☐ BR - BRASS
- ☐ SS - STAINLESS STEEL
- ☐ SW - SHINY WHITE
- ☐ CB - COBALT BLUE
- ☐ R - OXBLOOD
- ☐ C - COPPER
- ☐ ES - ESPRESSO



ISOMETRIC VIEW

OUTSIDE DIMENSIONS			INSIDE DIMENSIONS			WEIGHT WITH CARTON (LBS)
DIAMETER	BASE	HEIGHT	DIAMETER	BASE	HEIGHT	
19	8.5	18.5	15.5	9	18.25	20
23	10	22	18.5	9.5	21.75	25
30	14.75	29	25.5	14.25	28.75	37
36	16.5	34	29	16	33.75	62
36	16.5	42	29	16	41.75	73
36	20	72	32.25	15.75	71.75	119

NOTES:

1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. ALL DIMENSIONS ARE CONSIDERED TRUE AND REFLECT MANUFACTURER'S SPECIFICATIONS.
3. DO NOT SCALE DRAWING.
4. THESE DRAWINGS ARE NOT FOR CONSTRUCTION PURPOSES AND ARE FOR INFORMATION PURPOSES ONLY. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
5. CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info REFERENCE NUMBER 2653-003.

PLANTERS

026 YORK - PLANTER

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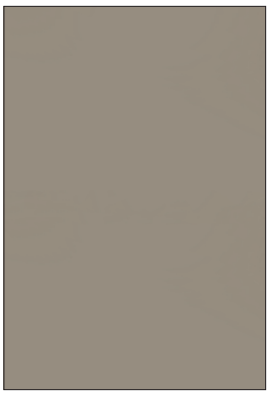
FINISHES

BONE - **BN**

BRASS - **BR**

*BRONZE - **B**

*CAST IRON - **I**

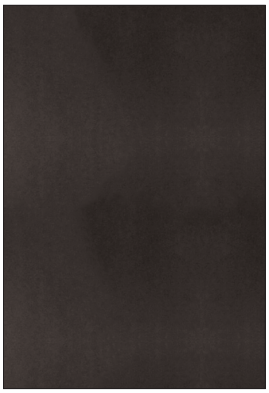


COFFEE - **CF**

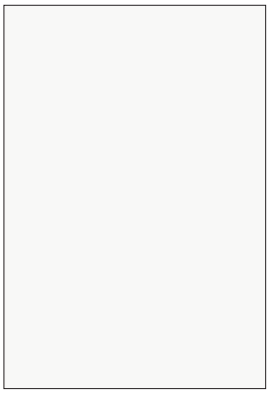
*COPPER - **C**

ESPRESSO - **ES**

LIMESTONE - **LS**

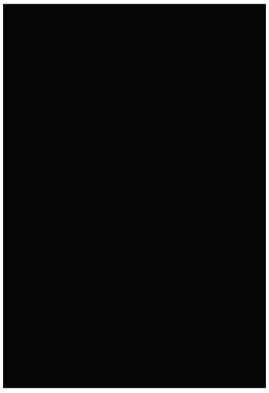


*MATTE BLACK - **MB**

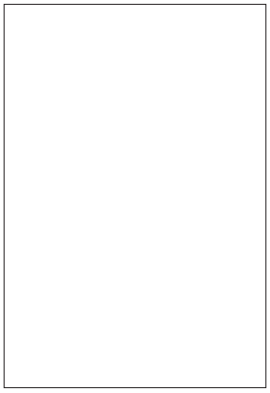


MATTE WHITE - **MW**

OXBLOOD - **R**



SHINY BLACK - **BK**



SHINY WHITE - **SW**

*STAINLESS STEEL - **SS**

STERLING - **ST**

* Indicates a fusion of metal and fiberglass technology that will patina naturally over time.

CUSTOM FINISHES

All custom orders require a 50% non-refundable deposit and are non-cancelable. There is a minimum quantity of 12 pieces per design, size and color. Delivery time is longer as new molds require an additional 8 weeks of manufacturing time, with an additional cost for custom colors. This is only a printed representation of the color and may not be 100% accurate.

I
Public Art

J

Building Recycling Program

Questions?

Call 517.853.4466
Write recycle@meridian.mi.us
or visit meridian.mi.us

Printed on recycled paper. Please recycle.

Version: April 10, 2019

• EST. 1842 •
MERIDIAN
TOWNSHIP

Recycling Guide

What can I recycle?

Recycle Curbside

- mixed paper - magazines, books, newspaper
- mixed plastics - bottles and jugs with narrow, threaded neck; plastic tubs (margarine, sour cream, etc.); microwave trays; and yogurt containers.
- tin cans & aluminum
- corrugated cardboard & brown paper bags
- boxboard
- glass (container glass)

Curbside collection is available to most Granger customers in Meridian Township, call Granger: 517.372.2800

More at www.grangernet.com/curbside-recycling

Paint and Motor Oil

See bit.ly/commonquests

under “paint” and “oil.”

FreeCycle!

Is it still usable but you don’t need it anymore? Use Craigslist.org, Let Go, Offer Up, Facebook Marketplace, Ebay, and Freecycle.org. Meridian Police offer a safe place for on-line transactions in their lobby at 5151 Marsh in Okemos any time.

Donate items at Salvation Army (525 N Pennsylvania Ave, Lansing), Goodwill (1860 W. Grand River, Okemos), and Volunteers of America (6102 Abbot Rd, East Lansing).

Yard Waste

Yard waste does not belong in your trash! You can compost it, or your neighbors or close-by community gardens might be interested in doing so.

Ask your hauler about curbside collection or drop it off at the Recycling Center for a fee.

More Questions?

Visit http://bit.ly/commonquests for answers about what, when, where, and how to recycle.

Where can I recycle?

Hazardous Waste

If possible, use it up or find someone that can - following instructions on the label. Ingham County collects household hazardous waste & medicines. Call 517.887.4312 or visit https://bit.ly/2NKZd4r

Apartments/Condos

Contact your property manager to find out what programs are available for your complex. Call 517.853.4466 for more information about starting a program.

Meridian Recycling Center

5976 E. Lake Drive, Haslett
517.703.4498
reclaimedbydesign.com

November - March

Monday & Friday	2 pm - 5 pm
Tuesday - Thursday	10 am - 5 pm
Saturday	10 am - 4 pm

April - October

Monday & Friday	2 pm - 6 pm
Tuesday - Thursday	10a m - 6 pm
Saturday	10 am - 5 pm

Recycle items including...

- Styrofoam™ - clean, no peanuts, no insulation
- glass - sorted by color
- plastic bottles and jugs with narrow, threaded neck; plastic tubs (margarine, sour cream, etc.), microwave trays, and yogurt containers.
- paper, cardboard, boxboard
- large metal
- brush, leaves and branches $2/30 gal bag or $15/cu yd

You may also dispose of most compactable and non-compactable waste for a fee.

Regional Recycling Coordinating Committee

Discover more recycling drop-off locations at midmichrecycles.org

K

Energy Star Appliances

U.S. Government

Federal law prohibits removal of this label before consumer purchase.

ENERGYGUIDE

Dishwasher
Capacity: Standard

Whirlpool Corporation
Models: WDF330PAH, WDF331PAH****
WDT710PAH**

Estimated Yearly Energy Cost
(when used with an electric water heater)

$35

Cost Range of Similar Models

270 kWh
Estimated Yearly Electricity Use

$23
Estimated Yearly Energy Cost
(when used with a natural gas water heater)

Your cost will depend on your utility rates and use.

- Cost range based only on standard capacity models.
- Estimated energy cost based on four wash loads a week and a national average electricity cost of 13 cents per kWh and natural gas cost of $1.05 per therm.
- For more information, visit www.ftc.gov/energy.

W11236380

ENERGY STAR

U.S. Government

Federal law prohibits removal of this label before consumer purchase.

ENERGYGUIDE

Refrigerator-Freezer
- **Automatic Defrost**
- **Top-Mounted Freezer**
- **No Through-The-Door-Ice**

Whirlpool Corporation
Model: WRT318FZD*0*
Capacity: 18.2 Cubic Feet

Compare ONLY to other labels with yellow numbers.
Labels with yellow numbers are based on the same test procedures.

Estimated Yearly Energy Cost

$49

Cost Ranges

Models with similar features	$43	$59
All models	$34	$73

411 kWh

Estimated Yearly Electricity Use

- **Your cost will depend on your utility rates and use.**
- Both cost range based only on models of similar size capacity.
- Models with similar features have automatic defrost, top-mounted freezer, and no through-the-door-ice.
- Estimated energy cost based on a national average electricity cost of 12 cents per kWh.

ftc.gov/energy

(P/N W11110662 Rev. A)

Canada

ENERGUIDE

Energy consumption / Consommation énergétique

411 kWh

per year / par année

Uses least energy / Consomme le moins d'énergie		**Uses most energy / Consomme le plus d'énergie**
	Type 3	
Similar models compaired	**16.5 to 18.4** *volume in ft³ / volume en pi³*	Modèles similaires comparés
Model number	**WRT318FZD*0***	Numéro du modèle

Removal of this label before first retail purchase is an offense (S.C. 1992, c.36).
Enlever cetter étiquette avant le premier achat au détail constitue une violation de la loi (L.C. 1992, ch.36)

W11110662 Rev. A

U.S. Government

Federal law prohibits removal of this label before consumer purchase.

ENERGYGUIDE

Clothes Washer
Capacity Class: Standard

Whirlpool Corporation
Model WFW5620H* , WFW6620H*
Capacity (tub volume): 4.5 cubic feet

Compare ONLY to other labels with yellow numbers.
Labels with yellow numbers are based on the same test procedures.

Estimated Yearly Energy Cost
(when used with an electric water heater)

$16

$10 — Cost range of Similar Products — $71

139 kWh
Estimated Yearly Electricity Use

$10
Estimated Yearly Energy Cost
(when used with a natural gas water heater)

- **Your cost will depend on your utility rates and use.**
- Cost range based only on standard capacity models.
- Estimated energy cost based on six wash loads a week and a national average electricity cost of 12 cents per kWh and natural gas cost of $1.09 per therm.

ftc.gov/energy

ENERGY STAR
W11356840

Canada

ENERGUIDE

Energy consumption / Consommation énergétique

139 kWh
per year / par année

This model / Ce modèle ▼

60 kWh		159 kWh
Uses least energy / Consomme le moins d'énergie		**Uses most energy / Consomme le plus d'énergie**
Similar models compared	**Front Load Standard/ À Changement Frontal odinaires**	Modèles similaires comparés
Model numbers	**WFW5620H* , WFW6620H***	Numéro du modèle

Removal of this label before first retail purchase is an offence (S.C. 1992, c.36).
Enlever cette étiquette avant le premier achat au détail constitue une violation de la loi (S.C. 1992, c.36).

W11356840

ENERGY STAR
HIGH EFFIC ENCY
HAUTE EFFICACITE

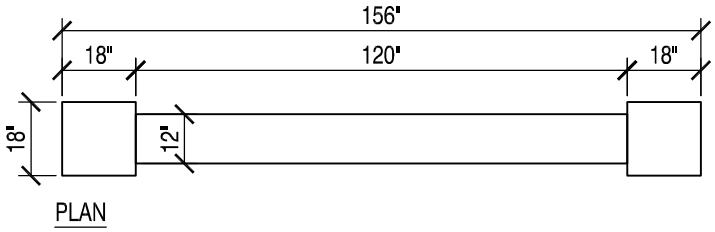
The Energy Star® mark on this EnerGuide label signifies that this is an energy – efficient appliance. Its energy performance meets or exceeds the Government of Canada's high efficiency levels. Use the EnerGuide rating to determine how this appliance compares to other similar models.

La marque Energy Star® sur cette étiquette EnerGuide signifie que l'appareil est éconergétique et que son rendement énergétique satisfait ou dépasse les niveaux de haute efficacité du gouvernement du Canada. Utilisez la cote EnerGuide afin de comparer le rendement de l'appareil avec celui d'autres modéles similaires.

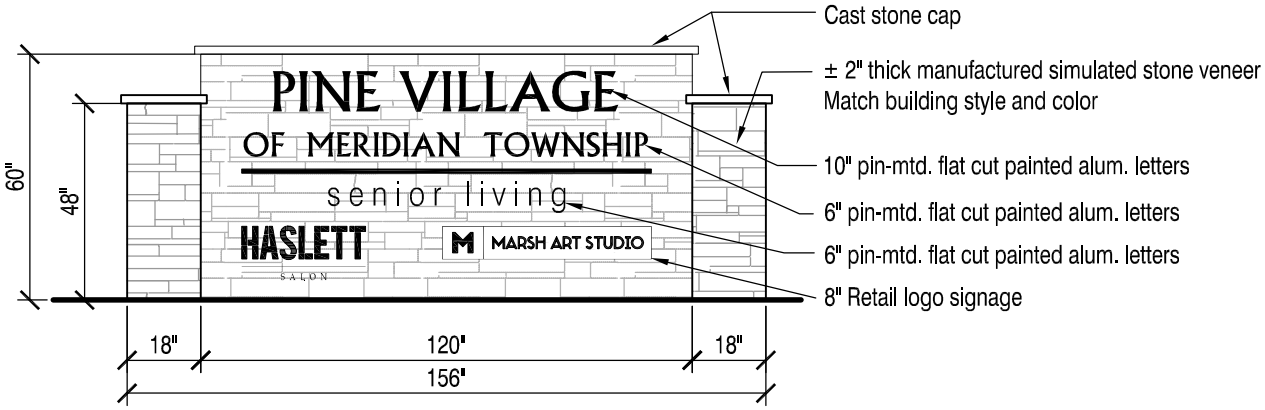
L

CATA Bus
Stop Pad

BUS
STOP
394-1000
CATA DRIVES LANSING



PLAN



ELEVATION
60" x 156", 62 sq. ft.

SHELTER
DESIGN STUDIO LLC

104 W. Fourth St., Suite 303
Royal Oak, Michigan 48067
T: 248.629.7153 F: 248.629.7154
www.SHELTERSTUDIOLLC.com

Project
Pine Village of Meridian Twp
Monument Sign

Drawing No.: Sign1

Drawing Title
Plan & Elevation 1/4" = 1'-0"

Issued For	Date
MUPUD Submittal	11.12.2019
REV. MUPUD Submittal	12.12.2019

RECEIVED
NOV 19 2019

Illustration Example of Building Colors and Materials

Pine Village of Meridian
Charter Township of Meridian, Michigan

Proposed Exterior Materials

Pine Village of Meridian
Meridian Township, Michigan

Cedar Shake, Vinyl, Granite Grey

Asphalt Shingle, Moire Black

Eastern Fieldstone, Walden

Siding, Fiber Cement, Light Mist

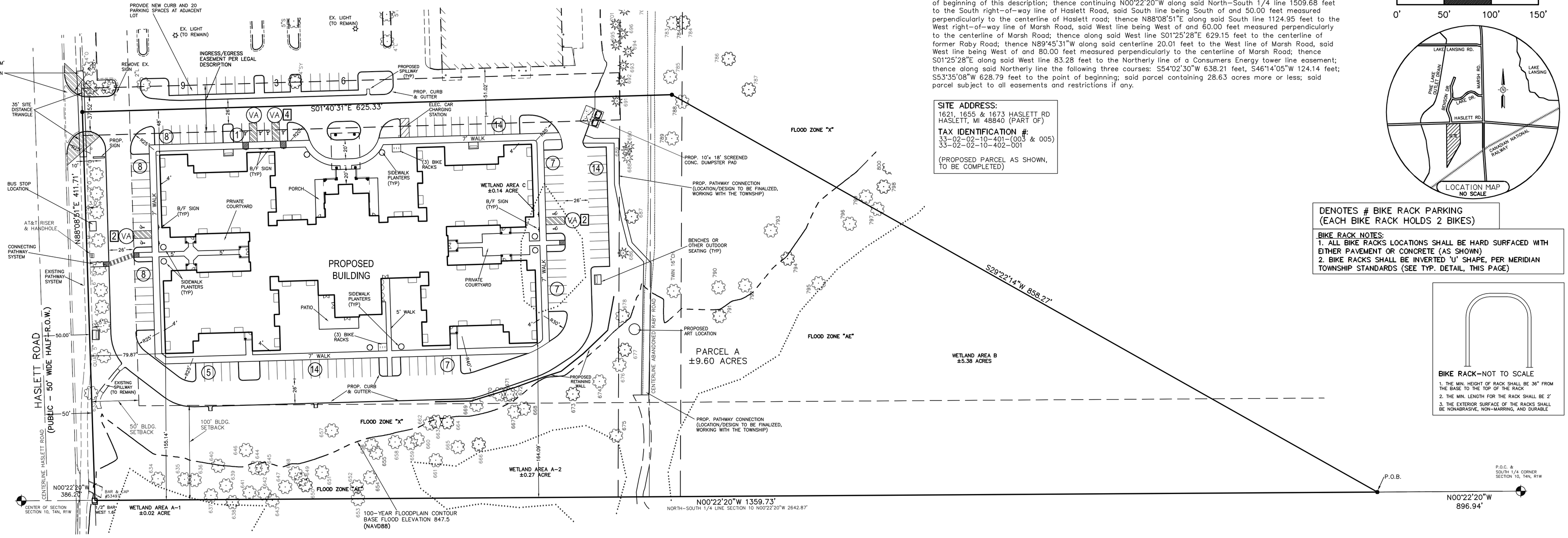
Proposed Exterior Materials

Pine Village of Meridian
Meridian Township, Michigan

Siding, Vinyl, Sterling Grey

APPLICANT:	ENGINEER/SURVEYOR:	LANDOWNER:
HUDSON SENIOR LIVING, LLC 280 W. MAPLE RD. BIRMINGHAM, MI. 48009 PH:(248) 540-9300	KEBS, Inc. 2116 HASLETT RD. HASLETT, MI. 48840 PH:(517) 339-1014	LTG HASLETT LLC. 1111 MICHIGAN AVE., SUITE 300 EAST LANSING, MI. 48823

MUPUD PLAN FOR:
Pine Village of Meridian
MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN



LEGAL DESCRIPTION:

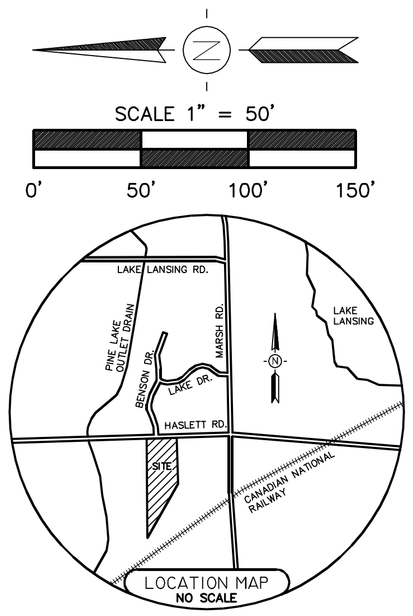
AS SURVEYED:
(The following legal description describes the same parcel of land as the provided description)

A parcel of land in the Southeast 1/4 of Section 10, T4N, R1W, Meridian Township, Ingham County, Michigan, the surveyed boundary of said parcel described as: Commencing at the South 1/4 corner of said Section 10; thence N00°22'20"W along the North–South 1/4 line of said Section 10 a distance of 746.99 feet to the point of beginning of this description; thence continuing N00°22'20"W along said North–South 1/4 line 1509.68 feet to the South right–of–way line of Haslett Road, said South line being South of and 50.00 feet measured perpendicularly to the centerline of Haslett road; thence N88°08'51"E along said South line 1124.95 feet to the West right–of–way line of Marsh Road, said West line being West of and 60.00 feet measured perpendicularly to the centerline of Marsh Road; thence along said West line S01°25'28"E 629.15 feet to the centerline of former Raby Road; thence N89°45'31"W along said centerline 20.01 feet to the West line of Marsh Road, said West line being West of and 80.00 feet measured perpendicularly to the centerline of Marsh Road; thence S01°25'28"E along said West line 83.28 feet to the Northerly line of a Consumers Energy tower line easement; thence along said Northerly line the following three courses: S54°02'30"W 638.21 feet, S46°14'05"W 124.14 feet; S53°35'08"W 628.79 feet to the point of beginning; said parcel containing 28.63 acres more or less; said parcel subject to all easements and restrictions if any.

SITE ADDRESS:
1621, 1655 & 1673 HASLETT RD
HASLETT, MI 48840 (PART OF)

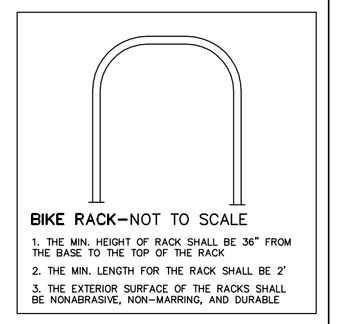
TAX IDENTIFICATION #:
33-02-02-10-401-(003 & 005)
33-02-02-10-402-001

(PROPOSED PARCEL AS SHOWN, TO BE COMPLETED)



DENOTES # BIKE RACK PARKING
(EACH BIKE RACK HOLDS 2 BIKES)

BIKE RACK NOTES:
1. ALL BIKE RACKS LOCATIONS SHALL BE HARD SURFACED WITH EITHER PAVEMENT OR CONCRETE (AS SHOWN)
2. BIKE RACKS SHALL BE INVERTED 'U' SHAPE, PER MERIDIAN TOWNSHIP STANDARDS (SEE TYP. DETAIL, THIS PAGE)



[1] DENOTES NUMBER OF B/F SPACES
(VA) DENOTES VAN ACCESS B/F SPACES
(0) DENOTES PROPOSED NUMBER OF 9' x 20' PARKING SPACES

EX. SANITARY SEWER INVENTORIES:

SANITARY MANHOLE #200
RIM ELEV. = 861.50
8" VCP S INV. = 854.18
8" VCP W INV. = 854.22

SANITARY MANHOLE #201
RIM ELEV. = 861.75
8" VCP E INV. = 855.03
8" VCP W INV. = 855.07

SANITARY MANHOLE #202
RIM ELEV. = 862.08
8" VCP E INV. = 856.14

SANITARY MANHOLE #203
RIM ELEV. = 862.12
6" VCP N INV. = 853.68
8" VCP E INV. = 853.48

SANITARY MANHOLE #204
RIM ELEV. = 859.48
8" VCP E INV. = 852.51
8" VCP W INV. = 852.53

SANITARY MANHOLE #205
RIM ELEV. = 859.64
8" VCP E INV. = 851.44
8" VCP W INV. = 851.48

SANITARY MANHOLE #206
RIM ELEV. = 861.41
8" VCP N INV. = 850.71
8" VCP S INV. = 850.63
8" VCP W INV. = 850.76

SANITARY MANHOLE #207
RIM ELEV. = 872.54
PIPES NOT VISIBLE
N INV. = 849.42
SW INV. = 849.36

SANITARY MANHOLE #208
RIM ELEV. = 853.05
24" RCP NE INV. = 837.43
24" RCP SW INV. = 837.37

SANITARY MANHOLE #209
RIM ELEV. = 844.61
24" RCP NE INV. = 836.62
24" RCP SW INV. = 836.57

SANITARY MANHOLE #210
RIM ELEV. = 839.51
PIPES NOT VISIBLE
BOTTOM ELEV. = 832.43

SANITARY MANHOLE #211
RIM ELEV. = 840.85
PIPES NOT VISIBLE
NE INV. = 832.35
SW INV. = 832.30
T/WATER ELEV. = 834.25

EX. STORM SEWER INVENTORIES:

CATCH BASIN #100
RIM ELEV. = 860.14

CATCH BASIN #101
RIM ELEV. = 861.52

STORM MANHOLE #102
RIM ELEV. = 864.12

CATCH BASIN #103
RIM ELEV. = 863.83

CATCH BASIN #104
RIM ELEV. = 859.05
12" RCP NW INV. = 853.73

CATCH BASIN #105
RIM ELEV. = 859.37
12" RCP N INV. = 853.24
12" RCP SE INV. = 853.23
18" RCP SW INV. = 852.76

CATCH BASIN #106
RIM ELEV. = 861.75
8" UNKNOWN NE INV. = 856.69
12" RCP S INV. = 856.54
12" RCP NW INV. = 856.67

CATCH BASIN #107
RIM ELEV. = 861.90
12" RCP SE INV. = 857.94

CATCH BASIN #108
RIM ELEV. = 861.63
12" RCP S INV. = 854.88

CATCH BASIN #109
RIM ELEV. = 861.08
12" RCP SW INV. = 856.72

CATCH BASIN #110
RIM ELEV. = 860.02
24" RCP E INV. = 849.62
30" RCP SW INV. = 849.58

CATCH BASIN #111
RIM ELEV. = 859.77
12" RCP NE INV. = 854.79
24" RCP SE INV. = 850.37
24" RCP W INV. = 850.32

CATCH BASIN #112
RIM ELEV. = 859.46
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8" HDPE N INV. = 844.61
12" RCP SW INV. = 844.36

CATCH BASIN #119
RIM ELEV. = 860.94
12" RCP N INV. = 856.32
12" RCP SE INV. = 856.25

CATCH BASIN #120
RIM ELEV. = 861.42
12" RCP S INV. = 856.93

71 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG 800-482-7171 (TOLL-FREE)

NOTE: WATER SHALL HAVE 10' HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

BENCHMARKS:

BENCHMARK #1 ELEV. = 862.07
CHISELED "X" IN NORTH SIDE OF CONCRETE LIGHT POLE BASE, 170'± EAST AND 90'± NORTH OF NORTHWEST CORNER OF #1655 HASLETT ROAD.

BENCHMARK #4 ELEV. = 863.05
SOUTHWEST FLANGE BOLT OF FIRE HYDRANT, UNDER THE "A" IN "TRAVERSE CITY", 18'± EAST AND 80'± NORTH OF NORTHEAST CORNER OF #1655 HASLETT ROAD.

LEGEND

- EXT. CONTOURS
- EXT. WATER MAIN
- EXT. SANITARY SEWER
- EXT. STORM SEWER
- EXT. ELEVATIONS
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- MANHOLE (NEW)
- PROPOSED C.B.
- MANHOLE (EX.)
- UTILITY EASEMENT
- CENTER LINE OF ROAD
- ROAD RIGHT OF WAY
- PROPERTY LINE
- FIRE HYDRANT
- WATER VALVE
- THRUST BLOCK
- ▲T/C 800.00 PROPOSED TOP OF CURB ELEV.

EX. LEGEND

- (M) = MEASURED DISTANCE
- (R) = RECORD DISTANCE
- ● = SET 1/2" BAR WITH CAP
- □ = FOUND IRON AS NOTED
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = DECK
- = GRAVEL
- = EXISTING SPOT ELEVATION
- = EXISTING CONTOUR ELEVATION
- = BUILDING OVERHANG
- = SANITARY SEWER
- = STORM SEWER
- = WATER LINE
- = GAS LINE
- = UNDERGROUND TELEPHONE
- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
- = OVERHEAD WIRES
- = EDGE OF WOODS
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- = LIGHT POLE
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- = UTILITY PEDESTAL
- = TRANSFORMER
- = HANDHOLE
- = ELECTRIC METER
- = GAS METER
- = WATER METER
- = SOIL BORING
- = SIGN
- = POST
- = AIR CONDITIONING UNIT
- = LIGHT POSTS (±3' TALL, 8" DIAMETER)

SITE DATA:
ZONED C–2 – (COMMERCIAL DISTRICT)
TOTAL SITE AREA = 418,211 S.F. = 9.60 ACRES
TOTAL UNITS = 133 (SEE UNIT BREAKDOWN)
TOTAL BEDS = 157

BUILDING DATA (OVERALL):
PROPOSED BUILDING HEIGHT: 37'–2" (3 STORIES)

GROUND FLOOR AREA: 51,328 SF
= 35 (1–BED) UNITS AND 8 (2–BED) UNITS

SECOND FLOOR AREA: 47,703 SF
= 36 (1–BED) UNITS AND 8 (2–BED) UNITS

THIRD FLOOR AREA: 47,703 SF
= 38 (1–BED) UNITS AND 8 (2–BED) UNITS

TOTAL CONSTRUCTABLE AREA: 146,734 SF

RETAIL–COMMERCIAL GROSS S.F. – 9,558 S.F.
TOTAL PROJECT GROSS S.F. – 9,558 S.F.

PROPOSED SETBACKS:
FRONT (HASLETT ROAD) = 129.87' From C/L
SIDE (WEST) = 155.14'
SIDE (EAST) = 48'
REAR (ADJ. PROPERTY) = VARIES, OVER 100'

PARKING DATA:
93 – 9' x 20' SPACES
8 – BARRIER FREE SPACES
101 TOTAL SPACES PROVIDED

REQUIRED VEHICLE PARKING:
ONE FOR EVERY 2 UNITS AND 1 EACH FOR EMPLOYEE AND/OR DOCTORS.
133 DWELLING UNITS = 133/2 = 66.5 = 67 SPACES
EMPLOYEE/VISITORS = USE 0.25 SPACES/UNIT = 33

TOTAL PARKING = 67 + 33 SPACES = 100 SPACES
TOTAL PARKING REQ. = 100 SPACES

PARKING SPACES PROVIDED: 101

BIKE PARKING DATA:
BIKE PARKING SPACES REQUIRED = 1 PER 10
REQUIRED CAR PARKING SPACES = 100/10 = 10
TOTAL BIKE PARKING PROVIDED = 12 SPACES

EXISTING OPENSPACE

TOTAL PROPERTY = 418,211 S.F. (±9.60 AC.)
TOTAL PERVIOUS AREA (INCLUDES WETLAND) = 303,985 SF = 72.69%
TOTAL IMPERVIOUS AREA (BUILDING, PARKING, WALKS) = 114,226 SF = 27.31%

PROPOSED OPENSPACE

TOTAL PROPERTY = 418,211 S.F. (±9.60 AC.)
TOTAL PERVIOUS AREA (INCLUDES WETLAND) = 287,696 SF = 68.79%
TOTAL IMPERVIOUS AREA (BUILDING, PARKING, WALKS) = 130,515 SF = 31.21%

SHEET INDEX

1. COVER/DIMENSION PLAN
2. UTILITY PLAN
3. GRADING & STORM SEWER PLAN
4. PERVIOUS/IMPERVIOUS PLAN
5. LANDSCAPE PLAN
6. AMENITIES PLAN
7. EXISTING PLAN

LIGHTING PLAN (BY OTHERS)

SURVEY#95688.BND

REVISIONS
11–19–19 MUPUD SUBMITTAL
12–9–19 MUPUD REVISIONS
12–11–19 MUPUD REVISIONS

KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517–339–1014 FAX. 517–339–8047
Marshall Office
Ph. 269–781–9800

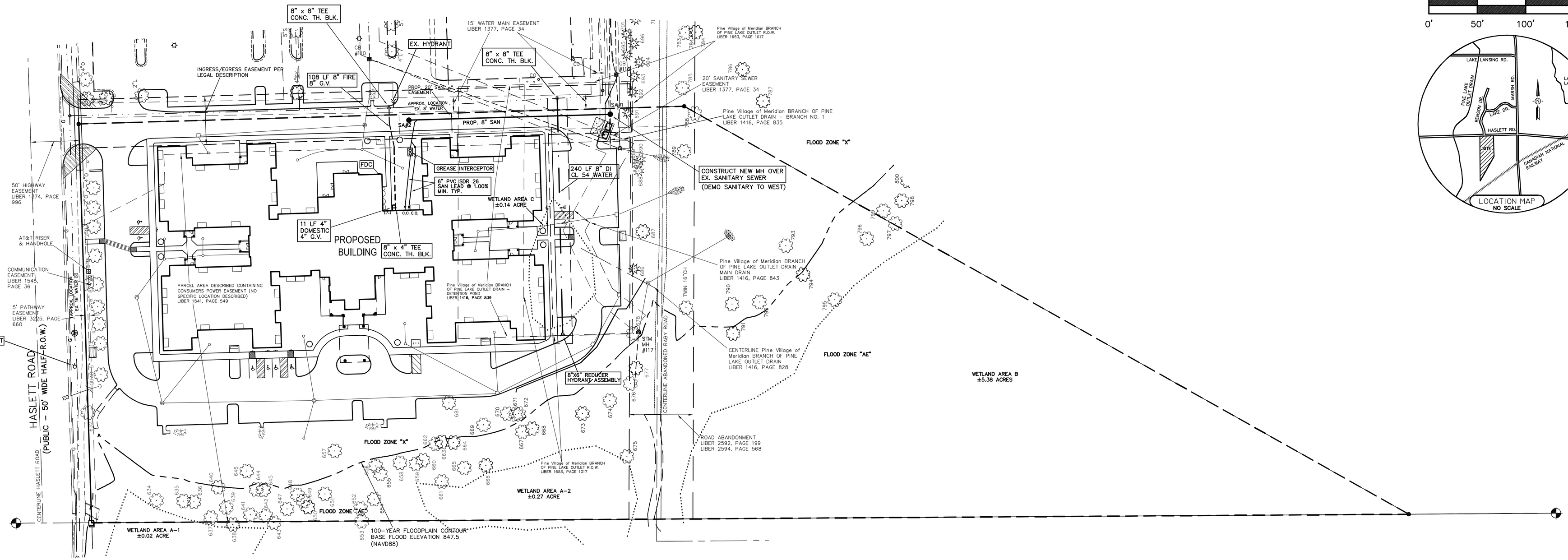
Pine Village of Meridian
COVER/DIMENSION PLAN

SCALE: 1"= 50'	DESIGNER: GAP	APPROVED BY: GAP
DATE: 10–7–19	PROJECT MGR. GAP	SHEET 1 OF 7
AUTHORIZED BY: HUDSON SENIOR LIVING, LLC		JOB #: 95818

MUPUD PLAN FOR:

Pine Village of Meridian

MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN



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- = GRAVEL
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- 860 = EXISTING CONTOUR ELEVATION
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12" RCP NW INV. = 856.67

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12" RCP SE INV. = 857.94

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RIM ELEV. = 861.08
12" RCP SW INV. = 856.72

CATCH BASIN #110
RIM ELEV. = 860.02
24" RCP E INV. = 849.62
30" RCP SW INV. = 849.58

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RIM ELEV. = 859.77
12" RCP NE INV. = 854.79
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SURVEY#95688.BND

REVISIONS
11-19-19 MUPUD SUBMITTAL

KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

Pine Village of Meridian
UTILITY PLAN

SCALE: 1"= 50'	DESIGNER: GAP	APPROVED BY: GAP
DATE: 10-7-19	PROJECT MGR. GAP	SHEET 2 OF 7
AUTHORIZED BY: HUDSON SENIOR LIVING, LLC		JOB #: 95818

MUPUD PLAN FOR:

Pine Village of Meridian

MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN

SCALE 1" = 30'

0' 30' 60' 90'

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RIM ELEV. = 858.81
12" RCP N INV. = 852.50
18" RCP NE INV. = 852.13
24" RCP SW INV. = 851.58

CATCH BASIN #114
RIM ELEV. = 859.08
12" RCP W INV. = 855.92

STORM MANHOLE #115
RIM ELEV. = 860.22
10" VCP NE INV. = 853.72
12" VCP E INV. = 853.67
18" RCP W INV. = 853.40

CATCH BASIN #116
RIM ELEV. = 858.65
18" RCP E INV. = 852.06
18" RCP W INV. = 852.03

STORM MANHOLE #117
RIM ELEV. = 848.26
12" RCP NE INV. = 843.95
12" RCP SW INV. = 843.90

CATCH BASIN #118
RIM ELEV. = 850.16
8" HDPE N INV. = 844.61
12" RCP SW INV. = 844.36

CATCH BASIN #119
RIM ELEV. = 860.94
12" RCP N INV. = 856.32
12" RCP SE INV. = 856.25

CATCH BASIN #120
RIM ELEV. = 861.42
12" RCP S INV. = 856.93

EX. SANITARY SEWER INVENTORIES:

SANITARY MANHOLE #200
RIM ELEV. = 861.50
8" VCP S INV. = 854.18
8" VCP W INV. = 854.22

SANITARY MANHOLE #201
RIM ELEV. = 861.75
8" VCP E INV. = 855.03
8" VCP W INV. = 855.07

SANITARY MANHOLE #202
RIM ELEV. = 862.08
8" VCP E INV. = 856.14

SANITARY MANHOLE #203
RIM ELEV. = 862.12
6" VCP N INV. = 853.68
8" VCP E INV. = 853.48

SANITARY MANHOLE #204
RIM ELEV. = 859.48
8" VCP E INV. = 852.51
8" VCP W INV. = 852.53

SANITARY MANHOLE #205
RIM ELEV. = 859.64
8" VCP E INV. = 851.44
8" VCP W INV. = 851.48

SANITARY MANHOLE #206
RIM ELEV. = 861.41
8" VCP N INV. = 850.71
8" VCP S INV. = 850.63
8" VCP W INV. = 850.76

SANITARY MANHOLE #207
RIM ELEV. = 872.54
PIPES NOT VISIBLE
N INV. = 849.42
SW INV. = 849.36

SANITARY MANHOLE #208
RIM ELEV. = 853.05
24" RCP NE INV. = 837.43
24" RCP SW INV. = 837.37

SANITARY MANHOLE #209
RIM ELEV. = 844.61
24" RCP NE INV. = 836.62
24" RCP SW INV. = 836.57

SANITARY MANHOLE #210
RIM ELEV. = 839.51
PIPES NOT VISIBLE
BOTTOM ELEV. = 832.43

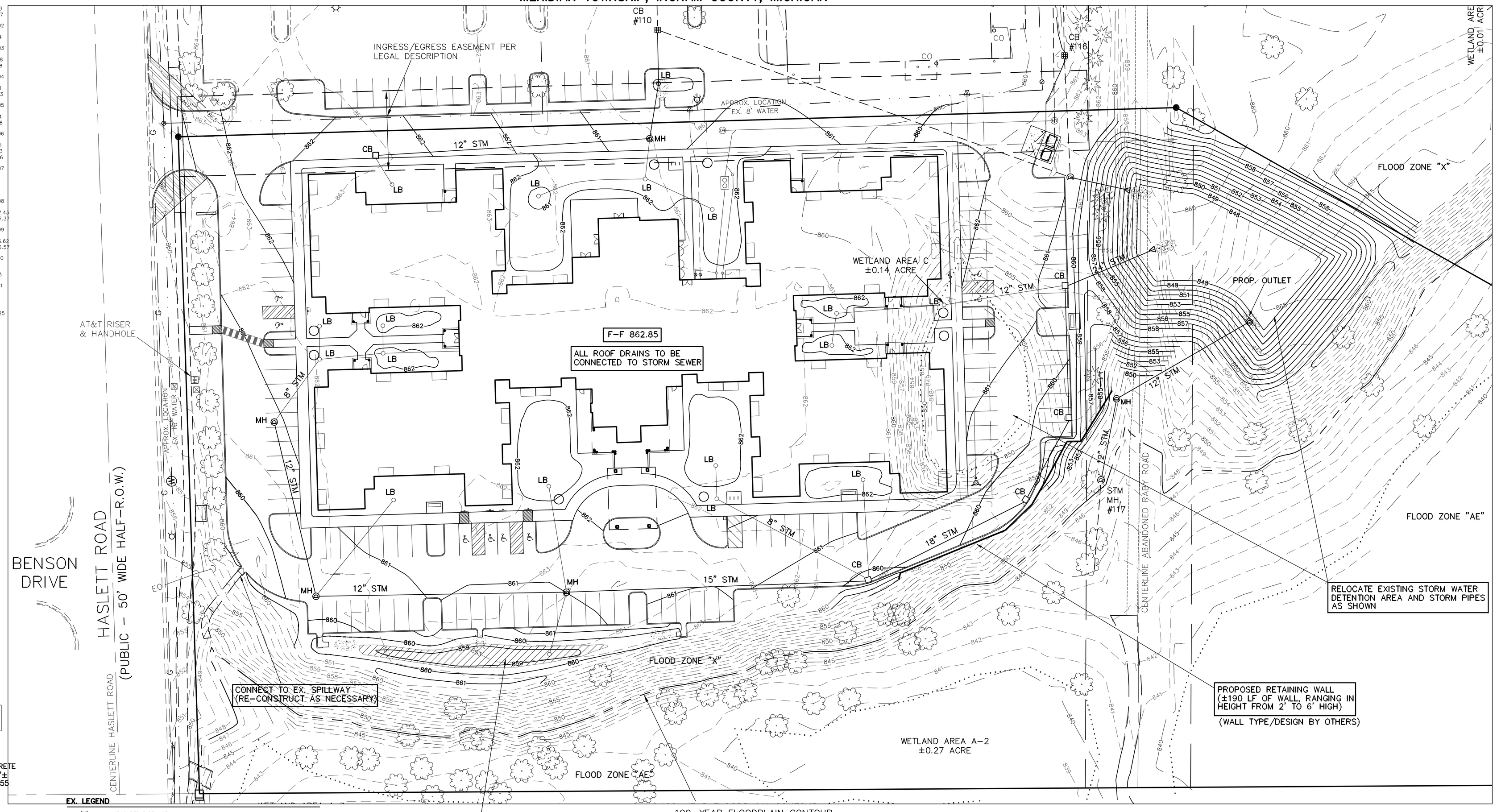
SANITARY MANHOLE #211
RIM ELEV. = 840.85
PIPES NOT VISIBLE
NE INV. = 832.35
SW INV. = 832.30
T/WATER ELEV. = 834.25

NOTE: WATER SHALL HAVE 10' HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

BENCHMARKS:

BENCHMARK #1 ELEV. = 862.07
CHISELED "X" IN NORTH SIDE OF CONCRETE LIGHT POLE BASE, 170'± EAST AND 90'± NORTH OF NORTHWEST CORNER OF #1655 HASLETT ROAD.

BENCHMARK #4 ELEV. = 863.05
SOUTHWEST FLANGE BOLT OF FIRE HYDRANT, UNDER THE "A" IN "TRAVERSE CITY", 18'± EAST AND 80'± NORTH OF NORTHEAST CORNER OF #1655 HASLETT ROAD.



LEGEND

- EXT. CONTOURS
- EXT. WATER MAIN
- EXT. SANITARY SEWER
- EXT. STORM SEWER
- EXT. ELEVATIONS
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- MANHOLE (NEW)
- PROPOSED C.B.
- MANHOLE (EX.)
- UTILITY EASEMENT
- CENTER LINE OF ROAD
- ROAD RIGHT OF WAY
- PROPERTY LINE
- FIRE HYDRANT
- WATER VALVE
- THRUST BLOCK
- ▲T/C 800.00 PROPOSED TOP OF CURB ELEV.

EX. LEGEND

- (M) = MEASURED DISTANCE
- (R) = RECORD DISTANCE
- = SET 1/2" BAR WITH CAP
- = FOUND IRON AS NOTED
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = DECK
- = GRAVEL
- = EXISTING SPOT ELEVATION
- = EXISTING CONTOUR ELEVATION
- = BUILDING OVERHANG
- = SANITARY SEWER
- = STORM SEWER
- = WATER LINE
- = GAS LINE
- = UNDERGROUND TELEPHONE
- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
- = OVERHEAD WIRES
- = EDGE OF WOODS
- = DECIDUOUS TREE
- = CONIFEROUS TREE
- = SANITARY MANHOLE
- = DRAINAGE MANHOLE
- = ELECTRIC MANHOLE
- = TELEPHONE MANHOLE
- = CATCHBASIN
- = SANITARY CLEANOUT
- = FIRE HYDRANT
- = VALVE
- = UTILITY POLE
- = LIGHT POLE
- = GUY POLE
- = GUY WIRE
- = UTILITY PEDESTAL
- = TRANSFORMER
- = HANDHOLE
- = ELECTRIC METER
- = GAS METER
- = WATER METER
- = SOIL BORING
- = SIGN
- = POST
- = AIR CONDITIONING UNIT
- = LIGHT POSTS (±3' TALL, 8" DIAMETER)

SURVEY#95688.BND

REVISIONS
11-19-19 MUPUD SUBMITTAL

KEBS, INC.
KYES ENGINEERING
BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

Pine Village of Meridian

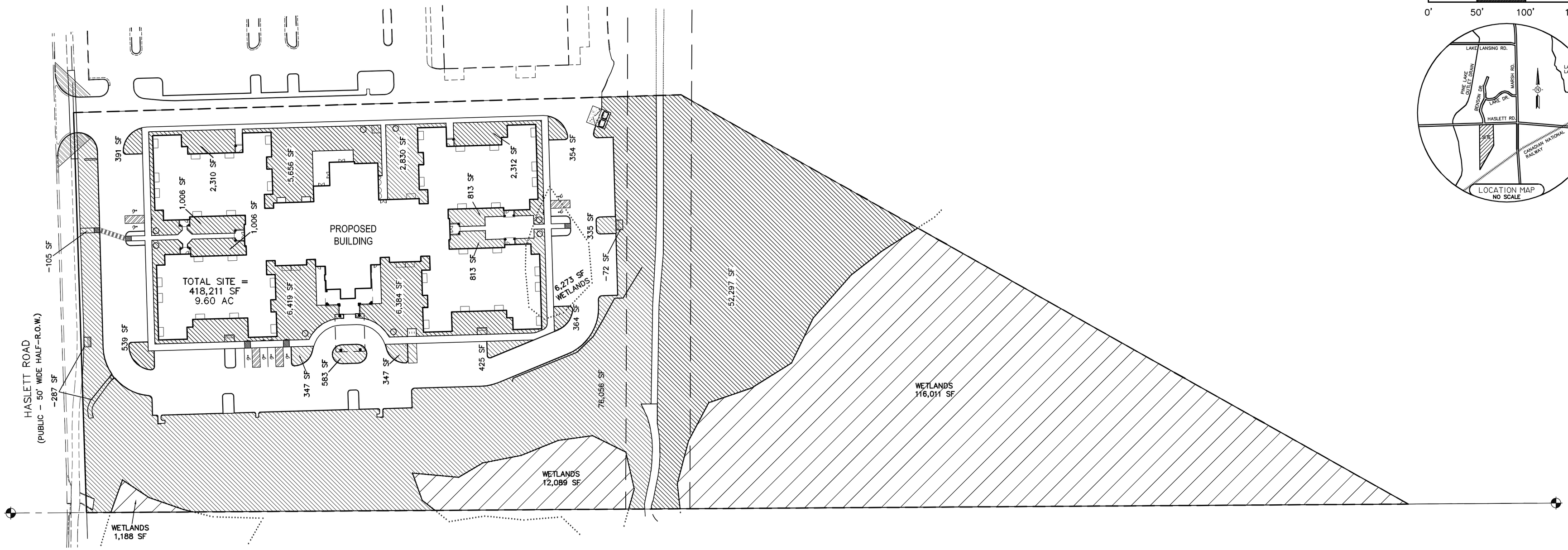
GRADING & STORM SEWER PLAN

SCALE: 1"= 30'	DESIGNER: GAP	APPROVED BY: GAP
DATE: 10-7-19	PROJECT MGR. GAP	SHEET 3 OF 7
AUTHORIZED BY: HUDSON SENIOR LIVING, LLC		JOB #: 95818

MUPUD PLAN FOR:

Pine Village of Meridian

MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN



BENCHMARKS:

BENCHMARK #1 ELEV. = 862.07
CHISELED "X" IN NORTH SIDE OF CONCRETE LIGHT POLE BASE, 170'± EAST AND 90'± NORTH OF NORTHWEST CORNER OF #1655 HASLETT ROAD.

BENCHMARK #4 ELEV. = 863.05
SOUTHWEST FLANGE BOLT OF FIRE HYDRANT, UNDER THE "A" IN "TRAVERSE CITY", 18'± EAST AND 80'± NORTH OF NORTHEAST CORNER OF #1655 HASLETT ROAD.

NOTE: WATER SHALL HAVE 10' HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

LEGEND

- EXT. CONTOURS
- EXT. WATER MAIN
- EXT. SANITARY SEWER
- EXT. STORM SEWER
- EXT. ELEVATIONS
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- MANHOLE (NEW)
- PROPOSED C.B.
- MANHOLE (EX.)
- UTILITY EASEMENT
- CENTER LINE OF ROAD
- ROAD RIGHT OF WAY
- PROPERTY LINE
- FIRE HYDRANT
- WATER VALVE
- THRUST BLOCK
- ▲T/C 800.00 PROPOSED TOP OF CURB ELEV.

EX. LEGEND

- (M) = MEASURED DISTANCE
- (R) = RECORD DISTANCE
- = SET 1/2" BAR WITH CAP
- = FOUND IRON AS NOTED
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = DECK
- = GRAVEL
- 860 = EXISTING SPOT ELEVATION
- 860 = EXISTING CONTOUR ELEVATION
- = BUILDING OVERHANG
- = SANITARY SEWER
- = STORM SEWER
- = WATER LINE
- = GAS LINE
- = UNDERGROUND TELEPHONE
- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
- = OVERHEAD WIRES
- = EDGE OF WOODS
- = DECIDUOUS TREE
- = CONIFEROUS TREE
- = SANITARY MANHOLE
- = DRAINAGE MANHOLE
- = ELECTRIC MANHOLE
- = TELEPHONE MANHOLE
- = CATCHBASIN
- = SANITARY CLEANOUT
- = FIRE HYDRANT
- = VALVE
- = UTILITY POLE
- = LIGHT POLE
- = GUY POLE
- = GUY WIRE
- = UTILITY PEDESTAL
- = TRANSFORMER
- = HANDHOLE
- = ELECTRIC METER
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- = SIGN
- = POST
- = AIR CONDITIONING UNIT
- = LIGHT POSTS (±3' TALL, 8" DIAMETER)

EX. SANITARY SEWER INVENTORIES:

SANITARY MANHOLE #200
RIM ELEV. = 861.50
8" VCP S INV. = 854.18
8" VCP W INV. = 854.22

SANITARY MANHOLE #201
RIM ELEV. = 861.75
8" VCP E INV. = 855.03
8" VCP W INV. = 855.07

SANITARY MANHOLE #202
RIM ELEV. = 862.08
8" VCP E INV. = 856.14

SANITARY MANHOLE #203
RIM ELEV. = 862.12
6" VCP N INV. = 853.68
8" VCP E INV. = 853.48

SANITARY MANHOLE #204
RIM ELEV. = 859.48
8" VCP E INV. = 852.51
8" VCP W INV. = 852.53

SANITARY MANHOLE #205
RIM ELEV. = 859.64
8" VCP E INV. = 851.44
8" VCP W INV. = 851.48

SANITARY MANHOLE #206
RIM ELEV. = 861.41
8" VCP N INV. = 850.71
8" VCP S INV. = 850.63
8" VCP W INV. = 850.76

SANITARY MANHOLE #207
RIM ELEV. = 872.54
PIPES NOT VISIBLE
N INV. = 849.42
SW INV. = 849.36

SANITARY MANHOLE #208
RIM ELEV. = 853.05
24" RCP NE INV. = 837.43
24" RCP SW INV. = 837.37

SANITARY MANHOLE #209
RIM ELEV. = 844.61
24" RCP NE INV. = 836.62
24" RCP SW INV. = 836.57

SANITARY MANHOLE #210
RIM ELEV. = 839.51
PIPES NOT VISIBLE
BOTTOM ELEV. = 832.43

SANITARY MANHOLE #211
RIM ELEV. = 840.85
PIPES NOT VISIBLE
NE INV. = 832.35
SW INV. = 832.30
T/WATER ELEV. = 834.25

EX. STORM SEWER INVENTORIES:

CATCH BASIN #100
RIM ELEV. = 860.14

CATCH BASIN #101
RIM ELEV. = 861.52

STORM MANHOLE #102
RIM ELEV. = 864.12

CATCH BASIN #103
RIM ELEV. = 863.83

CATCH BASIN #104
RIM ELEV. = 859.05
12" RCP NW INV. = 853.73

CATCH BASIN #105
RIM ELEV. = 859.37
12" RCP N INV. = 853.24
12" RCP SE INV. = 853.23
18" RCP SW INV. = 852.76

CATCH BASIN #106
RIM ELEV. = 861.75
8" UNKNOWN NE INV. = 856.69
12" RCP S INV. = 856.54
12" RCP NW INV. = 856.67

CATCH BASIN #107
RIM ELEV. = 861.90
12" RCP SE INV. = 857.94

CATCH BASIN #108
RIM ELEV. = 861.63
12" RCP S INV. = 854.88

CATCH BASIN #109
RIM ELEV. = 861.08
12" RCP SW INV. = 856.72

CATCH BASIN #110
RIM ELEV. = 860.02
24" RCP E INV. = 849.62
30" RCP SW INV. = 849.58

CATCH BASIN #111
RIM ELEV. = 859.77
12" RCP NE INV. = 854.79
24" RCP SE INV. = 850.37
24" RCP W INV. = 850.32

CATCH BASIN #112
RIM ELEV. = 859.46
24" RCP NE INV. = 850.78
24" RCP W INV. = 850.76

CATCH BASIN #113
RIM ELEV. = 858.81
12" RCP N INV. = 852.50
18" RCP NE INV. = 852.13
24" RCP SW INV. = 851.58

CATCH BASIN #114
RIM ELEV. = 859.08
12" RCP W INV. = 855.92

STORM MANHOLE #115
RIM ELEV. = 860.22
10" VCP NE INV. = 853.72
12" VCP E INV. = 853.67
18" RCP W INV. = 853.40

CATCH BASIN #116
RIM ELEV. = 858.65
18" RCP E INV. = 852.06
18" RCP W INV. = 852.03

STORM MANHOLE #117
RIM ELEV. = 848.26
12" RCP NE INV. = 843.95
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CATCH BASIN #118
RIM ELEV. = 850.16
8" HDPE N INV. = 844.61
12" RCP SW INV. = 844.36

CATCH BASIN #119
RIM ELEV. = 860.94
12" RCP N INV. = 856.32
12" RCP SE INV. = 856.25

CATCH BASIN #120
RIM ELEV. = 861.42
12" RCP S INV. = 856.93

EXISTING OPENSPACE

TOTAL PROPERTY = 418,211 S.F. (±9.60 AC.)
TOTAL PERVIOUS AREA (INCLUDES WETLAND) = 303,985 SF = 72.69%
TOTAL IMPERVIOUS AREA (BUILDING, PARKING, WALKS) = 114,226 SF = 27.31%

PROPOSED OPENSPACE

TOTAL PROPERTY = 418,211 S.F. (±9.60 AC.)
TOTAL PERVIOUS AREA (INCLUDES WETLAND) = 290,411 SF = 69.44%
TOTAL IMPERVIOUS AREA (BUILDING, PARKING, WALKS) = 127,800 SF = 30.66%

SURVEY#95688.BND

REVISIONS
11-19-19 MUPUD SUBMITTAL

KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

Pine Village of Meridian

PERVIOUS/IMPERVIOUS PLAN

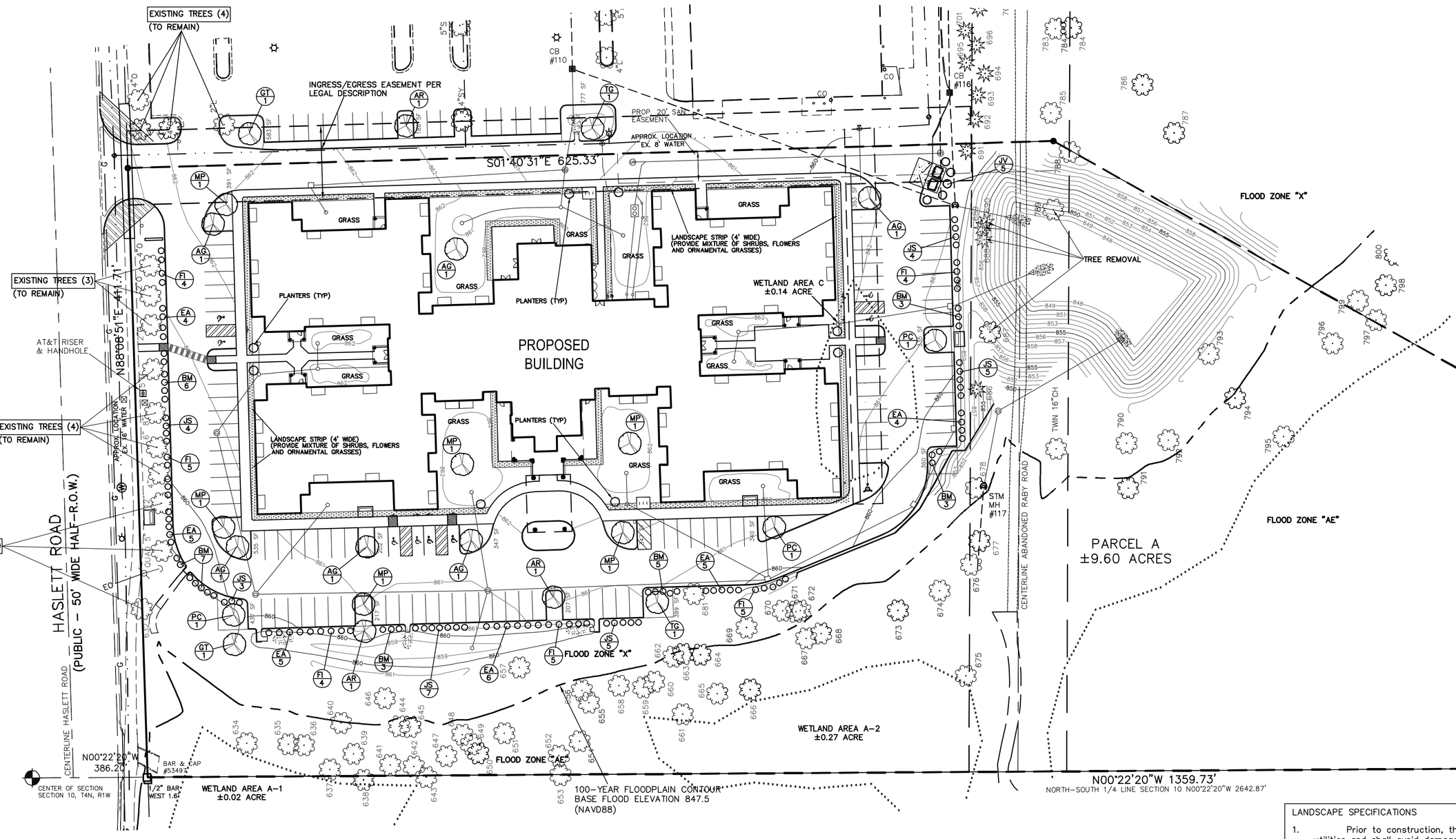
SCALE: 1"= 50'	DESIGNER: GAP	APPROVED BY: GAP
DATE: 10-7-19	PROJECT MGR. GAP	SHEET 4 OF 7
AUTHORIZED BY: HUDSON SENIOR LIVING, LLC		JOB #: 95818

NOTE: LANDSCAPE ISLANDS
TO BE IRRIGATED, IRRIGATION
DESIGN BY OTHERS.

MUPUD PLAN FOR:

Pine Village of Meridian

MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN



PLANT LIST SCHEDULE

QUANT.	SYMBOL	COMMON NAME	BOTANICAL NAME	SIZE	ROOT
DECIDUOUS					
3	AR	RED SUNSET MAPLE	ACER RUBRUM "RED SUNSET"	2.5" CAL.	B & B
2	TG	GREENSPIRE LITTLELEAF LINDEN	TILIA TOMENTOSA 'GREENSPIRE'	2.5" CAL.	B & B
2	GT	SKYLINE HONEY LOCUST	GLEDITSIA TRIATHANCOS INERMIS 'SKYLINE'	2.5" CAL.	B & B
3	PC	CHANTICLEER PEAR	PYRUS CALLERYANA	2.5" CAL.	B & B
6	AQ	AUTUMN BRILLIANCE SERVICEBERRY	AMELANCHIER x GRANDIFLORA	2.5" CAL.	B & B
6	MP	PROFUSION CRABAPPLE	MALUS PROFUSION		
SHRUBS					
27	FI	LYNWOOD GOLD FORSYTHIA	FORSYTHIA X INTERMEDIA ' LYNWOOD GOLD'	24"-26" HT.	CONT.
29	EA	BURNING BUSH	EUONYMUS ALATUS COMPACTUS	24"-36" HT.	CONT.
27	BM	LITTLELEAF BOXWOOD	BUXUS MICROPHYLLA 'WINTER GEM'	24"-36" HT.	CONT.
28	JS	SEAGREEN JUNIPER	JUNIPERUS SEAGREEN	24"-36" HT.	CONT.
EVERGREENS					
5	JV	EASTERN RED CEDAR	JUNIPERUS VIRGINIANA	15 GAL	B & B

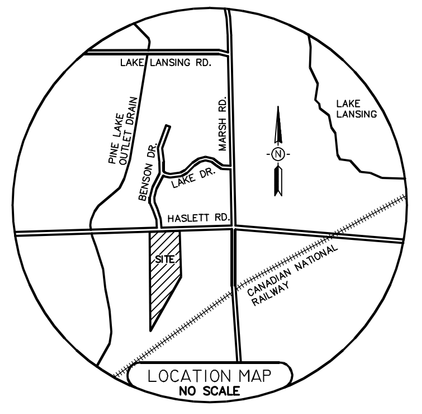
LANDSCAPE REQUIRED = 200 S.F./10 PARKING SPACES
100 SPACES/10 x 200 = 2,000 S.F.
LANDSCAPE AREA PROVIDED = 4,470 S.F.

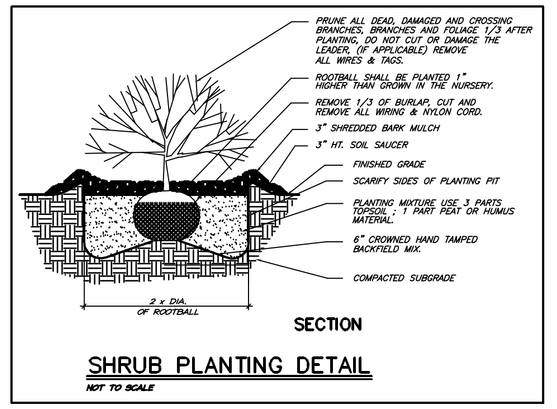
INTERIOR TREES REQUIRED
2 CANOPY TREES/10 SPACES
100/10 x 2 = 20 = 20 TREES
TREES PROVIDED = 20

STREET TREES REQUIRED
1 TREE/70' OF FRONTAGE
412/70 = 5.88 = 6
PROVIDED = 12 (ALL EXISTING)

SCALE 1" = 50'

0' 50' 100' 150'





NOTE: WATER SHALL HAVE 10' HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

BENCHMARKS:

BENCHMARK #1 ELEV. = 862.07
CHISELED "X" IN NORTH SIDE OF CONCRETE LIGHT POLE BASE, 170'± EAST AND 90'± NORTH OF NORTHWEST CORNER OF #1655 HASLETT ROAD.

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SOUTHWEST FLANGE BOLT OF FIRE HYDRANT, UNDER THE "A" IN "TRAVERSE CITY", 18'± EAST AND 80'± NORTH OF NORTHEAST CORNER OF #1655 HASLETT ROAD.

LEGEND

- EXT. CONTOURS
- EXT. WATER MAIN
- EXT. SANITARY SEWER
- EXT. STORM SEWER
- EXT. ELEVATIONS
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- MANHOLE (NEW)
- PROPOSED C.B.
- MANHOLE (EX.)
- UTILITY EASEMENT
- CENTER LINE OF ROAD
- ROAD RIGHT OF WAY
- PROPERTY LINE
- FIRE HYDRANT
- WATER VALVE
- THRUST BLOCK
- ▲T/C 800.00 PROPOSED TOP OF CURB ELEV.

EX. LEGEND

(M)	= MEASURED DISTANCE		= SANITARY MANHOLE
(R)	= RECORD DISTANCE		= DRAINAGE MANHOLE
●	= SET 1/2" BAR WITH CAP		= ELECTRIC MANHOLE
□	= FOUND IRON AS NOTED		= TELEPHONE MANHOLE
			= CATCHBASIN
	= DISTANCE NOT TO SCALE		= SANITARY CLEANOUT
	= FENCE		= FIRE HYDRANT
	= ASPHALT		= VALVE
	= CONCRETE		= UTILITY POLE
	= DECK		= LIGHT POLE
	= GRAVEL		= GUY POLE
+860	= EXISTING SPOT ELEVATION		= GUY WIRE
860	= EXISTING CONTOUR ELEVATION		= UTILITY PEDESTAL
	= BUILDING OVERHANG		= TRANSFORMER
	= SANITARY SEWER		= HANDHOLE
	= STORM SEWER		= ELECTRIC METER
	= WATER LINE		= GAS METER
	= GAS LINE		= WATER METER
	= UNDERGROUND TELEPHONE		= SOIL BORING
	= UNDERGROUND TELEVISION		= SIGN
	= UNDERGROUND ELECTRIC		= POST
	= OVERHEAD WIRES		= AIR CONDITIONING UNIT
	= EDGE OF WOODS		= LIGHT POSTS (±3' TALL, 8" DIAMETER)
	= DECIDUOUS TREE		
	= CONIFEROUS TREE		

EX. SANITARY SEWER INVENTORIES:

SANITARY MANHOLE #200
RIM ELEV. = 861.50
8" VCP S INV. = 854.18
8" VCP W INV. = 854.22

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RIM ELEV. = 862.08
8" VCP E INV. = 856.14

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RIM ELEV. = 862.12
6" VCP N INV. = 853.68
8" VCP E INV. = 853.48

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RIM ELEV. = 859.64
8" VCP E INV. = 851.44
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8" VCP N INV. = 850.71
8" VCP S INV. = 850.63
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SANITARY MANHOLE #207
RIM ELEV. = 872.54
PIPES NOT VISIBLE
N INV. = 849.42
SW INV. = 849.36

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24" RCP NE INV. = 836.62
24" RCP SW INV. = 836.57

SANITARY MANHOLE #210
RIM ELEV. = 839.51
PIPES NOT VISIBLE
BOTTOM ELEV. = 832.43

SANITARY MANHOLE #211
RIM ELEV. = 840.85
PIPES NOT VISIBLE
NE INV. = 832.35
SW INV. = 832.30
T/WATER ELEV. = 834.25

EX. STORM SEWER INVENTORIES:

CATCH BASIN #100
RIM ELEV. = 860.14

CATCH BASIN #101
RIM ELEV. = 861.52

STORM MANHOLE #102
RIM ELEV. = 864.12

CATCH BASIN #103
RIM ELEV. = 863.83

CATCH BASIN #104
RIM ELEV. = 859.05
12" RCP NW INV. = 853.73

CATCH BASIN #105
RIM ELEV. = 859.37
12" RCP N INV. = 853.24
12" RCP SE INV. = 853.23
18" RCP SW INV. = 852.76

CATCH BASIN #106
RIM ELEV. = 861.75
8" UNKNOWN NE INV. = 856.69
12" RCP S INV. = 856.54
12" RCP NW INV. = 856.67

CATCH BASIN #107
RIM ELEV. = 861.90
12" RCP SE INV. = 857.94

CATCH BASIN #108
RIM ELEV. = 861.63
12" RCP S INV. = 854.88

CATCH BASIN #109
RIM ELEV. = 861.08
12" RCP SW INV. = 856.72

CATCH BASIN #110
RIM ELEV. = 860.02
24" RCP E INV. = 849.62
30" RCP SW INV. = 849.58

CATCH BASIN #111
RIM ELEV. = 859.77
12" RCP NE INV. = 854.79
24" RCP SE INV. = 850.37
24" RCP W INV. = 850.32

CATCH BASIN #112
RIM ELEV. = 859.46
24" RCP NE INV. = 850.78
24" RCP W INV. = 850.76

CATCH BASIN #113
RIM ELEV. = 858.81
12" RCP N INV. = 852.50
18" RCP NE INV. = 852.13
24" RCP SW INV. = 851.58

CATCH BASIN #114
RIM ELEV. = 859.08
12" RCP W INV. = 855.92

STORM MANHOLE #115
RIM ELEV. = 860.22
10" VCP NE INV. = 853.72
12" VCP E INV. = 853.67
18" RCP W INV. = 853.40

CATCH BASIN #116
RIM ELEV. = 858.65
18" RCP E INV. = 852.06
18" RCP W INV. = 852.03

STORM MANHOLE #117
RIM ELEV. = 848.26
12" RCP NE INV. = 843.95
12" RCP SW INV. = 843.90

CATCH BASIN #118
RIM ELEV. = 850.16
8" HDPE N INV. = 844.61
12" RCP SW INV. = 844.36

CATCH BASIN #119
RIM ELEV. = 860.94
12" RCP N INV. = 856.32
12" RCP SE INV. = 856.25

CATCH BASIN #120
RIM ELEV. = 861.42
12" RCP S INV. = 856.93

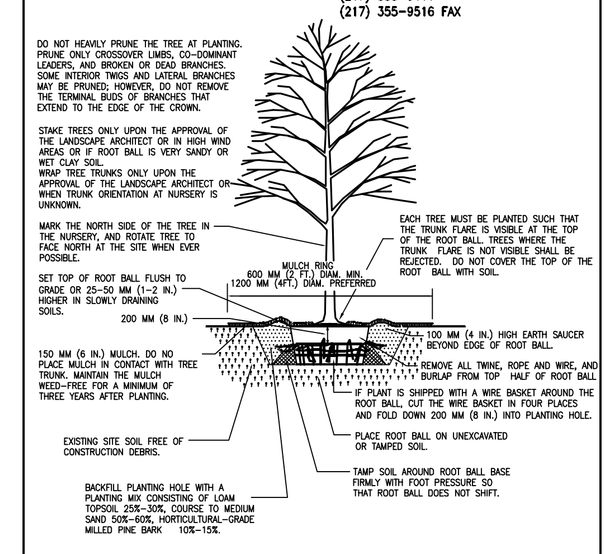
LANDSCAPE SPECIFICATIONS

1. Prior to construction, the Landscape Contractor shall be responsible for locating all underground utilities and shall avoid damage to all utilities during the course of the work. The Landscape Contractor is responsible for repairing any and all damage to utilities, structures, site appurtenances, etc., which occur as a result of the landscape construction.
2. All plants shall be healthy, vigorous materials, free from disease and pests and that comply with the latest edition of the publication ANSI Z60 American Standard for Nursery Stock by the American Nursery and Landscape Association.
3. The Landscape Contractor is responsible for verifying all quantities shown on these plans before pricing the work. Any difference in quantities should be brought to the attention of the owner/landscaper for clarification.
4. The Landscape Contractor shall completely guarantee all plant material for the period of one (1) year beginning at the date of total acceptance. The Landscape Contractor shall promptly make all replacements before or at the end of the guarantee period as the growing season permits.
5. All plants shall be balled and burlapped as indicated on the plant list. All trees shall be straight trunked, full headed and meet all requirements specified. All trees must be guyed or staked and be mulched with 3" hardwood shredded mulch.
6. All Plants and installation are subject to the approval of the owner/tenant.
7. All planting beds must have weed barrier and be completely mulched with 3" hardwood shredded mulch, free of mold and debris. Some locations may call for stone mulch, refer to plan.
8. The top of all areas of bark cover shall be at grade of adjacent curb, walk or edge of pavement, with exception to the raised planter in which the top of the mulch shall meet the bottom of the cap of the planter.
9. The planting soil mixture specified for any planters shall be compressed of topsoil and additional amendments appropriate for the location and plantings and be backfilled to a depth of 12". Topsoil shall be fertile, natural topsoil, typical of locality, obtained from well-drained area. It shall be without admixture of subsoil, and shall be free of stones, lumps, sticks, toxic substances or other extraneous matter that may be harmful to plant growth or that would interfere with future maintenance.
10. At all times, the contractor shall keep the premised clean.
11. It is the Landscape Contractor's responsibility to determine water application rates and timer cycling. The Irrigation Contractor will instruct the Landscape Contractor on the operation and programming of the controller.
12. No substitutions of plant materials shall be made without prior written permission of the owner.
13. Owner/tenant will inspect the plants at the end of the warranty period. (All plants are to be warranted for a period of one year.) Plants that are dead or not in satisfactory growth shall be removed and replaced during the next normal planting season at no additional cost to the owner/tenant.

TURF ESTABLISHMENT

1. The Landscape Contractor shall place a 4" compacted layer of topsoil over all areas to be established in turf. The topsoil layer shall bring all turf areas to finish grade.
2. Remove stones bigger than 1-1/2" in any dimension and sticks, roots, rubbish and other extraneous matter.
3. Hydroseed all new lawn areas as specified below unless plans call for sod.
4. Mix seed, fertilizer, and pulverized mulch in water, using equipment specifically designed for hydroseed application.
5. Apply slurry uniformly to all areas to be seeded. Rate of application as required to obtain specified seed sowing rate.
6. Lay sod within 24 hours of stripping. Do not lay dormant sod or if ground is frozen. Lay sod to form a solid mass with tightly fitted joints. Do not overlap.
7. Water sod with fine spray immediately after planting. During first week, water daily or more frequently as necessary to maintain moist soil to depth of 4".

INTERNATIONAL SOCIETY OF ARBORICULTURE
1400 WEST ANTHONY DRIVE
CHAMPAIGN, IL 61821
(217) 355-9411
(217) 355-9516 FAX



TREE PLANTING DETAIL - B&B TREES IN ALL SOIL TYPES
NOTE: THIS DETAIL ASSUMES THAT THE PLANTING SPACE IS LARGER THAN 2400 MM (8 FT.) SQUARE, OPEN TO THE SKY, AND NOT COVERED BY ANY PAVING OR GRATING.

SURVEY#95688.BND

REVISIONS
11-19-19 MUPUD SUBMITTAL

KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

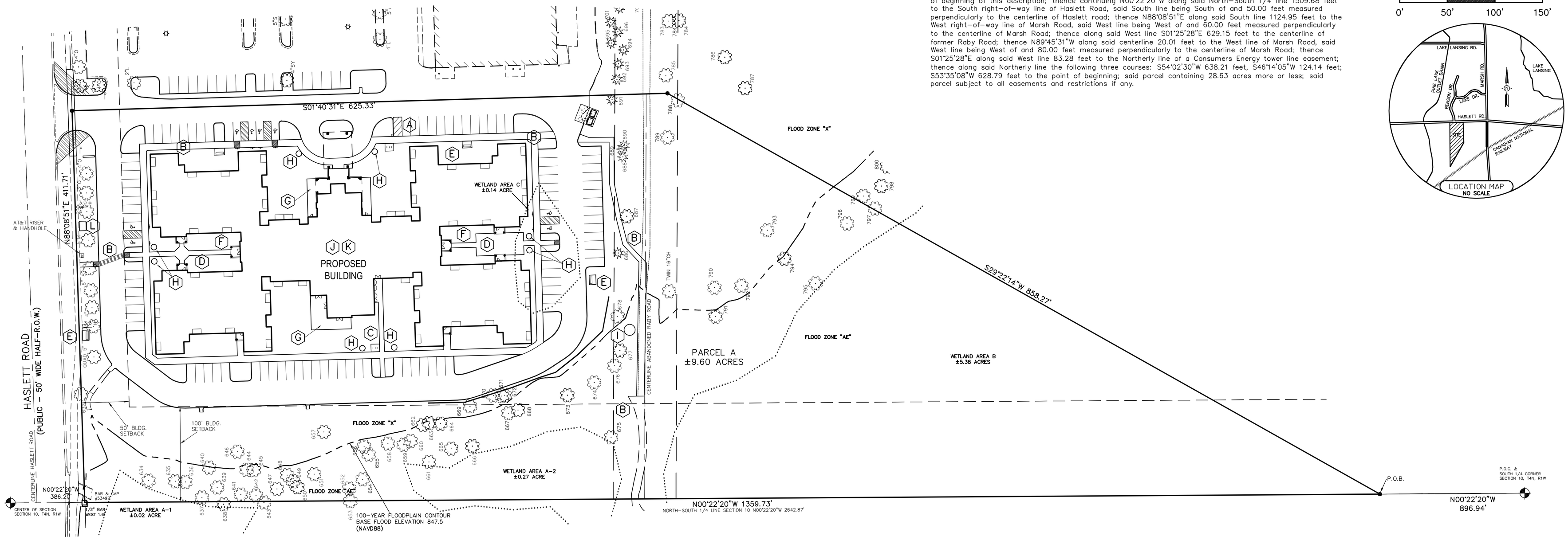
Pine Village of Meridian
LANDSCAPE PLAN

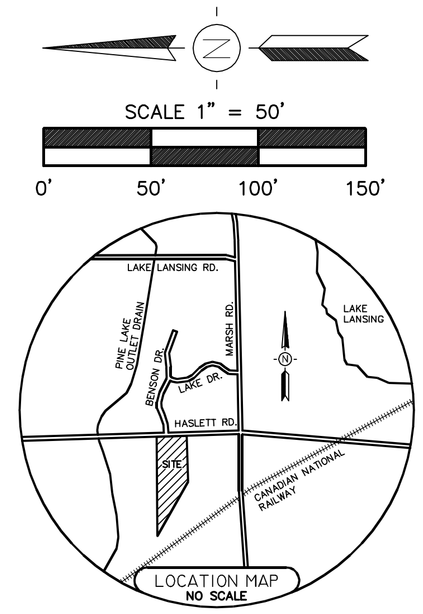
SCALE: 1"= 50'	DESIGNER: GAP	APPROVED BY: GAP
DATE: 10-7-19	PROJECT MGR. GAP	SHEET 5 OF 7
AUTHORIZED BY: HUDSON SENIOR LIVING, LLC		JOB #: 95818

MUPUD PLAN FOR:

Pine Village of Meridian

MERIDIAN TOWNSHIP, INGHAM COUNTY, MICHIGAN





LEGAL DESCRIPTION:

AS SURVEYED:
(The following legal description describes the same parcel of land as the provided description)

A parcel of land in the Southeast 1/4 of Section 10, T4N, R1W, Meridian Township, Ingham County, Michigan, the surveyed boundary of said parcel described as: Commencing at the South 1/4 corner of said Section 10; thence N00°22'20"W along the North–South 1/4 line of said Section 10 a distance of 746.99 feet to the point of beginning of this description; thence continuing N00°22'20"W along said North–South 1/4 line 1509.68 feet to the South right–of–way line of Haslett Road, said South line being South of and 50.00 feet measured perpendicularly to the centerline of Haslett road; thence N88°08'51"E along said South line 1124.95 feet to the West right–of–way line of Marsh Road, said West line being West of and 60.00 feet measured perpendicularly to the centerline of Marsh Road; thence along said West line S01°25'28"E 629.15 feet to the centerline of former Raby Road; thence N89°45'31"W along said centerline 20.01 feet to the West line of Marsh Road, said West line being West of and 80.00 feet measured perpendicularly to the centerline of Marsh Road; thence S01°25'28"E along said West line 83.28 feet to the Northerly line of a Consumers Energy tower line easement; thence along said Northerly line the following three courses: S54°02'30"W 638.21 feet, S46°14'05"W 124.14 feet; S53°35'08"W 628.79 feet to the point of beginning; said parcel containing 28.63 acres more or less; said parcel subject to all easements and restrictions if any.

BENCHMARKS:

BENCHMARK #1 ELEV. = 862.07
CHISELED "X" IN NORTH SIDE OF CONCRETE LIGHT POLE BASE, 170'± EAST AND 90'± NORTH OF NORTHWEST CORNER OF #1655 HASLETT ROAD.

BENCHMARK #4 ELEV. = 863.05
SOUTHWEST FLANGE BOLT OF FIRE HYDRANT, UNDER THE "A" IN "TRAVERSE CITY", 18'± EAST AND 80'± NORTH OF NORTHEAST CORNER OF #1655 HASLETT ROAD.

LEGEND

- EXT. CONTOURS
- EXT. WATER MAIN
- EXT. SANITARY SEWER
- EXT. STORM SEWER
- EXT. ELEVATIONS
- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- MANHOLE (NEW)
- PROPOSED C.B.
- MANHOLE (EX.)
- UTILITY EASEMENT
- CENTER LINE OF ROAD
- ROAD RIGHT OF WAY
- PROPERTY LINE
- FIRE HYDRANT
- WATER VALVE
- THRUST BLOCK
- ▲T/C 800.00 PROPOSED TOP OF CURB ELEV.

NOTE: WATER SHALL HAVE 10' HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

EX. LEGEND

- (M) = MEASURED DISTANCE
- (R) = RECORD DISTANCE
- ● = SET 1/2" BAR WITH CAP
- □ = FOUND IRON AS NOTED
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = DECK
- = GRAVEL
- 860 = EXISTING SPOT ELEVATION
- 860 = EXISTING CONTOUR ELEVATION
- = BUILDING OVERHANG
- = SANITARY SEWER
- = STORM SEWER
- = WATER LINE
- = GAS LINE
- = UNDERGROUND TELEPHONE
- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
- = OVERHEAD WIRES
- = EDGE OF WOODS
- = DECIDUOUS TREE
- = CONIFEROUS TREE
- = SANITARY MANHOLE
- = DRAINAGE MANHOLE
- = ELECTRIC MANHOLE
- = TELEPHONE MANHOLE
- = CATCHBASIN
- = SANITARY CLEANOUT
- = FIRE HYDRANT
- = VALVE
- = UTILITY POLE
- = LIGHT POLE
- = GUY POLE
- = GUY WIRE
- = UTILITY PEDESTAL
- = TRANSFORMER
- = HANDHOLE
- = ELECTRIC METER
- = GAS METER
- = WATER METER
- = SOIL BORING
- = SIGN
- = POST
- = AIR CONDITIONING UNIT
- = LIGHT POSTS (±3' TALL, 8" DIAMETER)

EX. SANITARY SEWER INVENTORIES:

SANITARY MANHOLE #200
RIM ELEV. = 861.50
8" VCP S INV. = 854.18
8" VCP W INV. = 854.22

SANITARY MANHOLE #201
RIM ELEV. = 861.75
8" VCP E INV. = 855.03
8" VCP W INV. = 855.07

SANITARY MANHOLE #202
RIM ELEV. = 862.08
8" VCP E INV. = 856.14

SANITARY MANHOLE #203
RIM ELEV. = 862.12
6" VCP N INV. = 853.68
8" VCP E INV. = 853.48

SANITARY MANHOLE #204
RIM ELEV. = 859.48
8" VCP E INV. = 852.51
8" VCP W INV. = 852.53

SANITARY MANHOLE #205
RIM ELEV. = 859.64
8" VCP E INV. = 851.44
8" VCP W INV. = 851.48

SANITARY MANHOLE #206
RIM ELEV. = 861.41
8" VCP N INV. = 850.71
8" VCP S INV. = 850.63
8" VCP W INV. = 850.76

SANITARY MANHOLE #207
RIM ELEV. = 872.54
PIPES NOT VISIBLE
N INV. = 849.42
SW INV. = 849.36

SANITARY MANHOLE #208
RIM ELEV. = 853.05
24" RCP NE INV. = 837.43
24" RCP SW INV. = 837.37

SANITARY MANHOLE #209
RIM ELEV. = 844.61
24" RCP NE INV. = 836.62
24" RCP SW INV. = 836.57

SANITARY MANHOLE #210
RIM ELEV. = 839.51
PIPES NOT VISIBLE
BOTTOM ELEV. = 832.43

SANITARY MANHOLE #211
RIM ELEV. = 840.85
PIPES NOT VISIBLE
NE INV. = 832.35
SW INV. = 832.30
T/WATER ELEV. = 834.25

EX. STORM SEWER INVENTORIES:

CATCH BASIN #100
RIM ELEV. = 860.14

CATCH BASIN #101
RIM ELEV. = 861.52

STORM MANHOLE #102
RIM ELEV. = 864.12

CATCH BASIN #103
RIM ELEV. = 863.83

CATCH BASIN #104
RIM ELEV. = 859.05
12" RCP NW INV. = 853.73

CATCH BASIN #105
RIM ELEV. = 859.37
12" RCP N INV. = 853.24
12" RCP SE INV. = 853.23
18" RCP SW INV. = 852.76

CATCH BASIN #106
RIM ELEV. = 861.75
8" UNKNOWN NE INV. = 856.69
12" RCP S INV. = 856.54
12" RCP NW INV. = 856.67

CATCH BASIN #107
RIM ELEV. = 861.90
12" RCP SE INV. = 857.94

CATCH BASIN #108
RIM ELEV. = 861.63
12" RCP S INV. = 854.88

CATCH BASIN #109
RIM ELEV. = 861.08
12" RCP SW INV. = 856.72

CATCH BASIN #110
RIM ELEV. = 860.02
24" RCP E INV. = 849.62
30" RCP SW INV. = 849.58

CATCH BASIN #111
RIM ELEV. = 859.77
12" RCP NE INV. = 854.79
24" RCP SE INV. = 850.37
24" RCP W INV. = 850.32

CATCH BASIN #112
RIM ELEV. = 859.46
24" RCP NE INV. = 850.78
24" RCP W INV. = 850.76

CATCH BASIN #113
RIM ELEV. = 858.81
12" RCP N INV. = 852.50
18" RCP NE INV. = 852.13
24" RCP SW INV. = 851.58

CATCH BASIN #114
RIM ELEV. = 859.08
12" RCP W INV. = 855.92

STORM MANHOLE #115
RIM ELEV. = 860.22
10" VCP NE INV. = 853.72
12" VCP E INV. = 853.67
18" RCP W INV. = 853.40

CATCH BASIN #116
RIM ELEV. = 858.65
18" RCP E INV. = 852.06
18" RCP W INV. = 852.03

STORM MANHOLE #117
RIM ELEV. = 848.26
12" RCP NE INV. = 843.95
12" RCP SW INV. = 843.90

CATCH BASIN #118
RIM ELEV. = 850.16
8" HDPE N INV. = 844.61
12" RCP SW INV. = 844.36

CATCH BASIN #119
RIM ELEV. = 860.94
12" RCP N INV. = 856.32
12" RCP SE INV. = 856.25

CATCH BASIN #120
RIM ELEV. = 861.42
12" RCP S INV. = 856.93

PROPOSED AMENITIES:

- (A) ELECTRIC CAR CHARGING STATION
- (B) FOOT & BICYCLE PATHWAYS AND SIDEWALKS THAT CONNECT INTO PATH SYSTEM
- (C) COVERED BICYCLE STORAGE ON SITE
- (D) OUTDOOR GATHERING SPACES & OUTDOOR EATING SPACES
- (E) BENCHES OR OUTDOOR SEATING
- (F) PRIVATE COURTYARDS
- (G) PORCHES ON ANY STRUCTURE
- (H) SIDEWALK PLANTERS–POTS
- (I) PUBLIC ART
- (J) BUILDING RECYCLING PROGRAM
- (K) ENERGY STAR APPLIANCES
- (L) CATA BUS STOP PADS

SURVEY#95688.BND

REVISIONS
11-19-19 MUPUD SUBMITTAL
12-9-19 MUPUD REVISIONS
12-11-19 MUPUD REVISIONS

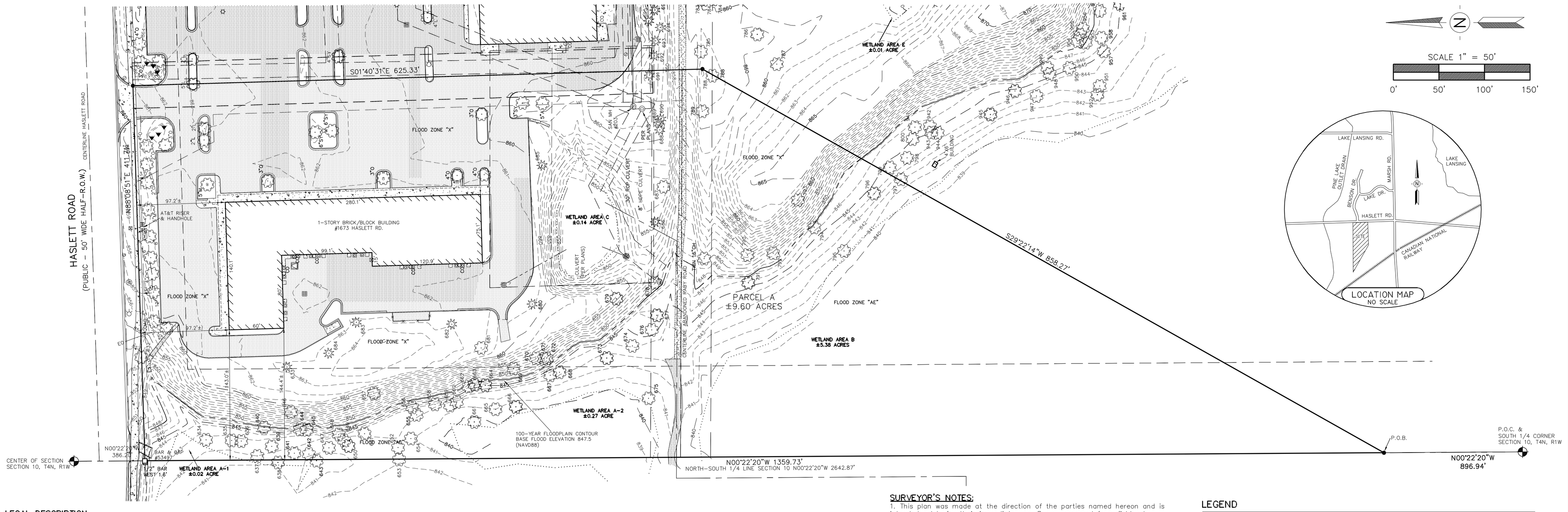
KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

Pine Village of Meridian
AMENITIES PLAN

SCALE: 1"= 50'	DESIGNER: GAP	APPROVED BY: GAP
DATE: 10-7-19	PROJECT MGR. GAP	SHEET 6 OF 7
AUTHORIZED BY: HUDSON SENIOR LIVING, LLC		JOB #: 95818

EXISTING PLAN

"1655 & 1673 HASLETT ROAD & 1659 RABY ROAD, HASLETT, MI 48840"



LEGAL DESCRIPTION:

(As provided by Transnation Title Agency, underwritten by Fidelity National Title Insurance Company, Commitment No. 284081LANS, Revision No. 1, dated August 22, 2019)

PARCEL A:
A parcel of land in the Southeast 1/4 of Section 10, Town 4 North, Range 1 West, Meridian Township, Ingham County, Michigan, the surveyed boundary of said parcel described as: Commencing at the South 1/4 corner of said Section 10; thence North 00 degrees 22 minutes 20 seconds West along the North-South 1/4 line of said Section 10 a distance of 896.94 feet to the point of beginning of this description; thence continuing North 00 degrees 22 minutes 20 seconds West along said North-South 1/4 line 1359.73 feet to the South right-of-way line of Haslett Road, said South line being South of and 50.00 feet measured perpendicularly to the centerline of Haslett Road; thence North 88 degrees 08 minutes 51 seconds East along said South line 411.71 feet; thence South 01 degrees 40 minutes 31 seconds East 625.33 feet; thence South 29 degrees 22 minutes 14 seconds West 858.27 feet to the point of beginning.

Together with and subject to an Ingress/Egress Easement described as: A area of land in the Southeast 1/4 of Section 10, Town 4 North, Range 1 West, Meridian Township, Ingham County, Michigan, the surveyed boundary of said parcel described as commencing at the South 1/4 corner of said Section 10; thence North 00 degrees 22 minutes 20 seconds West along the North-South 1/4 line of said Section 10 a distance of 2256.67 feet to the South right-of-way line of Haslett Road, said South line being South of and 50.00 feet measured perpendicularly to the centerline of Haslett road; thence North 88 degrees 08 minutes 51 seconds East along said South line 386.71 feet to the point of beginning; thence North 88 degrees 08 minutes 51 seconds East continuing along said South line 50.00 feet; thence South 01 degrees 40 minutes 31 seconds East 570.00 feet; thence South 88 degrees 08 minutes 51 seconds West 50.00 feet; thence North 01 degrees 40 minutes 31 seconds West 570.00 feet to the point of beginning.

SCHEDULE B, SECTION II, EXCEPTIONS:

(As provided by Transnation Title Agency, underwritten by Fidelity National Title Insurance Company, Commitment No. 284081LANS, Revision No. 1, dated August 22, 2019)

Item 11: Easement for Nemoka Drain purposes vested in Ingham County Drain Commissioner by instrument recorded in Liber 70 of Miscellaneous Records, Page 472, may cross parcel, is not plottable, therefore not shown hereon. Portions of instrument recorded in Liber 70 of Miscellaneous Records, Page 472 are illegible.

Item 12: Easement for Nemoka Drain purposes vested in Ingham County Drain Commissioner by instrument recorded in Liber 70 of Miscellaneous Records, Page 484, may cross parcel, is not plottable, therefore not shown hereon. Instrument recorded in Liber 70 of Miscellaneous Records, Page 484 allows for enlargement and repair of existing drain with no specific easement location or route and course affected.

Item 13: Easement granted to Consumers Energy Company recorded in Liber 948, Page 670, does not cross parcel, therefore not shown hereon.

Item 14: Easement for Road purposes vested in Ingham County Road Commissioner by instrument recorded in Liber 1374, Page 996, abuts parcel, is plottable and shown hereon.

Item 15: Easement for water main and sanitary sewer purposes vested in Charter Township of Meridian, a Municipal Corporation by instrument recorded in Liber 1377, Page 34, crosses parcel, is plottable and shown hereon.

Item 16: Area affected by terms, conditions and provisions which are recited in Agreement recorded in Liber 1416, Page 828, crosses parcel, is plottable and shown hereon.

Item 17: Easement for Haslett Village Square Branch of Pine Lake Outlet Drain purposes vested in Ingham County Drain Commissioner by instrument recorded in Liber 1416, Page 835, crosses parcel, is plottable and shown hereon.

Item 18: Easement for Haslett Village Square Branch of Pine Lake Outlet Drain purposes vested in Ingham County Drain Commissioner by instrument recorded in Liber 1416, Page 839. now held by Long Development, Inc., crosses parcels, is plottable and shown hereon.

Item 19: Easement for Haslett Village Square Branch of Pine Lake Outlet Drain purposes recorded in Liber 1416, Page 843, crosses parcel, is plottable and shown hereon.

Item 23: Easement granted to Consumers Energy Company recorded in Liber 1541, Page 549, crosses parcel, is blanket over a portion of the parcel, but no specific location of easement is described; area affected is plottable and shown hereon.

Item 24: Area affected by terms, conditions and provisions which are recited in Declaration of Reciprocal Covenants, Restrictions and Easements recorded in Liber 1542, Page 206, crosses parcel; no specific location is described for perpetual ingress/egress easement described in said document, therefore not plottable, therefore not shown hereon.

Item 25: Easement granted to Michigan Bell Telephone Company recorded in Liber 1545, Page 36, crosses parcel, is plottable and shown hereon.

Item 26: Area affected by terms, conditions and provisions which are recited in the Drainage Easement recorded in Liber 1653, Page 1017, crosses parcel, is plottable and shown hereon.

Item 27: Easements for utilities within abandoned Raby Street which are recited in Notice recorded in Liber 2592, Page 199, and corrected in Liber 2594, Page 568, cross parcel, are plottable and shown hereon.

Item 28: Easement for pedestrian pathway purposes recorded in Liber 3225, Page 660, crosses parcel, is plottable and shown hereon.

Item 29: Grant of Communications System Easement/Release recorded in Liber 3279, Page 237, does not cross parcel, therefore not shown heron.

Item 33: Easement Deed by Court Order recorded in Instrument No. 2013-005529. Modified in Instrument No. 2015-022038, does not cross parcel, therefore not shown heron.

Item 35: Easements which are recited in Warranty Deed recorded in Liber _____, Page _____. (To be recorded)

SURVEYOR'S NOTES:

1. This plan was made at the direction of the parties named hereon and is intended solely for their immediate use. Survey prepared from fieldwork performed in September 2019.

2. All bearings and distances on the survey are record and measured unless otherwise noted. All bearings are Michigan State Plane South Zone grid bearings obtained from GPS observations using corrections obtained from the Lansing C.O.R.S.

3. All dimensions are in feet and decimals thereof.

4. No building tie dimensions are to be used for establishing the property lines.

5. There are no observable potential encroachments onto the subject property from adjoining lands, or from the subject property onto adjoining lands, except as shown hereon.

6. Parcel abuts public Haslett Road and has vehicular access to said roadway via the ingress/egress easement described in the parcel legal description.

7. Utilities are shown based on above-ground field evidence only. No MISS DIG ticket was submitted.

ALTA/NSPS LAND TITLE SURVEY - TABLE "A" REQUIREMENTS:

Item 1: Shown on the survey map.

Item 2: Addresses of the surveyed property per the titlework provided: 1655 Haslett Road, 1673 Haslett Road, & 1659 Raby Road, Haslett, MI 48840.

Item 3: By scaled map location and graphic plotting only, this property lies partly within Flood Zone "AE", areas within the 1% annual chance floodplain and partly within Flood Zone "X", areas outside the 1% annual chance floodplain, according to the National Flood Insurance Program, Flood Insurance Rate Map for the Charter Township of Meridian, Ingham County, Michigan, Community Panel No. 260093 0156 D, dated August 16, 2011. The base flood elevation as determined from said mapping is 847.5 feet (NAVD88 datum), and said contour is shown graphically on the survey drawing.

Item 4: 9.60 Acres (418,211 square feet)

Item 7a: Shown on the survey map.

Item 8: Shown on the survey map.

CERTIFICATION:

To Cypress Partners, LLC, a Michigan limited liability company; Haslett Village Square, LLC; Transnation Title Agency; and Fidelity National Title Insurance Company:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2016 "Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys," jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 7a, and 8 of Table A thereof. The fieldwork was completed on September 13, 2019.

Erick R. Friestrom Date of Plat or Map:
Professional Surveyor No. 53497
efriestrom@kebs.com

LEGEND

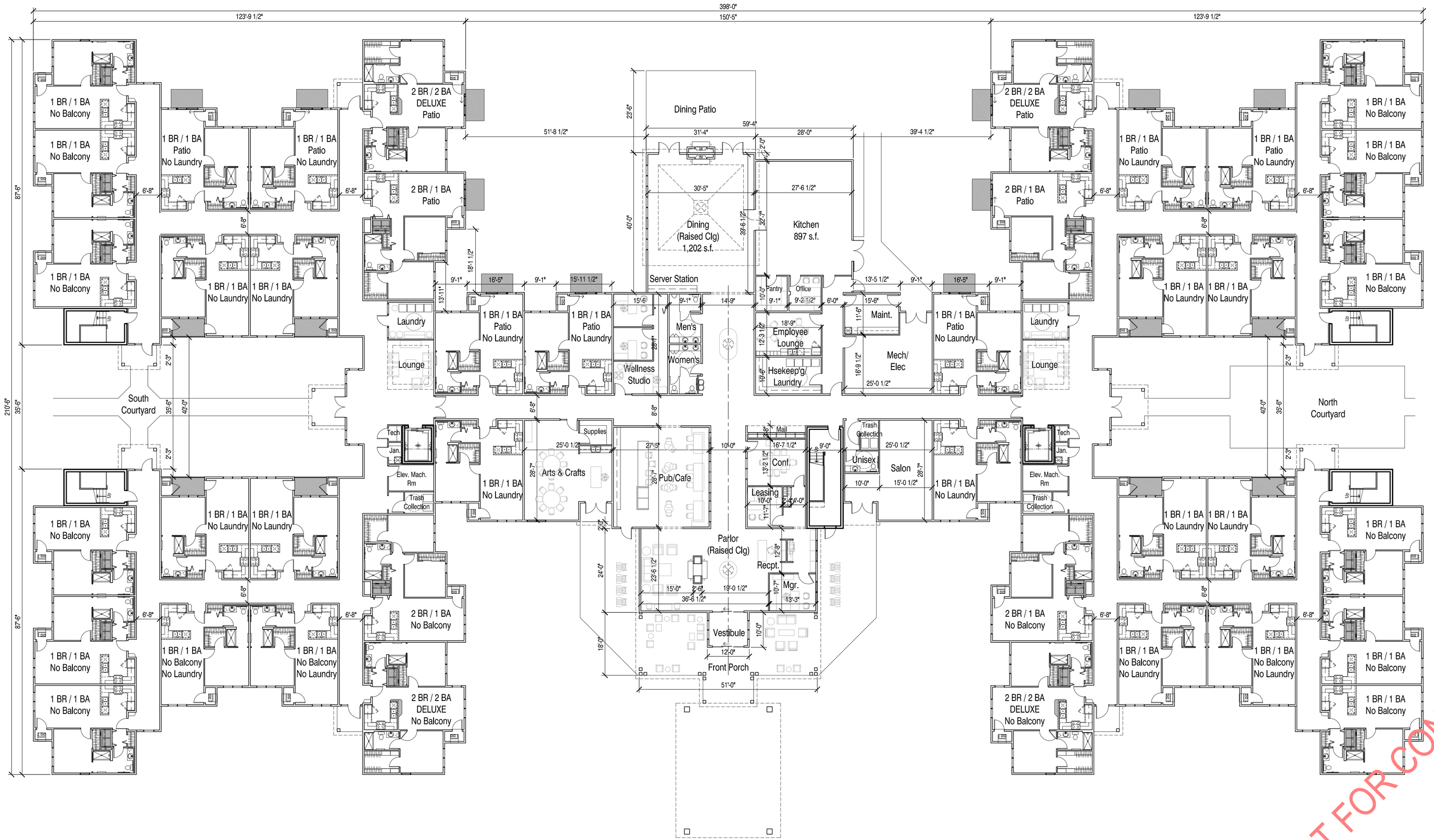
(M)	= MEASURED DISTANCE	Ⓢ	= SANITARY MANHOLE
(R)	= RECORD DISTANCE	Ⓓ	= DRAINAGE MANHOLE
●	= SET 1/2" BAR WITH CAP	Ⓔ	= ELECTRIC MANHOLE
□	= FOUND IRON AS NOTED	Ⓣ	= TELEPHONE MANHOLE
———	= DEED LINE	⊞	= CATCHBASIN
——\———	= DISTANCE NOT TO SCALE	○CO	= SANITARY CLEANOUT
-×-×-×-	= FENCE		= FIRE HYDRANT
	= ASPHALT		= VALVE
	= CONCRETE		= UTILITY POLE
	= DECK		= LIGHT POLE
	= GRAVEL		= GUY POLE
+860	= EXISTING SPOT ELEVATION		= GUY WIRE
860	= EXISTING CONTOUR ELEVATION		= UTILITY PEDESTAL
----------	= BUILDING OVERHANG		= TRANSFORMER
— — —	= SANITARY SEWER		= HANDHOLE
——— - - ———	= STORM SEWER		= ELECTRIC METER
— · — · —	= WATER LINE		= GAS METER
— —G— —	= GAS LINE		= WATER METER
— —TU— —	= UNDERGROUND TELEPHONE		= SOIL BORING
—— C ——	= UNDERGROUND TELEVISION		= SIGN
— —EU— —	= UNDERGROUND ELECTRIC		= POST
— —EO— —	= OVERHEAD WIRES		= AIR CONDITIONING UNIT
	= EDGE OF WOODS		= LIGHT POSTS (±3' TALL, 8" DIAMETER)
	= DECIDUOUS TREE		
	= CONIFEROUS TREE		

E-95688.ALT

REVISIONS	COMMENTS
09/13/2019	PRELIMINARY

KEBS, INC. ENGINEERING AND LAND SURVEYING
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 SSF	SECTION 10, T4N, R1W
FIELD WORK BY NAW	JOB NUMBER:
SHEET 7 OF 7	95688.ALT



1 / A1.1 Overall First Floor Plan

Scale: 1/16 = 1'-0"

N

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DESIGN STUDIO LLC

104 W. Fourth Street
Suite 303
Royal Oak, Michigan 48067

248.629.7153 ph.
248.629.7154 fax

www.SHELTERSTUDIOLLC.com

Architect of Record

Owner

Cypress Partners, LLC
280 West Maple Road, Suite 230
Birmingham, MI 48009

Project

New Senior Apartments
PINE VILLAGE
of MERIDIAN TOWNSHIP
1673 Haslett Road
Haslett, MI 48840

1"=1'-0" 1/2"=1'-0" 1/8"=1'-0"
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Issued For	Date
MUPUD Submittal	11.12.2019
Review	08.07.2019
Revise Balcony Quantity	10.30.2019
Revise "Core" & Unit Types	12.05.2019
Revise "Core" & Unit Types	12.11.2019
Revise "Core" & Unit Types	12.12.2019

Drawing Title

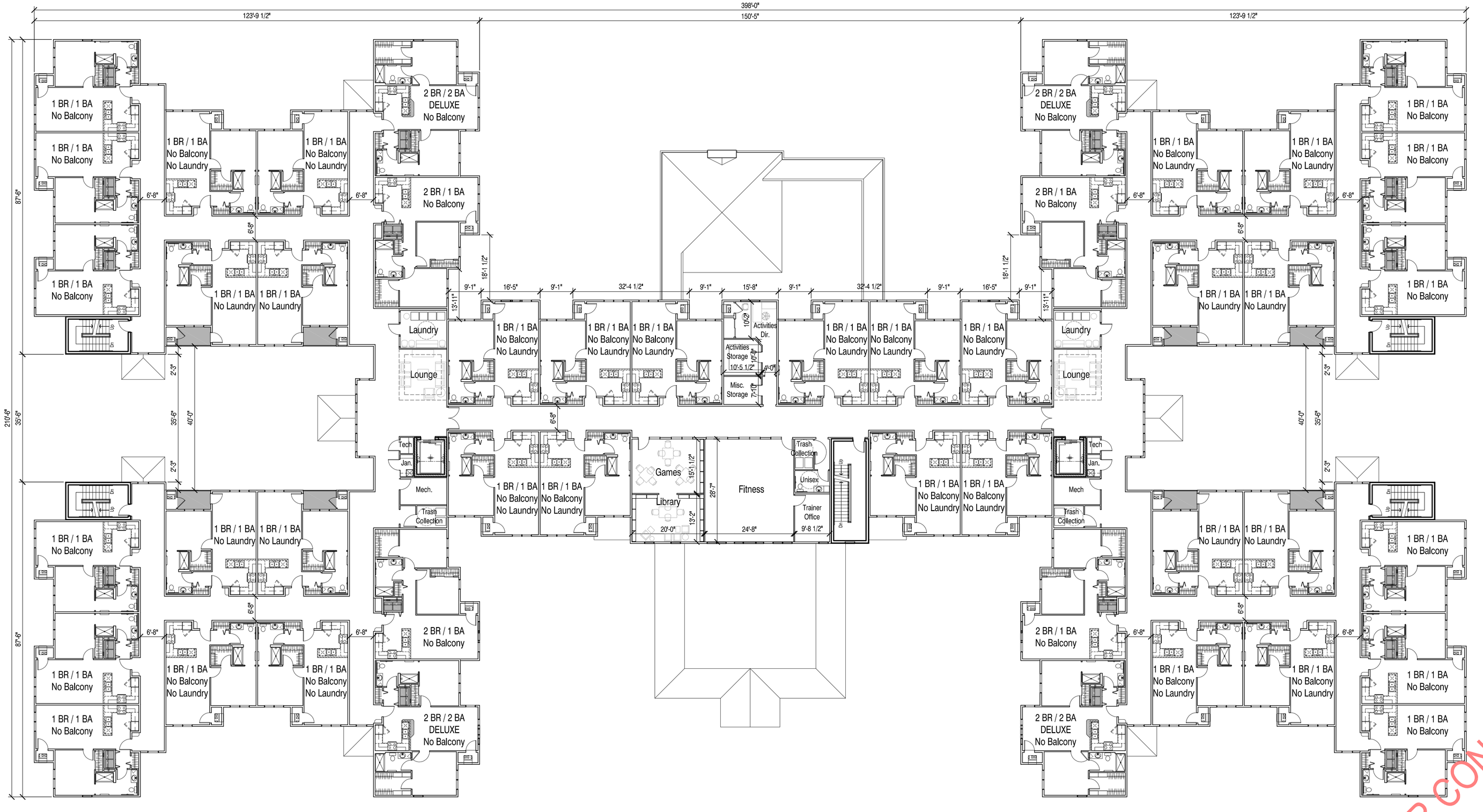
Overall Floor Plans
STUDY 3

2019-236
Project No.

JMH	SGP
Drawn By	Checked By

As Noted
Scale

A1.1
Drawing No.



1 / A1.2 Overall Second Floor Plan

Scale: 1/16 = 1'-0"

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Revise "Core" & Unit Types	12.12.2019

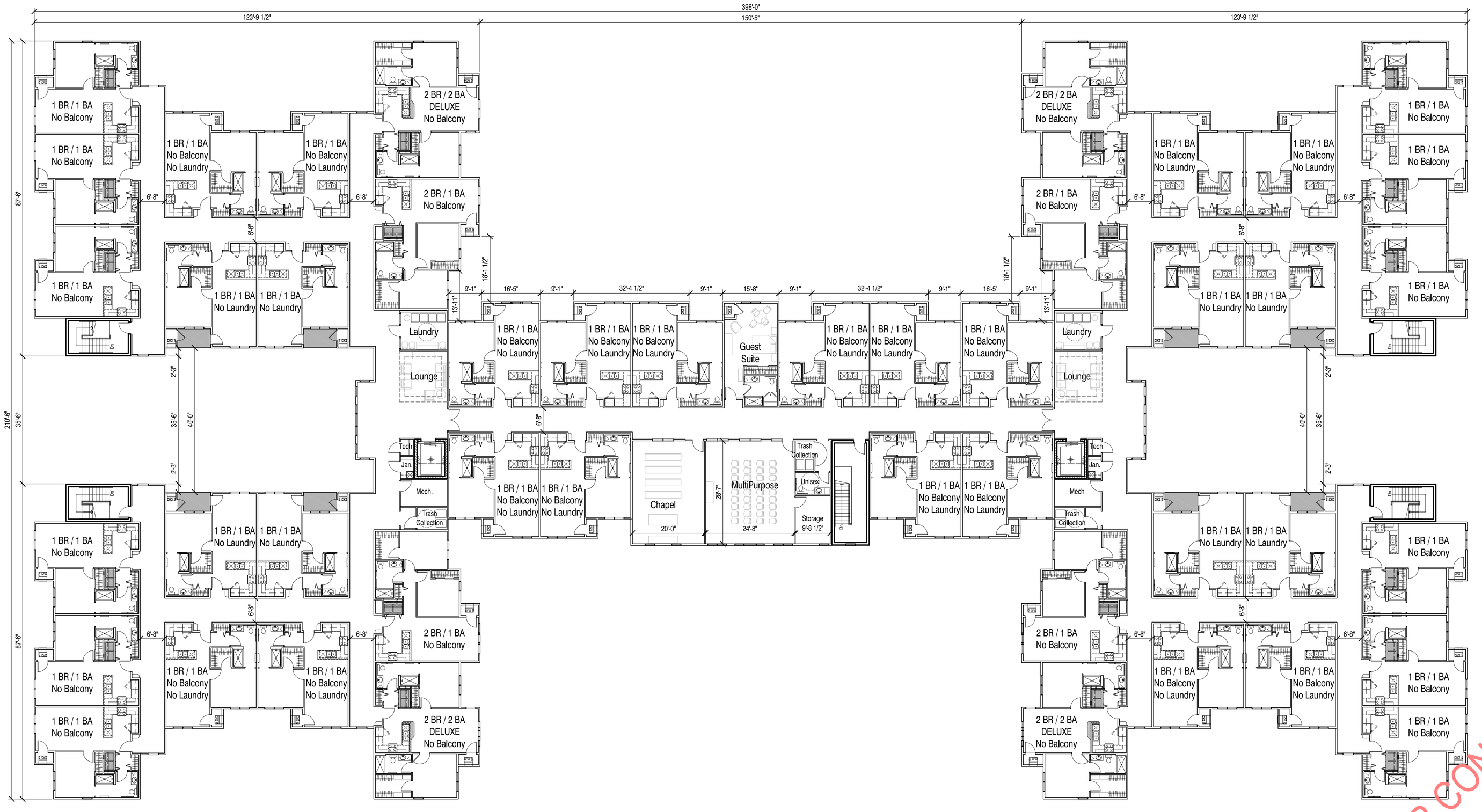
Drawing Title

Overall Floor Plans
STUDY 3

2019-236
Project No.

JMH	SGP
Drawn By	Checked By
As Noted	
Scale	

A1.2
Drawing No.



1 / A1.3 Overal Third Floor Plan
Scale: 1/16 = 1'-0"

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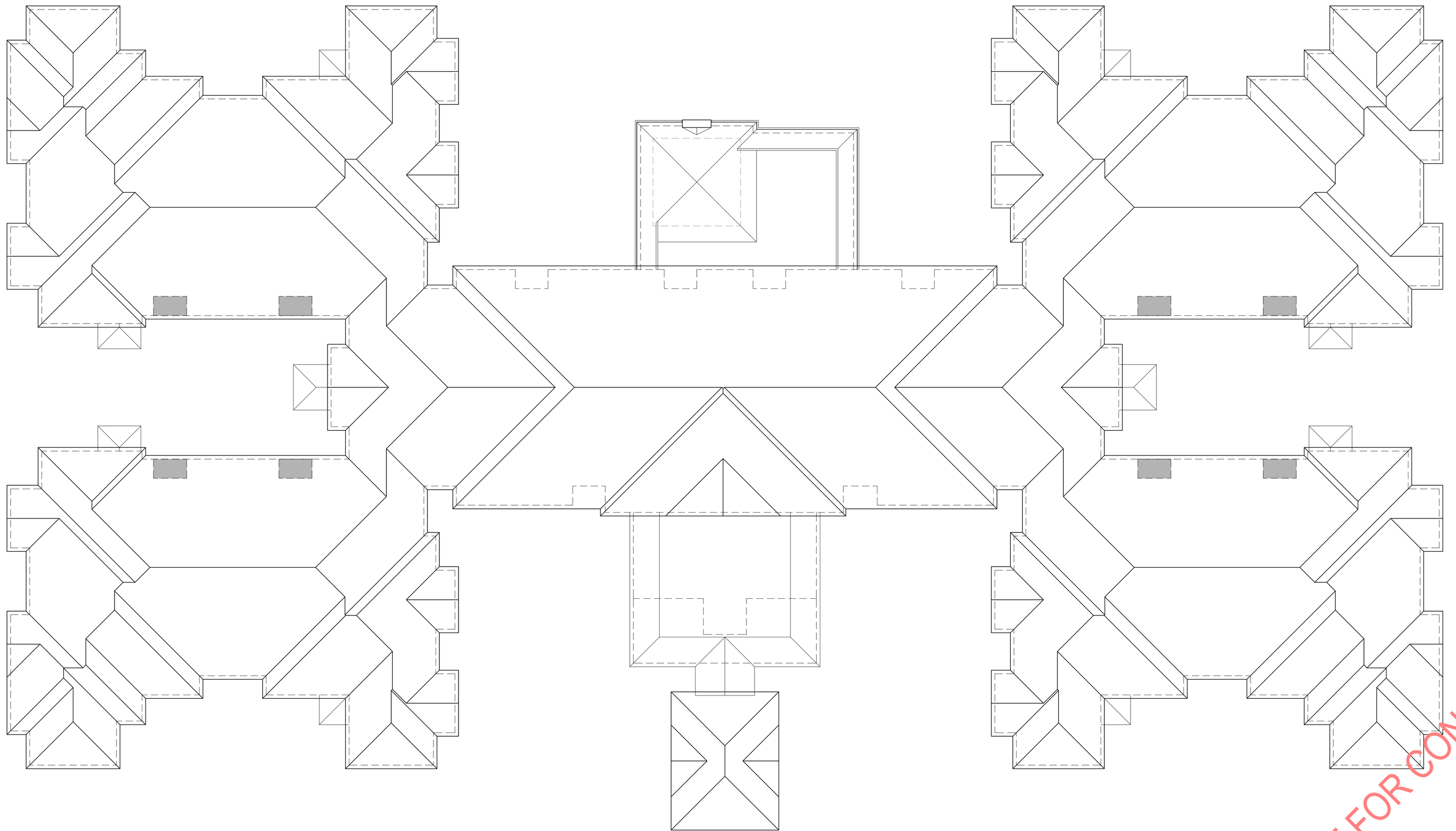
Revise "Core" & Unit Types	12.11.2019
Revise "Core" & Unit Types	12.12.2019

Drawing Title

Overall Floor Plans
STUDY 3

2019-236	
Project No.	
JMH	SGP
Drawn By	Checked By
As Noted	
Scale	

A1.3
Drawing No.



1 A1.4 Overall Roof Plan
Scale: 1/16 = 1'-0"

N

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Drawing Title

Overall Floor Plans
STUDY 3

NOT FOR CONSTRUCTION

2019-236
Project No.

JMH	SGP
Drawn By	Checked By

As Noted
Scale

A1.4
Drawing No.

3 A3.1 **Partial West Elevation - Front**

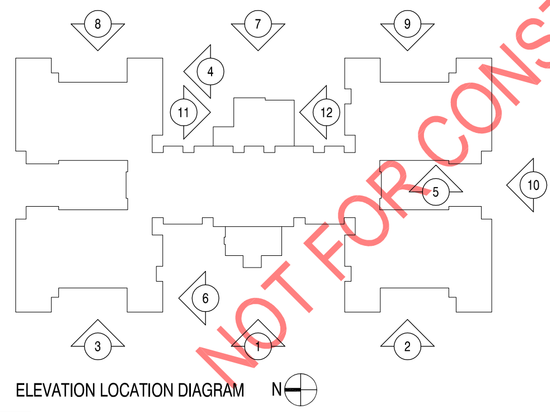
Scale: 1/8" = 1'-0"

2 A3.1 **Partial West Elevation - Front**

Scale: 1/8" = 1'-0"

1 A3.1 **Overall West Elevation - Front**

Scale: 1/16" = 1'-0"



ELEVATION LOCATION DIAGRAM N

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Haslett, MI 48840

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Revise Floor Height	12.06.2019
Revise Front Elev & Signage	12.12.2019

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Drawing Title

Elevations
STUDY 3

2019-236
Project No.

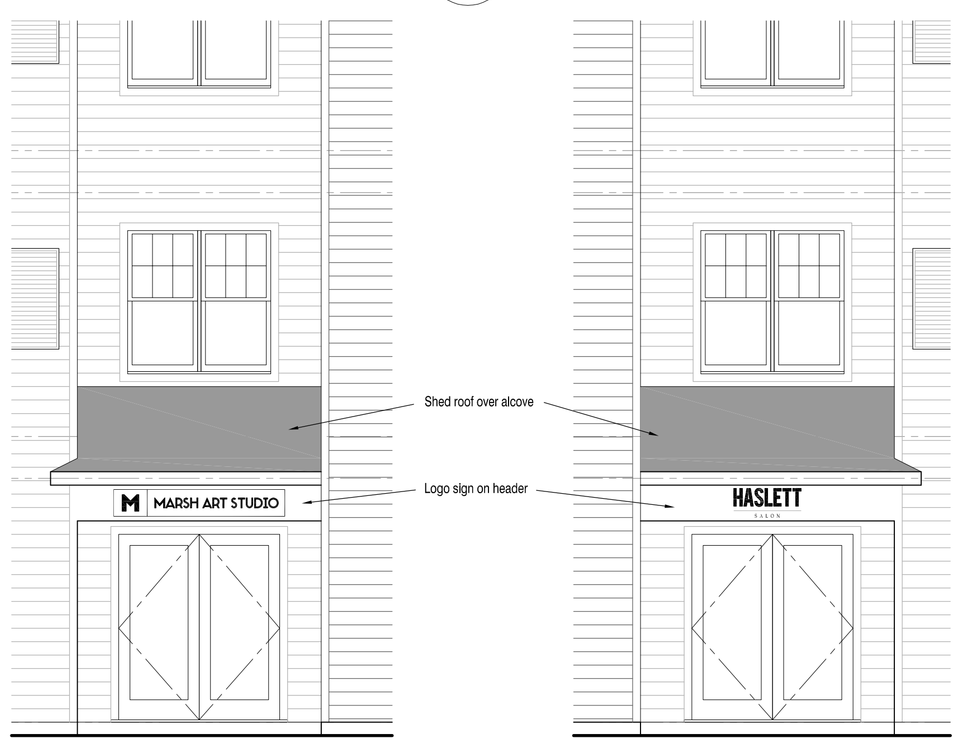
JMH	SGP
Drawn By	Checked By
As Noted	
Scale	

A3.1
Drawing No.

10 A3.2 — North Side Elevation (South Side, Opp.)
Scale: 1/8" = 1'-0"

6 A3.2 — West Courtyard, South Facing Elevation (North Facing, Opp.)
Scale: 1/8" = 1'-0"

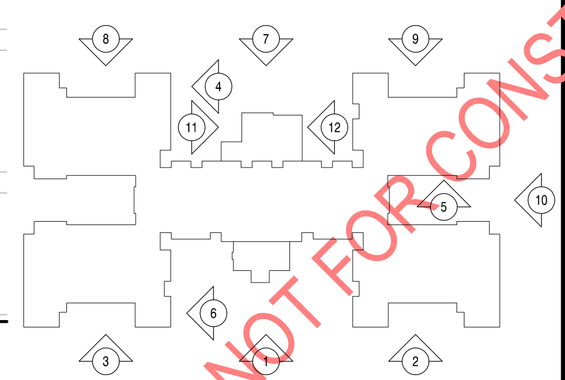
4 A3.2 — East Courtyard, South Facing Elevation (North Facing, Opp.)
Scale: 1/8" = 1'-0"



14 A3.2 — Retail Signage Detail
Scale: 1/4" = 1'-0"

13 A3.2 — Retail Signage Detail
Scale: 1/4" = 1'-0"

5 A3.2 — South Courtyard, West Facing Elevation (East Facing, Opp.) (North Courtyard, Sim.)
Scale: 1/8" = 1'-0"



ELEVATION LOCATION DIAGRAM N

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Elevations
STUDY 3

2019-236
Project No.

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As Noted	
Scale	

A3.2
Drawing No.

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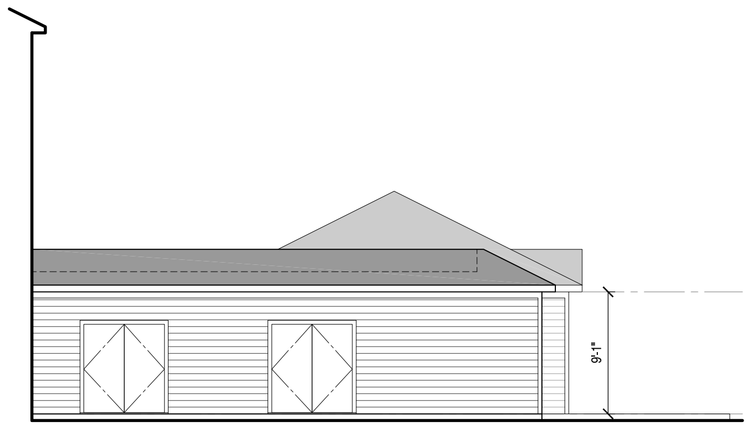
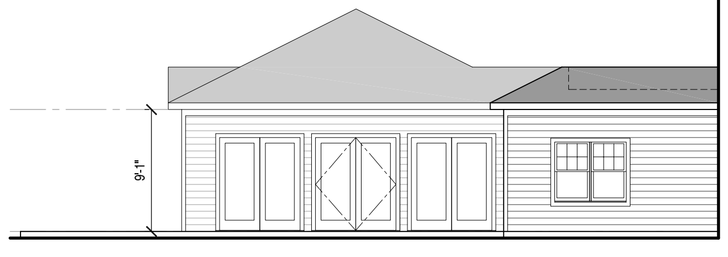
9 / A3.3 **Partial East Elevation - Rear**
Scale: 1/8" = 1'-0"



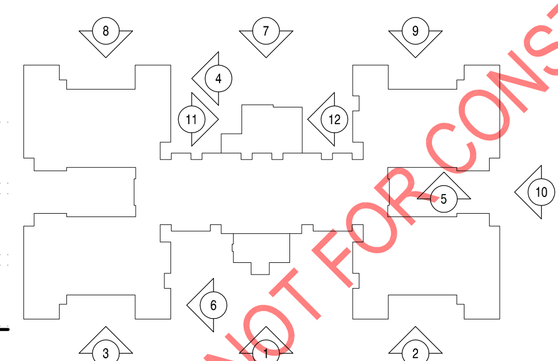
12 / A3.3 **South Kitchen Elevation**
Scale: 1/8" = 1'-0"



11 / A3.3 **North Dining Room Elevation**
Scale: 1/8" = 1'-0"

8 / A3.3 **Partial East Elevation - Rear**
Scale: 1/8" = 1'-0"

7 / A3.3 **Overall East Elevation - Rear**
Scale: 1/16" = 1'-0"



ELEVATION LOCATION DIAGRAM N

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Drawing Title

Elevations
STUDY 3

2019-236
Project No.

JMH	SGP
Drawn By	Checked By
As Noted	
Scale	

A3.3
Drawing No.

NOT FOR CONSTRUCTION

Traffic Engineering Associates, Inc.
517/627-6028 FAX: 517/627-6040
PO Box 100
Saranac, Michigan 48881

Jeff Buck
Property Manager
Hudson Senior Living
280 West Maple Road, Suite 230
Birmingham, MI 48009

November 7, 2019

Dear Mr. Buck:

Traffic Engineering Associates, Inc. (TEA) conducted a trip generation comparison for the senior housing development which will be located at the Haslett Village Square in Meridian Charter Township, Ingham County, Michigan.

PROJECT DESCRIPTION

The proposed development will consist of an independent living senior housing development with a total of 133 units. The proposed senior housing will be located at the western end in the Haslett Village Square. An existing 23,415 square foot commercial building will be demolished and replaced with the proposed senior housing.

TRAFFIC ANALYSIS

Existing Use

For this analysis, trip generation rates were derived from the ITE TRIP GENERATION MANUAL (10th edition). The ITE trip generation rates for Shopping Center (Land Use Code 820) were selected as representing the existing land use for the 23,415 square foot commercial building. The ITE description of Shopping Center is as follows:

A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. A shopping center's composition is related to its market area in terms of size, location, and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands.

Shopping centers, including neighborhood centers, community centers, regional centers, and super regional centers, were surveyed for this land use. Some of these centers contained non-merchandising facilities, such as office buildings, movie theaters, restaurants, post offices, banks, health clubs, and recreational facilities (for example, ice skating rinks or indoor miniature golf courses).

Many shopping centers, in addition to the integrated unit of shops in one building or enclosed around a mall, include outparcels (peripheral buildings or pads located on the

perimeter of the center adjacent to the streets and major access points). These buildings are typically drive-in banks, retail stores, restaurants, or small offices. Although the data herein do not indicate which of the centers studied included peripheral buildings, it can be assumed that some of the data show their effect.

It is projected that the existing land use generates 163 vehicle trips during the AM peak hour, 186 vehicle trips during the PM peak hour, and a weekday (24-hour) total of 2,240 vehicle trips.

Existing Vehicle Trips

Land Use	Size	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	
Shopping Center, Land Use Code 820	23,415 Sq. ft.	101	62	163	89	97	186	2,240

Proposed Use

For this analysis, trip generation rates were derived from the ITE TRIP GENERATION MANUAL (10th edition). The ITE trip generation rates for Senior Adult Housing—Attached (Land Use Code 252) were selected as representing the proposed land use for the senior housing development with a total of 133 units. The ITE description of Senior Adult Housing—Attached is as follows:

Senior adult housing consists of attached independent living developments, including retirement communities, age-restricted housing, and active adult communities. These developments may include limited social or recreational services. However, they generally lack centralized dining and onsite medical facilities. Residents in these communities live independently, are typically active (requiring little to no medical supervision) and may or may not be retired.

It is projected that the proposed land use would generate 26 vehicle trips during the AM peak hour, 34 vehicle trips during the PM peak hour, and a weekday (24-hour) total of 509 vehicle trips.

Proposed Vehicle Trips

Land Use	Size	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	
Senior Adult Housing - Attached, Land Use Code 252	133 units	9	17	26	19	15	34	509

COMPARISON

A comparison of the site traffic generated from the existing commercial building versus the proposed senior housing development shows that the proposed development is expected to generate 137 less vehicle trips during the AM peak hour, 152 less vehicle trips during the PM peak hour, and 1,731 less vehicle trips during the 24-hour weekday.

Comparison of Vehicle Trips

Description	AM Peak Hour			PM Peak Hour			Weekday
	In	Out	Total	In	Out	Total	
Existing Site	101	62	163	89	97	186	2,240
Proposed Site	9	17	26	19	15	34	509
Difference	**-92**	**-45**	**-137**	**-70**	**-82**	**-152**	**-1,731**

FINDINGS

The expected trip generation for the proposed senior housing development with a total of 133 units compared to the existing commercial development is projected to reduce traffic volumes on the roadway system.

If you have any questions, please write or call.

Sincerely,

Heather L. Zull

Heather Zull, PE

NATURAL FEATURES ASSESSMENT

for the

Haslett Road and Marsh Road – Haslett Village
Section 10, Meridian Township, Michigan

Prepared for:

Mr. Greg Petru
KEBS, Inc.
2116 Haslett Road
Haslett, MI 48840

MARX
WETLANDS
LLC

<u>Prepared by:</u>

Marx Wetlands, LLC

11/1/2019

TABLE OF CONTENTS

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APPENDICES

I. Figure 1: Site Location Map
Figure 2: Aerial Imagery Map
Figure 3: Presettlement Vegetation/MNFI ca. 1800 map
Figure 4: Township Natural Features Map
Figure 5: National Wetland Inventory Map
Figure 6: Flood Insurance Rate Map
Figure 7.1: County Soils Survey Map
Figure 7.2: Hydric Soils Survey Map
II. Vegetation Lists
III. Tree Survey Results (Marx Wetlands LLC)
IV. Wetland Delineation Report (Marx Wetlands LLC; Dated October 30, 2019)

1.0 INTRODUCTION

Marx Wetlands, LLC (MW) was contracted by KEBS, Inc. to perform a natural features inventory and impact assessment for an approximately 15-acre Assessment Area, which spans two (2) parcels: #33-02-02-10-401-003 (1673 Haslett Road; partially commercial/vacant) and #33-02-02-10-402-001(1659 Raby Road; partially vacant/residential)–("Site"). The Site is located directly south of Haslett Road and approximately 0.15 miles west of its intersection with Marsh Road within Section 10 of Meridian Township (T4N, R1W), Ingham County, Michigan.

As part of a Special Use Permit Application, the Charter Township of Meridian Department of Community Planning and Development requires a "Natural Features Assessment," which is to include "a written description of the anticipated impacts on the natural features at each phase and at project completion that contains the following:

a. An inventory of natural features proposed to be retained, removed, or modified. Natural features shall include, but are not limited to, wetlands, significant stands of trees or individual trees greater than 12 inches dbh, floodways, floodplains, water bodies, identified groundwater vulnerable areas, slopes greater than 20 percent, ravines, and vegetative cover types with potential to sustain significant or endangered wildlife.
b. Description of the impacts on natural features.
c. Description of any proposed efforts to mitigate any negative impacts."

After obtaining site location information, Marx Wetlands LLC (MW) conducted desktop information reviews, site assessments, a wetland determination and delineation, and information analysis to help address the Township's natural features assessment requirements. In addition, a tree survey was conducted by MW (Gary Marx) in 2016 and verified by Bryana of MW in 2019. The tree survey results are included in this report as well.

2.0 SITE LOCATION AND PROJECT DESCRIPTION

The approximately 15-acre Site is located directly south of Haslett Road and approximately 0.15 west of Marsh Road within Section 10 of Meridian Township (T4N, R1W) of Ingham County, Michigan. The Developer (Hudson Senior Living LLC) is proposing a new independent senior living facility. The project will involve the construction of one 3-story building, comprised of 133 units (109 single bed and 24 two-bed) with associated parking and utility infrastructure. The majority of the project footprint will utilize the existing developed land where the existing shopping center is currently situated; however, project activities, such as grading, clearing and the construction of one (1) stormwater basin will extend into an undeveloped area directly south/southeast of the existing shopping center.

Prior to site clearing and grading, soil erosion and sediment control measures will be installed and will be inspected and maintained during the construction project. All soil erosion and sedimentation control measures will be removed upon completion of construction and stabilization. Please refer to *Figure 1: Site Location Map* in **Appendix I.**

Based on review of aerial photographs, available on-line resources, and an on-site visit, the Site consists of primarily 15 acres of vacant land. An existing shopping center with mowed upland lawn areas occupies most of the northern parcel, except for a vacant strip on the west end of the parcel. The southern parcel is mostly vacant; however, contains a paved trail (abandoned Raby Road), which continues west off-site into the neighboring Meridian Township park. The vacant parts of the Site contains primarily upland scrub-shrub/forest, and wetland areas. The Site is situated within a largely commercial and residential region of Meridian Township, Michigan. The Site is bounded by undeveloped land to the west, commercial development/Marsh Road to the east, Haslett Road to the north, and the Inter-Urban Pathway and existing railroad to the south.

The general topography of the Site is rolling with some relatively steep slopes. An upland forested ridge was observed along the west edge of the shopping center infrastructure, which drops in elevation to the on-site wetlands. Refer to the *Figure 2: Aerial Imagery Map* in **Appendix I.**

3.0 METHODS

MW conducted a desktop review for the Site using existing information and imagery, including the United States Geological Service (USGS) topographic map, aerial photographs, National Wetland Inventory (NWI) map, county soil survey map, Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), and Meridian Township's Natural Features Map, which primarily includes wetlands and floodplains.

On September 19, 2019, MW conducted a wetland determination and delineation and followed by an additional site visit on October 24, 2019. The on-site visits consisted of a site reconnaissance to evaluate the current and prior land use, conduct habitat type determination, habitat quality evaluation, tree assessment, wetland determination and delineation, wildlife observations, and floodplain or other special concern observations. The wetland determination and delineation was performed in accordance with the Michigan Department of Environmental Quality Wetland Identification Manual (2001), the Northcentral-Northeast Manual to the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual. The findings from the desktop review, site assessments, tree survey update, and wetland delineation were combined to help interpret the Site's natural features and evaluate potential project impacts upon those natural features.

4.0 RESULTS, FINDINGS, AND DISCUSSION

4.1 Existing Structures, Materials, and Adjacent Land use

The northern parcel (#10-401-003) contains an existing shopping center and associated lawn, landscaped trees, and parking infrastructure. Additionally, an existing overhead electric distribution line runs along the northern boundary along the south side of Haslett Road. The southern parcel (#10-402-001) is largely undeveloped; however, contains two (2) vacated structures and an existing path (abandoned Raby Road), particularly in the north/northeast portions of this parcel. The Inter-Urban Pathway lines the southern periphery of the overall Site.

The Site is situated within a largely commercial and residential region of Meridian Township, Michigan. The Site is bounded by undeveloped land to the west, commercial development/Marsh Road to the east, Haslett Road to the north, and the Inter-Urban Pathway and off-site railroad to the south. Refer to *Figure 2: Aerial Imagery Map* in **Appendix I**.

Photograph 1. View of the existing Haslett Village shopping center located on the northern parcel.

Photograph 2. View of an existing structure observed on the southern parcel.

Photograph 3. View of an existing path (abandoned Raby Road), which leads to the Meridian Township Nature Area.

Photograph 4. View of the Inter-Urban pathway observed along the southern boundary of the Site. Wetland B, a large wetland system, is depicted in the foreground of the photograph.

4.2 Topography

The Site varies in elevation from approximately 840 to 875 feet above sea level (asl) and can be characterized as relatively hilly and/or undulating. Gradual sloping and local microtopographic relief was observed near wetland areas. However, an upland ridge with relatively steep slopes was observed along the western and southern edges of the existing shopping center. This ridge starts at Haslett Road and transects the overall Site in a roughly northwest-southeast orientation and runs roughly east-west along the southeastern boundary of the Site. It appears that this upland wooded ridge would likely separate the low-lying areas (i.e., wetland & 100-year

floodplain) along the western boundary from the areas directly east of the ridge. Refer to *Figure 1: Site Location Map* in **Appendix I**.

4.3 Vegetation

A vegetation assessment was conducted during the on-site visits to describe the dominant cover or community types observed throughout the Site. Based on review of aerial photographs and the on-site visits, the northern parcel of the Site contains an existing shopping center surrounded by vacant, undeveloped land (to the west and south), consisting of areas of upland lawn, scrub-shrub/forest, and wetland. In addition, the southern parcel is also largely undeveloped, but also contains a couple abandoned structures and a path (abandoned Raby Road).

MW found three (3) distinct community types present on the Site: 1) lawn with landscaped trees associated with the shopping center (northern parcel); 2) upland scrub-shrub/forest (both parcels); and 3) wetlands (both parcels). The majority of the Site contains upland scrub-shrub/forest identified primarily on sandy soils along relatively steep slopes and northeastern portions of the Site. Lawn was observed along the perimeter of the existing shopping center and is characterized by herbaceous vegetation, grasses, shrubs, and scattered rows of landscaped or planted trees. Wetland areas were observed primarily within the western and southern portions of the Site and were primarily forested wetland types. The descriptions of the three (3) main cover types are described below:

Cover Type Descriptions

1) Lawn with Landscaped Trees

Upland herbaceous species found in the areas of lawn or forest openings include bluegrasses (*Poa pratensis* & *P. compressa*), orchard grass (*Dactylus glomerata*), common milkweed (*Asclepias syriac*a), white vervain (*Verbena urticifolia*), smooth brome (*Bromus inermis*), Japanese hedge-parsley (*Torilis japonica*), timothy (*Phleum pratense*), wild-bergamont (*Monarda fistulosa*), common plantain (*Plantago major*), Queen Anne's lace (*Daucus carota*), field thistle (*Cirsium arvense*), and goldenrods (*Solidago altissima* and *S. canadensis*). Scattered planted trees observed include cottonwood (*Populus deltoides*), Siberian elm (*Ulmus pumila*), Callery pear (*Pyrus calleryana*), white pine (*Pinus strobus*), Scotch pine (*Pinus sylvestris*), white spruce (*Picea glauca*), and Norway spruce (*Picea abies).*

2) Upland Scrub-shrub/Forest

The upland forested and scrub-shrub areas were observed along the steep slopes or ridges. These areas generally contain the following species: penn sedge (*Carex pennsylvanica*), orchard grass, white vervain, Dame's rocket (*Hesperis matronalis*), strawberry (*Fragaria virginiana*), wild geranium (*Geranium maculatum*), white avens (*Geum canadense),* riverbank grape (*Vitis riparia*), Virginia creeper (*Parthenocissus quinquefolia*), poison-ivy (*Toxicodendron radicans*), black locust (*Robinia pseudoacacia*), crabapple/apple (*Malus spp*.), oaks (*Quercus alba, Q. rubra* and *Q. velutina)*, box-elder (*Acer negundo*), black cherry (*Prunus serotina*), cottonwood scattered with sugar maple (*Acer saccharum*), silver maple (*Acer saccharinum*), Scotch pine, white pine, black walnut (*Juglans nigra*), white mulberry (*Morus alba*), American elm (*Ulmus americana*), red-

cedar (*Juniperus virginiana*), trembling aspen (*Populus tremuloides*), and ash (*Fraxinus spp*.) trees. Common native and non-native shrub species include autumn-olive (*Elaeagnus umbellata*), Eurasian honeysuckles (*Lonicera maackii* and *L. tatarica*), Japanese barberry (*Berberis thunbergii*), buckthorn (*Rhamnus cathartica*), multi-flora rose (*Rosa multiflora*), blackberry (*Rubus allegheniensis*), and black raspberry (*Rubus occidentalis*).

3) Wetlands

Majority of the on-site wetlands (Wetlands A1, A2, B, D, and E) are mainly forested with minor scrub-shrub or emergent components; however, Wetland C (potential retention area) is emergent with trees along its margins.

Herbaceous vegetation generally observed within Wetlands A1, A2, and B include reed canary grass (*Phalaris arundinacea*), fowl manna grass (*Glyceria striata*), late goldenrod (*Solidago gigantea*), calico aster (*Symphyotrichum lateriflorum*), redtop (*Agrostis gigantea*), sedges (*Carex bromoides, C. intumescens, C. lupulina,* and *C. vulpinoidea*), and black ash saplings (*Fraxinus nigra)*. Other less common herbaceous vegetation observed include sensitive fern (*Onoclea sensibilis),* white avens, jumpseed (*Persicaria virginiana*), marsh fern (*Thelypteris palustris*), and purple avens (*Geum rivale*). Common shrubs and vines observed include common buckthorn, silky dogwood (*Cornus amomum*), gray dogwood (*C. racemosa*), holly (*Ilex verticillata*), elderberry (*Sambucus canadensis*), and red raspberry (*Rubus strigosus*); vines include riverbank grape and poison-ivy. Tree species include cottonwood, silver maple, American elm, box-elder, and swamp white oak (Q*uercus bicolor*).

Wetland C is an approximately 0.11-acre emergent wetland that appears to have been constructed as a stormwater basin located directly south of the southwest corner of the existing shopping center. The dominant wetland vegetation includes broadleaf cattail *(T. latifolia),* reed canary grass, purple loosestrife (*Lythrum salicaria*), cinnamon willow-herb (*Epilobium coloratum*), joe-pye-weed (*Eutrochium maculatum*), black ash saplings, and black willow *(Salix nigra).*

Wetlands D and E are small (i.e., less than 0.25 acres in size) depressional, forested wetlands with a minor scrub-shrub component. Dominant wetland vegetation includes common buckthorn, silky dogwood, gray dogwood, black ash saplings, box-elder, swamp white oak, and silver maple. Scattered herbaceous vegetation observed include white avens, rushes (*Juncus dudleyi* and *J. tenuis*), and sedges (*Carex bebbi & C. intumescens*). Woody vines observed include poison-ivy and river-bank grape.

Vegetation Assessment

Several species associated with disturbed lands in the Great Lakes region were observed throughout these parcels. These include non-native species, invasive species, native species that are tolerant of human land uses, and native pioneer species that normally colonize land after activities are abandoned. Examples of these species present on the Site include Japanese hedge-parsley (non-native), common plantain, orchard grass (non-native), Japanese barberry (invasive), common buckthorn (invasive), autumn-olive (invasive), black locust (invasive), multiflora rose

(invasive), tall goldenrod (weedy), white vervain (native but tolerant of human land uses), and cottonwood/trembling aspen (pioneer species, early successional species). The weedy aspect of the Site is likely due to possible previous site disturbance on-site or adjacent lands.

The Vegetation ca. 1800 map produced by the Michigan Natural Features Inventory (MNFI) shows the Site appears to be part of an extensive oak-hickory forest that once extended many miles northward from the Red Cedar River. Refer to *Figure 3: Pre-settlement Vegetation/MNFI ca. 1800 map* in **Appendix I**. Prior to extensive land clearing, these forests were found throughout Michigan in a wide range of site conditions; however, these forests generally prefer moist, well-drained, sandy/loamy soils. These forests often contained a wide variety of (non-oak/hickory) tree species, such as are red maple, black cherry, white pine, basswood, white ash, sugar maple, green ash, American elm, and red pine. These forests were commonly cleared for agricultural production; however, some areas remain largely intact, particularly where soils are sandy and/or ridges are too steep to farm. It is likely that some areas of the Site were not fully cleared many decades ago because of the steep slopes. As twentieth century commercial and residential development began to fill in lands between East Lansing and Okemos, the southern parcel of the Site was likely left idle due to the presene of wetland and steep slopes and the infeasibility of continuing agriculture on such a small scale. As a result, the Site contains both native and non-native plants that are adept to recolonize.

Refer to the 1983 USGS Topographic map that depict light (gray) color indicating some areas of open land in the property particularly near the existing shopping center (refer to Figure 1 in **Appendix I**). These areas of lawn with landscaped trees have a relatively low native mean Coefficient of Conservatism of 1.6 (adventive species were assumed as 0) is an overall indicator that this Site has been subjected to past disturbances.

There is evidence that as vegetation recolonization progressed, the Site became brushier, particularly along forest edges, the upland ridge, the existing Raby Road (pathway) and Inter-Urban Pathway (along the southern boundary) where autumn-olive, Eurasian honeysuckles, and common buckthorn have formed thickets. These areas of upland scrub-shrub/forest are dominated by native hardwood forest trees, invasive trees, and relatively weedy shrubs and groundcover plants. This assemblage includes both native and non-native species. Examples of the species present on the Site include white pine, naturally established black walnut, invasive black locust, and non-native smooth brome, common buckthorn (invasive), and autumn-olive (invasive).

The undeveloped and forested areas of the Site would normally have been cleared for agriculture; however, it is likely that these areas were retained due to the relatively steep slopes and nearby wetlands. In addition, Meridian Township Natural Area is located directly west of the overall Site and includes natural areas (i.e., wetlands, forest) that adjoin the Pine Lake Outlet Drain. The on-site scrub-shrub/forest contains remnant forest species, including scattered red oaks, maples, black cherry, cottonwood, and elm trees. Although there are some remaining native species, which are possibly descendent and/or residual from the original oak-hickory forest that likely occurred within this location, this portion of the Site contain relatively weedy

tree species. Therefore, due to the possible previous disturbances of habitat fragmentation, full or partial prior clearing, surrounding commercial and residential development of this general region of Meridian Township, etc., the areas of scrub-shrub/forest appear to contain a relatively weedy understory, rather than a native forest understory. The scrub-shrub/forest habitat's low native mean Coefficient of Conservatism of 2.57 is an overall indicator that this site was modified in the past but does retain some native remnant species. Refer to the *Vegetation Lists* in **Appendix II**.

The wetland areas were identified in low-lying lands or small depressions within the Site and contain both native and non-native species. Examples of the species present on the Site include naturally established cottonwood, common buckthorn (invasive), reed canary grass (weedy native), common reed (non-native), and purple loosestrife (invasive). More native species were generally observed along the western boundary and southwest corner of the Site, particularly within Wetlands A1, A2, and B. This is likely because these wetlands abut Meridian Township's Nature Area and it has not likely been subject to any recent site disturbance or significant modifications. The overall wetland habitat still has a relatively low native mean Coefficient of Conservatism of 2.86; however, it has the highest rating compared with the lawn and upland scrub-shrub/forest. Therefore, this overall rating indicates that this site was likely modified in the past; however, the wetlands appear to contain more native species that the other cover types.

Photograph 5. View of upland wooded slope directly west of the ex. shopping center.

Photograph 6. Another upland wooded slope observed along the southeastern portion of the Site.

Photograph 7. Typical view of scrub-shrub/forest.

Photograph 8. Typical view of an on-site forested wetland.

Photograph 9. View of Wetland C, which appears to be a constructed stormwater basin.

Photograph 10. View of a row of trees with a brushy understory observed along the existing path (Raby Road).

Although the Developer intends to preserve as many trees as possible particularly within the higher quality wetlands or forest, the proposed development of the Site will likely require clearing some existing vegetation. The northern parcel contains the existing shopping center and associated lawn with landscaped trees; however, the western and southern boundaries are undeveloped. Most the southern parcel contains upland scrub-shrub/forest, consisting of non-native shrubs and native trees and wetlands with both native and non-native species. No formal mitigation for vegetation removal has been planned. Traditional landscape grass, shrub, and tree plantings are expected for this development; however, no formal landscaping plans are designed at this time. It is likely that much of the existing vegetation, particularly some of the large or remnant trees may be incorporated into the traditional landscaping to the maximum extent possible.

4.4 Significant Tree Inventory

Separate from the vegetation assessment conducted on October 19 & 24, 2019 by Marx Wetlands LLC (Bryana J. Guevara), a tree survey was also conducted by Gary Marx in 2016. During the two (2) on-site visits in 2019, Bryana (ISA certified arborist MI-4240A) updated and verified the current tree survey to accompany this inventory and impact assessment of natural features. The survey included trees considered "significant" or deserving special protection because of their size, relative rarity, or historical importance. During the inventory, trees with a diameter at breast height (DBH) (the standard measure for tree size) of 12 inches or greater were located on the Site and mapped. The trees were identified to species and their size recorded in a table (**Appendix III**). Results of the inventory identified approximately 206 significant trees within the Site. Approximately 75% consisted of hardwood species and approximately 25% were softwood/conifer species. Of the 206 trees, approximately 2 trees were larger than or equal to 30 inches in diameter, the largest trees were with a diameter of 32 inches. Twenty-two (22) of the trees were between 20 and 30 inches and remaining 184 trees were between 12 and 19 inches DBH. Refer to *Marx Wetlands' Tree Survey Results* in **Appendix III**.

Impact Assessment:

Based on the current site plan, most trees will be retained post-construction, particularly in the western and southwest portions of the Site where impacts to Wetlands A1, A2, and B will be avoided. The forest habitat in these areas are likely considered higher quality due to a less weedy understory and the predominance of native tree species. In addition, trees proposed for clearing are primarily non-native, planted (i.e., Norway spruce, Scotch pine, Callery pear, etc.) or weedier species (i.e., cottonwood, Siberian elm, white mulberry, box-elder, etc.). Tree clearing activities are primarily restricted to an area directly south of the existing shopping center and developed land. A few native species are anticipated for removal; however, it is the professional opinion of MW that tree clearing activities will not significantly impact the overall existing forest habitat.

4.5 Wetlands

Marx Wetlands LLC conducted a wetland determination and delineation while on the Site. In accordance with the *Midwestern Interim Regional Supplement to the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual*, wetlands are defined by the presence of three basic parameters: 1) the presence of hydrophytic vegetation (plants adapted to living in saturated soils), 2) hydric soils (distinctive soil types that develop under saturated conditions), and 3) wetland hydrology (the presence of water at or near the surface for a specific period of time). The above parameters are virtually always inter-related and normally present in wetland systems.

Six (6) Wetlands (Wetlands A1, A2, B, C, D, and E) were identified within or along the Site. No ponds or watercourses were observed within the Assessment Area or overall Site. Refer to the enclosed *Wetland Map* (Prepared by KEBS, Inc.) for the locations of the on-site wetlands and *USACE Wetland Determination Data Forms*. See Table 1, Natural Features Table below, for feature name, type, regulatory statuses for State of Michigan and Meridian Township. Refer to the *Wetland Delineation Report* included with this report in **Appendix IV**.

Table 1. Natural Features Table

Feature Name	Type*	On-site Acreage (AC)	Regulated by the State of Michigan?	Meridian Township Regulated?
Wetland A1	PEM/PSS /PFO	0.02 AC	Yes; > 5 acres in size (includes off-site acreage) & connection to Pine Lake Outlet	Likely
Wetland A2	PEM/PSS /PFO	0.24 AC	Yes; > 5 acres in size (includes off-site acreage) & connection to Pine Lake Outlet	Likely
Wetland B	PEM/PSS /PFO	2.64 AC (West) 5.63 AC (Overall)	Yes; > 5 acres in size (includes off-site acreage)	Likely
Wetland C/Detention Basin	PEM	0.11 AC	Not Likely	Not Likely
Wetland D	PFO	0.18 AC	Not Likely	Not Likely
Wetland E	PFO	0.02 AC	Not Likely	Not Likely

PEM- Emergent; PSS- Scrub-shrub; PFO-Forested

Most of the on-site wetlands are largely forested with minor scrub-shrub or emergent wetland types, particularly Wetlands A1, A2, B, D, and E. Wetland C is an approximately 0.11-acre emergent wetland that appears to have be constructed as a stormwater basin. *Meridian Township Natural Features Map* (Figure 4 in **Appendix I**) depicts one (1) township mapped wetland areas along the western boundary and southwest portion of the Site. Wetlands A1, A2, and B generally correspond to those areas indicated by the Township's map. In addition, the National Wetland Inventory Map-NWI (Figure 5 in **Appendix I**) also indicates one large wetland system that adjoins an off-site drain (Pine Lake Outlet Drain) along the western boundary and within the southwest portion of the Site, which appears to correspond to the same wetlands (Wetlands A1, A2, and B) shown on the Meridian Township's Map.

Regulations

State Regulations

Part 301, Inland Lakes and Streams, states that a feature is considered a regulated watercourse by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), if it possesses a defined bed, bank, and evidence of continued flow or a continued occurrence of water. Based on the site visit, no watercourses or ponds were observed on-site.

Part 303, Wetlands Protection, of the NREPA states that if a wetland is five acres in size or larger and/or connected to or located within 500 feet of a river, stream, lake, or pond, it is considered regulated by the EGLE. Marx Wetlands, LLC has the professional opinion that three (3) wetlands (Wetlands A1, A2, and B) are likely regulated by the EGLE. Wetlands A1, A2, and B extend off-site, presumably connect and appear larger than 5 acres in size. In addition, these wetlands are also contiguous to a regulating watercourse (Pine Lake Outlet Drain). Wetlands C, D, and E are less than 5 acres in size and appear isolated (i.e., not connected and/or within 500 feet of a regulating feature). Therefore, Marx Wetlands LLC has the professional opinion that Wetlands A1, A2, and B appear to meet the requirements of Part 303, Wetlands Protection, of the NREPA, and therefore likely fall under the jurisdiction of the EGLE.

Local Regulations

In addition, Meridian Township's *Chapter 22 Environment, Article IV Wetland Protection*, states that protected wetlands include all wetlands subject to the regulation by the EGLE as well as any wetlands two acres or more, in size, including the area of any contiguous inland lake, pond, river, or stream. Any wetlands less than two acres in size and not connected to a body of water may still be regulated, if it is determined that the protection of the area is important for the preservation of the state's natural resources. In addition, any wetlands, equal to or greater than one-quarter acre and equal to or less than two acres in size, which are not contiguous to any inland lake, stream, river or pond and are determined to be essential to the preservation of the natural resources of the Township (Meridian Township- Code 1974, § 105-3; Ord. No. 2002-02, 3-19-2002; Ord. No. 2003-11, 7-6-2003; Ord. No. 2011-04, 3-15-2011).

It is the professional opinion of Marx Wetlands LLC that Wetlands A1, A2, and B are also likely regulated by Meridian Township. Wetlands C, D and E appear to be less than 0.25 acres in size and do not appear to be within 500 feet of any regulating water body. Pine Lake Outlet Drain is further than 500 linear feet from these wetlands. In addition, there is a small pond south of the railroad tracks; however, it appears to be less than 1 acre in size and may not qualify as a regulating water body.

Impact Assessment

The current site plan avoids the regulated wetlands and wetland buffers and minimizes native vegetation clearing to the maximum extent practicable. However, Wetland C which appears to have been constructed for stormwater retention is also an anticipated non-regulated wetland that will be removed and re-located as an on-site proposed stormwater basin area. Therefore, it is the professional opinion of Marx Wetlands LLC that the current site plan is the most prudent and viable option for the development of the Site.

4.6 Special Flood Hazard Area

Flood Hazard Areas are those which are most likely to be inundated during flood events. Flood Hazard Areas are regulated by local, state, and federal regulations designed to reduce the damage to structures during floods. The regulations apply to areas within 100-year floodplains, which are defined by a one percent (1%) annual probability of flood occurrence. These areas are mapped by the Federal Emergency Management Agency (FEMA) on Flood Insurance Rate Maps, or FIRMs. These maps were developed using flow modeling and the existing USGS topographic maps. The modeling produces an elevation associated with 100-year flood events, and areas below these elevations are designated as the 100-year floodplains.

FEMA FIRMs for Ingham County were reviewed to determine if portions of the Site are mapped as floodplains, floodways, or other flood prone areas. These maps record the following data: 100-year (1% chance of annual flooding) and 500-year (0.2% annual chance of flooding) floodplains, the height of the base flood elevation, and the risk to premium areas developed across a floodplain. Based on FEMA FIRM Panel No. 26065C0156D (effective 08/16/2011), the Site contains a 100-year floodplain mapped as Zone AE (with Base Flood Elevation-BFE available; 847 feet mean sea level) associated with the off-site drain (Pine Lake Outlet Drain- tributary to

Red Cedar River), which appears to largely occupy the areas of the delineated (likely regulated) wetlands (Wetlands A1, A2, and B). The remaining areas on-site are mapped as Zone X: an area that is determined to be outside the 100-year floodplain. Refer to *Figure 6: Flood Insurance Rate Map* in **Appendix I**.

FIRM maps can incorrectly show areas of 100-year floodplain. In such cases, a site's topography can be surveyed using modern techniques. When such studies show that the mapped floodplain is above the determined flood elevation or that the FIRM is otherwise inaccurate, this information can be sent to the National Flood Insurance Program to obtain a Letter of Map Amendment (LOMA) which officially changes the area included within the floodplain.

Part 31, Water Resources Protection, of the NREPA regulates activities within the 100-year floodplain and floodway of a river, stream, or drain, and within the floodplain of any watercourse with an upstream drainage area of two square miles or larger. A permit would have to be obtained through EGLE to allow construction within the 100-year floodplain or below the base flood elevation of 847 feet mean sea level. Most construction activities that take place above the designated 100-year floodplain elevation may not require EGLE permitting and/or approvals.

Impact Assessment

The current site plan appears to avoid construction activities within the 100-year floodplain areas or above the designated 100-year floodplain's base flood elevation of 847 feet mean sea level.

Therefore, it is the professional opinion of Marx Wetlands that, although the Site contains a likely EGLE-regulated 100-year floodplain associated with Pine Lake Outlet, impacts to the 100-year floodplain are not anticipated by project activities. However, a pre-application meeting or a floodplain request through EGLE can help determine whether the project activities will require a permit or not.

4.7 Floodways

A *floodway* is the portion of the floodplain that is required to carry and discharge flood waters during a flood event. They have more rapidly moving water during flood events. They include river channels, upper banks, and adjacent areas that effectively become part of the water transit process during a flood. The FIRM for Meridian Township shows that there are no floodway areas on the Site. The floodway of Pine Lake Outlet Drain is approximately 350 feet further west of the Site. No activities at the Site are anticipated to have any impact upon these floodway areas, nor will these floodway areas have any impact on development at the Site. Therefore, it is the professional opinion of Marx Wetlands that the Site appears to contain an EGLE regulated 100-year floodplain associated with Pine Lake Outlet; however, no floodway areas are anticipated to occur within the Site or be impacted by project activities.

4.8 Water Bodies

Streams, rivers, lakes, and many ponds are afforded legal protection under a combination of Township, county, state, and federal regulations pertaining to wetlands, flood prone areas, and

water bodies. Any filling or alteration of these areas would typically require one or more permits from state agencies, county agencies, federal agencies, or Meridian Township.

There are no open water bodies or watercourses located within the Site. This includes ponds, lakes, creeks, rivers, and sloughs. However, there is a wetland area (Wetland C) that appears to be a constructed stormwater basin located on the northern parcel. This feature is a primarily emergent wetland that does not contain a significant area (~0.10 acre) of open water (i.e.., ponded). Therefore, no water bodies are located on the Site.

4.9 Soils

According to the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey, the soils contained within the Site have been mapped with four () soil types—Houghton muck, 0 to 1 percent slopes (Hn; 100% hydric rating), Urban land-Marlette complex, 2 to 12 percent slopes (UtB; 5% hydric rating), Urban land-Boyer-Spinks complex, 0 to 10 percent slopes (UeB; 4% hydric rating), and Urban land-Capac-Colwood complex, 0 to 4 percent slopes (UpA; 28% hydric rating). Refer to *Figure 7.1: County Soils Survey Map* in **Appendix I**.

Houghton mucks are typically formed in depressions or outwash plains. Urban land-Capac-Colwood complex are formed from loamy glaciofluvial deposits over silty clay loam in lake plains. Urban land-Marlette complex soils are formed from loamy till in end moraines. Urban land-Boyer-Spinks complex soils are formed on ridges or outwash plains. These soils range from very poorly drain to well drained with no likelihood to infrequent flooding or ponding. Houghton muck, Urban land-Boyer-Spinks complex, Urban land-Capac-Colwood, and Urban land-Marlette complexes are classified as hydric or contain hydric inclusions; however, UtB and UeB soils have very low hydric ratings of 5% and 4%, respectively. Hydric soils are conducive to the growth and regeneration of hydrophytic vegetation by their ability to hold water for extended periods of time (USDA-NRCS 2010). Refer to *Figure 7.2: Hydric Soils Map* in **Appendix I**.

Site balancing, filling, and subsurface excavation activities will take place within the limits of disturbance which are contained primarily within the areas of the more well-drained soil types or previously developed areas. The most suitable soils will largely be utilized on the Site during parking lot, driveway, and building construction. However, Wetland C which appears to have been constructed for stormwater retention is also an anticipated non-regulated wetland that will be removed and re-located as an on-site proposed stormwater basin area. Soil erosion and sedimentation control (SESC) measures will be installed and maintained by the Developer throughout the construction period, as required by the State of Michigan, Meridian Township, and the Ingham County Drain Commissioner, and will be removed once the entire Site has been stabilized. These measures will significantly reduce the possibility of soil erosion and the water transport of these soil materials, which could cause the degradation of areas receiving the Site's stormwater.

4.10 Identified Areas of Groundwater Vulnerability

Areas of groundwater vulnerability are those areas where the hydrologic and geologic surface and subsurface setting makes the groundwater more vulnerable to contamination than in other areas. Although the Site contains wetland areas, it is anticipated that the Site does not contain groundwater vulnerable or sensitive areas. In addition, most construction activities on the Site will be outside the bounds of the regulated wetlands and wetland buffers. However, Wetland C which appears to have been constructed for stormwater retention is also a likely non-regulated wetland that will be removed and replaced by another proposed stormwater basin area. Stormwater on the site will be collected and treated in accordance with local and state regulations designed to protect water quality and runoff volumes. The proposed project design for will require the construction of one (1) stormwater basin in upland to manage the on-site stormwater, minimize stormwater fluctuation concerns, and maintain a functioning stormwater management basin. In addition, the project proposes a stormwater outlet structure that will likely discharge into Wetland B.

The proposed basin will collect and slow the first flush stormwater runoff prior to discharge; detain the runoff for initial settling of coarse particulates and remove and oil, grease and sediment that may be present. The proposed detention basins will treat the first flush runoff with a pretreatment structure and is designed to meet all the stormwater requirements of the Ingham County Drain Office. The new stormwater basin is designed to catch contributing runoff from the surrounding developed areas and hold discharge from the overland sheet-flow stormwater from the Site. This water quality design will filter large pollutants from the water, preventing them from entering downstream water resources. The proposed design for the detention basin accommodates the total storage requirement and provides the required discharge outflow rates.

Therefore, the project proposes discharges that will meet state and local water quality standards; 2) the discharges will pass through stormwater treatment devices to maximize the removal of sediments and other contaminants using the best available technologies that are necessary when considering the receiving waters and associated aquatic resources; 3) the proposed outlet shall not result in changes in the ecological type of the wetland or result in changes to the wetland watershed area; and 4) the outlets shall be stabilized with riprap to prevent soil erosion. All excavated material and structures will be placed in upland (non-wetland). It is MW's professional opinion that the proposed stormwater discharge into wetland will not significantly impact on-site features or impact any sensitive areas identified for groundwater vulnerability because the current site plan avoids direct impacts to the likely regulated wetlands (Wetlands A1, A2, and B) and buffers.

4.11 Slopes Greater than 20 Percent

Slopes of greater than 20% are highly susceptible to soil erosion which can lead to sedimentation in other on and off-site areas such as ponds, streams and lakes. The Site does appear to contain slopes that may be steeper than 20%, particularly along an upland ridge directly west and south of the existing shopping center, which slopes down to low-lying areas of wetland (Wetlands A1, A2, and B) and the 100-year floodplain associated with the off-site Pine Lake Outlet Drain. In

addition, local microtopographic relief was also observed within the Site, particularly within the remaining wetland areas (Wetlands C, D, and E).

The development project is anticipated to follow structure and grading setbacks and requirements provided in Meridian Township ordinances. During construction, the on-site slopes, particularly over 20% will be stabilized with appropriate landscaping materials. Soil erosion and sedimentation control (SESC) measures will be placed and maintained in the areas necessary to control any erosion that may occur during construction.

4.12 Wildlife

Evidence of wildlife presence has been observed throughout the Site in the form of both direct and indirect observations, including sightings, tracks, and droppings, although the amount of animal usage is naturally limited by the size of the Site and the surrounding commercial/rural context. Evidence of common wildlife were observed within the Site, including white-tailed deer (*Odocoileus virginiana*), gray squirrels (*Sciurus carolinensis*), and raccoon (*Procyon lotor*). Squirrel evidence was mainly near the forested areas. Deer usage appeared most concentrated along the western boundary and southwest corner of the Site near the Meridian Township Nature Area. Fresh deer and raccoon droppings were also observed. Cardinals (*Cardinalis cardinalis*) and blue jays (*Cyanocitta cristata*) were seen and heard during the on-site assessments.

It is highly likely that the Site also serves as foraging or resting ground for numerous other insects and birds, such as Monarch butterflies (*Danaus plexippus*), honeybees (*Apis mellifera*), robins (*Turdus migratorius*), mourning doves (*Zenaida macroura*), and black-capped chickadees (*Poecile atricapillus*). Overall, the Site appears to contain species that can be considered urban or suburban wildlife, which are common across the Midwest. Urban and suburban wildlife are mainly generalists species that have wide tolerance in diet and behavioral flexibility. They are very unlike threatened and endangered species, which are almost all specialized and intolerant of numerous human disturbances or interferences.

The proposed site plan has been designed to minimize impacts to natural on-site features, regulated wetlands, and habitat. Most of the on-site development is restricted to the northern parcel which contains the existing shopping center. The regulated wetlands, buffers, and on-site features have been avoided to the maximum extent practicable. Therefore, any declines in certain very abundant wildlife species should not be assumed to bear negative consequences. Wildlife will be displaced to a small degree by the proposed development; however, the undeveloped southern parcel will remain relatively intact after the development. It is anticipated that some of these common urban and suburban wildlife species will continue to use the Site post-construction.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The proposed Site was reviewed for remnant and existing natural resources and features. The approximately 15-acre Assessment consists of two (2) parcels (#33-02-02-10-401-003 and 33-02-02-10-402-001), which contain vacant, undeveloped land and an existing shopping center

(Haslett Village Square). The undeveloped land portions contain lawn with landscaped trees, scrub-shrub/forest, and wetland. MW identified six (6) wetlands (Wetlands A1, A2, B, C, D, and E) within the Site and/or along the Site's perimeters. No ponds or watercourses appear within the Site. The Site also contains existing vacated buildings observed within the eastern portion of the Site. In addition, an existing path (abandoned Raby Road) was also identified, which extends off-site to the west connecting to the Township's Nature Area. The Site is situated within a largely commercial and residential region of Meridian Township, Michigan. The Site is bounded by undeveloped land to the west, commercial development/Marsh Road to the east, Haslett Road to the north, and the Inter-Urban Pathway and existing railroad to the south.

Most of the on-site soils are upland sandy loams and loams with some hydric inclusions that formed under what was once an oak-hickory forest, which appear to be largely original to the Site. It is likely that this Site was once a small portion of that forest which covered many acres but was cleared for agriculture or development. The areas south or west of the upland ridge may have been retained due to the relatively steep slopes. Within the last few decades this Site has been surrounded by roads and growing commercial and residential development. Wildlife that appear to utilize the Site are common in urban and suburban landscapes. It is anticipated that their populations will not be significantly affected by the development of this Site. Vegetation on the Site includes planted pines/spruces, native trees, and relatively common native and non-native groundcover species. The loss of vegetation due to development on the Site will occur, though the species lost are very unlikely to include any that are locally rare (i.e. rare county-wide) or state threatened and endangered. There are numerous trees on the Site which are in good condition, including both landscaped pines/spruces and unplanted hardwood species.

The proposed development is largely positioned on the northern parcel (developed portions) of the overall Site, primarily situated in the area of the existing shopping center. Most of the southern parcel does not appear to be proposed for much development; however, some land clearing, landscaping activities, and the construction of a stormwater basin are expected. The natural heritage on this Site appears to be the original topography, soils, and some of the native vegetation identified along the western boundary of the northern parcel and most of the southern parcel.

The Developer's selection of the site plan included an analysis of alternative on-site layouts, while taking into consideration existing site conditions, specific project and site requirements, building requirements and setbacks, visibility and accessibility, safety, traffic flow into and out of the Site, and existing natural features. The existing shopping center and associated parking and utility infrastructure and on-site existing conditions (i.e., 100-year floodplain, wetlands, topography) have also limited site design options. On-site natural features, including the 100-year floodplain and regulated wetlands are preserved to the maximum extent practicable. The preservation of on-site features will likely serve as an amenity for the proposed development. The current design likely provides accessibility and encourages usage by the future residents to enjoy the on-site features, including woodlands and wetlands. The primary likelihood of preserving natural resource values would be associated with minimal development on the southern parcel, avoidance of regulated wetlands and wetland buffers, 100-year floodplain, and by incorporating

some of the larger or native trees into the overall landscape design; and thereby, preserving them on the post-development landscape.

Therefore, through consideration of these factors and requirements, it appears that the preferred site plan is the most prudent and viable layout for the development of the proposed Site because it avoids the regulated (likely higher quality) wetlands and buffers and minimizes native vegetation clearing to the maximum extent practicable.

Thank you for the opportunity to provide this wetland determination. If you have any questions, please contact me at your convenience.

Sincerely,

Marx Wetlands, LLC

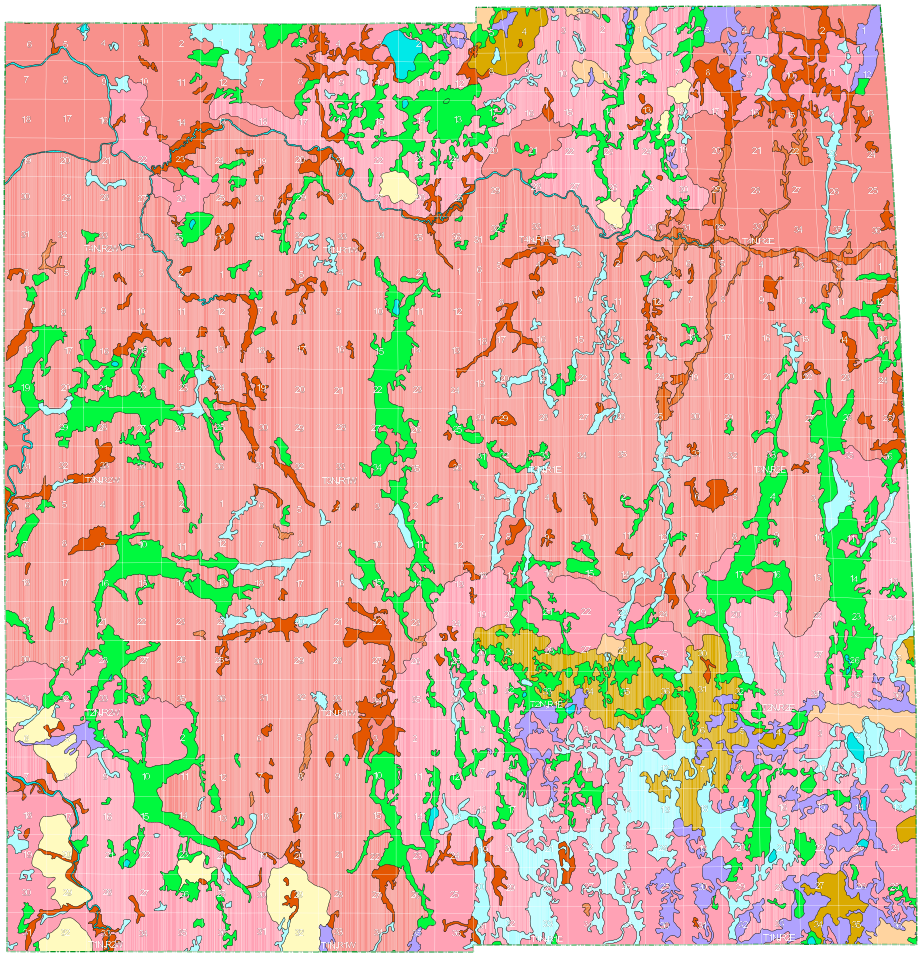
Bryana J. Guevara, CSWO (MI)
Environmental Scientist
ISA Certified Arborist #MI-4202A
Professional Wetland Scientist #2949

APPENDIX I

Figure 1: Site Location Map
Figure 2: Aerial Imagery Map
Figure 3: Presettlement Vegetation/MNFI ca. 1800 map
Figure 4: Township Natural Features Map
Figure 5: National Wetland Inventory Map
Figure 6: Flood Insurance Rate Map
Figures 7.1 & 7.2: County Soils Survey Map & Hydric Soils Map

Marsh Rd & Haslett Rd
Haslett
Lake Lansing
Golf Course
Murphy Sch
Lake Ct
Lac Du Mont Dr
Blue Lac Dr
Mer Ln
Bois Blanc Dr
Montebello Ave
Park
Benson Dr
Edson St
Potter St
Shaw St
E Lake Dr
LAKE
Carlton St
Ridgeway Dr
Okemos Rd
Bayonne Ave
Wild Iris Ln
Star Flower Dr
WESTERN
TRUNK
OUTLET
Nemoke Cr
Maple Ridge Dr
Scholl St
Babbitt St
Cade St
Wilshire Rd
Azalendale Rd
Bayshore Dr
Buckingham Rd
Orlando Dr
High Sch
Wildlife Lake
Cornell Rd
850
843
845
856
849
860
Image U.S. Geological Survey

Image U.S. Geological Survey
Inter-Urban Pathway
Benson Dr
Haslett Rd
Marsh Rd
Marsh Rd &



Vegetation circa 1800 of Ingham County, Michigan

An Interpretation of the General Land Office Surveys

By P. J. Comer and D. A. Albert
Michigan Natural Features Inventory
1997

Legend

- ASPEN-BIRCH FOREST
- ✓ BEECH-SUGAR MAPLE FOREST
- BEECH-SUGAR MAPLE-HEMLOCK FOREST
- ✓ BLACK ASH SWAMP
- ✓ BLACK OAK BARREN
- CEDAR SWAMP
- GRASSLAND
- HEMLOCK-WHITE PINE FOREST
- HEMLOCK-YELLOW BIRCH FOREST
- JACK PINE-RED PINE FOREST
- ✓ LAKE/RIVER
- ✓ MIXED CONIFER SWAMP
- ✓ MIXED HARDWOOD SWAMP
- ✓ MIXED OAK FOREST
- ✓ MIXED OAK SAVANNA
- MIXED PINE-OAK FOREST
- ✓ MUSKEG/BOG
- ✓ OAK-HICKORY FOREST
- OAK-PINE BARREN
- PINE BARREN
- SAND DUNE
- ✓ SHRUB SWAMP/EMERGENT MARSH
- SPRUCE-FIR-CEDAR FOREST
- ✓ WET PRAIRIE
- WHITE PINE-MIXED HARDWOOD FOREST
- WHITE PINE-RED PINE FOREST
- WHITE PINE-WHITE OAK FOREST

✓ = LAND COVER TYPE PRESENT ON THIS MAP

Scale 1:80,000

1 0 1 2 3 4 Miles
1 0 1 2 3 4 5 6 7 8 Kilometers

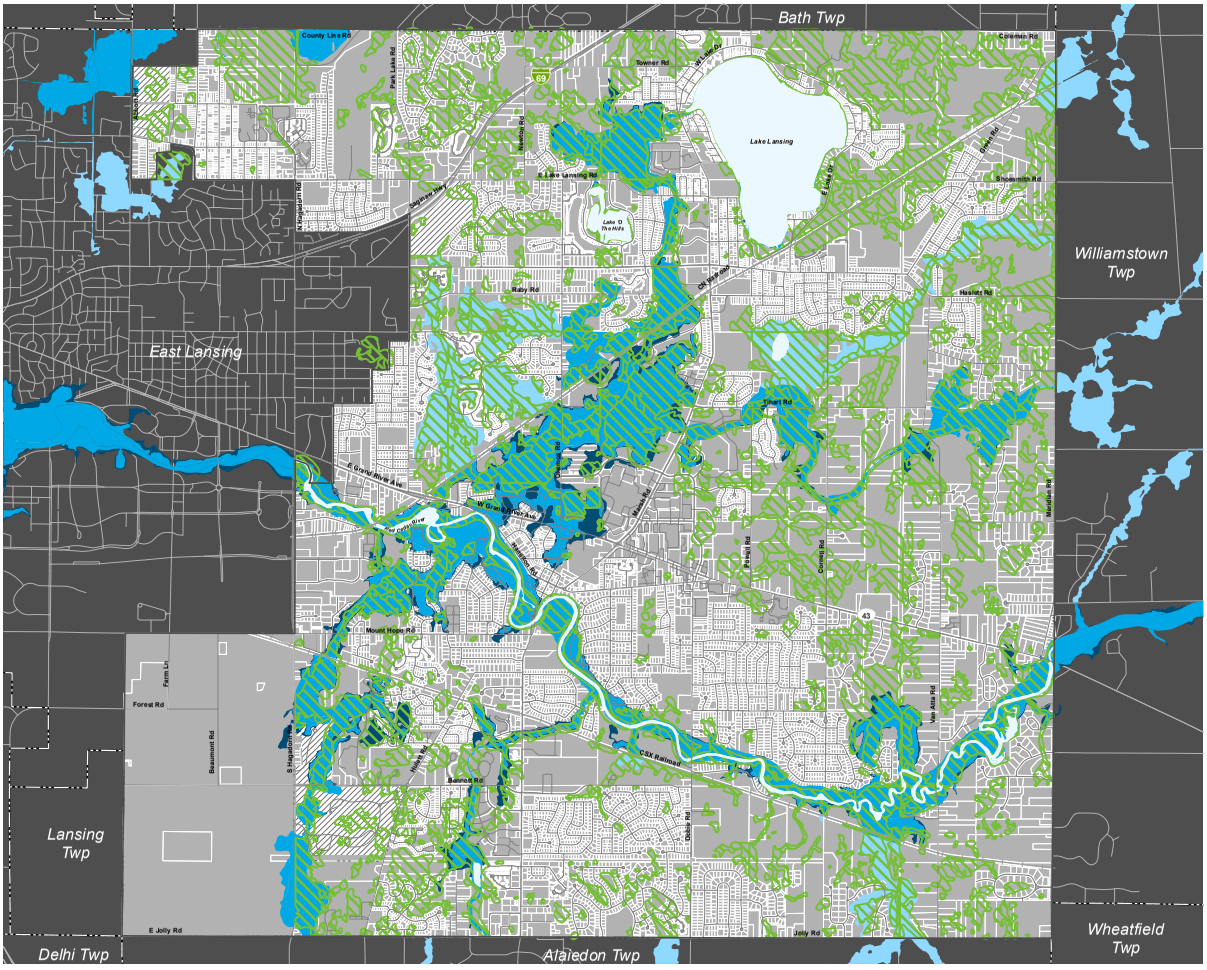
Map Projection: Lambert Conformal Conic

SOURCE: Comer, P. J., D. A. Albert, H. A. Wells, B. L. Hart, J. B. Raab, D. L. Price, D. M. Kashian, R. A. Corner, D. W. Schuen (Map Interpretation); M. S. Austin, T. R. Lulinski, K. M. Kornoch, L. Prange-Gregory, J. G. Spitzley, C. J. Delaney, L. J. Scriminger, (Digital Map Production). 1995. Michigan's Presettlement Vegetation, as Interpreted from the General Land Office Surveys 1816-1856. Michigan Natural Features Inventory, Lansing, MI. Digital Map.

Michigan DNR Department of Natural Resources Wildlife Division

Michigan State University Extension

Michigan Natural Features Inventory



MAP 11

Natural Features

Meridian Charter Township
Ingham County, Michigan

January 17, 2017

Wetlands

Wetlands

Flood Hazard Areas

No Base Flood Elevations Determined

Base Flood Elevations Determined

500-year Flood Plain

Cooperative Agreement

0 2,000 4,000 FEET

McKenna ASSOCIATES

Map Feature Source: Meridian Charter Township, 2016

U.S. Fish and Wildlife Service

National Wetlands Inventory

Haslett and Marsh Roads, Meridian Townsl

October 31, 2019

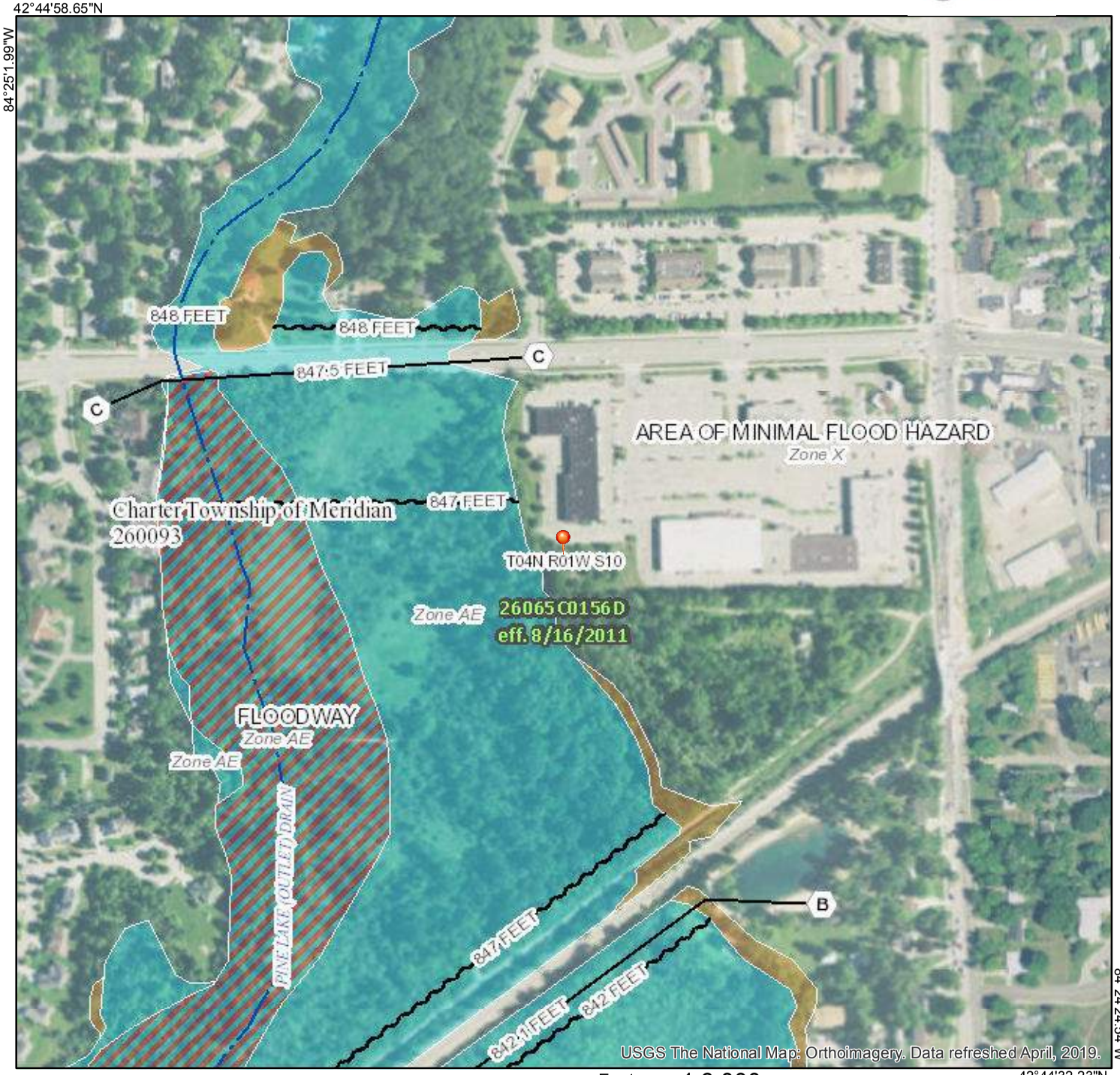
Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- 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.

National Flood Hazard Layer FIRMette

FEMA



0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

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

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

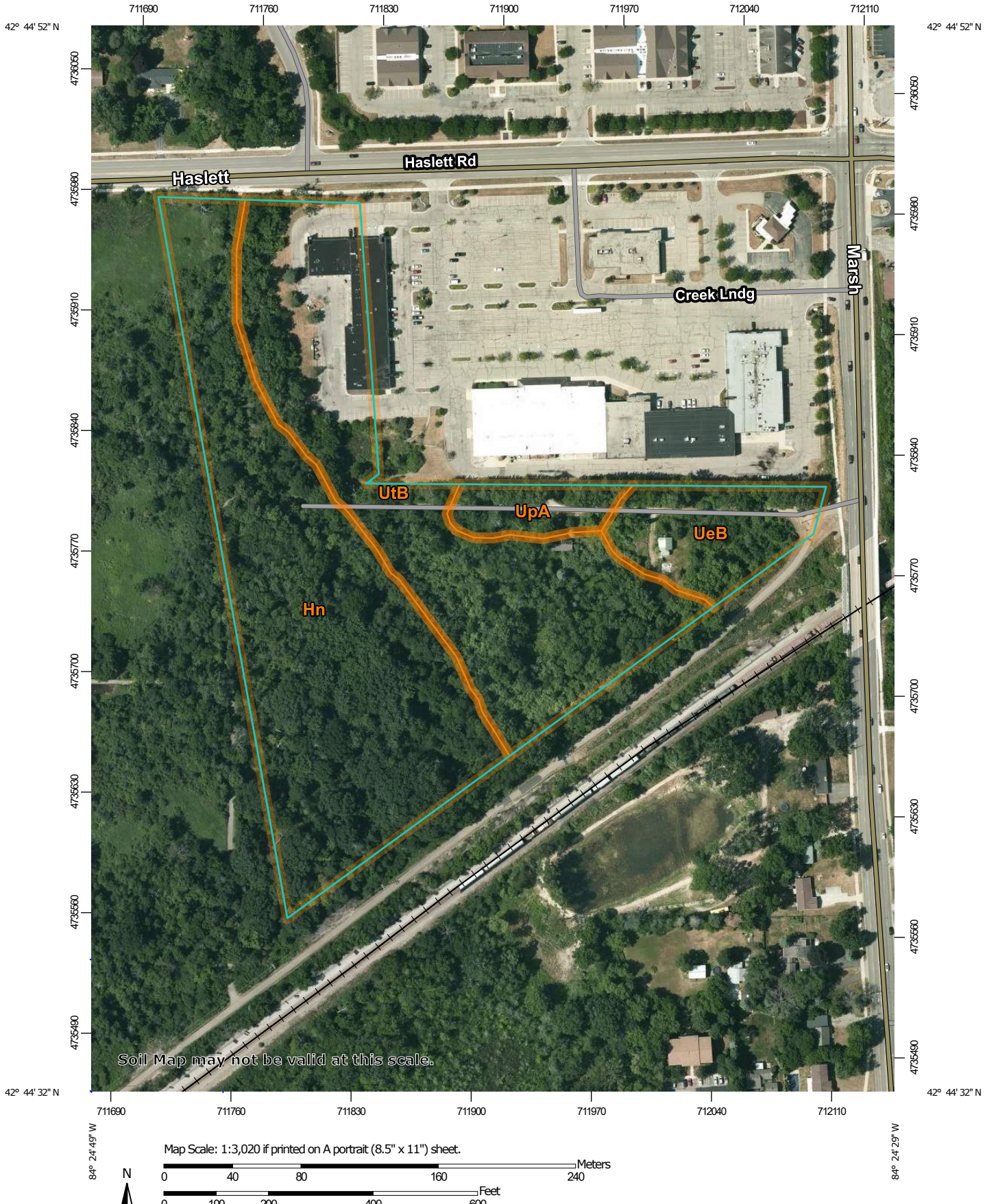
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/30/2019 at 5:34:59 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Soil Map—Ingham County, Michigan
(Haslett Village- Haslett and Marsh Roads)



Map Scale: 1:3,020 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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: Ingham County, Michigan
Survey Area Data: Version 17, Sep 16, 2019

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

Date(s) aerial images were photographed: Jul 4, 2018—Jul 18, 2018

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Hn	Houghton muck, 0 to 1 percent slopes	7.8	47.5%
UeB	Urban land-Boyer-Spinks complex, 0 to 10 percent slopes	1.5	9.3%
UpA	Urban land-Capac-Colwood complex, 0 to 4 percent slopes	0.7	4.2%
UtB	Urban land-Marlette complex, 2 to 12 percent slopes	6.4	39.0%
Totals for Area of Interest		**16.5**	**100.0%**

Hydric Rating by Map Unit—Ingham County, Michigan
(Haslett Village- Haslett and Marsh Roads)

Map Scale: 1:3,020 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

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: Ingham County, Michigan
Survey Area Data: Version 17, Sep 16, 2019

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

Date(s) aerial images were photographed: Jul 4, 2018—Jul 18, 2018

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
Hn	Houghton muck, 0 to 1 percent slopes	100	7.8	47.5%
UeB	Urban land-Boyer-Spinks complex, 0 to 10 percent slopes	4	1.5	9.3%
UpA	Urban land-Capac-Colwood complex, 0 to 4 percent slopes	28	0.7	4.2%
UtB	Urban land-Marlette complex, 2 to 12 percent slopes	5	6.4	39.0%
Totals for Area of Interest			**16.5**	**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 II- VEGETATION LISTS

Table 1. Species list including scientific and common name, wetness indicator code (WET), wetness co-efficient (W), conservation co-efficient (C), nativity, habit, and occurrence of species identified at Haslett Village project site - Lawn with scattered landscape trees

Scientific Name	Common Name	WET	W	C	Native	Habit	Occurrence
Agrostis gigantea	Redtop	FACW	-3	*	No	Herb	Common
Asclepias syriaca	Common Milkweed	UPL	5	1	Yes	Herb	Infrequent
Bromus inermis	Smooth Brome	UPL	5	*	No	Herb	Common
Cirsium arvense	Field Thistle	FACU	3	*	No	Herb	Occassional
Dactylis glomerata	Orchard Grass	FACU	3	*	No	Herb	Common
Daucus carota	Queen Anne's Lace	UPL	5	*	No	Herb	Occasional
Elaeagnus umbellata	Autumn-olive	FACU	3	*	No	Shrub	Common
Morus alba	White Mulberry	FACU	3	*	No	Tree	Infrequent
Monarda fistulosa	Wild Bergamot	FACU	3	2	Yes	Herb	Infrequent
Picea abies	Norway Spruce	UPL	5	*	No	Tree	Occasional
Picea glauca	White Spruce	FACU	3	3	Yes	Tree	Infrequent
Pinus strobus	White Pine	FACU	3	3	Yes	Tree	Infrequent
Pinus sylvestris	Scotch Pine	FACU	3	*	No	Tree	Infrequent
Plantago major	Common Plantain	FACU	3	*	No	Herb	Occasional
Phalaris arundinacea	Reed Canary Grass	FACW	-3	0	Yes	Herb	Occasional
Phleum pratense	Timothy	FACU	3	*	No	Herb	Occasional
Poa compressa	Canada bluegrass	FACU	3	*	No	Herb	Common
Poa pratensis	Kentucky bluegrass	FACU	3	*	No	Herb	Common
Populus deltoides	Cottonwood	FAC	0	1	Yes	Tree	Occasional
Prunus serotina	Black Cherry	FACU	3	2	Yes	Tree	Occasional
Pyrus calleryana	Callery Pear	FACU	3	*	No	Tree	Infrequent
Rubus allegheniensis	Blackberry	FACU	3	1	Yes	Herb	Occasional
Rubus occidentalis	Black Raspberry	UPL	5	1	Yes	Herb	Occasional
Solidago altissima	Tall Goldenrod	FACU	3	1	Yes	Herb	Occasional
Solidago canadensis	Canada Goldenrod	FACU	3	1	Yes	Herb	Common
Torilis japonica	Japanse hedge-parsley	FACU	3	*	No	Herb	Occassional
Toxicodendron radicans	Poison-Ivy	FAC	0	2	Yes	Vine	Common
Ulmus pumila	Siberian Elm	FACU	3	*	No	Tree	Infrequent
Verbena urticifolia	White Vervain	FAC	0	4	Yes	Herb	Infrequent
Count = 29	**Average Wetness Co-efficient =**		**2.62**				
	Average Conservation Co-efficient =			**1.69**			

Table 2. Species list including scientific and common name, wetness indicator code (WET), wetness co-efficient (W), conservation co-efficent (C), nativity, habit, and occurrence of species identified at Haslett Village project site - Upland Forest/Scrub-shrub

Scientific Name	Common Name	WET	W	C	Native	Habit	Occurrence
Acer negundo	Box-elder	FAC	0	0	Yes	Tree	Common
Acer saccharum	Sugar Maple	FACU	3	5	Yes	Tree	Infrequent
Acer saccharinum	Silver Maple	FACW	-3	2	Yes	Tree	Infrequent
Acer rubrum	Red Maple	FAC	0	1	Yes	Tree	Infrequent
Bromus inermis	Smooth Brome	UPL	5	*	No	Herb	Common
Carex pensylvanica	Penn Sedge	UPL	5	4	Yes	Herb	Common
Cornus amomum	Silky Dogwood	FACW	-3	2	Yes	Shrub	Occasional
Cornus foemina/racemosa	Gray Dogwood	FAC	0	1	Yes	Shrub	Occasional
Dactylis glomerata	Orchard Grass	FACU	4	*	No	Herb	Common
Elaeagnus umbellata	Autumn-olive	FACU	3	*	No	Shrub	Common
Fragaria virginiana	Wild Strawberry	FACU	3	2	Yes	Herb	Occasional
Fraxinus nigra	Black Ash	FACW	-3	6	Yes	Tree	Infrequent
Fraxinus pennsylanica	Green Ash	FACW	-3	2	Yes	Tree	Common
Geum canadense	White Avens	FAC	0	1	Yes	Herb	Occasional
Hesperis matronalis	Dame's Rocket	FACU	3	*	No	Herb	Common
Juniperus virginiana	Red cedar	FACU	3	2	Yes	Tree	Infrequent
Lonicera maackii	Amur honeysuckle	UPL	5	*	No	Shrub	Common
Lonicera tatarica	Tartarian honeysuckle	FACU	3	*	No	Shrub	Common
Malus spp.	Crabapple/Apple	UPL	5	*	No	Tree	Infrequent
Parthenocissus quinquefolia	Virginia creeper	FACU	3	5	Yes	Vine	Common
Pinus strobus	White Pine	FACU	3	3	Yes	Tree	Common
Pinus sylvestris	Scotch Pine	FACU	3	*	No	Tree	Common
Populus deltoides	Cottonwood	FAC	0	1	Yes	Tree	Occasional
Populus tremuloides	Trembling Aspen	FAC	0	1	Yes	Tree	Infrequent
Prunus serotina	Black Cherry	FACU	3	2	Yes	Tree	Common
Quercus alba	White Oak	FACU	3	5	Yes	Tree	Infrequent
Quercus rubra	Red Oak	FACU	3	5	Yes	Tree	Occasional
Quercus velutina	Black Oak	UPL	5	6	Yes	Tree	Infrequent
Rhamnus cathartica	Common Buckthorn	FAC	0	*	No	Shrub	Common
Robinia pseudoacacia	Black Locust	FACU	3	*	No	Tree	Occasional
Rosa multiflora	Multiflora Rose	FACU	3	*	No	Shrub	Occasional
Rubus allegheniensis	Blackberry	FACU	3	1	Yes	Herb	Occasional
Rubus occidentalis	Black Raspberry	UPL	5	1	Yes	Herb	Common
Solidago altissima	Tall Goldenrod	FACU	3	1	Yes	Herb	Common
Solidago canadensis	Canada Goldenrod	FACU	3	1	Yes	Herb	Occasional
Tilia americana	Amerian Basswood	FACU	3	5	Yes	Tree	Infrequent
Toxicodendron radicans	Poison-Ivy	FAC	0	2	Yes	Vine	Common
Ulmus americana	American Elm	FACW	-3	1	Yes	Tree	Infrequent

Ulmus pumila	Siberian Elm	FACU	3	*	No	Tree	Occasional
Verbena urticifolia	White Vervain	FAC	0	4	Yes	Herb	Occasional
Vitis riparia	Riverbank Grape	FAC	0	3	Yes	Vine	Common
Count = 40	**Average Wetness Co-efficient =**		**1.85**				
	Average Conservation Co-efficient =			**2.57**			

Table 3. Species list including scientific and common name, wetness indicator code (WET), wetness co-efficient (W), conservation co-efficent (C), nativity, habit, and occurrence of species identified at Haslett Village project site -Wetlands

Scientific Name	Common Name	WET	W	C	Native	Habit	Occurrence
Acer negundo	Box-elder	FAC	0	0	Yes	Tree	Common
Acer saccharinum	Silver Maple	FACW	-3	2	Yes	Tree	Occasional
Acer rubrum	Red Maple	FAC	0	1	Yes	Tree	Occasional
Agrostis gigantea	Redtop	FACW	-3	*	No	Herb	Common
Carex bebbii	Bebb's Sedge	OBL	-5	4	Yes	Herb	Occasional
Carex bromoides	Sedge	FACW	-3	6	Yes	Herb	Infrequent
Carex intumescens	Sedge	FACW	-3	3	Yes	Herb	Occasional
Carex lupulina	Sedge	FACW	-3	4	Yes	Herb	Infrequent
Carex vulpinoidea	Fox Sedge	OBL	-5	1	Yes	Herb	Occasional
Cornus amomum	Silky Dogwood	FACW	-3	2	Yes	Shrub	Occasional
Cornus foemina/racemosa	Gray Dogwood	FAC	0	1	Yes	Shrub	Occasional
Epilobium coloratum	Cinnamon Willow-herb	OBL	-5	3	Yes	Herb	Occasional
Eutrochium maculatum	Joe-pye-weed	OBL	-5	4	Yes	Herb	Infrequent
Fraxinus nigra	Black Ash	FACW	-3	6	Yes	Tree	Common
Fraxinus pennsylanica	Green Ash	FACW	-3	2	Yes	Tree	Occasional
Geum canadense	White Avens	FAC	0	1	Yes	Herb	Occasional
Geum rivale	Purple Avens	OBL	-5	7	Yes	Herb	Infrequent
Glyceria striata	Fowl Manna Grass	OBL	-5	4	Yes	Herb	Occasional
Ilex verticillata	Michigan Holly	FACW	-3	5	Yes	Shrub	Infrequent
Juncus dudleyi	Dudley's Rush	FACW	-3	5	Yes	Herb	Occasional
Juncus tenuis	Path Rush	FAC	0	1	Yes	Herb	Occasional
Lonicera maackii	Amur honeysuckle	UPL	5	*	No	Shrub	Infrequent
Lonicera tatarica	Tartarian honeysuckle	FACU	3	*	No	Shrub	Infrequent
Lythrum salicaria	Purple Loosestrife	OBL	-5	*	No	Herb	Infrequent
Onoclea sensibilis	Sensitive Fern	FACW	-3	2	Yes	Fern	Occasional
Persicaria virginiana	Jumpseed	FAC	0	4	Yes	Herb	Occasional
Phalaris arundinacea	Reed canary grass	FACW	-3	0	Yes	Herb	Occasional
Phragmites australis var. australis	Common Reed	FACW	-3	*	No	Herb	Infrequent
Populus deltoides	Cottonwood	FAC	0	1	Yes	Tree	Common
Populus tremuloides	Trembling Aspen	FAC	0	1	Yes	Tree	Infrequent
Quercus bicolor	Swamp White Oak	FACW	-3	8	Yes	Tree	Infrequent
Rhamnus cathartica	Common Buckthorn	FAC	0	*	No	Shrub	Occasional
Rosa multiflora	Multiflora Rose	FACU	3	*	No	Shrub	Infrequent
Rubus strigosus	Red Raspberry	FAC	0	2	Yes	Herb	Common
Salix nigra	Black Willow	OBL	-5	5	Yes	Tree	Infrequent
Sambucus canadensis	Elderberry	FACW	-3	3	Yes	Shrub	Infrequent
Solidago gigantea	Late Goldenrod	FACW	-3	3	Yes	Herb	Common
Symphyotrichum lateriflorum	Calico American-aster	FAC	0	2	Yes	Herb	Occasional
Thelypteris palustris	Marsh Fern	FACW	-3	2	Yes	Fern	Infrequent
Toxicodendron radicans	Poison-Ivy	FAC	0	2	Yes	Vine	Common
Typha angustifolia	Narrowleaf Cattail	OBL	-5	*	No	Herb	Infrequent
Typha latifolia	Broadleaf Cattail	OBL	-5	1	Yes	Herb	Infrequent
Ulmus americana	American Elm	FACW	-3	1	Yes	Tree	Occasional

Verbena urticifolia	White Vervain	FAC	0	4	Yes	Herb	Occasional
Vitis riparia	Riverbank Grape	FAC	0	3	Yes	Vine	Common
Count = 45	**Average Wetness Co-efficient =**		**-2.07**				
	Average Conservation Co-efficient =			**2.86**			

APPENDIX III

Marx Wetlands LLC Tree Survey Results

Tree Survey Data for Haslett Village Square, Meridian Twp., Ingham County Sorted by Species and DBH

Tree No.	Tree Identification Common Name	Scientific Name	Size (DBH)	Condition	M?
632	Cottonwood	*Populus deltoides*	25	Poor	
633	Scotch Pine	*Pinus sylvestris*	15	Good	
634	Box Elder	*Acer negundo*	15	Fair	
635	Box Elder	*Acer negundo*	13	Fair	
636	Box Elder	*Acer negundo*	15	Fair	
637	Box Elder	*Acer negundo*	19	Fair	
638	Box Elder	*Acer negundo*	13	Good	
639	Box Elder	*Acer negundo*	15	Good	
640	Box Elder	*Acer negundo*	15	Poor	
641	Box Elder	*Acer negundo*	13	Fair	
642	Cottonwood	*Populus deltoides*	12	Good	
643	Cottonwood	*Populus deltoides*	13	Good	
644	Cottonwood	*Populus deltoides*	16	Poor	
645	Cottonwood	*Populus deltoides*	15	Good	
646	Cottonwood	*Populus deltoides*	18	Good	
647	Box Elder	*Acer negundo*	13	Good	
648	Box Elder	*Acer negundo*	19	Good	
649	Box Elder	*Acer negundo*	17	Good	
650	Box Elder	*Acer negundo*	14	Good	
651	Box Elder	*Acer negundo*	14	Good	
652	Cottonwood	*Populus deltoides*	23	Good	
653	American Elm	*Ulmus americana*	26	Good	
654	Box Elder	*Acer negundo*	14,14	Fair	M
655	American Elm	*Ulmus americana*	15	Good	
656	Box Elder	*Acer negundo*	14	Fair	
657	American Elm	*Ulmus americana*	21	Good	
658	Box Elder	*Acer negundo*	13	Good	
659	Box Elder	*Acer negundo*	16	Fair	
660	Box Elder	*Acer negundo*	17,14	Good	M
661	Box Elder	*Acer negundo*	14	Good	
662	Cottonwood	*Populus deltoides*	13	Good	
663	Cottonwood	*Populus deltoides*	14	Good	
664	Cottonwood	*Populus deltoides*	12	Good	
665	Box Elder	*Acer negundo*	13	Good	
666	Silver Maple	*Acer saccharinum*	12	Fair	
667	American Elm	*Ulmus americana*	14	Good	
668	American Elm	*Ulmus americana*	15	Good	
669	Cottonwood	*Populus deltoides*	13	Fair	
670	American Elm	*Ulmus americana*	13	Good	
671	Cottonwood	*Populus deltoides*	18	Good	
672	Cottonwood	*Populus deltoides*	12	Good	
673	Box Elder	*Acer negundo*	14	Dead	
674	Black Cherry	*Prunus serotina*	12	Fair	
675	Green Ash	*Fraxinus pennsylvanica*	12	Fair	
676	Green Ash	*Fraxinus pennsylvanica*	12	Good	
677	American Elm	*Ulmus americana*	14	Fair	
679	Green Ash	*Fraxinus pennsylvanica*	16	Fair	
680	Scotch Pine	*Pinus sylvestris*	12	Good	
681	Siberian Elm	*Ulmus pumila*	19	Good	
682	Scotch Pine	*Pinus sylvestris*	14	Good	
683	Scotch Pine	*Pinus sylvestris*	12	Good	
684	Scotch Pine	*Pinus sylvestris*	12	Good	
685	Scotch Pine	*Pinus sylvestris*	12	Good	
686	Scotch Pine	*Pinus sylvestris*	13	Good	
687	Black Walnut	*Juglans nigra*	18	Good	
688	Scotch Pine	*Populus deltoides*	14	Good	
689	Scotch Pine	*Populus deltoides*	12	Good	
690	Scotch Pine	*Populus deltoides*	17	Good	
691	Norway Spruce	*Picea abies*	16	Good	
692	Norway Spruce	*Picea abies*	14	Good	
693	Norway Spruce	*Picea abies*	12	Good	
694	Scotch Pine	*Pinus sylvestris*	16	Good	
695	Norway Spruce	*Picea abies*	12	Good	
696	Norway Spruce	*Picea abies*	13	Good	
701	Norway Spruce	*Picea abies*	13	Good	
702	Norway Spruce	*Picea abies*	12	Good	
703	Norway Spruce	*Picea abies*	16	Good	
704	Scotch Pine	*Pinus sylvestris*	13	Good	
705	Cottonwood	*Populus deltoides*	13	Good	
706	Cottonwood	*Populus deltoides*	12	Good	
707	Cottonwood	*Populus deltoides*	13	Good	
708	Cottonwood	*Populus deltoides*	13	Good	
709	Cottonwood	*Populus deltoides*	16	Good	
710	Cottonwood	*Populus deltoides*	13	Good	

Totals	
Box Elder	*Acer negundo*
Silver Maple	*Acer saccharinum*
Green Ash	*Fraxinus pennsylvanica*
Black Walnut	*Juglans nigra*
Juniper	*Juniperus virginiana*
Norway Spruce	*Picea abies*
Blue Spruce	*Picea pungens*
Scotch Pine	*Pinus sylvestris*
Cottonwood	*Populus deltoides*
Black Cherry	*Prunus serotina*
White Oak	*Quercus alba*
Swamp White Oak	*Quercus bicolor*
American Elm	*Ulmus americana*
Siberian Elm	*Ulmus pumila*

711	Norway Spruce	*Picea abies*	12	Good	
712	American Elm	*Ulmus americana*	13	Good	
713	Norway Spruce	*Picea abies*	17	Good	
714	Norway Spruce	*Picea abies*	13	Good	
715	Cottonwood	*Populus deltoides*	20	Good	
716	Cottonwood	*Populus deltoides*	21	Good	
717	Norway Spruce	*Picea abies*	14	Good	
718	Cottonwood	*Populus deltoides*	20	Good	
719	Cottonwood	*Populus deltoides*	19	Good	
720	Norway Spruce	*Picea abies*	13	Good	
721	Norway Spruce	*Picea abies*	15	Good	
722	Norway Spruce	*Picea abies*	12	Good	
723	Norway Spruce	*Picea abies*	16	Good	
724	Cottonwood	*Populus deltoides*	16	Good	
725	Cottonwood	*Populus deltoides*	16	Good	
726	Norway Spruce	*Picea abies*	16	Good	
727	Norway Spruce	*Picea abies*	17	Good	
728	Norway Spruce	*Picea abies*	16	Good	
729	Green Ash	*Fraxinus pennsylvanica*	13	Good	
730	Norway Spruce	*Picea abies*	15	Good	
731	Cottonwood	*Populus deltoides*	14	Fair	
732	Cottonwood	*Populus deltoides*	12,17	Good	M
733	Cottonwood	*Populus deltoides*	13	Good	
734	Norway Spruce	*Picea abies*	14	Good	
735	Norway Spruce	*Picea abies*	13	Good	
736	Norway Spruce	*Picea abies*	14	Good	
737	Norway Spruce	*Picea abies*	16	Good	
738	Cottonwood	*Populus deltoides*	12	Good	
739	Norway Spruce	*Picea abies*	16	Good	
740	Norway Spruce	*Picea abies*	18	Good	
741	Norway Spruce	*Picea abies*	15	Good	
742	Norway Spruce	*Picea abies*	13	Good	
743	Black Walnut	*Juglans nigra*	25	Fair	
744	Black Walnut	*Juglans nigra*	21	Good	
745	Scotch Pine	*Pinus sylvestris*	16	Good	
746	Norway Spruce	*Picea abies*	14	Good	
747	American Elm	*Ulmus americana*	15	Good	
748	Norway Spruce	*Picea abies*	14	Good	
749	Norway Spruce	*Picea abies*	17	Good	
750	Norway Spruce	*Picea abies*	13	Good	
751	Cottonwood	*Populus deltoides*	21	Good	
752	Cottonwood	*Populus deltoides*	24	Good	
753	Scotch Pine	*Pinus sylvestris*	18	Good	
754	Norway Spruce	*Picea abies*	13	Good	
755	Cottonwood	*Populus deltoides*	32	Good	
756	Box Elder	*Acer negundo*	16	Poor	
757	Box Elder	*Acer negundo*	16,15	Good	M
758	Box Elder	*Acer negundo*	13	Good	
759	Box Elder	*Acer negundo*	13	Fair	
760	Box Elder	*Acer negundo*	14	Poor	
761	Juniper	*Juniperus virginiana*	13	Good	
762	Juniper	*Juniperus virginiana*	16	Good	
763	Juniper	*Juniperus virginiana*	18	Good	
764	Box Elder	*Acer negundo*	12	Fair	
765	Scotch Pine	*Pinus sylvestris*	12	Good	
766	Scotch Pine	*Pinus sylvestris*	12	Good	
767	Box Elder	*Acer negundo*	16	Fair	
768	American Elm	*Ulmus americana*	13	Fair	
769	Blue Spruce	*Picea pungens*	12	Good	
770	Blue Spruce	*Picea pungens*	13	Good	
771	Green Ash	*Fraxinus pennsylvanica*	15	Fair	
772	Blue Spruce	*Picea pungens*	13	Good	
773	Green Ash	*Fraxinus pennsylvanica*	13	Poor	
774	Green Ash	*Fraxinus pennsylvanica*	12	Poor	
775	Cottonwood	*Populus deltoides*	12	Good	
776	Cottonwood	*Populus deltoides*	15	Good	
777	American Elm	*Ulmus americana*	14	Good	
778	Cottonwood	*Populus deltoides*	14	Fair	
779	American Elm	*Ulmus americana*	14	Good	
780	Box Elder	*Acer negundo*	12	Fair	
781	Black Cherry	*Prunus serotina*	13	Good	
782	Cottonwood	*Populus deltoides*	15	Good	
783	Cottonwood	*Populus deltoides*	13	Good	
784	Cottonwood	*Populus deltoides*	18	Good	
785	American Elm	*Ulmus americana*	16	Good	
786	Cottonwood	*Populus deltoides*	21	Good	
787	Cottonwood	*Populus deltoides*	13	Good	
788	Black Cherry	*Prunus serotina*	12,12	Good	M
789	Black Cherry	*Prunus serotina*	15	Good	

790	Cottonwood	*Populus deltoides*	12	Fair	
791	Black Cherry	*Prunus serotina*	17	Good	
792	Black Cherry	*Prunus serotina*	15	Good	
793	Cottonwood	*Populus deltoides*	17	Good	
794	Black Cherry	*Prunus serotina*	18	Good	
795	Green Ash	*Fraxinus pennsylvanica*	25	Good	
796	Black Cherry	*Prunus serotina*	24	Good	
797	Box Elder	*Acer negundo*	24	Fair	
798	Black Cherry	*Prunus serotina*	18	Fair	
799	Black Cherry	*Prunus serotina*	12	Fair	
800	Black Cherry	*Prunus serotina*	16	Good	
941	White Oak	*Quercus alba*	17	Good	
942	Black Cherry	*Prunus serotina*	15	Fair	
943	Box Elder	*Acer negundo*	13	Fair	
944	Black Cherry	*Prunus serotina*	14	Fair	
945	Black Cherry	*Prunus serotina*	23	Fair	
946	Black Cherry	Prunus serotina	19	Fair	
947	Black Cherry	Prunus serotina	13	Fair	
948	Black Cherry	Prunus serotina	16	Good	
949	Black Cherry	Prunus serotina	19	Good	
950	Box Elder	Acer negundo	17	Good	
951	Swamp White Oak	Quercus bicolor	32	Poor	
952	Black Cherry	Prunus serotina	18	Fair	
953	Black Cherry	Prunus serotina	13	Good	
954	Black Cherry	Prunus serotina	24	Good	
955	American Elm	Ulmus americana	14	Poor	
956	Black Cherry	Prunus serotina	16	Fair	
957	Black Cherry	Prunus serotina	13	Fair	
958	Swamp White Oak	Quercus bicolor	17	Poor	
959	American Elm	Ulmus americana	12	Good	
960	Box Elder	Acer negundo	12	Poor	
961	Black Cherry	Prunus serotina	14	Fair	
962	Black Cherry	Prunus serotina	12	Poor	
963	Black Cherry	Prunus serotina	15	Good	
964	Black Cherry	Prunus serotina	12	Good	
965	Black Cherry	Prunus serotina	16	Good	
966	Black Cherry	Prunus serotina	13	Good	
967	American Elm	Ulmus americana	15	Fair	
968	Swamp White Oak	Quercus bicolor	13,12	Poor	M
969	Cottonwood	*Populus deltoides*	13	Good	
970	Cottonwood	*Populus deltoides*	21	Good	
971	Cottonwood	*Populus deltoides*	16	Good	
972	Cottonwood	*Populus deltoides*	12	Good	
973	Cottonwood	*Populus deltoides*	16,14	Good	M
974	Cottonwood	*Populus deltoides*	20	Good	
975	Cottonwood	*Populus deltoides*	16	Good	
976	Cottonwood	*Populus deltoides*	18	Good	
977	Cottonwood	*Populus deltoides*	14	Good	
978	Cottonwood	*Populus deltoides*	18	Good	
979	Cottonwood	*Populus deltoides*	17	Good	
980	Cottonwood	*Populus deltoides*	17	Fair	
981	Black Walnut	*Juglans nigra*	22	Good	
982	Cottonwood	*Populus deltoides*	17	Good	

APPENDIX IV

Marx Wetlands LLC Wetland Determination and Delineation Report (Dated October 30, 2019)

MARX
WETLANDS
LLC

October 30, 2019

Mr. Greg Petru
KEBS, Inc.
2116 Haslett Road
Haslett, MI 48840

Re: **Wetland Delineation Report: Haslett and Marsh Roads– Haslett Village**
Parcels #33-02-02-10-401-003 and 33-02-02-10-402-001
Section 10, Meridian Township, Ingham County, Michigan

Dear Mr. Petru:

Pursuant to your request, Marx Wetlands LLC (MW) conducted a wetland delineation and determination for the above-referenced project, which includes an approximately 15-acre Assessment Area that spans two (2) parcels: #33-02-02-10-401-003 (1673 Haslett Road; partially commercial/vacant) and #33-02-02-10-402-001(1659 Raby Road; partially vacant/residential). The Site is located directly south of Haslett Road and approximately 0.15 miles west of its intersection with Marsh Road within Section 10 of Meridian Township (T4N, R1W), Ingham County, Michigan.

The intent of this wetland delineation and determination is to provide a report of the character of any wetland areas within the Site and an opinion as to the possible jurisdiction of the Michigan Department of Energy, Great Lakes, and Environment (EGLE) and/or local governances over wetland areas identified on-site. The wetland determination was performed in accordance with the Michigan Department of Environmental Quality Wetland Identification Manual (2001), the Northcentral-Northeast and Midwest Interim Regional Supplements to the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual. The delineation of any wetland depends on three basic parameters. These parameters are: 1) the presence of hydrophytic vegetation (plants adapted to living in saturated soils), 2) hydric soils (distinctive soil types that develop under saturated conditions), and 3) wetland hydrology (the presence of water at or near the surface for a specific period of time). The above parameters are virtually always inter-related and present in wetland systems. The wetland determination and delineation consisted of desktop review of available background documentation and mapping followed by one (1) on-site visit conducted on October 19, 2019. A review of the findings is provided below.

Site Characteristics

Based on review of aerial photographs, available on-line resources, and an on-site visit, the Assessment Area consists of approximately 15 acres of vacant land. An existing shopping center with mowed upland lawn areas occupies most of the northern parcel, except for a vacant strip on the west end of the parcel. The southern parcel is mostly vacant as well with mowed paths and a paved trail along the west end. The vacant parts of the Assessment Area contains primarily upland scrub-shrub/forest, and wetland areas. The general topography of the Site is rolling with some relatively steep slopes.

3309 Platt Road
Ann Arbor, Michigan
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e-mail:
bg.marxwetlands@gmail.com

The upland lawn areas generally contain bluegrasses (*Poa compressa* and *P. pratensis*), field thistle (*Cirsium arvense*), smooth brome (*Bromus inermis*), and goldenrods (*Solidago altissima* and *S. canadensis*).

The upland forested and scrub-shrub areas were observed along the steep slopes or ridges. These areas generally contain oaks (*Quercus alba* and *Q. rubra),* black walnut (*Juglans nigra*), black cherry (*Prunus serotina*), cottonwood (*Populus deltoides*), box-elder (*Acer negundo*), scattered with sugar maple (*Acer saccharum*), trembling aspen (*Populus tremuloides*), American elm (*Ulmus americana*), Scotch pine (*Pinus sylvestris*), white pine (*Pinus strobus*), white mulberry (*Morus alba*), hawthorn (*Crataegus spp.*), Siberian elm (*Ulmus pumila*), Norway spruce (*Picea abies*), and ash (*Fraxinus spp.*) trees. Upland herbaceous understory or forest opening species include strawberry (*Fragaria virginiana*), wild geranium (*Geranium maculatum*), white avens (*Geum canadense*), penn sedge (*Carex pennsylvanica*), wild-bergamont (*Monarda fistulosa*), and hedge-parsley (*Torilis japonica*). Upland shrub and vine species include common blackberry (*Rubus allegheniensis*), multiflora rose (*Rosa multiflora*), Japanese barberry (*Berberis thunbergii*), Eurasian honeysuckles (*Lonicera spp.*), common buckthorn (*Rhamnus cathartica*), autumn-olive (*Elaeagnus umbellata*), Virginia creeper (*Parthenocissus quinquefolia*), and black raspberry (*Rubus occidentalis*). Refer to the enclosed *Site Photographs Log*.

Wetland Determination & Delineation

Six (6) Wetlands (Wetlands A1, A2, B, C, D, and E) were identified within or along the Assessment Area. No ponds or watercourses were observed within the Assessment Area. Refer to the enclosed *Wetland Map* (Prepared by KEBS, Inc.) for the locations of the on-site wetlands and *USACE Wetland Determination Data Forms*. See Table 1, Natural Features Table below, for feature name, type, regulatory statuses for State of Michigan and Meridian Township.

Table 1. Natural Features Table

Feature Name	Type*	On-site Acreage (AC)	Regulated by the State of Michigan?	Meridian Township Regulated?
Wetland A1	PEM/PSS/PFO	0.02 AC	Yes; > 5 acres in size (includes off-site acreage) & connection to Pine Lake Outlet	Likely
Wetland A2	PEM/PSS/PFO	0.24 AC	Yes; > 5 acres in size (includes off-site acreage) & connection to Pine Lake Outlet	Likely
Wetland B	PEM/PSS/PFO	2.64 AC (West) 5.63 AC (Overall)	Yes; > 5 acres in size (includes off-site acreage)	Likely
Wetland C/Detention Basin	PEM	0.11 AC	Not Likely	Not Likely
Wetland D	PFO	0.18 AC	Not Likely	Not Likely
Wetland E	PFO	0.02 AC	Not Likely	Not Likely

PEM- Emergent; PSS- Scrub-shrub; PFO-Forested

Vegetation

Wetlands A1, A2, and B are multi-classified wetlands consisting of emergent, scrub-shrub, and forested components and were identified along the western portions of the Site. These wetlands extend off-site and appear connected to a large wetland system associated with the Pine Lake Outlet Drain. Although, Wetland B is separated by a paved path, it appears to be contiguous to this large off-site wetland system.

Herbaceous vegetation generally observed within Wetlands A1, A2, and B include reed canary grass (*Phalaris arundinacea*), fowl manna grass (*Glyceria striata*), late goldenrod (*Solidago gigantea*), calico aster (*Symphyotrichum lateriflorum*), redtop (*Agrostis gigantea*), sedges (*Carex bromoides, C. intumescens, C. lupulina,* and *C. vulpinoidea*), and black ash saplings (*Fraxinus nigra)*. Other less common herbaceous vegetation observed include sensitive fern (*Onoclea sensibilis),* white avens, jumpseed (*Persicaria virginiana*), marsh fern (*Thelypteris palustris*), and purple avens (*Geum rivale*). Common shrubs and vines observed include common buckthorn, dogwoods (*Cornus amomum* & *C. racemosa*), holly (*Ilex verticillata*), elderberry (*Sambucus canadensis*), and red raspberry (*Rubus strigosus*); vines include riverbank grape (*Vitis riparia*) and poison-ivy (*Toxicodendron radicans*). Tree species include cottonwood, silver maple (*Acer saccharinum*), American elm, box-elder, and swamp white oak (Q*uercus bicolor*).

Wetland C is an emergent wetland that appears to have been constructed as a detention basin and is approximately 0.11 acre in size. This area is located directly south of the southwest corner of the paved parking area associated with the existing shopping center. The dominant wetland vegetation includes broadleaf cattail *(T. latifolia),* reed canary grass, purple loosestrife (*Lythrum salicaria*), cinnamon willow-herb (*Epilobium coloratum*), Joe-pye-weed (*Eutrochium maculatum*), black ash saplings, and black willow *(Salix nigra).* A catch basin and outet/inlet pipe was also observed along the wetland's southern boundary.

Wetlands D and E are small depressional, forested wetlands with a minor scrub-shrub component contained entirely within the Assessment Area. Dominant wetland vegetation includes common buckthorn, dogwoods (*Cornus amomum* and *C. racemosa*), box-elder, swamp white oak, and silver maple. Scattered herbaceous vegetation observed include white avens, rushes (*Juncus dudleyi* and *J. tenuis*), and sedges (*Carex bebbi & C. intumescens*). Woody vines observed include poison-ivy and river-bank grape.

Hydrology

Typical hydrology indicators observed include saturation, water-stained leaves, water marks, geomorphic position, and FAC Neutral Test. These wetlands appear to receive hydrology from precipitation (including snowmelt), runoff from adjacent developed areas, and roadways, and overflow adjacent wetlands, resulting in seasonally saturated to seasonally inundated water regimes.

Soils
Hydric soil indicators were observed in soil sample pits within each of the wetlands. Please refer to enclosed USACE Wetland Determination Data Forms.

Regulations & Recommendations
Part 301, Inland Lakes and Streams, states that a feature is considered a regulated watercourse by the EGLE if it possesses a defined bed, bank, and evidence of continued flow or a continued occurrence of water. No watercourses or ponds were identified within the Assessment Area or overall Site.

Part 303, Wetlands Protection, of the NREPA states that if a wetland is five acres in size or larger and/or connected to or located within 500 feet of a river, stream, lake, or pond, it is considered regulated by the EGLE.

Marx Wetlands, LLC has the professional opinion that three (3) wetlands (Wetlands A1, A2, and B) are likely regulated by the EGLE. Wetlands A1, A2, and B extend off-site, presumably connecting and appear larger than 5 acres in size. In addition, these wetlands are also contiguous to a regulating watercourse (Pine Lake Outlet Drain). Wetlands C, D, and E are less than 5 acres in size and appear isolated (i.e., not connected and/or within 500 feet of a regulating feature). Therefore, Marx Wetlands LLC has the professional opinion that Wetlands A1, A2, and B appear to meet the requirements of Part 303, Wetlands Protection, of the NREPA, and therefore likely fall under the jurisdiction of the EGLE.

A permit is required by the EGLE for any proposed work that takes place within the boundaries of a regulated wetland. Most construction activities that take place outside of these boundaries do not require a wetland permit from the EGLE. **The EGLE has the final authority on the extent, size, shape, and regulatory status of wetlands, lakes, and streams in the State of Michigan.**

Local Regulations
In addition, Meridian Township (Township) has its own wetland protection ordinance. The township's Wetland Protection ordinance (Chapter 22, Article IV) states that wetlands are protected if they are:

- contiguous to any inland lake stream, river, or pond.
- Partially or entirely within 500 feet of the ordinary high-water mark of any inland lake, stream, river or pond.
- Two or more areas of wetland separated only by barriers, such as dikes, roads, berms or other similar features, if any of those wetlands are contiguous to an inland lake, stream, river or pond.
- larger than two acres, even if not contiguous to an inland lake, stream, river or pond.

- not contiguous to any inland lake, stream, river or pond, if the state department of environmental quality determines the protection of the wetland is essential to the preservation of the natural resources of the state from pollution, impairment or destruction.

- wetlands, equal to or greater than one-quarter acre and equal to or less than two acres in size, which are not contiguous to any inland lake, stream, river or pond and are determined to be essential to the preservation of the natural resources of the Township as provided in township code § 22-156. Code § 22-156 provides that a wetland is essential to the preservation of the township's natural resources if it fulfills any of ten criteria.

It is the professional opinion of Marx Wetlands LLC that Wetlands A1, A2, and B are also likely regulated by Meridian Township.

Wetlands C, D and E appear to be less than 0.25 acres in size and do not appear to be within 500 feet of any regulating water body. Pine Lake Outlet Drain is further than 500 linear feet from these wetlands. In addition, there is a small pond south of the railroad tracks; however, it appears to be less than 1 acre in size and may not qualify as a regulating water body. Please note that Meridian Township's wetland consultant will make the final decision regarding the regulatory statuses, shape, and extent of the on-site wetlands during a wetland verification visit.

It is important to note that the Meridian Township Board has a policy of no net loss of wetlands and impacts to wetlands may require wetland mitigation. A mitigation plan, if required, shall be approved as part of the wetland use permit decision.

A permit or approval is likely required by the Meridian Township for any proposed work (e.g., filling, dredging, construction, and draining and/or other development) that takes place within the boundaries of a regulated wetland. Most construction activities that take place outside of these boundaries do not require a wetland permit from the EGLE or Meridian Township. **Please note that the EGLE and Township have the final authority on the extent of regulated wetlands, lakes, and streams in the State of Michigan and Meridian Township, respectively.**

Please be advised that the information provided in this report is a professional opinion. The ultimate decision on wetland boundary locations and jurisdiction thereof rests with the EGLE and/or local government, and, in some cases, the federal government. Therefore, there may be adjustments to boundaries based upon review by a regulatory agency. An agency determination can vary depending on various factors including, but not limited to, experience of the agency representative making the determination and the season of the year. In addition, the physical characteristics of the site can change over time, depending on the

weather, vegetation patterns, drainage, activities on adjacent parcels, or other events. Any of these factors can change the nature and/or extent of wetlands on the site.

Thank you for the opportunity to provide this wetland delineation and determination. If you have any questions, please contact me at your convenience.

Sincerely,

Marx Wetlands LLC
Bryana J. Guevara, PWS 2949
ISA Certified Arborist #MI-4240A

Enclosures:

1. Site Photographs Log
2. Wetland Sketch/Map
3. Wetland Determination Data Forms

Site Photographs

1) A north-facing view of the existing shopping center building and paved parking infrastructure observed within the northern parcel. Landscaped trees and mowed lawn are also depicted in this photograph.

2) View of upland, wooded slope observed directly west of the existing shopping center, which slopes down to the on-site wetlands (Wetlands A1, A2, and B).

3) A typical view of upland forest/scrub-shrub observed throughout the Site.

4) A typical view of the existing trail, which transects the south-central portion of the Site. This trail is paved and mowed in segments.

Site Photographs

5) A west-facing view of Wetland A1, extending west off-site.

6) A north-facing view of Wetland A2, extending west off-site.

7) A west-facing view of Wetland B, a forested wetland system observed in the western and southern portions of the overall Site.

8) View of the emergent component of Wetland B observed along the southern boundary of the Site.

Site Photographs

9) A north-facing view of Wetland C/Possible Stormwater Facility.

10) View of existing outlet/inlet pipe identified within Wetland C/Possible Stormwater Facility.

11) A north-facing view of Wetland D observed in the eastern portion of the Site.

12) An east-facing view of Wetland E. Watermarks and water-stained leaves were observed as the main hydrological indicators.

Site Photographs

13) A typical soil sample observed within the onsite Wetlands A1, A2, and B. A dark brown (10YR 2/1 matrix).

14) A Soil sample taken within Wetland E, which depicts the hydric soil indicator F3- Depleted Matrix.

WETLAND D
0.18 ACRES
WETLAND E
0.02 ACRES
WETLAND C
0.11 ACRES
WETLAND A2
0.24 ACRES
(ON PROPERTY)
WETLAND A
0.07 ACRES
(ON PROPERTY)
WETLAND B
2.64 ACRES ON WEST PROPERTY
2.63 ACRES ON OTHER ASSET
VILLAGE SQUARE PROPERTY

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Haslett Village- Haslett & Marsh Roads City/County: Meridian Twp./Ingham Co. Sampling Date: 10/19/2019

Applicant/Owner: KEBS, Inc. State: MI Sampling Point: A1

Investigator(s): B.Guevara; Marx Wetlands LLC Section, Township, Range: Section 10; T4N, R1W

Landform (hillside, terrace, etc.): lowland/depression Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR L Lat: 42.746945 Long: -84.413137 Datum: WSG84

Soil Map Unit Name: Houghton muck, 0 to 1 percent slopes NWI classification: PFO/PEM

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes x	No ____	**within a Wetland?** **Yes** x **No** ____
Wetland Hydrology Present?	Yes x	No ____	If yes, optional Wetland Site ID: Wetland A1

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

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:
This wetland appears to receive hydrology from precipitation, groundwater, runoff from adjacent developed areas, and roadways, and overflow adjacent wetland, resulting in seasonally saturated to seasonally inundated water regime.

VEGETATION – Use scientific names of plants. Sampling Point: A1

Tree Stratum (Plot size: 30-ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	30	Yes	FAC
2. *Acer negundo*	20	Yes	FACW
3. *Ulmus americana*	10	No	FACW
4. *Fraxinus nigra*	15	Yes	FACW
5.			
6.			
7.			
	75	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft radius)			
1. *Frangula alnus*	15	Yes	FACW
2. *Rubus strigosus*	5	No	FACW
3. *Cornus racemosa*	10	No	FAC
4. *Rhamnus cathartica*	20	Yes	FAC
5. *Fraxinus nigra*	20	Yes	FAC
6.			
7.			
	70	=Total Cover	
Herb Stratum (Plot size: 5-ft radius)			
1. *Phalaris arundinacea*	60	Yes	FACW
2. *Solidago gigantea*	15	No	FACW
3. *Geum canadense*	10	No	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	85	=Total Cover	
Woody Vine Stratum (Plot size: 30-ft radius)			
1. *Toxicodendron radicans*	25	Yes	FAC
2. *Vitis riparia*	20	Yes	FACW
3.			
4.			
	45	=Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	160	x 2 =	320
FAC species	105	x 3 =	315
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	275 (A)		645 (B)

Prevalence Index = B/A = 2.35

Hydrophytic Vegetation Indicators:

___ Rapid Test for Hydrophytic Vegetation

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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 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** X **No** ___

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

SOIL

Sampling Point: A1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- X Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: None

Depth (inches): n/a

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

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Haslett Village- Haslett & Marsh Roads City/County: Meridian Twp./Ingham Co. Sampling Date: 10/19/2019

Applicant/Owner: KEBS, Inc. State: MI Sampling Point: A2

Investigator(s): B.Guevara; Marx Wetlands LLC Section, Township, Range: Section 10; T4N, R1W

Landform (hillside, terrace, etc.): lowland/depression Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR L Lat: 42.746409 Long: -84.413028 Datum: WSG84

Soil Map Unit Name: Houghton muck, 0 to 1 percent slopes NWI classification: PFO/PEM

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No _____	**Is the Sampled Area**	
Hydric Soil Present?	Yes x	No _____	**within a Wetland?**	**Yes** x **No** _____
Wetland Hydrology Present?	Yes x	No _____	If yes, optional Wetland Site ID:	Wetland A2

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

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

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

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

Remarks:
This wetland appears to receive hydrology from precipitation, groundwater, runoff from adjacent developed areas, and roadways, and overflow adjacent wetland, resulting in seasonally saturated to seasonally inundated water regime.

VEGETATION – Use scientific names of plants. Sampling Point: A2

Tree Stratum (Plot size: 30-ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	10	Yes	FACW
2. *Acer negundo*	20	Yes	FACW
3. *Ulmus americana*	5	No	FACW
4.			
5.			
6.			
7.			
	35	=Total Cover	

Sapling/Shrub Stratum (Plot size: 15-ft radius)			
1. *Frangula alnus*	15	Yes	FACW
2. *Rubus strigosus*	5	No	FACW
3. *Cornus racemosa*	5	No	FAC
4. *Rhamnus cathartica*	5	No	FAC
5. *Fraxinus nigra*	20	Yes	FAC
6.			
7.			
	50	=Total Cover	

Herb Stratum (Plot size: 5-ft radius)			
1. *Phalaris arundinacea*	30	Yes	FACW
2. *Symphyotrichum lateriflorum*	15	Yes	FACW
3. *Agrostis gigantea*	15	Yes	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60	=Total Cover	

Woody Vine Stratum (Plot size: 30-ft radius)			
1. *Toxicodendron radicans*	25	Yes	FAC
2. *Vitis riparia*	20	Yes	FACW
3.			
4.			
	45	=Total Cover	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	120	x 2 =	240
FAC species	55	x 3 =	165
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	190 (A)		420 (B)

Prevalence Index = B/A = 2.21

Hydrophytic Vegetation Indicators:

___ Rapid Test for Hydrophytic Vegetation

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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 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** X **No** ___

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

SOIL

Sampling Point: A2

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- X Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: None

Depth (inches): n/a

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

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Haslett Village- Haslett & Marsh Roads City/County: Meridian Twp./Ingham Co. Sampling Date: 10/19/2019

Applicant/Owner: KEBS, Inc. State: MI Sampling Point: B-1

Investigator(s): B.Guevara; Marx Wetlands LLC Section, Township, Range: Section 10; T4N, R1W

Landform (hillside, terrace, etc.): lowland/depression Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR L Lat: 42.74448 Long: -84.411963 Datum: WSG84

Soil Map Unit Name: Houghton muck, 0 to 1 percent slopes NWI classification: PFO/PEM

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

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

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No _____	**Is the Sampled Area**		
Hydric Soil Present?	Yes x	No _____	**within a Wetland?**	**Yes** x	**No** _____
Wetland Hydrology Present?	Yes x	No _____	If yes, optional Wetland Site ID:	Wetland B	

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

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- x Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- x Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

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

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

Remarks:
This wetland appears to receive hydrology from precipitation, groundwater, runoff from adjacent developed areas, and roadways, and overflow adjacent wetland, resulting in seasonally saturated to seasonally inundated water regime.

VEGETATION – Use scientific names of plants. Sampling Point: B-1

Tree Stratum (Plot size: 30-ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	65	Yes	FACW
2. *Acer rubrum*	20	No	FAC
3. *Ulmus americana*	15	No	FACW
4. *Fraxinus nigra*	10	No	FACW
5.			
6.			
7.			
	110	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft radius)			
1. *Frangula alnus*	10	Yes	FACW
2. *Rubus strigosus*	5	No	FACW
3. *Cornus racemosa*	5	No	FAC
4. *Rhamnus cathartica*	10	Yes	FAC
5. *Fraxinus nigra*	20	Yes	FAC
6.			
7.			
	50	=Total Cover	
Herb Stratum (Plot size: 5-ft radius)			
1. *Carex bromoides*	15	Yes	OBL
2. *Symphyotrichum lateriflorum*	5	No	FACW
3. *Persicaria virginiana*	10	Yes	FAC
4. *Glyceria striata*	10	Yes	IBK
5. *Onoclea sensibilis*	10	Yes	FACW
6. *Carex lupulina*	10	Yes	OBL
7. *Geum rivale*	10	Yes	OBL
8.			
9.			
10.			
11.			
12.			
	70	=Total Cover	
Woody Vine Stratum (Plot size: 30-ft radius)			
1. *Toxicodendron radicans*	15	Yes	FAC
2. *Vitis riparia*	25	Yes	FACW
3.			
4.			
	40	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 11 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 91.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	35	x 1 =	35
FACW species	145	x 2 =	290
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	260 (A)		565 (B)

Prevalence Index = B/A = 2.17

Hydrophytic Vegetation Indicators:

___ Rapid Test for Hydrophytic Vegetation

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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 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** X **No** ___

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

SOIL

Sampling Point: B-1

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- X Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: None

Depth (inches): n/a

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

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Haslett Village- Haslett & Marsh Roads City/County: Meridian Twp./Ingham Co. Sampling Date: 10/19/2019

Applicant/Owner: KEBS, Inc. State: MI Sampling Point: C-1

Investigator(s): B.Guevara; Marx Wetlands LLC Section, Township, Range: Section 10; T4N, R1W

Landform (hillside, terrace, etc.): lowland/depression Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR L Lat: 42.745781 Long: -84.41206 Datum: WSG84

Soil Map Unit Name: Urban land-Marlette complex, 2 to 12 percent slopes 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 ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No ____	**Is the Sampled Area**	
Hydric Soil Present?	Yes x	No ____	**within a Wetland?**	**Yes** x **No** ____
Wetland Hydrology Present?	Yes x	No ____	If yes, optional Wetland Site ID:	Wetland C

Remarks: (Explain alternative procedures here or in a separate report.)
This area was flagged due to the predominance of wetland rated vegetation and the presence of hydric soils and hydrological indicators; however, it appears to be an existing stormwater facility.

HYDROLOGY

Wetland Hydrology Indicators:

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

- x Surface Water (A1)
- x High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes XX	No ____	Depth (inches):	6
Water Table Present?	Yes XX	No ____	Depth (inches):	2
Saturation Present? (includes capillary fringe)	Yes XX	No ____	Depth (inches):	0

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

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

Remarks:
This wetland appears to receive hydrology from precipitation, groundwater, runoff from adjacent developed areas, and roadways, resulting in seasonally saturated to seasonally inundated water regime.

VEGETATION – Use scientific names of plants. Sampling Point: C-1

Tree Stratum (Plot size: 30-ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus deltoides*	10	Yes	FAC
2. *Salix amygdaloides*	5	Yes	FACW
3. *Salix nigra*	5	Yes	FACW
4.			
5.			
6.			
7.			
	20	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft radius)			
1. *Fraxinus nigra*	10	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	10	=Total Cover	
Herb Stratum (Plot size: 5-ft radius)			
1. *Typha angustifolia*	35	Yes	OBL
2. *Typha latifolia*	5	No	FACW
3. *Lythrum salicaria*	10	No	FAC
4. *Epilobium coloratum*	30	Yes	IBK
5. *Eutrochium maculatum*	25	Yes	FACW
6. *Verbena urtifolia*	10	No	OBL
7. *Phalaris arundinacea*	10	No	OBL
8.			
9.			
10.			
11.			
12.			
	125	=Total Cover	
Woody Vine Stratum (Plot size: 30-ft radius)			
1. *Toxicodendron radicans*	10	Yes	FAC
2. *Vitis riparia*	10	Yes	FACW
3.			
4.			
	20	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 88.9% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	55	x 1 =	55
FACW species	60	x 2 =	120
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	145 (A)		265 (B)

Prevalence Index = B/A = 1.83

Hydrophytic Vegetation Indicators:

___ Rapid Test for Hydrophytic Vegetation

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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 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** X **No** ___

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

SOIL

Sampling Point: C-1

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

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

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- X Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: None

Depth (inches): n/a

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

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Haslett Village- Haslett & Marsh Roads City/County: Meridian Twp./Ingham Co. Sampling Date: 10/19/2019

Applicant/Owner: KEBS, Inc. State: MI Sampling Point: D-1

Investigator(s): B.Guevara; Marx Wetlands LLC Section, Township, Range: Section 10; T4N, R1W

Landform (hillside, terrace, etc.): lowland/depression Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR L Lat: 42.744875 Long: -84.409725 Datum: WSG84

Soil Map Unit Name: Urban land-Marlette complex, 2 to 12 percent slopes NWI classification: PFO

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No ____	**Is the Sampled Area**		
Hydric Soil Present?	Yes x	No ____	**within a Wetland?**	**Yes** x	**No** ____
Wetland Hydrology Present?	Yes x	No ____	If yes, optional Wetland Site ID:	Wetland D	

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

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

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

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

Remarks:
This wetland appears to receive hydrology from precipitation, groundwater, runoff from adjacent developed areas, and roadways, resulting in seasonally saturated to seasonally inundated water regime.

VEGETATION – Use scientific names of plants. Sampling Point: D-1

Tree Stratum (Plot size: 30-ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	25	Yes	FACW
2. *Ulmus americana*	10	No	FACW
3. *Fraxinus nigra*	20	Yes	FACW
4. *Quercus bicolor*	15	No	FACW
5. *Populus deltoides*	20	Yes	FAC
6.			
7.			
	90	=Total Cover	

Sapling/Shrub Stratum (Plot size: 15-ft radius)			
1. *Rhamnus cathartica*	25	Yes	FACW
2. *Fraxinus nigra*	15	Yes	FACW
3. *Frangula alnus*	10	Yes	FACW
4.			
5.			
6.			
7.			
	50	=Total Cover	

Herb Stratum (Plot size: 5-ft radius)			
1. *Carex bebbii*	15	Yes	OBL
2. *Carex grayii*	15	Yes	FACW
3. *Carex vulpinoidea*	15	Yes	OBL
4. *Juncus tenuis*	15	Yes	OBL
5. *Juncus dudleyii*	10	No	OBL
6. *Geum canadense*	10	No	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	80	=Total Cover	

Woody Vine Stratum (Plot size: 30-ft radius)			
1. *Toxicodendron radicans*	30	Yes	FAC
2. *Vitis riparia*	45	Yes	FACW
3.			
4.			
	75	=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 12 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	55	x 1 =	55
FACW species	180	x 2 =	360
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	295 (A)		595 (B)

Prevalence Index = B/A = 2.02

Hydrophytic Vegetation Indicators:

___ Rapid Test for Hydrophytic Vegetation

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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 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** X **No** ___

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

SOIL

Sampling Point: D-1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Loamy/Clayey	
3-12	10YR 4/2	90	7.5YR 4/6	10	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: None

Depth (inches): n/a

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

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Haslett Village- Haslett & Marsh Roads City/County: Meridian Twp./Ingham Co. Sampling Date: 10/19/2019

Applicant/Owner: KEBS, Inc. State: MI Sampling Point: E-1

Investigator(s): B.Guevara; Marx Wetlands LLC Section, Township, Range: Section 10; T4N, R1W

Landform (hillside, terrace, etc.): lowland/depression Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR or MLRA): LRR L Lat: 42.744964 Long: -84.410308 Datum: WSG84

Soil Map Unit Name: Urban land-Marlette complex, 2 to 12 percent slopes NWI classification: PFO

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes x	No ____	**Is the Sampled Area**
Hydric Soil Present?	Yes x	No ____	**within a Wetland?** **Yes** x **No** ____
Wetland Hydrology Present?	Yes x	No ____	If yes, optional Wetland Site ID: Wetland E

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

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- x Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:
This wetland appears to receive hydrology from precipitation, groundwater, runoff from adjacent developed areas, and roadways, resulting in seasonally saturated to seasonally inundated water regime.

VEGETATION – Use scientific names of plants. Sampling Point: E-1

Tree Stratum (Plot size: 30-ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Rhamnus cathartica*	30	Yes	FACU
2. *Populus deltoides*	35	Yes	FAC
3. *Ulmus americana*	10	No	FACW
4. *Quercus bicolor*	10	No	FACW
5. *Populus tremuloides*	10	No	FAC
6.			
7.			
	95	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15-ft radius)			
1. *Rhamnus cathartica*	30	Yes	FACW
2. *Fraxinus nigra*	15	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	45	=Total Cover	
Herb Stratum (Plot size: 5-ft radius)			
1. *Geum canadense*	5	Yes	FAC
2. *Carex grayii*	5	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	10	=Total Cover	
Woody Vine Stratum (Plot size: 30-ft radius)			
1. *Toxicodendron radicans*	10	Yes	FAC
2. *Vitis riparia*	10	Yes	FACW
3.			
4.			
	20	=Total Cover	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 87.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	60	x 3 =	180
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	170	(A)	460 (B)

Prevalence Index = B/A = 2.71

Hydrophytic Vegetation Indicators:

___ Rapid Test for Hydrophytic Vegetation

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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 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** X **No** ___

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

SOIL

Sampling Point: E-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					Loamy/Clayey	
3-12	2.5Y 4/2	85	10YR 4/6	15	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- X Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: None

Depth (inches): n/a

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

Remarks:

To: **Planning Commission**

From: **Peter Menser, Principal Planner**

Date: **December 12, 2019**

Re: **Special Use Permit #19181 (Hudson Senior Living), construct building greater than 25,000 square feet in size at 1673 Haslett Road.**

Hudson Senior Living has submitted a mixed use planned unit development (MUPUD #19034) proposal for a project identified as Pine Village. The C-2 (Commercial) zoned 9.6 acre project site is located on the south side of Haslett Road, west of Marsh Road. The proposal includes the demolition of an existing 24,415 multi-tenant shopping center building on the site and construction of a new 146,734 square foot senior apartment building with 133 dwelling units. Overall, 146,734 total square feet of building area is proposed, consisting of 137,176 square feet of residential space and 9,558 square feet of non-residential space consisting of an arts and crafts room, salon, wellness office, pub, cafeteria, fitness room, library, parlor, game room, and chapel.

The construction of any building or group of buildings with a combined gross floor area greater than 25,000 square feet requires a special use permit due to the significant impact such development may have upon adjacent property owners, neighborhoods, and public infrastructure. The Code of Ordinances requires the special use permit to ensure that public utilities, roads, and other infrastructure systems are or will be adequate to support the proposed development.

The special use permit is being processed concurrently with the MUPUD request. The staff report for MUPUD #19034 should be referenced for a more complete overview of the project.

Staff Analysis

The special use permit review criteria found in Section 86-126 of the Code of Ordinances should be used when evaluating the proposed special use permit. The Planning Commission makes a recommendation on the special use permit request and the Township Board has final approval.

Planning Commission Options

The Planning Commission may recommend approval, approval with conditions, or denial of the proposed special use permit. A resolution will be provided at a future meeting.

Attachment

1. Special use permit application.

G:\Community Planning & Development\Planning\SPECIAL USE PERMITS (SUP)\2019\SUP 19181 (Hudson Senior Living)\SUP 19181.pc1.docx

CHARTER TOWNSHIP OF MERIDIAN
DEPARTMENT OF COMMUNITY PLANNING AND DEVELOPMENT
5151 MARSH ROAD, OKEMOS, MI 48864
PLANNING DIVISION PHONE: (517) 853-4560, FAX: (517) 853-4095

RECEIVED
NOV 19 2019

SPECIAL USE PERMIT APPLICATION

Before submitting this application for review, an applicant may meet with the Director of Community Planning and Development to discuss the requirements for a special use permit and/or submit a conceptual plan for review to have preliminary technical deficiencies addressed prior to submittal of the application. If the property or land use is located in the following zoning districts RD, RC, RCC, RN then the applicant must meet with the Planning Director to discuss technical difficulties before filing a formal application.

Part I

A. Applicant Jeff Buck, Hudson Senior Living
Address of Applicant
280 W. Maple Rd, Suite 230, Birmingham, MI 48009 jbuck@cypresspartners.biz
Telephone - Work 248-540-9300 ext. 12 Home _____ Fax 248-988-8867 Email _____
Interest in property (circle one): Owner Tenant Option (Other)
(Please attach a list of all persons with an ownership interest in the property.)

B. Site address / location / parcel number 1673 Haslett Rd, Meridian Township, MI 48840 33-02-02-10-401-003 33-02-02-10-402-001
Legal description (please attach if necessary)
_____
Current zoning C-2 (Commercial District)
Use for which permit is requested / project name MUPUD, Pine Village of Meridian
Corresponding ordinance number 86-658 Buildings greater than 25,000 square feet in gross floor area

C. Developer (if different than applicant) _____
Address _____
Telephone – Work _____ Home _____ Fax _____

D. Architect, Engineer Planner or Surveyor responsible for design of project if different from applicant:
Name Greg Petru, Kebs, Inc.
Address 2116 Haslett Rd, Haslett, MI 48840
Telephone – Work 517-339-1014 Home gpetru@kebs.com Fax _____

E. Acreage of all parcels in the project: Gross 9.6 Acres Net 9.6 Acres

F. Explain the project and development phases:

G. Total number of:
Existing: structures 1 bedrooms 0 offices N/A parking spaces 162 carports 0 garages 0 Proposed: structures 1 bedrooms 181 offices N/A parking spaces 100 carports 45 garages 0

H. Square footage: existing buildings 23,441 proposed buildings 146,734
Usable Floor area: existing buildings 19,925 proposed buildings 124,724

I. If employees will work on the site, state the number of full time and part time employees working per shift and hours of operation:

J. Existing Recreation: Type None Acreage 0
Proposed Recreation: Type None Acreage 0

Existing Open Space: Type Grass, wooded, landscape Acreage 6.98 Acres
Proposed Open Space: Type Grass, wooded, landscape Acreage 6.67 Acres

K. If Multiple Housing:

Total acres of property 9.6 Acres
Acres in floodplain 4.3 Acres Percent of total 44.79
Acres in wetland (not in floodplain) 0.14 Percent of total 1.46
Total dwelling units 133 Units

Dwelling unit mix:

Number of single family detached:	for Rent 0	Condo 0
Number of duplexes:	for Rent 0	Condo 0
Number of townhouses:	for Rent 0	Condo 0
Number of garden style apartments:	for Rent 133	Condo 0
Number of other dwellings:	for Rent 0	Condo 0

L. The following support materials must be submitted with the application:

1. Nonrefundable Fee.
2. Legal Description of the property.
3. Evidence of fee or other ownership of the property.
4. Site Plan containing the information listed in the attachment to this application.
5. Architectural sketches showing all sides and elevations of the proposed buildings or structures, including the project entrance, as they will appear upon completion. The sketches should be accompanied by material samples or a display board of the proposed exterior materials and colors.
6. A Traffic Study, prepared by a qualified traffic engineer, based on the most current edition of *Evaluating Traffic Impact Studies: A Recommended Practice for Michigan Communities*, published by the State Department of Transportation.
   a. A traffic assessment will be required for the following:
      1) New special uses which could, or expansion or change of an existing special use where increase in intensity would, generate between 50 to 99 directional trips during a peak hour of traffic.
      2) All other special uses requiring a traffic assessment as specified in the Township Code of Ordinances, Chapter 86, Article IV, Division 2.
   b. A traffic impact study will be required for the following:
      1) New special uses which would, or expansion or change of an existing special use where increase in intensity would, generate over 100 directional trips or more during a peak hour of traffic, or over 750 trips on an average day.
      2) All other special uses requiring a traffic assessment as specified in the Township Code of Ordinances, Chapter 86, Article IV, Division 2.
7. Natural features assessment which includes a written description of the anticipated impacts on the natural features at each phase and at project completion that contains the following:
   a. An inventory of natural features proposed to be retained, removed, or modified. Natural features shall include, but are not limited to, wetlands, significant stands of trees or individual trees greater than 12 inches dbh, floodways, floodplains, waterbodies, identified groundwater vulnerable areas, slopes greater than 20 percent, ravines, and vegetative cover types with potential to sustain significant or endangered wildlife.
   b. Description of the impacts on natural features.
   c. Description of any proposed efforts to mitigate any negative impacts.

   The natural features assessment may be waived by the Director of Community Planning and Development in certain circumstances.

M. Any other information specified by the Director of Community Planning and Development which is deemed necessary to evaluate the application.

N. In addition to the above requirements, for zoning districts, **RD, RC, RCC, RN, and CV** and **Group Housing Residential Developments** the following is required:

1. Existing and proposed contours of the property at two foot intervals based on United States Geological Survey (USGS) data.
2. Preliminary engineering reports in accordance with the adopted Township water and sewer standards, together with a letter of review from the Township Engineer.
3. Ten copies of a report on the intent and scope of the project including, but not limited to: Number, size, volume, and dimensions of buildings; number and size of living units; basis of calculations of floor area and density and required parking; number, size, and type of parking spaces; architectural sketches of proposed buildings.
4. Seven copies of the project plans which the Township shall submit to local agencies for review and comments.

O. In addition to the above requirements, a special use application in zoning district **RP** requires the following material as part of the site plan:

1. A description of the operations proposed in sufficient detail to indicate the effects of those operations in producing traffic congestion, noise, glare, air pollution, water pollution, fire hazards or safety hazards or the emission of any potentially harmful or obnoxious matter or radiation.
2. Engineering and architectural plans for the treatment and disposal of sewerage and industrial waste tailings, or unusable by-products.
3. Engineering and architectural plans for the handling of any excessive traffic congestion, noise, glare, air pollution, or the emission of any potentially harmful or obnoxious matter or radiation.

P. In addition to the above requirements, a special use application for a use in the Floodway Fringe of zoning district **CV** requires the following:

1. A letter of approval from the State Department of Environmental Quality.
2. A location map including existing topographic data at two-foot interval contours at a scale of one inch representing 100 feet.
3. A map showing proposed grading and drainage plans including the location of all public drainage easements, the limits, extent, and elevations of the proposed fill, excavation, and occupation.
4. A statement from the County Drain Commissioner, County Health Department, and Director of Public Works and Engineering indicating that they have reviewed and approved the proposal.

Q. In addition to the above requirements, a special use application for a use in the Groundwater Recharge area or zoning district **CV** requires the following:

1. A location map including existing topographic data at two-foot interval contours.
2. A map showing proposed grading and drainage plans including the location of all public drainage easements, the limits and extent of the proposed fill, excavation, and occupation.
3. A statement from the County Drain Commissioner, County Health Department, and Director of Public Works and Engineering indicating that they have reviewed and approved the proposal.

R. In addition to the above requirements, the Township Code of Ordinances, Article VI, should be reviewed for the following special uses: group housing residential developments, mobile home parks, nonresidential structures and uses in residential districts, planned community and regional shopping center developments, sand or gravel pits and quarries, sod farms, junk yards, sewage treatment and disposal installations, camps and clubs for outdoor sports and buildings greater than 25,000 square feet in gross floor area.

S.

Part II

SUP REQUEST STANDARDS
Township Code of Ordinances, Section 86-126

Applications for Special Land Uses will be reviewed with the standards stated below. An application that complies with the standards stated in the Township Ordinance, conditions imposed pursuant to the Ordinance, other applicable Ordinances, and State and Federal statutes will be approved. Your responses to the questions below will assist the Planning Commission in its review of your application.

(1) The project is consistent with the intent and purposes of this chapter.

(2) The project is consistent with applicable land use policies contained in the Township's comprehensive development plan of current adoption.

(3) The project is designed, constructed, operated, and maintained so as to be harmonious and appropriate in appearance with the existing or intended character of the general vicinity and that such a use will not change the essential character of the same area.

(4) The project will not adversely affect or be hazardous to existing neighboring uses.

(5) The project will not be detrimental to the economic welfare of surrounding properties or the community.

(6) The project is adequately served by public facilities, such as existing roads, schools, stormwater drainage, public safety, public transportation, and public recreation, or that the persons or agencies responsible for the establishment of the proposed use shall be able to provide any such service.

(7) The project is adequately served by public sanitation facilities if so designed. If on-site sanitation facilities for sewage disposal, potable water supply, and storm water are proposed, they shall be properly designed and capable of handling the longterm needs of the proposed project.

(8) The project will not involve uses, activities, processes, materials, and equipment and conditions of operation that will be detrimental to any persons, property, or the general welfare by reason of excessive production of traffic, noise, smoke, fumes, glare, or odors.

(9) The project will not directly or indirectly have a substantial adverse impact on the natural resources of the Township, including, but not limited to, prime agricultural soils, water recharge areas, lakes, rivers, streams, major forests, wetlands, and wildlife areas.

Part III

I (we) hereby grant permission for members of the Charter Township of Meridian's Boards and/or Commissions, Township staff member(s) 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 purpose of gathering information including but not limited to the taking and the use of photographs.

☒ Yes ☐ No (Please check one)

By the signature(s) attached hereto, I (we) certify that the information provided within this application and accompanying documentation is, to the best of my (our) knowledge, true and accurate

Signature of Applicant — November 19, 2019 (Date)

Jeffrey Buck
Type/Print Name

Fee: $740

Received by/Date: 11-19-19

SUP RESPONSES

Pine Village of Meridian

1. The project is consistent with the intent and purposes of the Township Ordinance. Section 86-440(c)1a allows for development of a mixed-use PUD within the C-2 zoning district. The C-2 district also allows buildings over 25,000 s.f. to be permitted by SUP. The setbacks and standards of the C-2 zoning district have been met.
2. The project is consistent with current land use policies in the Township's comprehensive development plan. The property is part of a larger commercial site that has had several vacancies within the complex. The new parcel would be furthest to the West along the wooded area and existing floodplain to the West. The use of independent living and lighter commercial retail would be a good fit for the West end of the development as it transitions to residential as you go West.
3. The project is to be designed, constructed, operated, and maintained so as to be harmonious and appropriate in appearance with the existing and intended character of the area and will not change the essential character of the area. The proposed project consists of a mixed use building with independent living for seniors, that is designed to be harmonious with the adjacent and surrounding uses. It will maintain the wooded buffer to the West and to the South, and provide the ability to walk around the site and connect to the public walkways.
4. The project will not adversely affect or be hazardous to existing neighboring uses. The proposed project should be beneficial to the existing commercial/retail uses to the East, and may provide more opportunities for leasing in the area. The project will not affect any properties to the South or the West, there will still remain a large wooded buffer between the two properties.
5. The project will not be detrimental to the economic welfare of surrounding properties. The proposed project will be beneficial to the existing commercial/retail center as it will provide additional business and traffic to their leased space and may attract additional users.
6. The project is adequately served by public facilities. There is existing public water and sanitary sewer available to the property for service. There is an existing detention basin on the site that is labeled as wetland 'C'. The existing detention basin is proposed to be relocated to the South and the existing storm pipes will also be relocated as necessary. The existing storm outlet can be left in place but we will need to re-connect to it. Existing gas and electric are also available to the site.
7. The project is adequately served by public sanitation facilities. Public sanitary and water mains are located near the building and have sufficient capacity to support development of this property.
8. The project will not be detrimental to persons, property, or general welfare from excessive traffic, noise, smoke, fumes, glare, or odors. The proposed project will generate less traffic than the current use so traffic will be reduced or similar to existing. No manufacturing or construction operations are proposed. No other activities, processes, materials, or equipment is proposed which would produce the detriments listed above.
9. The project will not directly or indirectly create adverse impacts on natural resources of the Township. The proposed project will construct new storm piping and utilize low impact treatment methods to collect and pre-treat stormwater as much as possible prior to outletting to the existing watershed. The existing wetland we are proposing to disturb is the existing stormwater detention area. We will be relocating this to the South. The project will try to keep as many of the existing trees on-site as possible.

To: **Planning Commission**

From: **Peter Menser, Principal Planner**

Justin Quagliata, Assistant Planner

Date: **December 13, 2019**

Re: **<u>Rezoning #19100 (Durow)</u>, rezone approximately 1.487 acres located at 1259 Grand River Avenue from RR (Rural Residential) and RRA (Single Family-Suburban Estates) to C-2 (Commercial).**

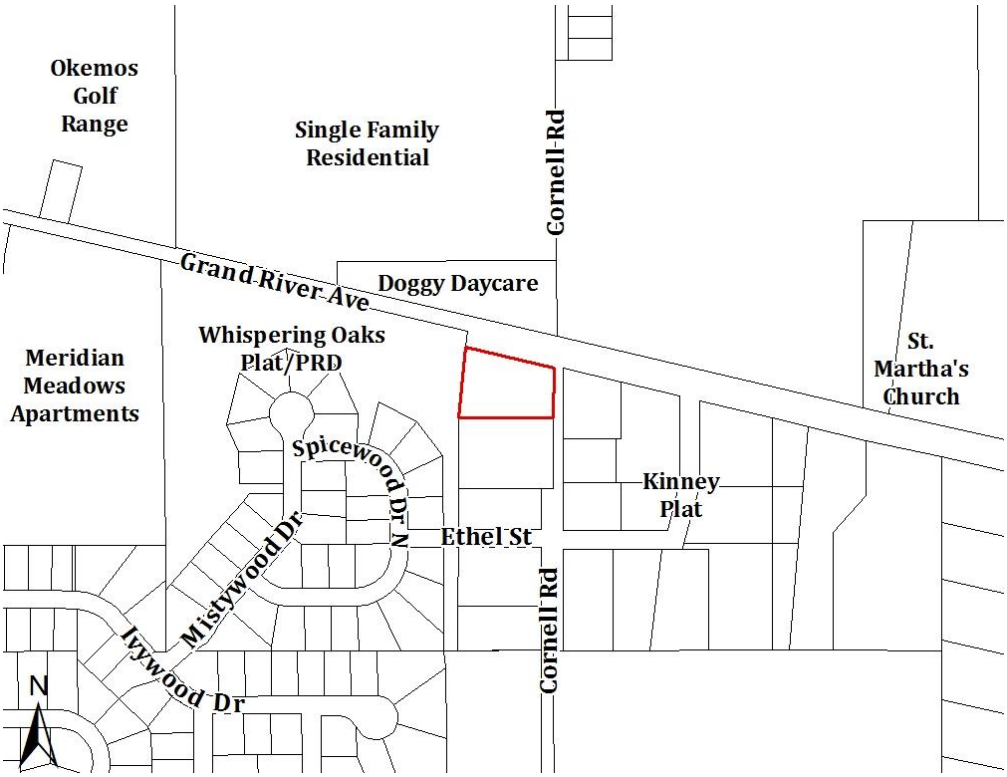
Gary Durow has requested the rezoning of approximately 1.487 acres located at 1259 Grand River Avenue from RR (Rural Residential) and RRA (Single Family-Suburban Estates) to C-2 (Commercial). The site is located at the southwest corner of Grand River Avenue and Cornell Road, east of the Whispering Oaks subdivision (37 lots), south of Doggy Daycare, and west of St. Martha's Church. The parcel contains approximately 306 feet of frontage on Grand River Avenue and approximately 168 feet of frontage on Cornell Road. Approximately 1.207 acres of the subject property is zoned RR and approximately 0.28 acre is zoned RRA.

The property has split zoning which includes both RR and RRA zoning districts. Most of the property is zoned RR; the west 47 feet of the property is zoned RRA. In 1994 the property which is now the Whispering Oaks subdivision was rezoned to RAAA (Single Family-Low Density). At the time the developer of Whispering Oaks owned the west 47 feet of the subject property. The rezoning and planned residential development (PRD) approvals for Whispering Oaks intentionally excluded the 47 foot strip of land from the Whispering Oaks development. The Township Board chose to rezone the land referred to as the "excluded strip" from RR to RRA to serve as a transition between the higher density of the Whispering Oaks development and the RR zoning to the east. After the 1994 rezoning the applicant acquired ownership of the "excluded strip." This left a split of RR and RRA zoning on the subject property which has been in place since 1994.

A 1,921 square foot two-story house built in approximately 1935 with two dwelling units, a 7,194 square foot two-story retail building constructed in the 1960s, and associated parking area occupies the subject site. Dietz Pools, a pool sales and service establishment, occupied the property in 1960. The business initially operated in the house prior to constructing the retail building. At the time the zoning ordinance allowed temporary-conditional permits subject to the approval of the zoning administrator for a structure and/or use to occupy a residential zoning district outside of the use regulations of the residential district. Dietz Pools operated under a conditional permit issued by the Director.

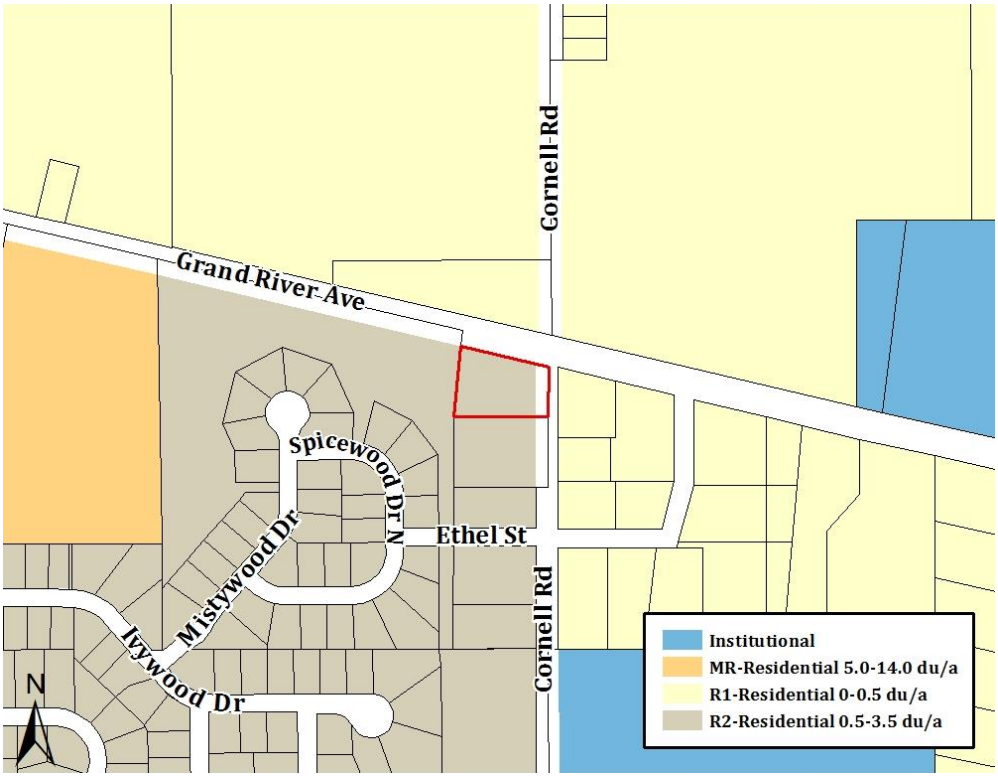
In 1966 the Township Board denied a request from the Dietz family to rezone the property from RR to HS (Highway Service). The applicant purchased the property in 1973 with the intention of operating an antique and jewelry store. At the time the Township Attorney provided a legal opinion stating the Zoning Board of Appeals had the authority to permit a change from one nonconforming use to another nonconforming use if the proposed nonconforming use was more suitable to the zoning district. In 1973 the Zoning Board of Appeals permitted the change in use from Dietz Pools to the Wooden Skate antique store, which is not currently operating. Kellie's Consignments briefly operated from the retail building in 2018.

LOCATION MAP



The Future Land Use Map from the 2017 Master Plan designates the subject property in the R2-Residential 0.5 – 3.5 dwelling units per acre (du/a) category.

2017 FUTURE LAND USE MAP



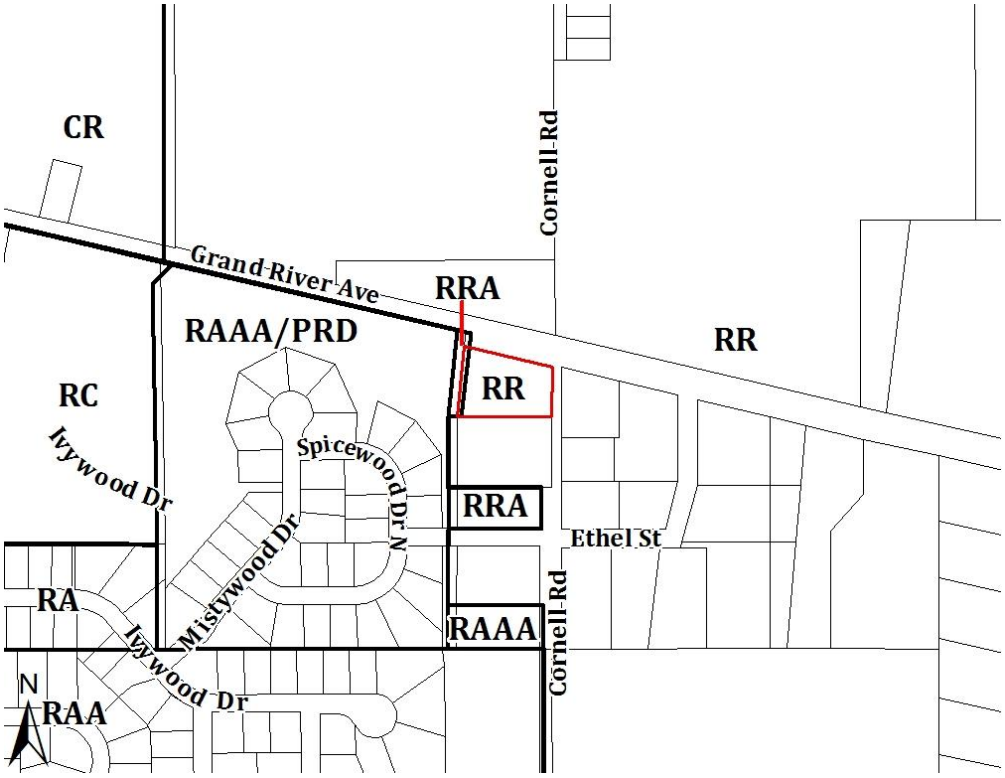
Zoning

The property is currently zoned RR (Rural Residential) and RRA (Single Family-Suburban Estates). The RR zoning district requires a minimum of 200 feet of lot width and 40,000 square feet of lot area and the RRA zoning district requires a minimum of 135 feet of lot width and 30,000 square feet of lot area. The requested C-2 zoning district requires a minimum of 100 feet of lot width and 4,000 square feet of lot area.

With 306 feet of lot width on Grand River Avenue, 168 feet of lot width on Cornell Road, and 1.487 acres (64,773.72 square feet) of lot area the site meets the minimum standards for both lot area and lot width of the existing RR and the proposed C-2 zoning districts. The RRA zoned portion of the property does not meet the minimum lot area and lot width standards of the RRA district. The following table illustrates the minimum lot width and lot area requirements for the existing RR/RRA and proposed C-2 zoning districts:

ZONING DISTRICT	MINIMUM LOT AREA	MINIMUM LOT WIDTH
RR	40,000 sq. ft.	200 ft.
RRA	30,000 sq. ft.	135 ft.
C-2	4,000 sq. ft.	100 ft.

ZONING MAP



Physical Features

The topography of the site slopes from 888 feet above mean sea level near the west property line to 876 feet above mean sea level near the east property line. The Township Wetland Map and the Flood Insurance Rate Map indicate neither wetlands nor floodplain are present on or near the site. The site has no special designation on the Township Greenspace Plan.

Streets & Traffic

The site fronts on both Grand River Avenue and Cornell Road. Grand River Avenue is a five lane road with curb and gutter and a center turn lane classified as a Principal Arterial on the Street Setbacks and Service Drives Map in the zoning ordinance. Cornell Road is a two lane road classified as a Collector street. The southernmost Grand River Avenue eastbound lane is a right-turn only lane to southbound Cornell Road along the frontage of the subject property. A seven foot wide pedestrian pathway is located along the Grand River Avenue and Cornell Road property frontage. The most recent (2016) traffic count information from the Michigan Department of Transportation (MDOT) for Grand River Avenue, between Dobie Road and Cornell Road, showed a total of 15,980 vehicles in a 24 hour period, specifically 7,977 westbound vehicle trips and 8,003 eastbound vehicle trips. The most recent (2008) traffic count information from the Ingham County Road Department (ICRD) for Cornell Road, from Ethel Street to Grand River Avenue, showed a total of 3,308 vehicles in a 24 hour period.

The applicant submitted a rezoning traffic assessment prepared by Traffic Engineering Associates, Inc. dated December 2019 that compares estimated traffic generation by the existing uses of the property and potential redevelopment of the property under the proposed zoning. The Institute of Transportation Engineers (ITE) trip generation rates for Single-Family Detached Housing (Land Use Code 210), Small Office Building (Land Use Code 712), and Shopping Center (Land Use Code 820) were selected to represent vehicle trips generated by the existing uses of the property. The assessment estimates future vehicle trips that could be generated by a 13,068 square foot Clinic (Land Use Code 630) under the proposed C-2 zoning, using a 5:1 ratio or 20 percent of the total area of the property as a guideline for the maximum building footprint for commercial zoning. The following table summarizes findings from the submitted traffic assessment.

Land Use	Size	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	
Single-Family Detached Housing	2 Units	2	4	6	1	1	2	28
Small Office Building	600 sq. ft.	1	0	1	0	1	1	10
Shopping Center	7,000 sq. ft.	96	59	155	36	40	76	986
Total existing zoning		**99**	**63**	**162**	**37**	**42**	**79**	**1,024**
Clinic	13,068 sq. ft.	37	11	48	13	33	46	499
Difference		**-62**	**-52**	**-114**	**-24**	**-9**	**-33**	**-525**

The rezoning traffic assessment concluded the proposed rezoning to C-2 is anticipated to generate less vehicle trips during the AM and PM peak hours and on a weekday when compared to the existing zoning.

The purpose of a rezoning traffic assessment is to compare potential trip generation from land uses that could be developed under the requested zoning district with uses permitted under the current zoning, including traffic generation by the existing use of the property. The current use of the property is not a shopping center. Two occupied dwelling units are located on the property. The typical use in the RR and RRA zoning districts is single family residential.

A clinic could operate under the existing zoning as a nonresidential use in a residential district with a special use permit from the Planning Commission. ITE trip generation rates show a 13,068 square foot shopping center would generate more vehicle trips than a 13,068 square foot clinic. A trip generation analysis comparing the existing residential use of the property with uses that could generate the highest potential number of vehicle trips under the proposed C-2 zoning district would likely show anticipated vehicle trips would increase following the rezoning and redevelopment of the site with a commercial use.

Utilities

Public water and sanitary sewer serve the subject site. The location and capacity of utilities for any proposed development will be reviewed in detail by the Department of Public Works and Engineering at the time of a development submittal.

Staff Analysis

The applicant has requested the rezoning of approximately 1.487 acres from RR and RRA to C-2. When evaluating a rezoning request, the Planning Commission should consider all uses permitted by right and by special use permit in the current and proposed zoning districts, as well as the reasons for rezoning listed on page two of the rezoning application (attached).

Uses permitted in the RR and RRA zoning districts include single family dwellings, home occupations, golf courses, and private noncommercial kennels. The home occupation ordinance (Section 86-368(b)(2) of the Code of Ordinances) allows home offices for professional services, personal service establishments, and offices of professionals licensed by the state to treat human patients. Home occupations cannot utilize more than 500 square feet of a dwelling and must be accommodated on an appointment basis.

Section 86-654(c) of the Code of Ordinances lists nonresidential uses that may be permitted in residential zoning districts by special use permit. Institutions for human care (clinics, homes for the aged, hospitals, nursing or convalescent homes), religious institutions, and educational and social institutions are nonresidential uses allowed by special use permit.

The area surrounding the subject property consists of various land uses. The Doggy Daycare and Spa located at the northwest corner of Grand River Avenue and Cornell Road received a special use permit in 2014 to operate the 6,000 square foot commercial kennel as a nonresidential use in a residential zoning district. The Planning Commission limited the number of dogs to 95 at any one time, specifically 60 dogs in daycare and 35 dogs in boarding. St. Martha's Church, located on the north side of Grand River Avenue and east of Cornell Road, received a special use permit in 1988 to operate a church and school facilities as a nonresidential use in a residential zoning district. In 2013 the Township Board approved a special use permit to allow a group of buildings greater than 25,000 square feet in size. St. Martha's facilities total 102,949 square feet in size.

The stated purpose of the C-2 zoning district (Section 86-404 of the Code of Ordinances) is to accommodate commercial and business service activities that serve the community. Uses permitted by right in the C-2 zoning district include financial institutions, offices, restaurants, and retail establishments. Uses allowed by special use permit in the C-2 district include hospitals and medical clinics, financial institutions and restaurants with drive-through facilities, gasoline stations, hotels, and enclosed climate controlled facilities.

If the site is rezoned to C-2 any new building on the property would be subject to a 100 foot setback from the residential zoning district boundaries to the south, east, and west. The setback from a residential district may be reduced to 60 feet with landscape screening that incorporates a double row of interlocking trees. There is also a 100 foot building setback from the centerline of the Grand River Avenue right-of-way. The following chart outlines the differences in lot area, lot width, and building setbacks between the RR, RRA, and C-2 zoning districts.

	RR	RRA	C-2
Side/Rear Setback:	20 feet/35 feet	15 feet/30-40 feet	100 feet (when adjacent to a residential district)
Setback when adjacent to Residential district:	N/A	N/A	100 feet
Lot Area:	40,000 square feet	30,000 square feet	4,000 square feet
Lot Width:	200 feet	135 feet	100 feet
Maximum Lot Coverage/ Impervious Surface:	20 percent	25 percent	70 percent
Building Height:	35 feet	35 feet	35 feet

Planning Commission Options

The Planning Commission may recommend approval or denial of the request, or it may recommend a different zoning designation than proposed by the applicant to the Township Board. A resolution will be provided at a future meeting.

Attachments

1. Rezoning application dated November 3, 2019 and received by the Township on November 4, 2019.
2. Rezoning traffic assessment prepared by Traffic Engineering Associates, Inc. dated December 2019 and received by the Township on December 9, 2019.
3. Rezoning criteria.

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CHARTER TOWNSHIP OF MERIDIAN
DEPARTMENT OF COMMUNITY PLANNING AND DEVELOPMENT
5151 MARSH ROAD, OKEMOS, MI 48864
PHONE: (517) 853-4560, FAX: (517) 853-4095

REZONING APPLICATION

Part I, II and III of this application must be completed. Failure to complete any portion of this form may result in the denial of your request.

Part I

A. Owner/Applicant Gary Durow
Address of applicant 1259 W. Grand River Ave
Telephone: Work _____ Home (517)256-1389 _____
Fax _____ Email myles9145@comcast.net
If there are multiple owners, list names and addresses of each and indicate ownership interest. Attach additional sheets if necessary. If the applicant is not the current owner of the subject property, the applicant must provide a copy of a purchase agreement or instrument indicating the owner is aware of and in agreement with the requested action.

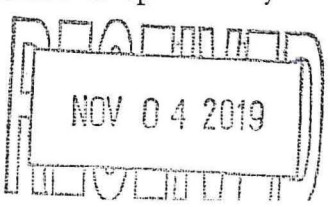
B. Applicant's Representative, Architect, Engineer or Planner responsible for request:
Name / Contact Person _____
Address _____
Telephone: Work _____ Home _____
Fax Email

C. Site address/location 1259 W. Grand River Ave
Legal description (Attach additional sheets if necessary)
Parcel number 33-02-02-23-377-008 Site acreage 1.487

D. Current zoning RAA _____ Requested zoning C-2

E. The following support materials must be submitted with the application:

1. Nonrefundable fee.
2. Evidence of fee or other ownership of the subject property.
3. A rezoning traffic study prepared by a qualified traffic engineer based on the most current edition of the handbook entitled *Evaluating Traffic Impact Studies: A Recommended Practice for Michigan Communities*, published by the State Department of Transportation, is required for the following requests:
   a. Rezonings when the proposed district would permit uses that could generate more than 100 additional directional trips during the peak hour than the principal uses permitted under the current zoning.
   b. Rezonings having direct access to a principal or minor arterial street, unless the uses in the proposed zoning district would generate fewer peak hour trips than uses in the existing zoning district.
   (Information pertaining to the contents of the rezoning traffic study will be available in the Department of Community Planning and Development.)
4. Other information deemed necessary to evaluate the application as specified by the Director of Community Planning and Development.



Part II **REASONS FOR REZONING REQUEST**

Respond only to the items which you intend to support with proof. Explain your position on the lines below, and attach supporting information to this form.

A. Reasons why the present zoning is unreasonable:

1) There is an error in the boundaries of the Zoning Map, specifically:

2) The conditions of the surrounding area have changed in the following respects: This property currently sits on a hard corner with a traffic signal, this is not a rural with the 7,000 SF commercial building and 33 parking spots on the property

3) The current zoning is inconsistent with the Township's Master Plan, explain: The Township wants to retain rural zoning and apply rural ordinances in an area that is currently expanding. This is inconsistent wit the growth patterns in the township. The Master Plan even has this zoned RRA. This has raised the concern of Inverse Condemnation.

4)

5) The Township did not follow the procedures that are required by Michigan laws, when adopting the Zoning Ordinance, specifically:

6) The Township did not have a reasonable basis to support the current zoning classification at the time it was adopted; and the zoning has exempted the following legitimate uses from the area: The five-lane highway, traffic signal and the existing configuration of 7,000 s.f. retail and office with 33 parking spots certainly do not meet the RRA use. This property sits at a major intersection that must have warranted a signal with the traffic count..

7) The current zoning restrictions on the use of the property do not further the health safety or general welfare of the public, explain: Currently the property is "non-conforming". The Property Class is "Commercial Improved", see attached.

B. Reasons why the requested zoning is appropriate:

1) Requested rezoning is consistent with the Township's Master Plan, explain:

2) Requested rezoning is compatible with other existing and proposed uses surrounding the site, specifically: The existing facility operated as a viable business for years. There have been other businesses interested in this facility. They are at the mercy of the current zoning which only allows antique and resale. The current market for Antiques is non-existent. The resale market (Kelly Consignments) couldn't make it in this location. There is one or two car dealership being constructed in the immediate vicinity. There are barking dogs across the street and 50 mph traffic speeding by.

NOV 04 2019

3) Requested rezoning would not result in significant adverse impacts on the natural environment, explain: Plan to use existing facility.

4) Requested rezoning would not result in significant adverse impacts on traffic circulation, water and sewer systems, education, recreation or other public services, explain: Traffic impact is addressed in the rezoning study. There are always impacts to the public services, but it is minor in the current Meridian Township plan.

5) Requested rezoning addresses a proven community need, specifically: Interesting enough this property serves as a cut-through for many walkers and people in the community. Mr. Durow takes phenomenal care of this property and it shows. Again, he has people in his back yard using this as a cut through-rural use?

6) Requested rezoning results in logical and orderly development in the Township, explain: As described above, this is reasonable and sensible for those very reasons. This is not a residential property as it has two points of access along with: accelerating traffic, barking dogs, random pedestrians and bikers

7) Requested rezoning will result in better use of Township land, resources and properties and therefore more efficient expenditure of Township funds for public improvements and services, explain: This is currently sitting empty, Mr. Durow has put in $150,000 to keep the property from becoming an eyesore.

Part III

I (we) hereby grant permission for members of the Charter Township of Meridian's Boards and/or Commissions, Township staff member(s) 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 purpose of gathering information including but not limited to the taking and the use of photographs.

[X] Yes No (Please check

By the signature(s) attached hereto, I (we) certify that the information provided within this application and accompanying documentation is, to the best of my (our) knowledge, true and accurate

Signature of Applicant Gary Durow Date 11/03/19

Type/Print Name Justin Quagliata

Fee: $700 Received by/Date:

NOV 04 2019

TRAFFIC ASSESSMENT

For the Proposed

Rezoning of 1.5 Acres

Meridian Charter Township, Ingham County, MI

December 2019

Prepared by:

Traffic Engineering Associates, Inc.
PO Box 100 • Saranac, Michigan 48881
517/627-6028 FAX: 517/627-6040

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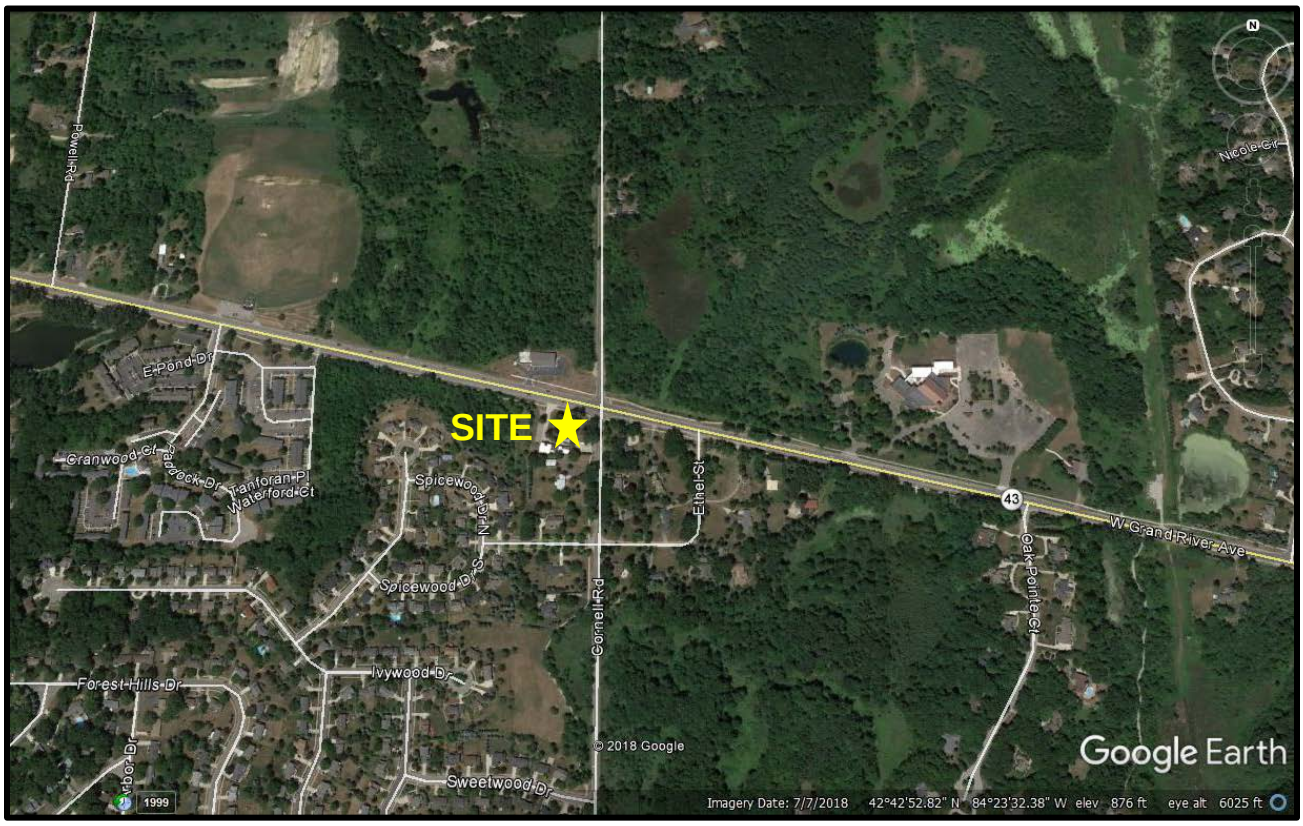
PROJECT DESCRIPTION

The purpose of this study is to compare the traffic generated by the existing zoning and the proposed rezoning of approximately 1.5 acres of property in Meridian Charter Township, Ingham County, Michigan. The traffic generation comparison will be based on the existing Single-Family Suburban Estate (RRA) to a Commercial (C-2) zoning. The project site is located on the southwest corner of Grand River Avenue (M-43) and Cornell Road.

Access to the proposed development is provided via two (2) existing driveways, one (1) on Grand River Avenue (M-43) and one (1) on Cornell Road. Currently, there are existing buildings on the property which include two (2) residential units, 600 square feet of office space and 7,000 square feet of retail. There are 30 existing parking spots on the site. The intersection of Grand River Avenue (M-43) and Cornell Road is controlled by a traffic signal.

The traffic analysis will include the following items:

- Trip generation for the existing Single-Family Suburban Estate (RRA) zoning based on the existing use.
- Trip generation for the proposed Commercial (C-2) zoning based on maximum allowable buildable area and usage.
- Comparison of traffic generation for the existing Single-Family Suburban Estate (RRA) zoning to the traffic generation for the proposed Commercial (C-2) zoning.
- Discussion of any potential sight distance issues



AERIAL PHOTO

EXISTING CONDITIONS

Grand River Avenue (M-43) is a five-lane roadway with a two-way center left turn lane west of Cornell Road, and a three-lane roadway with a two-way center left turn lane east of Cornell Road. Grand River Avenue (M-43) is under the jurisdiction of the Michigan Department of Transportation (MDOT). The posted speed limit is 50 MPH in the project area.

Cornell Road is a two-lane roadway with an exclusive left turn lane at Grand River Avenue (M-43). The posted speed limit is 45 MPH north of Grand River Avenue (M-43) and 35 MPH south of Grand River Avenue (M-43). Cornell Road is under the jurisdiction of the Ingham County Road Department (ICRD).

LAND USE

The proposed property to be rezoned currently has an existing business located on the property. Nearby zoning categories include:

- One-Family Rural Residential (RR)
- Single-Family Suburban Estates (RRA)
- Single-Family Low-Density (RAAA)

TRAFFIC GENERATION

Existing Zoning

The trip generation rates for the existing and proposed zoning categories were derived from the ITE TRIP GENERATION MANUAL (10th edition). For the existing zoning, Single-Family Suburban Estate (RRA), the existing buildings on the property were utilized. Currently there are two (2) residential units, 600 square feet of office space and 7,000 square feet of retail.

The ITE trip generation rates for Single-Family Detached Housing (Land Use Code 210) were selected as representing the two (2) single family residential units under the existing Single-Family Suburban Estate (RRA) zoning category. The ITE description of Single-Family Detached Housing is as follows:

Single-family detached housing includes all single-family detached homes on individual lots. A typical site surveyed is a suburban subdivision.

The ITE trip generation rates for Small Office Building (Land Use Code 712) were selected as representing the existing 600 square feet of office space. The ITE description of Small Office Building is as follows:

A small office building houses a single tenant and is less than or equal to 5,000 gross square feet in size. It is a location where affairs of a business, commercial or industrial organization, or professional person or firm are conducted.

The ITE trip generation rates for Shopping Center (Land Use Code 820) were selected as representing the existing 7,000 square feet of retail space. The ITE description of Shopping Center is as follows:

A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. A shopping center's composition is related to its market area in terms of size, location, and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands.

Shopping centers, including neighborhood centers, community centers, regional centers, and super regional centers, were surveyed for this land use. Some of these centers contained non-merchandising facilities, such as office buildings, movie theaters, restaurants, post offices, banks, health clubs, and recreational facilities (for example, ice skating rinks or indoor miniature golf courses).

It is projected that the existing zoning, Single-Family Suburban Estate (RRA), could generate 162 vehicle trips in the AM peak hour, 79 vehicle trips in the PM peak hour, and 1,024 vehicle trips daily. The existing trip generation is summarized in **Table 1**.

Proposed Zoning

For the proposed zoning it was estimated that approximately 20% of the property could be buildings, which allows for yard setbacks, parking and landscaping on site. This equates to approximately 13,068 square feet of building, sometimes called the footprint of the building or buildings. The maximum buildable area allowed under the proposed zoning category is 25,000 square feet. For this analysis, the 13,068 square foot estimate was utilized for the traffic generation comparison.

Under the proposed C-2 zoning, possible land uses include banks, churches, community centers, offices, restaurants, and retail. Based on discussions with the Meridian Charter Township Planning Department, the ITE trip generation rates for Clinic (Land Use Code 630) were selected as representing the proposed 13,068 square feet of retail space. The ITE description of Clinic is as follows:

A clinic is any facility that provides limited diagnostic and outpatient care but is unable to provide prolonged in-house medical and surgical care. Clinics commonly have lab facilities, supporting pharmacies, and a wide range of services (compared to the medical office, which may only have specialized or individual physicians).

It is anticipated that the proposed Commercial (C-2) zoning, with a 20% buildable footprint for a clinic, could generate 48 vehicle trips in the AM peak hour, 46 vehicle trips in the PM peak hour, and 499 vehicle trips daily. The proposed trip generation is summarized in **Table 2**.

The comparison of trip generation for the proposed rezoning of the 1.5 acre property is summarized in **Table 3**.

Table 1
Existing Zoning Trip Generation

Land Use	Size	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	
Single-Family Detached Housing, Land Use Code 210	2 units	2	4	6	1	1	2	28
Small Office Building, Land Use Code 712	600 sq. ft.	1	0	1	0	1	1	10
Shopping Center, Land Use Code 820	7,000 sq. ft.	96	59	155	36	40	76	986
Total		**99**	**63**	**162**	**37**	**42**	**79**	**1,024**

Table 2
Future Zoning Trip Generation

Land Use	Size	AM Peak Hour			PM Peak Hour			Weekday
		In	Out	Total	In	Out	Total	
Clinic, Land Use Code 630	13,068 sq. ft.	37	11	48	13	33	46	499

Table 3
Vehicle Trip Generation Comparison

Land Use	AM Peak Hour			PM Peak Hour			Weekday
	In	Out	Total	In	Out	Total	
Existing Zoning	99	63	162	37	42	79	1,024
Proposed Zoning	37	11	48	13	33	46	499
Difference	**-62**	**-52**	**-114**	**-24**	**-9**	**-33**	**-525**

SIGHT DISTANCE

There are two (2) existing driveways. It is unknown if these driveways are going to remain or if new driveway locations will be proposed. The final driveway locations should be reviewed by the site design engineer to determine if sight distance requirements are met.

CONCLUSIONS

Based on the analysis, proposed rezoning to Commercial (C-2) is anticipated to generate less trips during the AM peak hour, the PM peak hour, and on a weekday when compared to the existing zoning.

SUPPLEMENTAL INFORMATION

Meridian Charter Township Zoning Codes
Zoning Map for the Project Area

Charter Township of Meridian
Monday, October 21, 2019

Chapter 86. Zoning

ARTICLE IV. District Regulations

DIVISION 3. Commercial, Retail, and Business Districts C-1, C-2, and C-3

§ 86-404. C-2 Commercial District.

[Code 1974, § 82-11.4; Ord. No. 2002-04, 4-16-2002; Ord. No. 2005-01, 1-30-2005; Ord. No. 2005-04, 3-13-2005; Ord. No. 2007-09, 10-14-2007; Ord. No. 2008-02, 2-17-2008; Ord. No. 2009-05, 8-2-2009; Ord. No. 2009-10, 11-22-2009]

(a) Purpose and intent. The C-2 commercial district is established for the accommodation of those commercial and business service activities that serve a community level trade area. Patrons would have the option of walking or using private or public transportation to reach the destination. Such activities require land and structure uses that are typically compact and densely grouped generating a larger volume of pedestrian and vehicular traffic than expected in the C-1 district. It is the purpose of these regulations to permit the establishment of a wide variety of business enterprise types in this district. This section applies to the C-2 district.

(b) Standards applying to all C-2 commercial uses.

(1) Minimum lot area: 4,000 square feet.

(2) Minimum lot width: 100 feet.

(3) Side and rear setback adjacent to a residential district. No building, parking, access drive, or other structure shall be less than 100 feet from a residential district line, except a sixty-foot setback shall be required if screening that incorporates a double row of interlocking trees, primarily evergreens, or the equivalent in addition to general screening standards.

(c) Uses permitted by right.

(1) Any combination of uses permitted in the district when located in a building or group of buildings with a maximum combined gross floor area of 25,000 square feet and located on a lot.

(2) Banks, credit unions, and savings and loan establishments.

(3) Instructional centers for business, trade, music, art, dance, craft, martial arts, or other places of instruction.

(4) Churches or similar places of worship.

(5) Community centers; indoor recreation such as bowling alleys, billiard rooms, tennis

facilities; and health and physical fitness establishments.

(6) Libraries, post offices, fire and police stations, and similar public service buildings.

(7) Offices of professionals licensed by the State of Michigan to treat human patients such as, but not limited to, chiropractors, dentists, dietitians/nutritionists, massage therapists, occupational therapists, optometrists, osteopaths, physical therapists, physicians, podiatrists and psychologists. This shall not include facilities accommodating overnight patients.

(8) Offices.

(9) Personal and business service establishments which perform services on the premises such as, but not limited to, barber shops, or hair salons, repair shops (shoe, electronic, small appliance, jewelry, etc.), tailor shops, laundries and dry cleaners (with the exception of dry cleaning plants), and self-service laundries, printing, including publishing, photographic reproduction, blueprinting and related trades and arts.

(10) Restaurants or other eating establishments which serve food and may serve alcoholic beverages for consumption on the premises or for carryout. This shall not include drive-through type restaurants. An outdoor eating area is allowed by right, subject to site plan review. The outdoor seating area shall be either attached to or be immediately adjacent to the principal building to which the outdoor seating area is accessory.

(11) Retail establishments selling new or used merchandise, except pawn shops.

(12) Retail food establishments, such as supermarkets which supply groceries and similar commodities for consumption off-premises.

(13) Social clubs and institutions and similar public and semipublic uses.

(14) Theaters and auditoriums. This shall not include outdoor, drive-in theaters.

(d) Permitted conditional uses.

(1) Bars, taverns, lounges, and brewpubs, provided the property line of such uses shall be a minimum of 500 feet from a residential property line and 100 feet from a child care center.

(2) Child care centers. In addition to compliance with § 86-403(d)(1), in this district the property line of a child care center shall be set back 100 feet from incompatible uses, including but not limited to gas stations, bars, taverns, and lounges.
[Amended by Ord. No. 2014-07, 12-9-2014]

(3) Adult care centers. Adult care centers, provided structures and sites meet all current building, residential, fire and property maintenance codes as adopted by the Township.
[Added by Ord. No. 2014-07, 12-9-2014[1]]
[1] *Editor's Note: This ordinance also provided for the renumbering of former Subsections (d)(3) and (4) as Subsections (d)(4) and (5).*

(4) Small animal veterinary clinics. See § 86-403(d)(2) for conditions.

(5) Temporary outdoor uses including, but not limited to, the sale of Christmas trees, shrubbery, flowers, fruits and vegetables, special sidewalk sales, or promotional activities. Motor vehicle sales are excluded from the use. See § 86-403(d)(4) for conditions.

(e) Uses permitted by special use permit:

Funeral homes and mortuaries, excluding crematoriums.

(2) Hospitals and medical clinics providing in-patient services.

(3) Light manufacturing including processing, assembly, or fabrication establishments.

(4) Open air business uses, such as retail sales of nursery stock, lawn furniture, playground equipment, and garden supplies, provided the total sales and storage area is fenced (chain link shall not be acceptable) or otherwise enclosed in a permanent manner.

(5) Parking buildings or lots.

(6) Public or private utility buildings or structures, except those with storage yards.

(7) Satellite passenger bus terminals.

(8) Tattoo and body piercing establishments:

a. All operations shall be carried on inside a building and shall not be visible from the street.

b. Location a minimum of 500 feet from any residential district, school, church, or child care use.

c. Proof that all state, county, and local permitting requirements have been met.

(9) Any building or group of buildings with a combined gross floor area of greater than 25,000 square feet and located on a lot.

(10) Uses or combinations of uses permitted in the district located in a structure greater than 75,000 square feet in gross floor area. Provisions are established herein for the Township to accommodate the construction and operation of such uses to the extent and in accordance with such standards that result in the optimum future development of the Township.

a. Uses permitted. Any use which is permitted by right, by conditional use, or by special use permit in the C-1 or C-2 commercial district.

b. Site development requirements.

1. Types of structures. All permitted activities shall be conducted entirely within a wholly enclosed permanent building, except as noted in the following:

i. The parking of customer and employee vehicles.

ii. The loading and unloading of commercial vehicles which shall take place directly into or out of a building.

iii. Temporary exhibitions, provided they are properly licensed as a temporary outdoor use under the provisions of this Code of Ordinances.

iv. Gasoline service stations, provided they comply with all design requirements of this Code of Ordinances.

2. Minimum lot area: five acres.

3. Minimum lot frontage: 300 feet.

(11) Banks, credit unions, savings and loan establishments with a maximum of five drive-through lanes.

(12) Restaurants or other eating establishments with drive-through facilities which serve food and may serve alcoholic beverages for consumption on the premises or for carryout.

(13) Drive-in or drive-through uses.

a. Standards applying to all drive-in or drive-through uses:

1. Side and rear yards shall be at least 20 feet, except that all buildings shall be located in accordance with the Master Plan for Major Streets and Highways, Meridian Charter Township, Ingham County, Michigan for established setbacks. This subsection does not apply to drive-in uses adjacent to residential districts.

2. Screening:

i. Screening shall be provided to a height acceptable to the Director of Community Planning and Development along all property lines abutting a residential district and sufficient to visibly obscure adjoining uses. Fences and walls shall not exceed six feet.

ii. No screening shall be closer than 30 feet to the nearest edge of any street right-of-way.

b. Standards applying to gasoline and automobile service stations, and oil change establishments.

1. No gasoline service station shall have more than 10 vehicle fueling stations.

2. Any building, gas island, air compressors, tire filling stations, vacuum cleaners, or similar equipment shall be set back a minimum of 300 feet from an abutting residential district line.

3. Any building or structure shall be set back a minimum of 100 feet from the property line when adjacent to a child care center.

4. The site shall accommodate safe internal vehicle circulation.

5. Setbacks for vehicle fueling stations, and similar equipment, shall be a minimum of 20 feet from any right-of-way lines as specified in the Master Plan for Major Streets and Highways, Meridian Charter Township, Ingham County, Michigan. Gasoline pump islands, and similar equipment shall be a minimum of 25 feet from a side or rear property line.

6. Off-street vehicle storage. No outdoor storage of wrecked or partially dismantled vehicles shall be permitted unless such vehicles are required to be temporarily stored for a period of time by police or court order. All such storage facilities shall be screened or shielded, in accordance with the special use permit.

7. All activities, except routine maintenance performed at the fuel pump shall be carried on entirely within a building.

8. There shall be no outdoor displays of items for sale, such as tires, tractors, lawnmowers, or other materials, except that supplies intended to be provided to customers directly, such as oil or windshield washer fluid, may be displayed on the pump islands.

9. The extensive physical modification of vehicles shall not be permitted in a gasoline service station.

10. Storage of flammable products. Outside aboveground tanks for the storage of gasoline, oil or other inflammable liquids or gases for sale, other than liquefied petroleum gas, shall be prohibited at any gasoline service station.

c. Standards applying only to drive-in car washes, automatic and self-service:

1. In self-service car washes, no equipment, such as a vacuum cleaner, shall be located in the front yard.

2. Buildings shall be set back a minimum of 500 feet from an abutting residential district.

3. Storage of flammable products. Outside aboveground tanks for the storage of gasoline, oil or other flammable liquids or gases, other than liquid petroleum gas, for sale shall be prohibited.

4. Car washes, including self-service types, shall not be allowed to operate so as to adversely affect the adjacent residential properties and surrounding area.

d. All other drive-in or drive-through facilities. For all other drive-in or drive-through facilities, excluding drive-in theaters, service may be in automobiles, but all other activities must be totally within a building. Such facilities shall receive review under the provisions of Article **II**, Division 5, of this chapter and the approval of the Planning Commission. All standards applicable to the district in which the use is located shall also be met.

(14) Hotels or motels.

a. Standards applying to hotels and motels in the C-2 district:

1. Access to the site containing the hotel or motel shall be from a street designated as a minor or principal arterial in § **86-367** of the Code of Ordinances or by means of a street designed for the purpose of serving a commercial development.

2. Ancillary guest services such as, but not limited to maid and linen service, telephone/fax/e-mail, continental breakfast, meeting rooms, banquet room/hall, gift shop, restaurant and lounge, and recreation and fitness facilities shall be allowed in conjunction with an approved hotel or motel.

3. None of the guest rooms or suites shall be occupied as an apartment or primary residence with an exception for one resident manager/owner, who may reside in a dwelling located within the hotel or motel.

4. The hotel or motel shall be setback a minimum of 150 feet from any adjacent residential zoning district, except a one-hundred-foot setback shall be required if the screening that incorporates a double row of interlocking trees, primarily evergreens, or the equivalent is provided in addition to the general screening standards.

5. The minimum parcel size shall be 2.5 acres.

(15) Enclosed climate controlled storage facilities.

a. Standards applying to enclosed climate controlled storage facilities in the C-2 district:

1. No trucks shall be allowed to park overnight or idle their engines on the site.

2. There shall be no outside storage. All items warehoused or stored on the property shall be within an enclosed building that is climate controlled. The building shall have a maximum of two loading/unloading doors, plus one additional loading dock and door for oversized vehicles located at the rear of the building's facade, or the facade that is least visible from the public street.

3. All mechanical, heating, ventilation, and air conditioning (HVAC) and like systems shall be screened from street level view on all sides, or property line where streets are not present, by an opaque structure made to match the building.

4. The dumpster enclosure shall be located adjacent to the building and shall be screened on all four sides, with three sides containing similar building materials made to match the building. Unique site circumstances may necessitate the dumpster to be located away from the building, in which the location shall be subject to the review and approval of the Director of Community Planning and Development.

5. The building, equipment, and off-street parking area on the site shall be properly screened from adjoining properties, especially residentially zoned properties, and the use of natural screening materials shall be required.

6. Building materials shall include, but are not limited to, wood, brick, clapboards, beadboard, glass, and stone. Materials such as vinyl, aluminum and other metal sidings shall be avoided.

7. The buildings shall be designed so that exterior materials are consistent with and are sensitive to nearby historical features, blend with facades of adjacent buildings and complement streetscape improvements in the area.

8. Interior doors shall not be visible from outside of the enclosed climate controlled storage facility.

9. When located adjacent to a residential zoning district, enclosed climate controlled storage facilities shall be setback a minimum of 200 feet from all residential zoning district lines and include a double row of evergreens for screening.

10. When the boundary of the C-2 (Commercial) zoned lot or parcel on which the enclosed climate controlled storage facility is located is separated from a residential zoning district by a railroad, river, or public road, the 200 foot setback and double row of evergreens shall not be required.

(16) New car dealerships, subject to the following:

a. Minimum lot size: four acres.

b. Vehicle service and repair and used car sales shall be permitted ancillary uses to the principal new car sales use.

c. Body shops shall not be a permitted ancillary use.

(17) Outdoor recreation, such as, but not limited to, batting cages and court games, such as basketball and volleyball, when ancillary to a bowling alley, indoor recreation facility, or health and physical fitness establishment.
[Added 7-24-2018 by Ord. No. 2018-08]

Charter Township of Meridian
Monday, October 21, 2019

Chapter 86. Zoning

ARTICLE IV. District Regulations

DIVISION 2. Residential Districts

§ 86-370. RRA District: One-Family Suburban Estate Residential District.

[Code 1974, § 82-2.5]

(a) Purpose. The purpose of the RRA district is to achieve the same character, stability and sound residential environment as intended for the one-family rural residential district (RR). The difference between RR and RRA districts is that the smaller lot size will permit a slightly higher population density that makes it possible to service the dwelling units with public sewer and water facilities when the facilities are available. This district is intended to serve as a transition between higher density zoning districts and RR. This section applies to the RRA district.

(b) Uses permitted by right. All uses permitted by right in the RR district subject to all the restrictions specified therein are also permitted in the RRA district with the exception of private noncommercial kennels.

(c) Uses permitted by special use permit. All uses permitted by special use permit in the RR district, subject to all restrictions specified therein, are permitted by special use permit in the RRA district, except the following uses are not permitted:

(1) Public riding stables and livestock auction yards.

(2) Greenhouses and nurseries selling at retail on the premises.

(3) Veterinary hospitals; clinics; kennels, including commercial kennels and private noncommercial kennels.

(4) Game or hunting preserves operated for profit.

(5) Sand or gravel pits, quarries, incinerators, junk yards, sanitary fills, public or semiprivate sewage treatment and disposal installations, as provided for in Article **VI** of this chapter.

(6) Airports.

(d) Dimensional requirements. The following minimum dimensions for lot area and width, front, side, and rear yards, together with maximum dimensions for lot coverage and building heights, shall be required for every structure and land use in this district, except as noted:

(1) Minimum lot area: 30,000 square feet.

(2) Minimum interior lot width: 135 feet.

(3) Minimum corner lot width: 135 feet along street upon which the lot fronts.

(4) Maximum lot coverage. All buildings, including accessory buildings, shall not cover more than 25% of the total lot area.

(5) Minimum yard dimensions.

a. Front yards. In accordance with the setback requirements of § **86-367** for the type of street upon which the lot fronts.

b. Side yards: 15 feet.

c. Rear yards. For lots up to 150 feet in depth the rear yard shall not be less than 35 feet in depth, for lots over 150 feet in depth the rear yard shall not be less than 40 feet in depth.

d. Corner lots. A front yard shall be maintained on each street side of a corner lot. Setbacks shall be equal to those required in § **86-367** for the type of streets upon which the lot has frontage and all regulations applicable to front yards shall apply.

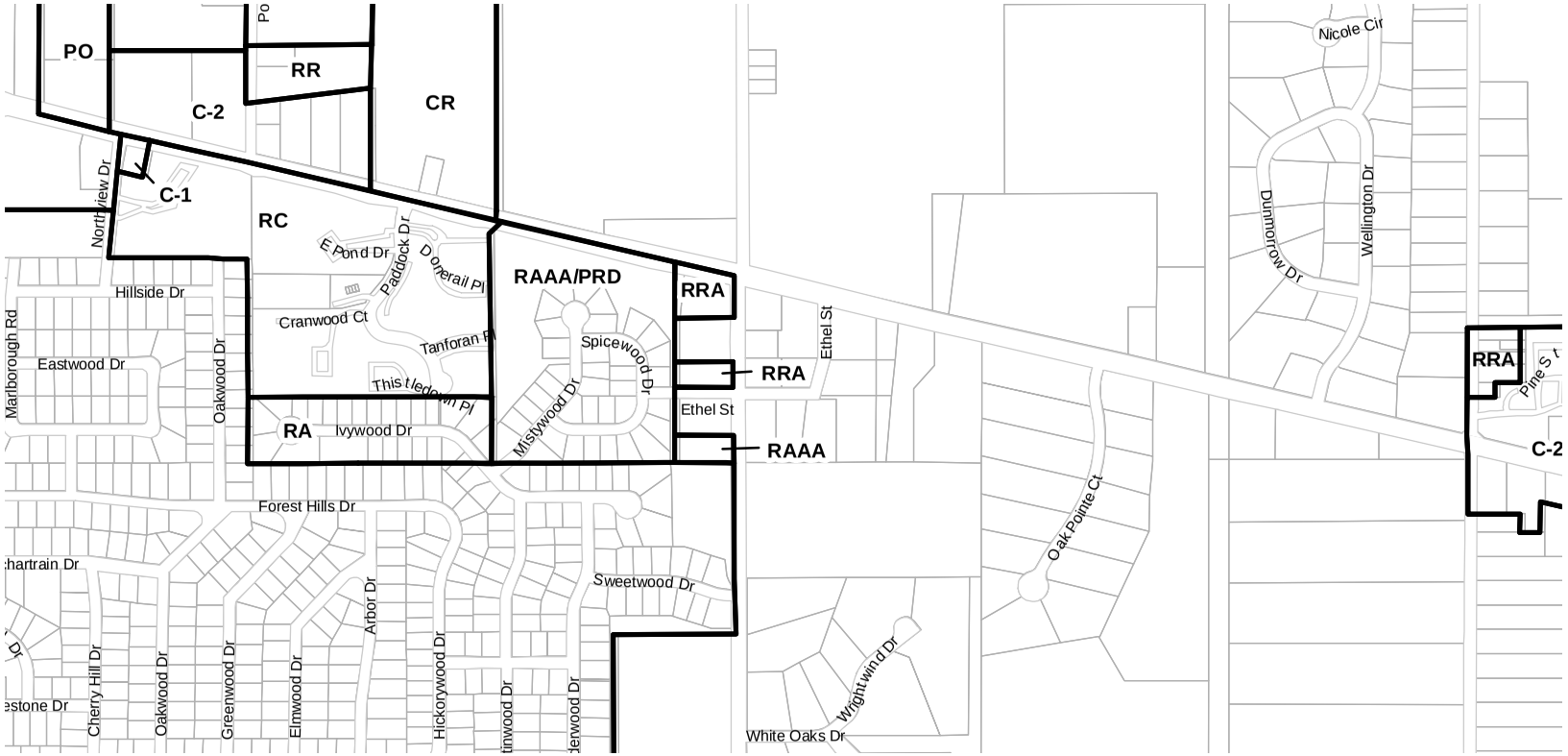
e. Through and reverse frontage lots. Principal buildings shall be located in accordance with the front yard setback requirements of § **86-367** for the type of streets upon which the lot has frontage and all regulations applicable to front yards shall apply. All regulations applicable to front yards shall apply except freestanding accessory buildings or structures, such as decks, garages, sheds, swimming pools, and tennis courts, proposed for reverse frontage lots shall be located no closer than 30 feet from the right-of-way of the designated rear yard.

(6) Supplementary yard regulations. For permitted reductions in yard dimensions, for permitted yard encroachments, and for placement of accessory buildings in yard area, refer to Article **V**, Division 3 of this chapter.

(7) Maximum building height. No residential structure shall exceed 2 1/2 stories or 35 feet, whichever is less. Accessory buildings shall not exceed a height of 15 feet on any residential lot. For permitted exceptions to residential building heights, refer to Article **V**, Division 5 of this chapter. For building height limitations for nonresidential structures and uses in residential districts, refer to § **86-654**.

(8) Minimum living space. Minimum gross living area per family shall not be less than 1,000 square feet of floor area on the first floor if one story or 625 square feet of floor area on the first floor level of two stories. In any case, the total living area shall not be less than 1,000 square feet.

State law reference: State-mandated residential uses, MCL 125.286g.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North View Dr
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Paddock Dr
Donerail Pl
Hillside Dr
Cranwood Ct
Tanforan Pl
Thistledown Pl
Ivywood Dr
Spicewood Dr
Mistywood Dr
Ethel St
Marlborough Rd
Eastwood Dr
Oakwood Dr
Forest Hills Dr
Sweetwood Dr
Arbor Dr
Cherry Hill Dr
Greenwood Dr
Elmwood Dr
Hickorywood Dr
Oak Pointe Ct
Wrightwind Dr
White Oaks Dr
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C-2

Part II **REASONS FOR REZONING REQUEST**

Respond only to the items which you intend to support with proof. Explain your position on the lines below, and attach supporting information to this form.

A. Reasons why the present zoning is unreasonable:

1) There is an error in the boundaries of the Zoning Map, specifically: _____
_____

2) The conditions of the surrounding area have changed in the following respects: _____
_____

3) The current zoning is inconsistent with the Township's Master Plan, explain:
_____

4) The Township did not follow the procedures that are required by Michigan laws, when adopting the Zoning Ordinance, specifically: _____
_____

5) The Township did not have a reasonable basis to support the current zoning classification at the time it was adopted; and the zoning has exempted the following legitimate uses from the area: _____
_____

6) The current zoning restrictions on the use of the property do not further the health safety or general welfare of the public, explain: _____
_____

B. Reasons why the requested zoning is appropriate:

1) Requested rezoning is consistent with the Township's Master Plan, explain:
_____

2) Requested rezoning is compatible with other existing and proposed uses surrounding the site, specifically:_____

3) Requested rezoning would not result in significant adverse impacts on the natural environment, explain: _____

4) Requested rezoning would not result in significant adverse impacts on traffic circulation, water and sewer systems, education, recreation or other public services, explain:_____

5) Requested rezoning addresses a proven community need, specifically: _____
_____

6) Requested rezoning results in logical and orderly development in the Township, explain:
_____

7) Requested rezoning will result in better use of Township land, resources and properties and therefore more efficient expenditure of Township funds for public improvements and services, explain: _____